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FAMILY SAFETY NETS AND ECONOMIC TRANSITION: A STUDY OF WORKER HOUSEHOLDS IN POLAND

BY DONALD COX
Boston College

EMMANUEL JIMENEZ AND WLODEK OKRASA
The World Bank

Can Eastern European families most severely impoverished during the transition to capitalism rely on private family safety nets? This question is likely critical for the transition's success, but little is known about family networks in Eastern Europe. We analyze newly available Polish household surveys, conducted both before and after Poland's economic transition, which measure private inter-household transfers. Such transfers are large and widespread in Poland, and in many ways appear to function like means-tested public transfers. They flow from high to low-income households and are targeted to young couples, families with many children and those experiencing illness. Private transfer patterns also suggest that they are responsive to liquidity constraints. Our results from 1987 data indicate that private transfers could fill a non-trivial portion of the income gap left by unemployment. However, we also find evidence from 1992 data suggesting that family networks weakened somewhat after the transition.

Can Eastern European families who are most severely impoverished during the transition from socialism to capitalism rely on private family safety nets for support? Consider, for example, the plight of a family whose primary earner has just been laid-off from a liquidated state enterprise or a family farm rendered insolvent because of the elimination of government subsidies. Do these families have more fortunate relatives or friends who can assist with cash, in-kind help, gifts or shared housing? Conversely, which households are unable to rely on such support?

These questions are critical for evaluating the likelihood of successful economic transition in the Eastern bloc. On the one hand, an effective social safety net must be preserved—the rise in unemployment and widening of the income distribution could derail popular support for a quick transition to capitalism [see, for example, Kornai (1990) and Lipton and Sachs (1990)]. On the other hand, governments are facing fiscal constraints which render the previous regime's universal public transfer system unsustainable.

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One answer is to target public transfers to the truly needy more effectively. In the words of Calvo and Frankel (1991), when "choosing among alternative safety nets, one should be aware that there is no way to protect all segments of society" (p. 42).[1] However, reforming institutions so that they target more effectively is difficult and time consuming. Are there other options? Fortunately, public transfers are not the only means of shuffling resources from one group to another. Family networks can also achieve substantial income redistribution, privately and with no apparent coercion.[2] Information about the size and flows of these private transfers would be extremely useful in determining the public funds needed to round out an adequate safety net. Private transfer information would also be useful for identifying households who lack such private support. Targeting these families can be critical since the public sector may be their only source of insurance.

Despite the potential significance of family networks during Eastern Europe's transition, we currently know little about how they might function. In fact, we know little about even the basic facts, such as the incidence and magnitude of private transfers. Researchers are just beginning to explore household survey micro-data containing information about private transfers for Eastern European countries. Part of the reason for the vacuum in policy discussions concerns availability of data. We seek to fill this gap by analyzing the Household Budget Survey (HBS) for Poland.

Prior information suggests that private transfers are likely to figure prominently in the Polish system of safety nets and poverty alleviation. Existing studies, conducted by both ourselves and others, indicate that private transfers are often large and responsive to economic and demographic variables.[3] For example, private transfers flow from rich to poor, just as in public tax-and-transfer systems. Increases in recipient pre-transfer income often prompt reductions in private transfers, thus mirroring what happens in the public sector with means-tested social insurance programmes. Further, private transfers are usually targeted to potentially vulnerable groups such as the young, the elderly, female-headed households, and those stricken by illness, unemployment or those facing income instability.

Another reason to believe that private safety nets might be especially important in Poland has to do with the country's turbulent history. War, occupation and partitions are likely to have raised the value of family ties as coping mechanisms [Worach-Kardas (1983)]. Also, there is emerging evidence that the formation of habits and traditions are important elements in family interaction, so that a history of hardship may have strengthened the cultural norms that facilitate private transfers. Poland's homogeneity of religious beliefs probably encouraged close family networks as well.

[1]Calvo, G. A. and J. A. Frankel, From Centrally-Planned to Market Economies: The Road From CPE to PCPE, NBER Working Paper No. 3698, Cambridge, MA, 1991.

[2]Private income redistribution has been the topic of recent research for both developed countries and developing countries. See, for example, the surveys by Gale and Scholz (1994) and Cox and Jimenez (1990).

[3]See, for example, the studies reviewed in Cox and Jimenez (1990).

Indeed, the limited evidence already available on private transfers and intergenerational relations in Poland points to strong ties between generations. For example, two-thirds of all elderly persons in Poland live with their children, which attests to the importance of private transfers in the form of shared living arrangements. Indeed, for all forms of care (e.g. caring for the sick, child care, help with errands and personal business) dependence on private familial sources is more prevalent than dependence on professional sources [Worach-Kardas (1983)].

The need to understand the social and economic factors shaping private transfers—with special attention to their relationship to other forms of assistance—is justified by the increasing role of the private safety net for coping with economic hardship during the period of transition. A recent opinion survey [Rose (1992a)] indicates that fully one-quarter of Polish households regard help from relatives and friends as important for their standard of living. According to a sociological survey conducted by Poland's Central Statistical Office (GUS) in January 1993, 28 percent received support from other households: in kind (19 percent); cash (10 percent); service/help (7 percent); other forms (e.g. "life advice," 9 percent).[4] The substantial duration of this assistance also matters: three-quarters of the recipient households received at least one of these forms of assistance over a period of a year and a half. A similar proportion of households reported a significant impact on their well-being from cash and in-kind help from non-household family members. The major needs experienced by recipients—equivalently, the reasons that may have motivated donors—are associated with recipients' inability to cope with housing problems (21 percent could not afford to pay rent), lack of a job or job uncertainty (18 percent), and food needs (18 percent). Further, the safety net provided by other institutions is far from comprehensive. According to the same study, an estimated one-third of households in Poland requiring financial support, and a fifth of households needing in kind help, did not receive help from the state, church or charitable organizations. This finding highlights the importance of family networks for economic reform.

Further, Poland's chronic shortages prior to economic transition—felt most dramatically during the period of martial law (1981–84)—may have spurred the development of informal trading networks, which would have strengthened the bonds needed to facilitate inter-household risk-sharing. Shortages likely encourage inter-household exchange. If one household cannot obtain soap and another is short of meat, the two might be able to improve their lot by trading. Trading experience could help forge the altruism and trust necessary if households are to share risk by making financial transfers.

In the next section we discuss the data for financial and in kind private transfers. We then describe the incidence and size of transfers and the characteristics of givers and recipients, from which we will infer whether private transfers tend to perform some of the functions of public transfers. This will be followed by a section that develops an empirical framework to address the critical policy question: to what extent might private transfer networks function like publicly-funded safety nets?

[4]GUS's note on *Pomoc Spoleczna w Swietle Badan GUS*, April, 1993. The authors would also like to acknowledge R. Walicki's helpful note (*Pomoc Rodzinna*, April 1993), prepared at their request.

1. Data Sources

The data used in the analysis come from the nationwide Household Budget Survey (HBS), conducted annually by GUS since 1957. The HBS provides, for various population groups, information on living conditions, measured by indicators such as income and expenditures, food consumption, durables, housing conditions and demographic conditions of households.[5] In this study, we use the 1987 and 1992 rounds of the HBS. In 1987 HBS covered over 29,000 households. The households were stratified by source of income into four major socioeconomic groups: employee households, whose major source of income comes from the socialized sector (47 percent), farm households (14 percent), households with incomes from both the socialized sector and agriculture (13 percent), and pensioners (26 percent).[6] In 1992, the HBS was continued on a smaller sample covering about 11,000 households.

The primary strength of the HBS is that it is designed to provide the most comprehensive and timely picture of a household's material status. Nevertheless, its pre-1992 versions (such as the 1987 HBS, used in this study) do have some drawbacks, the most important of which relate to coverage and non-response [Garner, Okrasa, Smeeding, and Torrey (1991)]. The survey covers the non-institutional population of households whose heads belong to one of the above socio-economic groups. Excluded are households headed by someone employed in the private sector (5.6 percent of employees in 1986); persons employed in the defense and security ministries (3.1 percent before 1989); and nomenclatura (less than 1 percent).[7] Altogether, 10.5 to 11.5 percent of the population were not covered by the HBS in 1987. There is also no information about income from outside the legal/official economy. These activities were not as significant in 1987 as they were in later years. Rose's (1992b) recent surveys indicate that, nowadays, every third household is engaged in some form of "uncivil economy."

The non-response rate is 31 percent [GUS (1988, 1992)] and, according to experimental studies is caused by long (3 months per year) and detailed (diary) data collection [Kordos and Kubiczek (1991)]. Refusals are replaced by households closest in size and *per capita* income, which maintains proportions among important categories. On the other hand, refusals are non-random and the reliability of the procedure for replacing households depends on the care taken by the interviewer.

Private transfers received and given are constructed from detailed questions about income and expenditures. Cash receipts are reported directly in the income section of the questionnaire that summarizes, for the entire (quarterly) period of the study, information registered in the "budget-notebook," or diary, which the respondent is asked to keep. Non-monetary receipts are reported in the expenditure section of the same questionnaire as "commodities or services obtained free

[5]GUS, *Metoda i Organizacja Badan Budzetow Gospodarstw Domowych*, (Method and Organization of Studies of Household Budgets), series *Zeszyty Metodyczne* (Methodological Papers), No. 62, Warsaw, 1986.

[6]For reasons we discuss in the next section, we will focus on the first group, employee households, who comprise nearly half the households in the 1987 HBS [GUS (1988)].

[7]It is possible, however, that spouses in our sample may be employed in these sectors, since the employment screens apply only to household heads.

of charge." The quantity and value of each item is specified. The latter is estimated by both the interviewer and household, at current market prices. Thus, the category "gifts received" encompasses money, goods and services. Receipts also include bequests, dowry payments, and the value of goods received from persons living abroad. In addition, support from private non-familial sources such as charity income is included in private transfer receipts. Total transfers given equal money and the value of goods given to persons outside the household, including relatives separated from the family for at least three months (e.g. a dormitory resident). Since some items are included in receipts but not gifts, measures of transfers received and transfers given are not symmetric.

Wages and salaries are considered the most reliable income data because figures are obtained from employers. Since income measurement is most straightforward for those who work for pay, and because household resources are a critical component of our analysis of transfer behavior, we focus solely on worker households, that is, households whose primary earner works in a non-farm, state-owned enterprise.

2. Empirical Work

Before proceeding to the details of the empirical work, we summarize our main findings. First, private transfers are widespread and significant in Poland. Among all worker households, gross receipts of private transfers account for 4.6 percent of total income in 1987. Among those who were net recipients (i.e. inflows of private transfers exceeded outflows) net receipts comprise 10 percent of their income. Nearly two-thirds of the households in our sample are involved in inter-household private transfers, either as donors, recipients, or both.

Second, the empirical work that we describe below indicates that private transfers are responsive to the economic and demographic status of households. They flow from high to low-income households, and tend to go to the well-educated and households headed by a young couple. Transfers are also targeted to families with many children and those experiencing recent illness or injury. Transfers follow a pronounced age pattern, which suggests that they might be given in response to possible liquidity constraints faced by households.

To gain some understanding of the potential role of private safety nets during Poland's economic transition (which began January 1, 1990), we used our multivariate analysis to simulate the impact of earnings loss on private transfers. We predicted the boost in private transfers resulting from setting the head's earnings to zero. Using the 1987 data, we found that, in the face of these lost earnings, predicted receipts would more than double. This boost would fill nearly 10 percent of the income void left by lost earnings of the household head. For single-earner households, the corresponding figure is larger—18 percent.

There are several reasons to think that the post-transition impact could differ from that predicted from the 1987 results. On the one hand, the actual onset of unemployment could galvanize households and increase transfer activity. On the other hand, the spectre of unemployment could weaken private networks if households become increasingly concerned with their own problems. Also, changes in public transfer income could have affected private transfers as well.

An analysis of the HBS data set for 1992 provides insight on these issues. Though transfer incidence in 1992 was the same as in 1987, amounts received (adjusted for inflation) declined significantly. For example, the 1992 value of net transfer receipts, among recipients, was only two-thirds of what it was in 1987. The replication of the private-transfer impact of earnings loss using the 1992 data shows a much smaller response. Private transfer networks appear to have weakened after the transition.

A. *The Scope and Magnitude of Private Transfers among Worker Households*

One way to gauge the extent of transfers is to look at total gross transfers received and given. Nearly half of the sample received private transfers, and over a quarter gave them.[8] Almost 15 percent did both, and less than 40 percent did neither. So over 60 percent of the sample participated in private transfer networks. The exact figures are presented below:

	Number	Percentage of Sample ($N=12{,}896$)
Households giving	3,689	28.6
Households receiving	6,312	49.0
Households both giving and receiving	1,872	14.5
Households neither giving nor receiving	4,767	37.0

Since some households both gave and received, we characterize households as net donors, or net recipients, according to whether outflows of private transfers exceed or fall short of inflows. Forty-four percent of the households were net recipients and about 19 percent were net givers. We designate those whose net transfer is zero as "Others."[9] The exact figures for the net transfers are presented below:

	Number	Percentage of Sample ($N=12{,}896$)
Net transfer donors	2,410	18.7
Net transfer recipients	5,710	44.3
Net transfer equals zero (others)	4,776	37.0

How do net donors differ from net recipients? In Table 1 we list a variety of household characteristics according to transfer status. Before contrasting these subgroups however, focus on the first column of the table, which lists the characteristics for the whole sample of non-farm, employed households. Gross private transfers received comprise 4.6 percent of income from all sources (including private transfers). Among net transfer recipients, net transfers account for about 10 percent of total household income. Net gifts among givers amount to a little over three percent of their total household income. To put the Polish figures in

[8]Recall from the discussion above that the definitions of receipts and gifts are not symmetric, and that there is a larger number of sub-categories for transfers received.

[9]Nine households in the "Others" category actually gave and received the exact same amount.

perspective, the volume of comparable transfers in the United States, as a fraction of income, is about the same as that of Poland.[10]

Private transfers appear to flow from high- to low-income households. The pre-private-transfer income is lowest for net recipients and highest for net givers (Table 1). Social security income is lower among recipients than givers, but the reverse is true for other social transfers.

Those involved with private transfers are better educated than those who are not. Over 12 percent of net recipients and 13 percent of net givers attended a university, for example, compared to less than 10 percent of "Others" (Table 1). Recipients are younger, and givers older, than the sample average. Over 19 percent of recipient households were headed by someone under 30, compared to 10 percent of giver households. Further, the elderly (those aged 60 and over) are under-represented among recipients and over-represented among givers. (Though, in this sample of employees, they are a small minority overall.) Similarly, there are relatively fewer pensioners among recipients compared to givers. So it appears that transfers flow from old to young among these non-farm, employed households. Recipients had slightly more frequent illness or injury requiring hospitalization during the three-month period of the survey, compared to the whole sample. However, households with invalids are under-represented among recipients.[11]

Table 1 provides an introductory illustration of transfer patterns. We now turn to a multivariate analysis of transfer incidence and amounts.

B. *Specification of Transfer Functions*

We estimate transfer functions in two stages: first we consider the incidence of net transfers received and, conditional on a transfer occurring, the amount. In symbols, indexing households by h, we express the latent variable that determines the transfer receipt as

$$(1) \quad t_h = a_0 + a_1\text{Resources}_h + a_2\text{Age}_h + a_3\text{Demographic}_h + a_4\text{Miscellaneous}_h + \varepsilon_h,$$

and

$$T_h > 0 \quad \text{iff } t_h > 0,$$
$$T_h = 0 \quad \text{otherwise.}$$

When the latent variable t_h crosses the threshold 0, transfers, T_h, become positive. Otherwise, they are zero. The four categories of household characteristics entered on the right-hand side of (1) are described in detail below. The stochastic term ε_h represents unobservable determinants of the transfer decision. The estimating equation for transfer amounts received is

$$(2) \quad T_h = b_0 + b_1\text{Resources}_h + b_2\text{Age}_h + b_3\text{Demographic}_h + b_4\text{Miscellaneous}_h + E(\eta_h \mid T_h > 0),$$

where η_h is a random error component.

[10]The assumptions underlying these calculations are as follows: \$200 billion total transfers in the U.S. in 1988, and 2/3 of these are assumed inter-vivos transfers. Inter-vivos transfers as a proportion of aggregate disposable income in U.S. (\$3,456.8 billion in 1988 dollars) are 0.667(200)/3,456.8 = 3.9 percent. Figures from Cox and Rank (1992) and the Economic Report of the President.

[11]Recall that this analysis focuses on the group of households headed by an employee. Our sample contains no households headed by pensioners or disabled people.

TABLE 1

SELECTED CHARACTERISTICS OF POLISH HOUSEHOLDS BY PRIVATE TRANSFER STATUS, 1987

Variable Name	[1] All Households	[2] Net Recipients	[3] Net Donors	[4] Others
Income Variables (zlotys per month)				
Income before private transfers	46,911	43,657	52,001	48,233
Wage and salary income	39,072	36,124	44,082	40,069
First earner's wages	26,258	25,106	29,092	26,204
Other earners' wages	12,814	11,018	14,988	13,865
Income from social security	2,762	1,932	3,570	3,347
Receives social security (proportion)	0.233	0.173	0.283	0.280
Incomes from other social transfers[a]	3,134	3,712	2,479	2,775
Receives other social transfers (proportion)	0.858	0.912	0.796	0.824
Miscellaneous income[b]	1,943	1,889	1,871	2,043
Total household income, including private transfers	48,721	48,454	50,318	48,233
Education (proportions of hh heads with)				
Elementary school	0.223	0.195	0.204	0.266
High school	0.297	0.311	0.315	0.272
Occupational type school	0.365	0.369	0.346	0.369
University	0.112	0.120	0.133	0.091
Other Characteristics				
Age of household head (years)	39.412	36.998	42.273	40.856
Proportion of hh with head's age less than 30	0.149	0.193	0.100	0.122
Proportion of hh with head's age greater than 60	0.010	0.006	0.018	0.012
Proportion of hh with married head	0.947	0.929	0.970	0.956
Proportion of married hh who are young	0.186	0.272	0.110	0.121
Proportion of female headed hh	0.285	0.277	0.283	0.295
Proportion of hh with pensioner present	0.133	0.093	0.164	0.165
Proportion of hh with old non-pensioners	0.032	0.019	0.042	0.044
Proportion of hh with invalid present	0.046	0.040	0.044	0.055
Proportion of hh with member ill in last 3 months	0.076	0.079	0.083	0.067
Proportion of hh with a telephone	0.197	0.195	0.232	0.181
Proportion of hh with a car	0.293	0.306	0.335	0.258
Family size	3.633	3.757	3.341	3.633
Number of children under age 18	1.336	1.571	1.000	1.225
Number of wage earners in hh	1.584	1.503	1.662	1.642
Transfers				
Proportion receiving net transfers	0.443	1.000	0.000	0.000
Net transfer received (amount)	2,124	4,798	0	0
Proportion giving net transfers	0.187	0.000	1.000	0.000
Net transfer given (amount)	315	0	1,683	0
Proportion receiving gross transfers	0.490	1.000	0.246	0.002
Gross transfers received (amount)	2,259	5,006	222	2.898
Proportion giving gross transfers	0.286	0.222	1.000	0.002
Gross transfers given (amount)	449	208	1,905	2.898
Proportion both giving and receiving gross transfers	0.145	0.222	0.246	0.002
Sample Size	12,896	5,710	2,410	4,776

Note: Zloty-denominated variables are in 1986 zlotys per month.

[a]Includes income from family allowances, child-care allowances, maternity allowances and other social payments.

[b]Includes, for example, income from selling goods, rental income, and winnings from games and lotteries.

i. *Household Resources*

Household resources are comprised of four forms of income: wages and salaries, social security income, income from other social support (e.g. maternity and child-care allowances) and miscellaneous income (e.g. lottery winnings). We enter total pre-private-transfer income in the regressions, along with separate measures of social security income and other social transfers. We also enter educational attainment of the head of the household as an indicator of household permanent income.

ii. *Age*

We enter a quadratic in the age of the household head, as well as interacting age with income. If transfers are responsive to liquidity constraints, we would expect that their timing would be important. Transfer incidence and amounts would be concentrated in life-cycle phases when current resources are low.

iii. *Demographic Characteristics*

We enter a vector of other household demographic characteristics: gender of the household head, marital status, and family size. Many studies indicate that transfers are targeted to female-headed households [for a review of the evidence, see Cox and Jimenez (1995)]. Marital status has also been found to be an important determinant of transfers [Cox (1987)]. Holding household resources constant, we might expect more transfers to be targeted to larger families, since there would be more mouths to feed. We also include a dummy indicating whether there are pensioners present in the household, and one indicating whether there are elderly persons (aged 60 or over) but no pensioners. On the one hand, we might expect transfers to be targeted to the retired. On the other hand, this group is also collecting a pension, which reduces the need for private transfers.

iv. *Other Variables*

We include two health indicators in the transfer functions. The first is a dummy indicating whether a household member was injured or sick enough to require hospitalization during the three-month period of the survey. The second dummy indicates whether one or more persons in the household were collecting a disability pension. If households form co-insurance networks we might expect transfers to respond positively to the incidence of illness. We also enter dummy variables for whether the household has a telephone and a car. If ownership of either of these enables a household to perform more inter-household, in kind services or have increased contact with relatives and friends we would expect them to be positively associated with private transfers.

C. *Table 2—Probit Results for Net Transfer Receipts*

Probit results for net transfer receipts are presented in Table 2, column 1. The dependent variable in the probit analysis takes a value of 1 if the household is a net recipient of private transfers, and a value of 0 otherwise. With the exception of a couple of findings, transfers appear to be targeted to low-income, vulnerable households such as those headed by the young, those experiencing recent illness or households with many children.

Household pre-private-transfer income is inversely related to the probability of transfer receipt. Income measures are entered in logarithms, so that their impact is larger at low income levels. Increasing pre-transfer income from 20,000 to 30,000 zlotys per month reduces the probability of transfer receipt by about 9.1 percentage points. However, the same increase in income at sample means (46,911 zlotys) would reduce the probability of transfer receipt by 4 percentage points.

An increase in social security income from 0 to the sample mean reduces the probability of transfer receipt by 2 percentage points. On the other hand, increasing social support from 0 to its mean value *raises* the probability of private transfer receipt by 7 percentage points. These results are reconcilable once one considers what we are able to hold constant in the regression. The regression includes a measure of whether there are pensioners in the household, as well as the variable that represents the receipt of social security income. Thus, the coefficient of the latter measures the "pure" effect of receiving cash income in that form on private transfers and is not confounded with the possible effect of just having a pensioner present. It is therefore not surprising that in the regression, social security income, like cash income, tends to reduce the probability of receiving private transfers. In contrast, the coefficient of the variable that measures other social transfers may reflect both the effect of receiving cash income in that form, as well as the effect of the criteria for receiving the transfer. Other social transfers include family allowances, unemployment insurance, social assistance, maternity and child care benefits, and so forth (see Table 1, fn. b). The regression cannot hold constant for all the conditions that influence transfer receipt because we do not have data for them (for example, we do not have a variable for the presence of a new mother) or they are inherently unobservable (such as the criterion for receiving social assistance). Thus, even if, as we suspect, receiving cash in the form of social transfers reduces the receipt of private transfers, we are unable to discern this because the criteria for receiving the social transfer would stimulate private transfers. These eligibility effects could explain the positive coefficient on other social transfers.

Private transfers follow a pronounced age pattern over the life-cycle, suggesting that they may be responsive to possible liquidity constraints faced by younger households, who may not yet have established their reputations in formal credit markets. At sample means, a household headed by an 18-year-old has a predicted probability of receiving a transfer of 60 percent. This probability falls continuously with age, to about 26 percent by age 73. Further, the coefficient of the "young couple" dummy variable indicates that such households are about 7.4 percentage points more likely than single households to receive a transfer.

Households having a member who was hospitalized are more likely to receive a transfer—having illness or injury raises the probability of transfer receipt by 3.4 percentage points. Similarly, households with someone classified as an "invalid" (i.e. a person who qualifies for disability benefits) is 5.5 percentage points more likely to receive a transfer. Unlike the pattern prevailing in many other countries,

TABLE 2

PROBIT AND GENERALIZED TOBIT—NET TRANSFERS RECEIVED, 1987

Variable Name	Coefficient	[1] Probit T-Ratio	Variable Mean	Coefficient	[2] Generalized Tobit[a] T-Ratio	Variable Mean
Income Variables						
Log pre-private-transfer income	−0.7474	−6.055	10.680	−0.9142	−3.880	10.608
Log income from social security	−0.0059	−1.297	2.1591	−0.0133	−1.578	1.5900
Log income from other social transfers	0.0362	6.625	6.6788	0.0493	2.557	7.2447
Log pre-private-transfer income * age	0.0044	1.442	421.39	0.0114	2.096	392.97
Education Variables						
High school	0.0925	2.673	0.2971	0.2025	2.934	0.3105
Occupational type school	−0.0301	−0.951	0.3648	0.0769	1.407	0.3694
University	0.2080	4.464	0.1120	0.4401	3.846	0.1203
Other Characteristics						
Head's age	−0.0742	−2.154	39.412	−0.1240	−2.192	36.998
Age squared	0.0001	0.850	1,642.7	−0.0002	−0.745	1,441.1
Married household	−0.0802	−1.336	0.9466	−0.3004	−3.190	0.9287
Young couple	0.2654	6.964	0.1858	0.2848	2.658	0.2715
Female headed household	−0.0258	−0.851	0.2850	−0.0563	−1.073	0.2771
Pensioner in household	−0.1439	−2.563	0.1331	−0.2358	−1.906	0.0932
HH with old non-pensioners	−0.0783	−1.041	0.0325	−0.1448	−0.937	0.0187
Invalid in household	0.1376	2.004	0.0463	0.3357	2.362	0.0401
Ill last 3 months	0.0856	1.968	0.0756	0.0762	0.996	0.0793
Household with a telephone	0.1152	3.586	0.1969	0.0970	1.394	0.1955
Household with a car	0.1449	5.268	0.2934	0.2377	3.361	0.3056
Family size	−0.0047	−0.255	3.6334	0.0526	1.592	3.7571
Number of children under age 18	0.1261	5.993	1.3362	0.0511	0.827	1.5713
Constant	8.2555	6.242		16.645	7.276	
Inverse Mill's ratio				0.4603	0.739	0.8086
Number of observations	12,896			5,710		
Dependent variable mean	0.4428			7.5682		
Log-likelihood	−8091.2		R-squared	0.0633		
Chi-squared	1526.0		F-statistic	18.2939		

Note: Zloty-denominated variables are in 1986 zlotys per month.
[a]Dependent variable: Log of net transfers received.

private transfers do not appear to be targeted to female-headed households. Households headed by women are a percentage point less likely to receive private transfers (but the coefficient is not statistically significant). Part of the reason for the difference in patterns between Poland and, say, the Philippines or Peru, is that these latter countries are poorer and the disparity in well-being between male and female-headed households is likely to be more pronounced.

Being married reduces the probability of transfer receipt by 1.2 percentage points, but families with more children are more likely to receive transfers. Having an additional child less than age 18 raises the probability of transfer receipt 6.5 percentage points. Households with a pension beneficiary are less likely to receive transfers (5.6 percentage points).

While this evidence suggests that private transfers compensate for low incomes and other difficult situations, other findings from column 1, Table 2 point to the contrary. Well-educated households, for example, are more likely to receive transfers than those having just an elementary school education (high school: +3.6 percentage points, university: +8.2 percentage points). The education effect may be due to liquidity constraints. For example, in a study of U.S. households, Cox (1990) finds a striking difference between the effects of current vs. permanent income on the probability of receiving a transfer—the former negative, the latter positive. The positive income effects of permanent income, though counter-intuitive, can be explained by a model in which recipient households face borrowing constraints. Being better educated raises permanent income and hence desired consumption. With current income constant, the gap between desired consumption and current income rises, which increases the household's demand for a loan or need for a subsidy. If liquidity constraints are binding, private transfers might be an alternative to financial markets as a source of credit.

An alternative, and perhaps complementary, explanation for the relationship between transfers and educational attainment is unobserved parental generosity. Even when schooling is publicly provided, parents can enhance the human capital investment of children by nurturing the development of younger children and supporting expenses of older ones. Especially generous parents are more likely to give to children at every point in the life-cycle, so that current transfers and past schooling attainment are linked.

Owning a phone or car also raises the probability of receiving (phone: +4.6 percentage points, car: +5.7 percentage points). Owning a car or phone may indicate the ability of households to provide inter-household services and contact, thus increasing their chances of receiving a transfer. On the other hand, the causality in the regressions could go the other way, with transfers enabling the purchase of these items.

D. *Generalized Tobit—Transfer Recipients*

The generalized Tobit for transfer recipients is presented in the second column of Table 2. Both private transfers and income are measured in logarithms. The sign pattern for the generalized Tobit is roughly consistent with that of the probit.[12]

With social security and other social transfers held constant, variations in pre-transfer income capture the effects of wage and salary income (and miscellaneous income) on transfer receipts. These forms of income are inversely related to

[12]The probit equation used to generate the inverse Mills ratio terms for the generalized Tobits for receiving (Table 2) and giving (Table 3) uses a step, rather than a quadratic, function for age: age <30, age ≥ 60, and 10-year intervals in-between. These probit equations produce estimated partial derivatives similar to their counterparts in Tables 2 and 4. We experimented with an alternative way to identify the generalized Tobit by adding the following terms to the probit used to generate the inverse Mill's ratio: a cubic term in age and interactions between age and marital status, family size and the female headship and young-couple dummies. This generalized Tobit produced results similar to the ones presented above, as did an OLS regression using the non-limit observations.

amounts received, though the point estimates indicate that the impact is small. The partial effect of an increase in pre-transfer income on transfer amounts, at sample means, is about −0.054 zlotys per 1 zloty increase in earnings. The effect is larger the lower is pre-transfer income. For example, the estimated partial effect is twice as strong for a household at the 5th percentile for pre-transfer income (21,600 zlotys) compared to one with mean pre-transfer income.

Transfers fall with age, especially for poorer households, which is consistent with the liquidity constraints hypothesis, which predicts that transfers follow a distinct life-cycle pattern for those who have difficulty borrowing. For example, with other variables at sample means, having pre-transfer income of 10,000 zlotys implies that transfer amounts fall by 3.2 percent per year. A household with a 90,000 zloty income has a predicted age-transfer profile that is almost flat.

Marital status has a strong effect on transfer amounts in the regression. All else equal, married couples receive 26 percent less than single households, but this negative effect does not hold for young couples. Family size and number of children affect transfer amounts as well. Increasing the family size by one person raises transfers by 5.4 percent. An extra child under 18 boosts transfer amounts by 5.2 percent. Consistent with the probit results, social security and social support exert opposing effects on amounts, though neither elasticity is large.[13]

The charts below use the results from the probit together with the generalized Tobit to show expected transfer receipts, that is, the probability of receiving a transfer times the amount. Chart 1 plots expected receipts against pre-transfer income and shows how expected receipts fall more sharply with income for low-income households. Chart 2 shows how expected receipts decline with the age of the household head.

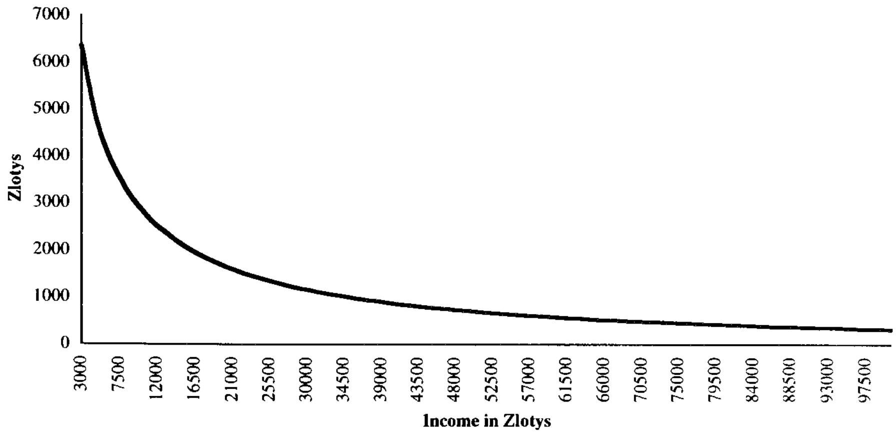

Chart 1. Expected Net Transfers Received as a Function of Pre-Transfer Income, 1987
Source: Probit and Generalized Tobit, Table 2

[13]We also estimated probits and generalized Tobits for net transfers given, and the results are generally the reverse of those for net transfers received. Increases in income are associated with increases in giving, for example, and the age profile of transfers given slopes upward. This pattern does not hold for education, however, which is positively associated with both receiving and giving.

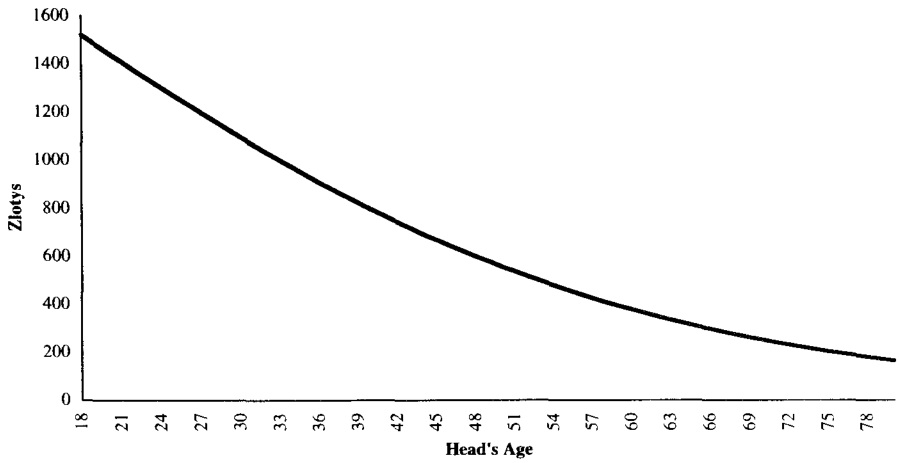

Chart 2. Expected Net Transfers Received as a Function of Head's Age, 1987
Source: Probit and Generalized Tobit, Table 2

E. *A Simulation of the Effects of Job Loss on Transfers*

This section addresses the following question: If the household head had a reduction in earnings, how would private transfers respond? The question is important because we would like to gauge the extent and magnitude of private safety nets available for households who lose their jobs as Poland makes the transition from a socialist to a capitalist economy. The stronger the private safety nets, the lesser the scope for effective redistribution through public income transfers. At the same time, extrapolating from the 1987 cross-section could be problematic because the transfer function need not be stable throughout the transition. For this reason, we also examine post-transition transfer behavior in the next section.

We used the 1987 data to calculate the predicted probability of transfer receipt and transfer amount after setting the earnings of the household head equal to zero. So earnings of the first earner are subtracted from the pre-transfer income in the simulation.[14] The results from the simulation are outlined below:

Household Type	All	1 Worker	>1 Worker
Actual net transfers	2,135	2,593	1,722
Actual proportion receiving transfers	0.443	0.492	0.399
Head's earnings	26,256	25,241	27,173
Predicted change in probability of transfer receipt after removing head's earnings	+0.197	+0.249	+0.151
Predicted change in transfers after removing head's earnings	2,462	4,548	579
Percentage of lost earnings replaced by change in transfers	9.4%	18.0%	2.1%

[14]Those households for whom earnings were greater than pre-transfer income and those for whom earnings of the first earner are the sole source of support for the household were deleted from these simulations. The total deletion is 1 percent of the sample. The reason for deleting those who relied solely on earnings for support is that in the log specification the predictions become extreme at very low values of pre-transfer income.

We find that, on average, predicted private transfer receipts would more than double if the household head lost his/her earnings. The boost in private transfers would fill 9.4 percent of the income vacuum left by the job loss, though the effect varies depending on whether there is only one earner in the household. For households with only one worker, the figure is 18 percent.[15] So private transfers can replace a significant fraction of income in the event that an earner loses his or her job. The simulation shows that private safety nets were potentially important in Poland prior to the transition.

There are three things to keep in mind concerning the simulation. First, it is a partial equilibrium exercise. We assume that one household experiences joblessness but the others do not. Since earnings loss is not widespread other households do not lose their capacity to give transfers.[16] If a significant fraction of households lost their earnings at once, private safety nets could dry up rather than expand.

Second, the HBS does not link donors and recipients. Since donor incomes cannot be included in the regressions for private transfer receipts, coefficient estimates of the recipient income variables could be biased toward zero. Omitted variable bias renders our simulations conservative. The reason is that donor's income is likely to enter positively in the transfer regressions, and we would expect that incomes of donors and recipients are likely to be positively correlated.[17] Taking into account the possibility that our results could be affected by omitted variable bias would strengthen the conclusion that private transfers were a potentially important safety net in Poland.

Third, we must examine transfer behavior during the post-transition regime to get an accurate picture of the stability of the transfer functions through the transition. We turn our attention to a replication of the analyses above using the HBS data for 1992.

3. Results from the 1992 Survey

The replication of Table 1 for the 1992 HBS data is presented in Table 3. The most striking difference between the 1987 and 1992 results is that, while the incidence of transfers is roughly the same in the two years, the amounts are much smaller in 1992. For example, the average gross transfers received in the 1992 sample were 29 percent lower than that in 1987 (zloty amounts are adjusted for inflation).[18]

One possible reason for the decline in gross transfers received is the general decline in incomes experienced between the two time periods. Average donor

[15]Earnings replacement for single-worker households is higher in part because our specification implies that the transfer effects of earnings are greater in absolute value the lower are earnings. Let the income coefficient in the log-transfers regression be denoted by "a." $\partial T/\partial I = aT/I$. The partial effect is higher the smaller is I.

[16]In this sense the simulation is akin to a "gradualist" transition policy vs. "shock therapy."

[17]For example, in the case in which private transfers flow from parents to children, the relevant correlation for omitted variable bias would be the one between parent and child incomes, which is likely to be positive [see, for example, Becker and Tomes (1986) for a survey of findings for a variety of Western countries].

[18]The HBS sample was drastically reduced starting in 1992, which accounts for the sample size of 4,210 in 1992, down from 12,896 in 1987.

TABLE 3

SELECTED CHARACTERISTICS OF POLISH HOUSEHOLDS BY PRIVATE TRANSFER STATUS, 1992

Variable Name	[1] All Households	[2] Net Recipients	[3] Net Donors	[4] Others
Income Variables (zlotys per month)				
Income before private transfers	43,739	41,058	50,392	44,073
Wage and salary income	35,974	33,235	42,242	36,576
First earner's wages	22,812	21,585	26,503	22,645
Other earners' wages	13,162	11,650	15,738	13,931
Income from social security	3,012	2,237	4,410	3,368
Receives social security (proportion)	0.269	0.217	0.343	0.302
Income from other social transfers[a]	3,592	4,224	2,777	3,139
Receives other social transfers (proportion)	0.848	0.899	0.795	0.806
Miscellaneous income[b]	1,162	1,361	962	990
Total household income, including private transfers	44,941	44,197	48,726	44,073
Education (proportion of hh heads with)				
Elementary school	0.141	0.126	0.137	0.165
High school	0.337	0.347	0.353	0.315
Occupational type school	0.362	0.366	0.318	0.380
University	0.137	0.138	0.161	0.124
Post high school, not university	0.023	0.025	0.031	0.017
Other Characteristics				
Age of household head (years)	40.296	38.546	43.130	41.260
Proportion of hh with head's age less than 30	0.117	0.135	0.083	0.109
Proportion of hh with head's age greater than 60	0.008	0.004	0.022	0.007
Proportion of hh with married head	0.949	0.934	0.963	0.961
Proportion of married hh who are young	0.135	0.189	0.064	0.099
Proportion of female headed hh	0.395	0.400	0.387	0.392
Proportion of hh with pensioner present	0.137	0.097	0.215	0.153
Proportion of hh with old non-pensioners	0.016	0.008	0.036	0.018
Proportion of hh with invalid present	0.040	0.032	0.055	0.044
Proportion of hh with member ill in last 3 months	0.066	0.069	0.060	0.065
Proportion of hh with a telephone	0.309	0.297	0.350	0.306
Proportion of hh with a car	0.412	0.418	0.454	0.384
Family size	3.584	3.703	3.327	3.551
Number of children under age 18	1.281	1.481	1.363	0.970
Number of wage earners in hh	1.405	1.362	1.467	1.432
Transfers				
Proportion receiving net transfers	0.475	1.000	0.000	0.000
Net transfer received (amount)	1,491	3,139	0	0
Proportion giving net transfers	0.174	0.000	1.000	0.000
Net transfer given (amount)	290	0	1,666	0
Proportion receiving gross transfers	0.525	1.000	0.281	0.002
Gross transfers received (amount)	1,608	3,302	221	2.492
Proportion giving gross transfers	0.278	0.218	1.000	0.002
Gross transfers given (amount)	406	162	1,888	2.492
Proportion both giving and receiving gross transfers	0.153	0.218	0.281	0.002
Sample Size	4,210	2,000	732	1,478

Note: Zloty denominated variables are in 1986 zlotys per month.

[a]Includes income from family allowances, child-care allowances, maternity allowances and other social payments.

[b]Includes, for example, income from selling goods, rental income, and winnings from games and lotteries.

income net of social and private transfers fell 13 percent ((35,596–41,015)/41,015) in real terms over the 5 year period. However, transfers given actually held steady during this time. So, the income decline within the country is unlikely to have caused the shortfall in receipts, which could instead stem from a reduction in transfers from outside the state sector or outside Poland itself.[19] Another possible explanation is the behavioral response to the rise in average pensions (9 percent) and other social transfers (15 percent). If private transfers are truly a substitute for public transfers then we would expect them to decline. Finally, a problem in any strict comparison between 1987 and 1992 arises due to the sampling biases in the HBS. Until 1992, the only worker households covered by the HBS were those employed in the state sector. This may not have been much of an omission in 1987; but it was probably a more problematic one in 1992, because the economic reforms would have already started to lead to a greater part of the labor force shifting to the private sector.

While transfer *amounts* declined by 1992, transfer *incidence* remained about the same. Indeed, the probit equation for net transfers received is remarkably stable across the two sample years (column 1, Table 2 vs. column 1, Table 4). A test for structural change generated a Chi-squared test statistic that is not significant at even the 0.25 level. Further, not a single coefficient estimate from the 1992 probit for transfer receipt was significantly different from its counterpart in the 1987 sample. The largest difference in the point estimates is associated with the variable for the presence of an "invalid," which is positively and significantly associated with receiving a transfer in 1987 but not 1992.

The generalized Tobit results for net transfers received in 1992 are presented in the second column of Table 4. Like the probit results, the generalized Tobits are stable across the two years, in the sense that, except for the differences in constant terms for the two equations, the differences in the estimated coefficients are not jointly significant. The most striking difference between the estimates is that pre-transfer income has a weaker effect on amounts received in 1992. At sample means, the 1992 elasticity of transfers with respect to pre-transfer income is −0.31, compared to −0.40 in 1987.

Since transfer receipts fell in 1992, and the responsiveness of transfers to pre-transfer income weakened as well, our simulation of the impact of job loss on transfer receipts generated a much weaker result than the simulation with the 1987 data. We found that private transfers would only fill 2.4 percent of the gap left by removing the earnings of the head (compared to 9.4 percent for the 1987 data). And for single-earner households, the comparable figure in 1992 is 3.4 percent (vs. 18 percent in 1987).

4. Conclusion

Private transfers are responsive to the economic status of households in a way that suggests they could be an important factor in ensuring the safety net

[19]Agricultural incomes fell much more sharply than wage incomes after the transition. Unfortunately, our transfer data are aggregated across categories so we cannot ascertain the exact source of the reduction in transfers received. This is an issue that should be addressed further with other data sets.

TABLE 4

PROBIT AND GENERALIZED TOBIT—NET TRANSFERS RECEIVED, 1992

Variable Name	Coefficient	[1] Probit T-Ratio	Variable Mean	Coefficient	[2] Generalized Tobit[a] T-Ratio	Variable Mean
Income Variables						
Log pre-private-transfer income	−0.9358	−3.960	10.601	−0.6336	−1.616	10.536
Log income from social security	0.0023	0.330	2.4707	−0.0045	−0.406	1.9741
Log income from other social transfers	0.0410	4.480	6.8180	0.0269	1.039	7.3374
Log pre-private-transfer income * age	0.0100	1.776	427.66	0.0084	0.913	406.59
Education Variables						
High school	0.1446	2.289	0.3366	0.2286	1.931	0.3470
Occupational type school	0.0103	0.168	0.3622	0.0384	0.399	0.3655
University	0.2489	3.103	0.1368	0.3917	2.302	0.1375
Other Characteristics						
Head's age	−0.1054	−1.705	40.296	−0.0639	−0.644	38.546
Age squared	−0.0002	−0.597	1,700.3	−0.0005	−1.051	1,551.7
Married household	−0.1146	−1.106	0.9487	−0.3378	−2.207	0.9340
Young couple	0.2634	3.508	0.1354	0.3819	2.588	0.1885
Female headed household	0.0387	0.846	0.3948	−0.0048	−0.066	0.3995
Pensioner in household	−0.1348	−1.516	0.1368	−0.2443	−1.456	0.0965
HH with old non-pensioners	−0.1536	−0.818	0.0612	0.5645	1.473	0.0075
Invalid in household	−0.0818	−0.659	0.0401	0.1979	0.905	0.0320
Ill last 3 months	0.0503	0.622	0.0658	0.2473	2.015	0.0685
Household with a telephone	0.0402	0.838	0.3093	0.1183	1.562	0.2970
Household with a car	0.1329	2.995	0.4121	0.0416	0.468	0.4175
Family size	−0.0161	−0.503	3.584	0.0230	0.439	3.7025
Number of children under age 18	0.1165	3.247	1.281	0.1686	2.234	1.4805
Constant	9.6583	3.857		12.941	3.307	
Inverse Mill's ratio				0.3861	0.544	0.7763
Number of observations	4,210			2,000		
Dependent variable mean	0.4751			7.2660		
Log-likelihood	−2,717.2		R-squared	0.0653		
Chi-squared	391.5		F-statistic	6.5798		

Note: Zloty denominated variables are in 1986 zlotys per month.
[a]Dependent variable: Log of net transfers received.

during Poland's economic transition. Our simulation with 1987 data of the response of private transfers to loss of earnings of the household head indicates that a substantial fraction of lost income could be replaced by a boost in private transfers—up to 18 percent of lost earnings for households with only one worker.

Over the two time periods for which data were available (1987 and 1992) the transfer functions appear quite stable. The primary difference is that transfer amounts (both receipts and gifts) appear less responsive to pre-transfer income in 1992 compared to 1987. However, the private transfer amounts were much lower in 1992 than in 1987. This may indicate that, with imperfect capital markets, the ability of inter-household networks to cushion shocks is weaker, since most households were affected simultaneously by economic downturns.

Two of us have conducted related research for Russia [Cox, Eser, and Jimenez (forthcoming)] and we find many patterns similar to those found here. Using Russian household survey data for 1992 and 1993, we find that private transfers help equalize the distribution of income and prevent poverty. Notably, the worsening economic conditions in Russia in 1993 were associated with a one-third falloff in private transfer amounts while the incidence of private transfers attenuated only slightly. Thus, the pattern for Russia tends to corroborate the findings in this paper. Ascertaining why the private safety net appears to fray somewhat in the face of increased economic hardship in these countries is an important priority for future research.

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