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ABSTRACT

Based on matching household surveys for three central European countries, Bulgaria, Hungary and Poland, we explore the determinants of household saving rates in transition economies. We find savings rates to increase strongly in *relative* income and to be significantly higher for households owning few of the standard consumer durables, consistent with anticipatory savings prior to durable purchases in the absence of retail credit markets. The influence of demographic factors broadly matches earlier findings for developing countries. Perhaps surprisingly, variables associated with the position of the household in the transition process, notably the sector of employment, plays no significant role in determining savings rates.

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1 Introduction

In terms of the sheer scope of economic, social and political change, few events rival the transition from planning to markets now under way in eastern Europe. The macroeconomic impact of the transition has been dramatic: output levels collapsed by between forty and fifty percent in most countries before staging a modest recovery in the last two years. These dramatic changes in aggregate economic activity yield a promising background for understanding consumption and savings during the transition.

Some progress has been made in this direction on the aggregate level[1], yet little is known as yet about the savings behavior of households in transition economies. In this paper, we employ household surveys conducted by the World Bank in three central European economies, Bulgaria, Hungary and Poland to explore household savings choices during the transition. The survey technique and content are comparable across the countries, thus allowing both an assessment of savings responses to the transition in the individual countries and a comparison across countries starting their transition from quite different initial conditions and pursuing disparate strategies.

Table 1 provides some pertinent summary information on each of the countries in the survey year (1993 for Hungary and Poland, 1995 for Bulgaria). GDP in all three economies remained below the 1989 levels, though Bulgaria and Poland logged positive growth rates during the survey year.[2] The initial decline reflected both permanent factors — the closure of inefficient enterprises, the termination of unprofitable exchange arrangements etc. — and temporary disruptions of exchange networks, generating a partial rebound some four to five years into the transition, with an overall "J-curve" output path. The real wage largely mirrored the decline in real GDP in Bulgaria, collapsing to 52% of the 1988 level in the survey year. In contrast, the decline was more muted in Poland (78% of the 1988 level) and largely absent in Hungary (98% of the 1988 level). Beyond the negative aggregate effect, the transition had markedly different impacts across population subgroups. Most notably, the curtailment of the income transfer system benefited younger and better educated individuals to the detriment of older, less educated workers and individuals relying on the social safety

[1] See Borensztein and Montiel (1991), Conway (1995) and Denizer and Wolf (1998).

[2] The statistical figures come with some caveats. In particular, it has been argued that part of pre-transition production had negative value added (particularly after taking account of environmental costs), if so, the loss in measured output overstates the loss in societal value added.

Table 1: **Performance Indicators In The Survey Year**

	Bulgaria	Hungary	Poland
Real GDP p.c.growth	3.1	-0.5	3.5
Real GDP (1989=100)	75.0	83.5	86.1
Real Wage (1988=100)	52.0	78.0	98.5
CPI inflation	62.6	22.5	35.3
Nominal Interest Rate	61.8	21.8	29.0
Real Ex Post Interest Rate	-0.8	-0.7	-6.3
Private sector GDP share	45.0	55.6	53.5
Private sector employment share	34.7	59.4	59.0
Unemployment rate	10.7	12.6	15.7
Reform indices			
Overall (0-1 (Highest))	0.61	0.82	0.82
Banking (0-3 (Highest))	2	3	3
Aggregate Savings (% of GDP)	24.8	16.5	11.2

Sources: GDP Growth, CPI Inflation, GDP 1989 base: IMF Overall Liberalization Index, Unemployment: DeMelo, Denizer and Gelb (1996), Banking Liberalization, Employment Share, Unemployment, Real Wages, Real Interest Rates: EBRD. Aggregate Savings Rate: Denizer and Wolf (1998).

net, while the reduction in social security raised income uncertainty.

Returning to the macro-picture, inflation in all three countries had declined substantially from its initial highs at the time the surveys were taken, but remained in the double-digits. The inflation itself partly reflects the elimination of "involuntary" pre-transition savings caused by nominal wage growth exceeding the growth of consumption good production at fixed prices.[3] Given constraints on the availability of goods, the disequilibrium was resolved by price increases in the wake of goods market liberalization, reducing the real value of monetary savings to the equilibrium level. As the surveys underlying this paper were (with the partial exception of Bulgaria) taken significantly after the initial price liberalization, the "overhang" had arguably been eliminated at the time of the surveys.

In terms of progress in institutional reform and liberalization, Hungary and Poland, both informally slated for EU membership, were ranked similarly during the sample year, with Bulgaria lagging behind. While interest rates were liberalized before the sample year in all three countries (1989 in Poland, 1991-92 for households in Hungary, 1991 in Bulgaria), consumer credit markets remained rudimentary in all three sample economies at the time of the survey, credit constraints were thus likely to be binding for most households. Overall monetary conditions remained fairly loose, with negative real interbank/discount rates in all three sample countries.

Insurance against risk likewise was largely unavailable, insurance premia in the sample years ranged between 0.5% and 1.8% of GDP, compared with 4.2% in the OECD. Pension systems in all three countries are comprehensive but highly fragile, with dependency ratios of 36% for Hungary, 49% for Poland and 87% for Bulgaria [EBRD (1996)], compared to a typical range in market economies of comparable development levels of between ten and twenty percent. Expressed as a percent of GDP, pension expenditures came to eight percent in Bulgaria, ten percent in Hungary and almost fifteen percent in Poland, again much above the typical two percent level in market economies of comparable development levels.

Gross domestic savings rates in the three transition economies display a similar pattern of dramatic decline. In Hungary, the savings rate declined from a starting level of 29.9 percent in 1989 to 11.2 percent in the survey year before recovering to 18.9 percent in 1995). In Poland, the rate declined from 42.7 percent in 1989 to 16.5 percent in the sample

[3]See Acharya and Spagat (1993), Alexeev (1988) and Ellis and Naughton (1990) for alternative views on "forced savings".

year, then rebounded to 18.3 percent in 1995. In Bulgaria, the savings rate dropped from 31.4 percent in 1989 to 10.7 percent in 1993, before recovering to 24.8 percent in 1995 (the sample year). The literature on aggregate savings in transition economies[4] offers a range of explanations for the initial decline, including consumption habits preventing a reduction of consumption along the decline of income, rational consumption smoothing in the face of an income decline perceived to be temporary and the widespread depression of real household incomes to subsistence levels. The household level evidence reported below allows at least a partial assessment of the relative merits of these alternative views.

2 Determinants Of Savings In Transition Economies

The voluminous literature on the determinants of savings identifies a broad range of factors, grouped around the conceptual (and to a degree overlapping) pillars of precautionary savings in the face of credit market imperfections, of life cycle issues and of residual savings changes resulting from intertemporal substitution in consumption.

All of these factors arguably played an important role in the transition experience. The wrenching change from a cradle to grave system of social security to, in many cases quite unfettered, markets dramatically raised the uncertainties facing individuals in transition economies, with potential effects on precautionary savings. At the same time, liberalization broadened the opportunities available to the skilled and innovative, tilting upward their expected lifetime income schedule and suggesting potentially large effects on life cycle savings.[5] On the opposite end of the spectrum, the beneficiaries of income transfers, including retirees, less skilled workers and individuals relying on public support, suffered significant income decline, often, according to poverty surveys, pushing income close to subsistence levels. While the J-curve shape of aggregate output - and arguably of many household incomes - and the sharp differentiation of expected income slopes provided a strong motivation for consumption smoothing, the ability of households to attain smooth consumption paths was restricted by the virtual absence of retail credit markets, suggesting

[4] Borensztein and Montiel (1991), Conway (1995), Denizer and Wolf (1998), inter alia..

[5] For evidence on intertemporal consumption smoothing in less developed countries see Gupta (1987), Campbell and Deaton (1989) and Schmidt-Hebbel, Webb and Corsetti (1992). By and large, these studies offer only limited support for pervasive intertemporal effects.

borrowing constraints as a pervasive feature of the transition experience.

In our empirical work we focus — against the background provided above — on a few issues of particular relevance to transition economies, using the savings behavior of household in market economies as a reference frame. First, we inquire whether, in line with much of the previous findings, savings behavior in transition economies is sturdily influenced by demographic factors. We indeed find the transition economies not to differ from market economies in this respect. The expected demographic evolution consequently provides a useful predictor for the future evolution of aggregate savings.

Second, we examine the effect of changes in the income distribution. The transition has, in all countries, brought about a sharp increase in income (and wealth) inequality as the previously pervasive transfers from skilled to unskilled, from rural to urban, and from workers to retirees were sharply curtailed. The theoretical effect of changing income inequality on savings is ambiguous: while ceteris paribus the need for precautionary savings declines in income, the transition may have pushed a significant fraction of households close to subsistence levels, sharply curtailing their ability to save.[6]

We then turn to the dependence of savings rates on the labor market position of the household. The transition to markets implies a change in the employment status of most households as state enterprises are either closed or privatized. The process has gone some way, by the time of the survey, the private sector employment share in Hungary and Poland (though not in Bulgaria) was slowly approaching west European levels, as did unemployment rates (Table 1). Individuals remaining employed in the still contracting public sector arguably had lower income growth expectations compared to individuals in the still expanding private sector, furthermore, (and in contrast to most market economies) public sector employees in the current transition period arguably faced an uncertainty about their future employment and income that was at least comparable to that of private sector employees. Differences between occupation groups are of course notoriously difficult to interpret, as occupation choice itself is endogeneous [Skinner (1988) and Carroll (1994)]. In this respect, however, the transition data are arguably less problematic, as it seems reasonable to assume

[6]By and large, the literature on savings in less developed countries tends to find a positive income elasticity [See for instance Mikesell and Zinser (1973), Giovanini (1983), Mason (1988), Gersovitz (1988), Collins (1991) and Deaton (1990,1995), among others] and indeed higher income inequality appears to be weakly associated with higher savings in cross section [Schmidt-Hebbel and Serven (1995)].

that few households selected their pre-transition employment with a view towards a possible collapse of the socialist system, furthermore, employment choice was highly restricted under the central planning system.

3 Data

The results reported below are based on the Worldbank HEIDE (Household Expenditure and Income Data For Transitional Economies) database, in turn based on very similar household surveys (using stratified random samples) conducted in the three countries, covering 2.466 households in Bulgaria, 8.105 households in Hungary and 16.051 households in Poland. The Hungarian and Polish surveys were taken in 1993, the Bulgarian survey was taken in 1995. Each survey contains detailed information regarding the household's expenditure (9 categories), income (12) and asset ownership (5), as well as information regarding household size, age and gender composition, location (urban/rural), sector of employment and education. Savings are defined residually as the difference between total reported disposable household income and expenditure.

Household savings rates are notoriously difficult to measure even in mature market economies. The data problems in transition economies are even more severe. Both consumption and income data are likely to be underreported. The degree of underreporting is probably greater for (taxable) income, generating a downward bias in survey based household savings rates compared to matching calculations based on national accounts. While considerable effort has been made to purge the HEIDE dataset from clear outliers, it is reasonable to assume that the present dataset also suffers from the general underreporting problem. We take two steps to minimize mismeasurement bias. First, we apply a common (if arbitrary) cutoff to all samples, eliminating all observations with an implied dis-savings rate above fifty percent.[7] As a second robustness test, we also report results for a two-way split of the remaining sample into savings rates between minus fifty and plus five percent, and savings rates above five percent.

The set of explanatory variables aims to cover a broad range of potential savings de-

[7]The frequency distribution did not suggest outliers on the RHS tail of the distribution, while all three samples contain several extremely large (of the order of minus several thousand percent) negative savings rates, which are eliminated by the threshold condition.

Table 2: **Expenditure Patterns**

By Income Quintile (1: Lowest)							
		1	2	3	4	5	All
Clothing	Bulgaria	3.18	3.44	3.02	3.09	3.67	3.28
	Hungary	8.69	8.59	8.02	7.88	9.00	8.46
	Poland	6.24	6.59	6.74	6.95	7.18	6.75
Education	Bulgaria	3.32	3.68	3.56	3.44	4.34	3.67
	Hungary	5.79	6.39	6.57	6.86	8.44	6.88
	Poland	4.93	5.68	5.90	6.02	7.15	5.96
Food	Bulgaria	64.63	60.58	58.22	56.66	55.04	59.02
	Hungary	55.16	51.35	50.76	48.51	41.46	49.08
	Poland	55.58	51.89	50.28	48.52	45.15	50.18
Health	Bulgaria	1.31	1.62	1.49	1.67	1.40	1.50
	Hungary	4.62	5.17	5.34	5.61	5.31	5.22
	Poland	6.75	7.32	7.99	8.24	8.60	7.80
Housing	Bulgaria	25.20	28.15	30.98	32.10	31.00	29.49
	Hungary	16.71	18.23	19.51	20.64	19.30	18.91
	Poland	19.42	21.03	21.54	22.15	21.22	21.09
Transport	Bulgaria	2.36	2.54	2.71	3.05	4.55	3.04
	Hungary	9.02	10.26	9.79	10.49	16.49	11.44
	Poland	7.07	7.49	7.55	8.13	10.70	8.22
By Age Group							
		18-29	30-49	50-64	65+		All
Clothing	Bulgaria	4.98	5.29	2.81	1.26		3.28
	Hungary	10.90	10.29	7.22	4.90		8.46
	Poland	7.43	7.67	6.02	5.03		6.75
Education	Bulgaria	12.93	5.24	2.83	1.46		3.67
	Hungary	7.26	7.94	6.51	4.99		6.88
	Poland	5.87	7.09	5.31	3.88		5.96
Food	Bulgaria	62.76	55.93	59.34	61.63		59.02
	Hungary	46.36	46.40	50.28	54.50		49.08
	Poland	50.83	49.57	50.04	51.73		50.18
Health	Bulgaria	1.01	1.00	1.35	2.26		1.50
	Hungary	5.12	4.43	4.94	7.17		5.22
	Poland	8.15	6.94	8.03	9.64		7.80
Housing	Bulgaria	15.23	28.11	30.27	32.23		29.49
	Hungary	18.26	16.56	19.68	23.13		18.91
	Poland	18.80	19.43	22.34	24.86		21.09
Transport	Bulgaria	3.09	4.41	3.39	1.16		3.04
	Hungary	12.10	14.38	11.36	5.32		11.44
	Poland	8.91	9.30	8.26	4.87		8.22

terminants. The log and the squared log of age allows for life cycle factors. A set of 0-1 dummies controls for the effect of various household characteristics on savings, comprising dummies for households located in rural areas, large households (defined as households with more than four residents), households owning land, households owning productive assets, female heads of households and a set of dummies set equal to one if the highest level of education attained by the head of the household was primary, secondary or vocational (the reference group is tertiary education).

A further data problem is the exclusion of durable purchases from the savings data. As households in the transition economies on average owned fewer durables than households in comparable market economies, this exclusion may be of some importance to the degree that households attempted to catch up. As a partial control, we include two dummies. The first is based on the stock of consumer durables owned by the household and is set equal to one if the household owns at least three out of a set of common durables.[8] The second dummy is set equal to one if the household owns their residence.

A set of three groups of dummies captures the employment characteristics of the household. The first set comprises dummies set equal to one if, respectively, the head of the household is a wage-earner, is self-employed or is a pensioner (the reference group are other social benefit recipients and recipients of other income). The second set comprises dummies set equal to one if, respectively, the head of household is employed or unemployed (the reference group are economically inactive heads of households) and the third group comprises dummies set equal to one if the head of household is, respectively, employed in the public or in the private sector (the reference group are heads of household employed in the mixed/other sector). The final set of dummies captures the position of the household in the income distribution, we include four dummies set equal to one if the household belonged, respectively, to the lowest, the fourth, the third and the second highest income per capita quintile.

Tables 2 and 3 provide some background information on the three samples. Table 2 reports the expenditure shares by income quintile and by age group. Bulgarian households are seen to spend almost ninety percent of income on food and housing, contrasted with about seventy percent for Hungarian and Polish households, reflecting the much lower GDP

[8]The set comprises a car, a black and white TV, a color TV, a refrigerator, a sewing machine, a PC, a VCR, a stereo, a car washing machine, a microwave and a motorcycle.

Table 3: **Savings Rates Distribution (Medians)**

	Bulgaria		Hungary		Poland	
	Median	Obs.	Median	Obs.	Median	Obs.
Aggregate	0.002	1622	0.178	7636	0.086	14663
Age 18-29	0.051	60	0.197	687	0.105	1300
Age 30-49	-0.051	493	0.154	3146	0.084	7268
Age 50-64	-0.015	488	0.172	1918	0.089	3791
Age 65+	0.045	581	0.221	1873	0.074	2304
Rural Household	0.046	570	0.152	3580	0.113	4697
Large Household	-0.044	215	0.194	631	0.102	2750
Wage Earner	-0.025	746	0.181	3996	0.087	6943
Self-Employed	0.117	288	0.073	226	0.125	1666
Pensioner	-0.017	549	0.188	2981	0.064	4716
Employed			0.175	4222	0.101	9522
Unemployed			0.095	343	-0.001	306
Inactive			0.187	3064	0.063	4835
Employment Sector						
Public	-0.031	511			0.098	5966
Private	0.051	112			0.110	3869
Highest Education						
Primary	0.041	828	0.187	3753	0.081	4581
Secondary	-0.032	455	0.170	1453	0.081	3799
Vocational	-0.025	106	0.159	1775	0.085	4834
Tertiary	-0.018	226	0.186	655	0.116	1449
Ownership of:						
3+ Durables	-0.047	510	0.153	3657	0.093	5131
1-3 Durables	0.015	1112	0.204	3979	0.081	9532
Productive Assets	0.060	88	0.135	517	-0.023	895
Land	0.033	714			0.107	7320
Dwelling	0.000	1517	0.174	6665	0.103	7890
Income Quintile						
Highest	0.166	439	0.247	1609	0.191	3177
2nd	0.031	398	0.201	1589	0.100	3117
3rd	-0.050	350	0.175	1582	0.077	3021
4th	-0.151	277	0.145	1549	0.055	2929
Lowest	-0.112	158	0.082	1307	-0.001	2419
Tert. Education and aged 30-49	-0.031	93	0.171	350	0.114	799
Prim. Education and aged 50-64	0.000	270	0.150	1233	0.090	1648

per capita (Table 1) and suggesting that in Bulgaria a substantial fraction of households may have received incomes close to the subsistence level. Food expenditure shares are declining in income, education and transport shares are strongly rising in income, while clothing and health expenditure shares show a more muted positive relation with income shares. Turning to the age distribution, food, housing and health expenditure shares are seen to strongly increase with age, while education, clothing and transportation shares are, not too surprising, higher for younger heads of households.

Table 3 reports the median savings rates disaggregated by subsample, along with the size of the subsample. Among the common factors, savings rates are lower for the 30-49 age group than for either the 18-29 or the 50-64 age group for all three countries, with comparatively high savings rates in the 65+ group in Bulgaria and Hungary. The pattern on rural versus urban households is more mixed, and, apart from Bulgaria, differences are fairly small. No common pattern emerges for the distinction between wage-earners, self-employed individuals and pensioners, with the self-employed having above average median savings rates in Bulgaria and Poland, but below average rates in Hungary. Unemployment is generally associated with below average savings rates. Public sector employees save less than private sector employees in both Bulgaria and Poland (no data available for Hungary). With the exception of Bulgaria, savings rates differ relatively little according to the highest education level, though individuals with secondary and vocational education have somewhat below average savings rates in all three countries. Households with relatively few durables have above average median savings rates in Bulgaria and Hungary, slightly below average rates in Poland. The other ownership classifications likewise by themselves do not reveal a systematic pattern.

The most pronounced differences can be seen across income strata: savings rates strongly increase with income in all three countries. To the degree that the "winners" from the transition are over-represented in the top income quintiles, and that their expected income profile is comparatively steep, this result is prima facie puzzling. To examine the winner/looser dimension further, the last two rows report the median savings rates for young well educated households (arguably likely to profit from the new opportunities) and older less well educated households (arguably among the losers as generous social support systems were scaled back). The results, however, are ambiguous, the differences in savings rates across the two groups are quite small.

4 Regression Results

Table 4 reports the regression results for the full sample. The top part of each column identifies the country, the number of observations, the mean of the dependent variable and the simple and adjusted R^2. The median savings rate lies between 1.7 percent in Bulgaria, and 16.6 percent in Hungary. The overall fit of the regression are in the typical range for household survey cross sections, with adjusted R^2s ranging between 0.10 in Hungary and 0.15 in Bulgaria.

The estimated age profile is quite flat, with an econometrically significant but quite small non-linear effect.[9] Households headed by women have, ceteris paribus, lower savings rates, while larger households have higher savings rates. No clear distinction between rural and urban households emerges. In all three countries, households already owning most of the standard consumer durables save less. The finding admits (at least) two explanations. First, it might capture a negative wealth effect. If so, one would however expect the other ownership dummies to also exert a negative effect on savings. This is not strongly the case: only two of the other eight dummies are significant, both land ownership dummies are positive, as is the Bulgarian dummy for owners of productive assets.[10] A second explanation is the lack of retail credit markets, forcing households with below average stocks of durables to save prior to their purchase [Japelli and Pagano (1989,94), Guiso, Jappelli and Terlizzese (1992)]. To the degree that lacking credit markets are indeed the causal factor, savings rates will decline over time as durables holdings in the transition economies approach levels typical of market economies on similar development levels, and as retail credit markets develop.

Self-employment is negatively associated with savings, consistent with a steeper expected income profile, while households headed by pensioners save less than other households in all three countries. Both private and public sector employees save more than the excluded reference group (employees in the mixed sector), however, the relative savings rates among the two groups differ, with a substantially higher savings rate for private sec-

[9] A possible explanation for the positive age effect for older households is the memory of past deprivation [Bernheim (1991,1994)], leading to greater precautionary savings of individuals remembering the immediate postwar period.

[10] Evidence on developed countries likewise suggests a positive wealth elasticity, see for instance Avery and Kennickell (1991) or Bosworth, Burtless and Sabelhaus (1991).

Table 4: **Regression Results: Full Sample (Savings Rate Above -0.50%)**

Country	Bulgaria	Hungary	Poland
Obs	1621	7635	14462
Mean of Dep.	0.0170	0.1660	0.0812
R-Sqr	0.1690	0.1107	0.1310
Adj. R-Sqr	0.1580	0.1085	0.1290
Constant	2.7417	1.2794	1.6241
	**(2.50)	***(6.30)	***(6.38)
LN(Age)	-1.3837	-0.5209	-0.7432
	**(2.38)	***(4.60)	***(5.40)
LN(Age)-Squared	0.1903	0.0702	0.0949
	**(2.57)	***(4.50)	***(5.13)
Female Head of HH	-0.0184	-0.0122	-0.0298
	(1.03)	**(2.04)	***(7.37)
Rural Household	0.0295	-0.0424	0.0311
	(1.59)	***(7.14)	***(5.84)
Large Household	0.0574	0.0868	0.0650
	**(2.55)	**(8.68)	***(11.69)
Durables Ownership	-0.0661	-0.0933	-0.0274
	**(3.61)	***(15.52)	***(6.21)
Land Ownership	0.0016		0.0150
	(0.09)		**(3.18)
Prod. Asset Ownership	0.0303	-0.0119	-0.0019
	(0.92)	(0.94)	(0.19)
House Ownership	-0.0259	-0.0300	-0.0003
	(0.80)	***(4.15)	(0.08)
Wageearner	-0.1190	0.0159	-0.0411
	**(2.12)	(0.67)	***(4.84)
Self-Employed	-0.1191	-0.0420	-0.0248
	**(2.09)	(1.41)	**(2.39)
Pensioner	-0.1280	-0.0136	-0.0349
	**(2.31)	(0.55)	**(1.98)
Employed			-0.0049
			(0.24)
Unemployed		-0.0064	-0.0087
		(0.24)	(0.40)
Public Sector	0.0129		0.0656
	(0.52)		***(5.288)
Private Sector	0.0590		0.0615
	*(1.76)		***(5.14)
Primary Education	0.0765	0.0458	0.0367
	**(3.29)	(4.53)	***(4.77)
Secondary Education	0.0208	0.0076	0.0123
	(0.92)	(0.77)	*(1.74)
Vocational Education	-0.0018	0.0260	0.0250
	(0.05)	(2.55)	**(3.48)
Lowest Income Quint.	-0.2955	-0.2204	-0.2781
	***(10.24)	***(21.96)	***(38.79)
Fourth Inc. Quintile	-0.3056	-0.1428	-0.1907
	***(13.13)	***(16.38)	***(30.72)
Third Inc. Quintile	-0.2069	-0.1114	-0.1471
	(9.83)	***(13.19)	***(25.16)
Second Inc. Quintile	-0.1296	0.0787	-0.1095
	(6.60)	***(9.63)	(19.47)

Table 5: **Regression Results: Subsamples**

	Savings Rate Above 5%			Savings Rate Between -50% and 5%		
Country	Bulgaria	Hungary	Poland	Bulgaria	Hungary	Poland
Observations	713	5264	8268	907	2370	6393
Mean of Dep.	0.2972	0.2911	0.2428	-0.2033	-0.1404	-0.1319
R-Sqr	0.1317	0.0437	0.1313	0.0419	0.0475	0.0295
Adj. R-Sqr	0.1053	0.0403	0.1288	0.0192	0.0398	0.026
Constant	1.7438	0.9419	1.7973	-0.5125	-0.3127	-0.4375
	*(1.82)	***(6.18)	***(8.74)	(0.58)	(1.39)	*(1.75)
LN(Age)	-0.7337	-0.3205	-0.7846	0.1848	0.1188	0.1824
	(1.44)	***(3.79)	***(7.04)	(0.40)	(0.93)	(1.36)
LN(Age)-Sq.	0.1008	0.0431	0.103	-0.0221	-0.0154	-0.0261
	(1.53)	***(3.72)	***(6.86)	(0.37)	(0.86)	(1.45)
Female	-0.0228	0.0075	-0.0125	-0.0054	-0.0083	-0.0147
	(1.39)	*(1.68)	***(3.75)	(0.40)	(1.25)	***(3.83)
Rural	0.0307	-0.0146	0.0252	-0.0031	-0.0056	0.0016
	*(1.89)	***(3.26)	***(5.81)	(0.21)	(0.87)	(0.31)
Large	0.0336	0.0296	0.0282	0.0126	0.0359	0.0235
	(1.62)	***(3.95)	***(6.26)	(0.74)	**(3.25)	***(4.30)
Durables	-0.0527	-0.036	-0.0163	-0.0242	-0.0461	-0.0124
Ownership	***(3.00)	***(8.06)	***(4.58)	*(1.81)	***(6.69)	**(2.89)
Land	-0.0071		0.0099	0.0211		-0.0017
Ownerhip	(0.46)		**(2.56)	*(1.64)		(0.38)
Prod. Asset	0.0094	-0.0019	-0.025	0.0292	-0.0254	0.0363
Ownership	(0.33)	(0.20)	***(3.31)	(1.11)	*(1.90)	***(3.53)
House	-0.007	-0.0117	0.0054	-0.0177	-0.0029	-0.0048
Ownership	(0.23)	**(2.21)	(1.50)	(0.73)	(0.35)	(1.16)
Wageearner	-0.0959	0.0065	-0.0318	-0.0239	0.02343	0.0104
	*(1.95)	(0.36)	***(4.83)	(0.53)	(0.96)	(1.17)
Self-Employed	-0.0676	0.0028	0.007	-0.0396	-0.0002	-0.0197
	(1.36)	(0.12)	(0.89)	(0.87)	(0.10)	*(1.79)
Pensioner	-0.0983	-0.0109	-0.0456	-0.0189	0.0141	0.0269
	**(2.04)	(0.57)	**(2.76)	(0.42)	(0.56)	*(1.81)
Employed			-0.0295			0.0114
			(1.63)			(0.60)
Unemployed		0.014	-0.0486		0.0073	0.0337
		(0.68)	**(2.37)		(0.27)	*(1.90)
Public Sector	-0.0077		0.0412	-0.0144		0.0104
	(0.34)		***(4.22)	(0.77)		(0.82)
Private Sector	0.0069		0.0439	0.0083		0.0104
	(0.24)		***(4.69)	(0.31)		(0.84)
Primary Edu.	0.0247	0.0108	0.0225	0.0112	0.0074	0.0055
	(1.16)	(1.43)	***(3.66)	(0.63)	(0.66)	(0.73)
Secondary Edu.	0.0201	-0.0057	0.0018	0.0179	-0.0053	0.0148
	(0.94)	(0.78)	(0.33)	(1.08)	(0.48)	**(2.10)
Vocational Edu.	-0.0228	0.0089	0.0069	0.0132	0.0109	0.0127
	(0.73)	(1.16)	(1.21)	(0.56)	(0.98)	*(1.78)
Lowest	-0.1099	-0.0817	-0.1445	-0.0841	-0.0744	-0.0705
Inc. Quintile	***(3.89)	***(10.24)	***(23.21)	***(3.76)	***(6.79)	***(9.81)
Fourth	-0.0977	-0.0623	-0.1116	-0.0733	-0.042	-0.0417
Inc. Quintile	***(3.87)	***(9.53)	***(22.18)	***(4.07)	**(4.12)	**(6.45)
Third	-0.0925	-0.0459	-0.0825	-0.0387	-0.0466	-0.0333
Inc. Quintile	***(4.81)	***(7.44)	***(17.82)	**(2.26)	**(4.54)	***(5.38)
Second	-0.06555	-0.0437	-0.0646	-0.0237	-0.0308	-0.0211
Inc. Quintile	***(4.04)	***(7.46)	***(14.87)	(1.40)	**(2.96)	***(3.47)

tor employees in Bulgaria but quite similar rates in Poland. The finding is prima facie puzzling: as private sector employees arguably has steeper expected income profiles, one might, on smoothing grounds, have expected higher savings rates in households headed by public sector employees. One possible explanation is the depression of public sector wages in Bulgaria, pushing households incomes towards subsistence.

The evidence on education (measured relative to the excluded group of households with completed tertiary education) diverges from the typical finding of a positive education elasticity of savings for market economies. For the transition economies, savings rates decline with education, ceteris paribus, through the effects for secondary and vocational training are not significant with the exception of Poland. The pattern is consistent with a flatter expected income profile for less educated households.

Finally, the position of the household in the income distribution is highly significant for all three sample countries, with savings rates increasing with relative income. The effects are quantitatively important as well, taken at face value, shifting an income unit from a household in the lowest to a household in the highest income quintile would raise the saved portion by twenty to thirty points.

How robust are these results? In Table 5 we split the sample into two groups, households with savings rates between minus fifty and five percent, and households with savings rates above 5 percent. The set of explanatory variables has substantially higher explanatory power for the latter subsample. Overall, results are quite similar. Sturdy results include the lower savings rates of smaller households and households headed by women, the negative effect of durables ownership and house ownership, the positive effect of primary education and the positive association between savings rates and relative income. Among the disparities are a reversal of the age pattern for the low saving subsample, though the coefficients are insignificant, and a more mixed picture for higher education and the employment variables.

5 Conclusion

A longer term growth revival in the transition economies of Eastern Europe requires a resumption of investment, and thus, realistically, domestic savings. An understanding of the savings pattern in these economies is thus of evident interest. We explored a set of

three household surveys conducted in Bulgaria, Hungary and Poland to gain some initial insights into the savings behavior of households in transition economies.

A number of sturdy findings emerged. First, savings propensities increase strongly in the relative income position of the household suggesting that the increasing income inequality accompanying the transition may play an important role in the determination of savings. Second, we found evidence that, holding incomes constant, savings rates decline in educator, consistent with a consumption smoothing in the face of a flatter expected income profile but at odds with typical findings for developed market economies.

Third, we found a strong negative effect of durable ownership and house ownership. To the extent that the ownership dummies proxy for household wealth, a negative wealth elasticity of savings would be implied. More mixed evidence on the effects of land ownership and ownership of productive assets however casts some doubt on this interpretation. An alternative explanation, which has also attracted substantial interest in savings studies for market economies, is that households lacking durables/houses are, in the absence of functioning retail credit/mortgage markets, forced to save the purchase price prior to acquiring either durables or houses. The two explanations, which cannot be unambiguously distinguished with the available data, have rather different long term implications. In the case of true wealth effects, current savings patterns are likely to persist, while if the higher savings of households with fewer real assets reflects accumulation of monetary assets prior to purchase of real assets, a reduction in (measured) savings will occur as stocks of durables reach levels of comparable market economies and as retail credit markets develop.

Fourth, we found, reassuringly, that a number of stylized facts familiar from studies of market economies extend to the transition economies, including a negative (but nonlinear) effect of age, a positive effect of household size and, more ambiguously, a negative effect of urban location. Fifth, and somewhat puzzling, we did not find that either the sector of employment (public versus private) or the form of employment exerted a systematic effect on savings.

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