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The Impact of Migration on Children Left Behind in Moldova¹

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Abstract

This paper empirically evaluates the well-being of children “left behind” by migrant household members in Moldova. Using data derived from a nationally-representative, large-scale household survey conducted between September 2011 and February 2012 among 3,255 households (1,801 of which contained children aged 0-17) across Moldova, different dimensions of child well-being are empirically evaluated. Well-being of children in Moldova is divided into eight different dimensions, each of which is comprised of several indicators. Each indicator is examined individually and then aggregated into an index. Well-being outcomes are then compared by age group, primary caregiver, migration status of the household (current migrant, return migrant, or no migration experience), and by who has migrated within the household. It was found that migration in and of itself is not associated with negative outcomes on children’s well-being in any of the dimensions analysed, nor does it matter who in the household has migrated. Children living in return migrant households, however, attain higher rates of well-being in specific dimensions like emotional health and material well-being. The age of the child and the material living standards experienced by the household are much stronger predictors of well-being than household migration status in a number of different dimensions. The results suggest that migration does not play a significant role in shaping child well-being outcomes, contrary to the scenarios described in much past research. This paper is the first (to the authors’ knowledge) to link migration and multidimensional child poverty.

JEL codes: I32, F22, J61

Key words: Moldova, migration, poverty, child poverty, multi-dimensional poverty

¹ This article is derived from data collected in the course of the European Commission-financed project entitled “The Effects of Well-being in Moldova and Georgia on Children and the Elderly Left Behind.” More information on the project and its outputs is available at: http://mgsog.merit.unu.edu/research/moldova_georgia.php.

I. Introduction

This paper provides an empirical evaluation of the well-being of children left behind by migrant caregivers in Moldova by comparing different well-being outcomes among children (<18) in non-migrant, current-migrant, and return-migrant households. Outcomes in different dimensions of well-being are compared by child age cohort and household migration status, and a multidimensional child well-being index is constructed to highlight the multiple deprivations a child may simultaneously face.

Moldova has experienced a spike in emigration since 1999. In 2010, the stock of emigrants living abroad was estimated at 770,000, equalling 21.5 per cent of the Moldovan population (Ratha, Mohapatra, & Silwal, 2010). Migration is also increasingly gender diversified, with men migrating primarily to Russia and women to Italy and other areas of Europe. At least half of migrants that leave Moldova are women (Salah, 2008), often migrating to Europe to work in the service or care sector. With this increase in female migration there have also been concerns regarding the care of household members who are looked after by the women who have migrated.

Migration of a caregiver could have both positive and negative effects on the well-being of children who remain behind: the transfer of remittances and availability of additional resources could enable the household to make increased investments in the education and health of children while enabling them to meet their daily needs without problems. At the same time, the absence of a caregiver could imply less supervision and greater emotional challenges for the children that remain behind.

The following analysis of multi-dimensional child well-being utilizes data derived from a nationally-representative, large-scale household survey conducted between September 2011 and February 2012 among 3,255 households in all regions of Moldova (except Transnistria). With a total sample of 1,801 households containing at least one child aged 17 or below, such data provides a novel opportunity to analyse multi-dimensional child well-being in the Moldovan context.

Section II provides an overview of the theoretical foundations of migration and child well-being, and surveys previous studies conducted on the effects of migration on the welfare of children left behind. Section III explains the measurement of well-being in the Moldovan context, before Section IV presents the data and methodology used in analysis. Section V explores the well-being of children in Moldova through eight different dimensions of well-being. Each dimension is comprised of various indicators of wellness that are examined individually before being aggregated as an index. Well-being is then analysed by age group, migration status of the household (current migrant, return migrant, and no migration experience), and by who has migrated within the household. Section VI concludes with a final discussion.

II. Migration and Child Well-Being

Within the field of migration studies increasing attention has been paid to the “left behind,” individuals who remain in the country of origin following the emigration of a household member. Children, who are often limited in their capacities to achieve positive development outcomes on their own, are of particular concern following the emigration of a household member.

Theory from the fields of migration studies and psychology suggest an intimate link between migration and the well-being of children left behind. The (new) economics of labour migration (NELM) theory posits that the decision to migrate is a function of decision-making processes within larger units of decision makers such as families, households, or communities (Stark & Bloom, 1985). Within these social units migration can be a means of controlling or mitigating risk by “diversifying the allocation of household resources, such as a family labour” (Massey, *et al*, 1993; pp 436). Migration can be a valuable strategy to generate additional income, insure against production risk, and help households overcome market failures, such as missing or imperfect credit and insurance markets (Taylor, 1999). Within this theoretical framework it would be expected that children would benefit from the migration of a household member in domains directly linked to household-level resources and labour such as education, nutrition, health, housing, and material living standards.

Migrants are not only potential sources of income, however, but potential sources of less-easily quantified resources—such as caregiving—that have a greater capacity to affect well-being. Within the field of development psychology, the concept of *attachment* has long been used to describe substantial, enduring, affectional bonds between individuals. The first type of attachment a child forms is generally to its mother or other habitual caregiver, which can be supplemented over time by attachments to other persons (Ainsworth, 1969). While attachments endure over time and space, their manifestation changes with maturity. In very young children attachments tend to be dependency relationships in which a child seeks physical closeness to a caregiver; in later age, the intensity and frequency of proximity-promoting behaviours may be directed to maintaining symbolic proximity to a trusted other via less direct communication (such as telephone calls) (Armsden & Greenberg, 1987). The actual or threatened disruption of the attachment can lead to emotional disturbances such as depression, anxiety, sadness, or anger, all of which result from an inability to maintain set proximity limits. Disruption of attachment relationships—or the development of unresponsive or unpredictable attachment relationships—shakes the sense of security an individual derives from attachments (Armsden & Greenberg, 1987). Migration of a caretaker may thus inspire significant psychological distress among recipients of care. The attachment theory may suggest that particularly in young children, migration of a parent or caregiver may result in poor emotional and physical well-being outcomes.

Past research on the effects of migration on children left behind have both confirmed and contested the expectations provided by theory, but understanding the relationship between migration and child well-being is complex. Kandel and Kao (2001) note that there is a tendency

to over-simplify potential positive benefits of migration, and nuance is often lost by failing to balance greater material resources against losses of less-easily measured impacts (such as parental supervision).

Remittances are one of the easiest-to-identify ways in which migrants contribute to household well being. Remittances can act as a supplement to household income and can protect the household from adverse economic shocks, which can ease working capital constraints and allow households to invest in productive, small-scale enterprises (World Bank, 2006). This in turn can contribute to reduced reliance on child labour and a decrease in overall child labour rates (Yang, 2008; van de Glind, 2010). Increased household income, coupled with the transmission of knowledge, from a migrant abroad have also been linked to better nutrition, increased access to consumption items (food, housing rental, clothing, etc.), and increased human capital investment through education (UNDP, 2009). Remittances can further enable increased healthcare expenditures, contributing to better health outcomes over time (Cortés, 2007). The potential effects of remittances on domains of well-being such as a health can change over time, however. In Mexico Kanaiupuni & Donato (1999) found that migration can initially result in higher infant mortality rates; as migration becomes more common-place and communities develop appropriate strategies for coping with the changes wrought by migration, however, infant mortality has been documented to decrease in migrant households while birth weights increase (Hildebrandt *et al*, 2005). Another study in Mexico found that, while migration was linked to lower use of preventative healthcare and health inputs like breastfeeding and full adherence to vaccination regimes, infant mortality decreased over time (McKenzie, 2007). Other aspects of physical health, such as nutrition, can also be potentially affected by migration. In Moldova remittances contributed to increased access to vitamins, medicines, and greater quantities of food (Salah, 2008). In Albania remittances not only increased access to healthcare facilities but also enabled families to consume better quality food (Institute for Economy, Finance, and Business, 2007). Despite increased access to food, medicines, and medical care, children of migrant parents may lack necessary supervision and facilitation to actually use and benefit from these resources (Salah, 2008).

While the channels through which it occurs are less easily observed, migration can affect emotional health as well. A number of studies (Salah, 2008 and Gavriiuc, *et al*, 2006 in Moldova; Asis 2006 in the Philippines; Giannelli & Mangiavacchi, 2010 in Albania) have reported that parental migration can lead to worse emotional well-being outcomes among children left behind. Among children of Caribbean serial migrants, for instance, prolonged parental separation, changing caregivers, and reunification with migrating parents were found to contribute to low self esteem and behaviour problems among children left behind (Smith, Lalonde, & Johnson, 2004). In Trinidad and Tobago it was found that children of migrant parents were twice as likely to experience emotional problems such as anxiety and depression as peers who had not experienced parental migration, and one third had experienced depression so severe that it affected schooling outcomes (Jones, Sharpe, and Sogren, 2004). A UNICEF-sponsored study in Moldova went so far as to link parental absence to higher rates of adolescent delinquency, deteriorating social relationships, and higher risk behaviours among children left behind (Prohntchi, 2005). The severity of emotional changes may depend, however, on a range of factors such as the child's age, subsequent living arrangements and the presence of family members, the role of the migrating parent, duration of parental absence, and similar personal circumstances.

A growing number of studies have also investigated the effects of migration on educational attainment and human capital accumulation. Increased expenditure on education enabled by remittances has been linked to greater educational attainment, better school performance, and lower school drop-out rates in countries such as Guatemala (Moran-Taylor, 2008), El Salvador (de la Garza, 2010), the Philippines (Edillon, 2008; Yang, 2008), and Sri Lanka (de la Garza, 2010). Other studies have reported contrary outcomes, however. In Mexico, McKenzie and Rapoport (2011) found that boys in migrant households were less likely to complete junior high school, and both boys and girls had lower chances of completing high school. Further studies in Ecuador (Carillo & Herrera, 2004, in Cortés, 2007), Moldova (Salah, 2008), and Albania (Giannelli & Mangiavacchi, 2010) have noted that parental absence can result in poorer school performance, decreased attendance, and declining graduation rates. As not all migrants who leave are able to send back remittances because they have migrated as a survival strategy, some children may in fact be less able to take advantage of educational opportunities post-migration. In Mexico, Kandel (2003) found that male children of migrant parents face higher risk of dropping out of school because they often need to work to supplement household income, while girls in rural communities have higher dropout rates due to inter-household distribution of resources that favours males.

The many prior studies conducted on the effects of migration on children left behind provide insights into the possible direction of changes (positive or negative) to well-being as well as the mechanisms behind those changes. Within each dimension of child well-being, migration can be linked to either positive or negative outcomes depending on the context in which those changes occur. In contrast to past studies that have generally focused on only one specific aspect of child well-being, the present study interprets child well-being holistically, as a set of interconnected domains. The potential links between migration and child well-being call into question an even more fundamental dilemma, however: that of how well-being should be defined and measured.

III. Defining Well-Being

Well-being is a normatively-defined state with components that vary widely by discipline and context of usage. For our purposes well-being finds its origins in the capabilities approach and its subsequent application in the human development paradigm (Fukuda-Parr, 2003). The capabilities approach, which was first articulated by economist Amartya Sen in the early 1980s, conceptualizes well-being as a product of an individual's effective opportunities to do or become that which he or she so desires (which Sen calls "functionings"). An individual's opportunities, or capabilities, determine the functionings that an individual can achieve; lack of capabilities, or the freedom to chose among them, leads to limited realizable functionings—deprivation or poverty (Sen, 1993; Robeyns, 2005). This way of conceptualising well-being is inherently multidimensional, as possible achieved functionings are not restricted to one dimension but instead correspond to the many facets of an individual's life that contribute to an individual's sense of worth and fulfilment. Human development should thus be regarded as an enterprise that is inherently multidimensional, and deprivation in any number of dimensions can result in the failure of an individual to achieve well-being (Alkire, 2002; Sen, 1993; Robeyns, 2005; Alkire & Foster, 2011).

Within Sen's envisioning of the capabilities approach, "well-being" is a highly personalized state that differs widely among individuals with different desired outcomes; for this reason Sen abstained from providing a list of key functionings, a gap which a number of listing exercises have attempted to bridge.² Eventually, if one attempts to empirically measure well-being, the exercise of defining well-being dimensions and indicators cannot be avoided. The definition of well-being components is a necessary step in order to move from concept to measurement. Previous attempts mainly differ with respect to the underlying conceptual frameworks and the focus of the analysis, such as country versus household (individual) level, or the total population versus a specific sub-group.

Children—those individuals aged 17 and younger—present a very specific set of challenges to the evaluation of well-being. The unique vulnerabilities and constraints faced by children differ significantly from those of adults, as do the resources required to ensure positive child development outcomes (White, Leavy, and Masters, 2003; Brooks-Gunn and Duncan, 1997; Waddington, 2004). These differentiated needs necessitate the development of a separate definition and evaluation method of well-being that encompass the domains of child-specific wellness. An important starting point to this process is the United Nation's Convention on the Rights of the Child (CRC).

First introduced in 1959, the CRC provides a normative framework for assessing the rights that should be guaranteed to all children in order to help them achieve well-being (Bradshaw, Hoelscher & Richardson, 2006). The Convention's 54 articles provide a list of dimensions and rights required to attain well-being (Corak, 2006). These dimensions—survival, development, protection, and participation—include components (also conceivable as capabilities) such as adequate living conditions, right to education, play, right to family life, and freedom to express opinions, among others (CRC, 1989). The child rights-based approach to assessing well-being is not unlike the capabilities approach: as Bradshaw *et al* (2006) explain, "...well-being can be defined as the realization of children's rights and the fulfilment of the opportunity for every child to be all she or he can be." (pp 135)

The CRC provides both a guiding definition of well-being and a list of possible dimensions and indicators of well-being that have been elaborated into different measurement instruments. After reviewing methods of measuring and monitoring child well-being, Ben-Arieh (2002) suggested that the development of an instrument for measuring child poverty should be guided by several principles, such as that indicators of child well-being should be measured on the child (rather than institutional) level, which a number of other authors have supported as well (among them Bradshaw *et al*, 2006; Corak, 2006; Roelen *et al*, 2009). Ben-Arieh suggested five domains of child well-being: civil life skills, personal life skills, safety and physical status, children's activities, and children economic status (Ben-Arieh, 2000). In elaborating a well-being index for children in the European Union, Bradshaw *et al* (2007) proposed eight domains, several of which bear similarity to those proposed by Ben-Arieh: material situation, housing, health, subjective well-being, education, children's relationships, civic participation, and risk and safety.

²See Alkire (2002) and Robeyns (2005) for brief surveys of various lists.

The domains and dimensions of well-being identified by past instruments not only overlap with the realms of rights outlined in the CRC but also embody concepts that can represent essential capabilities. While it would be impossible to state that a full consensus has been reached on the component dimensions of child well-being, the overlap of dimensions observed from these sources can suggest convergence toward a basic definition of child well-being. The definition of child well-being operationalized here is the following:

Well-being is a multidimensional state of personal being comprised of both self-assessed (subjective) and externally-assessed (objective) positive outcomes across eight realms of opportunity: education, physical health, nutrition, emotional health, material living standards, housing, protection, and information and communication.

This definition recognizes that there are a multitude of opportunities within an individual's life that contribute to the achievement of well-being. These elements are seldom static or independent of context; their expression and formation are the products of on-going and dynamic processes that change the risk factors and resources within a child's immediate and more distant development environment (Bradshaw *et al*, 2007). Migration is one such change process that alters the context in which individuals develop and function, but its effects are not universal and homogenous.

IV. Data and Methodology

Data used in this analysis was derived from a nationally-representative, large-scale household survey conducted between September 2011 and February 2012 among 3,255 households in all regions of Moldova except Transnistria. Of the total sample, 1,801 households contained at least one child aged 17 or below; these households included 3,018 individual children. The survey sample was drawn from the Moldovan Labour Force Survey (LFS) conducted in the second quarter of 2011.

Within this sample frame the eligible population was defined as any household with one or more elderly (age 60+) members or one or more child (aged 0-17) members.³ The sample was further split into households with or without a current migrant. The survey was explicitly designed to investigate how the migration of a household member affects the well-being of children who remain in Moldova, thus care was taken in the sampling stage to ensure that an appropriate (non-migrant) counterfactual group existed.

The survey was comprised of six modules that collected information on the demographic features of household members, household living conditions, members' migration histories, and child-raising behaviours. To retain the child as the unit of analysis, several survey sections were explicitly developed to encompass the experiences of children. Caregivers within the household were asked to provide information about each child in terms of health, education, migration, time allocation, parenting practices, and child behaviour.

³ While the aim of the project is to study both the well-being of children and elderly left behind, this paper focuses on children only.

Table 2. Descriptive Statistics of the Survey Sample

	Male		Female		Total	
	# obs	%	# obs	%	# obs	%
<i>Age group</i>						
0-2 years	220	7%	211	7%	431	14%
2-4 years	164	5%	143	5%	307	10%
5-6 years	162	5%	168	6%	303	11%
7-10 years	326	11%	309	10%	635	21%
11-17 years	673	22%	642	21%	1315	41%
<i>Main caregiver</i>						
Mother	1174	39%	1122	38%	2296	77%
Father	159	5%	153	5%	312	10%
Grandparent	175	6%	147	5%	322	11%
Other relative	19	0.6%	38	1.3%	57	2%
<i>Household migration status</i>						
Migrant household	488	16%	469	16%	957	32%
Return migrant household	219	7%	242	8%	461	15%
Non-migrant household	838	28%	762	25%	1600	53%
<i>Relationship between migrant and child</i>						
Mother migrated	97	10%	96	10%	193	20%
Father migrated	163	17%	151	16%	314	33%
Both migrated	64	7%	60	6%	124	13%
Other relative migrated	164	17%	162	17%	326	34%
<i>Region</i>						
Chisinau	161	5%	175	6%	336	11%
Centre	594	20%	511	17%	1105	37%
North	395	13%	390	13%	785	26%
South	395	13%	397	13%	792	26%
Total	1545	51%	1473	49%	3018	100%

Source: Author's calculations.

Table 2 shows key descriptive statistics of children in Moldova, such as age, sex, primary caregiver, migration status of the household, and region. Weights were applied to make the statistics representative at a population level. As the table shows, most children lived in the centre of Moldova, followed by the north and the capital Chisinau. Nearly a third of the child sample (32 percent) lived in households with a current migrant, and an additional 15 percent lived in a household that contained a member who had migrated in the past. Among those children living in current migrant households, a similar proportion (33 percent) had either a father or other relative

abroad. Among children in all household types, 77 percent were primarily cared for by a mother. These characteristics do not differ significantly by child gender.

A wealth of previous studies have attempted to define and measure multidimensional (child) poverty and well-being (Gordon *et al*, 2003; Alkire & Foster, 2011; Roelen & Gassmann, 2012; Notten & Roelen, 2010; Bradshaw *et al*, 2007; Richardson *et al*, 2008). Cross-country studies either use macro-level data to provide a relative ranking of countries according to their multidimensional poverty (Gordon *et al*, 2003; Alkire & Foster, 2011; Bradshaw *et al*, 2007; Richardson *et al*, 2008), or they use micro-level data for a more in-depth analysis of poverty and well-being (Notten & Roelen, 2010). Additional studies analyse multidimensional (child) poverty and well-being for individual countries, comparing well-being and poverty across different groups within the given population (e.g. Roelen & Gassmann, 2009, 2012; Roelen *et al*, 2010; Noble *et al*, 2006; Gordon & Nandy, 2007; Nimeh, 2012). This paper is the first (to the authors' knowledge) to link migration and multidimensional child poverty.

An advantage of single-country studies is the possibility to tailor the selection of indicators and thresholds to the local situation in terms of socioeconomic characteristics as well as prevalent norms and values (Roelen *et al*, 2009). The current analysis has the advantage of being able to draw from measurement tools designed not only for the particular population of interest (children) but also for the dimensions of interest identified by previous attempts to operationalize the capabilities approach. While some indicators had to be replaced or omitted due to a limited number of observations or limited applicability to all members of a given age cohort, desired indicators were generally available for use. While the index does include household-level variables such as income, assets, and living conditions, many of the indicators chosen were drawn from questions asked *about* a specific child or *to* the child him or herself to retain the child as the unit of analysis. As such, the approach reflects the principle suggested by Ben-Arieh (2000) that an index should capture important, contemporary features of a child's life that exert a considerable influence on current quality of life.

The review of previous attempts to define and measure child well-being as well as the guiding principles for the development of a child-specific index proposed by Ben-Arieh (2000) and Roelen *et al* (2009) provided the framework from which the present index emerged. Determining the dimensions of child well-being was only one of several steps in constructing the index, however. To understand how the dimensions should be decomposed into relevant indicators, “children” as a group for study needed to be better defined. The index includes only children age 17 or below, following the definition of the Convention of the Rights of the Child (CRC). Within the index, however, different age cohorts were defined, as the needs of children—and the components of their well-being—differ considerably by age. Table 3 contains the list of dimensions and indicators for the different age groups.

Table 3. Well-being indicators per dimension and age

Age group	Indicator
EDUCATION AND EARLY CHILDHOOD DEVELOPMENT	
0-4	Caregiver plays with child at least 3 times a week
5-6	Child is attending pre-school
7-17	Child is attending school at appropriate grade
NUTRITION	
0-4	Child is not wasted, stunted or underweight according to WHO standards
5-17	Child is not overweight (BMI>95th percentile)
HEALTH	
0-2	Child's subjective health status is average or better than other children
3-17	Child has received all vaccinations
MATERIAL LIVING STANDARD	
0-17	Child is living in non-poor household
HOUSING	
0-17	Child is not living in overcrowded household
	Child is living in house with proper flooring
	Child has access to safe drinking water
SOCIAL PROTECTION	
0-2	Child is not abused (shaken or beaten)
3-4	Child is not abused (beaten repeatedly)
5-10	Child is not abused (beaten repeatedly)
11-17	Child is not abused (beaten repeatedly)
	Child is not engaged in child labour
INFORMATION AND COMMUNICATION	
0-17	Child lives in household with access to internet
	Child lives in household with TV
	Child lives in household with mobile phone
EMOTIONAL WELL-BEING	
0-4	Child has close/neutral relationship to mother
	Child has close/neutral relationship to father
5-17	Child does not have emotional problems
	Child does not have conduct problems
	Child does not suffer from hyperactivity
	Child does not experience peer problems

The methodology used to create the multidimensional child well-being index follows Roelen & Gassmann (2012), which is an adapted version of methods applied in earlier studies (Roelen et.al. 2009; Alkire & Foster, 2011; Alkire & Santos, 2010). The method applies a weighted aggregation scheme at the level of dimensions and for the overall index, taking into account the variance in domain indicators for children of different age-groups.

The methodology employs a three-step process. In the first step, each indicator is analysed separately. A child can be considered not deprived if s/he meets the established well-being

threshold set for a given indicator. Indicator well-being rates (*IWB*) are calculated by counting the number of children who meet the requirement and are expressed as a share of all children in the given age-group:

$$IWB_x = \frac{1}{n} \sum_{i=1}^n I_{ix}$$

where n is the number of children for which the indicator is observable and I_{ix} is a binary variable taking the value 1 if child i has reached the threshold and 0 if the child has not with respect to indicator x .

In the second step, well-being rates for each dimension are established. Dimension well-being rates (*DWB*) identify those children who achieve a sufficient level of well-being in the given dimension as not deprived, expressed as a share of all children. All indicators have equal weights summing up to 1 within a dimension. A child is considered to be well if the weighted indicator aggregate, D_i , is equal or above 0.66 for dimension d :

$$DWB_d = \frac{1}{n} \sum_{i=1}^n D_{id}$$

$$D_{id} = 1 \text{ if } \sum_{x=1}^k W_x I_{ix} \geq 0.66$$

where I_{ix} are the indicators of dimension D for child i and w_x are the indicator weights. This intermediate step allows the comparison of dimension well-being for different groups of children.

In the third and final step, the overall child well-being index is created by aggregating well-being rates across dimensions. The child well-being index (CWB) provides the percentage of children whose aggregate well-being exceeds the pre-identified threshold. Interpreted alternatively, those children not meeting the requirements can be considered multi-dimensionally deprived. Formally:

$$CWB = \frac{1}{n} \sum_{i=1}^n W_i$$

$$W_i = 1 \text{ if } \sum_{d=1}^m W_d D_{id} \geq 0.66$$

where n represents the number of children for which all dimensions are observable, and W_i is a binary variable with value one if the aggregated and weighted domain well-beings, D_{id} , exceed the threshold of 0.66. Each dimension is weighted equally and all dimension weights, w_d , sum up to one.

The decision to assign equal weights to indicators for domain well-being rates and to dimensions for the overall child well-being indicator is a purely normative decision. It assumes equal importance of all indicators within dimensions and all dimensions with the index. The number of indicators within a dimension determines the respective indicator weight; the same rule applies to dimension weights. If the overall child well-being index is composed of eight dimensions, each dimension is assigned a weight of 0.125, together summing up to one. Each indicator weight is based on the number of indicators within that dimension. For example, if we have 3 dimensions

(Nutrition, Education, Material with Nutrition have 3 indicators, Education having 2 indicators and Material having 1 indicator) then we would calculate the wellbeing as: $1/3$ (for the dimension)*nutrition (after the cut offs have been calculated, so this takes on a value of 0 or 1) + $1/3$ *education+ $1/3$ *material. Then an additional cut-off of 66% (for example, is used) for over all wellbeing, meaning that the child must be well in at least 2 of the 3 dimensions.

To test for the sensitivity of the applied methodology, overall child well-being rates were also calculated following the Alkire and Foster (2011) methodology, where each indicator is assigned a weight based on the number of dimensions and indicators per domain, with no domain cut offs first. Only the indicators are used for the total well-being cut-off. For example, in the case of three dimensions and two indicators in domain one, the two indicators are assigned a weight of $1/6$ each ($= 1/3 \times 1/2$). If a dimension has four indicators, each indicator is assigned a weight of $1/12$ ($= 1/3 \times 1/4$). In case both methodologies lead to the same results in terms of ranking of different population groups, the conclusion as to which group is least deprived, or best-off, is robust.

As this type of analysis depends on survey data, the data itself causes some challenges and limitations. Although the survey includes 3,018 children below the age of 18, most indicators are available for only a fraction of these children (see Table 2 in the appendix). The number of missing observations, especially for certain modules such as anthropometrics or emotional well-being, necessitated the testing of different definitions of child well-being. While all eight dimensions are included for the overall index measure in the first iteration, nutrition and then emotional well-being are each subsequently excluded to test robustness⁴.

V. Results

In this section, the results for each domain are discussed separately before overall child well-being rates are analysed. Children are compared across age cohort, primary caregiver⁵, and by household migration status. For those children living in migration-affected households, analysis is then made of who in the households has migrated. This section contains two forms of analysis: first, well-being rates per domain and by different groups of children are presented. Using a one-way analysis of variance test, it is tested if outcomes differ at a statistically-significant level across the groups. The simple bivariate analysis is subsequently extended in a second step to account for other determining factors affecting the well-being of children. Separate binary outcome models are estimated for each well-being domain using standard probit models.

Based on the bivariate analysis, the overall level of well-being among children differs considerably across the domains. Well-being rates are above 90 percent in the domains of education, housing, and social protection and above 80 percent in the domains of nutrition, physical health, information and communication, and emotional well-being. The average well-being rate in the domain of material well-being stands out for its attainment by only 59.3 percent of the population (see Table 4).

⁴ The exclusion of nutrition and emotional well-being was used as a robustness check due to these indicators having the lowest number of observations.

⁵ The 'primary caregiver' is the person identified by the survey respondent as the person who provides the most significant amount of care for a given child.

Education and early childhood development

Almost all children below the age of five benefit from early childhood development activities, defined as a caregiver playing with the child at least three times a week. For children between the ages of five and 17, school enrolment is considered essential. Domain well-being rates are significantly lower for the five-to-six year-old group due to low pre-school enrolment,⁶ but net school enrolment rates are otherwise high for all school-age children. Almost 93 percent of all children under the age of 18 have attained educational well-being. There are no significant differences between children from migrant and non-migrant households, but within migrant households, *who* in the household has migrated does seem to matter. Children from households where a non-parent household member is abroad have a significantly lower educational well-being (88.5 percent) than children living in households in which someone else has migrated. Interestingly, children living in households in which both parents have migrated attain higher rates of educational well-being (of 94.1 percent). These results both challenge and confirm results from prior studies, many of which predict either net positive or net negative effects of migration on educational attainment regardless of who in the household is absent.

Nutrition

Nutritional well-being, measured according to World Health Organization (WHO) standards, has been attained by 80 percent of all children. For children below the age of five, well-being is defined as not being wasted, stunted, or underweight.⁷ For older children, an age- and gender-adjusted BMI index identifies children who are overweight or obese. Differences between age-groups are significant with older children experiencing higher nutritional outcomes. Both migration status and caregiver type appear to have no effect on nutritional well-being, which may reflect findings from other studies—such as that of Salah (2008)—that find a null net effect of migration on nutrition.

Physical health

The dimension of physical health is represented by both objective and subjective indicators. For the three-to-17-age group, whether a child has received the complete set of vaccinations provides an objective indication of health status. A child's health status compared to other children as reported by the primary caregiver presents a subjective measurement of child health for the zero-to-two age group. Physical health well-being is high, with 82.1 percent of children doing well in this dimension. Caregivers often positively assessed the health status of their children, with more than 9 out of 10 children having a health status average or better than other children of the same age. Vaccination rates increase over child age: while only 63 percent of children aged three-to-four have received the full vaccination regime, this rate increases to nearly 84 percent for the 11-17 year cohort. A household's migration status appears to impact a child's physical health, as children in return migrant households achieve significantly higher well-being rates (87 percent), followed by current migrant households (82 percent). This may indicate that the availability of material resources to pay for healthcare expenditures and inputs (including foods, vaccines,

⁶ Note that single indicator rates are generally based on more observations than domain well-being rates, which depend on having observations for several indicators simultaneously. Therefore, single indicator rates can be higher than expected from the domain rates.

⁷ A child is considered well-nourished if it does not experience malnutrition based on any of the three indicators.

vitamins, etc.) as well as knowledge about healthcare (Cortés, 2007; Salah, 2008) change as the result of migration.

Table 4. Domain well-being rates

	Education		Nutrition		Health		Material		Housing		Social protection		Information and communication		Emotional	
	obs	%	obs	%	Obs	%	obs	%	obs	%	Obs	%	obs	%	obs	%
Total	2820	92.92	2052	80.0	2981	82.1	3018	59.3	2809	90.4	2756	93.1	3013	87.3	2532	83.9
age 0-2	395	98.8	299	72.3	394	94.1	431	62.4	388	91.6	357	77.5	431	90.5	367	92.6
age 3-4	285	96.8	211	75.8	307	63.0	307	63.2	295	92.9	283	96.6	307	86.9	266	88.7
age 5-6	330	66.0	227	75.2	330	72.9	330	55.3	297	89.7	303	96.6	328	87.3	267	71.8
age 7-10	606	97.33	436	77.1	635	84.7	635	57.2	598	90.3	592	95.9	634	85.6	542	76.1
age 11-17	1204	95.39	879	86.9	1315	83.9	1315	59.3	1231	89.6	1221	95.3	1313	87.1	1090	86.5
Significance		***		***		***						***				***
Main caregiver: Mother	2146	93.1	1584	79.9	2264	82.2	2296	58.4	2117	90.6	2091	92.3	2294	87.8	1996	84.5
- Father	295	90.0	197	79.9	309	85.0	312	67.2	303	91.2	291	95.9	311	91.8	232	81.7
- Grandparent	303	93.9	218	79.1	320	81.7	322	59.3	305	88.2	304	96.2	320	79.8	247	78.4
- Other relative	49	97.2	36	85.5	57	75.2	57	65.4	54	95.5	51	95.2	57	85.1	45	92.6
Significance												*		**		*
Migrant household	879	91.5	661	80.5	942	82.4	957	55.5	906	91.8	875	93.3	954	87.7	792	81.2
Return migrant household	431	92.6	317	79.2	453	87.6	461	63.4	430	91.3	425	93.8	461	91.4	393	89.8
Non-migrant household	1484	93.7	1074	79.9	1586	80.4	1600	59.8	1473	89.5	1456	92.7	1598	85.9	1347	83.3
Significance						**										**
mother migrated	181	94.4	134	76.7	192	80.4	193	58.8	182	89.0	179	93.9	191	85.9	164	80.1
father migrated	283	91.9	217	80.5	303	80.9	314	57.9	296	94.1	286	91.7	313	90.1	270	77.9
both parents migrated	116	94.1	80	73.9	123	81.2	124	49.0	116	94.8	116	99.1	124	82.1	106	86.9
other person migrated	299	88.5	230	84.7	324	85.3	326	53.4	312	89.9	294	92.7	326	88.1	252	83.2
Significance		*														

Source: authors' calculations. Note: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$ significance levels based on chi2 test of independence.

Material living standard

Material living standard is measured using average household expenditures per adult equivalent. Children living in households with average expenditures below 60 percent of the median are considered to be deprived. More than 59 percent of all children are living in non-poor households. The lack of significant differences among children in non-, return-, and current-migrant households is somewhat surprising considering past research and theory, which would largely predict that migration changes the material resources available to a household. The limited differences may be attributable to subtle shifts to expenditure patterns caused by migration. If a member is no longer within the household, the costs associated with that member—such as food, clothing, and other daily expenses—are no longer accrued by the household. The money previously spent on these expenditures may be directed to another category of expenditure, yet total household expenditures may remain the same. Another reason relates to information availability. The survey from which expenditure data was collected omitted important categories of expenditure, such as housing, that may be most sensitive to migration-related changes and investments. As identified by past research (World Bank, 2006; UNDP, 2009; Adams, 1998; Taylor *et al*, 1996), housing repair, improvement, and ownership as an important destination of remittances; this is a problematic omission. There are many other possible explanations such as the selection of the type of household that has a migrant for the limited effect of migration on material living standards, which highlights the difficulty in quantifying the effects of migration on a dimension-aggregate level.

Housing

Housing well-being is attained by 90.4 percent of the sample. Indicators in this domain include flooring quality, the number of persons per room (overcrowding), and access to safe drinking water. The relatively high level of well-being disguises significant variance between indicators within this domain. While access to safe drinking water is available for more than 90 percent of all children, many children (64 percent) live in overcrowded households in which the average space per person does not exceed 12m². The differences in housing well-being are not significant for children of different age groups, by migration status of the household, or by main caregiver.

Social Protection

The dimension of social protection includes indicators measuring child abuse and child labour (for children aged 11-17). Child abuse for children aged three and above is defined as repeated beating, while for very young children repeated shaking is also considered harmful. Of the entire sample, 93.1 percent of children can be considered socially protected. The differences across age groups are significant at the one-percent level, with very young children (aged zero-to-two) experiencing the lowest rates of social protection. There are no significant differences based on household migration status. Child labour is not an issue in Moldova: among children aged 11-17, less than two percent were engaged in either more than 14 hours of paid work or 42 hours of combined domestic and paid work per week. This mirrors the high school enrolment rates for this age group.

Information and Communication

Well-being in terms of information and communication includes indicators measuring access to modern sources of information and means of communication (such as the internet, mobile phones, and television). While the indicators included in this dimension are measured on the

household level, it can be expected that children living in households with technologies that facilitate information exchange and communication will benefit individually from the greater level of connectedness. Within this dimension 87.3 percent of all children can be considered well-off, and the rates of well-being are distributed fairly evenly among age cohorts. Differences in well-being rates are statistically significant according to the main caregiver of the child. Children in care of their grandparents have the lowest well-being rates, while children whose main caregiver is the father have the highest rates. These results are mainly driven by access to internet and mobile phones, which is highest in households where the father is the main caregiver.

Emotional Well-Being

Emotional well-being is measured for children aged five-to-17 by an abbreviated version of the Strength and Difficulties Questionnaire (SDQ), a behavioural screening instrument that uses 25 questions concerning psychological attributes to identify potential cases of mental health disorders (Goodman, 1997). The standard SDQ distributes the 25 items among five subscales: emotional symptoms, conduct problems, hyperactivity, peer problems, and pro-social behaviour. Scores from the first four subscales have been used to measure emotional well-being. For children below the age of five, emotional well-being is assessed by the child's relationship with her/his biological mother and father.

The overall level of attained emotional well-being is high, with nearly 84 percent of all children considered well in this domain. Differences in well-being are statistically significant across age groups, by caregiver, and by migration status of the household. Emotional well-being exhibits a U-shaped pattern with increasing age, with children aged five-to-six experiencing the lowest well-being rates. Children cared for by another relative exhibit the highest rates of emotional well-being at 92.6 percent (compared to 78 percent cared for by grandparents, 82 percent cared for by fathers, and 84.5 percent cared for by mothers). It seems somewhat counterintuitive that children cared for by other relatives fare best, but as this result is fuelled by a small sample size, caution should be taken in its interpretation. Household migration status was significant at the five-percent level, with children in return migrant households achieving the highest outcomes. For children within current migrant households, it does not appear to matter which household member is absent. These are interesting conclusions given the growing body of research that suggests consistently diminishing emotional health and interpersonal relationships between child and parents following migration (Salah, 2008; Gavriiliuc *et al*, 2006; Asis, 2006; Giannelli & Mangiavacchi, 2010; Smith, Lalonde, & Johnson, 2004; Jones, Sharpe, and Segren, 2004; Prohntchi, 2005; Moran-Taylor, 2008; Schmalzbauer, 2004; Suarez-Orozco, *et al*, 2002; Dreby, 2007; Moran-Taylor, 2008). The results seem to suggest that emotional health is not merely determined by parental presence but also by quality of child-parent relationships, and—in line with the attachment theory—a child's age may additionally affect emotional health.

The analysis of domain well-being rates above applied a purely bivariate approach by assessing the difference in variance across different groups of children. Since well-being is not only a matter of age or migration status, multivariate analysis was conducted to identify other correlates that affect well-being in separate domains. Separate binary outcome models were estimated for each well-being domain using standard probit models:

$$\Pr(y_i \neq 0 | x_i) = \Phi(x_i\beta)$$

where y_i is the binary outcome variable, Φ is the standard normal distribution function, x_i is a vector of explanatory variables, and β is a vector of coefficients to be estimated. The dependent variable is the probability that a child is doing well in a specific domain. The models include covariates such as children’s personal characteristics (age, sex, and primary caregiver), the migration status of the household (current migrant, return migrant, or non-migrant), and household characteristics (urban/rural locale, highest level of education attained in the household, number of children/adults, per capita expenditure, remittances, etc.), which are also related to migration status and thus help to provide an unbiased estimation of the effect of migration on well-being. The models are estimated with robust standard errors and results are presented as marginal effects. Table 6 presents model estimates based on the whole population. The sample is then reduced to children from migrant households, and analysis is made in regard to whether it matters who actually left the household. Finally, the effect of the duration of migration and migratory destination is analysed for those children who have one or both parents abroad.

Table 6. Migration status as a determinant of dimension well-being

Variable	Education	Nutrition	Physical Health	Material Well-being	Information & Communication	Emotional Health	Social Protection
Migrant household	-0.01 (0.02)	-0.05 (0.04)	-0.03 (0.03)	-0.05 (0.04)	0.03 (0.04)	-0.01 (0.04)	0.01 (0.03)
Return migrant household	-0.00 (0.02)	-0.01 (0.04)	0.08* (0.03)	0.09* (0.04)	0.02 (0.03)	0.09** (0.03)	-0.01 (0.03)
Control variables omitted							
N	1614	1614	1614	1614	1614	1614	1614

Source: authors’ calculations. Marginal effects reported, Robust standard errors in parentheses; + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$. Full model in annex.

The migration status of the household is significant for the dimensions of material well-being, health, and emotional well-being. Children living in a return migrant household have a higher likelihood of living in a non-poor household, being emotionally well, and being physically well compared to children from non-migrant households, all else being equal. Factors other than migration also explain the likelihood of being well in different dimensions, such as the age of the child, who the main caregiver is, the level of employment and education in the household, or the household size

These results largely agree with those derived from the bivariate analysis—namely, that while migration status is correlated with child well-being, other factors such as child age, household socioeconomic status, and household education level are likely more significant. Where household migration status is statistically significant—in the dimensions of material well-being, health, and emotional well-being—findings suggest that children in return migrant households outperform members of their cohort in non-migrant households. This may suggest that return coincides with the meeting of specific financial goals that enable increased investment in living standards and physical health.

Table 7 summarizes the effects of who is abroad on the well-being of children living in migrant households, taking into account their current caregiver. Interaction terms were created that simultaneously capture the type of person abroad (father, mother, both parents, or other relative) and the child’s primary caregiver (mother, father, grandparent, or other), with father abroad/mother caregiver as the reference category. Significant effects are not observed except for in the dimension of information and communication—where children with a mother abroad and a grandparent caregiver are, on average, worse-off—and emotional well-being, where children with a father abroad and a grandparent caregiver are also worse-off. An additional dummy variable measuring the effect of remittances was included in this regression, and its effect is positive and significant for material living standards. All other control variables show a similar pattern as in prior regressions.

Table 7. Who has left the household as a determinant for well-being in migrant households

Variable	Education	Nutrition	Physical Health	Material Well-being	Information & Communication	Emotional Health	Social Protection
Mother migrated, father caregiver	-0.03 (0.03)	-0.03 (0.06)	-0.04 (0.05)	0.02 (0.07)	0.04 (0.06)	0.01 (0.07)	-0.02 (0.04)
Mother migrated, grandparent caregiver	0.00 (0.04)	-0.06 (0.06)	0.03 (0.06)	0.04 (0.10)	-0.13* (0.06)	-0.07 (0.06)	0.07 (0.05)
Father migrated, grandparent caregiver		0.13 (0.18)		0.03 (0.17)		-0.18 (0.12)	
Both parents migrated, grandparent caregiver	-0.02 (0.04)	-0.06 (0.05)	0.01 (0.04)	0.06 (0.07)	-0.07 (0.05)	-0.01 (0.07)	0.09 (0.06)
Other relative migrated	-0.04+ (0.02)	0.08+ (0.04)	0.05 (0.04)	0.04 (0.06)	-0.04 (0.04)	0.00 (0.04)	-0.01 (0.02)
<i>Control variables omitted</i>							
N	519	519	519	519	519	519	519

Source: authors’ calculations. Marginal effects reported, Robust standard errors in parentheses; + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$. Full model in annex

Finally, the sample was further reduced to those children with either a mother or father (or both) abroad. The purpose was to assess whether the destination of the parent or the duration of the migration experience was correlated with the well-being of the child. Destination countries were grouped into three categories: European Union, Commonwealth of Independent States, or other. While no significant correlations by migrant destination emerged, migration duration appeared to have a significant association with the education and health dimensions. The duration of a mother’s migration had a positive effect on well-being, meaning that longer maternal absence coincided with a higher likelihood of attaining well-being in the education domain. In the case of health, both the duration of a father’s and mother’s migration had a negative impact on well-being, which stands in contrast to other studies that found positive effects of migration on children’s health over time (Cortés, 2007; McKenzie, 2007).

Table 8. Duration of migration as a determinant for well-being of children with parents abroad

Variable	Education	Nutrition	Physical Health	Material Well-being	Information & Communication	Emotional Health	Social Protection
Duration of mother's migration (as a % of child's life)	0.07* (0.03)	-0.08 (0.07)	-0.14* (0.07)	0.07 (0.12)	0.06 (0.05)	-0.03 (0.07)	-0.01 (0.04)
Duration of father's migration (as a % of child's life)	-0.00 (0.03)	0.04 (0.06)	-0.09+ (0.05)	-0.08 (0.07)	0.01 (0.04)	-0.07 (0.05)	-0.02 (0.02)
<i>Control variables omitted</i>							
N	572	422	608	580	614	529	572

Source: authors' calculations. Marginal effects reported, Robust standard errors in parentheses; +p<0.1; * p<0.05; ** p<0.01. Full model in annex

Multidimensional child well-being rates were calculated based on Roelen and Gassmann (2012). Domain well-being rates were calculated by first providing a binary variable for each dimension and each child, where 1 indicates being well and 0 indicates being deprived. Subsequently, children are identified as being multi-dimensionally well if they have positive well-being in at least 66 percent (2/3) of the dimensions. Based on this approach, 87 percent of children are multidimensionally well-off (see Table 5 in appendix), and differences between age groups are statistically significant, with the oldest cohort experiencing the highest well-being rates. Differences in terms of caregiver, migration status of the household, and who migrated do not appear to be significant, however.

As a form of sensitivity analysis, multidimensional well-being rates were also calculated excluding first the dimensions of nutrition, and then excluding both the dimension of nutrition and emotional well-being. Moreover, a second method based on Alkire & Foster (2011) was used. Following this approach, multi-dimensional well-being is established by aggregating across all indicators taking into account indicator weights, whereby weights are determined by the number of domains and domain indicators. Well-being rates do not differ greatly between the two approaches, although the rates are higher for the second method when nutrition and emotional well-being are excluded. The ranking does not change, except in some cases where the differences between groups do not retain statistical significance.

Given the focus of this paper on well-being of children left behind, the most interesting results are found in the second part of Table 5 (in appendix). Children living in return migrant households appear to have the highest level of well-being, yet these differences are statistically significant only for the methodological variation in which the domain of nutrition is excluded. Finally, it does not matter at all whether the mother, father, both parents, or someone else in the household migrated for multi-dimensional child well-being rates in migration households, as the observed differences are not statistically significant.

Table 9. Determinants of multidimensional well-being.

	MDI (whole sample)	MDI (all migrant households)	MDI (only children with migrant parents)
Male	-0.01 (0.02)	-0.01 (0.03)	-0.06+ (0.03)
Age categories (reference: 11-17 years old)			
age 0-4	-0.05** (0.02)	-0.09* (0.03)	-0.06 (0.05)
age 5-10	-0.07** (0.02)	-0.11** (0.04)	-0.12** (0.04)
Urban	0.09* (0.04)	-0.01 (0.10)	-0.04 (0.09)
At least one person in the hh is employed	0.01 (0.02)	0.04 (0.04)	-0.02 (0.05)
Highest level of education in the household (ref category: lower secondary)			
Upper secondary	0.09** (0.03)	0.11* (0.05)	0.12* (0.06)
Post secondary	0.09** (0.03)	0.06+ (0.04)	0.08* (0.04)
Higher	0.15** (0.03)	0.14** (0.04)	0.12+ (0.06)
N° siblings	-0.02+ (0.01)	-0.02+ (0.01)	-0.00 (0.02)
N° of adults	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Poor (based on pc expenditure)	-0.15** (0.02)	-0.17** (0.04)	-0.20** (0.04)
Migrant*remittances	-0.02 (0.03)		
Household migration status (ref category: non-migrant)			
Migrant household	0.04 (0.03)		
Return migrant household	0.04 (0.02)		
Main caregiver (Ref category: mother)			
Father	-0.00 (0.03)		
Grandparent	-0.04 (0.03)		-0.07 (0.05)
Interactions between who migrated and current caregiver (ref category: father abroad, mother caregiver)			
Mother abroad, father caregiver		-0.02 (0.04)	
Father abroad, grandparent caregiver		-0.06 (0.09)	
Mother abroad, grandparent caregiver		-0.07 (0.06)	
Both abroad, grandparent caregiver		-0.01 (0.05)	
Other		-0.03 (0.03)	
HH received remittances		-0.02 (0.04)	-0.06+ (0.04)

Mother migrated to CIS			0.05 (0.07)
Mother migrated to EU			-0.09 (0.06)
Mother migrated to other countries			-0.11 (0.08)
Father migrated to CIS			0.06 (0.05)
Father migrated to EU			0.22* (0.10)
Father migrated to other countries			-0.07 (0.09)
Duration of mother' migration			0.03 (0.09)
Duration of father's migration			-0.13* (0.07)
Observations	1614	519	325
F-stat	14.4	2.93	3.6
Prob>F	0.00	0.00	0.00

Source: authors' calculations. Marginal effects reported, robust standard errors in parentheses;+ p<0.1; * p<0.05; ** p<0.01. Full models in annex.

Similar to domain indicators, multivariate analysis is applied to the multidimensional index in order to go a step further than the bivariate analysis. Table 9 presents the marginal effects for the main variables of interest for the first version of the Roelen & Gassmann multidimensional indicator. In the first regression, which includes the whole sample, the migration status of the household does not show any significant effect on child well-being. What really matters, confirming the finding of the bivariate analysis, is the age of the child. Younger children have lower well-being rates compared to children aged 11-17. In addition to age, a household's poverty status is also a strong and statistically significant predictor of multidimensional well-being. Being poor decreases the probability of being well by between 16 and 20 percent. Educational achievement matters as well: the higher the achieved level of education of someone in the household, the higher the probability that a child is multidimensionally well-off. Living in an urban area also positively contributes to well-being, while the number of children living in the same household, in contrast, has a negative impact on overall well-being.

The second and last columns of Table 9 present the results for the reduced models that include only children living in a migrant household (second regression) and only children with parent abroad (third regression). Although the coefficients for a migrant mother are negative, the effects are not statistically significant from zero. What remains important is the poverty status of the household, the age of the child, the educational status of the household, and the number of siblings in the household. The last regression also reveals that both the destination of the migrant and the time spent abroad have an impact on child's well-being when the person who migrated is the father: children with a father in the EU are, on average, better off than children with a father in Moldova. The duration of the father's migration, however, appears to be negative and significant.

VI. Discussion

This is the first paper of its kind to empirically measure the well-being of children in Moldova across different dimensions of well-being by household migration status using a large-scale household survey. This paper has demonstrated the use of an index to evaluate the well-being of children in Moldova across eight different dimensions of well-being: education, nutrition, health, material, housing, social protection, information and communication, and emotional well-being.

Using both bivariate and multivariate analyses, findings suggest that age matters for well-being across different dimensions in various ways. Significant differences appear in the dimensions of health, nutrition, education, social protection, information and communication, and emotional well-being. Household migration status is statistically significant in the dimensions of material well-being, health, and emotional well-being. Children in return migrant households experience higher physical and emotional health outcomes as well as higher material well-being outcomes than children living in other household types. This may have to do with a time component of migration, where upon return there is a pay-off to the previous separation. Receiving remittances is positively associated with increased material well-being. For migrant households, the duration of the mother's migration is positively associated with education and negatively associated with health. The same negative finding is found when the father is the migrant. This may suggest that when mothers migrate, there is greater attention put on education while health issues could possibly be neglected. A more specific finding is that of who is the caregiver upon migration. If the mother leaves and a grandparent is left in charge, we only find deprivation in the dimension of information and communication, which would make sense due to the elderly person's possible lack of knowledge in this area. If children are left in the care of someone other than the parent or grandparent, we see negative outcomes on education and nutrition.

In general, children living in return migrant households are better off when all dimensions are aggregated into an index of well-being than children in either current or non-migrant households. Children in current migrant households experience rates of well-being attainment very similar to children in non-migrant households. This finding shows that there seems to be no negative association with migration on average and there may be a time effect where upon return outcomes are even better, showing a payoff to the initial time investment being away. It does not matter whether the mother, father, both parents, or someone else in the migrant household migrated for multi-dimensional child well-being rates, as the observed differences are not statistically significant. The only statically significant finding here is when fathers are in the EU. Then we see a positive effect on the overall index.

Contrary to previous studies, these results suggest that children in households with migration experiences do not suffer from many of the problems that are associated with caregiver absence when compared to other children, and in many cases children from households with migrant members do not have significantly different outcomes. Children in return migrant households show even better outcomes. This paper demonstrates the importance of evaluating each dimension individually, as the results by group and by dimension varied widely. When looking at the predictive power of the different dimensions on each other, the mediocre levels of correlation

additionally suggest the importance of evaluating different indicators and domains of well-being separately before aggregating on index level.

In this paper, we have endeavoured to give a first indication of the situation of children affected by migration, which already indicates that children of migrants are not multidimensionally worse off. This however could be based on a selection effect of those who decide to migrate. It is possible that only those parents who know that they have a good care structure in place are willing to leave. Further research into the causality of migration on child well-being should be explored using experimental research designs or more sophisticated statistical methods (such as propensity score matching or instrumental variables) to really see the effect of migration on child well-being.

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VI. Annex

Table 1. Indicator well-being by migration status of the household

Dimension	Indicator	n° obs	migrant	return migrant	non-migrant	age group	total	p-value
EDUCATION AND EARLY CHILDHOOD DEVELOPMENT	Caregiver is playing at least 3 times a week with the child	680	98.35	97.91	97.93	0_4	98.03	0.93
	Child is attending pre-school	330	57.54	61.9	71.54	5_6	66	0.14
	Primary school enrolment	606	94.67	98.01	98.21	7_10	97.33	0.08
	Secondary school enrolment	1204	96.18	96.24	94.79	11_17	95.39	0.62
	Books	238	92.66	85.82	84.56	3_4	86.8	0.38
NUTRITION	Child is not wasted, stunted or underweight according to WHO standards	510	72.21	77.78	72.87	0_4	73.67	0.35
	Child is not overweight (BMI>95th percentile)	1542	83.01	79.84	82.51	5_17	82.18	0.68
HEALTH	Child's subjective health status is average or better than other children	394	92.42	94.38	94.64	0_2	94.06	0.80
	Child has received all vaccinations	2768	78.66	83.49	76.59	2_17	78.26	0.10
MATERIAL LIVING STANDARDS	Child is living in non-poor household	3018	55.52	63.36	59.82	0_17	59.3	0.24
HOUSING	Child is not living in overcrowded household	2810	36.68	36.6	34.96	0_17	35.69	0.86
	Child is living in house with proper flooring	3013	76.89	78.83	75.63	0_17	76.65	0.59
	Child has access to safe drinking water	3014	95.02	97.47	97.17	0_17	96.66	0.30
PROTECTION	Child is not abused (shaken or beaten)	357	76.73	75.07	78.6	0_2	77.47	0.87
	Child is not abused (beaten repeatedly)	2399	97.14	97.86	95.74	3_17	96.47	0.32
	Child is not engaged in child labour	2119	98.73	99.49	99.36	5_17	99.21	0.26

INFORMATION AND COMMUNICATION	Child lives in household with access to internet	3013	45.5	48.23	49.48	0_17	46.52	0.83
	Child lives in household with TV	3018	96.66	96.02	96.47	0_17	96.44	0.93
	Child lives in household with mobile phone	3018	88.49	93.09	86.81	0_17	88.3	0.08
EMOTIONAL WELLBEING	Child has close relationship to mother	2642	96.77	99.36	98.71	0_17	98.31	0.00
	Child has close relationship to father	2663	81.5	95.84	88.04	0_17	87.71	0.00
	Emotional problems	974	85.37	85.17	86.05	4_10	85.72	0.95
	Hyperactivity problems	978	72.87	74.28	71.34	4_10	72.26	0.77
	Conduct problems	1008	82.41	90.76	79.88	4_10	82.52	0.01
	Peer problems	987	62.27	71.81	65.27	4_10	65.73	0.26
	Emotional problems	1145	86.15	89.25	84.19	11_17	85.52	0.33
	Conduct problems	1193	86.2	95.63	86.86	11_17	88.04	0.01
	Hyperactivity	1183	96.13	96.66	95.54	11_17	95.87	0.77
Peer problems	1156	58.52	69.6	63.9	11_17	63.3	0.13	

Source: authors' calculations. Note: p-value based on chi2 test of independence.

Table 2. Determinants of dimension well-being: whole sample

	Education	Nutrition	Health	Material	Information and communicatio n	Emotional well-being	Social protection
Male	0.01 (0.01)	-0.05* (0.02)	0.00 (0.02)	0.03 (0.02)	0.01 (0.01)	-0.03 (0.02)	-0.05** (0.02)
Main caregiver							
Father	-0.00 (0.02)	-0.02 (0.05)	-0.05 (0.04)	0.10+ (0.05)	0.06 (0.04)	-0.07+ (0.04)	0.02 (0.03)
Grandparent	0.01 (0.02)	-0.04 (0.04)	-0.01 (0.03)	0.05 (0.05)	-0.07+ (0.04)	-0.07* (0.03)	0.08* (0.03)
Age categories (ref category: 11-17 years old, except for health, which is 7-17 years old)							
Age 0-2			0.01 (0.03)				
Age 0-4	0.04* (0.02)	-0.17** (0.04)		0.01 (0.03)	-0.01 (0.02)	-0.04 (0.02)	-0.10** (0.02)
Age 3-6			-0.13** (0.02)				
Age 5-6	-0.13** (0.02)						
Age 5-10		-0.12** (0.03)		-0.05+ (0.03)	-0.01 (0.02)	-0.11** (0.03)	0.00 (0.02)
Age 7-10	0.03+ (0.02)						
Urban	0.01 (0.02)	-0.02 (0.04)	-0.06 (0.04)	0.07 (0.05)	0.31** (0.07)	0.00 (0.03)	0.05+ (0.03)
At least one person in the HH employed	0.02+ (0.01)	0.02 (0.03)	-0.03 (0.02)	0.40** (0.02)	0.04 (0.03)	-0.01 (0.03)	-0.001 (0.02)
Higher level of education in the household (ref category: lower secondary)							
Upper secondary	0.03+ (0.02)	0.00 (0.05)	-0.01 (0.04)	-0.02 (0.04)	0.08* (0.03)	0.05 (0.04)	0.07* (0.04)
Post secondary	0.01 (0.02)	0.04 (0.04)	-0.01 (0.03)	0.05 (0.04)	0.08** (0.02)	0.09** (0.03)	0.08** (0.03)
Higher	0.03+ (0.02)	0.05 (0.04)	0.00 (0.03)	0.11** (0.04)	0.17** (0.03)	0.07* (0.03)	0.11** (0.04)
N° siblings	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.04* (0.02)	-0.03* (0.01)	0.00 (0.01)	-0.01 (0.01)

N° of adults	-0.00 (0.01)	0.02+ (0.01)	0.02 (0.01)	-0.01 (0.02)	0.01 (0.01)	0.00 (0.01)	-0.00 0.01
Household migration status							
Migrant	-0.01 (0.02)	-0.05 (0.04)	-0.03 (0.03)	-0.05 (0.04)	0.03 (0.04)	-0.01 (0.04)	0.01 (0.03)
Return migrant	-0.00 (0.02)	-0.01 (0.04)	0.08* (0.03)	0.09* (0.04)	0.02 (0.03)	0.09** (0.03)	-0.01 (0.03)
Migrant* Remittances	0.01 (0.02)	0.07+ (0.04)	0.03 (0.03)	0.34** (0.05)	0.02 (0.04)	0.04 (0.04)	-0.03 (0.03)
Poor	-0.01 (0.01)	0.05+ (0.03)	-0.03 (0.02)		-0.05+ (0.02)	-0.00 (0.03)	0.00 (0.02)
Observations	1614	1614	1614	1614	1614	1614	1614
F-stat	5.9	2.76	3.35	14.9	6.11	5.25	10.7
Prob>F	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Authors' calculations. Significance levels: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table 3. Determinants of dimension well-being: only for migrant households

	Education	Nutrition	Health	Material	Information and communication	Emotional well-being	Social protection
Age categories (ref category: 11-17 years old, except for health, which is 7-17 years old)							
Age 0-2			-0.00 (0.05)				
Age 0-4	0.05 (0.04)	-0.22** (0.05)		0.04 (0.05)	0.01 (0.03)	0.03 (0.05)	-0.08** (0.03)
Age 3-6			-0.10** (0.03)				
Age 5-6	-0.19** (0.03)						
Age 5-10		-0.16** (0.05)		-0.03 (0.04)	-0.08* (0.03)	-0.14** (0.04)	0.03 (0.02)
age 7-10	-0.03 (0.02)						
Male	0.01 (0.02)	-0.05 (0.03)	0.00 (0.03)	0.03 (0.04)	0.03 (0.03)	-0.10** (0.04)	-0.07** (0.03)
Interactions between who migrated and current caregiver (ref category: father abroad, mother caregiver)							
Mother abroad, father caregiver	-0.03 (0.03)	-0.03 (0.06)	-0.04 (0.05)	0.02 (0.07)	0.04 (0.06)	0.01 (0.07)	-0.02 (0.04)
Mother abroad, grandparent caregiver	0.00 (0.04)	-0.06 (0.06)	0.03 (0.06)	0.04 (0.10)	-0.13* (0.06)	-0.07 (0.06)	0.07 (0.05)
father abroad, grandparent caregiver		0.13 (0.18)		0.03 (0.17)		-0.18 (0.12)	
Both abroad, grandparent caregiver	-0.02 (0.04)	-0.06 (0.05)	0.01 (0.04)	0.06 (0.07)	-0.07 (0.05)	-0.01 (0.07)	0.09 (0.06)
Other	-0.04+ (0.02)	0.08+ (0.04)	0.05 (0.04)	0.04 (0.06)	-0.04 (0.04)	0.00 (0.04)	-0.01 (0.02)
Urban	-0.09 (0.06)	-0.04 (0.11)	-0.06 (0.06)	0.17+ (0.09)		-0.08 (0.10)	
At least one person in the hh is employed	0.00 (0.02)	0.01 (0.04)	0.10* (0.04)	0.41** (0.04)	0.03 (0.04)	-0.06 (0.04)	0.04 (0.04)
Highest level of education in the household (ref category: lower secondary)							
Upper secondary	0.01	0.01	0.01	0.05	0.08	-0.01	0.04

	(0.03)	(0.06)	(0.05)	(0.08)	(0.06)	(0.07)	(0.05)
Post secondary	0.02 (0.02)	0.05 (0.05)	-0.02 (0.04)	-0.02 (0.05)	0.10* (0.05)	0.02 (0.04)	0.04 (0.03)
Higher	0.12* (0.05)	0.03 (0.06)	-0.00 (0.04)	0.12+ (0.06)	0.16** (0.05)	-0.02 (0.05)	0.09** (0.03)
N° siblings	-0.02+ (0.01)	0.07** (0.02)	-0.05** (0.01)	-0.06** (0.02)	0.02 (0.02)	-0.01 (0.02)	0.00 (0.01)
N° of adults	0.02+ (0.01)	0.00 (0.02)	-0.00 (0.01)	-0.07** (0.02)	-0.00 (0.02)	0.00 (0.02)	-0.02* (0.01)
Poor	0.01 (0.02)	-0.01 (0.05)	-0.02 (0.03)		-0.03 (0.04)	0.02 (0.04)	0.05+ (0.03)
HH Received remittances	-0.01 (0.02)	0.05 (0.04)	0.04 (0.03)	0.36** (0.04)	0.05 (0.04)	0.05 (0.04)	-0.00 (0.03)
Observations	519	519	519	519	519	519	519
F-stat	7.14	2.78	3.58	5.3	2.88	2.19	4.23
Prob>F	0.00	0.00	0.00	0.00	0.00	0.01	0.00

Source: Authors' calculations. Significance levels: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table 4. Determinants of dimension well-being: only for children with migrant parents

	Education	Nutrition	Health	Material	Information and communication	Emotional well-being	Social protection
Age categories (ref category: 11-17 years old, except for health, which is 7-17 years old)							
Age 0-2			0.17* (0.09)				
Age 0-4	0.00 (0.04)	-0.16* (0.06)		0.08 (0.05)	-0.02 (0.04)	0.08 (0.06)	-0.08** (0.03)
Age 3-6			-0.11** (0.04)				
Age 5-6	-0.16** (0.03)						
Age 5-10		-0.17** (0.05)		0.01 (0.05)	-0.04 (0.04)	-0.13** (0.04)	0.03 (0.02)
Age 7-10	-0.00 (0.03)						
Male	0.00 (0.02)	-0.05 (0.04)	-0.05 (0.04)	0.02 (0.04)	-0.03 (0.02)	-0.10* (0.04)	-0.05* (0.02)
Grandparent caregiver	0.00 (0.03)	-0.05 (0.04)	0.02 (0.04)	0.02 (0.06)	-0.08+ (0.04)	-0.01 (0.04)	0.05+ (0.03)
Urban	-0.01 (0.04)	-0.08 (0.12)	-0.10+ (0.06)	0.16+ (0.08)	0.04 (0.07)	0.00 (0.08)	-0.00 (0.05)
At least one person in the hh is employed	0.02 (0.02)	-0.02 (0.05)	-0.01 (0.04)	0.43** (0.04)	-0.01 (0.04)	-0.06 (0.04)	-0.02 (0.02)
Highest level of education in the household (ref category: lower secondary)							
Upper secondary	0.01 (0.02)	-0.03 (0.06)	0.02 (0.06)	0.06 (0.07)	0.08+ (0.04)	-0.02 (0.08)	0.02 (0.04)
Post secondary	0.01 (0.02)	0.05 (0.05)	0.00 (0.05)	-0.00 (0.05)	0.07+ (0.04)	0.06 (0.05)	0.06* (0.03)
Higher	0.07* (0.03)	0.02 (0.06)	-0.05 (0.06)	0.03 (0.07)	0.17** (0.06)	0.02 (0.06)	0.08+ (0.04)
N° siblings	-0.03** (0.01)	0.08** (0.03)	-0.02 (0.02)	-0.06* (0.03)	0.02 (0.02)	-0.03 (0.03)	-0.00 (0.01)
N° of adults	0.01 (0.01)	0.02 (0.02)	0.00 (0.02)	-0.06** (0.02)	0.00 (0.02)	0.04+ (0.02)	-0.01 (0.01)

Poor	0.01 (0.02)	0.00 (0.05)	-0.05 (0.04)		-0.03 (0.04)	0.04 (0.04)	-0.02 (0.02)
HH Received remittances	0.00 (0.02)	-0.02 (0.05)	0.01 (0.04)	0.40** (0.04)	0.02 (0.04)	0.07+ (0.04)	-0.03 (0.02)
Duration of mother's migration	0.07* (0.03)	-0.08 (0.07)	-0.14* (0.07)	0.07 (0.12)	0.06 (0.05)	-0.03 (0.07)	-0.01 (0.04)
Duration of Father's migration	-0.00 (0.03)	0.04 (0.06)	-0.09+ (0.05)	-0.08 (0.07)	0.01 (0.04)	-0.07 (0.05)	-0.02 (0.02)
Observations	572	422	608	580	614	529	572
F-stat	4.47	2.93	2.58	4.54	1.77	3.97	3.6
Prob>F	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Authors' calculations. Significance levels: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table 5: Sensitivity analysis for the multidimensional index

	Method 1 (Roelen & Gassmann 2012)						Method 2 (Alkire & Foster 2011)					
	All 8 domains		Without nutrition		Without nutrition & Emotional well-being		All 8 domains		Without nutrition		Without nutrition & Emotional well-being	
	Obs	%	Obs	%	Obs	%	Obs	%	Obs	%	Obs	%
Total	1622	87.1	2223	91.6	2449	94.6	1603	89.6	2190	89.6	2389	89.1
age 0-2	227	88.4	295	94.1	317	95.7	227	90.4	295	89.9	317	88.1
age 3-4	183	83.5	250	91.8	270	94.1	183	86.8	250	91.7	270	89.6
age 5-6	175	73.9	243	78.4	274	86.1	175	75.5	243	73.0	274	73.4
age 7-10	360	87.3	493	92.1	533	96.4	355	89.8	484	90.6	519	92.0
age 11-17	677	91.2	942	93.8	1055	95.7	663	93.8	918	92.9	1009	92.2
Significance		***		***		***		***				***
Main caregiver: Mother	1281	87.1	1735	91.4	1841	94.1	1269	89.3	1714	89.1	1807	88.2
- Father	141	90.9	211	95.3	270	98.4	139	92.6	207	94.1	260	96.0
- Grandparent	164	81.7	227	88.4	277	94.7	160	87.9	221	87.9	265	88.7
- Other relative	28	94.3	40	95.3	45	96.8	28	94.3	39	95.2	43	91.9
Significance				*		*						**
Migrant household	519	86.3	702	90.5	784	94.3	508	89.2	687	89.1	759	87.8
Return migrant household	262	90.9	352	95.9	385	97.2	261	91.0	348	92.9	377	91.3
Non-migrant household	841	86.2	1169	90.7	1280	93.9	834	89.2	1155	88.7	1253	88.9
Significance				**								
mother migrated	111	84.8	150	89.5	164	94.2	108	89.7	147	89.7	158	90.5
father migrated	171	88.0	232	90.8	249	94.4	170	87.4	229	87.9	246	86.0
both parents migrated	69	86.7	98	91.1	106	97.1	67	93.7	95	88.9	101	89.5
other person migrated	168	86.3	222	90.4	265	93.9	163	89.1	216	90.2	254	87.6
Significance												

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