

## Do remittances and social assistance have different impacts on expenditure patterns of recipient households? The Moldovan Case

Jennifer Waidler<sup>a</sup>\*, Jessica Hagen-Zanker<sup>b</sup>, Franziska Gassmann<sup>a</sup> and Melissa Siegel<sup>a</sup>

<sup>a</sup>Maastricht Graduate School of Governance/ UNU-MERIT, Maastricht University, Maastricht, The Netherlands; <sup>b</sup>Overseas Development Institute, London, UK

Do remittances and social assistance transfers have different impacts on household's expenditure patterns? While two separate strands of literature have looked at how social assistance or remittances have been spent, few studies have compared them directly. Using data from a household survey conducted in Moldova in 2011, this paper assesses the impact both types of transfers have on household expenditure patterns. Contrary to the common assumption that money is fungible, we find that social assistance and remittances have different impacts on expenditure patterns (having controlled for potential endogeneity). In other words, where the income comes from can determine how it is spent. As such, different sources of income may have different poverty impacts. In our sample, the two types of transfers are received by different, but slightly overlapping population groups. The fact that the two transfers are spent in different ways means that, to some extent, social assistance and remittances are complements rather than substitutes.

Keywords: remittances; social assistance; expenditure patterns; Moldova

**JEL codes:** F22, F24, J18, I32, I38, E21, H50

## Introduction

Migration and social protection are related topics in many ways. Understanding the relationship and various linkages is crucial for delivering successful policies in either domain. One of the ways in which they are related is in their ultimate goal of reducing poverty, vulnerability and household risks through cash transfers (remittances in the case of migration and social assistance transfers in the case of social protection<sup>1</sup>). The relationship between migration and social protection and its effective policy response is, however, still poorly understood. For example, it is often assumed that receiving a public cash transfer (social assistance) is the same as receiving a private cash transfer (remittances) and that receiving more of the former means at least a partial decline in the latter (Olinto & Nielsen, 2008). This implies that the two types of transfers are perfect substitutes. However, it is far from clear whether they are indeed fungible and have the same poverty or risk-reducing impact on households and individuals. Transfers may be received by different family members (e.g. cash transfers are often paid to women, whereas remittances are received by both men and women, depending on who the migrant is), and the literature shows that which household member receives a transfer can potentially impact household outcomes (Duflo & Udry, 2004). Furthermore, social

© 2016 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (http://creativecommons.org/licenses/by-nc-nd/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

<sup>\*</sup>Corresponding author. Email: Jennifer.waidler@maastrichtuniversity.nl

assistance and remittances may be earmarked for different purposes and therefore spent differently (e.g. social assistance on consumption and remittances on investment).

While two separate strands of literature have looked at the effects of social assistance and remittances, a recent literature review (Hagen-Zanker & Himmelstine, 2015) shows that only few studies have compared them directly. Ultimately, how social assistance and remittances are spent affects the poverty or risk-reducing impacts they can have on households. By providing empirical evidence on the relative impacts of these transfers on household expenditure patterns, we give further guidance on whether social assistance and remittances should be seen as complements or substitutes. This has important policy implications, as it can give insights into whether remittances substitute social assistance (in terms of coverage or spending patterns) or vice versa or, on the contrary, whether migration (through remittances) and social protection serve different purposes.

Using data from a household survey conducted in Moldova in 2011, covering a sample of 3,553 households, this paper asks whether non-contributory social assistance provided by the Moldovan government and remittances sent by family members and friends have the same impacts on household expenditure patterns. Moldova is a relevant case study because it has both a mature social protection system and high rates of emigration and remittance receipt – amongst the highest in the region. Migration rates are estimated to be around 17–25% of the population and a much larger share of the working age population (Siegel & Lücke, 2013). Moldova regularly ranks as one of the highest countries in the world for remittance receipts as a percentage of Gross Domestic Product (GDP) (World Bank 2013). At the same time, the social assistance system in the Republic of Moldova provides 18 types of cash benefits, amounting to 2.6% of GDP in 2010 (World Bank 2011b). In 2009, about 31% of the population lived in a household that received at least one social assistance benefit.

This paper is structured as follows: section 2 gives a brief review on the existing literature on the comparative impact of social assistance and remittances on household wellbeing. The next section gives some background information on Moldova's social protection system and patterns of migration and remittances in the country. Section 4 outlines the methodology and describes the data used. Sections 5 and 6 present and discuss the findings, before we conclude.

## **Review of the literature**

Drawing on a rigorous, evidence-focused literature review (Hagen-Zanker & Himmelstine, 2015) this section reviews the existing literature on the comparative impact of remittances and cash transfers on a broad range of household-level indicators of wellbeing. While two separate strands of literature have looked at the effects of government transfers or remittances, few studies have compared them directly. The review found 11 relevant studies that *directly compared* the impacts of cash transfers and remittances on household wellbeing and poverty (with outcome indicators ranging from financial poverty to school enrolment).

The studies found are highly diverse in terms of geographical coverage, type of cash transfer, outcome variables considered, data sources and analytical methods used. Hence, the evidence base is both small and highly context-specific. The review of the studies highlighted a number of methodological concerns, most of which are not adequately addressed in the studies. These are: not taking account of fungibility, crowding out of transfers or other behavioural effects, and a possible endogeneity bias between the transfer(s) and the dependent variable. These concerns, and the way in which we will address them, will be discussedmore closely in the methodology section.

Notwithstanding the methodological limitation, Hagen-Zanker and Himmelstine (2015) have synthesised the findings: in the majority of the 11 studies, both social protection transfers<sup>2</sup> and remittances are shown to have positive impacts on households' wellbeing (ten of the studies show this for remittances; eight of the studies show this for social protection transfers). However, when looking at the magnitude of impacts, some differences begin to emerge: in more than half of the studies, remittances are shown to have a larger impact on poverty reduction, perhaps due to a higher level of the transfer (Hernandez, Sam, Gonzalez-Vega, & Chen, 2012; Maitra & Ray, 2003; McDade, 2010; Van den Berg & Cuong, 2011). Only one study finds that social protection transfers have a greater impact on poverty and inequality reduction than remittances (Giannetti, Federici, & Raitano, 2009). However, this study refers to four countries, Slovenia, Poland, the Czech Republic and Hungary, with well-established social protection systems.<sup>3</sup>

Only one of these studies has expenditure patterns as the dependent variable (Maitra & Ray, 2003), as we do. The authors acknowledge both the endogeneity of different resource flows and fungibility of financial transfers. To take this into account, they estimate an endogenous equation system between public transfers (social pensions), remittances and other income, before assessing their respective impacts on household expenditure patterns (in terms of expenditure shares on specific budget items) and poverty incidence. Maitra and Ray (2003) find that both remittances and pensions reduce poverty. However, pensions do not have much of an impact on household expenditure shares. Remittances, on the other hand, have a stronger positive impact on food expenditure shares. Hence, remittances and pension transfers have different impacts on expenditure patterns.

The case studies indicate a number of factors that explain the differential impact of social protection transfers and remittances. These factors are closely linked to the specific case studies reviewed in the paper and the findings may be entirely different for other contexts. The factors are: (1) Counter-intuitively, and contradicting much of the migration literature, a number of studies in this review suggest that the extremely poor or vulnerable are more likely to receive remittances than social protection transfers (Tesliuc & Lindert, 2002; Van den Berg and Cuong, 2011; World Bank 1999). Further, as Tesliuc and Lindert (2002) highlight, some social protection transfers may be regressive, for instance contributory transfers. (2) Coverage: Many of the social protection transfer programmes analysed in the studies in this review have low coverage and hence show lower impacts on poverty reduction. (3) Amount of the transfer: In four of the case studies included in the review, remittances are significantly larger than social protection transfers (i.e. Hernandez et al., 2012; Tesliuc & Lindert, 2002; Van den Berg & Cuong, 2011; World Bank 1999), hence explaining their stronger impact on poverty reduction. (4) Timing of the transfer: While the social protection literature shows that transfers should be regular and predictable to reduce poverty and vulnerability, a small number of studies reviewed in Hagen-Zanker and Himmelstine (2015) highlight the responsiveness of remittances to shocks. (5) Use of the transfer: There is some emerging evidence that remittances and social protection transfers are not spent in the same way. This is shown in two papers. Maitra and Ray (2003), discussed above, and Murrugarra (2002), who shows for Armenia that remittances are used to cope with health shocks, while social protection transfers lead to a general increase in health utilisation.

Our paper adds to the literature by providing further evidence on the differential impacts of remittances and social assistance and by testing whether social assistance and remittances have different effects on expenditure using the case of Moldova.

## **Background on Moldova**

#### Migration trends

Moldova is a particularly interesting country to study with regard to migration and remittances due to its relatively new and high degree of emigration and high reliance on remittances. The fall of the Soviet Union in 1991 allowed Moldovans to move outside the country for the first time in decades but it was not until the Russian financial crisis in 1998 when Moldovan migration began to intensify. From the beginning, the predominant reason for migration was the high level of poverty in Moldova. Estimates of migrants abroad vary – amongst other reasons due to seasonality of migration – but it is usually estimated to be around 17–25% of the population and a much larger share of the working age population (Siegel & Lücke, 2013). The main migrant destination countries are Russia and Italy but these flows are highly gendered and employment-specific. Men tend to migrate frequently and for short periods of time to Russia to work in the construction sectors, while women are more likely to move to Europe (mainly Italy) to work in domestic and care work and are usually away for longer periods (Vanore & Siegel, 2015).

Remittances have been steadily increasing since the onset of emigration from Moldova. Moldova regularly ranks as one of the highest countries in the world for remittance receipts as a percentage of GDP: in 2011 this was estimated at 24% (World Bank 2013).Remittances have become an important source of income for many families in Moldova accounting for \$1561 million in 2011 (World Bank 2011a) which was higher than both foreign direct investment (\$274 million) and official development assistance (\$470 million) in 2010. In 2011, remittances accounted for 15% of disposable household income, on average (NBS, 2012). For the poorest households (bottom quintile), the share of remittances in disposable income was12%, while they accounted for 21% of income in households belonging to the richest quintile (ibid).

## The social protection system

The social protection system in Moldova includes both contributory (social insurance) and non-contributory (social assistance) schemes. The focus in this paper is on social assistance-type cash transfers targeted at the poorest and most vulnerable households and individuals. The social assistance system in Moldova provides 18 types of cash benefits, which can be grouped into three main categories: social allowances,<sup>4</sup> nominative compensations,<sup>5</sup> and means-tested social aid. Social allowances and nominative compensations are allocated on the basis of categorical criteria and cover a much larger group of beneficiaries than the newly introduced social aid.

In 2010 Moldova spent 2.6% of GDP on social assistance benefits of which social allowances accounted for the largest part (54%), followed by nominative compensations (20%) and social aid (15%), the latter only having been introduced in 2008 (World Bank, 2011b).<sup>6</sup> In 2009, about 31% of the population lived in a household receiving a social assistance benefit. Nominative compensations covered 19% of the population and child benefits 11%. Coverage of targeted social aid has been increasing since its introduction

in 2008. In 2010, 59,000 families (about 3% of the population according to UNICEF (2011) benefited from social aid and received on average 740 per month (about \$56) (MLSPF, 2011). In 2011, the Government introduced an additional means-tested flat rate benefit, the so-called 'cold season benefit', which is paid during the winter months (Ministry of Economy, 2012).

Overall, social assistance benefits are slightly progressive. In 2010, 43% of the total allocated benefits reached the poorest 20% of the population. This is mainly due to the social aid program which has allocated more than 80% of the budgetto the poorest quintile. Nominative compensations and child benefits are only modestly progressive due to their categorical nature (World Bank 2011b).

However, while we see high coverage of social assistance, transfers only account for 2.7% of total household income (UNDP, 2011, p. 159).<sup>7</sup> Based on a qualitative study of households with children, social assistance is predominantly used to pay for utilities and to buy food. Other basic needs, such as clothes, are only addressed if there is money left over. According to interviews with beneficiaries, although the transfers are small in value, recipients appreciate its regularity and the security this certainty provides (Otter & Vladicescu, 2011).

## Methodology and Data

## Methodology

In this paper we analyse the behavioural responses of households upon receiving income from different sources on expenditure patterns; to put it differently, we assess whether remittances, social assistance and other income sources have different effects on expenditure patterns. This can be the case if social assistance and remittances are received by different types of household, or if they are received by different household members, or if they are used for different purposes.

The receipt of both remittances and social assistance can depend on the level of household income. Social assistance transfers are often very explicitly targeted at the poorest households, such as the means-tested social aid programme, and remittances are often sent when the receiving household is in financial distress. This means that we cannot treat the income from both sources exogenously. To account for the potential endogeneity of these two income sources, we perform an instrumental variable (IV) estimation to determine impacts one expenditure patterns. This means finding one or more variables that are correlated with the endogenous variables - the so-called instruments – but not with the outcome we are estimating. The IV estimation is done in two stages: in the first stage non-contributory social assistance and remittances are regressed on a number of exogenous controls and three instruments. In the second stage, shares of expenditures are regressed on the estimated remittances and social assistance from Stage 1, as well as all other exogenous control variables. We perform the analysis twice, first treating remittances and social transfers as binary variables (to capture the effect of receiving the transfer) and then as continuous variables (to see how changes in the amount of the transfers affect expenditure shares).

The exogenous variables include expenditures without transfers (which proxies for income without transfers),<sup>8</sup> demographic characteristics of household members such as age and sex of the household head, household characteristics such as presence of children or percentage of female household members, and community characteristics like district of residence.<sup>9</sup> Households can have different consumption patterns due to factors

other than the receipt of transfers; these variables aim to control for these differences in consumption patterns.

We include three instruments in the first stage to measure the likelihood of the household receiving social assistance or remittances: whether the house has a proper toilet (defined as having a toilet inside the house), whether there is a pensioner in the household, and whether there is a household member on maternity leave. The first instrument, having a proper toilet, relates to the long-term living conditions of the household and determines if a household is in need for social assistance or remittances from a family member living abroad. The other two instruments have a clear effect on the probability that a household receives a transfer due to the fact that certain groups are more likely to receive both kinds of transfers (including mothers with young children and pensioners).

We select these instruments based on the fact that they have a clear effect on remittances and social transfers (i.e. they are relevant) and that they are uncorrelated with the error term in the regression. The identifying assumption is based on the fact that remittances and social assistance cannot affect these variables in the *short run* and that we control for other variables that can be correlated with the instruments, such as income or the number of household members of different ages. The discussion section addresses in more detail the instruments and its potential limitations.

The instrumental variable estimation is denoted as follows:

$$S_{hc} = \alpha + \beta_1 T_h + \beta_2 R_h + \beta_3 Y_h + \beta_4 z_h + \beta_5 e_h + \beta_6 c_c + \varepsilon_{hc}$$
(1)

where  $S_{hc}$  refers to the household share of expenditure on food, cloth or utility bills.<sup>10</sup> Shares are calculated as the percentage of expenditure on a specific item (e.g. food) in total household expenditure. *R*, *T*, and *Y* denote, respectively, remittances, social assistance, and expenditure excluding transfers. Symbols *z*, *e*, and *c* represent, respectively, the vectors of demographic characteristics of household members (such as the age or sex of the household head), house hold characteristics such as number of children or percentage of females in the household, and community characteristics such as district of residence. Including district fixed effects allow us to account for common characteristics among districts that are unobserved (that is, to remove some confounding unobservables). Finally,  $\varepsilon$  refers to the error term of the equation.

Equation 1 shows the relationship between income from social assistance and remittances and expenditure patterns. We analyse the effects of the income sources on expenditure in two ways. We first treat remittances and social assistance as binary variables to see whether expenditure patterns differ between recipients and non-recipients. As a second step, we use the continuous variables instead (i.e. the amount received) to see the effects of an increase in the amount of transfers on the shares of expenditures. All equations have been estimated using both normal and robust standard errors.<sup>11</sup>

#### Data

The data used for this analysis stem from a nationally representative,<sup>12</sup> large-scale household survey conducted between September 2011 and February 2012 as part of the project 'the Effects of Migration on Children and the Elderly Left Behind in Moldova and Georgia' funded by the European Commission. The survey sampling frame was provided by the National Bureau of Statistics from the Moldovan Labour Force Survey (LFS) and only includes households with either elderly or children. It covers 3553 households in all regions of Moldova except Transnistria. The survey includes a rich

migration section with detailed information on the household migration history and remittances, as well as a comprehensive income section including different kinds of government transfers and other sources of individual and household income. As only two % of the sample receives both remittances and social assistance, and in order to prevent further endogeneity issues arising from the fact that these transfers can affect each other, we have excluded these households from the analysis.

All income and expenditure variables are defined in per adult equivalent terms to account for the composition of the household and economies of scale within the household, following the approach of the Moldovan National Bureau of Statistics.<sup>13</sup> We also use the logarithms of these variables to account for their non-linear distribution.

Total household expenditure is calculated as the sum of all different items of expenditure covered in the survey. It includes expenditure on food, clothing, utility bills, phone and internet, alcohol, newspapers and magazines, and leisure. In this study we only analyse expenditure on food, clothing and utility bills, as for other categories the number of observations was too small and some categories such as health and education were not included in the survey. Social assistance includes all non-contributory benefits, namely social allowances, allowances for child care, maternity allowances, nominative compensations, cash benefits, means tested subsistence and other households state benefits. While information on social assistance and household expenditure was recorded monthly, in the case of remittances households were asked for the total amount received in the last year. Remittances are recalculated to give the average amount per month.

Expenditure excluding transfersis used as a proxy for income before transfers due to the high number of zero incomes in our data, potential measurement errors, and the low correlation between our measure of income and expenditure (with a Spearman correlation ratio of 0.52).Compared to data from the National Bureau of Statistics of the Republic of Moldova (NBS, 2012, 2013), average income per adult equivalent in our survey seems to be underestimated.<sup>14</sup> Expenditure has been therefore chosen as the measure of welfare as it gives a more accurate representation of the wellbeing of the Moldovan population. As a robustness check, we also perform the analysis using income and results are largely consistent. In contrast to standard measures of expenditure on dwelling equipment, transport, education, medical care and health, and some items of dwelling maintenance.<sup>15</sup> However, the distribution of expenditure shares has not been affected as a result of this. Hence, we find the expenditure estimations to be reliable.<sup>16</sup>

Table 1 shows the percentage of households receiving only social assistance, only remittances, or no transfers. It also provides the averages total household expenditure per adult equivalent and the expenditure shares for food, clothing and utility bills. More than 22% of the households in the sample receive at least one type of social assistance and around 11% receive only remittances. The average amount received is almost ten times higher for remittance-receiving households, compared to households that receive social assistance.

Total household expenditure per adult equivalent is, on average, slightly higher in households receiving remittances (1092 Lei), and similar to households that receive neither of the transfers (1071 Lei). For households receiving only social assistance, total average household expenditure accounts to 973 Lei. Households that receive social assistance spend, on average, a higher percentage of their expenditure on food (54%), while households that receive remittances spend on average 48% on food. Remittance-recipient households spend a higher share of expenditure on clothes than the other two types of households, and a lower share on utility bills. A Wald test comparing the means

## 362 J. Waidler et al.

	Receives only social assistance	Receives only remittances	Receives none
Percentage of households	22.5	10.5	63.9
Average amount received PAE (in Lei)***	148 (205)	1160 (1276)	_
Average total hh expenditure PAE (in Lei)***	973 (681)	1092 (756)	1071 (768)
Average share of food***	0.54 (0.006)	0.48 (0.008)	0.53 (0.004)
Average share of clothing*	0.17 (0.006)	0.21 (0.008)	0.16 (0.004)
Average share of utility bills***	0.22 (0.005)	0.19 (0.006)	0.23 (0.003)

Table 1. Distribution of income sources and	household	shares of	expenditures.
---	-----------	-----------	---------------

Source: Authors' calculations; Standard errors in brackets. Note: PAE is per adult-equivalent; stars denote statistically significant differences between only remittances recipient households and only social assistance recipient households based on a Wald test of means comparisons. \*p < 0.1; \*\*p < 0.05; \*\*\*p < 0.01.

of different expenditure items shows that the differences between only remittance recipients and only social assistance recipients are statistically significant. The tests report significant differences in total expenditure and shares of expenditures between these two groups.

Table 2 shows that remittance recipient households, social assistance recipient households and non-recipient households differ in basic socio-demographic characteristics, although differences are smaller between social assistance and non-recipient households. A higher percentage of households receiving remittances have a household head that

	Remittance recipient households	Social assistance recipient households	Non recipient households
Education of househ	old head		
No education/ primary	8.2	18.7	15.8
Lower secondary	33.4	37.6	33.7
Upper secondary	51.5	33.1	38.7
Higher	6.9	10.6	11.8
Age of household head	49.1	56.9	56.7
Mean household size	4.3	3.6	3.2
Mean n° of children	1.2	1.1	0.8
Region			
Chisinau	2.1	13.8	11.9
Centre	35.2	34.6	36.5
North	24.9	30.5	29.4
South	37.8	21.2	22.2

Table 2. Socio-demographic characteristics of social assistance and remittance recipient house-holds.

Source: Authors' calculations.

has completed secondary education, while the percentage of households with higher education or only primary education is higher in social assistance and non-recipient households. Not surprisingly, household heads from social assistance recipient households are, on average, older than those from remittance recipient households. Households receiving remittances are larger than those receiving social assistance, while non-recipient households are smaller and have the lowest number of children on average. Finally, the regional distribution of remittance recipient households differs from that of social assistance recipients, which is similar to that of non-recipient households. While a very small percentage of households in the capital receive remittances (only 2.1%, compared to 13.8% receiving social assistance), and nearly 38% of remittance recipients live in the south, the highest percentage of social assistance recipients live in the centre (34.1%), followed by the north, the south and, finally, the capital Chisinau. The regional distribution is very similar for non-recipient households. It is interesting to see how these two types of transfers reach different population groups. These differences between remittance and social assistance recipient households are likely to affect the way transfers are spent.

Tables 3 and 4 provide an overview of the distribution of transfers as well as the amount of transfers received across expenditure quintiles.<sup>17</sup> From Table 3 it is clear that a higher percentage of the poor receive social assistance although, on average, individuals living in richer households receive higher amounts. The highest amounts of transfers are received by households belonging to the 3rd and 5th quintiles, though the total distribution of transfer amount amongst quintiles is relatively equal. This can be also seen in the last column, which shows that social assistance represents between 16 and 21% of total income across all quintiles.

With regard to remittances (Table 4), coverage is higher among individuals from middle income households, confirming that migrants do not belong to the poorest households. Individuals living in richer households receive, on average, higher amounts of remittances; this is not surprising as the income between senders and receivers is usually positively correlated. Finally, the table also shows that remittances constitute a very important source of income in recipient households: on average remittances represent more than 50% of total income in the lowest quintile and more than 60% in the other four quintiles.

The descriptive statistics presented confirm some of the findings of previous studies, including that the amount of remittances is usually higher than the amount of social

Quintiles of PAE hh expenditure	Coverage (in %)	Average PAE amount received in recipient hh (in Lei)	Average PAE amount received in all hh (in Lei)	Percentage of social assistance out of total income in recipient hh
1	33	101.8 (131)	33.9 (90)	21
2	29	115.7 (149)	33.1 (95)	21
3	27	163.8 (231)	43.8 (140)	21
4	25	131.7 (148)	32.3 (93)	16
5	25	173.4 (256)	43.9 (149)	20

Table 3. Coverage and amount of social assistance received.

Source: Authors' calculations; standard errors in brackets. Note: PAE is per adult-equivalent.

Quintiles of PAE expenditure	Coverage (in %)	Average PAE amount received in recipient hh (in Lei)	Average PAE amount received in all hh (in Lei)	Percentage of remittances out of total income in recipient hh
1	15	502.1 (589)	74.7 (289)	53
2	16	880.5 (1040)	144.4 (532)	62
3	21	1031.5 (1040)	218.6(638)	65
4	19	1020.2 (1022)	192.4 (597)	61
5	17	1499.2 (1487)	254.4 (831)	65

Table 4. Coverage and amount of remittances received.

Source: Authors' calculation; standard errors in brackets; Note: PAE is per adult-equivalent;.

assistance (see Gassmann, 2011; Hernandez et al., 2012; Tesliuc & Lindert, 2002; Van den Berg & Cuong, 2011). Contrary to some other studies suggesting that the poorest households are more likely to receive remittances than social transfers (as shown in Gassmann, 2011; Tesliuc & Lindert, 2002), in the case of Moldova we find that the poorest households have higher social assistance coverage than remittances coverage. This might be due to the fact that our survey only includes households with children and/or elderly household members, groups with both a higher likelihood of receiving social assistance and being poor. The probability of receiving remittances is lower for the lowest income quintile; however the amounts received are more than five times the size of the social assistance in recipient households.

## Findings

This section presents the results of the IV estimation. Table A.2 (Appendix)shows the results of the first-stage regression, where remittances and social assistance are predicted based on several exogenous variables and the three instruments described above. Equation 1a (second column) shows the determinants of social assistance, where we observe that expenditure excluding transfers negatively affect the amount of social assistance received. In other words, the better off the households, the lower the likelihood of receiving social assistance. The number of children and elderly in the household is positively associated with social assistance, whereas households with older household heads (although at a decreasing rate) or with higher percentage of women are less likely to receive higher amounts of social assistance. One of the instruments (whether there is a household member on maternity leave) is positive and highly significant in determining social assistance, the categorical nature of most of the social transfers implies that households with dependent or vulnerable groups such as children, the elderly or mothers with young children are more likely to receive social assistance.

In the remittances regression (Equation 1b) we can observe that total expenditures excluding transfers are also negatively correlated with the amount of remittances received. In other words, households with higher expenditures are less likely to receive large amounts of remittances. On the other hand, the number of working-age adults is positively correlated with remittances, while the number of children is negatively associated with the dependent variable. Age of the household head is negatively associated with the amount of remittances received. Two of the excluded instruments are highly significant in predicting remittances: having a toilet inside the house is positively associated

with the amount of remittances received, whereas having a pensioner in the household has the opposite relationship. The first significant instrument shows that remittance recipient households have better long-term housing conditions and that migrants do not come from the poorest households in Moldova. The second significant instrument shows that the composition of the household influence migration and thus remittances, as households with younger household members are more likely to migrate and/or receive remittances.

The use of the 2-stages-least-squares is justified by the identification statistics shown at the bottom of the table. Instrument relevance is tested by the under identification (Kleibergen-Paaprk LM statistic) and the weak identification tests (through the Cragg-Donald Wald statistic, or the Kleibergen and Paap statistic when errors are assumed heteroskedastic). The first one proves that the model is identified (i.e. that the instruments are correlated with the endogenous variables), as we reject the null hypothesis that the model is not identified. The second one shows that this correlation is strong (using the F > 10 Stock-Yogo rule of thumb).<sup>19</sup> In some cases, the Wald F statistic is slightly below 10 in the first stage regression for social assistance. In these cases, we perform weak-instrument robust inference (the conditional likelihood ratio test developed by Mikusheva and Poi (2006)). With weak instruments, this test is more reliable in assessing whether the endogenous regressoris significantly-different from zero (and, if so, whether the coefficient is positive or negative). In all the cases, the conditional likelihood ratio test confirms the results from the 2SLS models.

We test for over identifying restrictions (instrument exogeneity) by performing the Sargan-Hansen test. As we cannot reject the null hypothesis that the instruments are valid, we conclude that the instruments are uncorrelated with the error term and that they are correctly excluded from the estimated equation. Moreover, by performing a Durbin-Wu-Hausman test of endogeneity, we confirm our expectations that remittances and social assistance are endogenous. In the models for share on food and utility bills, we reject the null hypothesis that the variables are exogenous at a 1% level, whereas in the model for clothing we can only reject this hypothesis at a 10% level.

Table 5 presents the second stage results: the impact of the different income variables on the shares of three expenditure items -share of food, share of cloths and share of utility bills- initially treating remittances and social assistance as binary variables. In addition, we also report OLS results next to each of the IV estimations.

We find that income excluding transfers (as proxied by total household expenditure minus transfers) is a strong predictor of the share of expenditures on food and utility bills. An increase in household income is associated with a decrease in the relative expenditure on food and an increase in expenditure on utility bills. The negative correlation between income and food shares is expected following Engel's Law. With respect to the share on utility bills, the positive association is not a priori expected. Although the share of expenditure related to housing and utility is slightly increasing across the welfare distribution in Moldova (NBS, 2012, p. 88), the differences are relatively small. Moreover, in many countries of the former Soviet Union, the share of utility expenditure is similar in poor and rich households (see, e.g. Gassmann, 2014; Lampietti, Banerjee, & Branczik, 2007). In the case of clothing, however, income appears to be uncorrelated with the share of expenditure on clothes. This is in line with findings from the Household Budget Survey where expenditures on clothing and footwear account for about 10% of total household consumption both in poor and rich households (NBS, 2012, p. 88).

	Share	e food	Share	cloth	Share	e bills
	IV	OLS	IV	OLS	IV	OLS
Receives	$-0.50^{**}$	$-0.03^{*}$	-0.12	0.02	0.55**	-0.03**
Remittances	(0.13)	(0.01)	(0.10)	(0.01)	(0.14)	(0.01)
Receives social	0.04	0.01	$-0.18^{+}$	-0.00	0.18 <sup>+</sup>	-0.00
Assistance	(0.11)	(0.01)	(0.10)	(0.01)	(0.11)	(0.01)
Log of expenditure	$-0.06^{**}$	$-0.01^{**}$	-0.00	0.01**	0.05**	$-0.01^{**}$
w/o transfers	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
HH head is male	$-0.02^{*}$	$-0.02^{**}$	0.01	0.01*	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age of hh head	-0.00	$-0.00^{*}$	$-0.00^{+}$	-0.00	0.00+	$0.00^{+}$
0	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age squared	$0.00^{+}$	$0.00^{**}$	0.00	0.00	-0.00	$-0.00^{+}$
0	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Percentage of	$-0.03^{+}$	$-0.03^{*}$	0.02	0.01	0.03	0.04**
Females	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Number of kids	$-0.03^{*}$	-0.01	0.04**	0.03**	-0.02	$-0.02^{**}$
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Nº 18-30 year old	-0.00	$-0.02^{**}$	0.03**	0.02**	-0.03**	$-0.01^{**}$
hh members	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Nº 30-40 year old	0.00	$-0.03^{**}$	0.03**	0.03**	-0.03**	-0.01
hh members	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
Nº 40-50 year old	0.00	$-0.03^{**}$	0.03**	0.03**	$-0.03^{**}$	$-0.01^{*}$
hh members	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Nº 50-60 year old	-0.00	$-0.02^{*}$	$0.02^{*}$	0.01	$-0.02^{*}$	0.00
hh members	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Nº 60+ year old	0.00	0.01	0.01	-0.00	-0.01	$-0.01^{+}$
hh members	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Constant	1.06**	0.70 <sup>***</sup>	0.15	-0.03	-0.18	0.33 <sup>**</sup>
	(0.14)	(0.04)	(0.11)	(0.04)	(0.14)	(0.04)
Observations	3360	3360	3337	3337	3417	3417

Table 5. Second-stage regressions: Impact of income and of receiving public and private transfers on expenditure patterns.

Source: Author's calculations. Standard errors in parentheses.  ${}^{+}p < 0.1$ ;  ${}^{*}p < 0.05$ ;  ${}^{*}p < 0.01$ .

Coming to our main variables of interest, the receipt of social assistance is positively correlated with the share spent on food, although not significantly so. The receipt of remittances has a similar effect as income proxied by total expenditures (negatively correlated with food and positively correlated with utility bills). Receiving remittances has a negative effect on the expenditure share spent on clothing, but this is not statistically significant. This finding is noteworthy, as one would expect a positive relationship between expenditures on clothes and remittance receipt. This adds to the growing evidence base that remittances are not necessarily spent on conspicuous consumption. Our findings are in line with De and Ratha (2012), who find that remittance income is spent differently than total income, and that remittances have no effect on conspicuous consumption (and a positive effect on health and education). The OLS results are similar to the IV ones in terms of significance levels and sign of the coefficients, with the exception of the utility bills regression. However, the OLS coefficients are much lower in magnitude as compared to the IV ones. This can be due to a positive self-selection bias, where households that receive remittances and social assistance are usually poorer and spend more on food and less on utility bills, as compared to richer households.

However, once we control for the potential endogeneity of transfers it turns out that receiving remittances decreases considerably the share spent on food and increases the share spent on utility bills. In the case of social assistance, while the IV coefficients are positive for utility bills and clothing, the OLS coefficients are insignificant and close to zero. However, as coefficients in the IV regression are only significant at a 10% level, the positive effects are only suggestive.

Other variables that significantly affect expenditure patterns are the sex of the household head, the percentage of women in the household and the number of household members. Having a male household head or a higher percentage of female household members is negatively correlated with the share of expenditure spent on food. The higher the number of children and adults in the household, the higher is the expenditure share on clothing. An increase in the number of adults is associated with a decrease in the share spent on utility bills. The number of elderly individuals in the household does not appear to have a significant effect on expenditure shares.

Hence, remittances and social assistance have different impacts on expenditure patterns. The different impact of public and private transfers on expenditure shares can be explained by the fact that different transfers can be earmarked for different uses, implicitly or explicitly. As argued by Maitra and Ray (2003), social assistance may be received for specific purposes (such as caring for children) which can in practice constrain the spending ability of the household. At the same time, De and Ratha (2012) argue that remittances can be better targeted and not as fungible as other sources of income, as the senders closely monitor how they are spent.

Table 6 shows the same budget shares estimation treating remittances and social assistance as continuous variables, i.e. using the amount of transfers. The results are similar to when we include the receipt of transfers as independent variables: social assistance has a negative impact on the share of expenditure on clothing (although only at a 10% significance level), while remittances are negatively correlated with the expenditure share on food and positively correlated with the share spent on utility bills. In conclusion, similar to Maitra and Ray (2003), we find that social assistance and remittances have different impacts on budget shares. This is confirmed by testing the equality of coefficients in all four specifications (both for the IV and OLS regressions). The coefficient for remittances is always different from the coefficient for social assistance except when we use share of clothing as the dependent variable.

When we repeat the analysis using income before transfers instead of expenditure excluding transfers, results are largely similar, although the variable for social assistance is positive and significant when utility bills are estimated, and it turns insignificant when predicting shares of expenditure on clothing.<sup>20</sup>

#### Discussion

As in most instrumental variable approaches, whether instruments are fully exogenous is open to discussion. In our case, as the instruments are household variables, one could argue that some correlation between the instruments and the error term do exist. For instance, whether a household has a proper toilet may be the result and not the determinant of remittances. Presence of pensioner and women on maternity leave may also affect expenditure shares directly. In the first case, we argue that short term remittances do not influence household living conditions in the short run. In the second, we control for variables related to the composition of the household and that affect expenditure such as number of children and adults, or percentage of female household members.

Table 6. Second stage regre	ssion- impact of incor	ne and of the amount	public and private trans	sfers on expenditure pat	terns.	
	Share f	poq	Share	cloth	Share	bills
	IV	SIO	IV	STO	IV	OLS
Log of remittances	-0.07**	$-0.01^{*}$	-0.01	$0.00^{**}$	0.07**	$-0.01^{**}$
1	(0.02)	(0.00)	(0.01)	(0.00)	(0.02)	(0.00)
Log of social	0.01	$0.00^{+}$	$-0.03^{+}$	0.00	0.02	-0.00
Assistance	(0.02)	(0.00)	(0.02)	(0.00)	$(0.02)_{\pm}$	(0.00)
Log of expenditure	$-0.06^{**}$	$-0.01^{**}$	0.00	$0.02^{**}$	$0.05^{**}$	$-0.01^{**}$
w/o transfers	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)
HH head is male	-0.02	-0.02	$0.01^{+}$	0.01	-0.00	0.00
Are of hh head	(10.0)	$(0.01) - 0.00^{*}$	(10.0)	(10.01) -0.00	(0.01)	(10.0)
	(0.0)	(00.0)	(0.00)	(0.0)	(00.0)	(00.0)
Age squared	$0.00^{+}$	0.00	0.00	0.00	-0.00	$-0.00^{+}$
•	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(000)
Percentage of	$-0.04^{*}$	$-0.03^{*}$	0.02	0.01	$0.03^{*}$	$0.04^{**}$
Females	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of kids	$-0.03^{**}$	$-0.01^{+}$	$0.04^{**}$	$0.03^{**}$	-0.01	$-0.02^{**}$
	(0.01)	(0.00)	$(0.01)_{}$	(0.00)	$(0.01)_{\star}$	(0.00)
N° 18–30 year old	-0.01	$-0.02^{**}$	$0.03^{**}$	$0.02^{**}$	$-0.02^{**}$	$-0.01^{**}$
hh members	(0.01)	(0.00)	(0.00)	(0.00)	$(0.01)_{}$	(0.00)
N° 30–40 year old	0.00	$-0.03^{**}$	$0.02^{**}$	$0.03^{**}$	$-0.03^{**}$	-0.01
hh members	(0.01)	$(0.01)_{*}$	$(0.01)_{*}$	(0.00)	$(0.01)_{*}$	(0.00)
N° 40–50 year old	0.00	$-0.03^{**}$	$0.03^{**}$	$0.03^{**}$	$-0.03^{**}$	$-0.01^{*}$
hh members	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(00.0)
N° 50–60 year old	-0.01	$-0.02^{*}$	$0.01^+$	0.01	-0.01	0.00
hh members	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N° 60+ year old	-0.00	0.01	0.00	-0.00	-0.01	$-0.01^{+}$
hh members	(0.01)	$(0.01)_{**}$	(0.01)	(0.01)	(0.01)	
CONSIGNI	1.04	0./1 (0.05)	01.0	-0.04	-0.14 0.11)	(100 0)
Observations	(c1.0) 3360	(20.02) 3360	(0.10) 3337	(0.04) 3337	3417	(0.04) 3417

Source: Author's calculations. Standard errors in parentheses.  ${}^+p < 0.1; *_p < 0.05, **_p < 0.01.$ 

L

However, we should we cautious interpreting the results, as the size of the effects could be overestimated (especially in the case of remittances, where the coefficients from the IV regression are much larger than the OLS coefficients).

Notwithstanding, there are some patterns that emerge from both estimations. The first pattern is that social assistance does not have a big impact on expenditure, and this is probably a result of the low amount of the transfers received. In the case of remittances, there is a clear negative effect of this transfer on food expenditure shares, which is due to the fact that, as the household becomes richer, food becomes more of a necessity. At the same time, the effect of remittances on clothing is insignificant or very small in magnitude, which supports other studies that point out that remittances are spent differently than other sources of income and not necessarily on short term (non-food) consumption.

## Conclusion

This paper investigated whether non-contributory social assistance provided by governments and remittances sent by family members and friends have the same impacts on household expenditure patterns (specifically: expenditure on food, clothes and utility bills). It contributes to the small body of evidence that directly compares the impact of social assistance and remittances on household wellbeing, using data from a household survey conducted amongst households with children and elderly in Moldova in 2011.

Due to the fact that both remittances and social assistance depend on overall household income and cannot be exogenously determined, we perform an instrumental variable estimation to account for endogeneity of remittances and social assistance in determining expenditure patterns. This estimation is the basis for our findings.

The regressions show that social assistance and remittances are indeed endogenous. In other words, the likelihood of receiving these transfers depends on overall income as well as on other household characteristics. Further, when accounting for endogeneity and the influence of other variables, we see that poorer households have a higher likelihood of receiving both social assistance and remittances, although social assistance seem to reach a higher percentage of poor households.

We find that social assistance and remittances have different impacts on expenditure patterns. While remittances are spent in similar ways as expenditure excluding transfers (negatively correlated with food and positively correlated with utility bills), social assistance has a statistically insignificant impact on the share spent on food. Receiving social assistance is also negatively associated with the share of expenditure on clothes, as are remittances, but not always significantly so. The latter finding is noteworthy, as one would expect a positive relationship between the expenditure share on clothes and remittance receipt, given the often higher consumption behaviour of remittance receivers.

In the case study at hand it appears that the two different transfers are not only received by different and slightly overlapping population groups, but are also spent in different ways. The different impact of public and private transfers on expenditure shares could be explained by the fact that remittances constitute one of the most important sources of income in remittance recipient households, which means that recipient households treat it in similar ways as total income in households that do not receive either remittances or social assistance. On the contrary, social assistance transfers are lower in value and do not significantly affect expenditure on food or utility bills, although they are negatively related with spending on clothing. The latter finding could be related to the low value of transfers or implicit constraints in the use of social assistance.

The fact that the two transfers are spent in different ways means that, to some extent, social assistance and remittances are complements rather than substitutes. This research highlights the importance of income source in determining potential poverty impacts.

## Acknowledgments

Many thanks to the anonymous referees, Julia Tobias and EleonoreNillesen, and participants of the EADI General Conference 23–26 June 2014 in Bonn, for useful comments on earlier versions of the paper.

## Funding

The data used in this paper is from the project 'the Effects of Migration on Children and the Elderly Left Behind in Moldova and Georgia' which was funded by the European Commission [Grant number DCI-MIGR/2010/229–604].

## Notes

- 1. In this paper we define social protection as the set of public and private policies and programmes aimed at preventing, reducing and eliminating economic and social vulnerabilities to poverty and deprivation (UNICEF, 2012). Social protection includes a broad array of policy instruments, including social insurance and social assistance schemes. The focus in this paper is on non-contributory social assistance, specifically social assistance provided by the state in the form of social cash transfers.
- 2. Most of the social protection programmes covered in the review are non-contributory social assistance programmes. However, two refer to contributory pensions.
- 3. Further, the data refers to 2004/2005, around the time when these countries had just joined the European Union and before migration outflows from these countries started intensifying.
- 4. State social allowance, allowance for care, guardianship allowance, child allowances.
- 5. Nominative compensations include discounts on payments for gas, electricity, heating and community services.
- 6. The remaining 11% was spent on ad hoc heating allowances allocated categorically (World Bank 2011b).
- 7. This includes both recipient and non-recipient households.
- 8. Expenditure excluding transfers is used as a proxy for total income excluding transfers. The reasoning behind this is explained below on page 9.
- 9. A full list is provided in Table A1 in the Appendix.
- 10. The reason why we only include these three categories is explained below, in the data section.
- 11. We only report robust standard errors as findings were consistent with those using normal standard errors.
- 12. The sample is nationally representative only for households with children and/or elderly.
- 13. The first adult counts for 1, all other adults count for 0.7 and children up to the age of 14 counts for 0.5. For more information on the equivalence scales used, see http://www.oecd. org/eco/growth/OECD-Note-EquivalenceScales.pdf.
- 14. Data reported by the NBS are based on the annual Household Budget Survey. Based on data for 2011 and 2012, monthly disposable income per adult equivalent for households with children and/or elderly ranges from 1200 1400 Lei (NBS, 2012, 2013), while in our survey (which only covers households with children or elderly) average income per adult equivalent is 1112 Lei (excluding observations with zero income).

- 15. For this reason, and given the fact that our survey only covers households with children and elderly, the average per adult equivalent expenditure in the survey used in this study is 1045 Lei while, according to NBS, the average per adult equivalent expenditure in Moldova is between 1000 1600 Lei depending on the number of children and/or the presence of elderly in the household (NBS, 2012, 2013).
- 16. The distribution of shares of expenditure in our survey and according to the NBS are very similar: while the share for food according to the NBS is 0.43, for clothing 0.1, and for household maintenance (which includes utility bills, among others) 0.18, according to our survey households spend, on average, 0.52 of their total expenditure on food, 0.17 on clothing, and 0.22 on utility bills.
- 17. Individuals are allocated into five equal groups from poorest to richest based on per adult equivalent total expenditure.
- 18. As not all three instruments are significant in predicting social assistance, we also perform the instrumental variable regression manually by estimating separately social assistance and remittances and including only those instruments that significantly determine either one or the other transfer. Results are very similar, confirming the robustness of our findings.
- 19. Stock and Yogo (2005).
- 20. The results are available upon request from the authors.

## Notes on contributors

Jennifer Waidler is a PhD fellow at UNU-MERIT/Maastricht Graduate School of Governance. She holds a master's in Public Policy from Maastricht University and a degree in Business Administration from the University Carlos III de Madrid. Since September 2012, she has been working as a researcher at UNU-MERIT on a variety of projects in the field of migration and social protection. Her main research interests focus on the links between social transfers and remittances in developing countries.

Jessica Hagen-Zanker is a research fellow in Social Protection Programme at ODI. Her main research interests lie in social protection and migration and the use of quantitative methods in social protection analysis. She has extensive experience in the analysis of social protection programmes and policies, migration, remittances, design and analysis of household surveys in low-in-come countries, quasi-experimental impact evaluations and developing and executing rigorous, evidence-based literature reviews. Prior to joining ODI in 2010, Jessica was the academic coordinator of the Social Protection Financing and Policy MSc programmes at the Maastricht Graduate School of Governance, where she also was PhD Fellow.

Franziska Gassmann (PhD in Economics) is Professor of Poverty and Social Protection at Bonn-Rhein-Sieg University of Applied Science, and professorial fellow/senior researcher at UNU-Merit/MGSOG. She leads the research theme on Poverty, Public Policy and Inclusive Innovation. Gassmann has 20 years of experience as consultant and adviser to Governments and international organizations on social policy issues in Central and Eastern Europe, countries of former Yugoslavia, the Caucasus, Central Asia and South-East Asia. She has project experience in more than 15 countries in Europe, Asia and Africa.

Melissa Siegel currently works as an associate professor and Head of Migration Studies at the Maastricht Graduate School of Governance and UNU-MERIT where she heads the Migration and Development research group of UNU-MERIT and the Migration and Development research theme of the Maastricht Center for Citizenship, Migration and Development (MACIMIDE). She currently holds positions as a research associate at the Center on Migration, Policy and Society (COMPAS) and an associated researcher at the International Migration Institute (IMI) at the University of Oxford. She has worked on or headed projects for Governments, International Organizations and NGOs and she is also regularly involved in migration-related trainings for Governments and International Organizations (i.e. UNICEF, UNRWA, EIPA, Dutch Government, Iranian Government) as well as teaching in the United States, Malaysia, Mozambique, Afghanistan and Suriname.

#### References

- De, P. K., & Ratha, D. (2012). Impact of remittances on household income, asset and human capital: Evidence from Sri Lanka. *Migration and Development*, 1, 163–179.
- Duflo, E., & Udry, C. (2004). Intrahousehold resource allocation in cote d'Ivoire: Social norms, separate accounts and consumption choices. Retrieved from http://www.econ.yale.edu/~cru2/ pdf/ivoire RES comp.pdf
- Gassmann, F. (2011). To what extent does the existing safety net protect the poor, poverty and social impact analysis series. Washington, DC: The World Bank.Retrieved from http://sitere sources.worldbank.org/INTKYRGYZ/Resources/KG\_Safety\_Net\_Changes\_PSIAa\_062811.pdf
- Gassmann, F. (2014). Switching the lights off: The impact of energy tariff increases on households in the Kyrgyz Republic. *Journal of Comparative Economics*, 42, 755–769. doi:10.1016/ j.jce.2013.04.003
- Giannetti, M., Federici, D., & Raitano, M. (2009). Migrant remittances and inequality in Central-Eastern Europe. *International Review of Applied Economics*, 23, 289–307. doi:10.1080/ 02692170902811710
- Hagen-Zanker, J., & Himmelstine, C. (2015). What is known about the differential impacts of remittances and cash transfers on poverty and vulnerability of households? *Social Policy and Society*, 14, 00–14. doi:10.1017/S1474746415000019
- Hernandez, E., Sam, A. G., Gonzalez-Vega, C., & Chen, J. J. (2012). Does the insurance effect of public and private transfers favor financial deepening? Evidence from rural Nicaragua. *Review* of Development Finance, 2, 9–21. doi:10.1016/j.rdf.2012.01.005
- Lampietti, J. A., Banerjee, S. G., & A. Branczik (2007). People and power: Electricity sector reforms and the poor in Europe and Central Asia, Washington, DC: The World Bank
- Maitra, P., & Ray, R. (2003). The effect of transfers on household expenditure patterns and poverty in South Africa. *Journal of Development Economics*, 71, 23–49. doi:10.1016/S0304-3878 (02)00132-3
- McDade, Z. (2010). Are conditions on cash transfers necessary to improve rural education outcomes? Evidence from Nicaragua. Honors Project Paper 31. Retrieved from http://digitalcom mons.macalester.edu/economics honors projects/31
- Mikusheva, A., & Poi, B. P. (2006). Tests and confidence sets with correct size when instruments are potentially weak. *Stata Journal*, *6*, 335–347.
- Ministry of Economy. (2012). Poverty Report Republic of Moldova 2010–2011. Chisinau: Ministry of Economy of the Republic of Moldova.
- MLSPF. (2011). Annual Social Report 2010. Chisinau: Author.
- Murrugarra, E. (2002). Public transfers and migrants' remittances: Evidence from the recent Armenian experience, World Bank Economists' forum (Vol. 2, pp. 25–47). Washington, DC: The World Bank.
- NBS. (2012). Aspects of the standard of living of population in 2011. Results of the household budget survey. Chisinau: National Bureau of Statistics of the Republic of Moldova.
- NBS. (2013). Aspects of the standard of living of population in 2012. Results of the household budget survey. Chisinau: National Bureau of Statistics of the Republic of Moldova.
- OECD (n.d.). What are equivalence scales? OECD Project on income distribution and poverty.http://www.oecd.org/eco/growth/OECD-Note-EquivalenceScales.pdf
- Olinto, P., & Nielsen, M. E. (2008). Do conditional cash transfers crowd out private transfers? In P. Fajnzylber & J. H. Lopez (Eds.), *Remittances and development: Lessons from Latin America*. Washington, DC: World Bank Publications.
- Otter, T., Vladicescu, & N. (2011). Impact of cash transfers on poverty and well-being of the most vulnerable families in the Republic of Moldova, within the context of transition from category-based to means-tested social assistance. FinalReport. Moldova: UNICEF.
- Siegel, M., & Lücke, M. (2013). Migrant transnationalism and the choice of transfer channels for remittances: The case of Moldova. *Global Networks*, 13, 120–141. doi:10.1111/glob.12002
- Stock, J. H., & Yogo, M. (2005). Testing for weak instruments in Linear IV regression. In D. W. K. Andrews & J. H. Stock (Eds.), *Identification and inference for econometric models: Essays in honor of Thomas Rothenberg*. 80–108. Cambridge: Cambridge University Press.
- Tesliuc, E., & Lindert, K. (2002). Social protection, private transfers and poverty, Technical paper No. 3, Guatemala Poverty Assessment program, Washington DC: The World Bank.
- UNDP. (2011). Republic of Moldova: From social exclusion towards inclusive human development. National Human Development Report 2010/11. Chisinau: Author.

- UNICEF. (2011). Situation analysis of vulnerable, excluded and discriminated children in Moldova. Chisinau: UNICEF Moldova.
- UNICEF (2012). Integrated social protection systems: Enhancing equity for children. New York, NY: United Nations Children's Fund.
- Van den Berg, M., & Cuong, N. V. (2011). Impact of public and private cash transfers on poverty and inequality: Evidence from Vietnam. *Development Policy Review*, 29, 689–728. doi:10.1111/j.1467-7679.2011.00553.x
- Vanore, M., & Siegel, M. (2015). The dynamism of (Female) emigration: The evolution of gendered migration trajectories from Moldova & Georgia. *Comparative Migration Studies*, 3(1), 1–21. doi:10.1007/s40878-015-0001-z
- World Bank. (1999). Poverty and social development in Peru, 1994–1997. Washington, DC: Author.
- World Bank. (2011a). Migration and remittances factbook 2011. Washington, DC: Author.
- World Bank. (2011b). Project appraisal document: Strengthening the effectiveness of the social safety net project, Report No. 59913-MD. Washington, DC: Author.
- World Bank. (2013). Moldova economic update October 2013. Retrieved from http://www.world bank.org/en/news/feature/2013/10/07/moldova-economic-update

# Appendix 1.

Variable	Description	Mean	SD	min	max
Log of expenditure without transfers	Per adult equivalent log of expenditures w/o transfer	6.3	1.6	0	9.1
Log of social assistance	Per adult equivalent log of social assistance	0.97	1.93	0	7.48
Log of remittances	Per adult equivalent log of remittances	0.71	2.1	0	8.94
Receives social assistance		0.23	0.42	0	1
Receives remittances		0.11	0.31	0	1
hh head is male		0.62	0.49	0	1
Percentage of females	% of female hh members	0.56	0.25	0	1
N° of kids		0.94	1.03	0	7
Nº 18-30 years old	N° of hh members who are 18–30 years old	0.63	0.88	0	5
Nº 30-40 years old	N° of hh members who are 30–40 years old	0.49	0.74	0	4
Nº 40-50 years old	N° of hh members who are 40–50 years old	0.39	0.68	0	2
Nº 30-40 years old	N° of hh members who are 30–40 years old	0.32	0.61	0	2
Nº 60 more	N° of hh members who are 60 or more years old	0.65	0.72	0	4
Age	Age of hh head	55.9	15.8	18	99
Age squared	Age of hh head squared	3376	1772	324	9801
Toilet	HH has a toilet inside	0.23	0.42	0	1
One member on maternity leave	At least one person in the HH is on maternity leave	0.04	0.20	0	1
The hh has a pensioner	There is at least one pensioner in the hh	0.49	0.50	0	1

Table A1. Descriptive statistics of variables used in the models.

Source: Author's calculations.

Variable	Amount of assistance (Equation 1a)	Amount of remittances (Equation 1b)
Logarithm of PAE expenditure excluding transfers	-0.08*** (0.02)	-0.80*** (0.02)
N° of kids in the household	$0.42^{***}$ (0.04)	$-0.26^{***}$ (0.03)
Nº 18–30 year old hh members	$0.06^{**}$ (0.04)	$0.14^{***}$ (0.04)
N° 30–40 year old hh members	-0.35*** (0.06)	0.39*** (0.05)
Nº 40–50 year old hh members	-0.35*** (0.06)	0.36*** (0.05)
N° 50–60 year old hh members	0.04 (0.07)	0.17*** (0.06)
N° 60* year old hh members	0.11 (0.08)	0.02 (0.07)
HH head is male	-0.01(0.08)	-0.03(0.07)
Age of hh head	-0.04** (0.02)	0.00 (0.01)
Age squared	0.00** (0.00)	-0.00 (0.00)
Percentage of females in the household	0.28* (0.15)	0.01 (0.12)
The house has proper toilet	0.05 (0.09)	0.58*** (0.07)
The hh has a member on maternity leave	0.88*** (0.16)	-0.29** (0.14)
The household has a pensioner	0.05 (0.11)	-0.23**(0.09)
District fixed effects	Yes	Yes
Constant	2.3***	5.7***
	(0.48)	(0.42)
Observations	3360	3360
Wald test F-statistic	9.83	23.4
Kleibergen-Paaprk LM stat	29.7	29.7
<i>p</i> -value	0.00	0.00
Sargan J statistic	1.4	1.4
<i>p</i> -value	0.24	0.24

TC 1 1		<b>T 1</b>	•
Table	A7	First-stage	regression
raore	· · · · ·	I not otage	regression.

Source: Author's calculations. Standard errors in parentheses. \*p < 0.1; \*\*p < 0.05; \*\*\*p < 0.01. Note: PAE is per adult-equivalent total household expenditure excluding transfers. Expenditure share on food used in the first stage, when remittances and social assistance are treated as continuous (results very similar with the other dependent variables and when we treat social transfers and remittances as binary variables).