RELATIONSHIP BETWEEN
HOUSEHOLD CHARACTERISTICS
AND POVERTY IN UKRAINE

by

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Abstract

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This paper undertakes a multivariate analysis of the household-level determinants of poverty using the first large longitudinal micro data set for Ukraine – the Ukrainian Longitudinal Monitoring Survey (ULMS) for the year 2004. Important correlates of poverty are identified, and causality is attributed to them where possible with the use of the models that estimate welfare, poverty, and poverty gap based on an absolute and a relative poverty lines. Results of the study indicate that among significant household characteristics that make poor people poor are large numbers of household members and children in a household and employment of the household head at a private agricultural enterprise. Significance of high education attainment of the household head, his/her use of computer, and such attitudes as life and job satisfaction is shown. Minimum amount of transfers needed to eradicate extreme poverty by half in observance of the first Millennium Development Goal (MDG) amount to 37.8 UAH per poor person per month, which in total amounts to approximately 126 million UAH.

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INTRODUCTION

Thirteen years into transition from a socialist to a market economy, 46.8 percent of the Ukrainian population still identified themselves as "poor," and an additional 36.9 percent identified themselves as being "not well off" (UN, 2004). Income is distributed very unequally: the ratio of expenses of the richest 10 percent to the poorest 10 percent of the population is 12.5. The current average hourly wage in Ukraine is recorded to be only Euro 0.65, while in the developed European countries it amounts to Euro 14.22 (Ministry of Economy of Ukraine, 2003). According to the most recent estimates provided by the World Bank country unit staff, 20 percent of the Ukrainian population is below the national poverty line (World Bank in Ukraine, 2005). Poverty has a negative effect on the level of economic growth, purchasing power of population and resource allocation (UN, 2004). High poverty indicators constitute a barrier on Ukraine's way to European integration.

Given the significance of poverty for the economy, many organizations, such as the WB and UNDP, representing the international community, have set poverty reduction as one of their prime goals. Poverty reduction is the first of the eight UN Millennium Development Goals (MDGs) to be achieved by 2015 according to the document signed by Ukraine at the UN Millennium Summit in September 2000. (Ministry of Economy of Ukraine, 2003). The Ukrainian government views the goal of combating poverty as the fundamental step on the way to achieving sustainable development and all other strategic goals (Ministry of Economy of Ukraine, 2003). Within the framework of the first MDG, the first target is set to reduce in half the proportion of people with daily consumption below US $4.3

measured at average purchasing power parity by 2015. The World Bank used a purchasing power parity to estimate the level of poverty expressed in the national currency with 1 UAH = US $0.98 in 2001. The second target serving as a milestone for achieving the global goal is to reduce by one third the proportion of the poor population below the nationally defined level of poverty. Presidential Edict of 2000 approved the Poverty Prevention Strategy, which defined the criteria for measuring the poverty in Ukraine – 75% of median cumulative spending per adult. In nominal terms this amounted to HRN 141.8 per month in 2001 (US $4.82 a day based on the World Bank purchasing power parity) (Ministry of Economy of Ukraine, 2003).

Effective and well-directed policies to alleviate poverty require understanding of the factors that not only have the greatest effect on poverty, but also knowledge of the quantitative magnitudes of these hypothesized effects. Empirical research to improve poverty statistics has been rather scarce in Ukraine primarily due to the lack of reliable data. This study attempts to make a small contribution to filling this gap. This is among the first papers to use the new household data from the ULMS, which includes retrospective information on over 3,449 households. I use these data to shed light on the question of what factors make the poor people in Ukraine poor. Specifically, I attempt to assess the quantitative magnitude of the effects of various factors usually associated in the literature with poverty. The welfare, poverty, and poverty gap models used in this study are expected to help identify a set of significant variables that have impact on welfare, poverty, and depth of poverty, respectively. Identification of such factors is important from a policy perspective to alleviate poverty in Ukraine.

With an eye toward future policy, I use the first large longitudinal micro data set for Ukraine – the Ukrainian Longitudinal Monitoring Survey (ULMS) for the year 2004 – to investigate into household-level determinants of poverty. Specifically I estimate welfare, poverty, and poverty gap as functions of the same set of

variables which represent household assets, demographic household characteristics, labor market connections, and economic environment for 3,449 households that are surveyed in the ULMS 2004.

This study is concerned with explaining poverty; therefore I undertake regression analysis to investigate into the quantitative magnitude of the effects of various factors associated expenditure per capita. Determinants of poverty are typically divided in the literature into the following groups:

- Regional-level characteristics: e.g., vulnerability to flooding or typhoons; remoteness; quality of governance; property rights and their enforcement.

- Community level characteristics: e.g., availability of infrastructure (roads, water, electricity) and services (health, education), proximity to markets, and social relationships.

- Household and individual characteristics:

  - Demographic: household side, age structure, dependency ratio, gender of household head.

  - Economic: employment status, hours worked, property owned.

  - Social: health and nutritional status, education, shelter. (World Bank Institute, 2005, World Bank, 1992)

The purpose of the analysis of poverty correlates is to help design targeted interventions, for example, to target development resources towards poorer areas, to undertake employment targeting (to enhancing income-generating capabilities in the sector where people are most likely to experience poverty), and compare the importance of education, gender, and other characteristics in explaining poverty. Some of the most important findings are expected to be obtained

regarding the role of household characteristics and the labor market connections, which can be used in the design of poverty reduction programs for the targeting of transfers at the poorest segment of population or in active employment creation policies. Efforts at helping the poor could be misdirected, even counterproductive, without knowing what causes them to be poor.

Using the rich ULMS dataset and adapting some of the recent methodological advances in research on poverty in Russia, Hungary, Canada, Latvia, and other countries, this research seeks to policy advice for Ukraine on firmer footing.

LITERATURE REVIEW

Poverty is generally examined in academic literature from two major angles: poverty as determined by micro-level household and individual characteristics such as number of children in a household, education of the head of a household, etc. on the one hand, and aggregate macro-level economic indicators measured on a country level on the other. Micro-level studies typically make use of household and individual surveys, while macro-level analysis usually employs country-specific economic and social indicators. Even though the two approaches are rather different, they sometimes measure the same factors and may even be combined in one comprehensive study. The studies on the micro-level are especially relevant for the purposes of this analysis so I will focus this overview on this type of approach in the literature, as this study has an objective to identify individual household characteristics having effect on the level of expenditures and therefore, the level of poverty.

The research can be further divided into that done on Ukraine and that using data on other countries. The World Bank and other organizations and individuals have undertaken some research for Ukraine in both of these directions. These studies are reviewed below, but still much work is to be done.

1. <u>Micro-Level Research</u>

    a) Countries Other than Ukraine

Among the studies conducted within micro-level framework that of Grootaert and Braithwaite (1998) is of particular interest for the purposes of this analysis as

it presents the analysis of poverty correlates using the models which I am going to use in this paper. The authors undertake comparative analysis of poverty in three East European countries (Bulgaria, Hungary, and Poland) and three countries of the Former Soviet Union (FSU) (Estonia, Kyrgyz Republic, and Russia). The research has excellent individual country policy implications and therefore, its methods adjusted for the Ukrainian data set, namely, taken from the ULMS and Derzhkomstat, are highly valuable to be replicated for Ukraine.

Grootaert and Braithwaite (1998) begin their analysis with providing a poverty profile, i.e. presenting the incidence and depth of poverty mainly using descriptive statistics and trends in the data. The main part of their paper consists of the results of estimation of welfare, poverty, and poverty gap with the use of OLS, probit, and tobit regressions, respectively. The three regressions include the same set of explanatory variables, which reflect household assets such as physical capital, demographic household characteristics such as household size and characteristics of the household members, and labor market connections such as unemployment, and location.

In the latter part of the paper, Grootaert and Braithwaite (1998) answer the question of prime importance for poverty analysts and policy-makers: *Is indicator-based targeting a feasible plan of action in policies?* Indicator targeting is often used in policy analysis for development of social safety nets, particularly determining eligibility for social assistance based on certain indicators pertaining to household size, ownership of durable goods (e.g. car or house), and employment status. For example, family allowances are allocated based on the number of children. *Indicator targeting is an alternative to an overall means test and is used when the latter is costly to administer and/or unreliable.*

Poverty determinants have been examined by Finnie (2000) using the data on Canada. After estimating a standard panel logit model, Finnie (2000) develops

models of annual entry into and exit from poverty. The models include such characteristic as family status and changes in it, province of residence, inter-provincial mobility, language, area size of residence and calendar year (to capture trend effects). Finnie (2000) estimates entry and exit logit models for those currently out of poverty and in poverty, respectively. Then the author develops hazard exit and re-entry models by adding duration terms in the logit specification captured by a series of dummy variables for two, three, and four years in poverty. Finally Finnie examines occurrence dependence effects: he includes the number of years spent in low income (one, two, three, and four) as regressors into the entry model again estimated only for one year and into the logit model for one year. Thus he estimates probabilities of entering poverty and that of being currently poor given past low income records.

Some of the most important findings of Finnie (2000) include the following: first, people who ever experienced a spell of poverty over the five years covered in the study are approximately equally divided into groups of people for whom poverty is a passing experience and those who are classified as "long-run" poor. Second, some of the easily observable individual characteristics such as age, sex, family status, place of residence, etc. serve as good indicators of the probability of one's falling into poverty and the amount of time one will spend in poverty. Third, the longer one has been below the poverty line, the lower is the probability of one's exiting poverty. Fourth, several specific events are identified as increasing the likelihood of entering poverty, lone motherhood and residence in particular Canadian provinces (those in Atlantic Canada and the Prairies) having the largest impact.

Only a brief glimpse over the literature on the topic allows one to see that model specification with binary outcomes is widely used in poverty analysis. Another study that employs it (besides Finnie (2000) mentioned above and Fomenko (2004) that is described in the next section) has been done by Fofack (2004) who

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focuses on the distribution of welfare across geographical regions and socioeconomic groups in Latvia using 1997 and 2000 Household Budget Surveys. He considers dynamics of income inequality, dynamics of poverty and its correlates and investigates the determinants of poverty using probit model with binary outcomes using household expenditure as a measure of welfare. The technical features of their work interesting for this analysis are the use of Foster-Greer-Thorbecke (FGT) poverty measures (equation 2) where $\alpha=0,1,2$ for headcount, poverty gap, and severity indices, respectively. Finally, Fofack (2004) uses fixed poverty line established at 30 (lats) per person per month in terms of 2000 lats which represents 43% of the recent minimum wage.

Fofack (2004) finds increased income inequality and income growth, especially in urban areas, and widening urban-rural income gaps in Latvia in 1997 – 2000. Increasing regional income gap is a feature of the Ukrainian poverty profile, too. The World Bank Poverty Assessment for Latvia (World Bank, 2000) showed that poverty in Latvia was most closely correlated with the following variables: mapping of geographical regions to account for spatial effects, socioeconomic groups to show employment and labor markets dimensions, household ownership of financial and real assets, age dependency ratio (ratio of the population under aged 15 – 65 to those aged 15 – 64, the working age population), and household amenities (World Bank, 2000). Fofack (2004) identifies unemployment ratio, household amenities and facilities, ownership of assets and durable goods, and income inequality, spatial location of households, and the burden of age dependency as important factors associated with poverty in Latvia. In contrast Fomenko (2004) identifies education and presence of unemployed members in the household as the most significant factors of poverty in Ukraine, while Finnie (2000) shows that changes in family status (particularly, becoming a long mother) and age are the most significant effects of falling into poverty in Canada.

The World Bank Poverty Assessment for Latvia (World Bank, 2000) can also be useful in demonstrating the effect of selecting different equivalence scales or in other words, different scale economies. "When poverty rates without scale economies were used, children were much more likely to be in poverty than pensioners were. However, with scale economies of 0.65, poverty among pensioners was about equal to that of children" (World Bank, 2001).

In the analysis of Fofack (2004), "unemployment ratio appears to be strong and consistently significant across urban and rural areas". Other studies also prove the correlation between unemployment and poverty in most former Eastern European countries during the first phase of the transition. To check this effect for Ukraine in 2004, I include the number of unemployed household members in the model. In conclusion Fofack (2004) notes that despite strongly significant probit coefficients and thus implied high correlation between poverty and its determinants, causality should not be attributed to them as dual relationship may exist between explanatory and endogenous variables.

b) Studies on Ukraine

One of the most cited articles on income inequality, welfare, and poverty is that of Kakwani (1995) who used Ukrainian data obtained from the Family Budget Surveys which have been done annually since 1950s and confined most of his analysis to the period between 1980 and 1992. The author makes use of the following welfare function proposed by Sen (1974):

$$W = \mu(1 - G) \tag{1}$$

where μ is the mean income of the society and G is the Gini index. The study examines trends in welfare indicated by per capita household income and measured by equation (3), trends in inequality measured with generalized Lorenz

curve (equal to the product of the mean income and the Lorenz curve L(p)), and trends in poverty in Ukraine measured with headcount ratio and poverty gap ratio. Kakwani (1995) uses two poverty lines: one is the food and non-food cost of the official basket of the Ukrainian government and another is derived from the food cost of the official basket multiplied by 1.25. The author also explains changes in poverty by decomposing poverty measure to separate the impact on poverty of changes in mean income and in its inequality.

Some of the main conclusions of the article by Kakwani (1995) are: first, the average standard of living increased substantially in the late 1980s with the growth rate of about 7 percent in per capital family income, but in the 1991 – 1992 per capital family income fell by almost 24 percent, and families largely dependent on government transfers were most severely affected by this decline. Second, income growth was accompanied by a significant respective decline in income inequality in 1989 – 1991 caused by reduction in salary income of blue and white collar workers, but the 1991 – 1992 decline in income was accompanied by a rise in income inequality caused by less progressive government transfers favoring richer families. Third, poverty in Ukraine was falling consistently in 1980-1991, which was partially offset by drastic increase in poverty in 1992 almost completely due to a fall in per capita real income.

A comprehensive World Bank (2001) report on social safety nets and poverty in Ukraine for the first three-quarters of 1999 is highly useful for my purposes from the point of view of identification and assessment of socioeconomic correlates of poverty as well as from the point of view of survey methodology employed. As in Kakwani (1995), the authors employ two poverty lines: one poverty line is equal to 75 percent of median expenditures (adopted as official poverty line by the Ukrainian government) and another, the extreme poverty line is equal to 60 percent. Expenditures weighted with OECD scale are used as a measure of poverty and household wellbeing. The World Bank (2001) analysis is different

from that of Grootaert and Braithwaite (1998) in that the authors of the report attempt to separate causal effects (e.g. education) from non-causal correlation (e.g. location).

For this purpose first, they employ linear robust cluster regressions with a large dummy variable set for household characteristics – labor force participation, child and elderly dependency ratios, size and location of the household, education and type of employment of household head, and education of household members – on log equivalent per capita consumption. The report shows that household size is the most significant factor, followed by education of household head. Labor force participation (number of income earners/number of adults) and location of the household also turned out to have a significant effect on poverty. To increase the likelihood of obtaining significant results, I am going to include household size, the number of unemployed members of a household, and location in the model (panel data), but unfortunately any of the data on household head is not available in the ULMS because of the impossibility of identifying the household head among household members. The fact that I do not account for any of characteristics of household head is a rather serious limitation of my analysis as many studies show that they have among the most significant effects on poverty.

Secondly, the authors of the World Bank (2001) report estimate relative importance of the location, socioeconomic status, and education of household members and attempt to attribute causality to these correlation effects. It is done through controlling for separate partial effects of each of the factors and for their combined effect. The dependent variable here is relative poverty risk, which is "a percentage difference of poverty risk for a particular group and the whole sample. Poverty risk is percentage of poor in a group and thus the likelihood for the average member of the group to be poor" (World Bank, 2001). The analysis shows that the three main causal factors of poverty are education (most

significant), demographic characteristics of households (in some cases), and employment status (because it reflects level of education).

Fomenko (2004) conducts analysis of the determinants of poverty in Ukraine including household characteristics that influence probability of household to fall into poverty using the data from Household Budget Survey from Derzhkomstat for the year 2003. Her employed methods and analysis are similar to those of Finnie (2000), but the latter provides a much more extended Canada-specific analysis of poverty determinants.

As opposed to Fomenko's (2004) analysis, I will employ ULMS data set. Three specifications of poverty are defined in that paper and regressed on a set of household characteristics. Probit models are applied for modeling subjective and nutrition poverty (as the dependent variable is binary), and multinomial logit model is used for relative poverty estimation (based on results of the Brand test).

The disadvantage of using probit model for estimating poverty is the loss of information that is intrinsic in all binary outcome models, i.e., collapsing the entire distribution into two values (e.g. poor/non-poor) fails to capture the distribution of observations that fall within those two values. Estimation with levels regression such as OLS allows dealing with this problem, but its disadvantage is the risk of non-systematic measurement error inherent in the dependent variable based on data on household expenditures from the household survey. Some examples of such errors are: households with self-employment income try to hide income and expenditure for fear of taxation; educated people report household expenditures more accurately; older people have more difficulty with reporting, etc. If such measurement error is limited to the dependent variable and is not correlated with any of the explanatory variables, it does not bias the estimated coefficients. However, if the error rises systematically with the exogenous variables, probability of correlation with them increases, which could

lead to biases in estimation of OLS model. Thus, there is a trade-off between the loss of information inherent in probit estimation and the risk of measurement error in OLS regression.

However, if the results of the binary model confirm those of the levels regression, they act as a robustness test for the latter. Using this method, I will extend the analysis done by Fomenko (2004) and in addition to estimating probit regression of a binary poverty equation, I will estimate OLS regression of total household expenditures on the same set of explanatory variables as in the probit regression. The OLS model will enable me to overcome the problems of the loss of information, and the probit model will help to overcome non-random measurement error and check the unbiasedness of the expenditure equation estimated by OLS (Green, 2000). Consistency of the outcomes of the binary poverty regression (probit) model with the results of the welfare OLS regression would show that the effect of the measurement error is nil.

World Bank (2005b) report provides one the most comprehensive descriptive presentation of current situation on poverty in Ukraine. It can be useful for our purposes from the point of view of methodology employed for measuring poverty, inequality, and economic growth. The poverty line is defined in nominal terms at HRN 151 per month in 2003, which is based on cost of basic needs approach taking into account the cost of a food basket of about 2,500 Calories per person per day and the cost of essential non-food goods and services. Some of the most important general conclusions of the report based on the Household Budget Survey 1999 – 2000 are that poverty reduction in Ukraine was dramatic over recent years, especially compared with other FSU countries, while inequality was rather stable over time with increasing disparities between rural and urban poverty.

2. Macro-Level Research

a) Countries Other than Ukraine

Even more attention has been devoted to research of poverty on a macro-level compared to studies done using individual and household-specific variables similar to what was considered above. In particular, interdependence between economic growth, inequality, and poverty has attracted a lot of attention. Detailed review of such studies is beyond the scope of this paper. We will review here only some of the most cited studies. One of the most noteworthy and fundamental models linking these three factors was developed by Ali and Elbadewi (1999). The authors focus on the role of inequality in the joint determination of poverty and economic growth as well as on the direct effect of growth on poverty. With the use of the model, development of these three factors can be predicted in a given country and policy can be designed through deriving the steady state solution and conducting analysis of the phase dynamics of poverty and growth around the steady state.

The model consists of four equations with three main components: economic growth, income inequality, and poverty. Growth in the model is dependent on income inequality and a set of variables representing initial conditions, external factors, and policymaking. The relationship between growth and inequality in a country represents the Kuznets curve. (According to well-known and often debated Kuznets hypothesis, the relationship between a country's inequality and economic growth is of inverted U-form.) Poverty, the last component of the model, is a function of inequality. The widely used technique in poverty analysis – decomposition of poverty changes into changes in income distribution and economic growth – is also used by Ali and Elbadewi, 1999. Such decomposition and its application in empirical analysis of panel data on countries have been well demonstrated by Kalwij and Verschoor (2004) who show that income and inequality elasticity of poverty (measured as headcount ratio based on $2 a day)

decreases significantly with initial inequality and the ratio of poverty line to the mean income.

b) Studies on Ukraine

Within the framework of the model by Ali and Elbadewi (1998), Yatskulyak (2004) analyzes growth-inequality-poverty relationship in transition economies in Former Soviet Union and Eastern Europe including Ukraine, particularly, whether it is the same in transition economies as in developing countries, how it is different in pre-transition period, during transition, and in late transition period. For each of the three periods Yatskulyak (2004) first determines through OLS other possible influences on poverty in addition to growth and inequality, and then uses OLS first differenced estimation for explanation of changes in poverty by changes in income and inequality. The effect of transition country on the level of poverty is captured by including dummies in the regressions. The study is useful for our purposes in demonstrating how poverty headcounts can be calculated using the World Bank's POVCAL software.

METHODOLOGY

The World Bank Institute (2005) defines poverty as "pronounced deprivation in well-being". To analyze poverty, three main steps need to be taken: first, defining an indicator of welfare; second, defining the poverty line, i.e. establishing a minimum acceptable standard of that indicator to separate the poor from the non-poor; third, constructing summary measures of the extent of poverty, i.e. of aggregate welfare and its distribution relative to the poverty line. If inequality is also considered in poverty analysis, one needs to develop an appropriate measure of inequality.

First, the crucial decision for the poverty researcher to make is whether to choose income or expenditure as indicator of welfare. The former can be viewed as a potential of a household for consumption, whereas the latter shows actual realized or achieved consumption. On the one hand, it is easier to collect information about income due to the limited number of sources of income, but it is likely to be under-reported, affected by short-term fluctuations and therefore, to not reflect the long-term average income of a household. On the other hand, consumption has disadvantage of the difficulty in measuring durable goods and some other elements of expenditure and accounting for irregular expenses. However, it is a better measure to reflect current actual standard of living and long-term average welfare, and it is reported more accurately as expenditure is easier to recall than income (World Bank Institute, 2005). The expenditure measure is preferred to income measure because consumption varies less than income over time according to the permanent-income hypothesis and better reflects permanent income. A widely held view is that the hypothesis is

sustainable only for developed countries, but there is evidence that people tend to smooth their consumption in developing countries as well (Skoufias and Quisumbing 2004).

The analysis in this paper is based on money-metric measure of utility and welfare. I use consumption expenditure of a household to measure welfare in this study for the reasons given above. This is especially suitable for Ukraine where the volatility of current income is quite high because of high rates of unemployment and irregular wages and pension payments. The underreporting argument might be particularly relevant in case of Ukraine because of well developed informal/illegal income channels. People obtaining such income may be not willing to report it although ULMS questionnaire attempts to account for that. Consumption is also likely to be underestimated because people tend to report less than they actually spend on tobacco, alcohol and illegal goods. However, none of these products enters the list of products that are necessary to escape poverty. We neglect the possibility that a large number of people sacrifice the consumption of food and clothing to consumption of the aforementioned products, under-declare the consumption of the latter and, thus, are counted as poor and at the same time having enough income to escape poverty. Clearly, current income is a much less reliable measure of welfare than consumption expenditure. (Grootaert and Braithwaite, 1998).

In addition to income and expenditure, there are several other ways to measure well-being or economic welfare. One common approach is to measure welfare based on household income defined as consumption plus change in net worth or household consumption expenditure. Other common measures of well-being include calories consumed per person per day, food consumption as a fraction of total expenditure (Engel curve), anthropometric measurement of the effects of malnutrition on physical characteristics of individuals, life expectancy, infant mortality rates, and others.

Per capita measure of expenditure is obtained by dividing the result by the number of household members assuming members of households have the same needs. As this assumption is often unrealistic, consumption per adult equivalent that captures differences in need by age of members of a household derived with the use economies of scale in consumption are widely used in poverty analysis (World Bank Institute, 2005, Deaton, 1998). In essence, equivalence scale method means applying weights to households in such a way that household size is measured in the number of adults to which that household is deemed to be equivalent according to the selected equivalence scale. So a household size is measured in the number of "adult equivalents" and not in numbers of members. There are several equivalence scales; the OECD scale which I am going to use in this paper is one of the most straightforward and commonly used. It can be formulated as follows:

$$AE = 1 + 0.7(N_{adults} - 1) + 0.5N_{children} \qquad (2)$$

where "*AE*" stands for "adult equivalent" and $N_{adults,\ children}$ – number of adults and children in a household, respectively (World Bank Institute, 2005).

The 0.7 reflects economies of scale; the smaller this parameter, the more important economies of scale are considered to be. This parameter is usually larger in developing countries, where food is a larger portion of a household budget, and economies of scale from household public goods are likely to be less important. The 0.5 reflects the lower needs of children compared to adults, so 0.5 is the weight given to children in a household. According to this formulation, if a household consists of one adult, AE = 1; if a household consists of two adults, AE = 1.7, and a three-adult household would have AE = 2.4, a household with 3 adults and one child will have AE = 2.9.

The OECD scale may otherwise be written as:

$$EXP_{EQ} = \frac{EXP}{n^{(0.7)}} \qquad\qquad (3)$$

where EXP, EXP_{EQ}, n are household expenditure, household expenditure per equivalent adult, and number of household members respectively (Grootaert and Braithwaite, 1998).

After the appropriate welfare indicator and equivalence scale is selected, it is necessary to construct a poverty line using one of the existing methods. One method, the cost of basic needs approach "estimates the cost of acquiring enough food for adequate nutrition – usually 2,100 Calories per person per day – and then adds on the cost of other essentials such as clothing and shelter." (World Bank Institute, 2005) The food energy intake method entails determining the income (or expenditure) level at which a household acquires enough food (in Calories per person per day). Subjective poverty lines are based on the amount of per capita income that people consider to be sufficient for not being poor. The choice of poverty line depends on the purposes of the paper and is also a matter of a researcher's judgment.

In line with specification of the first target of the Millennium Development Goal, I define "extremely" poor people as those whose daily consumption expenditure per adult equivalent below US $4.3 measured at average PPP (1 UAH = US $0.98 used by the World Bank in 2001). This amounts to 4.39 UAH.

Another poverty line (relative) is set at 75% of the medium daily household expenditure per adult equivalent (measured at OECD scale), which is equal to: 0.75 x 9.48 UAH = 7.11 UAH.

Although inequality is not explicitly analyzed in this paper, it is another common element of poverty analysis. Inequality as opposed to poverty measures is defined over the entire population and does not only focus on the poor. Gini coefficient

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is a widely used measure of income (or expenditure) inequality. It is derived from the Lorenz curve represented by the function L(p), which shows the relationship between the cumulative proportion of the population on the horizontal axis and cumulative proportion of income (or expenditure) on the vertical axis when individuals are sorted in ascending order of their income (or expenditure). Each point on the Lorenz curve represents the proportion of total income (or expenditure) received by the poorest pth proportion of population. "If the Lorenz curve for one distribution X lies everywhere above that for another distribution Y, then the distribution X may be said to be more equal than the distribution Y." (Kakwani, 1995) The Gini coefficient is equal to one minus twice the area under the Lorenz curve and ranges from 0 (perfect equality) to 1 (perfect inequality), but it is usually in the range of 0.3-0.5 for per capita expenditures. (World Bank Institute, 2005)

Another related, but even simpler measurement of inequality is defined as the percentage of income (or expenditure) attributable to a portion, for example to each quarter or quintile of the population, when the individuals are arranged from poorest to richest. Typically, the poorest quintile of the population receives 6-10 percent of total expenditure, while the top quintile receives 35-50 percent (World Bank Institute, 2005).

There are several meaningful indices for measuring poverty, which is the last of the three aforementioned steps. The widely used headcount index measures the proportion of the population that is poor. Its shortcoming is that it does not indicate how poor the poor are. The poverty gap index solves this problem by measuring the "extent to which individuals fall below the poverty line as a proportion of the poverty line. The sum of these poverty gaps gives the minimum cost of eliminating poverty, if transfers were perfectly targeted." (World Bank Institute, 2005) However, poverty gap measure does not reflect changes in inequality. The squared poverty gap ("poverty severity") index

averages the squares of the poverty gaps relative to the poverty line. This measure is a type of Foster-Greer-Thorbecke (FGT) poverty measures, which are estimated as follows:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{N} \left(\frac{G_i}{z} \right)^\alpha$$

(4)

where N – the size of the sample,

z – the poverty line,

G_i – the poverty gap, and

α – a parameter; when α is larger the index puts more weight on the position of the poorest.

In Deaton's (1998) formulation when α is zero, the measure becomes a headcount measure (in Deaton's formulation) as in equation 6 below; when α=1, it becomes the poverty gap measure.

The Sen-Shorrocks-Thon measure has advantages of allowing to decompose poverty into three components and estimate number of the poor, how poor the poor are, and if there is higher inequality among the poor. The index may be written as follows:

$$P_{SST} = P_o P_1^P \left(1 + \hat{G}^P \right)$$

(5)

where P_o – the headcount index,

P_1^P – the poverty gap index for the poor only,

G^P – the Gini index for the poverty gaps for the whole population. (World Bank Institute, 2005).

The two poverty indices used in this paper are the widely used headcount index and poverty (expenditure) gap index.

Headcount ratio denoted by P_0:

$$P_0 = \frac{q}{n} \qquad (6)$$

where q = number of people below the poverty line, and

n = total population in the sample.

Expenditure gap ratio expresses the extent to which average consumption of poor people falls below the poverty line as a percentage of the poverty line.

$$\frac{z - \overline{y_i}}{z} \qquad (7)$$

where z = poverty line, and

$\overline{y_i}$ = average expenditure of the poor people (Grootaert and Braithwaite, 1998).

Multiplying these two ratios I would obtain the indicator of what fraction of the poverty line would have to be provided on average to every individual to eradicate poverty through transfers, under the assumption of perfect targeting, or in other words, the minimum amount of resources needed to eradicate poverty using the fact that perfect targeting is almost impossible to achieve (Grootaert and Braithwaite, 1998). Taking into account the selected poverty line, I have an

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opportunity to calculate the minimum amount of perfectly targeted government transfers necessary to half the number of poor in a population as stated in the first target of MDG #1.

I am going to estimate the determinants of poverty based on the following three model specifications:

- OLS regression of welfare equation – to identify correlates of poverty

$$E_i = \beta_1 X_i + \beta_2 W_i + \varepsilon_i \qquad (8)$$

where E_i = real household expenditure per equivalent adult of household i

X_i = a set of characteristics of household i

W_i = a set of characteristics of the economic environment of household i

$\beta_{1,2}$ = model parameters

ε_i = error term

OLS estimation of equation (8) is appropriate with the assumption that there is no simultaneous effect of X_i on E_i - exogeneity of X_i is a time dependent assumption. We will turn to this issue later in the paper. Although the OLS estimation does not predict the effect of of Xi on Ei, it allows to observe the net effect of any given characteristic, holding all others constant, on resulting household welfare. It identifies correlates of poverty, but cannot establish relative importance of each. Another drawback of the OLS equation is that it imposes constant parameters over the entire distribution, thus assuming that the effect of a given household characteristic has the same effect on welfare both for poor and for non-poor. Thus it assumes that the poor are simply "rich people with less money", which is rather doubtful.

- Two-stage Least Squares (2SLS) regression – use instrumental variables to check for endogeneity in potential poverty determinants identified in the OLS regression.

- Probit regression of a binary poverty equation – to compare results of the OLS and probit models and check for measurement errors that might cause bias in welfare regression coefficients. If results of the binary model confirm those of the levels regression, they act as a robustness test for the latter.

- Tobit regression of the poverty gap equation – to measure the depth of poverty in Ukraine. The model is constructed by censoring the data at the poverty line, i.e. setting any expenditure level higher than the poverty line equal to the poverty line.

$$
\begin{aligned}
E_i' &= E_i \qquad \text{if } E_i < z \\
E_i' &= z \qquad \text{otherwise}
\end{aligned} \qquad (9)
$$

where z = poverty line, and E_i is determined as in equation (3)

Expenditures series is censored from above in this case, and in essence, the model describes the poverty gap expressed by equation (7), which may be written as follows:

$$
\frac{z - E_i}{z} \quad for \quad E_i \leq z \qquad (10)
$$

The ratio is constrained between 0 and 1, while the poverty gap is constrained between 0 and z. Unlike the OLS model, this model allows for the possibility of different parameters for the poor and non-poor. Theoretically it is possible to see whether the parameters of the OLS equation differ between the poor and the non-poor without losing information from the levels regression by comparing the tobit and OLS estimates. I will use the comparison for the asset variable, ownership of real estate, thus comparing the returns to these assets for

the poor and the non-poor. Significance of this variable in determining poverty will also have to be checked by the IV procedure.

DATA

The data source is the first wave of the Ukrainian Longitudinal Monitoring Survey (ULMS), administered in spring 2003 and 2004. The ULMS is the first nationally representative longitudinal survey of Ukrainian households. The survey is rich in variables and offers broad opportunities for research, but has not yet been used for poverty analysis so far. In addition to current information on each member of the household, the survey contains retrospective data on features of the jobs held by each member in 1986, 1991, 1997, and during 1998-2003. The research will be based on ULMS dataset for 2004. The 2003 survey is not appropriate for this research because it presents only a very limited data on household expenditures, for example, food expenditure are limited to only 10 items and the non-food – only 7 items, whereas in the 2004 household survey 411 variables are devoted to expenditure out of the total 641 variables. Thus the estimates obtained from the two datasets would hardly be comparable. The 2004 survey which is going to be used in this study includes data on 3,449 households and 7,200 individuals taking into account for 26 factors that are candidates for correlating with or explaining poverty.

"Independent" variables (household characteristics) that are included in the paper by (Grootaert and Braithwaite, 1998) are limited to the following:

- Household size
- Number of children
- Number of male adults
- Number of female adults

- Number of elderly

- Age of head of household

- Age of head squared

- Female head of household

- Head with primary education

- Head with secondary education

- Head with vocational/technical education

- Head with university education

- Tenancy status: renter

- Household enterprise ownership

- Land ownership

- Share of wages in total household income

- Number of unemployed household members

- Unemployed head of household

- Inactive head of household

- Capital city

- Other city

- Rural areas

Due to availability of the rich series of data I include a much more generous set of explanatory variables into my regression analysis that can be shown to better represent correlates of poverty in the Ukrainian environment. Variables used in this analysis are listed below; their specific names and values as they appear in the models are contained in the regressions output Table 1A, and their descriptive statistics is provided in Table 3A.

Table 1. Explanatory Variables and Their Categories

Variable Type	Variable

Demographic	• Household size, • number of children, • number of elderly, • gender of the household head.
Labor	• Share of wages in total income, • employment of the household head at a foreign-owned firm, • involvement of the household head in entrepreneurship, • agricultural production of the household, • unemployment of the household head, • pensioner status of the household head, • correspondence of the current job of the household head with educational level, • type of organization as a place of employment of the household head, • job satisfaction level of the household head.
Ownership of assets	• Tenancy status of the household: renters, • ownership of real estate.
Training and skills	• High education of the household head, • computer use of the household head, • Internet use of the household head.
Attitudes and beliefs	• Level of life satisfaction of the household head, • political system supported by the household head.
Health	• Health condition of the household head, • alcohol consumption of the household head, • smoking of the household head.

As most variables of the models are characteristics of household head, it is important to find an appropriate proxy for it. Taking into account possible structures of Ukrainian households, in this analysis the household head is proxied by the oldest man or the oldest woman, if there are no men in the household. For the cases when grandparents live and share expenses together with their children and grandchildren, it appears to be wise to include limit on the age of household head, e.g. not older than 70 years of age. However, such condition would produce

a much more serious limitation to the analysis, such as in cases of very old or young couples. Thus it is thought that the simple and straightforward condition of the oldest man or the oldest woman would be the best proxy for the household head.

Exogeneity of the explanatory variables used in this study may be questioned by researchers, as most poverty factors at the household level can become endogenous to welfare if the period under consideration is long enough. Household assets and many of its characteristics can be to some degree a function of its welfare and its evolution over the life cycle. While the validity of this argument is recognized, a rather generous set of right-hand side (RHS) variables is used in this analysis. First, this is made possible within the relevant time frame, i.e. one year; it is possible to show that over the time horizon of one year (2004) as considered in the sample, many of the variables that are often considered endogenous to poverty are in reality exogenous in the context of the transition economy such as Ukraine, e.g. land ownership, occupation and labor market status. Unemployment is high and largely structural, retraining opportunities are limited, supply of land is not yet sufficiently flexible. Thus, the variables included on the RHS are not likely to be radically changed by a typical Ukrainian household in a year or only with difficulty or at a cost. Secondly, Appleton (1995) has argued that almost every conceivable determinant of poverty is simultaneously determined with welfare, and the researchers might be left with gender, age, and a few parental characteristics as the truly exogenous ones[1]. Thirdly, estimating welfare models with very parsimonious set of right-hand side variables is problematic if the analysis is meant to guide policy. One of the goals of this paper is to identify factors useful in guiding policy and targeting transfers, and the explanatory variables chosen for such purpose are expected to be suitable for such purpose.

For one-period model estimation, with these arguments in mind, the case for exogeneity is stronger, but not absolute. Therefore, the alternative method of estimation called the method of instrumental variables (IV) is used. The method constructs consistent coefficients of RHS variables using (instrumental) variables that are correlated with initial RHS variables, but not with the disturbances. In sum, the variables under question will be replaced with instruments that are available from the data to check for robustness of the selected OLS estimates.

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[1] In an inter-generational context, even parental characteristics can be endogenous to welfare.

EMPIRICAL RESULTS

The basic poverty indices estimated based on the ULMS 2004 dataset cited in Table 3 indicate that approximately 14 percent of Ukrainian households spend less than 4.38 UAH per person per day, and the average expenditure gap amounts to approximately 29 percent of this low poverty line. As it could be expected, the extent of general poverty estimated at the higher poverty line of 7.11 UAH amount to about 34 percent of Ukrainians, while the corresponding poverty gap amounts to approximately 34 percent.

Multiplication of headcount and expenditure ratios as formulated produces the fraction of the poverty line that has to be transferred by the government to each poor individual to eradicate poverty, assuming perfectly targeted transfers. Thus, according to the calculated indices it is measured that 1.26 UAH per day or 37.8 UAH per month should be transferred to each poor individual to eradicate extreme poverty. Multiplied by headcount index (13.9) and the number of population (48 million) in 2004 this amounts to about 252 million UAH. In order to act in observance of the MDG to reduce extreme poverty by half, the government needs to contribute a minimum of approximately 126 million UAH to poverty reduction. Using the numbers for 2005 general budget fund (approximately 80 billion UAH of general revenues and 88 billion of general expenditures with about 8 billion UAH general deficit), one can roughly estimate that the minimum contribution to reduce poverty by half is only 0.16 percent of the 2005 general budget fund of Ukraine[2]. Although this seems to be a meagre

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[2]   The rational for approximating with respect to the year 2005 as opposed to the previous year is that the survey has been done in 2004 and policy reduction policies would have been expected to be initiated in 2005 or later.

amount, the sum is calculated under assumption of perfectly targeted transfers. Due to the inadequacy of the assumption of perfect targeting, for instance with lump sum transfers, which is implausible, it is expected that the very "pro-poor" government would need to spend more than this for the sake of poverty reduction.

The ULMS sample is rather representative on the regional level as it accounts for all 24 regions of Ukraine, the Republic of Crimea, and Kyiv city. Specifically the regional representation by regions in percentages is as follows:

Table 2. Representations of Regions of Ukraine in ULMS 2004

Region	Representation in the sample, %
Cherkaska	3
Chernihivska	3
Chernivetska	1
Dnipropetrovska	6
Donetska	11
Ivano-Frankivska	3
Kharkivska	7
Khersonska	3
Khmelnytska	3
Kirovohradska	3
Kyiv City	5
Kyivska	3
Luhanska	6
Lvivska	5
Mykolayivska	1
Odeska	5
Poltavska	3
Rivnenska	2
Sumska	3
Ternopilska	2
The Republic of Crimea	4
Vinnytska	5
Volynska	2
Zakarpatska	2
Zaporizska	4

	3
Zhytomyrska	3
Total	100

Regional distribution of poverty presented in Table 3 and Figures 1 and 2 indicates that poverty is most widespread in the Western part of Ukraine, especially Zakarpatska oblast, where most of the poverty reduction efforts should be directed, but the depth of poverty is greatest in the South of Ukraine, especially in Mykolayivska oblast.

Table 3. Extent and Depth of Poverty by Regions

	Headcount Ratio, %		Expenditure Gap Ratio, %	
	Percentage of People Living Below Poverty Line UAH 4.39	Percentage of People Living Below Poverty Line UAH 7.11	Assuming Poverty Line UAH 4.39	Assuming Poverty Line UAH 7.11
West[3]	18.61	40.63	28.84	33.36
North	14.99	36.55	26.75	33.61
Center	15.94	39.00	28.48	35.22
East	11.14	30.02	27.29	31.90
South	11.37	30.52	30.24	38.36
Ukraine	13.9	34.41	28.70	33.88

Figure 1. Regional Distribution of Poverty at the Poverty Line of 7.11 UAH

[3] West: Zakarpatska, Lvovska, Volynska, Ivano-Frankivska,Ternopilska,Rovenska, Khmelnytska, Chernivetska oblast; North: Zhytomyrska, Kyiv city, Kyivska, Chernihivska, Sumska oblast; Center: Vinnytska, Cherkaska, Poltavska, Kirovogradska oblast; East: Kharkivska, Dnipropetrovka, Zaporizka, Donetska. Luhanska; Sourth: Odeska, Mykolayivska, Khersonska, Rebublic of Crimea.
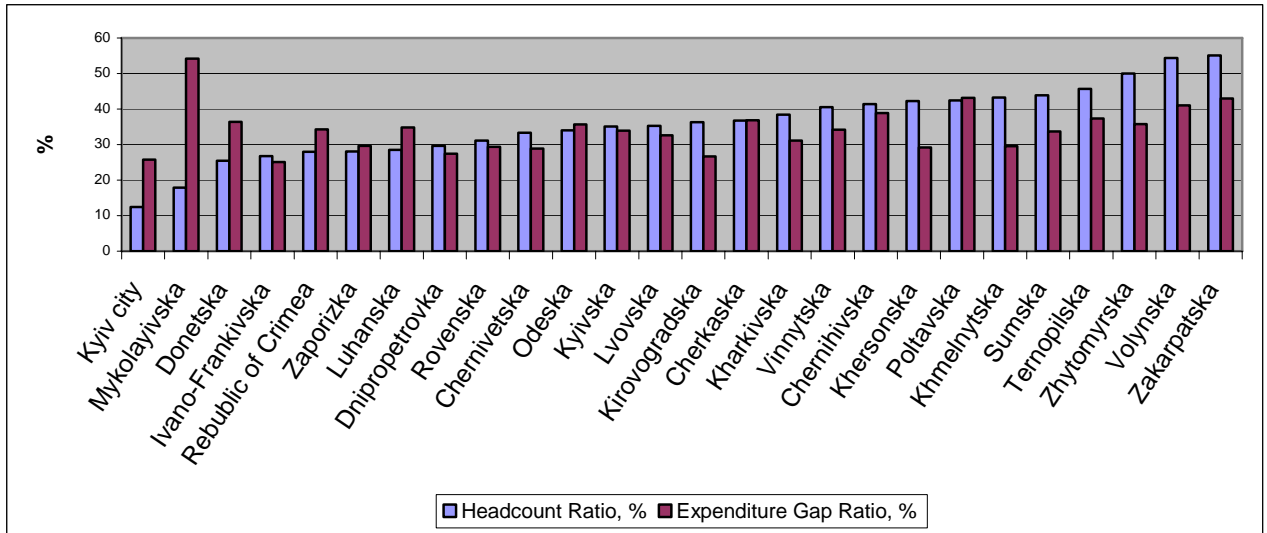
Figure 2. Regional Distribution of Poverty at the Extreme Poverty Line of 4.39 UAH
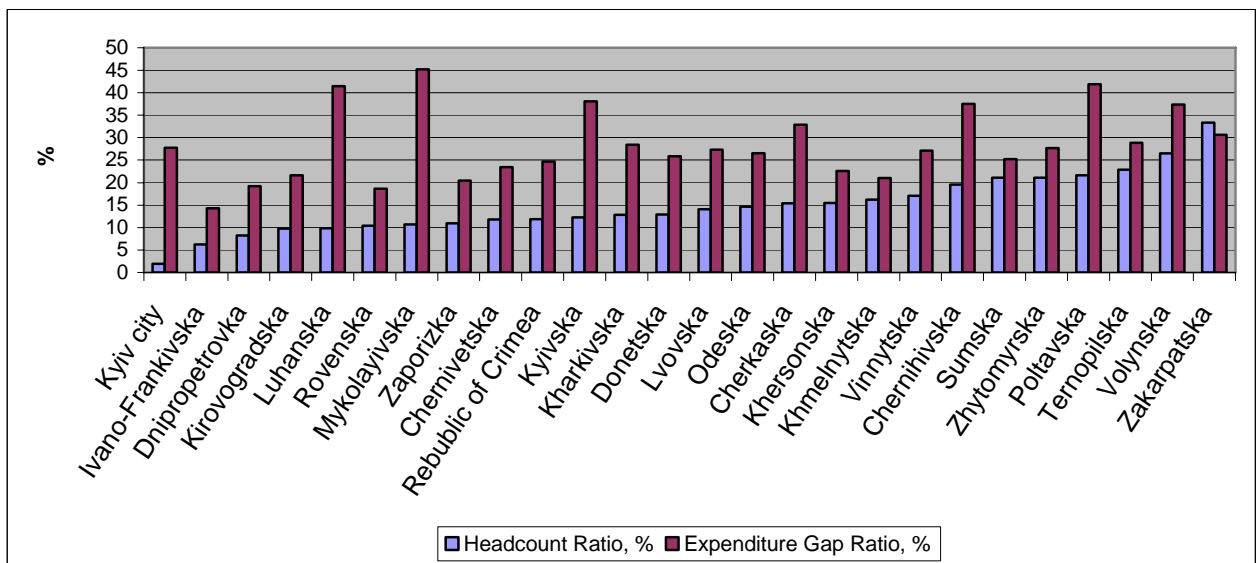
It is evident from Figures 1 and 2 that patterns of poverty by oblasts are diverse with the share of the poor varying from the highest of 55% in Zakarpatska oblast to the lowest of 12% in Kyiv city and share of the *extremely* poor – from 33% in Zakarpatska oblast to the lowest of 2% in Kyiv city. While a relative poverty measure such as headcount ratio gives an idea about the incidence of poverty, an

absolute measure such as expenditure gap ratio should be considered when deciding which oblasts should be aided first. There is relatively small variation in the number of the poor and the depth of poverty across oblasts, but there is a large variation in the measures of _extreme_ poverty. Moreover, there is large variation in indicators of the two poverty measures within the same oblasts, especially according to the low poverty line of 4.39 UAH. For instance, Mykolayivska oblast has second smallest ratio of poor people, but it has the deepest poverty, that is the poor people in the oblast on average are poor by 66% of the poverty line! This pattern persists with the low poverty line as well. Mykolayivska oblast has among the lowest headcount indices, but the highest poverty gap index, which means that those households classified as extremely poor spend 2.4 UAH (55%*4.39 UAH) per day or less. The situation is similar to that in Luhanska, Kyivska oblasts and Kyiv city.

The large variation in indicators of the headcount index and poverty gap measures in any single region has an important policy implication: there is a tradeoff between the number of the poor covered by the policy reduction policy and effectiveness of the policy, i.e. the transfer per household. To ensure effectives of the policy, it is recommended to target the oblasts where the poor are the farthest below the low poverty line in the first stage of poverty alleviation efforts, that is, Mykolayivska, Luhanska, Poltavska, Kyivska, Chernihivska, Volynska, and Cherkaska oblasts. It is better to transfer a large amount and cover few persons, but narrow the poverty gap, than transfer a smaller amount that comprises only a tiny portion of the expenditure deficiency.

Statistical output of the welfare, binary poverty outcome, and poverty gap regressions is cited in Table 1A. The outcomes for the three models as they appear in STATA software are also copied in Annexes B – E.

The dependent variable in the OLS regress is logarithm of the daily adult equivalent expenditure according to the OECD scale.

The tree tables below contain selected coefficients from the econometric output for the corresponding three models. Their significance allows to assume correlation of these factors with poverty thus serving as indicators of poverty with the policy implication.

Table 4. Correlates of Welfare

Factors Negatively Related to Welfare	Coefficients	Factors Positively Related to Welfare	Coefficients
Household size	-0.05**	Share of wages in total income	0.20**
Number of children	-0.08**	Ownership of real estate	0.24**
Number of elderly	-0.07**	Pensioner status of the household head	0.22**
Female gender of the household head	-0.12**	High education of the household head	0.19**
		Use of computer by the household head	0.20**
		Job satisfaction of the household head at all levels higher than "Not satisfied at all"	0.27 – 0.39**
		Life satisfaction of the household head	0.13**
		Type of political system supported by the household head: The Soviet system, but in a different, more democratic form, the political system which exists today, or western-type democracy	0.13 – 0.17**

Note: Factors with the percentage effects marked ** are significant at 1%, not marked – significant at 5%.

The assumption that the RHS variables are not correlated with the disturbances is crucial for OLS procedure. Without this assumption the obtained results cannot be considered consistent and unbiased, so OLS loses its attractiveness as an estimator. Although the arguments for exogeneity of the RHS variables have

been stated above, the search for relevant instrumental variables is made, and IV procedure is undertaken. Table 2A summarizes results of the IV estimation of some of the variables found to be significant in determining welfare in the OLS regression.

The procedure used here for verifying validity of the OLS estimates via the instrumental variables (IV) method includes undertaking two tests in addition to looking at significance of coefficients in the IV regressions. First, <u>Durbin-Wu-Hausman endogeneity test</u> specifically used after IV estimation computes a test for endogeneity of instrumented variables in the IV regression. Testing assumes the null hypothesis according to which "OLS estimator of the same equation yield consistent estimates; that is, any endogeneity among the regressors does not have deleterious effects on OLS estimates" (Intercooled Stata 8.2 documentation). The test consists of two test statistics reflected in p-values: Wu-Hausman F test statistic, which under the null is distributed $F(m,N-k)$, where m is the number of regressors specified as endogenous in the original IVs regression; and Durbin-Wu-Hausman chi-squared test statistics, which under the null is distributed Chi-squared with m degrees of freedom, where m is the number of regressors specified as endogenous in the IVs regression. The two p-values are very similar. If they approach zero and the null is rejected, the test allows to conclude that "endogenous regressors' effects on the estimates are meaningful", and the IV estimator should be employed (Intercooled Stata 8.2 documentation).

The second test undertaken after the IV estimation is a <u>test of overidentifying restrictions</u>. This is the only empirical means to test validity of selected instruments, that is, that they are uncorrelated with the error term and correctly excluded from the estimated equation (the null hypothesis of the test). If the null is rejected with the small p-value, validity of the instruments is doubtful. Unfortunately, it can only be used for IV regressions in which the number of instruments exceeds the number of regressors; i.e., for an overidentified equation.

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As can be seen from Table 2A, IV estimation and corresponding tests provide the most evidence for pensioner status of the household head and his/her high education being significant determinants of welfare specified through daily household expenditure. Age of the household head is used as an instrument for his/her pensioner status. It can be argued that while pension is a likely determinant of poverty, for example, according to the recent policy paper on poverty in Ukraine of the Institute for Economic Research and Policy Consulting in Ukraine (IER, 2004), age as such does not have direct influence on poverty in Ukraine, especially after the raises in pensions and student stipends that ensured even more equal distribution on average between different age groups of the society. Empirically, the hypothesis for the endogeneity of pensioner status to welfare is proven by corresponding test for endogeneity and the IV estimate.

The situation is even more straightforward with the high education variable: as the test for endogeneity indicates that there is no need to employ IV, we still made use of two suitable instruments to check, namely, employment of household head's father and mother in professional occupation. Of course using parents' education levels as instruments would be more appropriate in this case, however, these variables are not available in the given 2004 dataset. Still, validity of the employed IV is proven by the test of overidentifying restrictions, and the variable is highly significant in the resulting IV regression providing convincing evidence for significance of high education in determining poverty.

The other variables that are shown to be exogenous to welfare thus not requiring the use of IVs according to the Durbin-Wu-Hausman endogeneity test are life satisfaction of the household head and ownership of real estate. Surprisingly, gender of the household head was shown to be endogenous to welfare, and estimation with a valid IV did not allow to conclude significance of the gender contrary to the welfare equation estimation.

Table 5. Marginal Effects of the Correlates on the Probability of Poverty

Factors Positively Related to Poverty	Increase in Probability of Poverty, % (with increase in the factor by one unit)		Factors Negatively Related to Poverty	Reduction in Probability of Poverty, % (with decrease in the factor by one unit)	
	General Poverty Line	Low Poverty Line		General Poverty Line	Low Poverty Line
Household size	2.4	1.3	Share of wages in total income	14.4**	8.5**
Number of children	5.4**	2.5	Ownership of real estate	10.6**	5.5**
Place of employment of the household head: New private agricultural firm/farm	27.0*	-	Pensioner status of the household head	12.8**	9.1**
			High education attained by the household head	10.6**	5.7**
			Employment of the household head in entrepreneurship	-	9.7**
			Use of computer by the household head	11**	-
			The job of the household head requires a more advanced level of education than he/she has or the same level, but in a different discipline	-	6.9 - 9.1**
			Job satisfaction of the household head at all levels higher than "Not satisfied at all", for general pov. line – higher than "Less than satisfied"	12.7 – 20.4*	7.2 – 8.6**

			Level of life satisfaction of the household head	-	4.3**
			Type of political system supported by the household head: The Soviet system, but in a different, more democratic form, The political system which exists today (not for low pov. line), or Western-type democracy	7.7 - 10.3*	4.3 – 4.5*

Note: Factors with the percentage effects marked ** are significant at 1%, not marked – significant at 5%.

The output of the welfare and binary poverty regressions indicate that some of the variable that are correlated with welfare, do not significantly affect the probability to fall into either of the two kinds of poverty. This may be explained by the measurement error inherent in the OLS estimation. Estimation of the OLS regression with robust standard errors to check against heteroscedasticity provided neither different coefficients nor different level of significance. The robust OLS regression output is cited in Table 2B.

Table 6. Correlates of the Poverty Gap

Factors Positively Related to Poverty Gap	Increase in Poverty Gap, % (with increase in the factor by one unit)		Factors Negatively Related to Poverty Gap	Decrease in Poverty Gap, % (with decrease in the factor by one unit)	
	General Poverty Line	Low Poverty Line		General Poverty Line	Low Poverty Line
Household size	4.7	-	Share of wages in total income	31.1**	39.2**
Number of children	8.8**	9.3	Ownership of real estate	22.6**	29.3

Female gender of the household head	11.3	-	Pensioner status of the household head	31.3**	44.3**
Place of employment of the household head: Local municipal enterprise/ Collective enterprise	-	49.9 – 64.2	High education attained by the household head	21.0**	27.2**
Place of employment of the household head: New private agricultural firm/farm	47.1**	55.4	Employment of the household head in entrepreneurship	-	102.2
			Use of computer by the household head	20.8**	-
			The job of the household head requires the same level of education as he/she does, but in a different discipline		38.0
			Level of job satisfaction of the household head: "satisfied"	44.0**	47.6
			Job satisfaction of the household head at all levels higher than "Not satisfied at all", for general pov. line – higher than "Less than satisfied"	29.8 – 42.9	45.3 – 51.5
			Level of life satisfaction of the household head	-	16.6
			Type of political system supported by the household head: The Soviet system, but in a different, more democratic form or	16.8 – 20.1**	18.8 – 19.8

			Western-type democracy		

Note: Factors with the percentage effects marked ** are significant at 1%, not marked – significant at 5%.

Variables affecting probability to fall into poverty and the poverty gap are generally the same and their affects are consistent between the poor and the "extremely" poor. A comparison of the estimated parameters of the tobit equation (Table 6) with those of the OLS equation (Table 4) provides a test of whether the parameters of welfare equation differ between the poor and the non-poor. Results of the tobit regression with dependent variable censored at the poverty line show that ownership of the real estate decreases the probability of falling into "general" poverty by almost 23 percent, into "extreme" poverty – by almost 30 percent. OLS results indicate that ownership of assets increases welfare by 24 percent. The variable was shown to be significant both according to the IV and probit regressions. In sum, the return from ownership of assets is rather similar between the poor and the non-poor.

The causality on poverty can be attributed to selected factors based on analysis of the OLS, 2SLS, and probit regressions output. As mentioned before the two latter models serve as checks for robustness of the welfare equation result. When similar conclusions are drawn about a variable from all three models, it provides grounds for attributing causality on poverty to that variable. Theory and intuitive reasoning with an eye toward policy targeting of poverty are also applied for identifying the determinants. Significance of the number of household members and children as well as the share of wages to total income ratio as determinants of poverty is based on vast theoretical background of poverty studies both in Ukraine and other countries. It is currently a widely held view among the Ukrainian researchers and policy-makers that the desirable increase in the ratio of wages to income should come in the form of reduction of subsidies, transfers,

and other types of social welfare support. This study supports this opinion by identifying wages to income variable as a poverty determinant that consistently appears to be highly significant with a high explanatory power in all models except for the 2SLS, in which its significance could not have been tested because of the difficulty of finding a valid IV for this variable.

Pensioner status of the household head, his/her high education, and life satisfaction of the household head are being classified as determinants of poverty based on the fact that they are found to be significant in all of the four considered models. The use of computer by the household head and his/her job satisfaction are attributed causality on poverty because their significance has been proven by the three models. Their exception from the IV testing is caused by the lack of appropriate instruments for estimation. Finally, employment of the household head at a new private agricultural firm/farm and at entrepreneurship are seen as determinants of poverty as shown by the binary poverty and poverty gap equations. The large (27 percent) explanatory power of the place of employment should be not noted.

Table 7. Determinants of Poverty

Factors Positively Related to Poverty	Increase in Probability of Poverty, % (with increase in the factor by one unit)		Factors Negatively Related to Poverty	Reduction in Probability of Poverty, % (with decrease in the factor by one unit)	
	General Poverty Line	Low Poverty Line		General Poverty Line	Low Poverty Line
Household size	2.4	1.3	Share of wages in total income	14.4**	8.5**
Number of children	5.4**	2.5	Ownership of real estate	22.6**	29.3
Place of employment of the household head: New private agricultural firm/farm	27.0*	-	Pensioner status of the household head	12.8**	9.1**

			High education attained by the household head	10.6**	5.7**
			Employment of the household head in entrepreneurship	-	9.7**
			Use of computer by the household head	11**	-
			Job satisfaction of the household head at all levels higher than "Not satisfied at all", for general pov. line – higher than "Less than satisfied"	12.7 – 20.4*	7.2 – 8.6**
			Level of life satisfaction of the household head	-	4.3**

Note: Factors with the percentage effects marked ** are significant at 1%, not marked – significant at 5%.

The attributed causality allows to interpret the coefficients as degrees of the effect on poverty (in percentages). It is evident from the output above that share of wages in total income, high education, and pensioner status have some of the most significant coefficients. Share of wages in total household income consistently shows to be a good correlate of poverty and it generally has some of the largest effects. Unfortunately, however, its strict exogeneity could not be tested because of lack of a suitable IV. As the share of wages to total household income increases by 1 percent, the probability for that household to fall below the poverty line of 7.11 UAH spending per person per day increases by 14.4 percent, to fall below the poverty line of 4.38 UAH spending per person per day – by 8.5 percent. With similar interpretation of the coefficients given in the table below, with additional child aged 16 or younger the household's likelihood to fall into "extreme" poverty is 2.5 percent, to fall into "general" poverty – more than twice

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as much. Having additional member of the household increases the probability to be poor by 2.4 percent.

Correlates of welfare indicate that large number of elderly is associated with the fall in household welfare by 7%, but the effect is not reflected in binary poverty or poverty gap equations. This finding is in line with our hypothesis that age of the household head does not have a direct affect on household's welfare and allows us to use it as an instrumental variable for pensioner status. The IV estimation proves that pensioners are significantly and consistently better off in Ukraine according to the ULMS 2004 dataset. This result is consistent with the outcome and recommendations presented in the recent policy paper prepared for Ukraine by the Institute of Economic Research and Policy Consulting in Ukraine (IER, 2004).

Entrepreneurship (self-employment) plays a role for the "extremely" poor, but not for the general poor population, while high education of the household head is very important for both types and measures of poverty. If the household head uses computer, it significantly decreases the probability for a household to fall into poverty (by 11 percent) for the "general" poverty line, but the factor is not significant for the low poverty line.

Such general attitude variable as life satisfaction is significantly related to poverty below the low poverty line, but the causality direction is ambiguous. Working for a new private agricultural firm/farm may increase "general" poverty probability by 27 percent, but it does not have effect on "extreme" poverty. Place of employment also significantly affects poverty gap.

CONCLUSIONS AND POLICY RECOMMENDATIONS

Results of the study indicate that among significant demographic household characteristics that make poor people poor are large numbers of household members and children in a household, but pensioner status of the household head was proven to reduce likelihood of poverty occurrence in a household. Among labor market connections, employment of the household head at private agricultural firm/farm has the highest explanatory power (27 percent), but it is significant only at the "general" poverty line. On the other hand, employment at entrepreneurship can reduce likelihood to be poor only for the low poverty line having no effect at the "general" one. High education attained by the household head may significantly reduce the probability of poverty occurrence for both poverty lines, while the use of computer has effect only for "general" poverty line. Significance of such attitudes as level of life and job satisfaction has also been shown.

There is a very strong link between economic growth and poverty reduction. Studies of worldwide data show that a 1 percent increase in per capita income is associated with a 1 percent increase in the incomes of the poor. The relationship is robust and has not changed over time (World Bank, 2005). Greater economic openness, the rule of law, and fiscal discipline all boost growth. Anti-poverty activities can be classified into three groups:

- Fostering opportunity – through well-functioning and internationally open markets, and investments in infrastructure and education.

- Facilitating empowerment, which amounts to including people in the decision-making process. This requires government accountability, a strong media, local organizational capacity, and mechanisms for participation in making decisions.

- Addressing income security, which tackles the problem of vulnerability. This calls for insurance programs, disaster relief procedures, and a solid public health infrastructure.

The findings presented in this paper indicate that the most relevant activities for alleviating poverty in Ukraine lie in the area of fostering opportunity and addressing income security.

Social support: privileges and targeted benefits. An average contribution required to lift an average poor person out of extreme poverty is necessary 1.26 UAH per day or almost 38 UAH per month. Thus, a minimum amount of perfectly targeted transfers necessary to contribute to the MDG attainment or to reduce by half the number of households classified as _extremely_ poor is 126 million per month or almost 1.5 billion UAH per year. This amount constitutes 2% of the state budget fund of Ukraine in 2004 compared to 6.2 percent of social privileges and assistance payments from the state budget in 2004. Taking into account the current budget deficit and the difficulty of increasing social support expenditures, it is advised to gradually divert assistance payments from pensioners to large households with large number of children, possibly (although necessarily) those headed by female, i.e. to target households with the characteristics that are most likely to increase poverty according to this analysis. This policy should be pursued in the short run, for example, for one year until the next annual state budget plan is compiled.

In the medium run (as necessary legislative changes are made), replacing privileges with targeted benefits and non-privilege-based incentives and awards is necessary. I recommend elimination of most privileges as a form of government

support, incentive, or distinction, except for privileges for World War II veterans and those suffering losses from the after-effects of the Chornobyl disaster. Instead the government should commit to providing targeted individual benefits on the basis of the need according to the criteria established by legislation. The currently provided non-cash targeted benefits, such as residential services subsidies to low-income families, should be preserved. However, there is evidence of effectiveness of cash benefits, and in line with the worldwide trend of monetization of benefits we propose that newly established targeted benefits should be provided in cash form. It is recommended that they should be allocated based on the criteria of a person's belonging to specific risk-groups, namely (based on the empirical findings), to large families with many children (more than 3) and headed by a woman.

A viable long-run poverty-reducing policy (shown in a trend over 3-5 years) drawing from our empirical results is to increase wage to income ratio by gradual reduction in privileges and stressing fostering of opportunity to aid economic and personal development of the population instead of direct social support.

Fostering opportunity. Increasing the share of wages in total household's income could reduce the probability of poverty roughly by half. Direct raising of the minimum wage should not be undertaken to avoid inflationary and other well-known distortionary effects. Lowering unemployment and creating a sound business environment for small firms should be the government focus instead (World Bank, 2005). This implies that creation of comfortable and secure jobs (that would induce higher levels of job satisfaction found to be significant in this analysis) would be an important element of long-term government policy aimed at reducing poverty. However, employment should provide adequate wages contributing to growing wage to household income ratio, so it should take place in a competitive sector or industry, where efficient production, and as a result, higher wages, is ensured by a competitive pressure. To ensure that micro

enterprises and small business can participate effectively in markets and employ larger number of poor people, ensuring access to credit, lowering transaction costs of reaching export markets, and reducing restrictions on the informal sector are necessary. These measures are also expected to provide opportunity and incentive for entrepreneurship, which is shown to have a significant effect on the likelihood of extreme poverty. Encouraging effective private investment is essential because it is the main driver for growth in jobs and labor incomes. Upgrading the skills of the labor force has to complement private investment to enhance competitiveness in the labor market, increase demand for the labor force, and thus raise wages.

Health and education are shown to have effect on poverty, so fostering universal education and healthcare are the keys to reducing poverty. In more than 30 percent of the households below the low poverty line the household head does not have higher education, whereas having higher education reduces the probability of the household falling into poverty by almost 11 percent. As attainment of high education by household head by the time a family is formed can significantly reduce poverty, getting knowledge to poor areas is vital. Building higher education and healthcare services that poor people can use requires sufficient public spending on these sectors and reform of the system of public delivery of these services or their privatization in order to ensure good quality services delivery.

As employment at new private agricultural firm/farm has shown to affect poverty, "pro-poor" government should undertake economically viable measures to support this type of enterprise organization and foster its productivity. Government's attention should also be drawn to the work of local municipal/collective enterprises according to his analysis.

Addressing income security. Poor people are exposed to a wide range of risks that make them vulnerable to income shocks and losses of well-being. Reducing poor

people's vulnerability to ill health and economic shocks causing unemployment though diversification of assets and sources of income and various types of self-insurance are all highly effective in alleviating poverty. Appropriate measures for reducing vulnerability might include:

- Addressing health problems including widespread illnesses such as HIV/AIDS and tuberculosis.

- Formulating programs to helping poor people manage risk: microinsurance programs, public works programs and food transfer for young families and unemployed.

- Developing national programs to prevent and respond to macro shocks—financial or natural.

- Developing food relief programs with a focus on vulnerable children from families with many children.

Regional Targeting. The large variation in indicators of the headcount index and poverty gap measures has an important policy implication: there is a tradeoff between the number of the poor covered by the policy reduction policy and effectiveness of the policy, i.e. the transfer per household. To ensure effectives of the policy, we recommend targeting the oblasts where the poor are the farthest below the low poverty line in the first stage of poverty alleviation efforts, that is, Mykolayivska, Luhanska, Poltavska, Kyivska, Chernihivska, Volynska, and Cherkaska oblasts. It is better to transfer a large amount and cover few persons, but narrow the poverty gap, than transfer a smaller amount that comprises only a tiny portion of the expenditure deficiency.

To conclude, based on the results of the detailed analysis of the extensive and reliable dataset consisting of the survey of about 3,000 households of Ukraine, a few policy recommendations may be developed. First, poverty reduction efforts should focus in the first place on the regions with the greatest poverty gap:

Mykolayivska, Luhanska, Poltavska, Kyivska, Chernihivska, Volynska, and Cherkaska oblasts.

Secondly, poor households tend to have more household members and more children, so the policy should be aimed at such households in the first place through targeted benefits. The budget funds necessary for such programs should be allocated at the expense of greatly reducing privileges except for the World War II veterans and Chornobyl victims suffering direct losses from the disaster.

Thirdly, increasing wages to income ratio should be an important government target through gradual reduction of social support in the long run and indirect wage increase. Some of the means for increasing opportunities for the poor in the labor market are support of small enterprises and individual entrepreneurship, upgrading the skills of employees, and encouraging effective investment.

Fourth, for children that come from poor families higher education is always less accessible, but education attained by a household head is an important factor in reducing the likelihood of poverty. Therefore, reform of this public service provision system to improve accessibility of higher education to the poor and their development are essential.

C h a p t e r   7

FURTHER STUDY

The first and important limitation of my analysis is the need to use a proxy for household head, which comes from the lack of reliable identification of the head of household among the household members in the 2004 survey. Many studies indicate the household head characteristics, such as his/her education or unemployment as some of the most significant determinants of poverty. This limitation will be overcome by the next ULMS survey, in which a respondent will be explicitly asked to name head of the household, which will allow to identify him/her with precision.

Secondly, policy implications of this study would have been much stronger, had it been based on panel data, i.e. if both 2003 and 2004 data series had been used, which in turn could have been done if the household expenditures were as well represented in 2003 survey as in 2004. Cross section analysis of poverty suffers from the major problem that it does not allow to identify whether the same or different households are below the poverty line over time. Policy implications may be quite different in these cases. In other words, with panel data, it would have been possible and very useful to identify the determinants of poverty, i.e. factors that specifically cause poverty instead of correlates of poverty as from cross section data. This limitation can be overcome with the next set of UMLS data, which is also expected to include an extended data set on expenditures.

Third, the common critique of the household surveys is that they tend to overestimate poverty. So as more data is available, the results of different surveys could be compared, and more effective sampling methods could be developed.

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STATISTICAL AND ECONOMETRIC ANNEXES

Annex A. Summary of Estimation Results

Table 1A. Estimation Output of Welfare, Binary Poverty Outcome, and Poverty Gap Equations

Explanatory variable	Meaning of the Explanatory Variable (Values)	Name of the Explanatory Variable	OLS		Probit, Marginal Effects				Tobit			
			Ln (Adult Equivalent Expenditure/Day)		POOR = 1 if Adult Equivalent Expenditure/Day < 7.11 UAH		VERY POOR = 1 if Adult Equivalent Expenditure/Day < 4.39 UAH		Ln (Adult Equivalent Expenditure/Day) censored from above at ln(7.11) UAH		Ln (Adult Equivalent Expenditure/Day) censored from above at ln(4.39) UAH	
			Coeffi-cient	t	Coeffi-cient	t	Coeffi-cient	t	Coeffi-cient	t	Coeffi-cient	t
Household size	Number of household members	SIZE	-0.045	(3.03)**	0.024	(2.29)*	0.013	(2.03)*	-0.047	(2.51)*	-0.047	(1.77)
Number of children	Number of children aged 16 or less in the household	CHILD	-0.077	(3.04)**	0.054	(3.05)**	0.025	(2.37)*	-0.088	(2.78)**	-0.093	(2.08)*
Number of elderly	Number of elderly aged 65 or more in the household	ELDERLY	-0.068	(2.86)**	0.030	(1.83)	0.012	(1.27)	-0.035	(1.20)	-0.032	(0.78)
Share of wages in total income	Share of wages in total income	WAGES	0.198	(5.31)**	-0.144	(4.92)**	-0.085	(4.63)**	0.311	(5.87)**	0.392	(5.01)**
Tenants' status of the household at it main place of living	1 - the household rents 0 – own the place of living or "other".	TENANTS	-0.079	(1.84)	0.038	(1.2)	0.010	(0.49)	-0.091	(1.65)	-0.092	(1.15)
Ownership of dacha,	1 – own	REAL_ESTAT	0.244	(5.38)**	-0.106	(3.58)**	-0.055	(3.41)**	0.226	(3.40)**	0.293	(2.71)**

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garden cottage, summer house, another house, apartment, or part of an apartment by the household	0 – otherwise	E								
Gender of the household head	1 – man 0 – woman	H_GENDER	0.124	(2.97)**	-0.068	(2.27)*	-0.011	(0.61)	0.113	(2.18)*	0.067	(0.91)
Unemployment of the household head in the reference week	1 - the household head was seeking job in the reference week 0 – otherwise	H_UNEMPL	-0.074	(1.58)	0.036	(1.1)	0.004	(0.23)	-0.077	(1.36)	-0.038	(0.49)
Pensioner status of the household head	1 - the household head was supposed to received a pension of any kind (for retirement, disability, loss of provider, or years of service) 0 - otherwise	H_PENSIONER	0.223	(5.64)**	-0.128	(4.67)**	-0.091	(5.51)**	0.313	(6.00)**	0.443	(5.79)**
High education attained by the household head	1 - the household head has undergraduate or basic professional higher education (bachelors degree), diploma of specialist, graduate professional higher education (master's	H_HIGH	0.188	(4.61)**	-0.106	(3.93)**	-0.057	(3.69)**	0.210	(3.58)**	0.272	(2.83)**

	degree), candidate or doctor of sciences degree 0 – otherwise										
Engagement of the household head in producing agricultural or other products for sale in the last week	1 – household head engaged 0 – otherwise	H_AGRICUL	-0.167	(0.92)	0.085	(0.64)	0.014	(0.17)	-0.126	(0.56)	0.029	(0.09)
Employment of the household head in entrepreneurship, business activities, individual work, working in a family enterprise or on a farm, as a freelancer or as a registered entrepreneur in the reference week	1 – employed 0 – otherwise	H_ENTREPR	0.068	(0.49)	-0.067	(0.71)	-0.097	(7.51)**	0.269	(1.34)	1.022	(2.17)*
Employment of the household head at a foreign-owned firm	1 – employed in a foreign-owned firm in the reference week 0 – otherwise	H_FOREIGN	-0.333	(1.16)	0.291	(1.51)	0.139	(0.67)	-0.512	(1.54)	-0.491	(0.97)
Use of computer by the household head	1 - the household head has used a personal computer in the course of the last year for work, study, or leisure 0 – otherwise	H_COMPUTER	0.195	(4.22)**	-0.110	(3.57)**	-0.017	(0.8)	0.208	(3.14)**	0.094	(0.96)

Use of the Internet by the household head	1 - the household head has used an Internet in the course of the last year 0 – otherwise	H_INTERNET	0.128	(1.81)	-0.055	(1.01)	-0.048	(1.71)	0.115	(1.03)	0.244	(1.30)
Level of correspondence of the job of the household head to his/her educational level and the field of study	1 - ''The job requires the same level of education and the same field of study'' 0 – otherwise	H_JOB_VS_EDU1	-0.024	(0.38)	0.002	(0.05)	-0.043	(1.73)	0.056	(0.65)	0.211	(1.77)
	1 - ''The job requires a more advanced level of education'' 0 – otherwise	H_JOB_VS_EDU2	0.173	(1.48)	-0.101	(1.27)	-0.091	(4.84)**	0.289	(1.57)	0.767	(1.89)
	1 - ''The job requires a lower level of education'' 0 - otherwise	H_JOB_VS_EDU3	-0.019	(0.27)	0.016	(0.31)	-0.024	(0.86)	0.020	(0.22)	0.110	(0.83)
	1 - ''The job requires the same level of education, but in a different discipline'' 0 - otherwise	H_JOB_VS_EDU4	0.094	(1.07)	-0.034	(0.54)	-0.069	(3.21)**	0.134	(1.12)	0.380	(2.01)*
Type of the organization where the household head is employed	1 - Budgetary organization 0 - otherwise	H_ORG1	-0.026	(0.24)	0.044	(0.54)	0.046	(0.69)	-0.091	(0.64)	-0.197	(0.88)
	1 - State enterprise 0 – otherwise	H_ORG2	0.047	(0.46)	-0.050	(0.75)	0.033	(0.62)	0.070	(0.54)	-0.145	(0.73)

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	1 - Local municipal enterprise 0 - otherwise	H_ORG3	-0.220	(1.30)	0.112	(0.87)	0.208	(1.51)	-0.339	(1.62)	-0.642	(2.23)*
	1 - State or collective farm/CAP 0 - otherwise	H_ORG4	-0.169	(1.07)	0.112	(0.95)	0.092	(0.92)	-0.137	(0.72)	-0.264	(0.95)
	1 - Collective enterprise 0 - otherwise	H_ORG5	-0.030	(0.25)	0.073	(0.8)	0.151	(1.6)	-0.181	(1.17)	-0.499	(2.19)*
	1 – Cooperative 0 - otherwise	H_ORG6	0.002	(0.01)	0.264	(1.75)	0.076	(0.62)	-0.310	(1.35)	-0.224	(0.64)
	1 - Newly established private enterprise (which has never been state enterprise) 0 - otherwise	H_ORG7	0.047	(0.44)	0.019	(0.25)	0.064	(0.98)	-0.065	(0.48)	-0.244	(1.18)
	1 - New private agricultural firm/farm 0 – otherwise	H_ORG8	-0.243	(1.58)	0.270	(2.39)*	0.161	(1.4)	-0.471	(2.61)**	-0.554	(2.09)*
	1 - Privatized enterprise 0 - otherwise	H_ORG9	0.066	(0.62)	-0.028	(0.39)	0.051	(0.83)	0.027	(0.20)	-0.189	(0.93)
	1 - Freelance work/self-employment 0 – otherwise	H_ORG10	0.162	(1.35)	-0.045	(0.56)	0.076	(0.97)	0.028	(0.18)	-0.326	(1.41)
	1 - International organization 0 - otherwise	H_ORG11	0.627	(1.25)	-	-	-	-	4.572	(.)	4.288	(.)
	1 -	H_ORG12	-0.412	(1.26)	0.227	(0.94)	0.322	(1.17)	-0.506	(1.30)	-0.866	(1.64)

	Public/religious/self-financing organization 0 – otherwise											
Level of job satisfaction of the household head	1 – "fully satisfied" 0 – otherwise	H_JOB1	0.394	(3.48)**	-0.159	(2.67)*	-0.077	(3.08)**	0.368	(2.52)*	0.515	(2.34)*
	1 – "satisfied" 0 – otherwise	H_JOB2	0.356	(3.34)**	-0.204	(3.69)**	-0.086	(3.11)**	0.429	(3.17)**	0.490	(2.49)*
	1 – "rather satisfied" 0 – otherwise	H_JOB3	0.295	(2.69)**	-0.127	(2.03)*	-0.074	(2.74)*	0.298	(2.18)*	0.453	(2.28)*
	1 - "less than satisfied" 0 – otherwise	H_JOB4	0.269	(2.41)*	-0.111	(1.73)	-0.072	(2.92)**	0.257	(1.84)	0.460	(2.25)*
	1 – "not satisfied at all" 0 – otherwise	H_JOB5	0.184	(1.56)	-0.072	(0.99)	-0.032	(0.85)	0.140	(0.96)	0.201	(0.99)
Level of life satisfaction of the household head	1 – "fully satisfied" or "satisfied" 0 – "rather satisfied", "less than satisfied", or "not satisfied at all"	H_LIFE	0.133	(3.73)**	-0.018	(0.72)	-0.043	(2.91)**	0.052	(1.09)	0.166	(2.21)*
Type of political system which the household head would like his/her children to live under	1 – "The Soviet system which was in our country until perestroika" 0 – otherwise	H_POLITICS1	0.008	(0.20)	-0.015	(0.57)	0.004	(0.25)	0.009	(0.20)	-0.034	(0.52)
	1 – "The Soviet system, but in a different, more democratic form"	H_ POLITICS 2	0.147	(3.26)**	-0.103	(3.68)**	-0.045	(2.85)*	0.201	(3.47)**	0.198	(2.32)*

			Coef	(t)	Coef	(t)	Coef	(t)	Coef	(t)	Coef	(t)
	0 – otherwise											
	1 – "The political system which exists today" 0 – otherwise	H_ POLITICS 3	0.134	(2.20)*	-0.083	(2.16)*	-0.015	(0.62)	0.147	(1.81)	0.082	(0.69)
	1 – "Western-type democracy" 0 – otherwise	H_ POLITICS 4	0.173	(4.03)**	-0.077	(2.72)*	-0.043	(2.70)*	0.168	(3.04)**	0.188	(2.28)*
Health of the household head	1 - "very good" 0 – otherwise	H_HEALTH1	-0.275	(1.42)	0.189	(1.16)	0.069	(0.53)	-0.245	(0.92)	-0.097	(0.25)
	1 - "good" 0 – otherwise	H_HEALTH2	-0.201	(1.23)	0.143	(1.09)	0.061	(0.64)	-0.189	(0.84)	-0.145	(0.46)
	1 - "average, not good, but not bad" 0 – otherwise	H_HEALTH3	-0.246	(1.53)	0.177	(1.53)	0.061	(0.83)	-0.274	(1.23)	-0.204	(0.66)
	1 - "bad" 0 – otherwise	H_HEALTH4	-0.266	(1.64)	0.226	(1.72)	0.091	(0.91)	-0.339	(1.52)	-0.284	(0.91)
Consumption of alcoholic beverages by the household head	1 – "4-7 days per week in the last three months" 0 – less often or not consuming at all.	H_DRINK	0.076	(1.25)	-0.036	(0.87)	-0.003	(0.11)	0.019	(0.25)	-0.043	(0.40)
Smoking by the household head	1 – smoke 0 – quit or never smoked	H_SMOKE	0.020	(0.47)	-0.035	(1.18)	-0.007	(0.37)	0.088	(1.57)	0.074	(0.91)
		CONSTANT	2.041	(11.98)**	-	-	-	-	2.011	(8.63)**	1.988	(6.07)**
			Observations= 2744 R-squared = 0.21						Pseudo R2 = 0.1118 Observations = 2744		Pseudo R2 = 0.1225 Observations = 2744	

Factors with t-statistics marked ** are significant at 1%, * – significant at 5%.

Table 2A. Summary of 2SLS Regressions Estimation and Testing Results

Variable	Instrumental Variable(s)	Durbin-Wu-Hausman Endogeneity Test (Wu-Hausman F Test), P-value	"Regressor is … to welfare"	Test of overidentifying restrictions if any (Sargan N*R-sq Test), P-value	"The instruments are …"	IV Regression P-value	Interpretation and Conclusion
H_HIGH** – dummy indicating high education attained by the household head	*fatherprof* - occupation of the household head's mother was in the category of "legislators, senior officials, managers, and self-employed" *motherprof* - occupation of the household head's mother was in the category of "legislators, senior officials, managers, and self-employed"	0.04728	exogenous	0.7991	valid	0.003	Not only the variable is exogenous to welfare, suitable IVs are chosen, and the regression result confirms significance of the variable.
H_PENSION** – dummy indicating pensioner status of the household head	*H_age* – age of household head	0.16331	exogenous	-	-	0.000	In addition to the fact that the variable is exogenous to welfare and does not require an IV, the IV regression result confirms to the OLS estimate.
REAL_ESTATE* – dummy indicating ownership of real estate	*inherited* – dummy indicating if the current household housing is inherited	0.88263	exogenous	-	-	0.797	OLS estimator of the variables yields consistent estimates, and no IV is needed, so the variables can be seen as significant in determining welfare.
H_GENDER* – dummy equal to 1 indicating female, zero otherwise	*f_notlive* – dummy indicating if father of the household head was not living with the family *m_notlive* – dummy indicating if mother of the household head was not living	0.01218	endogenous	0.5004	valid	0.059	The variable is endogenous and requires an IV; a valid IV indicates that the variable is not significant in determining welfare.

	with the family						
H_LIFE* – dummy indicating life satisfaction of the household head	*H_Religion* – dummy indicating religious belief of the household head	0.06539	exogenous	-	-	0.483	OLS estimator of the variables yields consistent estimates, and no IV is needed, so the variables can be seen as significant in determining welfare.

** mark variables whose significance in determining poverty is proven by the IV procedure and the two tests.

* marks variables whose significant in determining poverty is shown by Durbin-Wu-Hausman endogeneity test and is not contradicted by the test of overidentifying restrictions.

Table 3A. Descriptive Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ADULT_EXP	7188	13.6353	15.15042	.0666667	213.3647
LOG_ADULT_~P	7188	2.290128	.7751856	-2.70805	5.363003
SIZE	7201	3.379531	1.421645	0	13
CHILD	7201	.5488127	.7763065	0	5
ELDERLY	7201	.3893904	.6489467	0	3
WAGES	6746	.592388	.480957	0	10
TENANTS	7201	.1141508	.3180164	0	1
REAL_ESTATE	7188	.102532	.3033677	0	1
H_GENDER	2920	.8308219	.3749733	0	1
H_UNEMPL	7201	.0462436	.2100267	0	1
H_PENSION	7201	.1667824	.3728074	0	1
H_HIGH	7201	.0608249	.2390254	0	1
H_AGRICUL	7201	.0026385	.0513023	0	1
H_ENTREPR	7201	.0048604	.069552	0	1
H_FOREIGN	7201	.0036106	.0599839	0	1
H_COMPUTER	7201	.0712401	.2572434	0	1
H_INTERNET	7201	.0236078	.1518345	0	1
H_JOB_VS_E~1	7201	.1292876	.3355413	0	1
H_JOB_VS_E~2	7201	.0076378	.0870663	0	1
H_JOB_VS_E~3	7201	.0442994	.2057738	0	1
H_JOB_VS_E~4	7201	.0183308	.1341539	0	1
H_ORG1	7201	.0240244	.1531356	0	1
H_ORG2	7201	.0673518	.2506476	0	1
H_ORG3	7201	.0036106	.0599839	0	1
H_ORG4	7201	.004305	.0654753	0	1
H_ORG5	7201	.0126371	.1117102	0	1
H_ORG6	7201	.0022219	.0470881	0	1
H_ORG7	7201	.0374948	.1899841	0	1
H_ORG8	7201	.0055548	.0743283	0	1
H_ORG9	7201	.0359672	.1862214	0	1
H_ORG10	7201	.0187474	.135641	0	1
H_ORG11	7201	.0002777	.0166644	0	1
H_ORG12	7201	.0006943	.0263432	0	1
H_JOB1	7201	.0363838	.1872563	0	1
H_JOB2	7201	.0772115	.2669453	0	1
H_JOB3	7201	.0512429	.2205081	0	1
H_JOB4	7201	.0305513	.1721106	0	1
H_JOB5	7201	.0208304	.1428263	0	1
H_LIFE	7201	.1019303	.3025776	0	1
H_POLITICS1	7201	.1391473	.3461242	0	1
H_POLITICS2	7201	.0704069	.2558493	0	1
H_POLITICS3	7201	.0272184	.1627307	0	1
H_POLITICS4	7201	.0923483	.2895371	0	1
H_HEALTH1	7201	.006388	.0796748	0	1
H_HEALTH2	7201	.0858214	.2801196	0	1
H_HEALTH3	7201	.2174698	.4125534	0	1
H_HEALTH4	7201	.0929038	.2903177	0	1
H_DRINK	7201	.0201361	.1404755	0	1
H_SMOKE	7201	.0463824	.2103266	0	1

Table 1B. OLS Regression Output

Source	SS	df	MS				Number of obs = 2744
Model	350.77415	47	7.46327978				F(47, 2696) = 15.56
Residual	1292.80264	2696	.479526201				Prob > F = 0.0000
							R-squared = 0.2134
							Adj R-squared = 0.1997
Total	1643.57679	2743	.599189496				Root MSE = .69248

LOG_ADULT_~P	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
SIZE	-.0449623	.014829	-3.03	0.002	-.0740397	-.015885
CHILD	-.0773141	.0254662	-3.04	0.002	-.1272495	-.0273788
ELDERLY	-.0677289	.0237228	-2.86	0.004	-.1142455	-.0212122
WAGES	.1979135	.0373009	5.31	0.000	.1247723	.2710547
TENANTS	-.0789456	.0429689	-1.84	0.066	-.163201	.0053097
REAL_ESTATE	.2438064	.0453331	5.38	0.000	.1549152	.3326976
H_GENDER	.1236774	.0416086	2.97	0.003	.0420894	.2052653
H_UNEMPL	-.0737674	.0466083	-1.58	0.114	-.1651591	.0176243
H_PENSION	.2228385	.0395015	5.64	0.000	.1453822	.3002948
H_HIGH	.187589	.0406874	4.61	0.000	.1078074	.2673707
H_AGRICUL	-.1665322	.1806503	-0.92	0.357	-.5207594	.1876949
H_ENTREPR	.0684148	.1406556	0.49	0.627	-.207389	.3442186
H_FOREIGN	-.3326421	.2865741	-1.16	0.246	-.8945694	.2292851
H_COMPUTER	.1945959	.0460978	4.22	0.000	.1042052	.2849865
H_INTERNET	.1279159	.0705206	1.81	0.070	-.0103641	.2661959
H_JOB_VS_E~1	-.0243335	.0646413	-0.38	0.707	-.1510851	.102418
H_JOB_VS_E~2	.1732356	.1174323	1.48	0.140	-.0570308	.4035021
H_JOB_VS_E~3	-.0194483	.0721253	-0.27	0.787	-.1608748	.1219783
H_JOB_VS_E~4	.094168	.0877498	1.07	0.283	-.0778957	.2662316
H_ORG1	-.0259986	.1102073	-0.24	0.814	-.2420979	.1901007
H_ORG2	.0469553	.1010869	0.46	0.642	-.1512603	.2451709
H_ORG3	-.2196456	.1686355	-1.30	0.193	-.5503137	.1110224
H_ORG4	-.1690153	.1574849	-1.07	0.283	-.4778186	.1397881
H_ORG5	-.0297758	.1211505	-0.25	0.806	-.267333	.2077814
H_ORG6	.0017191	.2007293	0.01	0.993	-.3918799	.395318
H_ORG7	.0470066	.10587	0.44	0.657	-.1605879	.2546011
H_ORG8	-.2429795	.1534701	-1.58	0.113	-.5439105	.0579516
H_ORG9	.0658268	.1056337	0.62	0.533	-.1413044	.272958
H_ORG10	.1617406	.1200019	1.35	0.178	-.0735645	.3970457
H_ORG11	.626984	.502337	1.25	0.212	-.3580206	1.611989
H_ORG12	-.4121196	.3261974	-1.26	0.207	-1.051742	.2275028
H_JOB1	.3940226	.1133133	3.48	0.001	.1718329	.6162124
H_JOB2	.3555493	.1065286	3.34	0.001	.1466633	.5644354
H_JOB3	.2946456	.1094143	2.69	0.007	.0801011	.5091901
H_JOB4	.2693704	.1119952	2.41	0.016	.0497653	.4889755
H_JOB5	.1840238	.1182205	1.56	0.120	-.0477881	.4158358
H_LIFE	.1328461	.0356175	3.73	0.000	.0630058	.2026864
H_POLITICS1	.0079028	.0390982	0.20	0.840	-.0687628	.0845684
H_POLITICS2	.1467443	.0449617	3.26	0.001	.0585813	.2349072
H_POLITICS3	.1340556	.0609707	2.20	0.028	.0145016	.2536096
H_POLITICS4	.173477	.0430723	4.03	0.000	.0890189	.2579351
H_HEALTH1	-.2754105	.1938239	-1.42	0.155	-.6554691	.104648
H_HEALTH2	-.2005702	.1628186	-1.23	0.218	-.519832	.1186917
H_HEALTH3	-.2457348	.1607278	-1.53	0.126	-.560897	.0694274
H_HEALTH4	-.265842	.162439	-1.64	0.102	-.5843596	.0526755
H_DRINK	.0757973	.06084	1.25	0.213	-.0435005	.195095
H_SMOKE	.0200965	.0430455	0.47	0.641	-.064309	.104502
_CONS	2.041407	.170399	11.98	0.000	1.707281	2.375533

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Table 2B. OLS Regression Output with Estimated Robust Standard Errors

```
Regression with robust standard errors        Number of obs =    2744
                                              F( 47,  2696) =   16.94
                                              Prob > F      =  0.0000
                                              R-squared     =  0.2134
                                              Root MSE      = .69248
```

LOG_ADULT_~P	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf. Interval]	
SIZE	-.0449623	.0162423	-2.77	0.006	-.0768109	-.0131138
CHILD	-.0773141	.0266388	-2.90	0.004	-.1295487	-.0250796
ELDERLY	-.0677289	.0234265	-2.89	0.004	-.1136646	-.0217932
WAGES	.1979135	.0623459	3.17	0.002	.0756629	.3201641
TENANTS	-.0789456	.0448685	-1.76	0.079	-.1669258	.0090346
REAL_ESTATE	.2438064	.0474105	5.14	0.000	.1508418	.336771
H_GENDER	.1236774	.0422983	2.92	0.003	.0407371	.2066177
H_UNEMPL	-.0737674	.0502917	-1.47	0.143	-.1723816	.0248469
H_PENSION	.2228385	.0419829	5.31	0.000	.1405165	.3051604
H_HIGH	.187589	.0394069	4.76	0.000	.1103182	.2648599
H_AGRICUL	-.1665322	.1731431	-0.96	0.336	-.5060388	.1729743
H_ENTREPR	.0684148	.1247553	0.55	0.583	-.176211	.3130406
H_FOREIGN	-.3326421	.3096074	-1.07	0.283	-.939734	.2744498
H_COMPUTER	.1945959	.0484254	4.02	0.000	.0996413	.2895505
H_INTERNET	.1279159	.0740627	1.73	0.084	-.0173095	.2731413
H_JOB_VS_E~1	-.0243335	.0624507	-0.39	0.697	-.1467897	.0981227
H_JOB_VS_E~2	.1732356	.1003604	1.73	0.084	-.0235555	.3700268
H_JOB_VS_E~3	-.0194483	.0725673	-0.27	0.789	-.1617415	.122845
H_JOB_VS_E~4	.094168	.0840787	1.12	0.263	-.0706972	.2590332
H_ORG1	-.0259986	.0902661	-0.29	0.773	-.2029963	.150999
H_ORG2	.0469553	.0806861	0.58	0.561	-.1112575	.2051681
H_ORG3	-.2196456	.164695	-1.33	0.182	-.5425868	.1032956
H_ORG4	-.1690153	.1207593	-1.40	0.162	-.4058054	.0677749
H_ORG5	-.0297758	.1107065	-0.27	0.788	-.2468539	.1873023
H_ORG6	.0017191	.2381802	0.01	0.994	-.4653152	.4687534
H_ORG7	.0470066	.0877156	0.54	0.592	-.12499	.2190032
H_ORG8	-.2429795	.1693152	-1.44	0.151	-.5749802	.0890213
H_ORG9	.0658268	.0866845	0.76	0.448	-.104148	.2358016
H_ORG10	.1617406	.1079897	1.50	0.134	-.0500105	.3734916
H_ORG11	.626984	.1328201	4.72	0.000	.3665445	.8874236
H_ORG12	-.4121196	.3195406	-1.29	0.197	-1.038689	.2144498
H_JOB1	.3940226	.09277	4.25	0.000	.2121152	.5759301
H_JOB2	.3555493	.0839986	4.23	0.000	.1908412	.5202575
H_JOB3	.2946456	.0878268	3.35	0.001	.122431	.4668602
H_JOB4	.2693704	.0930041	2.90	0.004	.0870039	.4517369
H_JOB5	.1840238	.1008957	1.82	0.068	-.0138169	.3818645
H_LIFE	.1328461	.0357293	3.72	0.000	.0627864	.2029057
H_POLITICS1	.0079028	.0391838	0.20	0.840	-.0689305	.0847361
H_POLITICS2	.1467443	.0434678	3.38	0.001	.0615107	.2319778
H_POLITICS3	.1340556	.0642466	2.09	0.037	.008078	.2600332
H_POLITICS4	.173477	.0423358	4.10	0.000	.0904631	.2564908
H_HEALTH1	-.2754105	.1881107	-1.46	0.143	-.6442664	.0934453
H_HEALTH2	-.2005702	.1641748	-1.22	0.222	-.5224914	.121351
H_HEALTH3	-.2457348	.1625558	-1.51	0.131	-.5644815	.0730118
H_HEALTH4	-.265842	.1644444	-1.62	0.106	-.5882918	.0566077
H_DRINK	.0757973	.0636347	1.19	0.234	-.0489804	.2005749
H_SMOKE	.0200965	.0404677	0.50	0.620	-.0592543	.0994473
_CONS	2.041407	.1733563	11.78	0.000	1.701483	2.381332

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Table 1C. 2SLS Regression and Test Output with Instrumented REAL_ESTATE

Instrumental variables (2SLS) regression

Source	SS	df	MS			
Model	326.695027	47	6.95095801			
Residual	1316.88176	2696	.488457626			
Total	1643.57679	2743	.599189496			

	Number of obs	=	2744
	F(47, 2696)	=	14.68
	Prob > F	=	0.0000
	R-squared	=	0.1988
	Adj R-squared	=	0.1848
	Root MSE	=	.6989

LOG_ADULT_~P	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
REAL_ESTATE	.5650466	2.195976	0.26	0.797	-3.740921	4.871014
SIZE	-.0465905	.0186499	-2.50	0.013	-.0831601	-.0100209
CHILD	-.0713992	.0479044	-1.49	0.136	-.1653323	.022534
ELDERLY	-.0723282	.0395138	-1.83	0.067	-.1498086	.0051522
WAGES	.1917897	.0562933	3.41	0.001	.0814073	.302172
TENANTS	-.0939638	.1114267	-0.84	0.399	-.3124543	.1245267
H_GENDER	.1198237	.04957	2.42	0.016	.0226246	.2170229
H_UNEMPL	-.0782786	.0562441	-1.39	0.164	-.1885646	.0320074
H_PENSION	.2132389	.0767712	2.78	0.006	.0627025	.3637752
H_HIGH	.1730734	.1073695	1.61	0.107	-.0374616	.3836083
H_AGRICUL	-.1450145	.2342424	-0.62	0.536	-.6043275	.3142984
H_ENTREPR	.0743244	.1475932	0.50	0.615	-.215083	.3637318
H_FOREIGN	-.3454392	.302165	-1.14	0.253	-.9379377	.2470594
H_COMPUTER	.1702939	.1724839	0.99	0.324	-.1679202	.508508
H_INTERNET	.1513616	.1753344	0.86	0.388	-.1924418	.4951651
H_JOB_VS_E~1	-.0267057	.0672248	-0.40	0.691	-.1585232	.1051117
H_JOB_VS_E~2	.1564023	.1651753	0.95	0.344	-.1674807	.4802853
H_JOB_VS_E~3	-.019609	.0728022	-0.27	0.788	-.1623628	.1231448
H_JOB_VS_E~4	.096953	.0905856	1.07	0.285	-.0806712	.2745773
H_ORG1	-.0514758	.2066168	-0.25	0.803	-.4566192	.3536676
H_ORG2	.0301704	.1535203	0.20	0.844	-.2708589	.3311998
H_ORG3	-.2500676	.2686956	-0.93	0.352	-.7769378	.2768026
H_ORG4	-.1636576	.163108	-1.00	0.316	-.4834869	.1561717
H_ORG5	-.061846	.2509816	-0.25	0.805	-.5539819	.4302898
H_ORG6	-.0067644	.2107235	-0.03	0.974	-.4199603	.4064315
H_ORG7	.0344322	.1371228	0.25	0.802	-.2344443	.3033088
H_ORG8	-.2471345	.1574743	-1.57	0.117	-.5559171	.0616482
H_ORG9	.0363944	.2276603	0.16	0.873	-.410012	.4828009
H_ORG10	.1497449	.1462534	1.02	0.306	-.1370353	.4365251
H_ORG11	.6289213	.5071664	1.24	0.215	-.365553	1.623396
H_ORG12	-.450184	.4196002	-1.07	0.283	-1.272955	.3725866
H_JOB1	.3999966	.1214333	3.29	0.001	.1618848	.6381084
H_JOB2	.3605834	.1128868	3.19	0.001	.13923	.5819367
H_JOB3	.3038922	.1272325	2.39	0.017	.0544091	.5533753
H_JOB4	.2771045	.1247817	2.22	0.026	.0324269	.521782
H_JOB5	.1943928	.1387747	1.40	0.161	-.0777228	.4665084
H_LIFE	.12248	.0794445	1.54	0.123	-.0332983	.2782584
H_POLITICS1	.0026165	.0535018	0.05	0.961	-.1022922	.1075252
H_POLITICS2	.1327509	.1058563	1.25	0.210	-.0748168	.3403187
H_POLITICS3	.1207902	.109573	1.10	0.270	-.0940655	.3356458
H_POLITICS4	.1604745	.0989276	1.62	0.105	-.0335072	.3544563
H_HEALTH1	-.2540597	.2440498	-1.04	0.298	-.7326034	.224484
H_HEALTH2	-.1942424	.1699234	-1.14	0.253	-.5274356	.1389509
H_HEALTH3	-.242527	.1636925	-1.48	0.139	-.5635025	.0784484
H_HEALTH4	-.2659379	.1639461	-1.62	0.105	-.5874106	.0555348

```
     H_DRINK |   .0759577    .0614138      1.24    0.216    -.0444651     .1963806
     H_SMOKE |    .017809    .0461719      0.39    0.700    -.0727269     .1083449
       _CONS |    2.04612    .1749692     11.69    0.000     1.703033     2.389208
-------------------------------------------------------------------------------
Instrumented:  real_estate
Instruments:   size child elderly wages tenants H_gender H_unempl H_pension
               H_high H_Agricul H_Entrepr H_foreign H_computer H_internet
               H_Job_vs_Edu1 H_Job_vs_Edu2 H_Job_vs_Edu3 H_Job_vs_Edu4 H_Org1
               H_Org2 H_Org3 H_Org4 H_Org5 H_Org6 H_Org7 H_Org8 H_Org9 H_Org10
               H_Org11 H_Org12 H_Job1 H_Job2 H_Job3 H_Job4 H_Job5 H_Life
               H_Politics1 H_Politics2 H_Politics3 H_Politics4 H_Health1
               H_Health2 H_Health3 H_Health4 H_drink H_smoke inherited
-------------------------------------------------------------------------------

. ivendog

Tests of endogeneity of: real_estate
H0: Regressor is exogenous
     Wu-Hausman F test:                  0.02180   F(1,2695)   P-value = 0.88263
     Durbin-Wu-Hausman chi-sq test:      0.02220   Chi-sq(1)   P-value = 0.88157
```

Table 2C. 2SLS Regression and Test Output with Instrumented H_PENSION

```
Instrumental variables (2SLS) regression

      Source |       SS       df       MS              Number of obs =    2744
-------------+------------------------------           F( 47,  2696) =   15.21
       Model |  348.155376     47   7.40756119         Prob > F      =  0.0000
    Residual |  1295.42141   2696   .480497556         R-squared     =  0.2118
-------------+------------------------------           Adj R-squared =  0.1981
       Total |  1643.57679   2743   .599189496         Root MSE      =  .69318


-------------------------------------------------------------------------------
LOG_ADULT_~P |    Coef.    Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
   H_PENSION |   .3151501    .0771793      4.08    0.000     .1638136     .4664866
        SIZE |   -.043573    .0148775     -2.93    0.003    -.0727454    -.0144006
       CHILD |   -.072713    .0257052     -2.83    0.005    -.1231169    -.0223091
     ELDERLY |  -.0768803    .0246391     -3.12    0.002    -.1251937    -.0285669
       WAGES |   .2142674    .0391414      5.47    0.000     .1375171     .2910177
     TENANTS |  -.0817469    .0430594     -1.90    0.058    -.1661797     .0026858
 REAL_ESTATE |   .2401732    .0454539      5.28    0.000     .1510451     .3293013
    H_GENDER |   .1293399    .0418487      3.09    0.002     .0472812     .2113986
    H_UNEMPL |   -.042541    .0517632     -0.82    0.411    -.1440406     .0589586
      H_HIGH |   .1776765    .0413458      4.30    0.000     .0966039     .2587491
    H_AGRICUL |  -.1901001    .1816232     -1.05    0.295    -.5462349     .1660348
    H_ENTREPR |   .0731908    .1408398      0.52    0.603    -.2029741     .3493556
    H_FOREIGN |  -.3363787    .2868768     -1.17    0.241    -.8988995      .226142
   H_COMPUTER |   .2089805    .0472862      4.42    0.000     .1162596     .3017015
   H_INTERNET |   .1282515    .0705924      1.82    0.069    -.0101692     .2666723
H_JOB_VS_E~1 |  -.0184062    .0648466     -0.28    0.777    -.1455603     .1087478
H_JOB_VS_E~2 |   .1684879    .1176006      1.43    0.152    -.0621086     .3990844
H_JOB_VS_E~3 |  -.0188603    .0721996     -0.26    0.794    -.1604325     .1227118
H_JOB_VS_E~4 |   .0964346    .0878537      1.10    0.272    -.0758328      .268702
      H_ORG1 |  -.0252101    .1103203     -0.23    0.819     -.241531     .1911108
      H_ORG2 |   .0531911    .1012882      0.53    0.600    -.1454193     .2518015
      H_ORG3 |  -.2045106    .1691557     -1.21    0.227    -.5361986     .1271773
      H_ORG4 |  -.1581532    .1578371     -1.00    0.316    -.4676472     .1513409
      H_ORG5 |  -.0248171    .1213254     -0.20    0.838    -.2627172     .2130831
      H_ORG6 |   .0229906    .2015121      0.11    0.909    -.3721433     .4181246
      H_ORG7 |   .0566527    .1062032      0.53    0.594    -.1515953     .2649006
      H_ORG8 |  -.2236933    .1542483     -1.45    0.147    -.5261503     .0787637
```

```
       H_ORG9 |  .0787746   .1061485     0.74   0.458    -.1293661    .2869153
      H_ORG10 |  .1695426    .120254     1.41   0.159    -.0662567    .4053419
      H_ORG11 |  .5990789   .5032445     1.19   0.234    -.3877053    1.585863
      H_ORG12 | -.3929665   .3268171    -1.20   0.229    -1.033804    .2478709
       H_JOB1 |  .4155818   .1144794     3.63   0.000     .1911055    .6400581
       H_JOB2 |  .3777392   .1078201     3.50   0.000     .1663207    .5891577
       H_JOB3 |  .3170452   .1106996     2.86   0.004     .0999804    .5341099
       H_JOB4 |  .2933822   .1134265     2.59   0.010     .0709705    .5157939
       H_JOB5 |  .2051286   .1193064     1.72   0.086    -.0288127    .4390699
       H_LIFE |  .1297225    .035724     3.63   0.000     .0596734    .1997717
   H_POLITICS1 |  .0021552   .0393548     0.05   0.956    -.0750134    .0793238
   H_POLITICS2 |  .1417652    .045149     3.14   0.002     .0532351    .2302954
   H_POLITICS3 |  .1343368   .0610327     2.20   0.028     .0146611    .2540125
   H_POLITICS4 |  .1727992   .0431187     4.01   0.000     .0882501    .2573482
     H_HEALTH1 | -.2629127   .1942275    -1.35   0.176    -.6437626    .1179373
     H_HEALTH2 | -.1976658   .1629967    -1.21   0.225     -.517277    .1219454
     H_HEALTH3 | -.2489029   .1609066    -1.55   0.122    -.5644156    .0666099
     H_HEALTH4 | -.2802408   .1629317    -1.72   0.086    -.5997246     .039243
       H_DRINK |  .0796725   .0609651     1.31   0.191    -.0398706    .1992155
       H_SMOKE |  .0146661   .0432651     0.34   0.735      -.07017    .0995023
        _CONS |  1.973531   .1773972    11.12   0.000     1.625683     2.32138
------------------------------------------------------------------------------
Instrumented:  H_pension
Instruments:   size child elderly wages tenants real_estate H_gender H_unempl
               H_high H_Agricul H_Entrepr H_foreign H_computer H_internet
               H_Job_vs_Edu1 H_Job_vs_Edu2 H_Job_vs_Edu3 H_Job_vs_Edu4 H_Org1
               H_Org2 H_Org3 H_Org4 H_Org5 H_Org6 H_Org7 H_Org8 H_Org9 H_Org10
               H_Org11 H_Org12 H_Job1 H_Job2 H_Job3 H_Job4 H_Job5 H_Life
               H_Politics1 H_Politics2 H_Politics3 H_Politics4 H_Health1
               H_Health2 H_Health3 H_Health4 H_drink H_smoke H_age
------------------------------------------------------------------------------

. ivendog

Tests of endogeneity of: H_pension
H0: Regressor is exogenous
    Wu-Hausman F test:                    1.94434  F(1,2695)  P-value = 0.16331
    Durbin-Wu-Hausman chi-sq test:        1.97826  Chi-sq(1)  P-value = 0.15957
```

Table 3C. 2SLS Regression and Tests Output with Instrumented H_HIGH

```
Instrumental variables (2SLS) regression

      Source |       SS       df       MS              Number of obs =    2744
-------------+------------------------------           F( 47,  2696) =   14.96
       Model |  320.869705    47  6.82701499           Prob > F      =  0.0000
    Residual |  1322.70708  2696  .490618354           R-squared     =  0.1952
-------------+------------------------------           Adj R-squared =  0.1812
       Total |  1643.57679  2743  .599189496           Root MSE      =  .70044

------------------------------------------------------------------------------
 LOG_ADULT_~P |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      H_HIGH |  .5088971   .1689318     3.01   0.003     .1776482     .840146
        SIZE | -.0417822   .0150869    -2.77   0.006    -.0713653   -.0121991
       CHILD | -.0754719   .0257762    -2.93   0.003    -.1260151   -.0249288
     ELDERLY | -.0722939   .0241082    -3.00   0.003    -.1195663   -.0250214
       WAGES |  .2060314   .0379562     5.43   0.000     .1316052    .2804576
     TENANTS | -.0782444   .0434645    -1.80   0.072    -.1634715    .0069828
 REAL_ESTATE |  .2257828   .0467664     4.83   0.000     .1340812    .3174845
    H_GENDER |  .1306866   .0422385     3.09   0.002     .0478634    .2135098
    H_UNEMPL |  -.078655   .0472102    -1.67   0.096    -.1712267    .0139168
```

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       H_PENSION |    .1903181    .0432603      4.40    0.000     .1054914    .2751448
       H_AGRICUL |   -.1172932    .1844447     -0.64    0.525    -.4789605     .244374
       H_ENTREPR |    .0461112     .142727      0.32    0.747    -.2337541    .3259765
       H_FOREIGN |   -.3784098    .2908076     -1.30    0.193    -.9486383    .1918186
      H_COMPUTER |    .1175953    .0609577      1.93    0.054    -.0019333    .2371239
      H_INTERNET |    .1005505    .0726837      1.38    0.167    -.0419708    .2430719
     H_JOB_VS_E~1 |   -.0483168    .0665186     -0.73    0.468    -.1787493    .0821158
     H_JOB_VS_E~2 |    .2065391    .1199905      1.72    0.085    -.0287436    .4418219
     H_JOB_VS_E~3 |   -.0431252     .073947     -0.58    0.560    -.1881238    .1018734
     H_JOB_VS_E~4 |    .0777056    .0891549      0.87    0.384    -.0971134    .2525246
         H_ORG1 |   -.0942462    .1167805     -0.81    0.420    -.3232347    .1347422
         H_ORG2 |    .0346569    .1024415      0.34    0.735    -.1662148    .2355287
         H_ORG3 |   -.2169884    .1705802     -1.27    0.203    -.5514696    .1174928
         H_ORG4 |   -.1914715     .159707     -1.20    0.231     -.504632     .121689
         H_ORG5 |   -.0409593    .1226763     -0.33    0.738    -.2815083    .1995898
         H_ORG6 |    .0098691    .2030801      0.05    0.961    -.3883395    .4080776
         H_ORG7 |    .0391667     .107162      0.37    0.715    -.1709613    .2492948
         H_ORG8 |   -.2606542    .1554964     -1.68    0.094    -.5655585      .04425
         H_ORG9 |    .0513976    .1071015      0.48    0.631    -.1586116    .2614069
        H_ORG10 |     .154863    .1214326      1.28    0.202    -.0832473    .3929733
        H_ORG11 |    .7081507    .5097965      1.39    0.165     -.291481    1.707782
        H_ORG12 |   -.5369277    .3360304     -1.60    0.110    -1.195831    .1219755
         H_JOB1 |    .3868033    .1146755      3.37    0.001     .1619426     .6116641
         H_JOB2 |    .3554713    .1077537      3.30    0.001     .1441831    .5667595
         H_JOB3 |    .2930879    .1106754      2.65    0.008     .0760707    .5101051
         H_JOB4 |     .278151    .1133715      2.45    0.014     .0558471    .5004549
         H_JOB5 |    .1897986    .1196162      1.59    0.113    -.0447502    .4243474
         H_LIFE |    .1244269    .0362819      3.43    0.001     .0532837    .1955701
     H_POLITICS1 |     .013326    .0396444      0.34    0.737    -.0644106    .0910625
     H_POLITICS2 |    .1251527    .0467925      2.67    0.008     .0333999    .2169055
     H_POLITICS3 |    .1309234    .0616925      2.12    0.034     .0099541    .2518928
     H_POLITICS4 |      .14253    .0463375      3.08    0.002     .0516694    .2333907
      H_HEALTH1 |   -.2971368    .1963656     -1.51    0.130    -.6821792    .0879056
      H_HEALTH2 |    -.202772    .1646947     -1.23    0.218    -.5257127    .1201688
      H_HEALTH3 |   -.2544457    .1626368     -1.56    0.118    -.5733511    .0644597
      H_HEALTH4 |   -.2631302    .1643128     -1.60    0.109     -.585322    .0590615
        H_DRINK |    .0750522    .0615408      1.22    0.223    -.0456197    .1957242
        H_SMOKE |    .0009453    .0446222      0.02    0.983     -.086552    .0884425
          _CONS |    2.042401    .1723592     11.85    0.000     1.704431     2.38037
-------------------------------------------------------------------------------
Instrumented:  H_high
Instruments:   size child elderly wages tenants real_estate H_gender H_unempl
               H_pension H_Agricul H_Entrepr H_foreign H_computer H_internet
               H_Job_vs_Edu1 H_Job_vs_Edu2 H_Job_vs_Edu3 H_Job_vs_Edu4 H_Org1
               H_Org2 H_Org3 H_Org4 H_Org5 H_Org6 H_Org7 H_Org8 H_Org9 H_Org10
               H_Org11 H_Org12 H_Job1 H_Job2 H_Job3 H_Job4 H_Job5 H_Life
               H_Politics1 H_Politics2 H_Politics3 H_Politics4 H_Health1
               H_Health2 H_Health3 H_Health4 H_drink H_smoke fatherprof
               motherprof
-------------------------------------------------------------------------------

. ivendog

Tests of endogeneity of: H_HIGH
H0: Regressor is exogenous
     Wu-Hausman F test:                 3.93911  F(1,2695)  P-value = 0.04728
     Durbin-Wu-Hausman chi-sq test:     4.00487  Chi-sq(1)  P-value = 0.04537

. overid

Tests of overidentifying restrictions:
Sargan N*R-sq test          0.065  Chi-sq(1)    P-value = 0.7991
Basmann test                0.064  Chi-sq(1)    P-value = 0.8009
```

Table 4C. 2SLS Regression and Tests Output with Instrumented H_LIFE

```
Instrumental variables (2SLS) regression
```

Source	SS	df	MS		Number of obs =	2744
					F(47, 2696) =	2.10
Model	-7796.66965	47	-165.886588		Prob > F =	0.0000
Residual	9440.24643	2696	3.50157509		R-squared =	.
					Adj R-squared =	.
Total	1643.57679	2743	.599189496		Root MSE =	1.8712

LOG_ADULT_~P	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
H_LIFE	4.775512	6.8096	0.70	0.483	-8.577054	18.12808
SIZE	-.0160098	.0583844	-0.27	0.784	-.1304924	.0984728
CHILD	-.1013949	.0773494	-1.31	0.190	-.2530651	.0502753
ELDERLY	.042367	.1737262	0.24	0.807	-.298283	.383017
WAGES	.2191784	.1055108	2.08	0.038	.0122882	.4260686
TENANTS	-.043681	.1271103	-0.34	0.731	-.2929244	.2055624
REAL_ESTATE	.0011135	.3764234	0.00	0.998	-.7369942	.7392213
H_GENDER	.051695	.1542299	0.34	0.738	-.2507259	.3541159
H_UNEMPL	.3136775	.5820162	0.54	0.590	-.8275657	1.454921
H_PENSION	.0296148	.3028184	0.10	0.922	-.5641649	.6233945
H_HIGH	.0288405	.2574755	0.11	0.911	-.4760288	.5337099
H_AGRICUL	-.3462179	.554751	-0.62	0.533	-1.433998	.7415623
H_ENTREPR	.091157	.3815473	0.24	0.811	-.6569979	.8393119
H_FOREIGN	.0927625	.9944522	0.09	0.926	-1.857204	2.042728
H_COMPUTER	-.3617922	.8254504	-0.44	0.661	-1.980372	1.256788
H_INTERNET	-.2661566	.6085522	-0.44	0.662	-1.459433	.9271196
H_JOB_VS_E~1	.1821256	.3495644	0.52	0.602	-.5033157	.8675669
H_JOB_VS_E~2	.3326268	.3941373	0.84	0.399	-.440215	1.105469
H_JOB_VS_E~3	.2585685	.4519258	0.57	0.567	-.6275877	1.144725
H_JOB_VS_E~4	.5589734	.7217462	0.77	0.439	-.8562584	1.974205
H_ORG1	.0619493	.3245401	0.19	0.849	-.5744233	.698322
H_ORG2	-.0606236	.3154526	-0.19	0.848	-.6791771	.55793
H_ORG3	-.5098482	.6235402	-0.82	0.414	-1.732513	.712817
H_ORG4	-.0884184	.4416745	-0.20	0.841	-.9544733	.7776365
H_ORG5	-.2467987	.4565986	-0.54	0.589	-1.142117	.6485202
H_ORG6	-.075808	.5542096	-0.14	0.891	-1.162527	1.010911
H_ORG7	.109501	.3004103	0.36	0.716	-.4795568	.6985589
H_ORG8	-1.032866	1.230441	-0.84	0.401	-3.445569	1.379837
H_ORG9	.1734008	.3261465	0.53	0.595	-.4661218	.8129233
H_ORG10	.2238933	.3368431	0.66	0.506	-.4366036	.8843902
H_ORG11	1.734894	2.117263	0.82	0.413	-2.41673	5.886517
H_ORG12	-1.53116	1.862917	-0.82	0.411	-5.184051	2.121731
H_JOB1	-1.153539	2.290211	-0.50	0.615	-5.644285	3.337208
H_JOB2	-.7785836	1.688042	-0.46	0.645	-4.088572	2.531405
H_JOB3	.3178928	.2976242	1.07	0.286	-.2657019	.9014874
H_JOB4	.3578435	.3292818	1.09	0.277	-.2878269	1.003514
H_JOB5	.5101456	.5751661	0.89	0.375	-.6176656	1.637957
H_POLITICS1	.1798859	.2734639	0.66	0.511	-.3563342	.716106
H_POLITICS2	.0534276	.1830077	0.29	0.770	-.305422	.4122772
H_POLITICS3	-1.058411	1.756612	-0.60	0.547	-4.502853	2.386031
H_POLITICS4	.0229417	.2495768	0.09	0.927	-.4664395	.5123229
H_HEALTH1	-1.21686	1.47673	-0.82	0.410	-4.112498	1.678778
H_HEALTH2	-.8609587	1.063775	-0.81	0.418	-2.946856	1.224939
H_HEALTH3	-.2448834	.4343285	-0.56	0.573	-1.096534	.6067673
H_HEALTH4	.1901405	.7999341	0.24	0.812	-1.378406	1.758687
H_DRINK	.0668787	.1649244	0.41	0.685	-.2565123	.3902697
H_SMOKE	-.0706444	.1767502	-0.40	0.689	-.417224	.2759353
_CONS	1.377082	1.077626	1.28	0.201	-.7359747	3.490139

```
Instrumented:  H_Life
```

```
Instruments:     size child elderly wages tenants real_estate H_gender H_unempl
                 H_pension H_high H_Agricul H_Entrepr H_foreign H_computer
                 H_internet H_Job_vs_Edu1 H_Job_vs_Edu2 H_Job_vs_Edu3
                 H_Job_vs_Edu4 H_Org1 H_Org2 H_Org3 H_Org4 H_Org5 H_Org6 H_Org7
                 H_Org8 H_Org9 H_Org10 H_Org11 H_Org12 H_Job1 H_Job2 H_Job3
                 H_Job4 H_Job5 H_Politics1 H_Politics2 H_Politics3 H_Politics4
                 H_Health1 H_Health2 H_Health3 H_Health4 H_drink H_smoke
                 H_Religion
--------------------------------------------------------------------------------

. ivendog

Tests of endogeneity of: H_LIFE
H0: Regressor is exogenous
    Wu-Hausman F test:                     3.39794  F(1,2695)   P-value = 0.06539
    Durbin-Wu-Hausman chi-sq test:         3.45536  Chi-sq(1)   P-value = 0.06305
```

Table 5C. 2SLS Regression and Tests Output with Instrumented H_GENDER

```
Instrumental variables (2SLS) regression

      Source |       SS       df       MS              Number of obs =    2744
-------------+------------------------------           F( 47,  2696) =    7.89
       Model | -901.421267     47 -19.1791759          Prob > F      =  0.0000
    Residual |  2544.99805   2696  .943990376          R-squared     =       .
-------------+------------------------------           Adj R-squared =       .
       Total |  1643.57679   2743  .599189496          Root MSE      =  .97159


------------------------------------------------------------------------------
  LOG_ADULT_~P |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     H_GENDER |   2.249919   1.191788     1.89   0.059    -.0869909    4.586829
         SIZE |  -.3498383   .1719455    -2.03   0.042    -.6869966     -.01268
        CHILD |   .1480119   .1311094     1.13   0.259    -.1090733    .4050971
      ELDERLY |  -.1075239   .0400526    -2.68   0.007    -.1860608    -.028987
        WAGES |   .1288655   .0650637     1.98   0.048     .0012858    .2564453
      TENANTS |  -.0671669   .0606477    -1.11   0.268    -.1860876    .0517538
  REAL_ESTATE |   .2135287   .0658252     3.24   0.001     .0844558    .3426017
     H_UNEMPL |  -.1543157   .0794351    -1.94   0.052    -.3100755    .0014442
    H_PENSION |   .3403897   .0860388     3.96   0.000      .171681    .5090984
       H_HIGH |   .2319413   .0622533     3.73   0.000     .1098723    .3540102
     H_AGRICUL |    .138551   .3056403     0.45   0.650     -.460762    .7378641
     H_ENTREPR |   .1165749   .1991822     0.59   0.558    -.2739904    .5071401
     H_FOREIGN |  -.3055515   .4023679    -0.76   0.448    -1.094532    .4834294
    H_COMPUTER |    .185202   .0648917     2.85   0.004     .0579595    .3124444
    H_INTERNET |   .1986132   .1065675     1.86   0.062    -.0103491    .4075754
  H_JOB_VS_E~1 |  -.0418296   .0912233    -0.46   0.647    -.2207043    .1370452
  H_JOB_VS_E~2 |  -.0101847   .1941442    -0.05   0.958    -.3908712    .3705019
  H_JOB_VS_E~3 |  -.0266728   .1012773    -0.26   0.792    -.2252617    .1719162
  H_JOB_VS_E~4 |  -.0091304   .1360242    -0.07   0.946    -.2758526    .2575918
       H_ORG1 |  -.0854494   .1581694    -0.54   0.589    -.3955949     .224696
       H_ORG2 |  -.1759643   .1889208    -0.93   0.352    -.5464085    .1944799
       H_ORG3 |   -.549977   .3003046    -1.83   0.067    -1.138828    .0388736
       H_ORG4 |  -.4570376   .2735406    -1.67   0.095    -.9934081    .0793329
       H_ORG5 |  -.2945796   .2255467    -1.31   0.192    -.7368416    .1476824
       H_ORG6 |  -.0650259   .2841042    -0.23   0.819      -.62211    .4920581
       H_ORG7 |  -.1394406   .1815494    -0.77   0.443    -.4954306    .2165495
       H_ORG8 |  -.5513016   .2759729    -2.00   0.046    -1.092441   -.0101618
       H_ORG9 |  -.1977818   .2091554    -0.95   0.344    -.6079029    .2123394
      H_ORG10 |  -.0310902    .200007    -0.16   0.876    -.4232727    .3610923
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    H_ORG11 |  -.0752825    .8070511    -0.09   0.926    -1.657784    1.507219
    H_ORG12 |   -.306975    .4614459    -0.67   0.506    -1.211799    .5978486
     H_JOB1 |    .604625    .1979339     3.05   0.002     .2165075    .9927425
     H_JOB2 |   .5731302    .1928162     2.97   0.003     .1950477    .9512126
     H_JOB3 |   .4821795     .185983     2.59   0.010     .1174958    .8468632
     H_JOB4 |   .4364909    .1828811     2.39   0.017     .0778896    .7950923
     H_JOB5 |   .3685544    .1954115     1.89   0.059    -.0146172     .751726
     H_LIFE |   .1086897    .0517711     2.10   0.036     .0071746    .2102049
 H_POLITICS1 |  -.0573891    .0659201    -0.87   0.384     -.186648    .0718699
 H_POLITICS2 |   .0835144    .0723373     1.15   0.248    -.0583277    .2253565
 H_POLITICS3 |    .113398     .086324     1.31   0.189      -.05587    .2826659
 H_POLITICS4 |   .1273308    .0657237     1.94   0.053    -.0015431    .2562046
   H_HEALTH1 |  -.5059081    .3010104    -1.68   0.093    -1.096143    .0843264
   H_HEALTH2 |  -.2905617    .2339344    -1.24   0.214    -.7492707    .1681473
   H_HEALTH3 |  -.1807896    .2284237    -0.79   0.429     -.628693    .2671137
   H_HEALTH4 |  -.1110145    .2438386    -0.46   0.649     -.589144    .3671149
    H_DRINK |  -.2530736    .2029414    -1.25   0.212      -.65101    .1448628
    H_SMOKE |  -.3034588    .1909427    -1.59   0.112    -.6778678    .0709502
      _CONS |   1.144722    .5560257     2.06   0.040     .0544421    2.235002
-------------------------------------------------------------------------------
Instrumented:  H_gender
Instruments:   size child elderly wages tenants real_estate H_unempl H_pension
               H_high H_Agricul H_Entrepr H_foreign H_computer H_internet
               H_Job_vs_Edu1 H_Job_vs_Edu2 H_Job_vs_Edu3 H_Job_vs_Edu4 H_Org1
               H_Org2 H_Org3 H_Org4 H_Org5 H_Org6 H_Org7 H_Org8 H_Org9 H_Org10
               H_Org11 H_Org12 H_Job1 H_Job2 H_Job3 H_Job4 H_Job5 H_Life
               H_Politics1 H_Politics2 H_Politics3 H_Politics4 H_Health1
               H_Health2 H_Health3 H_Health4 H_drink H_smoke f_notlive
               m_notlive
-------------------------------------------------------------------------------

. ivendog

Tests of endogeneity of: H_GENDER
H0: Regressor is exogenous
     Wu-Hausman F test:             6.29329  F(1,2695)   P-value = 0.01218
     Durbin-Wu-Hausman chi-sq test: 6.39279  Chi-sq(1)   P-value = 0.01146

. overid

Tests of overidentifying restrictions:
Sargan N*R-sq test        0.454  Chi-sq(1)   P-value = 0.5004
Basmann test              0.446  Chi-sq(1)   P-value = 0.5042
```

Annex D. Econometric Output of Binary Poverty Equations (Probit)

Table 1D. Probit Regression Output at the General Poverty Line of 7.11 UAH

```
note: H_Org11 != 0 predicts failure perfectly
      H_Org11 dropped and 2 obs not used

Iteration 0:   log likelihood = -1751.9041
Iteration 1:   log likelihood = -1552.6413
Iteration 2:   log likelihood = -1546.4568
Iteration 3:   log likelihood = -1546.4308
Iteration 4:   log likelihood = -1546.4308

Probit estimates                          Number of obs   =      2743
```

```
                                                   LR chi2(46)      =      410.95
                                                   Prob > chi2      =      0.0000
Log likelihood = -1546.4308                        Pseudo R2        =      0.1173


------------------------------------------------------------------------------
        POOR |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        SIZE |   .0669853   .0292723     2.29   0.022     .0096127    .1243579
       CHILD |   .1523926   .0500176     3.05   0.002     .0543599    .2504253
     ELDERLY |   .0837341   .0458093     1.83   0.068    -.0060506    .1735187
       WAGES |  -.4088078   .0831655    -4.92   0.000    -.5718092   -.2458064
     TENANTS |   .1049008   .0861729     1.22   0.223     -.063995    .2737966
 REAL_ESTATE |  -.3239275   .0992667    -3.26   0.001    -.5184868   -.1293683
    H_GENDER |   -.188713   .0810907    -2.33   0.020    -.3476479   -.0297782
    H_UNEMPL |   .1003101   .0900358     1.11   0.265    -.0761569    .2767771
   H_PENSION |  -.3691901   .0809928    -4.56   0.000     -.527933   -.2104472
      H_HIGH |  -.3198801   .0880751    -3.63   0.000    -.4925042    -.147256
    H_AGRICUL |    .230927   .3464269     0.67   0.505    -.4480573    .9099114
    H_ENTREPR |  -.2005062   .2987149    -0.67   0.502    -.7859766    .3849643
    H_FOREIGN |   .7526448   .4988497     1.51   0.131    -.2250825    1.730372
   H_COMPUTER |  -.3328071   .1006259    -3.31   0.001    -.5300303   -.1355839
   H_INTERNET |  -.1610729   .1673299    -0.96   0.336    -.4890335    .1668878
  H_JOB_VS_E~1 |   .0066293   .1329573     0.05   0.960    -.2539621    .2672208
  H_JOB_VS_E~2 |  -.3128338   .2740763    -1.14   0.254    -.8500134    .2243458
  H_JOB_VS_E~3 |   .0455867    .146974     0.31   0.756     -.242477    .3336504
  H_JOB_VS_E~4 |   -.097306   .1831373    -0.53   0.595    -.4562484    .2616364
      H_ORG1 |   .1209377   .2201353     0.55   0.583    -.3105195    .5523949
      H_ORG2 |  -.1462868   .2006453    -0.73   0.466    -.5395443    .2469707
      H_ORG3 |   .2998586   .3299367     0.91   0.363    -.3468054    .9465226
      H_ORG4 |   .2993281    .301931     0.99   0.322    -.2924457    .8911019
      H_ORG5 |   .1991106   .2412358     0.83   0.409    -.2737028    .6719241
      H_ORG6 |   .6837837   .3860554     1.77   0.077     -.072871    1.440438
      H_ORG7 |   .0530904   .2096833     0.25   0.800    -.3578813    .4640621
      H_ORG8 |   .6984818   .2888912     2.42   0.016     .1322654    1.264698
      H_ORG9 |  -.0803347    .210146    -0.38   0.702    -.4922134     .331544
     H_ORG10 |  -.1316788   .2431415    -0.54   0.588    -.6082274    .3448698
     H_ORG12 |    .589121   .6112371     0.96   0.335    -.6088817    1.787124
      H_JOB1 |  -.5153087   .2288982    -2.25   0.024    -.9639409   -.0666764
      H_JOB2 |  -.6612295   .2126169    -3.11   0.002    -1.077951   -.2445082
      H_JOB3 |    -.39445   .2164172    -1.82   0.068    -.8186198    .0297199
      H_JOB4 |  -.3435094   .2203197    -1.56   0.119    -.7753281    .0883092
      H_JOB5 |  -.2164005   .2314628    -0.93   0.350    -.6700593    .2372582
      H_LIFE |  -.0525713   .0730552    -0.72   0.472    -.1957568    .0906143
  H_POLITICS1 |  -.0427247    .074724    -0.57   0.567     -.189181    .1037315
  H_POLITICS2 |  -.3087139   .0898067    -3.44   0.001    -.4847318   -.1326961
  H_POLITICS3 |  -.2511807   .1251784    -2.01   0.045    -.4965258   -.0058356
  H_POLITICS4 |  -.2248326   .0860006    -2.61   0.009    -.3933908   -.0562745
    H_HEALTH1 |   .4939511    .407544     1.21   0.226    -.3048205    1.292723
    H_HEALTH2 |   .3886385   .3459675     1.12   0.261    -.2894453    1.066722
    H_HEALTH3 |   .5100336   .3414507     1.49   0.135    -.1591974    1.179265
    H_HEALTH4 |   .6062701   .3437215     1.76   0.078    -.0674117    1.279952
     H_DRINK |  -.1038164   .1230255    -0.84   0.399    -.3449421    .1373092
     H_SMOKE |  -.1002621   .0868729    -1.15   0.248    -.2705298    .0700056
       _CONS |  -.2208225   .3591654    -0.61   0.539    -.9247737    .4831287
------------------------------------------------------------------------------
```

Table 2D. Marginal Effects for the Prediction of Poverty at the General Poverty Line of 7.11 UAH

```
Marginal effects after probit
      y  = Pr(POOR) (predict)
         = .30948573
------------------------------------------------------------------------------
variable |      dy/dx    Std. Err.      z    P>|z|  [      95% C.I.     ]      X
```

```
---------+----------------------------------------------------------------
    SIZE |  .0236149    .01032    2.29   0.022    .003398   .043832   2.90558
   CHILD |  .0537242    .01763    3.05   0.002    .019164   .088285   .440029
 ELDERLY |  .0295195    .01615    1.83   0.068   -.002129   .061168   .411958
   WAGES | -.1441203     .0293   -4.92   0.000   -.201546  -.086694   .534022
TENANTS* |  .037689     .03151    1.20   0.232   -.024063   .099441   .114109
REAL_E~E*| -.1058607     .0296   -3.58   0.000   -.163871   -.04785   .098432
H_GENDER*| -.0683902    .03011   -2.27   0.023   -.127396  -.009385   .827197
H_UNEMPL*|  .036017     .03289    1.10   0.273   -.028443   .100477   .110828
H_PENS~N*| -.1277378    .02735   -4.67   0.000    -.18134  -.074136    .42253
  H_HIGH*| -.1057541    .02694   -3.93   0.000   -.158549  -.052959   .152023
H_AGRI~L*|  .0854376    .13325    0.64   0.521    -.17573   .346605   .006562
H_ENTR~R*| -.0669264    .09369   -0.71   0.475   -.250555   .116702   .010937
H_FORE~N*|  .2912175    .19266    1.51   0.131   -.086396   .668831   .002552
H_COMP~R*| -.1100431    .03079   -3.57   0.000   -.170397  -.049689   .167335
H_INTE~T*| -.0546101    .05432   -1.01   0.315   -.161069   .051849   .053956
H_JOB_~1*|  .0023385    .04693    0.05   0.960   -.089638   .094315   .320817
H_JOB_~2*| -.1009274     .0794   -1.27   0.204   -.256539   .054684   .018228
H_JOB_~3*|  .0162102     .0527    0.31   0.758   -.087083   .119503   .109734
H_JOB_~4*| -.0335113    .06151   -0.54   0.586   -.154077   .087055   .043019
 H_ORG1*  |  .0436939    .08133    0.54   0.591   -.115709   .203097   .060518
 H_ORG2*  | -.0502578    .06702   -0.75   0.453   -.181619   .081104   .169887
 H_ORG3*  |  .1121458    .12889    0.87   0.384   -.140481   .364772   .009114
 H_ORG4*  |  .1119173    .11792    0.95   0.343   -.119196   .343031   .010937
 H_ORG5*  |  .073112     .09167    0.80   0.425   -.106551   .252775   .030623
 H_ORG6*  |  .2643287    .15138    1.75   0.081   -.032372    .56103   .005468
 H_ORG7*  |  .0189146    .07547    0.25   0.802   -.128997   .166826   .088589
 H_ORG8*  |  .2698803    .11298    2.39   0.017    .048439   .491322    .01276
 H_ORG9*  | -.0278388    .07151   -0.39   0.697   -.168004   .112327   .088589
H_ORG10* | -.0449517    .08014   -0.56   0.575   -.202018   .112114   .043748
H_ORG12* |  .2270426    .24279    0.94   0.350    -.24881   .702895   .001823
 H_JOB1*  | -.1589359    .05942   -2.67   0.007   -.275403  -.042469    .08786
 H_JOB2*  | -.2041041    .05525   -3.69   0.000   -.312391  -.095817    .18848
 H_JOB3*  | -.1273914    .06286   -2.03   0.043    -.25059  -.004193   .127598
 H_JOB4*  | -.1111342    .06428   -1.73   0.084   -.237118    .01485   .076194
 H_JOB5*  | -.0722475    .07263   -0.99   0.320   -.214597   .070103   .049945
 H_LIFE*  | -.0184066     .0254   -0.72   0.469   -.068189   .031375   .244258
H_POLI~1*| -.0150135    .02617   -0.57   0.566    -.06631   .036284    .35144
H_POLI~2*|  -.102747    .02795   -3.68   0.000   -.157537  -.047957   .174626
H_POLI~3*| -.0832608    .03864   -2.16   0.031   -.158985  -.007536   .067444
H_POLI~4*| -.0765862    .02819   -2.72   0.007   -.131846  -.021327   .223113
H_HEAL~1*|  .1888103    .16225    1.16   0.245   -.129198   .506818   .015676
H_HEAL~2*|  .1433074    .13171    1.09   0.277   -.114841   .401456   .205979
H_HEAL~3*|  .1766714    .11524    1.53   0.125   -.049201   .402544   .537368
H_HEAL~4*|  .2255184    .13111    1.72   0.085   -.031457   .482494    .23405
 H_DRINK*| -.0357113    .04121   -0.87   0.386    -.11649   .045068   .051404
 H_SMOKE*| -.0346357    .02937   -1.18   0.238   -.092195   .022924   .113744
```
(*) dy/dx is for discrete change of dummy variable from 0 to 1

Table 3D. Probit Regression Output at the Low Poverty Line of 4.39 UAH

```
note: H_Org11 != 0 predicts failure perfectly
      H_Org11 dropped and 2 obs not used

Iteration 0:   log likelihood = -1099.8317
Iteration 1:   log likelihood = -974.35595
Iteration 2:   log likelihood = -964.56179
Iteration 3:   log likelihood = -964.21699
Iteration 4:   log likelihood = -964.21505
Iteration 5:   log likelihood = -964.21505

Probit estimates                           Number of obs   =       2743
                                           LR chi2(46)     =     271.23
                                           Prob > chi2     =     0.0000
```

```
Log likelihood = -964.21505                    Pseudo R2      =    0.1233

------------------------------------------------------------------------------
   very_POOR |    Coef.   Std. Err.      z    P>|z|    [95% Conf. Interval]
-------------+----------------------------------------------------------------
        size |   .0722005   .0356666     2.02   0.043    .0022952    .1421058
       child |   .1415338   .0597868     2.37   0.018    .0243539    .2587138
     ELDERLY |   .0703006   .0554607     1.27   0.205   -.0384004    .1790016
       WAGES |  -.4820738   .1041837    -4.63   0.000   -.6862701   -.2778776
     TENANTS |   .0551024   .1085914     0.51   0.612   -.1577329    .2679376
 REAL_ESTATE |  -.3825294   .1419916    -2.69   0.007   -.6608278    -.104231
    H_GENDER |  -.0625888   .1000615    -0.63   0.532   -.2587058    .1335282
    H_UNEMPL |   .0246812   .1065447     0.23   0.817   -.1841425    .2335049
   H_PENSION |  -.5352282   .1012549    -5.29   0.000   -.7336842   -.3367721
      H_HIGH |  -.3811966   .1262922    -3.02   0.003   -.6287249   -.1336684
    H_AGRICUL |   .0735755   .4221426     0.17   0.862   -.7538088    .9009597
    H_ENTREPR |  -1.214924   .6016116    -2.02   0.043   -2.394061   -.0357866
    H_FOREIGN |   .5690183   .6695942     0.85   0.395   -.7433622    1.881399
   H_COMPUTER |  -.0987084    .128489    -0.77   0.442   -.3505422    .1531254
   H_INTERNET |  -.3323786   .2445282    -1.36   0.174   -.8116452    .1468879
H_JOB_VS_E~1 |  -.2596501    .159292    -1.63   0.103   -.5718567    .0525565
H_JOB_VS_E~2 |  -.9535291   .5066649    -1.88   0.060   -1.946574    .0395158
H_JOB_VS_E~3 |   -.142887   .1782433    -0.80   0.423   -.4922375    .2064635
H_JOB_VS_E~4 |   -.537659    .251569    -2.14   0.033   -1.030725   -.0445927
      H_ORG1 |   .2301903   .2987643     0.77   0.441    -.355377    .8157575
      H_ORG2 |   .1754551   .2625585     0.67   0.504   -.3391501    .6900604
      H_ORG3 |   .7805844   .3932189     1.99   0.047    .0098895    1.551279
      H_ORG4 |   .4086797   .3656877     1.12   0.264    -.308055    1.125414
      H_ORG5 |   .6156027   .3033389     2.03   0.042    .0210695    1.210136
      H_ORG6 |   .3505211   .4714686     0.74   0.457   -.5735404    1.274583
      H_ORG7 |   .3092718   .2756221     1.12   0.262   -.2309375    .8494811
      H_ORG8 |   .6424853   .3563742     1.80   0.071   -.0559953    1.340966
      H_ORG9 |   .2542631    .273306     0.93   0.352   -.2814069    .7899331
     H_ORG10 |   .3514079   .3090107     1.14   0.255   -.2542419    .9570577
     H_ORG12 |   1.081887   .7078188     1.53   0.126   -.3054119    2.469187
      H_JOB1 |   -.603225   .2916726    -2.07   0.039   -1.174893   -.0315572
      H_JOB2 |  -.6228524   .2634706    -2.36   0.018   -1.139245   -.1064594
      H_JOB3 |  -.5398791   .2665863    -2.03   0.043   -1.062379   -.0173795
      H_JOB4 |  -.5513817   .2735425    -2.02   0.044   -1.087515   -.0152484
      H_JOB5 |  -.2050421   .2752983    -0.74   0.456   -.7446168    .3345326
      H_LIFE |  -.2634138   .0993623    -2.65   0.008   -.4581604   -.0686673
  H_POLITICS1 |   .0216261   .0878633     0.25   0.806   -.1505829    .1938351
  H_POLITICS2 |  -.2833238   .1129657    -2.51   0.012   -.5047324   -.0619151
  H_POLITICS3 |  -.0910492   .1555115    -0.59   0.558   -.3958463    .2137478
  H_POLITICS4 |  -.2669922   .1090167    -2.45   0.014    -.480661   -.0533234
   H_HEALTH1 |   .3230225   .5185457     0.62   0.533   -.6933085    1.339353
   H_HEALTH2 |   .3064839   .4317949     0.71   0.478   -.5398186    1.152786
   H_HEALTH3 |   .3478692   .4256658     0.82   0.414   -.4864205    1.182159
   H_HEALTH4 |   .4449313   .4277977     1.04   0.298   -.3935369    1.283399
     H_DRINK |  -.0158483   .1474861    -0.11   0.914   -.3049157     .273219
     H_SMOKE |  -.0390156   .1070675    -0.36   0.716    -.248864    .1708329
       _CONS |  -.8094089   .4446937    -1.82   0.069   -1.680993    .0621748
------------------------------------------------------------------------------
note: 1 failure and 0 successes completely determined.
```

Table 4D. Marginal Effects for the Prediction of Poverty at the Low Poverty Line of 4.39 UAH

```
Marginal effects after probit
      y  = Pr(very_POOR) (predict)
         = .10141777
------------------------------------------------------------------------------
variable |      dy/dx    Std. Err.     z    P>|z|  [    95% C.I.    ]      X
---------+--------------------------------------------------------------------
```

```
        SIZE |    .0128018     .00632     2.03    0.043     .000417    .025187    2.90558
       CHILD |    .0250953     .01059     2.37    0.018     .004337    .045853    .440029
     ELDERLY |     .012465     .00983     1.27    0.205      -.0068     .03173    .411958
       WAGES |   -.0854763     .01845    -4.63    0.000    -.121636   -.049316    .534022
    TENANTS* |    .0100368     .02031     0.49    0.621    -.029767    .049841    .114109
    REAL_E~E* |   -.0554659     .01627    -3.41    0.001    -.087354   -.023578    .098432
    H_GENDER* |   -.0113895     .01868    -0.61    0.542    -.048005    .025226    .827197
    H_UNEMPL* |    .0044299     .01936     0.23    0.819    -.033516    .042376    .110828
    H_PENS~N* |   -.0907086     .01647    -5.51    0.000    -.122986   -.058431     .42253
     H_HIGH* |    -.056916     .01541    -3.69    0.000    -.087121   -.026711    .152023
    H_AGRI~L* |    .0136556     .08189     0.17    0.868    -.146839    .174151    .006562
    H_ENTR~R* |   -.0971348     .01293    -7.51    0.000    -.122486   -.071784    .010937
    H_FORE~N* |    .1389496     .20791     0.67    0.504    -.268545    .546444    .002552
    H_COMP~R* |   -.0167809       .0209    -0.80    0.422    -.057745    .024183    .167335
    H_INTE~T* |   -.0484862     .02843    -1.71    0.088    -.104203     .00723    .053956
    H_JOB_~1* |   -.0434329     .02509    -1.73    0.083    -.092606     .00574    .320817
    H_JOB_~2* |   -.0909695      .0188    -4.84    0.000    -.127826   -.054113    .018228
    H_JOB_~3* |   -.0235771     .02727    -0.86    0.387    -.077022    .029868    .109734
    H_JOB_~4* |    -.068695     .02139    -3.21    0.001     -.11062    -.02677    .043019
     H_ORG1* |    .0462281     .06717     0.69    0.491    -.085425    .177882    .060518
     H_ORG2* |    .0334556     .05364     0.62    0.533    -.071668    .138579    .169887
     H_ORG3* |    .2083599     .13762     1.51    0.130    -.061368    .478088    .009114
     H_ORG4* |    .0917128     .09951     0.92    0.357    -.133331    .286756    .010937
     H_ORG5* |    .1511628     .09466     1.60    0.110    -.034373    .336699    .030623
     H_ORG6* |     .076428     .12242     0.62    0.532    -.163504     .31636    .005468
     H_ORG7* |    .0640422      .0654     0.98    0.327    -.064149    .192233    .088589
     H_ORG8* |    .1613658     .11506     1.40    0.161    -.064154    .386885     .01276
     H_ORG9* |    .0512767     .06191     0.83    0.407    -.070055    .172609    .088589
    H_ORG10* |    .0755373     .07823     0.97    0.334    -.077797    .228872    .043748
    H_ORG12* |    .3221763     .27654     1.17    0.244    -.219835    .864187    .001823
     H_JOB1* |   -.0770391     .02503    -3.08    0.002    -.126091   -.027988     .08786
     H_JOB2* |    -.086194     .02772    -3.11    0.002    -.140534   -.031854     .18848
     H_JOB3* |   -.0736382     .02692    -2.74    0.006    -.126404   -.020873    .127598
     H_JOB4* |   -.0717649     .02456    -2.92    0.003    -.119897   -.023633    .076194
     H_JOB5* |   -.0322362     .03797    -0.85    0.396    -.106655    .042182    .049945
     H_LIFE* |   -.0428669     .01472    -2.91    0.004    -.071723   -.014011    .244258
    H_POLI~1* |    .0038503     .01571     0.25    0.806    -.026934    .034634     .35144
    H_POLI~2* |   -.0446099     .01567    -2.85    0.004    -.075327   -.013893    .174626
    H_POLI~3* |   -.0153461     .02488    -0.62    0.537    -.064103    .033411    .067444
    H_POLI~4* |   -.0430727     .01594    -2.70    0.007    -.074321   -.011824    .223113
    H_HEAL~1* |    .0691255     .13037     0.53    0.596    -.186391    .324642    .015676
    H_HEAL~2* |     .060798     .09494     0.64    0.522     -.12529    .246886    .205979
    H_HEAL~3* |    .0608612     .07369     0.83    0.409    -.083562    .205284    .537368
    H_HEAL~4* |    .0913268         .1     0.91    0.361    -.104679    .287333     .23405
    H_DRINK* |   -.0027847     .02568    -0.11    0.914    -.053111    .047541    .051404
    H_SMOKE* |   -.0067858     .01826    -0.37    0.710     -.04258    .029008    .113744
```
(*) dy/dx is for discrete change of dummy variable from 0 to 1

Annex E. Econometric Output of Poverty Gap Equations (Tobit)

Table 1E. Tobit Regression with the Expenditures (in logarithms) Censored at 7.11 UAH

```
Tobit estimates                                 Number of obs   =        2744
                                                LR chi2(47)     =      453.28
                                                Prob > chi2     =      0.0000
Log likelihood = -1800.8363                     Pseudo R2       =      0.1118

------------------------------------------------------------------------------
```

```
LOG_ADULT_~P |      Coef.    Std. Err.       t     P>|t|      [95% Conf. Interval]
-------------+----------------------------------------------------------------
       SIZE | -.0470328     .018759     -2.51    0.012     -.0838162    -.0102494
      CHILD | -.0879951    .0316515     -2.78    0.005     -.1500588    -.0259314
    ELDERLY | -.0351658     .029322     -1.20    0.231     -.0926617     .0223301
      WAGES |  .3110432    .0530155      5.87    0.000       .207088     .4149984
    TENANTS | -.0912676    .0552774     -1.65    0.099     -.1996579     .0171227
REAL_ESTATE |   .225501    .0663376      3.40    0.001      .0954232     .3555787
   H_GENDER |  .1127515    .0516793      2.18    0.029      .0114163     .2140866
   H_UNEMPL | -.0771762    .0566509     -1.36    0.173     -.1882597     .0339074
  H_PENSION |  .3125305    .0521068      6.00    0.000      .2103571     .4147038
     H_HIGH |  .2100947    .0586788      3.58    0.000      .0950348     .3251547
   H_AGRICUL| -.1258505    .2241626     -0.56    0.575     -.5653983     .3136973
   H_ENTREPR|  .2694646    .2012897      1.34    0.181     -.1252331     .6641624
   H_FOREIGN| -.5122525    .3323645     -1.54    0.123     -1.163967     .1394625
 H_COMPUTER |   .208017    .0662219      3.14    0.002      .0781661     .3378679
 H_INTERNET |  .1153623    .1125059      1.03    0.305     -.1052443     .3359689
H_JOB_VS_E~1|  .0556266    .0854594      0.65    0.515     -.1119459     .2231992
H_JOB_VS_E~2|  .2890744     .183974      1.57    0.116       -.07167     .6498188
H_JOB_VS_E~3|  .0204879    .0946909      0.22    0.829     -.1651862      .206162
H_JOB_VS_E~4|  .1344988    .1200487      1.12    0.263      -.100898     .3698957
     H_ORG1 | -.0907133     .142399     -0.64    0.524     -.3699356     .1885089
     H_ORG2 |  .0699196    .1294545      0.54    0.589     -.1839205     .3237596
     H_ORG3 | -.3392077    .2090647     -1.62    0.105      -.749151     .0707355
     H_ORG4 | -.1367371     .188803     -0.72    0.469     -.5069504     .2334763
     H_ORG5 | -.1806583    .1550704     -1.17    0.244     -.4847271     .1234105
     H_ORG6 | -.3097166    .2291112     -1.35    0.177     -.7589679     .1395348
     H_ORG7 |  -.065015    .1353044     -0.48    0.631     -.3303258     .2002958
     H_ORG8 |  -.471196    .1804789     -2.61    0.009      -.825087     -.117305
     H_ORG9 |  .026806    .1356812      0.20    0.843     -.2392436     .2928556
    H_ORG10 |  .0277859     .157684      0.18    0.860     -.2814078     .3369796
    H_ORG11 |  4.572149          .          .        .             .            .
    H_ORG12 | -.5058825    .3883445     -1.30    0.193     -1.267365     .2556005
     H_JOB1 |  .3683836    .1461242      2.52    0.012      .0818568     .6549104
     H_JOB2 |  .4290586    .1353042      3.17    0.002      .1637483      .694369
     H_JOB3 |  .2979568      .13681      2.18    0.030      .0296937      .56622
     H_JOB4 |  .2568866    .1393243      1.84    0.065     -.0163065     .5300798
     H_JOB5 |   .139906    .1450735      0.96    0.335     -.1445604     .4243724
     H_LIFE |  .0524512    .0479572      1.09    0.274     -.0415854     .1464878
 H_POLITICS1|  .0091721    .0468819      0.20    0.845      -.082756     .1011002
 H_POLITICS2|  .2008752    .0578908      3.47    0.001      .0873604     .3143899
 H_POLITICS3|  .1470295    .0811108      1.81    0.070     -.0120162     .3060752
 H_POLITICS4|   .168093    .0553345      3.04    0.002      .0595908     .2765953
   H_HEALTH1| -.2445119    .2649537     -0.92    0.356     -.7640448      .275021
   H_HEALTH2| -.1889501    .2249164     -0.84    0.401     -.6299761     .2520759
   H_HEALTH3| -.2736205    .2220059     -1.23    0.218     -.7089394     .1616983
   H_HEALTH4| -.3390981    .2234212     -1.52    0.129     -.7771922      .098996
    H_DRINK |  .0191576    .0781874      0.25    0.806     -.1341556     .1724709
    H_SMOKE |  .0882006    .0562941      1.57    0.117     -.0221833     .1985846
      _CONS |  2.011234    .2330858      8.63    0.000       1.55419     2.468279
-------------+----------------------------------------------------------------
        _se |  .7014826    .0183274            (Ancillary parameter)
```

```
 Obs. summary:          921     uncensored observations
                       1823     right-censored observations at log_Ad~p>=1.96
```

Table 2E. Tobit Regression with the Expenditures (in logarithms) Censored at 4.39 UAH

```
Tobit estimates                              Number of obs   =       2744
                                             LR chi2(47)     =     282.88
                                             Prob > chi2     =     0.0000
Log likelihood = -1013.2015                  Pseudo R2       =     0.1225
```

```
------------------------------------------------------------------------------
 LOG_ADULT_~P |     Coef.   Std. Err.      t    P>|t|    [95% Conf. Interval]
-------------+----------------------------------------------------------------
        SIZE | -.0472948   .0267876    -1.77   0.078    -.0998211    .0052314
       CHILD | -.0926511   .0445758    -2.08   0.038    -.1800572   -.0052449
     ELDERLY | -.0324258     .04161    -0.78   0.436    -.1140165    .0491648
       WAGES |  .3919203   .0782012     5.01   0.000       .23858    .5452606
     TENANTS | -.0919688   .0803169    -1.15   0.252    -.2494577      .06552
 REAL_ESTATE |   .292626   .1081124     2.71   0.007     .0806345    .5046175
    H_GENDER |  .0673481   .0743389     0.91   0.365    -.0784189    .2131151
    H_UNEMPL | -.0383361   .0785084    -0.49   0.625    -.1922788    .1156066
   H_PENSION |  .4425367   .0763798     5.79   0.000     .2927678    .5923056
      H_HIGH |  .2716127   .0958389     2.83   0.005     .0836876    .4595378
    H_AGRICUL |  .0291074   .3200024     0.09   0.928    -.5983675    .6565822
    H_ENTREPR |  1.021697   .4715999     2.17   0.030     .0969633    1.946431
   H_FOREIGN | -.4914332   .5057313    -0.97   0.331    -1.483093    .5002269
  H_COMPUTER |  .0935659   .0970325     0.96   0.335    -.0966996    .2838314
  H_INTERNET |  .2442367    .187166     1.30   0.192    -.1227666    .6112401
H_JOB_VS_E~1 |  .2107806   .1192441     1.77   0.077    -.0230385    .4445998
H_JOB_VS_E~2 |  .7672206   .4055444     1.89   0.059    -.0279886     1.56243
H_JOB_VS_E~3 |  .1102166   .1334639     0.83   0.409    -.1514853    .3719185
H_JOB_VS_E~4 |  .3797267   .1893791     2.01   0.045     .0083838    .7510696
      H_ORG1 | -.1973471   .2254115    -0.88   0.381    -.6393439    .2446497
      H_ORG2 | -.1445387   .1968328    -0.73   0.463    -.5304972    .2414198
      H_ORG3 | -.6423058   .2885951    -2.23   0.026    -1.208196   -.0764158
      H_ORG4 | -.2644623   .2774506    -0.95   0.341    -.8084995     .279575
      H_ORG5 |  -.499456   .2275962    -2.19   0.028    -.9457367   -.0531753
      H_ORG6 | -.2243964   .3485913    -0.64   0.520    -.9079296    .4591368
      H_ORG7 | -.2439881    .207137    -1.18   0.239    -.6501515    .1621753
      H_ORG8 | -.5541867   .2648927    -2.09   0.037      -1.0736   -.0347734
      H_ORG9 | -.1894936   .2048414    -0.93   0.355    -.5911555    .2121684
     H_ORG10 | -.3262388   .2315013    -1.41   0.159    -.7801767    .1276992
     H_ORG11 |  4.288003          .        .      .            .           .
     H_ORG12 | -.8656841   .5272937    -1.64   0.101    -1.899625    .1682566
       H_JOB1 |  .5153135   .2200816     2.34   0.019     .0837678    .9468592
       H_JOB2 |  .4896574   .1969749     2.49   0.013     .1034204    .8758944
       H_JOB3 |  .4530302   .1988242     2.28   0.023     .0631669    .8428934
       H_JOB4 |  .4601955   .2046209     2.25   0.025     .0589659    .8614252
       H_JOB5 |  .2006674   .2036149     0.99   0.324    -.1985898    .5999245
       H_LIFE |  .1660003   .0752061     2.21   0.027     .0185328    .3134678
  H_POLITICS1 |  -.034318   .0653777    -0.52   0.600    -.1625134    .0938775
  H_POLITICS2 |  .1981709   .0852369     2.32   0.020     .0310347    .3653071
  H_POLITICS3 |  .0815705   .1175702     0.69   0.488    -.1489664    .3121074
  H_POLITICS4 |  .1880111   .0823627     2.28   0.023     .0265108    .3495115
    H_HEALTH1 | -.0967603   .3868735    -0.25   0.803    -.8553589    .6618383
    H_HEALTH2 | -.1450633   .3162916    -0.46   0.647    -.7652618    .4751352
    H_HEALTH3 | -.2040947   .3115375    -0.66   0.512    -.8149711    .4067817
    H_HEALTH4 |  -.283549    .313234    -0.91   0.365    -.8977521     .330654
     H_DRINK | -.0426945   .1080319    -0.40   0.693    -.2545282    .1691392
     H_SMOKE |   .073867   .0814378     0.91   0.364    -.0858199    .2335539
       _CONS |  1.988281   .3273431     6.07   0.000     1.346413     2.63015
-------------+----------------------------------------------------------------
         _se |  .7760488   .0327579            (Ancillary parameter)
------------------------------------------------------------------------------
  Obs. summary:        379    uncensored observations
                      2365    right-censored observations at log_Ad~p>=1.48
```