IRISS at CEPS/INSTEAD

An Integrated Research Infrastructure in the Socio-Economic Sciences

HOUSEHOLD INCOME COMPOSITION AND HOUSEHOLD GOODS

by

Ivan Voynov

IRISS-C/I

An Integrated Research Infrastructure in the Socio-Economic Sciences at CEPS/Instead, Luxembourg

What is IRISS-C/I?

IRISS-C/I is a visiting researchers' programme at CEPS/INSTEAD, a policy and research centre based in Luxembourg. Its mission is to organise short visits of researchers willing to undertake empirical research in economics and other social sciences using the archive of micro-data available at the Centre.

In 1998, CEPS/INSTEAD has been identified by the European Commission as one of the few Large Scale Facilities in the social sciences, and, since then, IRISS-C/I fellowships offer researchers (both junior and senior) the opportunity to spend time carrying out their own research using the local research facilities. The expected duration of visits is in the range of 2 to 12 weeks.

During their stay, visitors are granted access to the CEPS/INSTEAD archive of public-use micro-data (primarily internationally comparable longitudinal surveys on living conditions) and to extensive data documentation. They are assigned an office (shared or single) and have networked access to a powerful computation server that acts as host for the data archive and supports an array of commercial and open-source statistical software packages. Scientific and technical assistance is provided by resident staff.

Research areas

Survey and panel data methodology; income and poverty dynamics; gender, ethnic and social inequality; unemployment; segmentation of labour markets; education and training; social protection and redistributive policies; impact of ageing populations; intergenerational relations; regional development and structural change.

Additional information

IRISS-C/I
B.P. 48   L-4501 Differdange (Luxembourg)
Email: iriss@ceps.lu
Homepage: http://www.ceps.lu/iriss

HOUSEHOLD INCOME COMPOSITION AND HOUSEHOLD GOODS

by

Ivan V. Voynov

Department of Sociology, Sofia University "St. Kliment Ohridski", Sofia, Bulgaria

e-mail: voynov@abv.bg

2005

Abstract

The paper focuses on the change in household income composition and the factors that determine it. The results bring additional knowledge about household poverty dynamics. Based on the collective approach to the family and the cooperative game theory it is constructed theoretical model of household income composition change. The change in income composition is a result from bargaining between household members in attempt to defend the most suitable for them income source. Decisive influence in the household income pattern bargaining have specific set of household goods. Through empirical analysis of European Community Household Panel 2003 data it is proved that the adoption of definite income compositions (with prevailing wages and salaries share and with prevailing social transfers share) is a result from the availability of specific set of household goods.

Keywords: household income pattern, household goods, cooperative game theory

I. Introduction

At first glance the relationship between composition of household income and household goods looks useless and insignificance for the household economics. But the real aim of the paper is to draw attention on the income sources and their importance for household economics. That is way the effort is directed toward revealing the model of household income pattern and finding the factors that influence it.

The essential task is to give answer of practical and important for the policy making questions like: What induces households in European Union to sustain specific income composition? Why part of them collect their income entirely from wages and salaries, while other generate their income from social transfers? Are there any social or economic factors that cause the adoption of one type of income pattern over another? The answer of these questions can give considerable task upon the efficiency of social policy decisions in EU countries.

In the recent papers on household economics a lot of attention is paid on the earnings of members. The income of individual members becomes a crucial factor for the intra-household allocation of resources. It is a crucial finding that allows us to extend the reliability of economical approach upon the analysis of household. But that research streamline diminishes another important feature of household income - the type of the income sources and respectively the composition of household income.

Actually the different types of income sources are well known but not enough explored. It is mandatory index of the household income in every census but still there is not clear assessment of its importance. Until the household income is treated as a lump sum of money it is impossible to reveal the significance of income sources.

In this paper I stand to the idea of Bane, Ellwood[1] and Jenkins[2] that different sources of household income affect the change in the household socio-economic status. The entrance or ending in a certain socio-economic status (for example poverty) depends not on change in the net sum of household income but on change in the structure of household income sources. As a substantial part of the "income

---

[1] Bane, M., D. Ellwood, *Slipping Into and Out of Poverty: The Dynamics of Spells*, NBER Working Paper Series , №1193, 1983

[2] Jenkins, S., *Modelling Household Income Dynamics*, ISER, 1998

events"[3] variation in income sources is the most reliable and significant factor of household socio-economic change. The observation on the analyses concerning poverty dynamics is made in Section 2.

The demonstration of household income pattern importance is a good starting point but it inspires the more interesting question about the reasons of implementation a definite income pattern over another. The answer of that question is the guiding line through the entire paper. In order to give an answer of this question, there are several theoretical obstacles to be overcome.

The purpose of Section 3 is to reveal the theoretical "background" of the research. Its aim is to decompose the concrete set of interactions in the household that lead to the "elaboration" of household strategy on income sources. The most appropriate theoretical model is the economic approach to the family[4]. The core assumption is that household income pattern changes due to the change in individual income sources. Based on the premise that the household is a community of individuals that persuade their individual interests, we can assume that the income pattern is a result from bargaining between household members. The household decisions about income composition are result from bargaining between the individual members income strategies. The economic approach and the cooperative bargaining model specify the search for factors to the bargaining power of individual members. Appropriate factors that cause change in the bargaining power of the individuals are the household goods. Every good available in the household can be identified as a "past income", previous investment of the separate members. The possession of private household goods is a powerful argument in the process of choosing income pattern. That is the main idea on which is based the empirical model of the analysis (Section 4).

The validity of theoretical model is checked by the analysis of the data from European Community Household Panel (ECHP) from 2003 (Section 5).

---

[3] Jenkins, S., *Modelling Household Income Dynamics*, ISER, 1998, p. 5

[4] As a keystone of that approach are taken the works of G. S. Becker: Becker, G., E. Landes, R. Michael, *Economics of Marital Instability*, NBER Working Papers Series №153, 1976; Becker, G., *The Nobel Lecture: The Economic Way Of Looking at Behavior*, The journal of political economy, Volume 101, Issue 3, 1993; Becker, G., R. Barro, *A Reformulation of The Economic Theory of Fertility*, NBER Working Papers Series , № 1793, 1986

II. Why household income pattern matter: the case of poverty

Basic assumption in this paper is that the household income is not just a lump sum of money. If the household income is accepted only as a lump sum of money then the different sources will have no importance. But the empirical evidences clearly point that they really matter and hence the money are not the one and the only manifestation of household income. There are many non-monetary features of household income and income pattern is one of them.

The household income pattern or the household income composition is an indicator that evaluates the share of different income sources in the net household income. The income pattern is actually the ratio between the shares of different sources of income in the net income.

Among the plenty examples for the importance of household income sources the more convincing is the case of poverty dynamics. The research in that field reveals the importance of income sources for entering/exiting in and out of poverty. Most of the authors that are involved in this field confess that the poverty is influenced much more from the change in the type of income sources than from the variation in the net sum of household income. During the beginning and ending of poverty there is not just intrusion in the net household income but a significant change in the structure of income composition.

Bane and Ellwood undertake innovative approach to the poverty dynamics by defining spells of poverty as the most adequate approach to its research. That methodological innovation permits them to reveal the relationship between the changes in income sources and the change in socio-economic status of household:

> "Less than 40 percent of poverty spells beginnings seem to be caused by the drop in heads earnings, while 60 percent of endings occur when the head's earnings increase."[5]

The demonstration of connection between income pattern and poverty dynamics is not the only one achievement of that paper. Bane and Ellwood are the first that proved the causal effect of the changes in household income pattern and the dynamics of socio-economic status[6]. There are specific events that change the family

---

[5] Bane, M., D. Ellwood, *Slipping Into and Out of Poverty: The Dynamics of Spells*, NBER Working Papers Series, №1193, 1983, p. 2

[6] Ibid., p. 4

structure and "trigger" the beginning or ending of poverty - the decrease in head's earnings, wife's earnings, others' earnings or transfer income[7]. A closer look at those significant family changes reveals that actually they are changes in the household income pattern. What is important is the "ownership" of the decreased earnings - it is not important the exact sum of money reduced but the fact that decreasing happens with the earnings of definite member. Obviously the ownership of income is an important attribute of household earnings and in a certain cases it is the most significant factor then the change in lump sum. That is why the decrease of head's wage causes important effect on household budget[8].

The division of net household income into head's, wife's or other member's income is the first case of recognition of the differences in the types of income sources. The change in these different sources of income causes serious intrusion in the household economics.

Another researcher that is interested in the relationship between household income pattern and the socio-economic status of the family is S. Jenkins. He extends the achievements of Bane and Ellwood by enlarging the group of specific factors that influence the poverty dynamics. Instead of head's earnings he talks about "socio-economic correlates of income and poverty dynamics"[9].

Based on the assumption that the sources of household income are the most important part of net household income[10], he proves that the dynamics in the sources of household income influence in a direct manner net household income. The change in the types of income sources (the "income events"[11]) inevitably shape net household income and increase or decrease the probability of entering/ending into the poverty spells. Unlike Bane and Ellwood, Jenkins clearly outlines the scope of events that cause crucial influence on poverty dynamics. He includes not only the change in head's labour earnings but the change in investment income, private and occupational pension income, benefit income, private transfer income[12]. The household income

---

[7] Ibid., p. 10

[8] Ibid., p. 2

[9] Jenkins, S., *Modelling Household Income Dynamics*, ISER, 1998, p. 4

[10] Ibid., p. 4

[11] Ibid., p. 5

[12] Ibid., pp. 35-37

variability depends on the change in income sources. The meaning of income sources is irrefutably displayed through the evidence of its causal influence on household poverty dynamics.

III. Theoretical model

The demonstration of the importance of income pattern is something very important but it is not enough to answer the main question of this paper − why different households support different income patterns? Or to put it in a more general manner - which are the factors that cause adoption of one type of income pattern over another?

All these questions will remain with no answer until we did not find an appropriate theoretical framework for the analysis of household income decision.

A. Income pattern and the economic approach

In order to find an answer I sustain the "collective" model approach to the household economics. In the contemporary research it is a well established opinion that the implementation of unitary model does not satisfy explanation of complex family processes[13]. Much more reliable is the collective model that perceives household like community of individuals. From that point of view every process or change in the household is based on the actions of individual members.

The "collective" approach to the household social and economic processes rejects "unitary" model perception. The last one is based on the "black box"[14] idea - household is taken as a homogeneous and totally coordinated organization with automatic reactions on the environment challenges. For the followers of collective approach the family is a community of individuals and every one of them acts upon his/her own interest[15]. Also the changes in the household are due to the own desires of

---

[13] Browning, M., F. Bourguignon, P. Chiappori, V. Lechene, *Income and Outcomes: A Structural Model of Intrahousehold Allocation*, The Journal of Political Economy, Vol. 102, №6, 1994, p. 1070

[14] Pollak, R., Gary Becker's *Contributions to Family and Household Economics*, NBER Working Paper Series, № 9232, 2002, p. 20

[15] Ermisch, J., *An Economic Analysis of The Family*, Princeton Univercity Press, 2003, p. 2

individuals and it is a matter of active position to the environment rather than a defending reaction to the surrounding events[16].

In the case of household income pattern that means to perceive two important theoretical statements.

The first statement is that the household income is sum of individual incomes and household income pattern is result from the summed individual's shares of different types of income. The household income pattern is a collective result from the separate incomes of the household members. The choices of income type that individual members make result in the common household income pattern. The total share of wages in household income is the lump sum of wage income of all members. It is the same with other income type: the share of social transfers is a result from the social transfers that individual members receive. In other words, when we talk about household income pattern we always talk about sum of individual's income strategies. The basis is the income pattern of the individual members of the household. The common household income pattern is a generalization of the individual's preferences.

The second statement is that the available income sources in the household income are result from active position to the surrounding economic, political and social events. The household members are able to predict harmful effects from the environment and initiate the selection of such kind of income sources that will allow them to diminish the negative effects. For comparison, the passive position in the "unitary" approach pleads that the available income sources are a defensive reaction to already done impacts on the household income. For the "collective" approach individual choice of income source is the active position of individuals and not a common automatic reaction of previous shocks.

The collective economic approach is based on two additional assumptions which are important for the explanation of household income composition:

a) the maximizing behaviour of the separate individuals and

b) the equilibrium[17].

The economic approach to the family and partly the "collective" model of explanation of household events, insists on the maximizing behaviour of the

---

[16] Pollak, R., Gary Becker's *Contributions to Family and Household Economics*, NBER Working Paper Series, № 9232, 2002, p. 8

[17] Ibid., p. 8

individuals[18]. In the case of income pattern the maximizing behaviour is expressed in the aspiration for achieving the most suitable for individual member income source. It is easy to assume that every rational thinking member of the household is attempting to gain the source of income that is most appropriate for his education, level of desired job uncertainty and size of expected salary. That is why the maximizing individual strategy for income source depends heavily on the existing skills and qualification.

If the individual is very well educated and with significant experience in certain field it is best for him to take the income source with the greatest level of profit. His skills and experience will make him handle with risky situations in the dynamic market situation. In that case the adoption of wage income pattern is a maximizing behaviour.

If the individual is with poor educated and no practical experience, the maximizing income pattern strategy for him will be the adoption of social transfer income source. The social transfer's income source has the lowest level of income uncertainty, so that will be the best choice for people with no qualifications.

The maximizing approach to the individual income pattern is functional even when the members are forced to respond to external events. There is no doubt that unexpected and undesired events happen. But if we take family as composed from individuals with rational thinking, we must confess that every impact from the social environment has been analyzed and solved. The events that change the household income components are result from rational strategy, result from carefully made choice in order to "extract" the most profitable solution for the individual members. In attempt to reduce the undesired consequences household members search for the most profitable individual income pattern.

Even if the members have the opportunity to receive social transfers or intergeneration transfers or even proposition for well paid job it is not obligatory to take it. It is rather unconvincing to conclude that family members always take the higher income proposal that emerges. They make the choice that best satisfies their individual goals. Every member tries to take the most "suitable" for him income source, depending on his education, professional experience, desires and expectations for future development.

---

[18] Ermisch, J., *An Economic Analysis of The Family*, Princeton University Press, 2003, p. 2

If the household income pattern is a result from individual earnings based on the maximizing approach it is easy to predict conflicts with the other members of the household (since they act on the same manner). From that point of view the existing household income pattern is actually the point of balance between the members in the household. It is a result from the income "strategy" of all household members. That idea is very close to the Becker's marriage "strategy"[19]. If I have to extend it in more general manner, most of the household events are result of "bargaining between the family"[20].

In the case of household income composition every member tries to adopt the "best" income for him. But to do that it has to bargain with the other members. If he/she failure in the bargaining it is possible to be pushed to adopt income source which is not "suitable" for him/her.

Proverbial example is the long stay in poverty - if all of the individuals in the household have no qualification it will be natural each of them to prefer the social transfers low risk income sources. But if no one of the adult members undertake change in its individual income pattern that will push the entire family on a long term periods of poverty. That is way the exit from poverty is a result from change in the income pattern on one of the individuals in the family (in the most cases that is the head of the family).

Obviously the final household income pattern is a result from complex and ever changing process of decision making. The household members are in a situation of permanent negotiation for the implementation of their own income strategies. That is the most important moment in the "elaboration" of common household income structure. The concrete household income composition depends on the possibilities and skills of the separate individuals to thrust their strategies of income sources on other members. Consequently it will be impossible to understand the household income composition without knowledge on the process of elaboration of income composition inside the household. That is why the main effort is to find the concrete model of family decision-making.

---

[19] Becker, G., E. Landes, R. Michael, *Economics of Marital Instability*, NBER Working Papers Series № 153, 1976

[20] Ermisch, J., *An Economic Analysis of The Family*, Princeton University Press, 2003, p. 3

From the variety of scientific alternatives about the explanation of family decision making there is two main alternatives – cooperative game theory and noncooperative game theory.

B. Income pattern and household decision-making

As it was pointed before, the aim of this paper is to reveal the factors that influence household income pattern. To do that it is important to understand the model of establishing common income composition. Based on the economic analysis of the household life it is appropriate to assume that the final (common) income composition is a result from a competition between individual income strategies. Every one of the household member tries to defend its own income pattern, the pattern that better fits his/her profit. It is a process of bargaining between household members for the establishing of common (and ever changing) income composition.

Generally there are two theoretical concepts that deal with the decision making in the household – noncooperative and cooperative game model. The first one implies an inefficient output of the bargaining while the cooperative game ends with efficient output[21].

Based on that common classification of the family bargaining models I accept the cooperative bargaining model as much more reliable for the purpose of household income composition elaborating. The reason is that in the most cases there is really agreement between household members about the composition of common income. Actually it is a marginal situation in which the household members did not succeed to find a satisfying and efficient for all of them decision about the household income. The failure to achieve common vision about the sources of household income is connected with the stop pooling income effect. In exaggerate form the systematic impossibility of household members to achieve effective outcome for the household income bargaining will result in divorce. I prefer the cooperative bargaining model in the explanation of income bargaining because of the simple fact that in the most cases there is an effective output - the income pattern of the entire household.

A common feature of both cooperative and noncooperative approaches is the *"threat point"*. Actually it is the hidden "engine" of income bargaining. It is the cross

---

[21] Pollak, R., Gary Becker's *Contributions to Family and Household Economics*, NBER Working Paper Series, № 9232, 2002, pp. 22, 31

line between effective and ineffective bargaining output about the household income pattern.

Consequently in the cooperative bargaining model (respectively the effective output) it is important to define the "level" of threat point. According to Lundberg and Pollak the threat point in the family bargaining is not a universal one[22]. Beside the fact that divorce is the most common case there are set of situation in which it is inappropriate threat point:

> "Divorce, we argue, should not be treated as the sole determinant of the threat point for cooperative bargaining, in some situations, divorce is not possible and in many other it is not the plausible threat. ... The separate spheres model with its internal threat point implies that under some circumstances, the couple's expenditure pattern will depend not on who receives income after divorce but on who receives or controls income within marriage: that is, couples do not pool their income"[23].

Based on that idea it is easy to point the most suitable "threat point" in the case of income pattern bargaining - the cooperation will end at the moment when the family members will *stop pooling* their income. That is the marginal point of income bargaining. Behind it there is no household income pattern but individual income strategy without coordination between them[24].

The "threat point" is important because it marks the resources the individual members will have in the case of inefficient output. The "bargaining power"[25] of the individuals is influenced by the accessible utilities in the case of inefficient outcome. In this paper the "bargaining power" is very important because it measures the influence of factors upon the final decision for household income pattern. The bargaining power is proportional on the spouse's utilities she/he can gate from the bargaining output. The higher "threat point" of the spouse (the more utilities he/she can get at that marginal point) increases his/her bargaining power. The increased power ensures better positions in the bargaining process which in turn results in

---

[22] Pollak, R., Gary Becker's *Contributions to Family and Household Economics*, NBER Working Paper Series, № 9232, 2002

[23] Ibid., p. 29

[24] Ibid., p. 28

[25] Turocy, T., B. Stengel, *Game Theory*, CDAM Research Report LSE-CDAM-2001-09

superior access to available utilities[26]. Typical example is the case of divorce - the share of earnings controlled by the husband affects the threat point which in turn is decisive for the final division of the family properties[27].

In the case of household income pattern the level of the "threat point" determines the bargaining power of the members. That is way the determinants of the "threat point" are especially important. The change in the position of the "threat point" defines the concrete values at which the efficient output will be accepted. In other words the individual output from household income pattern bargaining depends on the "threat point" determinants. The concrete shares of income sources for the individual members will change in every variation of the bargaining "threat point".

In the intra-household bargaining for allocation of resources the control over the earnings specifies the "threat point" of the spouses and in turn it shapes the future access to household goods[28]. The threat point depends on the control over earnings. But that model can be used in situations in which the bargaining is about the income. Then the causal effect will be reversed - the threat point in the bargaining about the income pattern will depend on the control over the existing household goods.

The reason to reverse that causal model is not accident. There are sufficient theoretical arguments in doing that.

C. Factors that determine household income pattern

The control over the household goods is a subject of matter only if we stand on the collective approach to the household economics. Deriving from it we must accept all available goods in the family as a result from the private earnings of members. The available goods in the household are not result from common effort. If we take a look at them in a long term period we can find the "history" of their purchasing. That will be enough to reveal that every household good (entirely or in prevailing part) is obtained by the individuals in the family.

The fact that the household goods are the "past income" of household members is well known and a lot of researchers use it. The "connection" between

---

[26] Pollak, R., Gary Becker's *Contributions to Family and Household Economics*, NBER Working Paper Series, № 9232, 2002, p. 28

[27] Ibid., p. 30

[28] Lundberg, S., R. Pollak, *Efficiency in Marriage*, 2002, p. 5

family members and the household goods is analysed by P. Chiappori. He proves that there is a sharp distinction between available goods based on their way of acquiring and consumption. Generally there are two types of goods in the household - "private" and "public". The private one are gained and consumed in a rival way from the members while the public goods are gained and consumed in a non-rival way[29]. The main criterion used for the classification is the way of consuming the household goods. Similar classification is used by Becker. He argues that it will be important to divide goods on two categories - "general capital" and "marriage-specific capital". The general capital (houses, automobiles, savings etc.) remain valuable for the individuals even in the case of divorce[30]. Unlike them the marriage-specific capital is important only if the partners are together and is invaluable if they remain single[31]. At the same manner the criterion is based on the consumption significance of the goods. That is way the goods are classified as valuable for the separate member ("private goods"; "general capital") or valuable for the entire household ("public goods"; "marriage specific goods").

In this paper I offer a slight different classification of the household properties. They are not as important as a way of consumption but as a way of acquirement. It is not important the fact that they are valuable only for the separate individual or only for the family as a whole. The most important is their way of acquisition. Every available household good is a result from the private investment of the separate individuals. The fact that the family can afford a holiday or having dinner with friends every second day or live in its own house is always result from the individual's earnings. Hence the variance in the way of consumption of household goods can not "erase" their origin.

The fact that the available goods are private investments of the individuals during their family life is best illustrated by Becker:

> "Married persons invest in many assets, including houses, children, market and non-market skills and information. Some of these investments, such as in

---

[29] Browning, M., P. Chiappori, V. Lechene, *Collective and Unitary Models: A Clarification*, Oxford University, Department of economics, Discussion paper series № 191, 2004, p. 4

[30] Becker, G., E. Landes, R. Michael, *Economics of Marital Instability*, NBER Working Papers Series № 153, 1976, p. 20

[31] Ibid., p. 20

household appliance, automobiles, or knowledge of consumer prices, would be almost as valuable to them if their marriage is dissolved ... The accumulation of "general" capital does not affect the expected gain from remaining married compared to dissolution, whereas the accumulation of married-specific capital raises the expected gain because, by definition, this capital is not valuable when single..."[32]

Every "bit" of household goods is a result from individual efforts. The ability of having dinner with friends every week, the possession of car, the significant savings etc. are due to individual efforts of one of the family members. That is way every household goods is an "individual's investment". Despite the wide spread idea that the available goods are common it is an irrefutable fact that they can be easy identified and split up between individuals. A grave but eloquent example for such identification of household goods is the division of family goods in the case of divorce.

The fact that the household goods are the "past income" of the household members is a reliable reason to put them as a factor in the bargaining about household income pattern. In the same manner in which the present income of the individuals is crucial about the allocation of goods between family members, the available household goods (past income) are decisive about the choice of future income sources.

The reason for that relationship is that the "past" incomes of the individual member determine his/her treat point. The past incomes are the utilities he/she can ever use in the case of ineffective bargaining output. Even if the household members stop to pool their income they will proceed to use their past investment in household goods. Actually every new investment in household good changes the individual's "threat point" and hence his/her bargaining power.

Consequently the contemporary bargaining for the income pattern depends on the "past income" of the family members. The choice of contemporary income sources depends on the past income investments of the members. During their family life the individuals invest their earnings in different household goods and use it as an argument in the bargaining about the household income pattern.

---

[32] Becker, G., E. Landes, R. Michael, *Economics of Marital Instability*, NBER Working Papers Series № 153, 1976, p. 20

Such a model is useful in the explanation of different decisions and choices about the sources from which household generates its net income.

Generally the member who have substantial "past" income have bigger bargaining power and therefore better chances to defend his/her desire for household income source in the process of income pattern bargaining. While the household member with lower "past" income has smaller bargaining power and lower chances to defend his/her strategy for income sources. For example the member who succeeds to ensure valuable good for the household (house, car, holiday etc.) has a significant resource in past income that determine his/her "threat point". That will not just increase his bargaining power but will move the threat point for the other members of the family. That is way in the bargaining for income source pattern they are in the worst position.

In order to avoid the noncooperative output of the bargaining process the member with lower bargaining power must undertake sufficient efforts. For household income pattern establishment such effort is the adoption of income source with higher earnings. That will restore the balance between bargaining powers of household members and will continue the pooling of income in the household.

For the purposes of the paper it is used similar research design. From the quality and the quantity of available household goods I try to find their influence on the establishment of household income composition.

IV. Empirical model

As it was pointed at the beginning of the paper, there is a specific set of household income sources which is important for the poverty dynamics – income from wages and salaries and income from social transfers. That is the reason to constrain the research on household income composition upon two specific types of income pattern: (a) household income pattern with prevailing share of wages and salaries and (b) household income pattern with prevailing share of social transfers. The data used in the empirical model is from European Community Household Panel (ECHP) household file, wave 7 (2003).

It is obvious that those two patterns are just part of the possible income compositions – with prevailing share of self employment; with prevailing share of rental, capital and private transfer income etc. Consequently the research will not give

answers of the questions about the factors that generally determine the choice of one household income over another. Its results can be used for important improvement in the explanation of poverty dynamics.

To solve the main research problem about the factors that define the specific household income composition it was build linear model with dependent variables household income patterns and independent variables household goods (including variables about the financial situation of the family, accommodation features, durable goods and children). As additional independent variables in the model are included variables about the demographic situation of the household. The reason is that as a rule household income composition is dependent from the number and the age of household members and the inclusion of such variables will increase the fit of the models.

In order to build the model are taken a number of steps. They are as follows:

1. It is necessary to calculate the share of the two specific income sources in the total household income:

$$I_{ws} = \left(\frac{HI111}{HI100} \right).100,$$

where:

- I_{ws} is the share of wages and salaries in the net household income,
- $HI111$ is the wage and salary earnings in ECHP data,
- $HI100$ is the total net household income in ECHP data.

$$I_{st} = \left(\frac{HI130}{HI100} \right).100,$$

where:

- I_{st} is the share of social transfers in the net household income,
- $HI130$ is the total social transfers received in ECHP data,
- $HI100$ is the total net household income in ECHP data.

2. The use of new variables as dependent variables in multiple regression model is limited because of the strong assumption about their distribution[33]. Since the results

---

[33] Fox, J., *Applied Regression Analyses, Linear Models and Related Models*, SAGE, 1997, p. 54

rejected the hypothesis about normal distribution of the two income source variables it is not possible to use them in regression model. In order to solve the problem they were transformed into binary variables. Such transformation diminishes the scope of conclusions to two household income patterns:

- income composition with predominance of wages and salaries share,
- income composition with predominance of social transfers share.

The variable for prevailing wages income pattern (PI_{ws}) has the following levels:

1 – household income composition is based entirely ($I_{ws} \geq 90\%$) on wages and salaries,

0 – income composition is not based entirely ($I_{ws} < 90\%$) on wages and salaries.

The second binary variable (PI_{st}) marks household income pattern with predominant share of social transfers. It has the levels:

1 – household income composition is based entirely ($I_{st} \geq 90\%$) on social transfers,

0 – income composition is not based entirely ($I_{st} < 90\%$) on social transfers.

3. The liner models that estimate the influence of household goods and demographic factors on household income composition are based on the logistic regression model since the two dependent variables are binary:

$$\ln\left[p_{PI_j} \bigg/ \left(1 - p_{PI_j}\right)\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots \beta_n X_n + \varepsilon \,,$$

where:

$\ln$ is the natural algorithm,

p_{PIj} is the probability that the events PI_{ws} or PI_{st} occurs ($PI_j=1$),

$p_{PIj}/(1 - p_{PIj})$ is the odds ratio,

$\ln[p_{PIj}/(1 - p_{PIj})]$ is the log odds ratio,

α is the coefficient on constant term,

β_1, β_2, β_3, β_n are the coefficients of change in the log odds ratio for a unit increase in the independent variable,

X_1, X_2, X_3, X_n are the independent variables including household

goods and household demographic variables,

ε is the error term.

Another feature of the empirical model is that each one of the models is calculated for the fifteenth EU countries. The reason is that it is hardly to accept the assumption for insignificant differences between countries in the field of household income. That is the starting point for the interpretation of result. Below are analyzed only those factors which are significant for the most country models.

Another important feature is that for the purposes of better explanation I propose two adult spouses household model. The simpler model can better express the nature of the analysed process. From that point of view it is necessary to say that the establishment of every one of the predominant household income patterns is result from the earning of the both spouses.

V. Data analysis

Before the analysis of result there is one more thing to be clarified. The fact that the data is collected and organized for the whole household doesn't mean that the analysis is based on the "unitary model" approach to the household economics. Using such kind of data with "bargaining model" of household income pattern can reveal the importance of household goods for the entire household income.

Income composition with prevailing share of wages and salaries

The results from Table 1 show that all fifteen models are significant at the 0,001 level according to the Model chi-square statistic. In three of the models Nagelkerke R^2 is higher than 0,500 (Belgium = 0,512; Greece = 0,512 and Ireland = 0,566). The lowest level of Nagelkerke R^2 is in Netherlands model (0,293). As it was pointed before, a subject of analysis will be only those factors which have significant unstandardized logit coefficient in most of the country models. Such restriction is a good basis for achieving more reliable conclusion. The aim is to find common factors beside the country differences.

The fist household factor in Table 1 which has a significant influence in most of the country models is the ability of household to afford paying for holiday. It is significant for the models of Austria, Belgium, Finland, France, Greece, Netherlands,

Portugal, Spain and United Kingdom. With one exception (Portugal: b= -0,22) the fact that the household can afford paying for holiday increases the log odds of establishing household income composition with prevailing share of wages and salaries. The interpretation of that relationship can be directed to the upper theoretical model. The possibility of having holiday is due to the individual earnings of one of the spouses. The amount of money exceeded and spent for the rest of the whole household is a strong argument toward changing the bargaining power of the partner who brings it. In such situation the "threat point" of such partner is in a position to increase its bargaining power. For the other partner it slows down the possibility of defending his/her income choice. That situation constricts his/her possibilities to choose about the income sources. If the choice is between wages source income and social transfers source income there is a little probability to choose the second one. Due to the lower bargaining position and in order to avoid inefficient bargaining outcome he/she will have to choose the wage income source. As a final result the household income composition is predominantly influenced by wages and salaries.

The second household factor in Table 1 which has a significant influence in most of the country models is the ability of saving many. It is significant for the models of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Luxembourg, Netherlands, Portugal, Spain and United Kingdom. With one exception (Greece: b= -0,45) the availability to saved money increases the log odds of adoption household income composition with prevailing share of wages. Deriving from the theoretical model, the possibility of saving money after all household expenditures is a result from the higher earnings of one of the spouses. Similarly to the previous factor such situation diminishes dramatically the bargaining power of the spouse that income doesn't allow saving money. At the same time the bargaining power of the partner whose income permits money savings increased. Appropriate decision of that problem in order to avoid ineffective outcome is the establishing of wage earning for the second partner. The result is adoption of household income pattern with prevailing of wages and salaries.

The availability of significant savings (1000 euro or more) from consuming food from own agriculture or gardening (Table 1) is significant factor for the models of Austria, Belgium, Denmark, France, Greece, Ireland, Portugal and Spain. In all of these countries it decreases the log odds of establishing income composition with

prevailing share of wages. Such relationship is natural since the significant savings from own agriculture exclude prevailing income composition from wages and salaries. The same interpretation is relevant and for the availability of significant savings (1000 euro or more) from consuming other goods from own company (Table 1). It is significant for the models of Austria, Denmark, Finland, Greece, Ireland, Italy, Portugal and Spain. It decreases the log odds of establishing income composition with prevailing share of wages.

Another group of factors that influence the probability of establishing wages and salaries income pattern is concerned with the household dwelling. The results from Table 1 show that features of the dwelling like a place to sit outside does matter. It is a significant factor for the models of Austria, Belgium, Finland, Germany, Greece, Italy, Luxembourg, Portugal, Sweden and United Kingdom. With one exception (Portugal: b= 0,24) in all these models the lack of place to sit outside increases the log odds of establishing household pattern with prevailing share of wages and salaries. The fact that the household lives in apartment (not in a house) increases probability both parents to receive earnings from wages. The influence of that fact upon the probability of dependant event to occur is closely related with the influence of two other factors from the same kind: the shortage of space and possession of second home. The shortage of space of the accommodation is significant factor for the models of Austria, Finland, France, Germany, Netherlands, Portugal and Spain. In all these models the shortage of space of the accommodation increases the log odds of adopting predominantly wages and salaries income pattern. The possession of second house is significant for the models of Belgium, Denmark, Finland, France, Greece, Italy, Netherlands, Portugal, Spain and United Kingdom. Similarly to the shortage of space, the lack of second home increases the log odds of establishing household income pattern with prevailing share of wages and salaries.

Generally the lack of place to sit outside, the shortage of space and the lack of second home increase the log odds of establishing household income pattern with predominance of wages and shares. Such relationships can be interpreted using the theoretical model. The lack of comfortable dwelling for the household is due to the insufficient earnings of both spouses. It is a specific situation that slows down the bargaining power of both partners. The choice of social transfers income source of any one of them will doom him/her to lower bargaining power in future. That is way

the optimal choice of both partners is to sustain wages income composition. If the household is living in comfortable dwelling, according to the theoretical model, it is result from the earnings of one of the spouses. Such an important for the whole family good can allow the spouse that "delivers" it in the household to defend its own choice of income source. But if such important good is missing then both partners should work in order to save their own bargaining power.

The results from Table 1 show that the possession of car has a significant effect on the models for Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain and Sweden. The possession of car in the household increases the log odds of establishing household income composition with prevailing share of wages and salaries. The same relationship can be found and for the possession of VCR – its availability increases the log odds of adopting wages and salaries income composition. That relationship is significant for all fifteen country specific models.

There is another similar relationship in Table 1. The possession of home computer increases the log odds of implementing prevailing wages and salaries income in the models for Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Spain, Sweden and United Kingdom.

The explanation of these relationships is similar to the explanation of the influence of the ability of paying for holiday. All they are available through the personal income effort of one of the spouses. That certainly changes the balance of bargaining power between partners. The most appropriate effort toward preventing the end of income pooling in the household is the adoption of higher income pattern than social transfers.

The importance of these household goods for the establishment of certain household income pattern is confirmed from two other relationships that can be found in the results from Table 1.

The lack of colour TV increases the log odds of establishing wages and salaries predominant household pattern in the models for Austria, Belgium, France, Greece, Italy, Luxembourg, Portugal, Spain and Sweden. The same type of influence has the lack of telephone in the models for Belgium, Denmark, Finland, France, Germany, Portugal, Spain and United Kingdom. It is another marginal case of the effect of household goods upon the choice of income pattern. The availability of these

goods is not enough to cause intrusion in the bargaining power of the both partners. Consequently there is no effort for restoring the bargaining power equilibrium through adopting wage income type. The reason is that they are not valuable goods for the household. Since they are basic needs their possession in the case when "threat point" is reached will bring no advantage for the possessor. At the same time the lack of such basic goods in the household threats the bargaining power of both spouses and they had to work in order to ensure them.

The last significant factor for the model of establishing wage prevailing household income pattern is the existence of children under twelve years. They are significant factor in the models for Austria, Belgium, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal and United Kingdom. In all of these models the children under twelve increase the log odds of establishing wages predominant income pattern. The children under twelve are specific kind of household "good". There is no doubt that as a spend time, money and other resources they are investment of the individual household member. Beside the help of all members in their care there is a crucial effort of one of the spouses. According to such point of view the situation become very similar to the previously discussed. In attempt to gain equilibrium with the bargaining power of the other partner it is rather probable for the second one to adopt wage type of income source.

Income composition with prevailing share of social transfers

The results from Table 2 show that all fifteen models are significant at the 0,001 level according to the Model chi-square statistic. In all models the Nagelkerke R^2 statistics is over 0,500 and in three of them it is over 0,700 (Ireland = 0,790; Portugal = 0,760 and Spain = 0.733).

The results from Table 2 reveal the first significant for most of the country models factor – paying for holiday outside home. It is significant in the models of Belgium, France, Greece, Italy, Netherlands, Spain and United Kingdom. The fact that the household can afford paying for holiday decreases the log odds of establishing household income pattern with prevailing share of social transfers. The interpretation of that relationship is closely related with the interpretation of the relationship between that factor and the establishing of wages prevailing household income composition. The direction of relationship is just the opposite. The existing of

household good like ability of paying for holiday increases the probability of adopting wages prevailing household pattern and decreases the chances of establishing household composition with prevailing share of social transfers. The mechanism of such relationships is explained in the terms of intra-household bargaining for income pattern. The empirical prove for the opposite influence of that factor upon both household income patterns is an evidence for the reliability of the theoretical model used in this paper.

Such opposite influence of household goods upon both types of income composition can be found in seven more factors.

The fact that there is money saved in the household (Table 2) is meaningful for most of the country models. It is significant in the models for Belgium, Finland, France, Germany, Greece, Italy, Netherlands, Spain and United Kingdom. The ability of saving money decreases the log odds of establishing household income composition with prevailing share of social transfers.

Another common factor from Table 2 is the shortage of space of the accommodation. It is significant in the models for Austria, Denmark, Finland, France, Germany, Ireland, Netherlands and Portugal. With one exception (Portugal = 0,4) the shortage of space decreases the log odds of establishing household income composition with prevailing share of social transfers.

The possession of car (Table 2) in the household decreases the log odds of adoption social transfers with prevailing household patterns. It is significant for the models of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Portugal, Spain and Sweden.

Another opposite factor influence according to the probability of establishing household income with prevailing share of wages and salaries is the possession of colour TV (Table 2). It is significant factor for the models of Austria, Belgium, Finland, France, Germany, Italy, Luxembourg, Netherlands, Portugal, Spain and Sweden. The fact that household possess colour TV increases the log odds of establishing household composition with prevailing share of social transfers. The possession of such basic household good (due to the individual's effort of one of the partners) can not threat the bargaining power of the other spouse and he/she can afford to choose lower but safer income from social transfers.

The possession of more valuable household goods than color TV set increase

the discrepancy in the "past" income of both spouses and leads to serious intrusion in the bargaining power equilibrium of the partners. That is way their availability in the household diminishes the probability of establishing social transfers predominant income pattern. Such valuable household goods are VCR, home computer and children below twelve.

Possession of VCR (Table 2) is a significant factor for the models of Austria, Belgium, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom. Its availability in the household decreases the log odds of establishing household income with prevailing share of social transfers.

The same relationship is found in the analysis of the influence of home computer in the household (Table 2). It decreases the log odds of establishing social transfers prevailing income composition for the models of Austria, Belgium, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

The last factor that influences most of the country models in Table 2 is the existence of children below twenty years in the household. It is significant factor for the models of Austria, Belgium, France, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom. The fact that the other partner has enough resources to ensure child care threats the bargaining power of the second spouse. In such situation he / she can not afford to receive money from social transfers.

Main findings

The main findings from the data analysis can be summarised in few points:

- There are big differences in the liner model depending on the separate countries. That is why it is more precise to speak about significant difference then for common factors. That is an important conclusion for future research in household income composition. Obviously the factors that determine household income pattern are specific for every country.
- There are a certain groups of household goods factors which are specific for the separate household income patterns.
- The most important result is that the same household goods that increase the log odds of establishing household income pattern with predominance of wages share

decrease the log odds of adoption of household income with prevailing share of social transfers.

●That specific set of household goods includes:

- The ability of the household to afford paying for a week's annual holiday away from home.
- The existence of money left to spend.
- The shortage of space in the household's accommodation.
- The possession of a car.
- The possession of a VCR.
- The possession of colour TV.
- The possession of telephone.
- The possession of home computer.
- Children under twelve years in the household.

●The interpretation of that fact is a starting point for another research but the theoretical model in this paper can be used for drawing explanation framework. Obviously the substantial discrepancy between the "past" incomes of the spouses is good enough motivation for establishing household income pattern based on wages and salaries. The lack of such discrepancy increases the probability of establishing household income pattern based on social transfers. The differences between the "past" incomes of both partners are a decisive point for establishing one household income composition over another.

Conclusion

Based on Becker's economic approach, it is clear that the household income pattern is not a unitary, automatic strategy of the entire household. Rather it is the final result from prolonged struggle between household members in attempt to defend their own interest. There is an obvious or hidden bargaining between the income pattern strategies of the individual household members. In that process household goods have decisive influence over the bargaining outcome.

Based on the information about the household goods it is much more ease to calculate the probability of establishing one income composition over another. There is a specific group of household goods that stimulates the adoption of one household income pattern over another. Generally the aim of the paper is to stress on the intra-

household processes that affect the household poverty dynamics. The change in the household income pattern is part of the "income events"[34] that influence the household poverty dynamics.

REFERENCES

Bane, M., D. Ellwood, Slipping into and out of poverty: the dynamics of spells, NBER Working papers series, №1193, 1983

Becker, G., E. Landes, R. Michael, Economics of marital instability, NBER Working Papers Series № 153, 1976

Becker, G., R. Barro, A reformulation of the economic theory of fertility, NBER Working Papers Series, № 1793

Becker, G., The Nobel lecture: The Economic Way of Looking at Behavior, The Journal Of Political Economy, Volume 101, Issue 3, 1993

Browning, M., F. Bourguignon, P. Chiappori, V. Lechene, Income and Outcomes: A Structural Model of Intrahousehold Allocation, The Journal of Political Economy, Vol. 102, №6, 1994

Browning, M., P. Chiappori, V. Lechene, Collective and Unitary Models: a clarification, Oxford University, Department of Economics, Discussion paper series № 191, 2004

Ermisch, J. F., An Economic Analysis of the Family, Princeton University Press, 2003.

Fox, J., Applied Regression Analyses, Linear Models and Related Models, SAGE, 1997

Jenkins, S., Modelling Household Income Dynamics, ISER, 1998

Lundberg, S., R. Pollak, Efficiency In Marriage, 2002

Pollak, R., Gary Becker's Contributions to Family and Household Economics, NBER Working Paper № 9232, 2002

---

[34] Jenkins, S., *Modelling Household Income Dynamics*, ISER, 1998

Turocy, T., B. Stengel, Game Theory, CDAM Research Report LSE-CDAM-2001-09

Table 1: Model estimates of the probability of household income composition with prevailing share of wages and salaries.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Demographic information															
Household size	-1,46 ** (0,16)	-0,83 ** (0,13)	-0,34 ** (0,06)	-0,55 ** (0,05)	-0,61 ** (0,08)	-0,91 ** (0,09)		-0,3 ** (0,04)	-0,19 ** (0,07)	-1,21 ** (0,14)	-0,58 ** (0,07)	-0,25 ** (0,06)	0,32 ** (0,04)	-0,49 ** (0,05)	-0,31 ** (0,07)
Number of adults in the household (16 years or more)	1,07 ** (0,17)					0,48 ** (0,1)	-0,46 ** (0,12)		-0,59 ** (0,1)	0,66 ** (0,15)	0,36 ** (0,08)	-1,09 ** (0,1)	-0,88 ** (0,1)		0,23 ** (0,08)
Number of adults in the household (14 years or more)		0,33 * (0,14)	0,2 * (0,08)		0,33 ** (0,09)	0,2 ** (0,05)	0,34 ** (0,11)		0,59 ** (0,12)			1,08 ** (0,11)	0,24 * (0,1)	-0,18 * (0,07)	
Number of members moved out		0,56 ** (0,16)			0,27 ** (0,09)			-0,1 * (0,04)	-0,4 ** (0,12)	0,45 ** (0,17)	0,33 ** (0,13)			0,25 ** (0,05)	0,22 * (0,09)
Number of members died	-1,43 ** (0,33)	-0,68 ** (0,17)			-1,28 ** (0,24)	-0,66 ** (0,2)						-0,83 ** (0,21)			-0,38 ** (0,1)
Number of members moved in				-0,59 ** (0,21)	0,36 * (0,16)			-0,61 * (0,25)		0,59 ** (0,2)			-0,11 ** (0,02)		
Number of members born	1,32 ** (0,33)			0,6 ** (0,21)	0,58 ** (0,17)	0,55 ** (0,2)		0,66 ** (0,24)	0,29 * (0,12)	-1,24 ** (0,24)	0,61 ** (0,21)	0,56 ** (0,21)			
Financial situation															
Can the household afford keeping its home adequately warm (dummy; yes=1)				-0,79 ** (0,18)	-0,49 ** (0,15)				-1,01 * (0,45)			0,18 * (0,09)			-0,97 ** (0,23)
Can the household afford paying for holiday (dummy; yes=1)	0,63 ** (0,16)	0,42 * (0,18)		0,42 ** (0,13)	0,78 ** (0,09)		0,31 ** (0,1)				0,76 ** (0,14)	-0,22 * (0,1)	0,21 * (0,08)		0,56 ** (0,09)
Can the household afford replacing worn-out furniture (dummy; yes=1)				0,34 * (0,14)					0,73 ** (0,23)			0,27 * (0,11)			
Can the household afford buying new, rather than second-hand, clothes (dummy; yes=1)			1,18 * (0,49)									0,38 ** (0,09)			0,31 * (0,16)
Can the household afford eating meat or the like every second day (dummy; yes=1)				-0,67 ** (0,24)						-0,63 ** (0,16)		-1,01 ** (0,2)			
Can the household afford having friends or family for drink/dinner (dummy; yes=1)				0,46 * (0,2)						0,23 * (0,1)		0,43 ** (0,13)			
Has the household been unable to pay scheduled rent for accommodation during the past 12 months (dummy; yes=1)		-1,3 ** (0,48)		-0,84 ** (0,25)			0,52 * (0,24)								

Table 1 (continued): Model estimates of the probability of household income composition with prevailing share of wages and salaries.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Has the household been unable to pay scheduled mortgage payments during the past 12 months (dummy; yes=1)								-1,62 * (0,73)				-3,85 ** (1,29)			
Has the household been unable to pay scheduled utility bills during the past 12 months (dummy; yes=1)					-0,44 ** (0,16)					-0,96 * (0,41)	-0,87 ** (0,32)				
Money left for the household to save (considering household's income and expenses) (dummy; yes=1)	0,24 * (0,12)	0,65 ** (0,11)	0,67 ** (0,12)	0,46 ** (0,1)	0,18 ** (0,07)	0,59 ** (0,07)	-0,45 ** (0,12)			0,38 ** (0,1)	0,53 ** (0,07)	0,23 * (0,1)	0,53 ** (0,07)		0,65 ** (0,07)
Lowest monthly income your household would have to have						0,24 ** (0,05)									
Household received non-cash assistance(dummy; yes=1)					-0,94 * (0,4)			-3,8 ** (0,49)				-2,64 ** (1,01)			
Anyone in household inherit, receive gift or lottery winnings (dummy; yes=1)			-0,73 ** (0,21)	0,61 ** (0,18)									-0,89 ** (0,31)		
Did you save significantly (1000 euro or more) from consuming food from own agriculture or gardening (dummy; yes=1)	-0,6 * (0,28)	-0,49 * (0,23)	-0,89 * (0,41)		-0,54 ** (0,12)		-0,57 ** (0,14)		-0,5 ** (0,12)			-0,67 ** (0,11)	-1,48 ** (0,24)		
Did you save significantly (1000 euro or more) from consuming other goods from own company (dummy; yes=1)	-0,95 ** (0,36)		-0,98 * (0,45)	-3,52 * (1,37)			-3,96 ** (0,89)	-2,25 ** (0,7)	-1,29 ** (0,24)			-2,42 ** (0,33)	-2,16 ** (0,39)		
Did you save significantly (1000 euro or more) from home production repairs and maintenance; i.e. all kinds of do it yourself activities (dummy; yes=1)	0,56 ** (0,14)						-0,74 ** (0,26)	0,39 ** (0,15)							
Accommodation															
Does the dwelling have separate kitchen (dummy; yes=1)	-0,78 ** (0,23)						-0,64 ** (0,14)						-1,3 ** (0,26)	1,23 ** (0,43)	-1,15 ** (0,24)
Does the dwelling have bath or shower (dummy; yes=1)			-1,97 * (0,78)							1,06 * (0,42)	1,71 * (0,76)				
Does the dwelling have indoor flushing toilet (dummy; yes=1)	-0,7 ** (0,26)	-1,11 ** (0,32)				0,8 * (0,35)			-1,31 ** (0,45)	-1,52 ** (0,22)					
Does the dwelling have running water (dummy; yes=1)											-4,66 ** (0,78)				

Table 1 (continued): Model estimates of the probability of household income composition with prevailing share of wages and salaries.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Does the dwelling have heating or electric storage heaters (dummy; yes=1)							0,24 * (0,11)					-0,35 ** (0,12)			
Does the dwelling have a place to sit outside (dummy; yes=1)	-0,36 ** (0,13)	-0,67 ** (0,18)		-0,6 ** (0,15)		-0,3 ** (0,09)	-0,72 ** (0,19)		-0,36 ** (0,11)	-0,41 ** (0,14)		0,24 * (0,09)		-0,51 ** (0,1)	-0,72 ** (0,14)
Does the accommodation have shortage of space (dummy; yes=1)	0,34 * (0,16)			0,27 * (0,12)	0,34 ** (0,1)	0,46 ** (0,09)					0,44 ** (0,1)	0,32 ** (0,09)	0,51 ** (0,09)		
Does the accommodation have noise from neighbours or outside (dummy; yes=1)		-0,27 * (0,12)													0,35 ** (0,08)
Is the accommodation too dark/not enough light (dummy; yes=1)		0,45 * (0,19)													
Does the accommodation have lack of adequate heating facilities (dummy; yes=1)	-0,68 * (0,32)														
Does the accommodation have leaky roof (dummy; yes=1)											-0,37 * (0,18)	-0,3 * (0,14)			
Does the accommodation have damp walls, floors etc. (dummy; yes=1)		-0,52 ** (0,19)		0,67 * (0,3)			-0,45 ** (0,15)	-1,22 ** (0,44)				-0,25 * (0,1)			
Does the accommodation have rot in window frames or floors (dummy; yes=1)				-1,21 ** (0,41)					-1,85 ** (0,66)			-0,32 ** (0,11)			-0,39 * (0,15)
Is there any pollution caused by traffic or industry (dummy; yes=1)	-0,64 ** (0,23)						0,3 * (0,12)	0,74 * (0,29)			-0,23 * (0,1)				
Is there crime or vandalism in the area (dummy; yes=1)				0,33 ** (0,1)											-0,35 ** (0,1)
Existence of an outstanding loan or mortgage for the accommodation (dummy; yes=1)			0,73 ** (0,21)												
Durables															
Possession of a car (dummy; yes=1)	1,35 ** (0,16)	0,97 ** (0,2)		0,4 ** (0,12)	0,92 ** (0,12)	1,05 ** (0,1)	0,83 ** (0,12)	0,77 ** (0,22)	1,54 ** (0,14)		0,3 ** (0,08)	0,76 ** (0,11)	1,13 ** (0,1)	1,02 ** (0,09)	
Company car or van (available for private use) (dummy; yes=1)		0,54 ** (0,15)			0,92 ** (0,14)							-0,91 ** (0,12)	-0,8 ** (0,13)		
Possession of a colour TV (dummy; yes=1)	-1,38 ** (0,27)	-0,81 ** (0,29)			-1,41 ** (0,16)		-1,04 ** (0,21)		-0,77 ** (0,2)	-1,98 ** (0,41)		-0,73 ** (0,21)	-1,02 ** (0,29)	-0,57 ** (0,2)	

Table 1 (continued): Model estimates of the probability of household income composition with prevailing share of wages and salaries.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Possession of VCR (dummy; yes=1)	0,92 ** (0,14)	0,95 ** (0,16)	0,75 ** (0,22)	0,75 ** (0,12)	0,81 ** (0,1)	0,56 ** (0,08)	0,7 ** (0,1)	0,81 ** (0,28)	0,77 ** (0,09)	0,89 ** (0,13)	0,74 ** (0,09)	0,64 ** (0,09)	0,86 ** (0,11)	0,72 ** (0,09)	1,04 ** (0,15)
Possession of micro wave (dummy; yes=1)					0,23 ** (0,08)						0,28 ** (0,08)		0,36 ** (0,08)		
Possession of dishwasher (dummy; yes=1)					-0,17 * (0,07)		-0,27 ** (0,1)	-0,3 * (0,14)	-0,14 * (0,07)				-0,17 * (0,08)		
Possession of a telephone (dummy; yes=1)		-0,58 * (0,26)	-2,53 ** (0,83)	-1,3 ** (0,27)	-1,3 ** (0,17)	-1,37 ** (0,23)						-0,63 ** (0,15)	-0,41 * (0,18)		-0,68 ** (0,22)
Possession of second home (dummy; yes=1)		-0,61 * (0,24)	-0,43 * (0,17)	-0,35 ** (0,1)	-0,41 ** (0,11)		-0,26 * (0,1)		-0,54 ** (0,1)		-0,48 * (0,19)	-0,38 ** (0,13)	-0,65 ** (0,09)		-1,01 ** (0,14)
Possession of a home computer (dummy; yes=1)	0,67 ** (0,11)	0,81 ** (0,12)	0,96 ** (0,17)	0,28 ** (0,1)		0,49 ** (0,07)	0,39 ** (0,11)	0,41 ** (0,14)	0,4 ** (0,07)	0,84 ** (0,11)	0,94 ** (0,07)		0,42 ** (0,08)	1,1 ** (0,07)	0,44 ** (0,08)
Children															
Children under 12 in the household (dummy; yes=1)	0,54 * (0,26)	0,88 ** (0,25)			0,52 ** (0,15)	0,34 * (0,17)	0,67 ** (0,09)		1,23 ** (0,13)	1,01 ** (0,25)	0,95 ** (0,15)	1,14 ** (0,12)			0,5 ** (0,15)
Children between 12 and 15 in the household (dummy; yes=1)														0,33 * (0,13)	

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Total	2644	2572	2281	3104	5345	5693	3918	1951	6052	2373	5008	4633	5132	5239	4841
Model Chi-Square	1179,06	1188,61	372,28	1231,81	1803,25	2050,10	1894,68	997,85	2417,61	870,12	1243,47	2000,62	2095,69	2076,85	1815,00
df	22	23	15	25	25	17	23	19	21	15	21	31	23	10	19
Sig.	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001
Cox & Snell R Square	0,36637	0,38410	0,22395	0,33084	0,28679	0,31235	0,38432	0,42514	0,33188	0,30824	0,22028	0,35226	0,33780	0,30731	0,32372
Nagelkerke R Square	0,48850	0,51213	0,29861	0,44112	0,38239	0,41647	0,51243	0,56685	0,44251	0,41099	0,29370	0,46968	0,45040	0,40975	0,43162

Notes:

The number in brackets is the S.E. of the unstandardized logit coefficient.

* is level of significance $p \leq 0,05$

** is level of significance $p \leq 0,01$.

Table 2: Model estimates of the probability of household income composition with prevailing share of social transfers.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Demographic information															
Household size	-0,48 ** (0,08)		-0,55 ** (0,1)	-1,17 ** (0,23)		-1,36 ** (0,16)	-1,61 ** (0,18)		-0,99 ** (0,2)			-0,77 ** (0,06)	-0,43 ** (0,04)		
Number of adults in the household (16 years or more)		-0,26 ** (0,08)		1 ** (0,25)	0,72 ** (0,27)		1,26 ** (0,19)	-0,65 ** (0,1)	0,55 ** (0,21)		-0,53 ** (0,06)				-1,12 ** (0,07)
Number of adults in the household (14 years or more)					-1,18 ** (0,26)	0,77 ** (0,18)				-0,43 ** (0,08)				-0,43 ** (0,06)	
Number of members moved out		-0,51 * (0,22)	-1,31 ** (0,28)									-0,52 ** (0,13)			-0,58 ** (0,13)
Number of members died		0,67 ** (0,23)	1,54 ** (0,28)		0,84 ** (0,23)				-0,67 ** (0,23)			0,69 ** (0,14)	-0,65 ** (0,22)		
Number of members moved in					-0,49 * (0,23)	-1,12 ** (0,35)					-0,34 ** (0,08)				
Number of members born				0,22 ** (0,07)		1,31 ** (0,35)	0,17 ** (0,06)		1,03 ** (0,23)					1,06 ** (0,24)	0,8 ** (0,14)
Financial situation															
Can the household afford keeping its home adequately warm (dummy; yes=1)					0,37 * (0,16)		0,31 * (0,12)		0,29 * (0,11)						
Can the household afford paying for holiday (dummy; yes=1)		-0,45 ** (0,16)			-0,49 ** (0,09)		-0,28 * (0,13)		-0,38 ** (0,1)		-0,64 ** (0,13)		-0,38 ** (0,1)		-0,55 ** (0,09)
Can the household afford replacing worn-out furniture (dummy; yes=1)				-0,37 ** (0,14)					-0,27 ** (0,1)						
Can the household afford buying new, rather than second-hand, clothes (dummy; yes=1)			-1,72 ** (0,28)	-0,6 ** (0,21)							-0,5 ** (0,14)				-0,45 ** (0,15)
Can the household afford eating meat or the like every second day (dummy; yes=1)		1,53 ** (0,37)		1,11 ** (0,26)					0,62 ** (0,18)			0,75 ** (0,22)			
Can the household afford having friends or family for drink/dinner (dummy; yes=1)		-0,93 ** (0,24)					-0,26 * (0,1)	-0,88 ** (0,29)	-0,51 ** (0,11)		-0,4 * (0,18)		-0,34 ** (0,13)		
Has the household been unable to pay scheduled rent for accommodation during the past 12 months (dummy; yes=1)		0,87 * (0,35)					-1 ** (0,36)				-0,8 ** (0,29)				-0,65 ** (0,19)

Table 2 (continued): Model estimates of the probability of household income composition with prevailing share of social transfers.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Has the household been unable to pay scheduled utility bills during the past 12 months (dummy; yes=1)							0,25 * (0,12)		-1,12 ** (0,29)			0,76 * (0,36)			
Money left for the household to save (considering household's income and expenses) (dummy; yes=1)		-0,65 ** (0,13)		-0,27 * (0,12)	-0,37 ** (0,08)	-0,19 * (0,07)	-0,55 ** (0,2)		-0,65 ** (0,11)		-0,22 * (0,09)		-0,5 ** (0,11)		-0,48 ** (0,09)
Lowest monthly income your household would have to have															-0,22 ** (0,04)
Household received non-cash assistance (dummy; yes=1)				1,91 ** (0,46)	1,01 ** (0,32)		1,95 * (0,99)	2,36 ** (0,18)							
Anyone in household inherit, receive gift or lottery winnings (dummy; yes=1)			-0,73 * (0,29)		-1,02 ** (0,33)	-1,62 ** (0,39)			-2,77 ** (0,89)		-0,51 * (0,2)				
Did you save significantly (1000 euro or more) from consuming food from own agriculture or gardening (dummy; yes=1)				-1,12 * (0,5)			-0,93 ** (0,14)	-2,65 ** (0,69)				-0,46 ** (0,13)			
Did you save significantly (1000 euro or more) from consuming other goods from own company (dummy; yes=1)	-0,84 * (0,4)	-1,45 * (0,64)			-2,04 ** (0,36)		-3,21 ** (0,93)						-1,55 ** (0,57)		
Did you save significantly (1000 euro or more) from home production repairs and maintenance; i.e. all kinds of do it yourself activities (dummy; yes=1)	-1,11 ** (0,21)	-0,31 * (0,15)	-0,83 ** (0,18)		-0,26 ** (0,1)				-1,15 ** (0,29)			-1,12 ** (0,3)			
Accommodation															
Does the dwelling have separate kitchen (dummy; yes=1)							0,69 ** (0,17)			0,92 ** (0,27)		0,9 ** (0,21)	1,53 ** (0,33)	0,78 ** (0,3)	0,99 ** (0,31)
Does the dwelling have bath or shower (dummy; yes=1)	-1,01 * (0,49)													-0,97 ** (0,29)	
Does the dwelling have indoor flushing toilet (dummy; yes=1)	1,44 ** (0,48)			-2,06 * (1,04)					2,49 ** (0,34)	1,41 ** (0,26)	2,06 ** (0,4)	0,6 ** (0,16)			
Does the dwelling have running water (dummy; yes=1)				2,77 ** (1,04)						-1,22 ** (0,27)					
Does the dwelling have heating or electric storage heaters (dummy; yes=1)							0,37 ** (0,13)					0,41 * (0,19)			
Does the dwelling have a place to sit outside (dummy; yes=1)			1,17 ** (0,21)	0,78 ** (0,18)						0,46 ** (0,17)	0,69 ** (0,23)			0,79 ** (0,12)	0,46 ** (0,16)

Table 2 (continued): Model estimates of the probability of household income composition with prevailing share of social transfers.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Does the accommodation have shortage of space (dummy; yes=1)	-0,67 ** (0,25)		-0,87 ** (0,21)	-0,78 ** (0,19)	-0,69 ** (0,15)	-0,67 ** (0,12)		-1,31 ** (0,5)			-0,94 ** (0,15)	0,4 ** (0,12)			
Does the accommodation have noise from neighbours or outside (dummy; yes=1)							-0,42 ** (0,14)				-0,24 ** (0,09)				
Is the accommodation too dark/not enough light (dummy; yes=1)									-0,47 ** (0,12)			0,47 ** (0,16)			
Does the accommodation have lack of adequate heating facilities (dummy; yes=1)							0,43 ** (0,13)								
Does the accommodation have leaky roof (dummy; yes=1)				1,06 * (0,51)											-1,1 ** (0,31)
Does the accommodation have damp walls, floors etc. (dummy; yes=1)											-0,53 ** (0,14)	0,33 ** (0,1)			-0,52 ** (0,18)
Does the accommodation have rot in window frames or floors (dummy; yes=1)											-0,48 ** (0,16)				
Is there any pollution caused by traffic or industry (dummy; yes=1)	0,83 ** (0,27)						0,32 * (0,15)	0,94 ** (0,35)							
Is there crime or vandalism in the area (dummy; yes=1)	0,55 * (0,26)								-0,78 * (0,31)					0,33 * (0,14)	
Durables															
Possession of a car (dummy; yes=1)	-1,05 ** (0,14)	-0,54 ** (0,15)	-0,64 ** (0,14)	-1,06 ** (0,12)	-0,92 ** (0,1)	-0,93 ** (0,08)	-0,71 ** (0,11)	-1,09 ** (0,19)	-1,06 ** (0,1)			-0,7 ** (0,12)	-0,98 ** (0,1)	-0,74 ** (0,08)	
Company car or van (available for private use) (dummy; yes=1)	-1,81 ** (0,5)	-2,49 ** (0,63)			-3,6 ** (1,07)					-3,75 ** (1,07)	-0,91 ** (0,31)	-1,41 ** (0,41)			
Possession of a colour TV (dummy; yes=1)	1,42 ** (0,31)	2,04 ** (0,34)		0,55 * (0,22)	1,91 ** (0,22)	0,95 ** (0,17)			1,17 ** (0,24)	1,19 ** (0,36)	0,65 * (0,3)	0,55 * (0,21)	1,25 ** (0,33)		1,13 ** (0,2)
Possession of VCR (dummy; yes=1)	-0,77 ** (0,13)	-0,5 ** (0,13)		-0,66 ** (0,11)	-0,44 ** (0,09)	-0,77 ** (0,08)	-0,55 ** (0,12)		-0,64 ** (0,09)	-0,75 ** (0,13)	-0,34 ** (0,09)	-0,71 ** (0,12)	-0,52 ** (0,1)	-1,09 ** (0,08)	-0,55 ** (0,11)
Possession of micro wave (dummy; yes=1)					-0,45 ** (0,08)						-0,29 ** (0,09)		-0,23 * (0,1)		
Possession of dishwasher (dummy; yes=1)		-0,3 * (0,14)							-0,5 * (0,25)			0,55 ** (0,17)	0,35 * (0,14)		-0,56 ** (0,14)
Possession of a telephone (dummy; yes=1)	0,88 ** (0,28)		2,35 ** (0,35)		0,58 ** (0,22)	1,47 ** (0,18)	1,14 ** (0,18)	-0,61 * (0,29)	0,36 * (0,17)						

Table 2 (continued): Model estimates of the probability of household income composition with prevailing share of social transfers.

	AUT	BEL	DNK	FIN	FRA	DEU	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	UK
Possession of second home (dummy; yes=1)	0,49 * (0,21)				0,37 ** (0,12)		0,3 * (0,13)				-1,16 ** (0,35)		0,33 * (0,13)	0,28 ** (0,09)	-1,26 ** (0,23)
Possession of a home computer (dummy; yes=1)	-1,65 ** (0,16)	-1,27 ** (0,15)		-1,22 ** (0,13)		-0,89 ** (0,09)	-1,48 ** (0,28)	-0,63 * (0,27)	-0,77 ** (0,12)	-1,25 ** (0,17)	-1,57 ** (0,09)	-1,22 ** (0,21)	-1,6 ** (0,17)	-1,58 ** (0,08)	-0,88 ** (0,11)
Children															
Children under 12 in the household (dummy; yes=1)	-1,38 ** (0,34)	-1,24 ** (0,23)			-1,3 ** (0,16)				-1,81 ** (0,35)	-2,04 ** (0,37)	-1,3 ** (0,16)	-1,28 ** (0,25)	-1,35 ** (0,2)	-0,82 ** (0,13)	-0,38 ** (0,14)
Total	2644	2572	2281	3104	5345	5693	3918	1951	6052	2373	5008	4633	5132	5239	4841
Model Chi-Square	1878,08	1645,97	1632,88	2142,94	3402,06	3341,23	2768,35	1631,73	4263,15	1659,12	3323,30	3890,54	4058,68	3080,93	3224,31
df	18	20	12	21	23	14	25	15	24	11	22	23	20	10	18
Sig.	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001
Cox & Snell R Square	0,51751	0,48429	0,51395	0,50088	0,47146	0,45005	0,50771	0,59278	0,51007	0,50536	0,48748	0,57023	0,54997	0,42008	0,50137
Nagelkerke R Square	0,69001	0,64572	0,68527	0,66784	0,62861	0,60007	0,67695	0,79038	0,68009	0,67381	0,64997	0,76030	0,73329	0,56011	0,66849

Notes:

The number in brackets is the S.E. of the unstandardized logit coefficient.

* is level of significance p ≤ 0,05

** is level of significance p ≤ 0,01.