LIS
Working Paper Series

No. 647

Levels and targeting of social benefits in global perspective: Combatting poverty through social policy

Tommy Ferrarini, Kenneth Nelson, and Joakim Palme

September 2015

Luxembourg Income Study (LIS), asbl

Levels and targeting of social benefits in global perspective: Combatting poverty through social policy.*

Authors: Tommy Ferrarini[1], Kenneth Nelson[1], Joakim Palme[2]

[1]Swedish Institute for Social Research, Stockholm University
[2]Department of Government, Uppsala University

Abstract: This study investigates an old question that has re-emerged in social policy-making and in analyses of global social development: to what extent does targeting and size of social transfers matter for poverty? Using multilevel logistic regression and LIS income data for 40 middle- and high-income countries, we show that the size of transfer income has greater explanatory value for cross-country differences in poverty than the degree of targeting of transfer income. The results are remarkably robust in terms of estimated individual-level and country-level compositional and confounding factors.

Introduction

After lingering in obscurity for decades, the role of social protection for poverty has risen on the global social development agenda. In 2009, the United Nations launched the Social Protection Floor initiative, promoting access to essential social services and income security for all people worldwide. In 2012, the World Bank adopted a new Social Protection and Labor Strategy for the coming ten years, calling for advancement of social transfer programs in low- and middle-income countries. Meanwhile several developing countries have set up national programs for income redistribution, some of them part of pilot projects involving aid-funding.

Although the debate about social protection in developing countries recently has been expanded beyond the potential merits of low-income targeting, to some extent now recognizing the role of universal benefits and social insurance programs covering also informal sectors (International Labour Organization, 2014; United Nations Development Programme, 2014), attention is still very much focused on the distributive profile of social protection (i.e. whether programs are targeted to low-income households or universally provided to all persons in relevant population groups). The actual size of transfer income is more seldom emphasized, and often even completely ignored. To give one telling example, the World Bank's (2012) strategy for social protection does not include a single section on the size of social transfers, whereas the concentration of benefits among the poor is more systematically discussed. We find this one-sided focus on distributive profiles of social protection somewhat disconcerting, not the least because findings on policy dynamics in affluent countries point to the relevance of more multidimensional perspectives on social protection.

The purpose of this study is to analyze the link between social protection and poverty in a global perspective. Our analysis bridges two research traditions that too often have been separated; comparative research on welfare states in affluent countries and research on social

protection and poverty in developing countries. To what extent does degree of low-income targeting and size of social transfer income matter for global poverty? Are findings from analyses of affluent countries still when the scope of investigation is widened globally? The empirical analysis in this study is based on new comparative household-level income data on 40 middle- and high-income countries around 2005. We apply logistic multilevel regression to evaluate the role of social protection for poverty in a global perspective.

We would from the outset like to emphasize that we are not opposed to targeting in social protection, quite the contrary. Well-designed targeted programs can certainly help many poor families, and both means- and income-tested benefits are essential elements of social protection in every welfare state. However, we believe that the discussion about possible linkages between social protection and global poverty too often has focused primarily on the distributive profile of transfer income. We will show the merits of a more multidimensional perspective on social protection, bringing the distribution as well as the size of transfer income into an integrated theoretical and empirical framework. Based on previous findings from research on affluent countries our working hypothesis is that the size of transfer income matters more for cross-country differences in global poverty than the concentration of benefits to the poor.

The study is outlined as follows. Next we review in closer detail the discussion about social protection and poverty in research on affluent countries, also making reference to research on global social development. In the subsequent sections we outline data and methodological considerations; present our empirical findings from multilevel regressions; and finally we round up the study with a concluding discussion.

Social Protection and Development

Social Protection Reform in Affluent Countries

The discussion about social protection and poverty is of old age in research on affluent countries, debating the pros and cons of different types of transfer programs. At the core of this discussion are two central principles in the design of social protection: targeting versus universalism.[1] It is here interesting to note that the universal social policies introduced in Western countries after the Second World War grew out of a social and economic critique of the malfunctioning poor laws (Briggs, 2006), which were heavily targeted towards citizens at the bottom of the income distribution. However, it took a few more decades before comparative research on affluent countries was able to empirically demonstrate the limitations of targeting for effective poverty reduction (Korpi and Palme, 1998; Kenworthy, 1999; Smeeding *et al*., 2001; Brady, 2005; Palme, 2006).[2]

Several affluent countries have introduced major reforms in social protection during the most recent decades, and frequently changes have occurred in the downward direction due to cutbacks in entitlement levels and harsher eligibility requirements, especially in major social insurance programs (Montanari *et al*., 2007). Meanwhile, emphasis has been placed on targeted programs (Bahle *et al*., 2010). The development of child benefits is one striking example, where several affluent countries either have replaced or complemented universal benefits with income-tested child tax credits (Ferrarini *et al*., 2012). Parallel to this reorganization of social protection, poverty and income inequality have increased in several affluent countries (OECD, 2008).

Maybe it is too early to speak of a grand shift in redistributive priorities, away from universal policy programs and social insurance schemes emerging with the expansion of social citizenship in the immediate post-war decades, towards more traditional forms of targeted responses to low income and poverty (Béland *et al*, 2014). Nonetheless, it is evident that means-tested benefit expenditure has increased dramatically since the 1980s. In the OECD-countries, means-tested benefit expenditure as a share of the Gross Domestic Product

(GDP) almost doubled between 1980 and 2000 (Nelson, 2008). In Europe, means-tested benefit expenditure has continued to grow after the new millennium in a number of countries; including Austria, Belgium, Denmark, Germany, Greece, Ireland, Italy, France, Luxembourg, the Netherlands, Portugal and Spain (Marx & Nelson, 2012). The rise of targeted social transfers in affluent countries may to some extent reflect the influence of neo-liberal political ideologies in policy making and the broader trend of re-commodification in social protection reform noted above (Huber & Stephens, 2001; Castles, 2004; Swank, 2005). Other potential drivers are changing demographic patterns, such as increased lone parenthood and the resurgence of mass-unemployment, particularly the persistently high long-term unemployment rates reappearing after the oil-shocks of the 1970s.

The emphasis on targeted policy responses is likely to continue growing in affluent countries, partly as a consequence of the global financial crisis beginning in 2008. During times of fiscal austerity, means-testing frequently becomes a guiding principle of social policy restructuring. The European development already provides several examples where countries have strengthened targeting in social protection, *inter alia* comprising measures directly aimed at relieving extreme levels of poverty. Quite often these policy changes have been framed in terms of improving the efficiency of social protection (Nelson, 2011).[3] One clear example is Portugal, where eligibility criteria and entitlement conditions of the main means-tested benefit (Rendimento social de inserção) were tightened in response to the global financial crisis. Although the exact consequences of these changes to social protection are uncertain, benefit expenditure and beneficiaries in Portugal were projected to decrease by half and one fifth, respectively (Rodrigues, 2011).

The distributive profile of social protection has also been addressed by the European Union (EU), recently by the Social Protection Committee (2011) in their assessment of the EU 2020 Growth Strategy, which is the steering wheel for European economic and social

integration over the period 2010-2020.[4] It replaced the previous Lisbon Strategy (effective between 1990 and 2000). Although the Social Protection Committee here recognizes that greater efforts are needed to increase efficiency of social protection, often by means of reinforced targeting of social transfers to the poor, member states are also encouraged to raise benefit levels in regions with weakly developed social protection. This latter aspect of EU social integration is important because it points to a growing awareness of mere targeting of social protection being insufficient for effective poverty alleviation – the size of transfer income has to be recognized as well.

When focus is shifted from the European context to developing countries, this multidimensional perspective on social protection – concerning both the concentration of benefits to the poor and the size of transfer income – tends to disappear. Most of the debate about social protection and poverty in developing countries concerns principles in policy designs related to the distributive profile of social transfers, disregarding the amount of money that actually is redistributed.

Social Protection Reform in Developing Countries

Targeting of social protection has often been the guiding principle of social reform in low- and middle-income countries, apparently influenced by the combination of dominant macro-economic doctrines and aid policies (Mkandawire, 2005). The perhaps most recognized set of programs in this context are the so-called conditional cash transfer schemes, above all extensive in Latin America. Conditional cash transfers are targeted to poor households that meet certain behavioral requirements, generally related to health care or education of dependent children. The scope of conditional cash transfer programs is sometimes substantial and one of the largest programs is in Brazil, where the *Bolsa Família* reaches roughly 11 million households (Soares *et al*., 2010).

Although some evidence indicates that conditional cash transfers are successful in terms of program enrollment and health care provision for the poor (Rawlings & Rubio, 2006), worries have been raised in connection with program coverage as well as failures to meet immediate needs and short-term poverty alleviation objectives. Many conditional cash transfer schemes still exclude large parts of the poor population and lack of coverage is particularly pronounced among elderly and families without young children. Moreover, benefit rates are often set very low, typically only enough to reduce the depth and not the incidence of poverty, perhaps with the exception of extreme poverty where evaluations point to some success (Handa & Davis, 2006).

The underlying economic arguments of targeting in the context of social protection in low- and middle-income countries are in several ways analogous to the ideas that have guided the re-structuring of welfare states in affluent countries, focusing on fiscal constraints and assuming negative consequences on economic growth of more comprehensive social protection programs. In terms of development aid, there has also been a shift in preferences from assisting developing countries towards helping poor people in these countries directly; changes that have entailed strong emphasis on targeted social transfer programs. For many donor countries and organizations it has for political reasons become necessary to demonstrate either that aid to a high degree actually reaches the poor (i.e. that it is efficient) or at least that aid is not harmful for economic growth. This one-sided focus on targeted transfers has now increasingly become questioned (Holmqvist, 2011).

The discussion about social protection and poverty in developing countries has recently been taken beyond the potential merits of targeting, recognizing also other principles in program designs. This broadening of the scope for social transfers is partly visible in the revised approach for social protection in developing countries recently adopted by the World Bank (2012), which for decades has been one of the main advocates of conditional cash

transfer schemes and other forms of targeted benefit programs. The World Bank was engaged in the policy-making processes preceding the setting up of conditional cash transfer schemes in Latin America, where they provided advice as well as technical and financial support, especially in the initial reform stages. They have also been active reforming minimum income benefits in South East Asia and in parts of Africa. Currently, the World Bank is organizing pilot programs for the strengthening of low income groups in Greece, which was severely hit by the global financial crisis.[5]

The World Bank now seems to recognize that additional measures may be needed to further promote global social development, although there certainly already has been some progress concerning reduction of extreme poverty. Since the 1980s both the incidence and depth of poverty has been reduced in some middle-income countries (Chen & Ravallion, 2010), meanwhile millions of extremely poor people have gained access to various types of targeted social transfers (Barrientos & Hulme, 2011). However, much less progress has been made in terms of reducing income inequalities, which remain stubbornly high particularly in Latin America, in part due to insufficiencies in social protection (Lopez & Perry, 2008; Goñi *et al*., 2011).

In the new strategy for social protection in developing countries, the World Bank seems to have adopted a more open attitude than previously; recognizing also the role of universal policy responses in social protection and to some extent acknowledging the need for comprehensive social insurance programs. However, the leading strategy is still focused on the distributive profile of social protection, with less attention devoted to the size of transfer income and the amount of money actually received by the poor. In fact, with the exception of a short subordinate clause in relation to old-age pensions, we do not find a single reference to neither benefit rates nor entitlement levels in the World Banks' recently adopted Social Protection and Labor Strategy. This general neglect of the size of transfer income is

unfortunate, particularly when it comes to understanding the link between social protection and poverty in global perspective.

Data and Methodological Considerations

Data

Comparative research on income distributions requires availability of high quality cross-national data. The Cross-National Data Center in Luxembourg (LIS) is an international research infrastructure that assembles national micro-level income datasets and harmonizes data to improve comparability between countries. Recently, great efforts have been made to include middle-income countries in LIS. For each country in LIS we have used data as close to 2005 as possible.[6] Each country data file includes a representative sample of national populations, ranging from around 2700 households in Belgium to 118000 households in Brazil.

In order to analyze the role of social protection for global poverty we have constructed two indicators from LIS data; one measuring the degree of targeting of transfer income and another measuring the size of transfer income. The LIS variable on social protection that we use is "Hits", including transfer income from an extensive set of contributory social insurance programs and non-contributory universal or means-tested benefit programs. Also near-cash benefits are included here, such as food stamps in the United States. The degree of targeting is measured using the common procedure in comparative research to calculate the concentration coefficient of transfer income (Korpi & Palme 1998; Kenworthy 2011). Here we follow suggestions by Fields (1979) and Kakwani (1986) and calculate the concentration of transfers in the income distribution when households are ranked according to factor income (LIS-variable "Factor"), including income from labor and capital. For ease of presentation, the degree of targeting is measured by multiplying the concentration coefficient of transfer

income by a factor of -1.0. The degree of targeting of transfer income ranges between values of -1 and +1. Positive values indicate that transfer income concentrates in the lower half of the income distribution, and that the degree of targeting is high. Negative values indicate that transfer income concentrates in the upper half of the income distribution, and consequently with lower degrees of targeting to the poor. Values close to zero suggest that transfer income is evenly distributed across the income distribution. The size of transfer income is measured as percentage of factor income, summed and averaged across all households in respective country.

In terms of possibilities for policy inference, the strategy to measure the concentration of transfers in the income distribution has some drawbacks not always acknowledged in the comparative social policy literature. One issue concerns the potential confusion of institutional structures and social risks, rendering inferences about policy design difficult to make. Even a universal program covering nearly every citizen may concentrate in the lower half of the income distribution simply because the benefit mainly is received by those with lower incomes. One example is Swedish sickness insurance, where earnings-related compensation is combined with nearly universal flat-rate basic benefits. Although most individuals qualify for payments, beneficiaries tend to be concentrated to the lower part of the income distribution due to higher risks for sickness among poorer households. It is thus problematic to draw direct conclusions about policy design solely based on the concentration of transfers in the income distribution.

Unfortunately, rule-based institutional data on major social transfer programs that are readily available for systematic comparative analysis do not exist for middle-income countries. We therefore need to rely on other strategies to improve possibilities for policy inference. One alternative approach is to restrict empirical analyses to population groups where risks for loss of market income are more equally distributed. An obvious candidate is

transfer income and poverty among elderly citizens. In parts of the empirical analysis we therefore restrict the number of observations and focus explicitly on elderly citizens. The size of transfer income among elderly is measured as percentage of factor income in total population, while the degree of targeting shows the concentration of transfer income among the elderly, after being ranked according to factor income.

A number of contextual factors may influence the association between transfer income and poverty. Among confounding variables at country-level we include GDP per capita in purchasing power adjusted US Dollars, using data from the World Bank. Due to wide differences in economic development between our countries we use the natural logarithm of GDP per capita. GDP-data for Taiwan is from the International Monetary Fund. The share of rural population is from the United Nations. Measures on total labor force participation and female labor force participation are from the International Labour Organization. We also include a dummy variable indicating whether a country is an OECD-member or not. All country-level variables refer to the same observation year used in LIS. Descriptives of country level variables are in appendix table A.

Equivalence scales

Household incomes have been standardized to reflect economies of scale according to household size using the so-called square root equivalence scale, nowadays the most commonly used scale in comparative research on income distributions. Equivalized incomes are used for our poverty measurements as well for our indicators on size and targeting of social transfers. According to the square root scale, household income is divided by the square root of household size (i.e. number of household members). However, because equivalized incomes of large families are particularly affected by the weights attached to different household members, it is often necessary to check robustness of results for alternative

assumptions (Buhmann *et al*., 1988). Such sensitivity analyses are particularly warranted in poverty measurements comprising middle-income countries, where fertility rates are higher and many families live in larger intergenerational households. In parts of the analysis we therefore use two established alternative equivalence scales assuming smaller economies of scale in households; the so-called old OECD-scale which assigns a value of 1 to the first household member, 0.7 to each additional adult and 0.5 to each child; and the modified OECD-scale, which also gives a value of 1 to the household head, but 0.5 and 0.3 to each additional adult and child, respectively.

Poverty measurements

Poverty is measured using three different nationally defined thresholds commonly used in comparative research: corresponding to 40, 50 and 60 percent of median equivalized disposable household income. Poverty counts are at the individual level, although income as such is measured at the household level. People falling below the poverty threshold are considered to be poor, relatively speaking. Although it may be justified to use more absolute approaches to poverty measurement - especially in low-income countries - such as the World Bank's $1.00-$2.50 a day poverty lines (Chen & Ravallion, 2010), we argue that the relative income thresholds used in this study provide poverty measurements that are both valid and relevant in a global assessment of policy impacts in middle- and high-income countries.

At higher income thresholds, the relative aspect of our measurements to greater extent links poverty to the issue of inequality in a broader sense, although with particular focus on economic well-being of people in lower parts of the income distribution. Such poverty measurements are highly relevant for several middle-income economies in transition. In 2007, for example, Chile, Estonia, Israel, Russia and Slovenia were invited for discussions about their possible OECD-membership, and enhanced engagement was offered to Brazil, China,

India and South Africa. Against the background of such transition processes it appears imperative to raise expectations on global social development and explicitly tie the issue of poverty to that of income inequality.

At lower income thresholds, the distinction between absolute and relative perspectives in poverty measurement is less obvious. While Sen (1983) argued that there is an absolute dimension in poverty analysis, for example, by referring to minimum levels of nutrition, shelter and clothing, Townsend (1985) stated that in practice most definitions of poverty are socially derived, and hence absolute and relative poverty measurements often overlap.[7] The relative income thresholds used in this study are no exceptions. According to LIS key figures, the 40 percent poverty threshold yields an income level of 1.25 international dollars per day in China, or 0.92 international dollars per day in India.[8] These income levels can be compared with the median poverty threshold for developing countries used by the World Bank, corresponding to two international dollars per day (Ravallion *et al*., 2009). Thus, at lower income thresholds, our analysis is more concerned with extreme poverty and severe states of destitution.

Statistical estimation strategy

Because our data include observations that are correlated within higher-level units, where individuals are tied to countries, we estimate a series of logistic multilevel regressions using the "xtmelogit" command in STATA. One potential problem of applying standard regression techniques based on such nested data is that standard errors of higher-level parameter estimates tend to be underestimated, thus increasing possibilities of Type I errors, where the null hypothesis of no association is rejected, while the lack of association is true.

As it is somewhat problematic to include a large set of contextual variables in multilevel regressions based on small group sizes (Meuleman & Billiet, 2009), the impact of transfer

income is estimated in three integrated steps. First, we estimate the association between transfer income and poverty while only controlling for compositional effects at individual level. Second, we assess the impact of transfer income after confounding adjustment at country-level. Here, country-level confounding variables are added to the regression models separately and one at a time. As a final test, we estimate full models including all confounding country-level variables.

Although we adjust for a number of reasonable contextual factors, the risk of bias caused by omitted country-level variables should not be neglected. Another issue of concern is unmeasured behavioral responses to social policy. Behavioral effects are difficult to estimate using cross-sectional data. Even if we adjust for compositional effects at individual level, results should therefore be interpreted cautiously.

Results

We begin the empirical examination by plotting the degree of targeting and size of transfer income against the poverty rate in each country using the three different income thresholds noted above. Figures 1a-f reveal substantial cross-national differences in relative income poverty. Poverty rates range between 2 and 20 percent when we use a poverty threshold corresponding to 40 percent of median equivalized disposable household income. At the 50 and 60 percent poverty thresholds, poverty rates vary between 5 and 25 percent as well as between 10 and 30 percent, respectively. Both the degree of targeting and the size of transfer income are negatively associated with poverty at country-level. Thus, the more transfer income is concentrated to the lower parts of the income distribution, and the higher the size of transfer income, the lower poverty rates tend to be.

(Figures 1a-f about here)

The bivariate associations between transfer income and poverty are slightly stronger for the degree of targeting, although the size of transfer income is more evenly clustered along the regression lines for all countries. The unexpectedly high level of social transfer income in Hungary and Poland is due to the comparatively high take-up of retirement benefits among working age families.[9] Due to this extraordinary distribution of old-age pensions, we have re-run all analyses excluding both Hungary and Poland, without any substantial changes in main results on policy impacts (see appendix table B).

The degree of targeting of transfer income is evidently skewed to the right hand side of the scatterplots as most countries score positive on this dimension. A few countries deviate from this general pattern, including China, Colombia, Estonia, Guatemala, India, Peru and Taiwan. The negative value on the degree of targeting shows that social protection is regressive in these countries, something that is likely to reflect their strong emphasis on employment based social protection in the context of relatively large informal economic sectors. In Latin America, for example, people in the upper half of the income distribution often qualify for contributory social insurance benefits of much higher quality than the targeted conditional cash transfer schemes that nowadays exist for parts of the work force outside formal employment (Skoufias et al., 2010). Although many of the poorer countries appear to form a distinct cluster, our results are fairly robust in terms of country composition. Most importantly, the negative bivariate associations between social transfer income and poverty appear also when analyses are separated by level of economic development (see the diagonal dashed lines in figures 1a-f above).

The descriptive analysis above makes no adjustment for compositional effects of individual-level variables, nor are country-level confounding factors taken into account. In order to provide a more formalized empirical test of our hypothesis, we will next perform a

series of multilevel regressions adjusting for compositional effects at individual level. Due to missing data for some countries in LIS, we are somewhat constrained in terms of individual-level variables that can be included in the analysis. Nonetheless it is possible to take into consideration a number of individual-level factors of relevance for the distribution of poverty risks, including the number of children in the household. Since multigenerational households are common in many middle-income countries, as well as in parts of Southern Europe, we also include the number of elderly household members. In addition we include age, educational attainment and employment status of the household head.[10] Descriptives of individual-level variables are in appendix table B.

Table 1 shows multilevel logistic regression models of poverty on the degree of targeting and size of transfer income. We estimate separate regressions models using the three poverty thresholds above. Although individual-level factors are not our primary focus they nevertheless motivate some discussion. All coefficients at individual-level are as expected. Number of children in households is positively associated with poverty, whereas households with elderly persons tend to have lower poverty risks. The latter result is most likely due to retirement pension income, which for many elderly is high enough to reduce poverty incidence. Single person households are more likely to be poor, whereas higher levels of educational attainment among household heads reduce poverty risks. Poverty risks are also lower when the household head is employed.

(Table 1 about here)

Next we move to our main country-level variables. Evidently, the size of transfer income is negatively associated with poverty in all regression models and effect size increases somewhat at lower poverty thresholds. Thus, the size of transfer income seems to be

particularly crucial for alleviating extreme poverty, measured as household incomes below the 40 percent threshold. Notably, the degree of targeting of transfer income is unrelated to poverty, no matter which poverty threshold that is analyzed.

Since the association between transfer income and poverty may be influenced by confounding contextual factors, Table 2a-c shows results from the inclusion of additional country-level variables. Analyses are once again conducted separately for each of the three poverty thresholds. All models include the full specification of individual-level variables (not shown). The size of transfer income retains its association with poverty, while the degree of targeting of transfer income still is statistically insignificant. In fact, the size of transfer income is the only country-level variable that at every income threshold is consistently linked to poverty (i.e. the association is statistically significant in the full regression model and in the restricted models including a smaller selection of country-level variables). Thus, adjustment for country-level confounders does not affect the statistically significant negative association between size of transfer income and poverty observed in the bivariate scatter plots above.

(Tables 2a-c about here)

Among confounding country-level variables, only economic development and size of rural populations are significantly related to poverty in parts of the empirical analyses. The coefficients of GDP per capita are negative and statistically significant only in the full regression models at lower poverty thresholds. The size of rural populations is consistently related to poverty at the 50-percent poverty threshold, whereas the association is statistically significant only in the full regression models when the 40-percent and 60-percent poverty thresholds are used. The negative association between rural populations and poverty is

somewhat surprising. However, it should be noted that several rich countries have extensive rural populations. In fact, among our countries, the share of rural populations is highest in Ireland. In addition, Germany, Luxembourg, Austria, Japan and France score above average on this dimension.

Since the choice of equivalence scale are likely to affect poverty measurements, Table 3 shows multilevel logistic regression models of poverty on various country-level factors using the two alternative equivalence scales above. Compared to the square root scale, the old and modified OECD-scales often increase poverty among families with children, whereas income positions of households with few members typically are improved. Coefficients of individual-level variables are not shown. Regardless of which equivalence scale we use, the association between size of transfer income and poverty is negative and statistically significant. Still, there is no association between the degree of targeting of transfer income and poverty.

The choice of equivalence scales affects the coefficients of some country-level confounders. One example is the coefficient of female labor force participation, which now is statistically significant at higher poverty thresholds. Quite unexpectedly, female labor force participation is positively associated with poverty in these models. However, effects associated with female labor force participation should be interpreted cautiously as they only appear when the total labor force participation rate is included in the same regression model. When effects of female labor force participation is estimated individually in a separate regression model, the coefficient is no longer statistically significant.[11]

(Table 3 about here)

The systematic absence of an association between the degree of targeting of transfer income and poverty in the multivariate regression analyses is somewhat surprising, not the

least in perspective of the often strong emphasis on target efficiency nowadays characterizing

public debates about social protection and poverty in developed and developing countries

alike. As discussed previously, the concentration of transfers in the income distribution is a

function of institutional structures and social risks. Preferably, we would like to hold one of

these factors constant in the empirical analysis and thereby facilitate more relevant policy

conclusions. In absence of comparative rule-based data on social transfers, we will next

analyze the association between transfer income and poverty among elderly citizens. It is here

reasonable to assume that risks of losses in market income are more evenly distributed than in

total population.

Table 4 shows multilevel logistic regression models of poverty on various country-level

determinants in the elderly population. Although legal retirement ages differ somewhat across

countries and sometimes also between men and women within countries, we restrict the

analysis to households headed by persons aged 65 and over.[12] Also here we include the full

set of individual-level variables (not shown). Results are not remarkably different to those

obtained analyzing total populations above. The size of transfer income is negatively

associated with poverty among the elderly, while the degree of targeting still is non-

significant. Among confounding country-level variables, only the size of rural populations are

statistically linked to old-age poverty at all poverty thresholds. Although it is problematic to

straightforwardly compare regression estimates across non-nested models, it is obvious that

the coefficients associated with the size of transfer income increase dramatically when

analyses are restricted to the elderly. The strong effect of the size of transfer income among

the elderly is of course due to the structure of retirement benefits, which contributes

substantially to disposable income in this population category.

(Table 4 about here)

Discussion

This study has dealt with an old issue that yet again has surfaced in social policy-making and social policy analysis alike: to what extent does targeting and size of social transfers matter for global poverty? These issues have recently been accentuated by key international organizations as they have reorganized their social protection strategies for developing countries. Although scholars, policy makers and stakeholders nowadays appear to recognize that effective redistribution and low levels of global poverty and inequality requires a broad set of transfer programs, the debate is still very much focused on the distributive profile of transfer income and low-income targeting in the design of social protection.

In this study we have argued for a multidimensional perspective on social protection that takes into consideration not only the degree of targeting but also the very size of transfer income. Based on new micro-level income data from LIS for 40 countries we have been able to address the extent to which these two policy dimensions are associated with poverty in both middle-income and affluent countries. The results show that the size of transfer income is more decisive for global poverty than the degree of targeting. In countries where size of transfer income is higher, poverty risks tend to be lower, in total population as well as among the elderly. Thus, targeting may not necessarily be the most central policy feature in the design of social protection if our aim is to achieve low poverty rates on a global scale – another essential factor is the very size of transfer income. Our results are remarkably robust in terms of estimated compositional effects at individual-level and confounding effects at country-level.

The results of this study provide additional input to the global social development discourse, where issues of efficiency still mark policy debates. The effectiveness of social protection to actually reduce poverty risks is emphasized in our approach, somehow at the

expense of the often one-eyed focus on targeted benefits. Targeted approaches to social protection are of course preferable if the volume of resources available for redistribution is determined exogenously, which is commonly assumed in research and public debates about social protection and global social development. In the longer perspective, however, the size of transfer income is far from predetermined by government fiscal capacity, but influenced by the overall organization of social protection and consequent interest coalitions that are built up in society. Inclusion of wider population groups in non-targeted programs may here increase political goodwill to raise benefits further up the income scale, meanwhile reducing poverty traps and supporting labor force participation. Thus, there is not necessarily a simple trade-off between efficiency and effectiveness in the design of social protection. Quite the contrary, among affluent countries it is actually possible to identify positive-sum solutions where the provision of social protection to those above the poverty line strengthen political and financial possibilities to provide generous income transfers also to the poor (Nelson, 2006).

The extent to which processes of this kind are operating in a wider global context remains unclear. A thorough investigation of the political economy of social reform in a global perspective has been beyond this study as it would require an analysis of interdependencies in the components of social protection using institutional social policy data, potentially also addressing complementing drivers, such as the organization of political systems, the composition of electorates and convergence pressures caused by globalization. Hitherto, analyses on social protection and poverty in the global perspective have been carried out using micro-level income data, providing rough evidence on effects of different policy designs. One of the most troubling aspects here is the confusion of rule-based structures and social risks. We aimed to address this problem by restricting parts of the empirical analyses to the elderly population. Another viable approach is to use institutional data that in greater detail describes the actual content and quality of social protection programs in terms of

eligibility criteria, entitlement levels and financing principles (Ferrarini *et al.* 2013). We thus need to make further investments in research infrastructures and begin collecting accurate rule-based comparative policy data, particularly among low- and middle-income countries where policy structures are less investigated. In terms of data availability, some progress has been made particularly concerning Latin American countries, although efforts mainly have been made in terms of narrowly defined program areas (Barrientos *et al*., 2005; Esser *et al*., 2009) or expenditures (Huber *et al*., 2008).

We do not deny the great challenges of collecting institutional policy data accruing to low- and middle-income countries. When the rule-based and institutional perspective on social protection is shifted from affluent countries to developing contexts, we need to take a wider set of issues into account. Insufficiencies in governance structures, financing and implementation are only a few examples of policy factors that need to be analyzed in addition to the rules as such. The role of informal economic sectors, agricultural structures, aid policies and local social networks are other important candidates that need to be considered (Wood & Gough, 2006). However, despite the quite substantial research challenges that lie ahead, we believe that the results of this study underscore the fruitfulness of large-scale comparative approaches in research on global social development and poverty, integrating wider cross-national contexts and separating central dimensions of social transfer programs.

In the continued efforts of expanding comparative research on global social development we have demonstrated that it is essential not to confine discussions to targeting of social transfers and the distributive profile of social protection – it appears equally, if not more, important to consider the very size of transfer income, particularly when it comes to explaining cross-national differences in poverty among middle- and high-income countries. It is here imperative to continue investigating the link between social protection and global poverty, analyzing the extent to which our findings apply when extending the study further to

low-income contexts. However, this would require access to comparative micro-level income data also for the world's poorest regions, including parts of Sub-Saharan Africa and South-East Asia.

Notes

[1] Targeting and universalism are ambiguous concepts that are often used in social policy research to distinguish between different forms of social protection. In this paper, like in most comparative studies on social protection in affluent countries, targeting refers to principles in program design that make benefits concentrate among poor people, for example, by using means-testing in order to asses eligibility. Universal benefits do not share this property because eligibility here is established without consideration to family income. Besides the distinction between targeted and universal benefits, it is common to differentiate also between contributory and non-contributory benefits. Means-tested and universal benefits are typically non-contributory and financed out of general tax revenue. The main form of contributory benefits is social insurance, where eligibility often is based on contributions paid by beneficiaries or paid on behalf of beneficiaries, for example, by employers.

[2] The ineffectiveness of targeted programs to reduce poverty and increase well-being among citizens is due to a multitude of factors. Incomplete coverage, stigma imposed on beneficiaries and benefit non-take-up are a few examples (Figari *et al*., 2012). Others are perverse incentive effects and creation of poverty traps (van Oorschot, 2002). A further reason is of course benefit rates, which often cover only a modicum of basic needs. It is here illustrative to note that almost all last-resort safety nets in Europe fail to provide benefits that are high enough to lift households above the so-called EU at-risk-of poverty threshold (Nelson, 2013). The EU at-risk-of poverty threshold is 60 percent of median equivalized household income.

[3] One important criterion for evaluating efficiency is the degree to which transfer income goes to those below the poverty line (Beckerman, 1979).

[4] The Social Protection Committee is responsible for cooperative exchange between Member States and the European Commission in areas of social protection and inclusion.

[5] Greece is one of two countries in the EU where national frameworks for last resort safety nets are absent.

[6] Following countries are included in the empirical analysis, with observation year within parenthesis: Australia (2003), Austria (2004), Belgium (2000), Brazil (2006), Canada (2004), China (2002), Colombia (2004), the Czech Republic (2004), Denmark (2004), Estonia (2004), Finland (2004), France (2004), Germany (2007), Greece (2004), Guatemala (2006), Hungary (2005), India (2004), Ireland (2004), Israel (2005), Italy (2004), Japan (2008), Luxembourg (2004), Mexico (2004), the Netherlands (2004), Norway (2004), Peru (2004), Poland (2004), Romania (1997), Russia (2004), the Slovak Republic (2004), Slovenia (2004), South Africa (2008), South Korea (2006), Spain (2004), Sweden (2005), Switzerland (2004), Taiwan (2005), the United Kingdom (2004), the United States (2004), and Uruguay (2004).

[7] It is beyond this study to analyse the multifaceted nature of poverty. Although our focus is on income poverty, we note that individual vulnerabilities may vary extensively across countries in a global perspective.

[8] LIS key figures are available online at http://www.lisdatacenter.org/data-access/key-figures/.

[9] The public pension system in Hungary and Poland used to provide several options for early retirement, which are now being phased out or post-boned. However, still effective retirement ages in Hungary and Poland is clearly lower than the OECD average (OECD, 2013).

[10] Educational attainment of the household head distinguishes between three categories based on the International Standard Classification of Education from UNESCO (ISCED97). Low

education, less than secondary education completed; medium education, secondary education completed; high education, tertiary education completed.

[11] This analysis is not shown in the table, but can be obtain from the corresponding author.

[12] The legal retirement age is a rather fuzzy concept as it in some countries refers to the age at which people are either expected or required to cease work. In other countries it may refer to the age at which people are entitled to receive old age benefits. The legal retirement age often differs from the effective retirement age (i.e. the age at which people actually cease work).

References

Bahle Tohmas, Michaela Pfeifer, and Claus Wendt. 2010. "Social Assistance." In *The Oxford handbook of the welfare state* edited by Francis G. Castles, Stephan Leibfried, Jane Lewis, Herbert Obinger, and Christopher Pierson, 448-461. Oxford: Oxford University Press.

Barrientos Armando, and David Hulme. 2009. "Social Protection for the Poor and the Poorest in Developing Countries: Reflections on a Quiet Revolution." *Oxford Development Studies* 37(4): 439-456.

Barrientos Armando, Miguel Niño-Zarazúa, and Mathilde Maitrot. 2010. *Social Assistance in Developing Countries Database, Version 5.0 July 2010*. Brooks World Poverty Institute Working Paper: University of Manchester.

Béland Daniel, Paula Blomqvist, Jørgen Goul Andersen, and Joakim Palme, Alex Waddan. 2014. "The Universal Decline of Universality? Social Policy Change in Canada, Denmark, Sweden, and the United Kingdom." *Social Policy & Administration* (In press).

Brady David. 2005. "The Welfare State and Relative Poverty in Rich Western Democracies, 1967–1997." *Social Forces* 83(4): 1329-1364.

Brady David, and Rebekah Burroway. 2012. "Targeting, Universalism, and Single-Mother Poverty: A Multilevel Analysis Across 18 Affluent Democracies." *Demography* 49(2):719-746.

Briggs Asa. 2006. "The Welfare State in Historical Perspective." In *The Welfare State Reader* edited by Paul Pierson and Francis G. Castles. Cambridge: Polity Press.

Buhmann Brigitte, Lee Rainwater, Guenther Schmaus, and Timothy Smeeding. 1988. "Equivalence scales, well-being, inequality, and poverty: sensitivity estimates across ten countries using the Luxembourg Income Study (LIS) data base." *Review of Income and Wealth* 2: 115–142.

Francis G. Castles. 2004. *The Future of the Welfare State*. Oxford: Oxford University Press.

Chen Shaohua, and Martin Ravallion. 2010. "*The Developing World is Poorer than We Thought, But No Less Successful in the Fight Against Poverty*." *The Quarterly Journal of Economics* 125(4): 1577-1625.

Esser Ingrid, Tommy Ferrarini, Kenneth Nelson, and Ola Sjöberg. 2009. "A Framework for Comparing Social Protection in Developing Countries with the Example of Child Benefits." *International Social Security Review* 62(1):91-115.

Ferrarini Tommy, Kenneth Nelson, and Helena Höög. 2012. "From Universalism to Selectivity. Old wine in New Bottles for Child Benefits." In *Minimum Income Protection in Flux* edited by Ive Marx and Kenneth Nelson, 137-160. HoundMills: Palgrave MacMillan.

Ferrarini, Tommy., Nelson, Kenneth., Korpi, Walter., Palme, Joakim. 2013. Social citizenship rights and social insurance replacement rate validity: pitfalls and possibilities. *Journal of European Public Policy* 20: 1251-1266.

Fields Gary. S. 1979. "Decomposing LDC-Inequality. " *Oxford Economic Papers* 31: 437-61.

Figari Francesco, Manos Matsaganis and Holly Sutherland. 2013. "Are European Social Safety Nets Tight Enough? Coverage and Adequacy of Minimum Income Schemes in 14 EU Countries. " *International Journal of Social Welfare* 22(1) : 3-14.

Goñi Edwin, Humberto López, and Luis Servén. 2011. "Fiscal Redistribution and Income Inequality in Latin America. " *World Development* 39(9): 1558-1569.

Handa Sudhanshu, and Benjamin Davis. 2006. "The Experience of Conditional Cash Transfers in Latin America and the Caribbean." *Development Policy Review* 24(5): 513-536.

Holmqvist Göran. 2011. "*Perspectives on Inequality and Social Protection.*" Doctoral Thesis. Göteborg: University of Gothenburg.

Huber Evenlyn, and John D. Stephens. 2001. *Development and Crisis of the Welfare State. Parties and Policies in Global Markets*. Chicago: The University of Chicago Press.

Huber Evelyn, John D. Stephens, Thomas Mustillo, and Jennifer Pribble. 2008. *Social Policy in Latin America and the Caribbean Dataset, 1960–2006*. University of North Carolina. http://www.unc.edu/jdsteph/common/data-common.html.

International Labour Organization. 2014. *World Social Protection Report 2014/15 Building economic recovery, inclusive development and social justice*. Geneva: International Labour Office.

Kakwani Nanak. 1986. *Analyzing Redistribution Politics*. Oxford: Oxford University Press.

Kenworthy Lane. 1999. "Do Social Welfare Policies Reduce Poverty? A Cross-National Assessment." *Social Forces* 77(3): 1119–1140.

Kenworthy Lane. 2011. *Progress for the Poor*. Oxford: Oxford University Press.

Korpi Walter, and Joakim Palme. 1998. "The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality and Poverty in the Western Countries." *American Sociological Review* 63: 661–87.

Lopez J. Humberto, and Guillermo Perry. 2008. *Inequality in Latin America: Determinants and Consequences*. Policy Research Working Paper No. 4504: World Bank.

Luxembourg Income Study (LIS) Database, http://www.lisdatacenter.org (multiple countries; {micro level data runs initiated 2013-01 and completed 2015-01). Luxembourg: LIS.

Marx Ive, and Kenneth Nelson. 2012. "A New Dawn for Minimum Income Protection in Europe?" In *Minimum Income Protection in Flux* edited by Ive Marx, and Kenneth Nelson, , 1-27. HoundMills: Palgrave MacMillan.

Meuleman Bart and Jaak Billiet. 2009. "A Monte Carlo Sample Size Study: How Many Countries Are Needed for Accurate Multilevel SEM?" *Survey Research Methods* 3(1): 45–58.

Mkandawire Thandika. 2005. *Targeting and Universalism in Poverty Reduction*. Social Policy and Development Programme, Paper No. 23. Geneva: UNRISD.

Montanari Ingalill, Kenneth Nelson, and Joakim Palme. 2007. "Convergence Pressures and Responses: Recent Social Insurance Developments in Modern Welfare States". *Comparative Sociology* 6(3): 295-323.

Nelson Kenneth. 2006. "The last resort: Determinants of generosity of means-tested minimum income protection in welfare democracies." In *Welfare Politics Cross-examined: eclecticist analytical perspectives on Sweden and the developed world, from the 1880s to the 2000s* edited by Eero Carroll and Lena Eriksson. Amsterdam: Aksant.

Nelson Kenneth. 2008. "Minimum Income Protection and European Integration: Trends and Levels of Minimum Benefits in Comparative Perspective 1990–2005." *International Journal of Health Services* 38(1): 103-124.

Nelson Kenneth. 2011. *Improving the efficiency of social protection*. Synthesis Report. DG Employment, Social Affairs and Inclusion. Brussels: European Commission.

OECD. 2008. *Growing Unequal? Income Distribution and Poverty in OECD Countries*. Paris: OECD.

OECD. 2013. *Pensions at a Glance 2013: Retirement-Income Systems in OECD and G20 Countries*. Paris: OECD.

Palme Joakim. 2006. "Welfare states and inequality: Institutional designs and distributive outcome." *Research in Social Stratification and Mobility* 24(4): 387–403

Ravallion Martin, Shaohua Chen, and Prem Sangraula. 2009. "Dollar a Day Revisited." *World Bank Economic Review* 23(2): 163-184.

Rawlings Laura. B., and Gloria M. Rubio. 2005. "Evaluating the Impact of Conditional Cash Transfer Programs." *World Bank Research Observer* 20(1): 29-55.

Rodrigues Carlos F. 2011. *Minimum income in Portugal: changing the rules in times of crisis*. Host country independent expert paper. DG Employment, Social Affairs and Inclusion. Brussels: European Commission.

Sen Amartya. 1983. "Poor, relatively speaking." *Oxford Economic Papers* 35: 135–169.

Skoufias Emmanuel, Kathy Lindert, and Joseph Shapiro. 2010. "Globalization and the Role of Public Transfers in Redistributing Income in Latin America and the Caribbean." *World Development* 38(6): 895-907.

Smeeding Timothy. M., Lee Rainwater, and Gary Burtless. 2001. "U.S. Poverty in Cross-national Context." In *Understanding Poverty* edited by Sheldon H. Danziger, and Richard H. Haveman, 162-192. Cambridge, MA: Harvard University Press.

Social Protection Committee. 2011. *SPC Assessment of the social dimension of the Europe 2020 Strategy – Full report*. Brussels: European Council.

Soares Fabio V., Rafael P. Ribas, and Rafael G. Osório. 2010. "Evaluation the Impact of Brazil's Bolsa Família: Cash Transfer Programs in Comparative Perspective." *Latin American Research Review* 45(2): 173-190.

Swank Duane. 2005. "Globalisation, Domestic Politics, and Welfare State Retrenchment in Capitalist Democracies." *Social Policy & Society* 4(2): 183-195.

Townsend Peter. 1985. "A sociological approach to the measurement of poverty: a rejoinder to Professor Amartya Sen." *Oxford Economic Papers* 37: 659–668.

United Nations Development Programme. 2014. *Human Development Report 2014 Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience*. New York: United Nations Development Programme.

Wood Geoffrey D., and Ian Gough. 2006. "A comparative welfare regime approach to global social policy." *World Development* 34(10): 1696-1712.

Van Oorschot Wim. 2002. "Targeting welfare: on the functions and dysfunctions of means-testing in social policy." In *World poverty: new policies to defeat an old enemy* edited by Peter Townsend and David Gordon. Bristol: The Policy Press.

World Bank. 2012. *Resilience, Equity, and Opportunity. The World Bank's Social Protection and Labor Strategy 2012–2022*. New York: World Bank.

World Bank. 2014. *World Development Report 2014: Risk and Opportunity. Managing Risk for Development*. New York: World Bank.

Table 1. Multilevel Logistic Regression Models of Poverty on Degree of Targeting and Size of Transfer income

Model	I	II	III
Poverty threshold	40%	50%	60%
Individual-level variables			
No. children	0.087**	0.090**	0.092**
	(0.002)	(0.002)	(0.001)
No. elderly	-0.310**	-0.318**	-0.341**
	(0.009)	(0.007)	(0.007)
Single person	0.162**	0.173**	0.193**
	(0.010)	(0.009)	(0.008)
Age	-0.004**	-0.004**	-0.004**
	(0.000)	(0.000)	(0.000)
Medium education	-1.171**	-1.135**	-1.106**
	(0.013)	(0.011)	(0.010)
High education	-2.048**	-2.062**	-2.065**
	(0.025)	(0.019)	(0.016)
Employed	-0.189**	-0.234**	-0.272**
	(0.008)	(0.007)	(0.006)
Country-level variables			
Size of transfer income	-2.095*	-1.914*	-1.636*
	(0.991)	(0.809)	(0.673)
Targeting of transfer income	-0.421	0.222	0.934
	(0.720)	(0.588)	(0.490)
No. obs.	634280	634280	634280
No. countries	40	40	40

Note: Standard errors within parentheses. Constant is not shown. No. obs, number of observations; No. countries, number of countries.
* $p<0.05$ ** $p<0.01$

Table 2a-c. Multilevel Logistic Regression Models of Poverty on Various Country Level Determinants

a) 40% poverty threshold

Model	I	II	III	IV	V	VI	VII
Country-level variables							
Size of transfer income	-2.184**	-2.118*	-2.187*	-2.103*	-1.944*	-2.552*	-3.002**
	(0.961)	(1.014)	(1.054)	(0.995)	(0.988)	(1.055)	(1.086)
Targeting of transfer income	0.825	-0.463	-0.441	-0.415	-0.770	-0.533	0.004
	(1.031)	(0.819)	(0.724)	(0.724)	(0.783)	(0.716)	(1.024)
Ln(GDP) per capita	-0.324						-0.512*
	(0.198)						(0.247)
OECD		0.029					0.298
		(0.267)					(0.266)
Tot labforce part			-0.501				1.711
			(1.946)				(6.271)
Female labforce part				-.1164			2.235
				(1.399)			(3.003)
Rural population					-0.814		-1.718*
					(0.770)		(0.748)
Employment rate						-2.001	-5.739
						(1.756)	(3.925)
No. obs.	634280	634280	634280	634280	634280	634280	634280
No. countries	40	40	40	40	40	40	40

b) 50% poverty threshold

Model	I	II	III	IV	V	VI	VII
Country-level variables							
Size of transfer income	-1.945*	-1.995*	-2.052*	-1.911*	-1.692*	-2.222**	-2.826**
	(0.806)	(0.827)	(0.860)	(0.813)	(0.783)	(0.867)	(0.886)
Targeting of transfer income	0.670	0.074	0.192	0.220	-0.285	0.146	0.148
	(0.863)	(0.668)	(0.590)	(0.592)	(0.621)	(0.588)	(0.835)
Ln(GDP) per capita	-0.117						-0.397*
	(0.165)						(0.201)
OECD		0.101					0.268
		(0.217)					(0.216)
Tot labforce part.			-0.747				-3.149
			(1.588)				(5.131)
Female labforce part				0.037			3.539
				(1.143)			(2.456)
Rural population					-1.185*		-1.742**
					(0.609)		(0.609)
Employment rate						-1.354	-2.534
						(1.443)	(3.208)
No. obs.	634280	634280	634280	634280	634280	634280	634280
No. countries	40	40	40	40	40	40	40

c) 60% poverty threshold

Model	I	II	III	IV	V	VI	VII
Country-level variables							
Size of transfer income	-1.638*	-1.726**	-1.729*	-1.619*	-1.438*	-1.821**	-2.372**
	(0.674)	(0.686)	(0.716)	(0.676)	(0.647)	(0.725)	(0.752)
Targeting of transfer income	0.969	0.773	0.915	0.921	0.482	0.889	0.569
	(0.724)	(0.554)	(0.491)	(0.492)	(0.513)	(0.492)	(0.710)
Ln(GDP) per capita	-0.009						-0.240
	(0.139)						(0.171)
OECD		0.111					0.207
		(0.181)					(0.184)
Tot labforce part			-0.502				-3.279
			(1.324)				(4.347)
Female labforce part				0.239			3.334
				(0.952)			(2.087)
Rural population					-1.057		-1.352**
					(0.504)		(0.517)
Employment rate						-0.810	-1.671
						(1.209)	(2.723)
No. obs.	634280	634280	634280	634280	634280	634280	634280
No. countries	40	40	40	40	40	40	40

Note: Standard errors within parentheses. Includes full specification of individual level effects. Constant is not shown. No. obs, number of observations; No. countries, number of countries; Female labforce part, female labour force participation rate; Tot labforce part, total labour force participation rate.
* $p<0.05$ ** $p<0.01$

Table 3. Multilevel Logistic Regression Models of Poverty on Various Country Level Determinants Using Alternative Equivalence Scales

Model	I	II	III	IV	V	VI
Poverty threshold	40%	50%	60%	40%	50%	60%
Equivalence scale	Modified OECD	Modified OECD	Modified OECD	Old OECD	Old OECD	Old OECD
Country-level variables						
Size of transfer income	-3.081**	-2.645**	-2.023**	-2.908**	-2.047*	-1.815**
	(1.102)	(0.908)	(0.756)	(1.071)	(0.863)	(0.738)
Targeting of transf.inc.	-0.103	0.111	0.759	0.016	0.288	0.840
	(1.040)	(0.858)	(0.715)	(1.010)	(0.816)	(0.697)
Ln(GDP) per capita	-0.582*	-0.418*	-0.314	-0.566*	-0.376	-0.267
	(0.251)	(0.207)	(0.172)	(0.243)	(0.196)	(0.168)
OECD	0.355	0.250	0.189	0.328	0.192	0.195
	(0.271)	(0.222)	(0.185)	(0.263)	(0.212)	(0.180)
Tot labforce part	0.282	-4.327	-5.506	-0.917	-5.619	-6.936
	(6.377)	(5.279)	(4.361)	(6.187)	(5.003)	(4.263)
Female labforce part.	3.517	4.605	4.437*	4.051	5.031*	5.060**
	(3.051)	(2.527)	(2.096)	(2.964)	(2.400)	(2.050)
Rural population	-1.780*	-1.524*	-1.325**	-1.923**	-1.290*	-1.131*
	(0.761)	(0.625)	(0.520)	(0.738)	(0.594)	(0.508)
Employment rate	-5.567	-2.604	-0.259	-5.100	-1.480	0.607
	(3.992)	(3.297)	(2.736)	(3.876)	(3.128)	(2.669)
No. obs.	634280	634280	634280	634280	634280	634280
No. countries	40	40	40	40	40	40

Note: Standard errors within parentheses. Includes full specification of individual level effects. Constant is not shown. For variable labels, see tables 2a-c.
* $p<0.05$; ** $p<0.01$

Table 4. Multilevel Logistic Regression Models of Poverty on Various Country Level Determinants in Elderly Population (65 Years and above) at Different Income Thresholds

Model	IV	V	VI
Poverty threshold	40%	50%	60%
Country Level variables			
Size of transfer income	-5.450**	-5.465**	-6.195**
	(1.666)	(1.613)	(1.620)
Targeting of transfer income	1.733	0.730	1.059
	(1.054)	(0.941)	(0.937)
Ln(GDP) per capita	-1.004*	-0.620	-0.595
	(0.428)	(0.395)	(0.388)
OECD	0.647	0.544	0.643
	(0.450)	(0.443)	(0.436)
Tot labforce part	-6.466	-8.404	-6.980
	(10.694)	(10.419)	(10.414)
Female labforce part	1.448	1.908	2.808
	(4.399)	(4.362)	(4.421)
Rural population	-3.091*	-3.147**	-2.732*
	(1.271)	(1.193)	(1.173)
Employment rate	4.868	4.966	1.589
	(6.252)	(6.193)	(6.173)
No. obs.	21164	21164	21164
No. countries	41	41	41

Note: Standard errors within parentheses. Includes full specification of individual level effects, except for number of elderly in the household. Constant is not shown. For variable labels, see tables 2a-c.
* $p<0.05$; ** $p<0.01$

Figure 1a-f. Degree of targeting, size of transfer income and poverty in 40 countries

a) 40 percent income threshold

b) 40 percent income threshold

c) 50 percent income threshold

d) 50 percent income threshold

e) 60 percent income threshold

f) 60 percent income threshold

——————— All countries

- - - - - - - High-income countries

·················· Low-income country
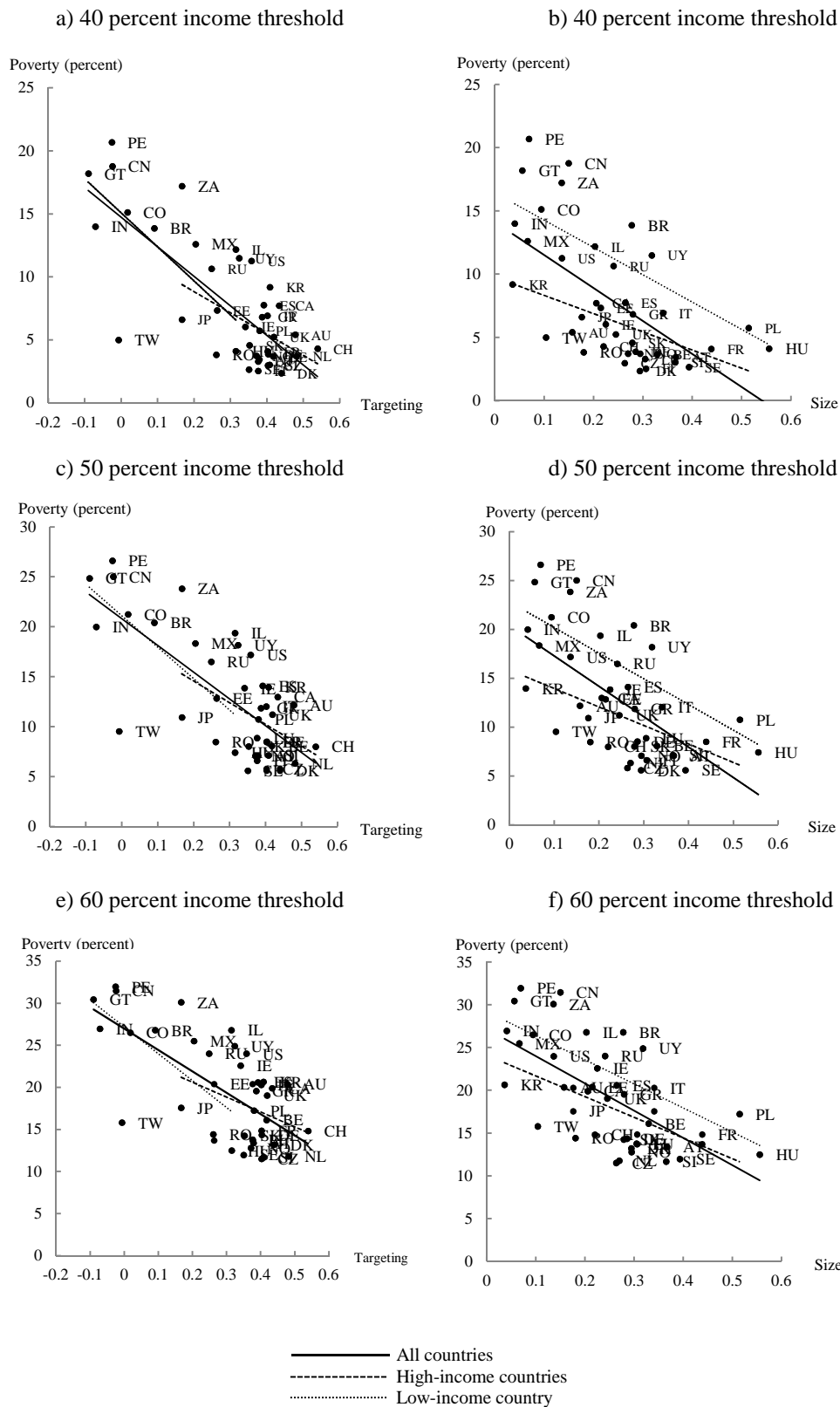
Note: The categorization of countries by region and income is from the World Bank (2014).

Source: Luxembourg Income Study, OECD.Statextract.

Appendix Table A. Descriptives of individual-level and country-level confounding variables

Country	Mean values							Absolute values					
	No. children	No. elderly	Single person	Age	Medium education	High education	Employed	Ln(GDP)	OECD	Tot labforce part	Female labforce part	Rural pop	Empl rate
AU	0.71	0.28	0.27	41.74	0.09	0.82	0.61	10.34	1	0.64	0.56	0.12	0.60
AT	2.04	0.11	0.07	34.54	0.63	0.20	0.70	10.41	1	0.58	0.50	0.34	0.55
BE	2.20	0.02	0.06	33.74	0.36	0.46	0.84	10.32	1	0.52	0.44	0.03	0.49
BR	3.02	0.11	0.18	25.53	0.16	0.03	0.44	9.08	0	0.70	0.59	0.16	0.64
CA	2.13	0.04	0.08	34.41	0.28	0.61	0.78	10.44	1	0.67	0.61	0.20	0.62
CN	1.56	0.22	0.04	28.75	0.13	0.06	0.58	8.04	0	0.76	0.70	0.60	0.72
CO	3.38	0.20	0.20	29.47	0.14	0.05	0.54	8.86	0	0.67	0.54	0.27	0.59
CZ	1.77	0.04	0.08	33.01	0.40	0.14	0.60	9.90	1	0.59	0.51	0.27	0.54
DK	2.13	0.02	0.10	34.07	0.44	0.34	0.80	10.39	1	0.66	0.61	0.14	0.63
FR	2.14	0.02	0.06	33.21	0.42	0.30	0.72	10.29	1	0.56	0.50	0.23	0.51
FI	2.46	0.01	0.05	33.27	0.21	0.18	0.63	10.31	1	0.61	0.56	0.39	0.56
DE	1.92	0.01	0.08	34.46	0.53	0.31	0.68	10.34	1	0.58	0.50	0.25	0.52
GR	1.78	0.04	0.03	35.18	0.44	0.29	0.74	10.08	1	0.53	0.42	0.41	0.48
GT	4.81	0.14	0.16	24.99	0.06	0.01	0.51	8.34	0	0.67	0.47	0.33	0.65
HU	2.15	0.14	0.10	35.09	0.34	0.26	0.72	9.74	1	0.50	0.43	0.34	0.47
IN	4.13	0.35	0.10	21.87	0.03	0.03	0.39	7.64	0	0.61	0.36	0.71	0.58
IE	2.30	0.02	0.12	34.41	0.38	0.33	0.64	10.53	1	0.60	0.50	0.40	0.58
IL	3.32	0.06	0.05	32.35	0.16	0.17	0.55	10.06	1	0.55	0.50	0.08	0.50
IT	2.02	0.08	0.03	29.34	0.22	0.07	0.51	10.25	1	0.49	0.38	0.32	0.46
JP	2.17	0.42	0.05	40.37	0.46	0.49	0.66	10.35	1	0.60	0.49	0.34	0.58
LU	2.13	0.05	0.04	34.95	0.34	0.27	0.71	11.10	1	0.54	0.45	0.17	0.51
MX	3.20	0.17	0.17	31.62	0.09	0.05	0.56	9.38	1	0.61	0.41	0.24	0.58
NL	2.21	0.01	0.04	34.27	0.44	0.36	0.83	10.45	1	0.64	0.56	0.20	0.62
NO	2.33	0.01	0.10	18.59	0.56	0.36	0.38	10.75	1	0.65	0.61	0.23	0.63
PE	3.60	0.22	0.16	27.60	0.18	0.07	0.64	8.70	0	0.69	0.58	0.27	0.65
PL	2.27	0.20	0.10	34.91	0.62	0.11	0.58	9.50	1	0.54	0.48	0.38	0.44
RO	2.16	0.16	0.13	33.58	0.48	0.04	0.64	8.87	0	0.66	0.60	0.46	0.63
RU	1.75	0.25	0.20	35.40	0.19	0.24	0.67	9.31	0	0.60	0.54	0.27	0.57
SK	1.98	0.16	0.07	35.39	0.74	0.14	0.67	9.63	1	0.60	0.53	0.44	0.49
SI	1.91	0.16	0.09	35.26	0.53	0.26	0.75	10.03	0	0.59	0.53	0.49	0.55
ZA	4.00	0.30	0.50	33.84	0.12	0.01	0.32	9.10	0	0.54	0.46	0.41	0.42
KR	1.96	0.15	0.06	24.81	0.45	0.45	0.38	10.08	1	0.61	0.50	0.19	0.59
ES	1.86	0.09	0.05	35.73	0.24	0.31	0.69	10.20	1	0.56	0.45	0.23	0.50

Appendix table A, cont.

SE	2.10	0.00	0.05	33.85	0.55	0.33	0.81	10.40	1	0.64	0.59	0.16	0.59
CH	2.05	0.00	0.03	34.39	0.55	0.29	0.75	10.50	0	0.67	0.59	0.25	0.57
TW	2.08	0.40	0.08	40.60	0.20	0.17	0.64	10.23	0	0.58	0.48	0.22	0.60
UK	2.11	0.02	0.12	33.06	0.56	0.22	0.65	10.39	1	0.62	0.55	0.10	0.59
US	2.40	0.06	0.17	33.24	0.45	0.34	0.68	10.68	1	0.65	0.58	0.19	0.61
UY	2.83	0.20	0.21	34.33	0.08	0.04	0.58	9.10	0	0.63	0.53	0.08	0.57
EE	1.97	0.12	0.18	33.88	0.59	0.26	0.63	9.63	1	0.59	0.53	0.31	0.53

Note: Descriptives of individual level variables uses household weights.

Source: Luxembourg Income Study, OECD.Statextracts.

Appendix Table B. Multilevel Logistic Regression Models of Poverty on Various Country Level Determinants excluding Hungary and Poland

Model	I	II	III
Poverty threshold	40%	50%	60%
Country-level variables			
Size of transfer income	-3.518**	-3.172**	-2.644**
	(1.265)	(1.011)	(0.864)
Targeting of transf.inc.	0.084	0.201	0.612
	(1.042)	(0.833)	(0.712)
GDP per capita	-0.470	-0.370	-0.217
	(0.255)	(0.203)	(0.174)
OECD	0.276	0.246	0.190
	(0.270)	(0.216)	(0.184)
Tot labforce part	1.295	-4.526	-4.374
	(6.536)	(5.219)	(4.456)
Female labforce part	2.388	3.772	3.531
	(3.053)	(2.442)	(2.087)
Rural population	-1.710*	-1.745**	-1.353**
	(0.757)	(0.604)	(0.516)
Employment rate	-5.259	-1.350	-0.739
	(4.141)	(3.309)	(2.827)
No. obs.	617992	617992	617992
No. countries	38	38	38

Note: Standard errors within parentheses. Includes full specification of individual level effects. Constant is not shown. For variable labels, see tables 2a-c.
* $p<0.05$; ** $p<0.01$