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Household Savings in Transition Economies

Cevdet Denizer
Holger C. Wolf
Yvonne Ying

In Bulgaria, Hungary, and Poland, the higher the *relative* household income is, the higher the savings rate is But, surprisingly, savings rates appear to be unaffected by either sector of employment (public or private) or form of employment Savings rates are significantly higher for households that do not own their own homes or that own few of the standard consumer durables — possibly because, with no retail credit or mortgage markets, households must save to purchase houses and durables

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Summary findings

During the transition from central planning to market economies now under way in Eastern Europe, output levels first collapsed by 40 to 50 percent in most countries, then staged a modest recovery in the last two years. Longer-term revival of growth requires a resumption of investment and thus, realistically, of domestic savings.

To explore the determinants of household savings rates in transition economies, Denizer, Wolf, and Ying studied matching household surveys for three Central European economies: Bulgaria, Hungary, and Poland.

They find that savings rates strongly increase with *relative* income, suggesting that increasing income inequality may play a role in determining savings rates.

Savings rates are significantly higher for households that do not own their homes or that own few of the standard consumer durables — possibly because, with no retail credit or mortgage markets, households must save to purchase houses and durables.

The influence of demographic factors broadly matches earlier findings for developing countries.

Perhaps surprisingly, variables associated with the household's position in the transition process — including either sector of employment (public or private) or form of employment — do not play a significant role in determining savings rates.

This paper — a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region — is part of a larger effort in the region to understand determinants of savings, at both the household and the aggregate level. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Ala Cubukcu, room H4-347, telephone 202-473-8449, fax 202-522-2754, email address acubukcu@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. Cevdet Denizer may be contacted at cdenizer@worldbank.org. March 2000. (14 pages)

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Cevdet Denizer
World Bank
Cdenizer@worldbank.org

Holger Wolf
Center for German and European Studies
Georgetown University and NBER
Holger.wolf@mailexcite.com

Yvonne Ying
Oxford University and World Bank
Yvonne_Ying@hotmail.com

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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 that has been taken place over the last decade in eastern Europe. The macroeconomic impact of the transition has been dramatic. Output levels collapsed by between twenty and fifty percent in most transition economies before staging a modest recovery in the last few years (Table 1), while unemployment levels have risen from near zero (recorded) rates to double digit levels. The overall change has been accompanied by dramatic sectoral shifts, with some sectors (mostly in intermediate goods industries) experience employment and output collapses while others (mostly services and some consumer products) witnessed rapid growth.

The transition thus provides a rare instance in which the standard determinants of household consumption and savings decisions undergo first order changes in a very short time period, providing a fertile ground for empirical study. While the evolution of aggregate savings has been examined in a number of papers[1], relatively little is known yet about the savings behavior of households in transition economies. Gregory, Mokhtari and Schrettl (1999) examining the Russian pattern, find significant differences in household savings behavior in Russia and typical patterns on market economies, notably a U-shaped age profile (rather than the inverted U implied by traditional life-cycle arguments. Savings are found to be concentrated among high-income households, and to be higher for households expecting decreasing income. In this paper we explore household savings in three relatively rich transition economies; Bulgaria, Hungary and Poland, allowing us to contrast households within a country as well as to explore differences across three countries starting the transition process from quite different initial conditions and pursuing disparate strategies.

Table 1: GDP Growth Rates

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Median	1.5	-3.5	-11.7	-13.6	-10.0	0.3	0.8	3.0	4.0	4.0	4.0
Maximum	9.8	9.0	-1.0	2.6	9.6	9.4	7.8	10.5	10.0	10.0	9.0
Minimum	-7.2	-12.0	-28.0	-52.4	-39.0	-35.0	-17.4	-10.0	-4.0	-7.3	-3.0

Based on twenty-six east/central European transition economies. Source: EBRD and UN.

The voluminous literature on the determinants of savings identifies a broad range of factors, grouped around the conceptual pillars of consumption smoothing, and precautionary savings in the face of credit market imperfections impeding smoothing of adverse shocks. Both factors arguably play an important role in the transition experience. The move from a cradle to grave system of state-guaranteed incomes to market determined wages; the emergence of large-scale unemployment and the sharp reduction in public benefits raised income uncertainty; while the same replacement of state-

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

guaranteed by market-determined incomes unraveled the flat pre-transition skill-income link.

We explore the household surveys to examine whether (controlling for the standard demographic determinants of household savings) characteristics likely to be associated with households' relative likelihood to benefit materially from the transition to markets (and hence to experience an upward tilting of expected lifetime income profiles) and with income uncertainty are indeed systematically related to savings behavior. The next section describes the data. Section three presents some stylized facts derived from the unconditional distribution of savings rates by household characteristics. Section four presents regression results, and section five concludes.

2. Data

Our results are based on three surveys contained in the *World Bank Household Expenditure and Income Data for Transitional Economies* database. The household surveys (using stratified random samples) cover 2.466 households in Bulgaria (survey year 1995), 8.105 households in Hungary (survey year 1993) and 16.051 households in Poland (survey year 1993). The original surveys were conducted by different institutions; and were placed into a consistent format by the World Bank[2] to achieve comparability across the three countries,

Each survey contains detailed information regarding the household's expenditure (eight categories) and its income sources (12 categories for Poland and Bulgaria, 11 categories for Hungary). Savings are defined as the difference between disposable household income and household expenditure.[3] In addition, the dataset contains information about asset ownership (five categories for Poland and Bulgaria, four categories for Hungary), household size, age and gender composition, location (urban/rural), sector of employment and education.

Based on this information, we construct a set of explanatory variables used in the regression reported below. The log and the squared log of the age of the head of household proxies 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 with more than four residents, households owning land, households owning productive assets, female heads of households, 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) and a set of dummies for the household position in the income distribution, measured in quintiles.

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[2] See Household Expenditure and Income Data for Transitional Economies (HEIDE), Appendix 2 of RAD project "Poverty and Targeting of Social Assistance in Eastern Europe and the Former Soviet Union".

[3] Household savings rates are notoriously difficult to measure accurately even in mature market economies because of underreporting. While considerable effort has been made to purge the dataset from clear outliers, we additionally drop all observations with an implied dis-savings rate above fifty percent. The frequency distribution did not suggest outliers on the right-hand-side 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.

Persistent under-production of consumer durables under central planning left the average household in transition economies with fewer durables compared to households in market economies of comparable development levels, suggesting latent demand. As retail credit markets were largely non-existent at the time of the surveys, durable purchases would have required prior savings, leading to a temporary increase in measured savings rates. We include two dummies to capture this possibility. The first is based on the stock of consumer durables owned by the household and is set equal to one if the household possessed at least three common durables.[4] The second dummy is set equal to one if the household owns their residence.

A final 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).

3. Basic Statistics

Table 2 provides summary information on three sample 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. The real wage largely mirrored the decline in real GDP in Bulgaria, collapsing to 52% of the 1989 level in the survey year. In contrast, the decline was more muted in Poland (78% of the 1989 level) and largely absent in Hungary (98% of the 1989 level).

DeMelo, Denizer and Gelb (1996) provide an assessment of the overall reform progress in transition economies, with a scale from zero to one, the latter denoting OECD standards. Hungary and Poland in the sample year were both scored 0.82, the highest score among all transition economies. Bulgaria, at 0.61, lagged behind but still scored in the top half of the set of twenty-five transition economies ranked. The relative reform lead of Poland and Hungary is also captured by the higher private sector share in GDP and employment.

[4] 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. Data for all eleven items are available for Hungary, for Bulgaria (10) and Poland (5) the available information is less comprehensive.

Table 2: Performance Indicators in the Survey Year

	Bulgaria	*Hungary*	*Poland*
Real GDP Growth	3.1	-0.5	3.5
Real GDP (1989=100)	75.0	83.5	86.1
Real wage (1989=100)	52.0	78.0	98.5
Unemployment Rate	10.7	12.6	15.7
Reform Index Overall (0-1)	0.61	0.82	0.82
Private Sector GDP Share	45.0	55.6	53.5
Private Sector Employment Share	34.7	59.4	59.0
CPI Inflation	62.6	22.5	35.3
Nominal Interest Rate	61.8	21.8	29.0

Sources: GDP Growth, CPI Inflation, GDP 1989 base: IMF. Reform index and unemployment rate: DeMelo, Denizer and Gelb (1996).Employment share, real wages, real interest rates: EBRD. Aggregate savings rate: Denizer and Wolf (1998).

The nature of pre-transition savings has been the subject of a lively literature. During the 1980s, a number of transition economies experienced nominal wage growth in excess of the output growth of consumption goods. In the presence of fixed prices, this latent demand could not be converted into goods, and thus resulted into the accumulation of excess savings, mostly held in liquid form. Whether or not his "monetary overhang" indeed existed at the beginning of the transition depends on whether the quantity constraints on goods were in fact binding, or could be circumvented in a black market with scarcity determined prices.[5] Any such pre-existing dis-equilibrium is however unlikely to have persisted until the time the surveys were taken as the price liberalization undertaken in the early 1990s eliminated the excess through a burst in inflation [Dornbusch and Wolf (1999)] and, to a more limited extent in the short term, a supply response.

While financial sector liberalization took place before the sample year in all three countries (1989 in Poland, 1991-92 for households in Hungary, 1991 in Bulgaria), both consumer credit and insurance products remained largely unavailable. Insurance markets likewise remained rudimentary.[6] Pension systems were comprehensive but perceived to be fragile, with dependency ratios of 36% for Hungary, 49% for Poland and 87% for Bulgaria [EBRD (1996)], compared to a typical range between ten and twenty percent in market economies of comparable development. Most households covered by the survey are thus likely to have faced binding borrowing constraints; to have relied on personal savings rather than insurance to cover income and other risks, and to have faced significant uncertainty about expected real pension benefits.

[5] For alternative views on this issue, see Acharya and Spagat (1993), Alexeev (1988) and Ellis and Naughton (1990)

[6] Insurance premia as a fraction of GDP in the sample years ranged between 0.5% and 1.8%, compared with 4.2% in the OECD.

Table 3: Expenditure Patterns by Income Quintile

		Lowest	*2nd*	*3rd*	*4th*	*Highest*	*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

Tables 3-5 provide background information on the three household samples. Table 3 reports the expenditure shares by income quintile. Across income groups within countries, food expenditure shares are declining in income while education and transport shares are strongly rising. Clothing and health expenditure shares show a more muted positive relation with income shares. The same pattern holds across countries: Bulgarian households, on average the poorest in the sample, spend about ninety percent of their income on housing and food, compared to around seventy percent for Hungary and Poland. Table 4 reports the matching expenditures shares across age groups. Food, housing and health expenditure shares strongly increase with age, while education, clothing and transportation shares are not unexpectedly higher for households headed by younger individuals.

Table 4: Expenditure Patterns 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

Table 5: Savings Rates Distribution (Medians)

	Bulgaria		*Hungary*		*Poland*	
	Median	Obs.	Median	Obs.	Median	Obs.
Aggregate	0.002	1622	0.178	7636	0.086	14663
Age 19-29	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 Households	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
Public Sector	-0.031	511			0.098	5966
Private Sector	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
Aged 30-49 with Tertiary education	-0.031	93	0.171	350	0.114	799
Aged 50-64 with Primary education	0.000	270	0.150	1233	0.090	1648

Table 5 reports the median savings rates disaggregated by subsample, along with the size of the subsample. Among the sturdy features, savings rates are lower for the mid-career group (30-49 years of age) than for either the younger (18-29) or older (50-64) working age group. 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). Unconditional savings rates for other characteristics vary across the three countries: no common pattern emerges for rural versus urban households, for households headed by wage-earners versus self-employed individuals and pensioners, or for households with a full complement of durables versus households with few durables. With the exception of Bulgaria, savings rates also differ relatively little across the education level of the head of household.

The most pronounced differences can be seen across income strata: unconditional savings rates strongly increase with income in all three countries, matching results by Gregory, Mokhtari and Schrettl (1999) for Russia. The link is ex ante ambiguous: while the need for precautionary savings declines in income, the transition has pushed a significant fraction of households close to subsistence, reducing their savings capacity.[7] The last two rows aim to identify likely "winners" (households headed by younger, well-educated heads) and "losers" (households headed by older, less well educated heads of households) of the transition process. No clear pattern emerges.

4. Regressions

To explore the conditional relationships, we regress household savings rates on standard demographic variables as well as variables likely to be associated with the probability that the transition will tilt the household's expected lifetime income profile upward and variables likely to indicate relative income uncertainty. Table 6 reports the regression results for the full sample. The top of each column identifies the country, the number of observations, the mean of the dependent variable and the R^2, which falls within the typical range for cross section regressions based on household surveys.

By and large, the effects of the standard determinants do not contain major divergences from the typical pattern found for developing countries. The estimated age profile is quite flat, with an econometrically significant but quite small non-linear effect. The positive age effect for older households may reflect memory of past deprivation [Bernheim (1991,1994)], leading to greater precautionary savings of individuals remembering the immediate postwar period. Compared with the marked U-curve age-savings relation obtained by Gregory, Mokhtari and Schrettl (1999), the age schedule is less pronounced for these three transition economies, perhaps reflecting the much sharper decline in life expectancy for middle-aged Russians since the early 1990s.

[7] With some exceptions, the literature on savings in developing 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].

Table 4: Regression Results for Full Sample

	Bulgaria	Hungary	Poland
Observations	1621	7635	14462
Mean Dep. Var.	0.0170	0.1660	0.0812
R-Square	0.1690	0.1107	0.1310
Core-Determinants			
Constant	2.7417	1.2794	1.6241
	(2.50)**	(6.30)***	(6.38)***
Log (Age)	-1.3837	-0.5209	-0.7432
	(2.38)**	(4.60)***	(5.40)***
$[\text{Log(Age)}]^2$	0.1903	0.0702	0.0949
	(2.57)**	(4.50)***	(5.13)***
Female Head	-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)***
Lowest Income Quintile	-0.2955	-0.2204	-0.2781
	(10.24)***	(21.96)***	(38.79)***
2nd Lowest Income Quintile	-0.3056	-0.1428	-0.1907
	(13.13)***	(16.38)***	(30.72)***
3rd Lowest Income Quintile	-0.2069	-0.1114	-0.1471
	(9.83)***	(13.19)***	(25.16)***
4th Lowest Income Quintile	-0.1296	0.0787	-0.1095
	(6.60)***	(9.63)***	(19.47)***
Real Wealth Indicators			
Durables Ownership	-0.0661	-0.0933	-0.0274
	(3.61)**	(15.52)***	(6.21)**
Land Ownership	0.0016		0.0150
	(0.09)		(3.18)**
Productive 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)
Employment Indicators			
Wage-Earner	-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)		(5.28)***
Private Sector	0.0590		0.0615
	(1.76)*		(5.14)***
Education Indicators			
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)**

In all three countries, households already owning most of the standard consumer durables save less compared to households lacking such durables. One interpretation of the result is a negative real wealth effect. If so, one would however expect a matching finding for the other ownership dummies, which is not the case: only two of the other eight dummies are significant.[8]

A second explanation combines a catchup motives with the lack of retail credit markets. As mentioned above, initial durable ownership in the three transition economies fell short of levels observed in market economies with comparable income levels, reflecting the low priority given to such products under the plan. To the extent that preferences in the transition economies are comparable to those in market economies, the transition created a catchup demand for these durables. In the absence of functioning retail credit markets, this in turn implied to need to accumulate the purchase prior through savings prior to the transactions [Japelli and Pagano (1989,1994), Guiso, Jappelli and Terlizzese (1992)].

The effect of employment on savings behavior offers a direct window on the importance of likely lifetime income growth and income risk patterns. While it is difficult to generalize, it seems not unreasonable to assume that households deriving most of their income from self-employment or from private employment on average were characterized by steeply upward sloping income profiles compared to households deriving their income from the public sector or relying on the social safety net. Self-employment was a rare exception in the pre-transition period; this category of households is thus most likely to have started a business since 1989, suggesting a skill pattern conducive to benefiting from the transition. The relative income profiles of private compared to public employment are influenced by two factors. First, it stands to reason that the more attractive enterprises were privatized first, thus the core growth rate of firms with private ownership and thus employment likely exceeded that of firms remaining in public hands. Second, employment in privatized enterprises was reduced to a much greater extent compared to publicly owned firms, to the degree that the firing decisions were skill based, the remaining employees in private sector firms have higher average skills compared to public sector employees.[9] The different rates of employment reduction suggest that the chance of future unemployment, and thus income uncertainty, was also larger for employees remaining in publicly owned enterprises. If so, both the consumption smoothing and the precautionary savings model would imply lower savings rates for private sector employees.

Households deriving their main income from self-employment or from wages indeed save less compared to the reference group (households receiving public

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[8] A negative wealth elasticity of savings would also be at odds with much of the existing empirical literature [Avery and Kennickell (1991) or Bosworth, Burtless and Sabelhaus (1991), inter alia].

[9] Differences between occupation groups are of course notoriously difficult to interpret, as occupation choice itself is endogenous [Skinner (1988) and Carroll (1994)]. In this respect, however, the transition data are arguably less problematic, as it seems reasonable to assume 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.

assistance), with pensioners in the middle; consistent with the life-cycle model under the assumption of a steeper expected income profile. However, no significant difference emerges between employed and unemployed heads of household, furthermore, while savings rates for households headed by individuals employed in either the private or the public sector exceed savings in the excluded references group of households headed by individuals employed in the mixed sector, no significant difference emerges between the categories of public versus private employment. Overall, the income factor most relevant to savings thus appears to be the split between gainful employment and other income sources, with much more muted differences between types of employment. To the extent that a lack of gainful employment signals decreasing income expectations, these findings are consistent with the results for Russia obtained by Gregory, Mokhtari and Schrettl (1999).

The level of education attained by the head of household provides a second indication of the likely net benefit from transition. In comparison with market economies, the monetary return to education was negligible in planned economies; the earnings of university graduates were generally comparable with, and occasionally below the earnings of factory workers. The transition is thus likely to lead to a relative income gain and a steeper income profile of households headed by individuals with tertiary education, suggesting, in terms of consumption smoothing motives, a lower propensity to save. The regression results are consistent with this view: with one (statistically insignificant) exception, households headed by individuals with no tertiary education on average saved a higher income fraction compared to the excluded group of households headed by individuals with tertiary education.

The evidence on consumption smoothing and risk-aversion presented here is of course conditional on the correct identification of factors likely to be associated with the slope of the lifetime income profile and income uncertainty. Conditional on these assumptions, the results do suggest that at least some of the factors associated with upward tilting lifetime incomes and lower risk are associated with reduced savings rates. Perhaps most puzzling is the apparent irrelevance of the sector of employment for savings decisions, despite the likely future contraction of the public relative to the private sector. The muted support is consistent with prior findings for developing market economies [Gupta (1987), Campbell and Deaton (1989), and Schmidt-Hebbel, Webb and Corsetti (1992), inter alia] which, following quite different methodologies, find at most muted support for smoothing.

5. Conclusion

There are few instances of radical economic change comparable to the transition of eastern Europe from plan to market, providing a valuable opportunity to study economic behavior in the presence of first order changes in circumstances. Using three matching surveys for Bulgaria, Hungary and Poland, we explored the savings responses of household to the transition experience.

The overall savings pattern, ranging from the age and income pattern to the apparent importance of borrowing constraints, resembles prior findings for developing market economies. Controlling for these standard determinants, the surveys allow us to indirectly test savings theories. Specifically, we examine the empirical support for the prediction that households likely to emerge from the transition process as net winners with upward sloping expected lifetime income profiles and low income uncertainty save systematically less compared to households likely to be net losers of the transition from plan to markets or to face high income uncertainty, as implied by both smoothing and precautionary savings motives.

We find partial support for the hypothesis. The specifics of the transition experience suggest that households headed by individuals with above average education, by individuals who are self-employed, and by individuals employed in the private sector are likely to be net winners compared to households headed by individuals who are older, less educated or working in the contracting public sector. Savings rate indeed decline in education, and are higher for households deriving income from the social safety net compared to households with earned income. More puzzlingly, it appears to make little difference for savings whether the head of household is employed in the shrinking low-wage public or the expanding high-wage private sector.

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