Child poverty in Colombia: construction of a multidimensional measure using a mixed-methods approach

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Abstract

This study presents the design and development of a multidimensional child poverty index in Colombia that can be used for assessment and policy design. Using a mixed-method design that combines quantitative and qualitative research techniques, we developed a multidimensional measure of child poverty. We conducted 80 focus groups with children and adolescents in four regions of Colombia, as well as 27 interviews with experts and policy makers in order to incorporate the voices and perceptions of children, youth and experts in the index design process. Based on these results as well as empirical evidence on deprivations that are determinant for human development, we constructed a Multidimensional Child and Adolescent Poverty Index (MCAP). We used nationally representative household survey data to estimate the MCAP for 2008, 2010 and 2011 in order to measure changes over time. We also decomposed the MCAP in order to identify critical dimensions for different age groups and estimated the MCAP for different departments and regions in Colombia.

We found that overall, 34% of children and adolescents in Colombia are poor. This represents a 10 percentage-point reduction in comparison with 2008, which is important progress. We also found significant heterogeneity by regions: while in Bogotá MCAP is less than 20%, in Chocó and Guajira, more than half of children and adolescents are poor. As per the critical dimensions, we found that for all age groups lack of access to potable water, overcrowding and lack of access to parks or green areas contribute the most to child poverty. In addition, for children under five and adolescents, lack of access to education is a critical area and for children and adolescents, lack of access to recreational or time use services has an important contribution to poverty.

We show how the MCAP can be used as a policy design tool for child poverty reduction that is sensitive to the needs of children from different age groups and regions through the design of benefit packages. Both the mixed-method research design and study findings are expected to have a significant impact across sectors including both academic and international and national policy circles.

I.   INTRODUCTION

What does poverty look like in the lives of children and adolescents in Colombia and what are the critical dimensions to be addressed?

Our interdisciplinary research team developed a multidimensional, multi-method research design in order to answer this complex question from an answer devised across age difference, state and non-state sectors, and geographic regions. While we considered it important to consult with policy makers, government officials, academics and other experts on poverty in Colombia in multiple organizations, universities and state entities, our conceptual point of departure is from the voices of children as experts in their daily lives and experiences of poverty.

Through qualitative data from fieldwork in four regions of the country, children and adolescents in Colombia describe their thoughts on poverty in diverse ways and contexts:

"…*poor kids need to play*…" (Children, Focus Group – Córdoba, 24 March 2012).

"…*children that are poor…don't have money*…" (Children, Focus Group – Amazonas, 10 March 2012).

"…*they have to make their house out of tin*…" (Children, Focus Group – Bogotá, 13 January 2012).

"…*they don't have the financial capacity to have a better home*… " (Children, Focus Group – Bogotá, 13 January 2012).

"…*poor people…don't have anything to eat*…" (Children, Focus Group – Bogotá, 13 January 2012).

"…*we are growing up seeing violence as normal*…" (Adolescents, Focus Group – Chocó, 12 February 2012).

Children and adolescents in Colombia express the needs of their communities:

> *"…food, happiness, the adults need work …love…water, in the school…"*
> (Children, Focus Group – Córdoba, 24 March 2012).

> *"…that there is no more violence…no more kidnappings…"* (Children, Focus
> Group – Chocó, 11 February 2012).

> *"…that there is no more abuse, violence. I want there to be peace…"* (Adolescents,
> Focus Group – Chocó, 12 February 2012).

As illustrated through the voices of poor children and adolescents in Colombia, poverty is a multidimensional, complex phenomenon that cannot be reduced solely to monetary-centric measures and yet should not exclude the consideration of economic hardship. Through the incorporation of children and adolescents' voices in the process of measuring their experiences of poverty, it became evident that our research team would have to construct a research design that would enable us to include the multidimensional aspects of children and adolescents' every day experiences of poverty ranging from emotional to financial needs and from the private sphere of their homes to the public spaces of their communities.

This study presents the design and development of a multidimensional child poverty index in Colombia that can be used for assessment and policy design. Using a mixed-method design that combines quantitative and qualitative research techniques, we developed a multidimensional measure of child poverty. We conducted 80 focus groups with children and adolescents in four regions of Colombia, as well as 27 interviews with experts and policy makers in order to incorporate the voices and perceptions of children, youth and experts in the index design process. Based on these results as well as empirical evidence on deprivations that are determinant for human development, we constructed a Multidimensional Child and Adolescent Poverty Index (MCAP). We used nationally representative household survey data to estimate the MCAP for 2008, 2010 and 2011 in order to measure changes over time. We also decomposed the MCAP in order to identify critical dimensions for different age groups and estimated the MCAP for different departments and regions in Colombia.

The Voices of Poor Children:

Operationalizing the Capabilities Approach in Child-Centered Poverty Measurement

Our prioritization of poor peoples' (and in this case children's) voices differs from previous studies. Our use of participatory, qualitative methodologies to work with children and adolescents in the design of the MCAP moves beyond the surveying of voices to represent distinct realities and toward the grounding of the capabilities approach through participatory, child-centered development praxis and poverty measurement.

The incorporation of children's voices in the process of constructing the MCAP operationalizes the notion set forth by the capabilities approach affirming that "…children have and can define their capabilities and that the capability approach can be used as a conceptual framework and as a normative tool, in analyzing the well-being of children and child poverty and in planning social policies for human development" (Biggeri et al. 2007; see also Nussbaum 2011; Alkire 2007; Lipina et al. 2010). By employing the capabilities approach as a normative and analytic tool, we aim to place children at the center of development praxis in general and at the center of poverty measurement praxis in particular. Aligned with the prioritization of children's voices in research design and practice, the capability approach, applied to the case of children, asks the question 'what are children actually able to *do* and *be*' (Nussbaum 2011: x in Hedge and Mackenzie 2012). This question can be applied to the research context of child and adolescent poverty both in terms of children's capability to participate and make decisions about their role in research projects and in terms of what methods we employ to measure child and adolescent well-being.

While we incorporate qualitative, participatory approaches to working with children and adolescent populations and including them within the conversation about their development and well-being, our research team and approach also emphasizes the importance of having national-scale data that enables the construction of rigorous policy recommendations and compensates for the limitations of contextually-specific, qualitative work that is typically difficult to scale-up.

Our successfully applied and profound mixed-method approach challenges traditional debates in the methodological literature that prescribe quantitative and

qualitative methods as misfit methodologies that both ontologically and epistemologically cannot work together to meet a common research objective.

In our experience, the mixed method praxis guiding the project must permeate all research phases, from research design, implementation and fieldwork and through to analysis and interpretation of results. Applying a mixed method research design within the context of children and adolescents living in poverty required a much more complex process than merely 'throwing in focus groups' as a follow-up or after-thought to a mostly quantitative project. A mixed methods research design requires a constant communication and reflection process throughout the duration of the project between and within both the quantitative and qualitative research teams. This temporal logic within our methodological framework was an essential research practice that enabled us to move beyond the quantitative– qualitative divide (often characterized as the positivist – interpretive divide in the social sciences) and optimize the quality and reach of our findings by maximizing the benefits of both methodologies and compensating for their weaknesses through carefully planned triangulation praxis (Sale & Brazil, 2002). Previous methodological debates presented the critique that quantitative and qualitative projects do not study the same phenomenon and therefore cannot be used to together (Sale & Brazil, 2002). Our research design hinges on logic to the contrary, by using the differences between methodologies to produce richer, more rigorous and multi-scaled data sets and findings. While scholars have acknowledged the benefits of incorporating multiple perspectives of the same research problem within project design (Greene, 2005), studies and subsequent publications have rarely achieved successful integration of quantitative and qualitative data sets. The use of triangulation has been presented in the methodological literature often as a mechanism of integration (Johnson, Onwuegbuzie, & Turner, 2007: 116); however, most studies present the data from the different methodological components in separate sections as a means of validating principal findings from multiple perspectives and data sets. Triangulation does not imply integration but rather inter-method reliability of the conclusions and policy recommendations set forth by the studies that employ this methodology.

Our study moves beyond triangulation and towards an integration of results in order to make policy recommendations that will, in the long term, improve the well-being and everyday lives of the research population.

II.   PREVIOUS STUDIES

A commonly used indicator to measure child poverty (particularly in developed countries) is income poverty. So a child is poor if he or she lives in a household with an income below the poverty line. While this is a simple and appealing indicator, monetary poverty fails to capture deprivations that are crucial to children development. For example, a child can live in a household with an income above the poverty line but fails to go to school because most of the household income comes from child labor. In this case, if we only look at income the child would not be identified as non-poor. However, from a multidimensional perspective, that child is poor because he is deprived of a basic need. Multidimensional measures of poverty tackle this problem by including deprivations that are not necessarily captured by income. The pioneer work on child poverty from a multidimensional perspective was developed by the Townsend Centre for International Poverty Research at Bristol University at United Kingdom (Gordon, Nandy, Pantazis, Pemberton, & Townsend, 2003). Based on the definition of absolute poverty agreed at the 1995 World Summit for Social Development in Copenhagen, Gordon and his colleagues developed a child poverty measure (the Bristol measure) that considers severe deprivations in basic human needs (food, safe drinking water, sanitation facilities, health, shelter, education, and information). This work influenced subsequent work on child poverty measurement in the developing world and particularly in Latin America (CEPAL & UNICEF, 2010).

The Bristol measure has two main advantages. First, it considers severe deprivations in basic human needs and thus allows for a greater consensus. For example, it is more plausible to find consensus among academics and practitioners that not having access to clean water is poverty than to find consensus that not having access to recreation is poverty. A second advantage of the Bristol measure is that be more easily compared across countries because it has fixed set of basic needs that are usually found in national surveys.

Notwithstanding its advantages, the Bristol measure has two main limitations. First, it focuses on severe poverty and thus does not give room for a broader perspective of overall child poverty. From a capabilities approach, if we are to consider child poverty as deprivations of capabilities that allow children to develop the freedom to enjoy and lead the lives they have reason to value (Sen, 1999), Bristol measure does not necessarily include all the domains that needed to identify a child as poor and thus inform public policy. Second, as noted by Alkire and Foster (2011a), it is a "counting" measure and does not allow to measure the intensity and severity of poverty.

More recently, following the work of Alkire and Foster (Alkire & Foster, 2011a) on multidimensional poverty on households or adults, there has been a development of child poverty measure (Alkire & Roche, 2011; Roche, 2013; Trani, Biggeri, & Mauro, 2013). This measure has two main advantages. First, it goes beyond a headcount indicator and allows to measure intensity and severity of poverty. Second, it does not have a fixed set of domains, and thus gives space for the inclusion of different dimensions of well-being, depending on the context where poverty is being measured. In our case, this means that we are able to incorporate children and adolescent voices into the measurement. On the other hand, however, the measure has a disadvantage and is that it is more difficult to have comparability across countries.

Our main contribution is twofold: to include children's voices in the definition and understanding of poverty and to incorporate this into a multidimensional measure of child poverty that can inform policy. To our knowledge there is only one study (Biggeri, Libanora, Mariani, & Menchini, 2006) that does a participatory process to incorporate children and youth voices in the definition of poverty and its dimensions. Our work is the first one to incorporate children voices in their own contexts and from different regions within the same country. Also, it takes into account the voices of other stakeholders such as experts and practitioners in the field of social policy and developed an iterative process in order to gather as much consensus as possible. Finally, we the results of this consultation process are used to develop a national measure of poverty that can provide valuable information for policy design. This is an important contribution to the poverty literature that comes from qualitative studies that do ethnographic work and include the

voices of children but that purely descriptive for a particular group of individuals and cannot make policy recommendations.

III.   METHODOLOGY AND RESEARCH DESIGN

This study follows the methodology proposed by Alkire and Foster (2007, 2011) for multidimensional poverty measurement.   This methodology has two main phases: a conceptual phase that is common to any multidimensional measure and an estimation phase (see detailed steps in Alkire & Roche (2011)).   The first (conceptual) phase entails the identification of dimensions and indicators that constitute poverty, the definition of deprivation within each dimension (deprivation cutoffs), and the definition of what constitutes multidimensional poverty in terms of the minimum number of deprivations that are needed to consider a child poor (definition of poverty cutoffs and weights). The second phase (estimation) is particular to the Alkire and Foster method and entails the estimation of headcount ratio (H), average intensity (A) and adjusted headcount ratio (M_0).

One of the main challenges of the first phase is the definition of dimensions that constitute poverty. As explained by Alkire and Roche (2011) one could take the approach used by Gordon et al (2003) for the Bristol measure and define poverty based on definitions that are explicit on international agreements, or use a participatory process, or use an explicit list of needs developed from other authors, or use empirical evidence on the needs of children for their development, or a combination of these. We decided to do the latter and used a combination. First, we had as a starting point the definition of child poverty of Bristol, and CEPAL/UNICEF and a Colombian poverty definition for households. Then, we used a participatory process in order to incorporate the voices of children, adolescents, policy makers and practitioners. Finally, we used empirical evidence to make final decisions on dimensions and deprivation cutoffs.

Research design for participatory process

Selection of sites and participants

In order to incorporate the voice of children and adolescents we selected cases based on two criteria: geographic diversity and age of children. We selected four regions of the country that are diverse both geographically and demographically: Atlantic, Pacific, Central and Amazonian regions. Once regions were selected, we selected a municipality or village that met the following criteria: i) that had a high incidence of poverty (monetary poverty and/or basic needs poverty as measured by the national government), and ii) that the researchers or the funder (Unicef) had a previous contact with commentary leaders in order to have access to the communities.   The final study sites were Bogota (Colombia's capital, where there is a relatively low poverty rate on average, but high poverty rates in some areas or localities), Macedonia (located in the Amazonian region with a high density of indigenous population), Quibdó (located in the Pacific region, one of the poorest regions of Colombia and with a high proportion of afro-Colombian population) and Lorica (located in the Atlantic region, where we decided to go to small villages in order to have the perspective of children and adolescents in rural areas).

Within each site, with the support of a community leader, we invited 10 children and 10 adolescents to participate in the study. In total, 80 children and adolescents participated in the study.

Source: (EGOB & UNICEF, 2012)

In order to incorporate the voices of experts and practitioners we selected agencies and organizations at the national level[1] that work on dimensions that relate to children wellbeing directly or indirectly[2], and think tanks or universities that have academic work on children wellbeing, poverty or social policy. We then selected high-level officials from these organizations or the principal investigators (in the case of the universities and think tanks). In total 27 experts and practitioners participated in the study.

Data collection methods

Children and adolescents

For the children and adolescents we designed and implemented three instruments for data collection: notebooks, roving focus groups and visually-oriented, photo-elicitation focus groups. Upon arriving in each study site, we gave notebooks to all participants and collected them on the fourth day before leaving. During this period participants drew about

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[1] The ideal would be to include experts and practitioners outside Bogota. However, this was not possible because of time and resources capacity.

[2] National Institute of Child Welfare, National Department of Social Prosperity, Ministry or Education, Ministry of Culture, Ministry of Housing, Agency for Extreme Poverty Alleviation, Early Childhood Services Commission, National Planning Department, Agency for Conciliation, UNICEF, IDB, ECLAC, UNFPA, among others.

their lives and dreams, their expectations, positive aspects of their lives and negative aspects or things they would like to change.

Once in the field, we divided participants in four groups: 2 groups of children between 7 and 12, and 2 groups of adolescents. During each research phase we first conducted a roving focus group where participants visited places in their neighborhoods or communities that were important both in positive or negative ways. While walking, children and adolescents videotaped themselves and described the places and shared their feelings, perceptions and the meaning of each place in their daily lives.

After the walk, we had two focus groups with each group of children or adolescents. The main purpose of these focus groups was to understand from the children and adolescents' perspective the meaning of the dimensions that are included in multidimensional poverty measures and to some extent validate them, and more importantly, to identify new dimensions of poverty.   In all cases, activities and questions in the focus groups were organized around three concepts: happiness, wellbeing and need. We explicitly decided not to use the word "poverty" or "poor" for two reasons. Firstly, in order to analyze the research context and discourse surrounding children's use of the words "poverty" or "poor" (without researcher prompting) and secondly, to avoid categorizations that may conflict with participants' self-perceptions and identification. Instead of asking directly about poverty, we asked "What do you need to feel happy?" or "What do you need to feel well"?

Focus groups with children

For children (7 to 12 years old), the first focus group was conducted using an activity called "*Stages of my life story*" designed by the research team. The purpose of the activity was to identify the needs of children in four stages of their lives: past (experiences and memories when they were younger), present (the needs they experience in the present), near future (dreams and goals) and the future (how they see themselves when they grow up). This focus group allowed us to identify dimensions that are important for children the present, and also to identify needs that they recognize as crucial for their development.

The second focus group was conducting using the activity "*My life…more than a photo?*". The main purpose of this activity was to recognize children's perceptions about the dimensions of poverty included in international measures (CEPAL-Unicef) and the official multidimensional measure used by the Colombian government. We used photo elicitation techniques and showed pictures for each dimension so that children could express their thoughts, perceptions and experiences of each dimension and whether or not they are important for their wellbeing.

Focus groups with adolescents

For adolescents we designed two main activities to guide and animate the focus group setting: "Tree of needs" and "Participatory definition and ranking exercise". In the first activity, we asked adolescents to think about their needs and they built a collage in the form of a tree. Through this exercise, adolescents expressed their current needs and how each need relates to their expectations for the future.
The second activity, similar to the one for children, was designed to learn about the adolescents' perceptions about the dimensions of poverty used in international and official poverty measures, and to understand their priorities. Adolescents were asked to define each of the dimensions and to write the meaning of each dimension on a post-it. During the final portion of this focus group, the group completed a participatory ranking exercise, where they ranked all dimensions from most important to least important for both themselves and within their community contexts.

Experts and practitioners

For experts and practitioners we conducted semi-structured interviews. The interviews had three main sections: perceptions about multidimensional poverty in general (its utility and use for policy design), perceptions about the multidimensional index used by the government for the general population and the child poverty measures developed by international agencies such as CEPAL and Unicef, and perceptions on the particular

dimensions used (whether or not they are relevant for measuring children poverty) and what dimensions they would add.

Incorporation of the qualitative results on the design of the index

The results from the qualitative component were crucial for the design of the poverty index. Parallel to the field work with children, adolescents, experts and practitioners, the research team (PIs, investigators, research assistants) had regular meetings to discuss preliminary results from the field. We also had permanent discussions with a technical committee at Unicef, where we had the opportunity to further discuss the findings and take decisions about the dimensions and variables included in the index.

Our main inputs for the design of the index where i) previous work on multidimensional poverty, especially on children, ii) the results from the consultation with children, adolescents, experts and practitioners; and iii) scientific literature on children and adolescents development. We decided to use as criteria for inclusion in the poverty index those dimensions (or domains) that when unmet had a detrimental effect on current and future development of children. In other words, we decided to include deprivations that impede development of capabilities in children and adolescents.

Quantitative data for child poverty estimations

Our final measure of multidimensional child poverty is restricted to the data that are available. As we explain later, some variables are not available for all ages and therefore cannot be included. However, we managed to include the majority of variables needed to make the estimations. We used the Colombian Quality of Life National Survey (ENCV for its name in Spanish). The survey is representative of non-institutional civilian population at the national, urban and rural levels. It is also representative for 6 regions in Colombia (Atlantic, Pacific, Central, Eastern, San Andrés and the Orinoco-Amazon regions), Bogota city and the departments of Choco, Cauca, Nariño, Valle, Guajira, Córdoba and Boyacá.

IV. CONSTRUCTION OF THE POVERTY INDEX

The construction of the index itself is a result of this study. Therefore, in this section we first present the definition of the proposed index and show how results from the qualitative component that were used as input for the construction of the index. Then, in the next section we present the results of child poverty index.
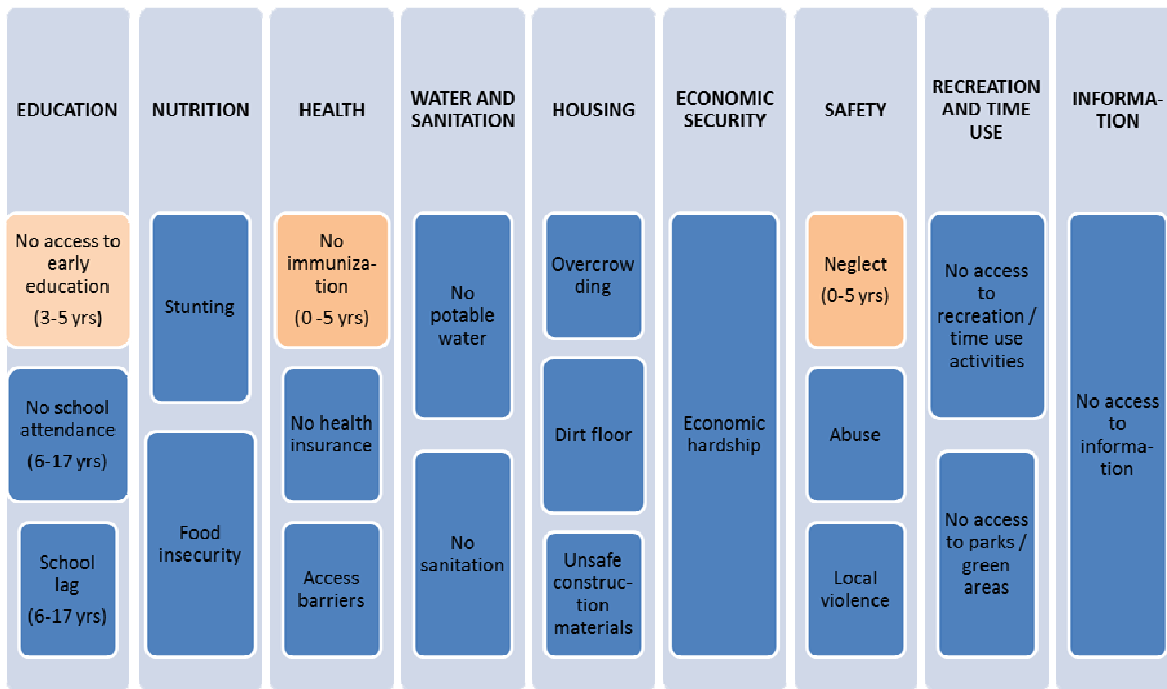
Unit of analysis

The unit of analysis in our poverty measure is the child or adolescent as opposed to the household. This decision has three main justifications. First, from a conceptual perspective, focusing on the individual means putting children at the center and highlights their own characteristics as well as the dimensions that are critical for their development. Second, from a policy perspective, it allows focusing on needs that are particular to each child or adolescent in a household, and thus allows identifying the type of programs that are required. Lastly, having a measure that has the child as unit of analysis allows identifying those households that are in more severe circumstances in terms of the number of children that are poor. Also, it allows comparing poverty status by individual characteristic such as gender or age.

Dimensions

Figure 1 presents the dimensions and variables included in the proposed Multidimensional Child and Adolescent Poverty (MCAP) index. Six of the dimensions used in MCAP index coincide with those proposed by the Gordon et al (2003) and also used by Unicef-Cepal to measure child poverty: education, nutrition, health, water and sanitation, housing and information. Our proposed measure adds three more dimensions: economic security, safety and recreation. In what follows we present the justification for the inclusion on these dimensions, based both in previous literature and on the results from the qualitative component.

Figure 1. Multidimensional Child and Adolescent Poverty Index (MCAP)

EDUCATION	NUTRITION	HEALTH	WATER AND SANITATION	HOUSING	ECONOMIC SECURITY	SAFETY	RECREATION AND TIME USE	INFORMATION
No access to early education (3-5 yrs)	Stunting	No immunization (0-5 yrs)	No potable water	Overcrowding	Economic hardship	Neglect (0-5 yrs)	No access to recreation / time use activities	No access to information
No school attendance (6-17 yrs)	Food insecurity	No health insurance	No sanitation	Dirt floor		Abuse	No access to parks / green areas	
School lag (6-17 yrs)		Access barriers		Unsafe construction materials		Local violence		

Note: See detailed definition of indicators in Table A1 in Appendix.

Economic hardship

A deep deprivation of financial resources to make ends meet has detrimental effects on children and adolescents' development through both direct and indirect mechanisms. Direct mechanisms have to do with low levels of consumption of essential goods such as adequate food or shelter. Indirect mechanisms have to do with changes in parental practices and household dynamics due to higher parental stress and anxiety (Conger & Conger, 2002; Lundberg & Wuermli, 2012) as well as higher stress levels on children and adolescents (toxic stress) that is produced by the environment of adversity and scarcity (Shonkoff, 2010; Shonkoff et al., 2012).

In the case of adolescents, economic hardship has detrimental effects not only through changes in household dynamics but also through stress generated by their own perception of material hardship (Evans, Kim, Ting, Tesher, & Shannis, 2007; McLoyd, Purtell, Bagley, Hardaway, & Smalls, 2009). Detrimental effects include problems with psychosocial adjustment, lower future expectations, higher probability of taking riskier decisions and worse conditions on physical and mental health (Lundberg & Wuermli, 2012; McLoyd et al., 2009).

To the extent that variables related to consumption of essential goods (such as food or shelter) are included in other dimensions of the multidimensional index, there would be no need to incorporate economic hardship as dimension. However, not all essential goods or services are included in the measure (for example, the ability to pay the public utilities bills or ability to pay for basic clothing or learning resources). Also, the presence of indirect mechanisms justifies the inclusion of this dimension. Recent literature shows that the stress caused by material hardship is as damaging as scarcity in itself (Lundberg & Wuermli, 2012). Thus capturing economic hardship is important in order to have a more complete assessment of child poverty.

As demonstrated in the qualitative component, children and adolescents describe the detrimental effects of economic hardship as affecting three distinct aspects of their daily lives: lack of food, lack of safe or stable shelter and the emotional stress of not having sufficient financial resources to cover their basic needs, all of which affects both their school and household environments.

In the case of Córdoba, both child and adolescent subgroups express the detrimental effects of not having sufficient food in their households. Adolescents in particular contexualized these deprivations of their basic needs by describing how "…*there are children that eat only once [a day], sometimes they don't have [money] for lunch or dinner, sometimes they go to sleep without eating, they arrive at school without eating and this affects their ability to concentrate, their learning process and makes it difficult both for the teaching and learning contexts…*" (Adolescents, Focus Group – Córdoba, 25 March 2012).

Additionally in the case of Cordoba, during the focus groups with children, food was ranked as the most important dimension in the daily lives and well-being, followed by "*…happiness…support and trust within the family…support from brothers and sisters, home, safety…*" (Children, Focus Group – Córdoba, 24 March 2012).

This demonstrates that while food is extremely important for their daily survival and well-being, children and adolescents also need loving, stable households where they feel safe from both a physical and emotional threats to their well-being. In terms of physical risks, children and adolescents in all four regions express anxiety about the quality of their housing and vulnerability to flooding, landslides or other regional specific environmental risks to child and adolescent safety in their households. In Bogota for example, one

adolescent expressed "*...one of our great worries...[is that]the houses have deteriorated to the point of the walls completely crumbling…*"(Adolescent, Notebook **-** Bogotá, Date 14 January 2012). During a focus group in Cordoba, adolescents expressed similar anxieties about having to evacuate their houses due to flooding every year. They describe how "*...every year the flooding is a problema that makes everyone leave their homes…*" (Adolescents, Focus Group – Córdoba, 25 March 2012).

In response to this discussion of hardship in their environments, the same group of adolescents commented on the need relieve the stress they experience in their daily lives and describe the season of games that help them forget about their fights and money-related problems and stressors:

> "*…the inauguration of the games...is one of our greatest illusions that all the students wait for because we relieve stress and forget about our studies...and about our problems too... [like]...the fights...the conflicts...money problems…*"
> (Adolescents, Focus Group – Córdoba, 25 March 2012).

In all four regions, children and adolescents refer frequently to abuse within their households that stem from fights and conflicts arising because of financial problems. In Macedonia for example, during one of the focus groups with children, these experiences of abuse stemming from economic hardship are described as:

> "*… worries and stress....sometimes our parents don't think when they beat us...[whispering says] you should never beat your children because it is dangerous...sometimes so much abuse leads to death…*" (Children, Focus Group – Amazonas, 10 March 2012).

Such situations of abuse and violence against children and adolescents in Colombia are a trend that emerged in all four regions as important for the consideration and measurement of child and adolescent poverty.   Growing up in a safe and secure environment is fundamental for children and adolescents to reach their full development potential and capabilities.

Safety

Having access to a safe and caring environment both inside and outside the household was a dimension that came up in all the focus groups with children and adolescents.

After several discussions with the research team and drawing on empirical evidence on the detrimental effects of exposure to violence on children development, we decided to include safety as a dimension. This includes safety from violence both inside the household (child abuse and neglect) and outside the household (exposure to unsafe and violent environments at the local/neighborhood level).

Child abuse and neglect have damaging and irreversible effects on children development. Child neglect impedes the full potential of brain development, reduces cognitive ability and educational achievement and has detrimental effects on mental health problems such as anxiety, depression and social isolation (Belsky & de Haan, 2011; Hildyard & Worlfe, 2002; Mayer, Lavergne, Tourigny, & Wright, 2007).

Exposure to contexts of violence such as murders, assaults, sexual violence or drug dealing has negative effects on children's mental and physical health such as depression, anxiety or aggression (Osofsky, 1999). It can also have negative effects on school attendance and actual learning (Baker-Henninghama, Meeks-Gardnerb, Changc, & Walker, 2009; Mathews, Dempsey, & Overstreet, 2009). In the Colombia context, where not only guerrilla and paramilitary groups are present in several regions, but also street gangs, research shows that violence has detrimental effects on school completion (Rodriguez y Sánchez, 2012) and nutritional status (del Mar, 2012).

Within the qualitative component, children and adolescents describe their experiences of violence and abuse within and outside the household. For example, during the roving focus groups in Chocó, both child and adolescent groups pointed out the spots in the neighborhood where children and adolescents have been raped (almost occurring on a daily basis):

> *"… I have never seen this neighborhood clean, there is always disorder, there are always fights, everyday there are stabbings, everyday someone is raped, everyday someone is killed…it's a blessing from God when someone doesn't die…During the week someone always dies and it's never because of illness…"* (Adolescents, Focus Group - Chocó, 12 February 2012).

Photograph 'Space where Children are Raped' Barrio Minuto de Dios, Chocó.

Photograph, Adolescents Barrio Minuto de Dios, Chocó.

During the roving focus group, adolescents expressed their desire for "*…a place in their community …but a space that is filled with happiness and harmony…*" (Adolescents, Hombre, Focus Group – Chocó, 12 February 2012).

Photograph, Adolescents Barrio Minuto de Dios, Chocó.

However, unfortunately, harmonious spaces are hard to come by in their neighborhood. The reality of public space for children and adolescents in Chocó is one of danger and fear to be alone in empty spaces, which, as the adolescent points out in the following picture, can quickly be converted to a space of rape, abuse or drug use.

Photograph of 'Unsafe neighborhood spaces' Barrio Minuto de Dios, Chocó.

Photograph, Adolescents, Barrio Minuto de Dios, Chocó.

As the following word tree[3] demonstrates, the word rape is strongly associated with discourses including expressions of trauma, fear, abuse, stabbings, death, attacks, robbery, and the evening time. This violent reality for children and adolescents in Colombia has a detrimental impact on their emotional and psychosocial well-being and should be seriously considered by policy makers and government program officials.

Recreation and time use

Play and recreation are considered an essential component of childhood development. In early childhood, play contributes to foster social interactions, to develop creativity, self-control and physical development (Christie & Kathleen, 2009). During childhood and adolescence, the type of activities that children do during non-school hours may have direct effects on their academic and health outcomes.

In terms of education outcomes, several studies show that children and adolescents that participate in structured extracurricular activities have higher test scores and higher probability of enrollment in higher education (Camp, 1990; L. Chen & Omaye, 2001; Darling, 2005; Fredricks & Eccles, 2008; Lovell, 2011; Peck, Roeser, Zarrett, & Eccles, 2008). In terms of health and behavioral outcomes, research shows that the lack of access to extracurricular activities and recreation hinders children and adolescents' ability to form their own identity, and social skills needed to interact with others (Darling, 2005; Feldman & Matjasko, 2005; Morrissey & Werner-Wilson, 2005). There is also evidence that suggests that extracurricular activities contribute to the reduction of stress, teen pregnancy and substance abuse (S. Chen & Lu, 2009; Feldman & Matjasko, 2005; Fredricks & Eccles, 2008).

In addition to this violent reality for children and adolescents, another important dimension frequently discussed in the focus groups is the lack of recreational and public spaces in their neighborhoods for both play and study (such as parks and libraries). For example, in the case of Chocó, a child wrote and drew in her notebook that "*…it is very dangerous to play…we don't have parks where we can have fun…the delinquency is a problem in our neighborhood…I just want to have fun in a safe environment…*" (Children, Notebook – Chocó, 11 February 2012).
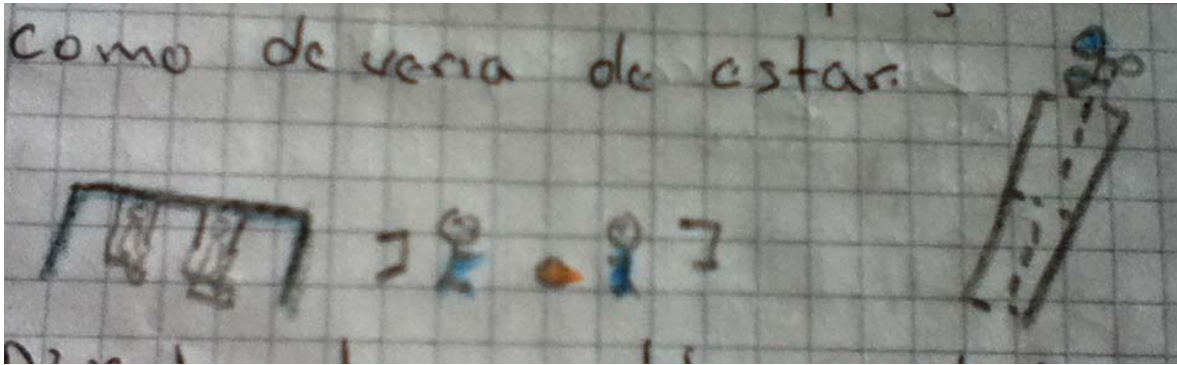
During a roving focus group in Chocó, the children expressed that *"…their neighborhood should have a place where children can have fun and should be safer, so that we can be happy…"* (Children, Focus Group - Chocó, 11 February 2012).

Without safe, public spaces where children and adolescents can learn, grow, play and have fun with their peers in safe, healthy ways, children are even more impacted by the toxic stress of households experiencing economic hardship and in many cases abuse. In order to ensure that children and adolescents reach their full potential, they need access to safe, loving, and learning spaces where they can develop both within and outside of the household and in their community environments.

Weights and cutoff points

The Alkire-Foster method has a dual cutoff point (Alkire & Foster, 2011a): deprivation cutoffs z (achievement level under which a child or adolescent is considered deprived in a specific dimension) and a poverty cutoff k (number of deprivations under which a child or adolescent is considered poor.

We followed the following steps to determine deprivations cutoffs: 1) for those deprivations where there is international consensus we used the international guideline (for example for nutritional status we used the definition of stunting based on WHO guidelines), 2) for those deprivations where there is national consensus of what is deprivation, we used national guidelines determined by law or by poverty measures used at the household level (for example, for school lag we used the definition of the Ministry of Education), 3) for those deprivations where there is no previous definition or consensus we used a very basic (low) cutoff to minimize false identification errors and maximize

consensus among those who will eventually use this measure for policy design (for details on deprivation cutoffs and source of decision see Table A1 in Appendix).

The definition of the poverty cutoff (k) is not a straightforward decision. Ultimately, the number of deprivations that are needed to consider a person poor is a social construction. From a human rights perspective, one could argue that the minimum is one, and that a deprivation in at least one of dimension is enough to consider someone is poor. However, under this definition (and given the indicators included in the proposed measure), poverty rates would be over 80% (see Appendix, Figures A1-A4). 88% of children have at least one deprivation (in at least one of the indicators). This has two problems: first, from a policy perspective it is not useful because it does not allow to identify those children who are more in need; second, from conceptual perspective, the aim is to identify children who are simultaneously deprived of several needs and thus and have more barriers to develop their capabilities.

Under our approach, and following Sen (1997, 2004), the ideal would be to have a consensus from society about this cutoff point. Although we do not have this information, we do have data on perception of poverty. Following the same strategy as Angulo et al. (2013), we decided to use as cutoff point the average deprivation share among poor households as self-reported by the head of household. Table 1 shows the average deprivations (weighted average of deprivations and as share of total number of variables) by poverty status (self -reported and income poverty). The first row shows that among "subjectively" poor households, the average share of deprivations is between 18.4% (for children aged 6 to 11) and 23.7% (for children aged 3 to 5). Interestingly, the estimate is very similar if we use income poverty as a criterion. Also, the estimate is significantly higher (at least 65% higher) for those non-poor (measured both as perception and by income).

Table 1. Number of deprivations for different subjective poverty and income poverty status, by age group (ENCV data)

	Deprivations (weighted k)				% [a]			
	0 – 2 yrs	3 - 5 yrs	6 - 11 yrs	12 - 17 yrs	0 – 2 yrs	3 - 5 yrs	6 - 11 yrs	12 - 17 yrs
"Subjectively" poor[b]	3.4	4.5	3.5	3.6	18.9	23.7	18.4	20.0
Income poor	3.6	4.7	3.6	3.8	20.0	24.7	18.9	21.1
"Subjectively" poor[b] and income poor	4	5.2	4	4.1	22.2	27.4	21.1	22.8
Non-poor "subjectively"	1.8	2.8	2.1	2.2	10.0	14.7	11.1	12.2
Non-poor by income	1.9	2.7	2.1	2.2	10.6	14.2	11.1	12.2

[a] With respect to the total of variables included in the MCAP index
[b] The head of household says he/she considers himself/herself as poor.

V.   RESULTS

Children and adolescent poverty: levels and changes over time

Figure 2 presents results on the MCAP index for 2008, 2010 and 2011. Child poverty had a substantial reduction over this period, with the improvement concentrated between 2008 and 2010. Overall, child and adolescent poverty decreased from 41.2% in 2008 to 34% in 2011. The highest poverty rates are found among children 3 to 5 years old (37%), followed by adolescents (35%).

In contrast to changes in the incidence of poverty, the improvement of intensity of poverty was not that sizable (Table 2). Overall, the average number of deprivations among poor children and adolescents decreased from 34% in 2008 to 31.5% in 2011 (a 7% reduction compared to a reduction of the incidence of poverty of 17%).

Figure 2. Multidimensional Child and Adolescent Poverty (incidence of poverty – H)
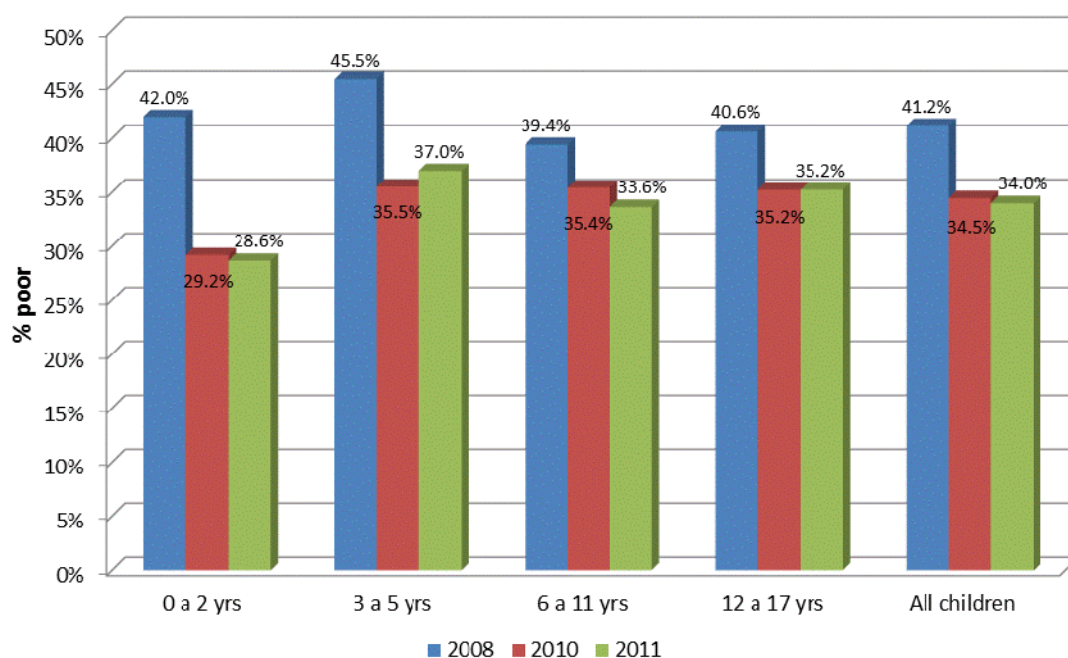
Authors' calculations. Data: Colombian Quality of Life National Survey 2008, 2010 and 2011

Table 2. Multidimensional Child and Adolescent Poverty: Intensity and Adjsuted incidence

	Intensity (A)			Adjusted incidence (M_0)		
	2008	**2010**	**2011**	**2008**	**2010**	**2011**
0-2 years old	35.1	32.8	33.0	14.7	9.6	9.4
3-5 years old	38.3	35.2	35.6	17.4	12.5	13.2
6 -11 years old	32.5	29.8	30.0	12.8	10.5	10.1
12-17 years old	32.8	30.8	30.5	13.3	10.9	10.7
All children	34.0	31.4	31.5	14.0	10.8	10.7

Critical dimensions

Table 3 shows the prevalence of deprivations on all the dimensions that compose the MCAP index, by poverty status. For all variables and age groups we find significant differences among poor and non-poor. While this may sound not surprising, from the perspective of the index construction is an important finding because it reassures the discriminant capacity of the index. For instance, the probability of not having access to

information is between 18 to 29 times higher among poor children than non-poor children. Also, the probability of being undernourished is between 7 and 13 times higher for poor children compared to non-poor. In general, except for exposure to violence, the probability of being deprived in a variable's dimension is at least twice as large for poor children and adolescents than for non-poor.

In terms of critical dimensions, we find that poor children between 0 and 2 years old have extremely high levels of deprivation on housing and environmental conditions: 50.6% of poor children aged 0 to 2 live in overcrowded households, 61.5% have no access to green areas, 54.5% have no access to sanitation and 46.5% lack access to clean water. Also, over one third of poor children of this age group are stunted or do not have completed the scheme of vaccination. The combination of these deprivations represents a barrier to the full development of these children and, in absence of a strong intervention, will translate into a poverty trap.

For poor children between 3 and 5 years old the most critical dimension is early childhood education. The vast majority of these children (79%) have no access to this crucial service. While this is also a problem among non-poor children, the probability of being deprived on early education is more than twice as large among poor children as non-poor. Similarly to the youngest children, we find that poor children aged 3 to 5 (and 6 to 11) also have high levels of deprivation on housing conditions (overcrowding), access to clean water and sanitation, and access to green areas, with deprivation rates above 40%.

Lack of access to recreation is critical for poor children 6 to 11 and adolescents: 59.6% of poor children aged 6 to 11 and 55.5% of poor adolescents do not have access to play, leisure or extracurricular activities. This is particularly problematic in the Colombian context because most of public schools offer "half-shift" schooling and therefore students are in school either during the morning or the afternoon (Bonilla, 2011). Among adolescents another critical dimension is education. We find that over half of poor adolescents (50.5%) are lagged in school and 29% are not attending school at all. The deprivation on these dimensions among adolescents represents a restraint to the full development of their capabilities and the possible transmission of poverty among generation.

Table 3. Deprivations among poor and non-poor children and adolescents (%)*

	0-2 years old		3-5 years old		6-11 years old		12-17 years old	
	Poor	**Non poor**	**Poor**	**Non poor**	**Poor**	**Non poor**	**Poor**	**Non poor**
Education								
No early education			79.2	36.5				
No school attendance					8.3	0.6	29.1	4.9
School lag					15.2	1.8	50.5	10.4
Nutrition								
Stunting	38.4	5.0	34.5	2.9	22.0	1.7	26.4	2.6
Food insecurity	20.4	3.0	16.9	2.6	18.9	2.0	18.2	2.6
Health								
Uninsured	29.7	8.5	17.7	5.3	15.4	4.2	14.8	4.2
Barriers to health access	8.4	2.6	4.7	3.5	4.4	2.1	5.0	2.0
No immunization	38.0	4.9	30.7	4.2	0.0	0.0	0.0	0.0
Water and sanitation								
No water	46.5	9.0	40.8	8.5	39.8	8.0	35.7	6.4
No sanitation	54.5	10.6	48.8	8.2	49.8	10.3	42.0	9.0
Housing								
Overcrowding	50.6	13.4	51.0	12.2	62.6	18.1	48.9	11.8
Dirt floor	27.1	2.2	25.7	2.2	26.4	1.7	20.9	2.1
Unsafe materials	3.7	0.2	4.0	0.3	3.3	0.2	2.2	0.4
Economic security								
Economic hardship	34.6	6.0	29.0	8.0	32.3	7.0	33.3	6.7
Safety								
Abuse	30.7	12.1	35.6	15.8	33.0	15.1	24.1	9.5
Neglect	1.4	0.6	1.4	0.5				
Local violence	29.3	20.0	28.1	20.3	31.6	20.9	33.9	22.3
Recreation								
No recreation / time use	14.4	4.4	31.2	19.6	59.6	32.6	55.5	29.9
No parks / green areas	61.5	29.6	55.7	27.0	58.5	25.3	56.1	26.2
Information								
No access to information	38.4	2.6	31.7	1.7	28.8	1.1	21.8	0.8

* All differences between poor and non-poor are statistically significant at the 0.05 level.

Critical Dimensions for Children and Adolescents:
Qualitative Word Frequencies per Age Subgroup and Complete Data Set

The qualitative data set was organized and processed using NVIVO10 to produce the following word clouds that visualize the word frequencies and tendencies in children and adolescent populations. For the complete qualitative data set, including transcriptions of all the activities composing the series of focus groups, education, which was calculated as the sum of all discursive categories related to education (school, study, university and different variations of these words), emerged as the most important dimension in children and adolescents' daily lives. We can also see from the frequency data that water, family and home and the community environment are also important dimensions that should be considered when measuring the well-being of this population in Colombia.
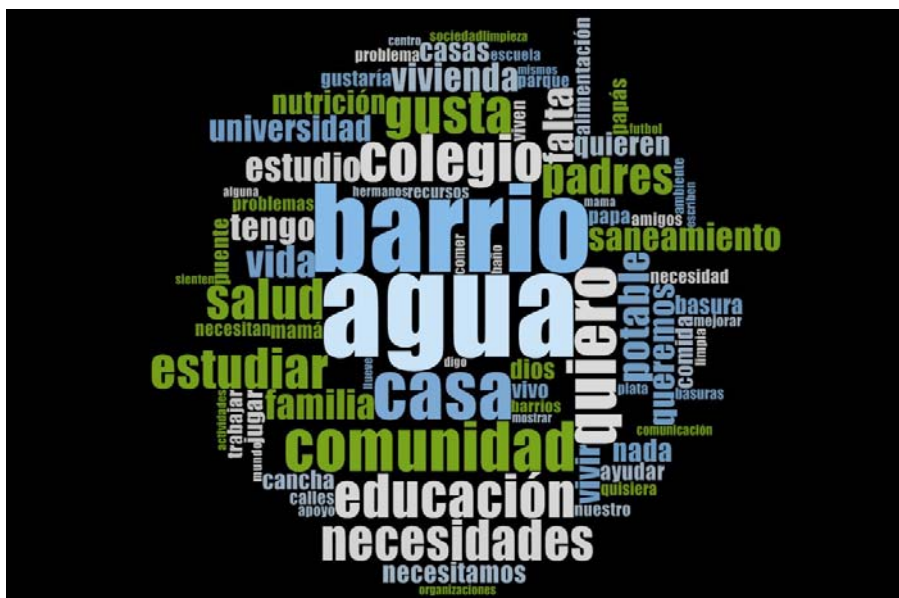
Adolescents

Educación (Education)[4]	693
Agua (Water)	355
Barrio (Neighborhood)	313
Casa (Home)	200
Quiero (I want…)	181
Comunidad (Community)	175

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[4] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).

Children

Educación (Education)[5]	707
Gusta	272
Casa	251
Familia	222
Barrio	218
Estudiar	215

Complete data set*

Educación (Education)[6]	1450
Agua	565
Barrio	531
Casa	451
Gusta	425
Estudiar	357

*All age groups, all study sites

[5] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).
[6] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).

Decomposition for policy design

One of the properties of the multidimensional poverty measures developed by Alkire and Foster is the decomposability by dimensions or subgroups (Alkire & Foster, 2011b). This is particularly useful for policy design because it informs how much a dimension or variable contributes to overall poverty, and thus can guide policy design. We decomposed adjusted headcount (M_0) for different age groups and present the results in Figure 3 below. Each segment in a bar represents the contribution of the deprivation to the adjusted head count.

We find that for all age groups the dimension of clean water and sanitation explains an important portion of multidimensional poverty (between 15% and 19%), suggesting that is a priority area of intervention. Also, economic hardship explains a non-negligible fraction of the adjusted headcount (between 9% and 13%).

Consistently with the findings on critical dimensions presented above, we find that the dimension that has the greatest contribution to multidimensional poverty among children aged 3 to 5 is early childhood education: 25% of the adjusted headcount will be reduced if the deprivation in this dimension is eliminated. For children 6 to 11 and adolescents, access to recreation and green areas explain 20% and 22% of the adjusted head count respectively. Finally, for adolescents, 14% of the adjusted headcount is explained by educational variables, highlighting the importance to prioritize in this policy domain for this age group.

**Figure 3. Decomposition of adjusted headcount (M0) by dimension**
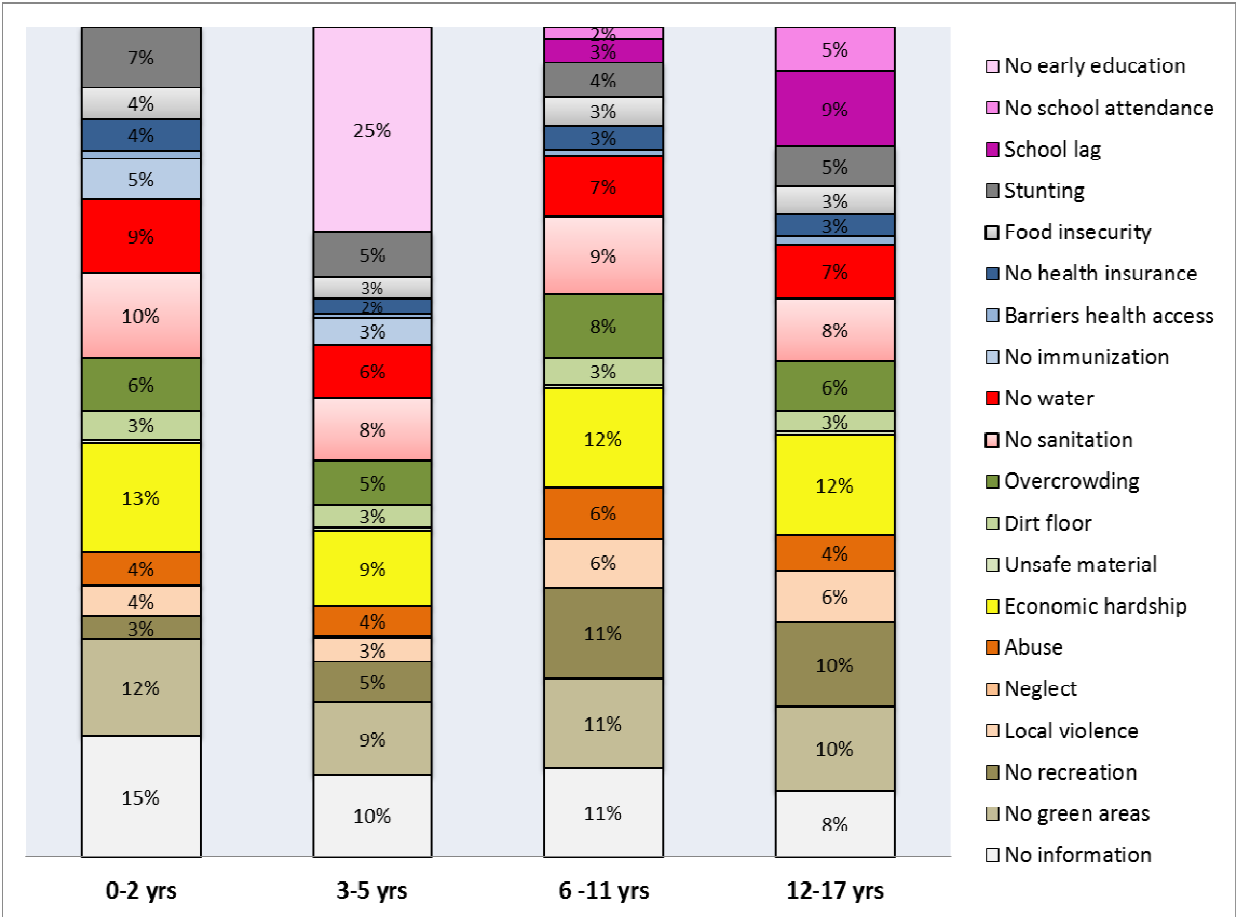
Authors' calculations. Data: Colombian Quality of Life National Survey 2011

Regional heterogeneity: different profiles of poverty

Colombia is one of the most unequal countries in Latin America. This means that national indicators may hide important differences among population groups. One important domain of inequality is space: differences across regions. Figure 4 present child and adolescent poverty for different departments and regions in Colombia (see also Table A2 in Appendix). It is clear that poverty is concentrated in the Pacific and Atlantic coast. In particular, Chocó and Guajira are departments with extremely high poverty rates: 75% of children and adolescents in Chocó and 65% of children and adolescents in Guajira are multidimensionally poor, compared to 18% in Bogota.
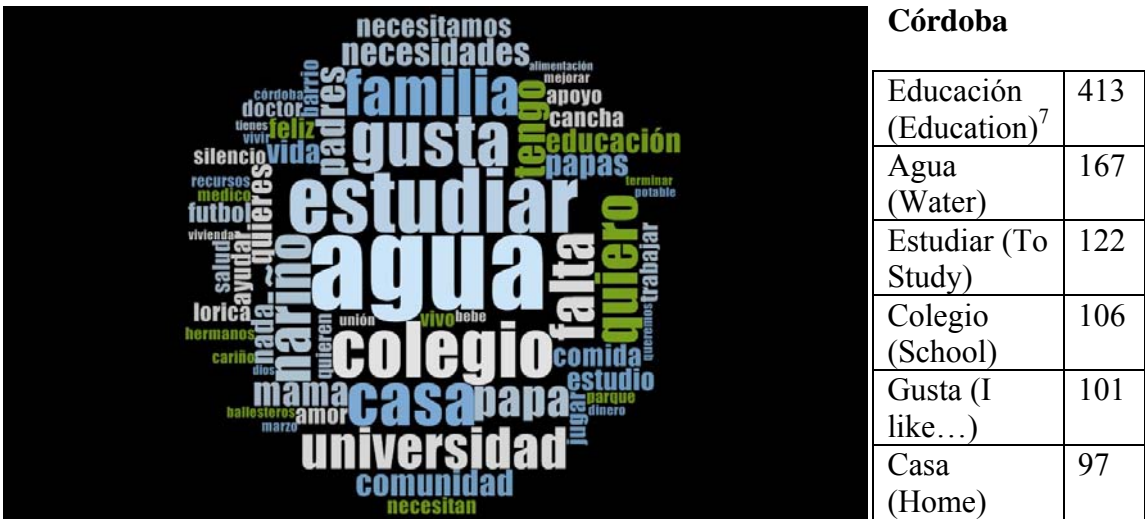
Figure 4. Multidimensional Child and Adolescent Poverty
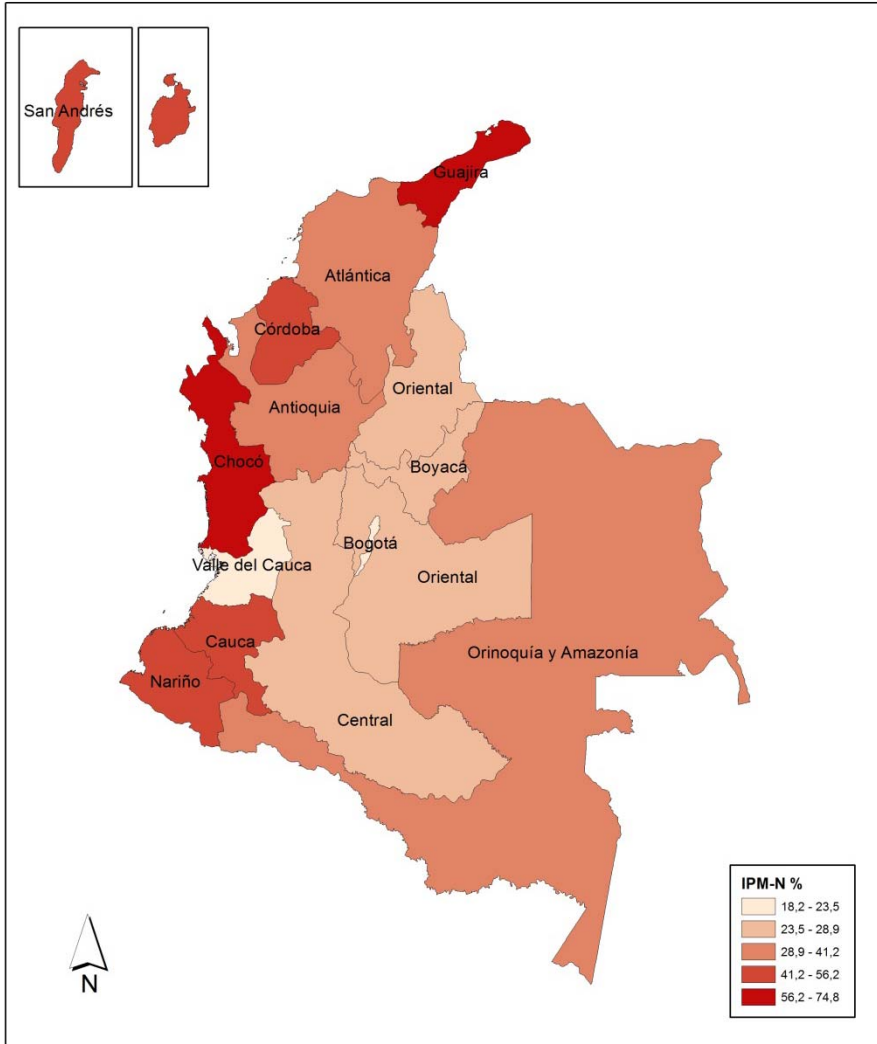
Authors' calculations. Data: Colombian Quality of Life National Survey 2011

Qualitative word frequencies per study site

In the following set of qualitative visualizations produced in NVivo10, the data were organized by study site in order to identify regional diversity in terms of what is important to children and adolescents in Córdoba, Chocó, Amazonas, and Bogotá. Education, which was calculated as the sum of all discursive categories related to education (school, study, university and different variations of these words), is extremely important in the daily lives of both children and youth, with Córdoba and Chocó as the regions with the highest discursive trends surrounding education.

Córdoba

|	
Educación (Education)[7]	413
Agua (Water)	167
Estudiar (To Study)	122
Colegio (School)	106
Gusta (I like…)	101
Casa (Home)	97

In Córdoba, water and education are frequently associated categories as the students expressed their need for potable water at their rural school, which was never provided despite the unbearable daily temperature. This is also an issue for many children and adolescents at home as well in Córdoba where they go several days per week without potable water service.

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[7] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).

Water Source at the Union Educational Institute, (Middle School in Córdoba)

During the roving focus groups in Córdoba, both children and adolescent subgroups took us to their schools and pointed out the poor quality of drinking water, science lab and library resources. For children and adolescents in Córdoba, as in the other regions, having access to a quality education is extremely important for their well-being and human development.
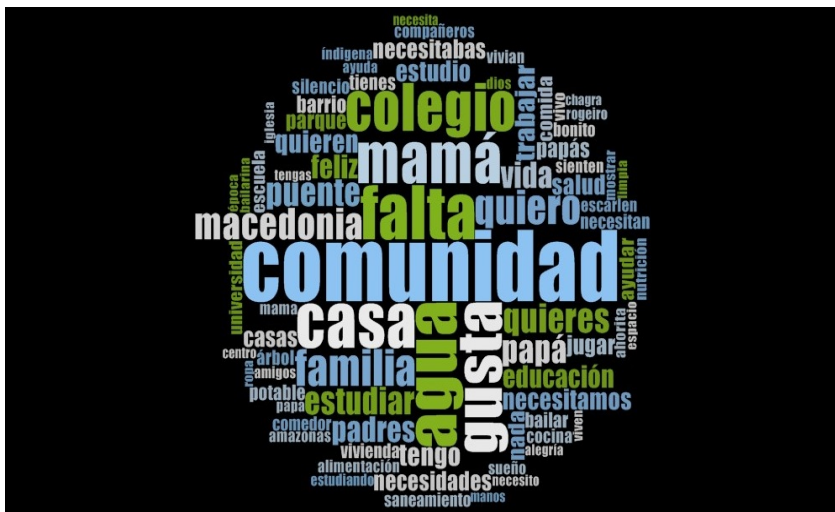
Amazonas

Educación (Education)[8]	294
Comunidad (Community)	160
Agua (Water)	123
Falta (Lack…)	119
Casa (Home)	119
Gusta (I like…)	112

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[8] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).

Chocó

Educación (Education)[9]	391
Barrio (Neighborhood)	212
Agua (Water)	155
Casa (Home)	143
Quiero (I want…)	114
Gusta (I like…)	98

Bogotá

Educación (Education)[10]	302
Barrio (Neighborhood)	250
Necesitan (Need)	121
Agua (Water)	120
Gusta (I like…)	114
Casa (Home)	93

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[9] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).
[10] Educación (Education calculation) = colegio (school) + estudio (studies) + estudiar (to study) + universidad (university) + educación (education) + escuela (school).

Not only the levels but also the "types" of poverty are different across regions. Figure 5a presents the deprivations among poor children and adolescents at the national and summarizes the results presented on Table 3, where we show critical dimensions for poor children and adolescents such as overcrowding, lack of access to clean water and sanitation and access to recreation. As with the levels of poverty, critical dimensions vary across regions generating different "types" or profiles of poverty. In figure 5b we show the same figure for four different regions (for illustration purposes present the same regions that were included in the qualitative work). It is clear that the profiles of poverty vary across regions and that therefore different types of interventions would be needed in order to eradicate child poverty. For instance, while in Bogotá access to water and sanitation is almost resolved, in Choco it is a pressing issue: over 85% of poor children and adolescents in this department lack of water and sanitation. On the other hand, local violence appears as a critical deprivation among poor children and adolescents.

Figure 5a. Deprivations among poor children and adolescents (national level)
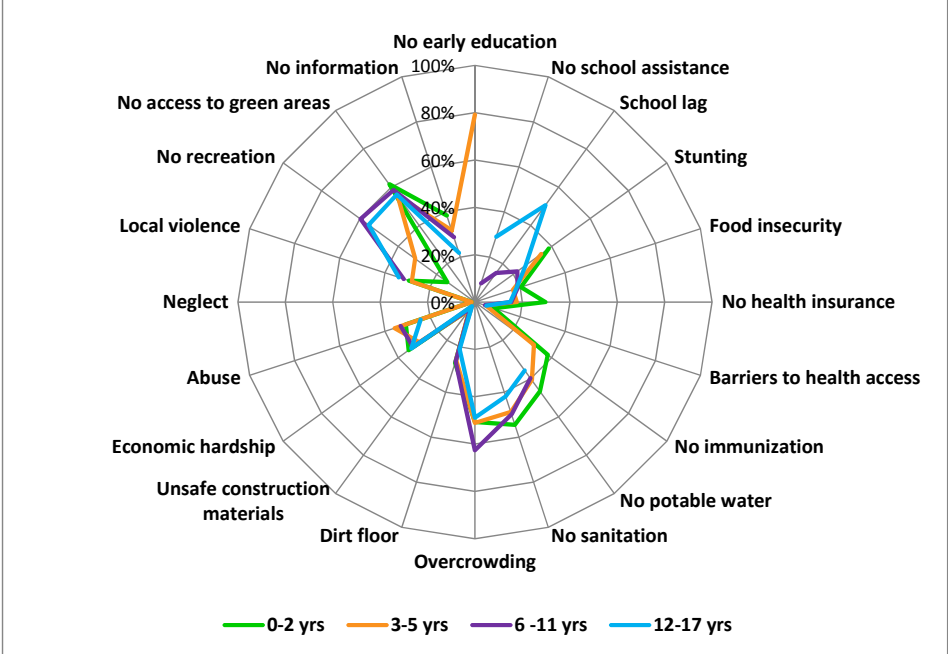
Authors' calculations. Data: Colombian Quality of Life National Survey 2011

Figure 5b. Deprivations among poor children and adolescents (four regions)
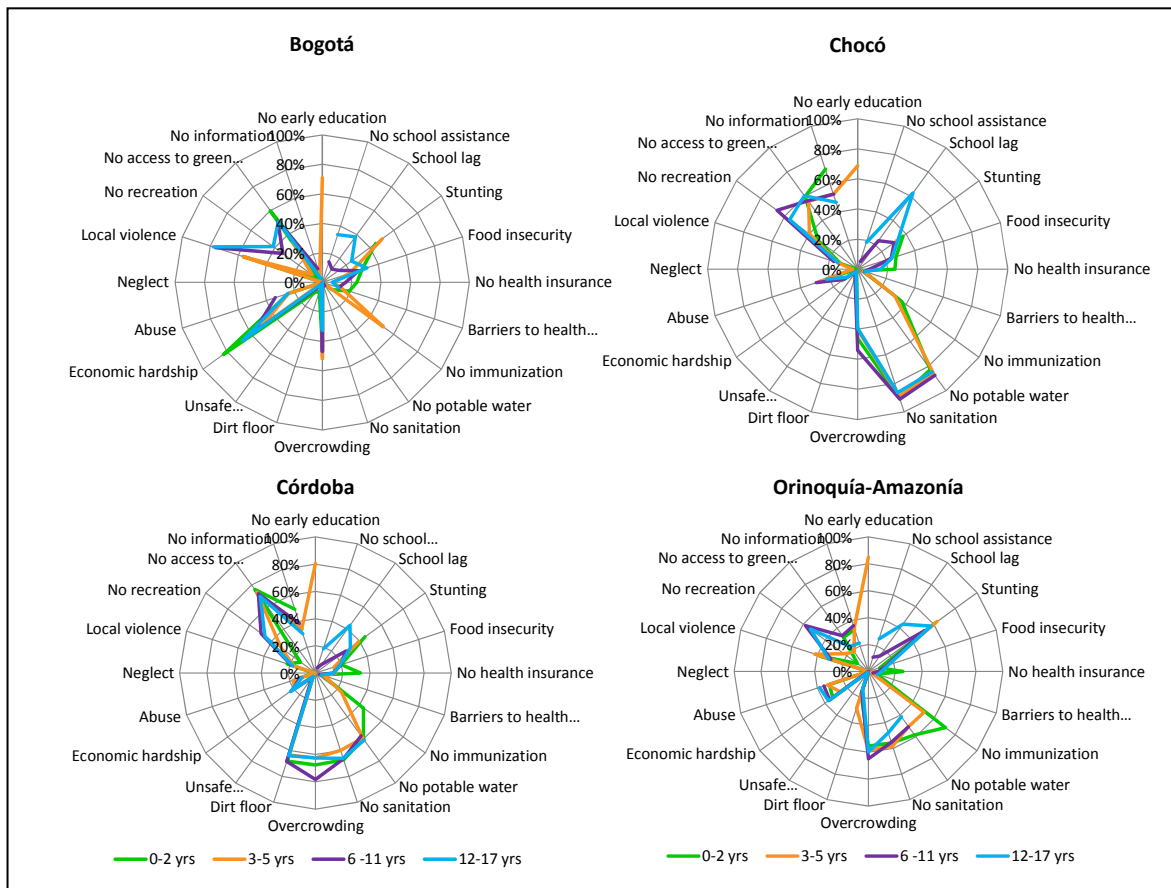
Dimensions that the index does not capture

There are dimensions that are difficult to quantify but represent an important component of child and adolescent well-being in Colombia. From the qualitative component, findings are aligned with Nussbaum's list of capabilities (2002; 2003), including the dimensions 'play' and ' 'emotions' which she defines as "…being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety" (Nussbaum 2003: 41).

During the focus groups, children and adolescents expressed their need for care, love and affection in their daily lives, especially from their parents and within the household. In all four regions, both children and adolescent subgroups expressed the need

for love from their parents. One child in Córdoba expressed that*"I wish our father was more loving, understanding and played with us and I wish I had a united family full of love"* (Children, Focus Group – Córdoba, GF1, 24 March 2012).

As expressed in the above notebook excerpt from a child in Bogotá, " …we all need love… [to be happy and well]" (Children, Notebook – Bogotá, 14 January 2012) and an adolescent in Bogotá similarly mentions " ..without support you cannot get through life…" (Adolescents, Focus Group – Bogotá, 16 January 2012).

The ethics of child-centered poverty measurement

The methodological process of poverty measurement necessarily requires a discussion and treatment of ethics throughout the research design and implementation phases. If children's well being is at stake, what does this mean for the researchers that will come in contact with these children and adolescents? What steps should be taken to ensure that our research praxis are not contradictory to the research outcomes that focus on promoting child and adolescent well-being in Colombia?

Our research team took several literatures and methodological experiences into consideration in order to avoid ethical contradictions and dilemmas in the research process. Incorporating children and adolescents within the research process as component actors and not merely objects of study, is a necessary shift that should be taken in studies that aim to improve their well-being, in the short or long term. Children's geographers have firmly argued for research relations that diminish disparities in power between researcher and

participant (Morrow and Richards 1996; Thomas and O'Kane 1998; Young and Barrett 2001), give children control over the research process (Alderson 1995; Punch 2002; Alderson and Morrow 2004; Christensen 2004; Williamson et al. 2005; Morrow 2008; Skelton 2008; Sime 2008), facilitate a reporting-back process to all participants (Morrow and Richards 1996; Christensen and Prout 2002; Van Blerk and Ansell 2007; Hopkins 2008), and employ a child-focused methodology enabling participants to explore their subjectivities and ways of interacting within their communities (Van Beers 1996; Matthews et al. 1998; Beazley and Ennew 2006; Evans 2006; Cahill 2007b; Kesby 2007; Panelli et al. 2007; Thomson 2007; O'Connell, 2013).

These suggested practices, however, have not been operationalized in order to create more ethical research relations while actually in the field. The emphasis is on getting the information the researcher needs rather than using methods that will be interesting to children and will place their well-being at the center of the research process (rather than incorporating well-being as an afterthought or simply within the act of obtaining informed consent/assent) (Ritterbusch 2012). In fact, children should be involved in every stage of the research process, not only the points in which the researcher determines they are needed. Children are utilized to execute methods in spaces where adults do not have access and the information is then taken, analyzed and written-up by and from an adultist perspective. The call to 'give children control over the research process' and 'give them a voice' still implies that it is the researcher giving children this power and privilege (Williams et al. 2006, 89; see also Matthews and Limb 1999; Holt 2004).

These ethical considerations have shaped our future research agenda as we aspire to make policy recommendations that in the long term will make a difference in the quality of life of children and adolescents living in poverty.

CONCLUSIONS

The main objective of this study was to develop a multidimensional child poverty measure that is sensitive to children needs and at the same time useful for policy design. The proposed measure of child poverty is the result of a mixed-methods approach that incorporates the voice of experts on social policy and child and adolescent well-being, including children themselves. The Multidimensional Child and Adolescent (MCAP) index includes 9 dimensions that are critical for human development: education, nutrition, health,

water and sanitation, housing, economic security, safety, recreation and time use, and information.

We found that over one third of Colombian children and adolescents are poor. Both the quantitative and the qualitative data showed that water and sanitation are critical dimensions for all age groups. In addition, lack of access early childhood education is a critical dimension for young children and lack of access to recreation and structured extracurricular activities are critical for school-aged children and adolescents. For children older than 2 and adolescents, over 40% of poverty is accounted for three dimensions (water and sanitation, education and recreation), suggesting high priority policy areas of intervention.

Capturing the voices of children and adolescents allowed us to better understand the way in which deprivations in different dimensions affect their daily lives and their potential development. Not only water, education, and recreation appeared to be critical in their lives. Also a safe environment came up as a basic need for wellbeing. In different regions it came clear how violence not only impedes the access to social services such as education or health, but also generates high level of stress that keeps them in a permanent alert stage.

There are some limitations to the MCAP index. First, it does not fully capture the quality of dimensions. For instance, school attendance is measured in a dichotomous way (the child either goes or does not go to school) and does not take into account the type of school children are attending. From a capabilities approach this is important because the quality of these services will ultimately determine future development. Second, the MPCAP gives the same weight to all dimensions. To be consistent with our inclusive approach, the ideal would be to open the weights to discussion, incorporate the voices of experts (including children and adolescents) and build a "social" prioritization of dimensions. These limitations may be considered as pathways for future research.

Appendix

Figure A1. Incidence of poverty (H) for different levels of *k* (as % of total number of dimensions) and by weighting method (children 0 to 2 years old)

	k=0	k=5	k=10	k=15	k=20	k=25	k=30	k=35	k=40	k=45	k=50	k=55	k=60	k=65
Equal W dimension	85.57	73.05	59.40	38.39	27.88	20.54	13.80	10.04	5.35	3.15	1.62	0.97	0.52	0.26
Equal W variables	85.57	85.57	62.95	41.94	27.31	18.26	11.97	7.15	4.08	2.16	2.16	0.67	0.40	0.13

Figure A2. Incidence of poverty (H) for different levels of *k* (as % of total number of dimensions) and by weighting method (children 3 to 5 years old)

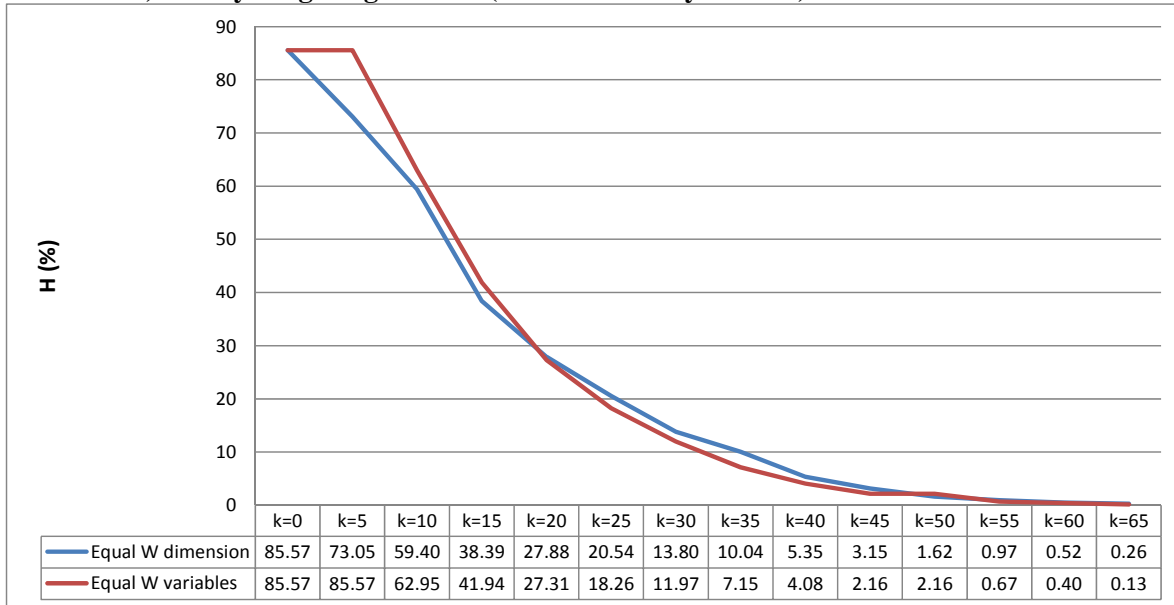|	k=0	k=5	k=10	k=15	k=20	k=25	k=30	k=35	k=40	k=45	k=50	k=55	k=60	k=65
Equal W dimension	90.93	86.20	74.00	54.16	44.10	30.16	18.81	13.69	8.00	4.51	2.84	1.68	0.85	0.27
Equal W variables	90.93	90.93	74.29	54.84	37.14	24.41	16.07	9.92	6.16	3.64	2.03	1.17	0.33	0.15

Figure A3. Incidence of poverty (H) for different levels of *k* (as % of total number of dimensions) and by weighting method (children 6 to 11 years old)

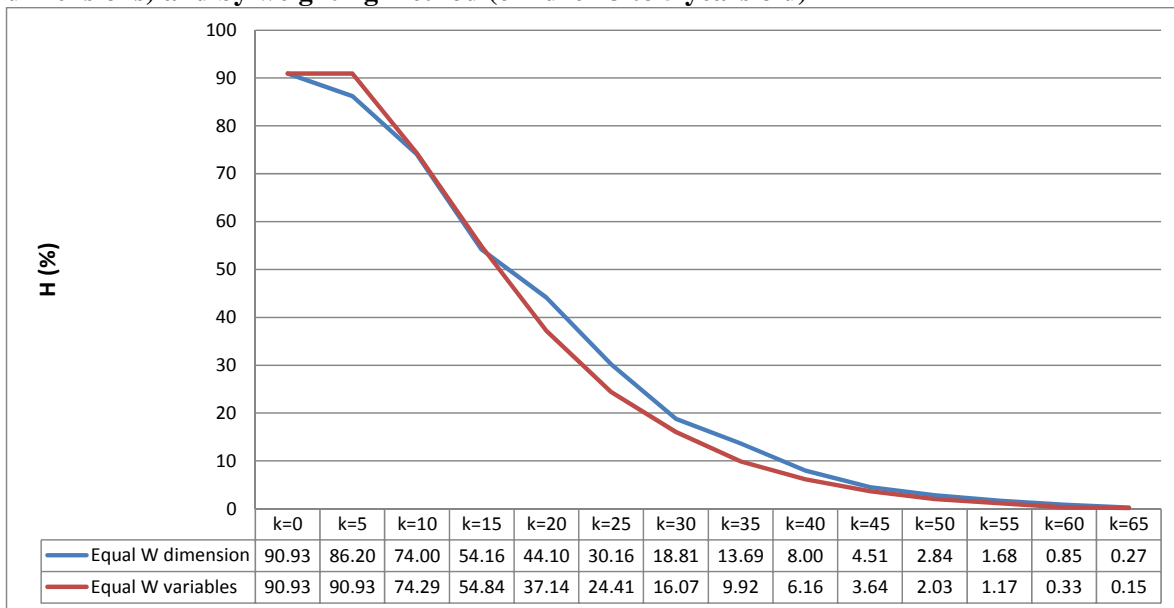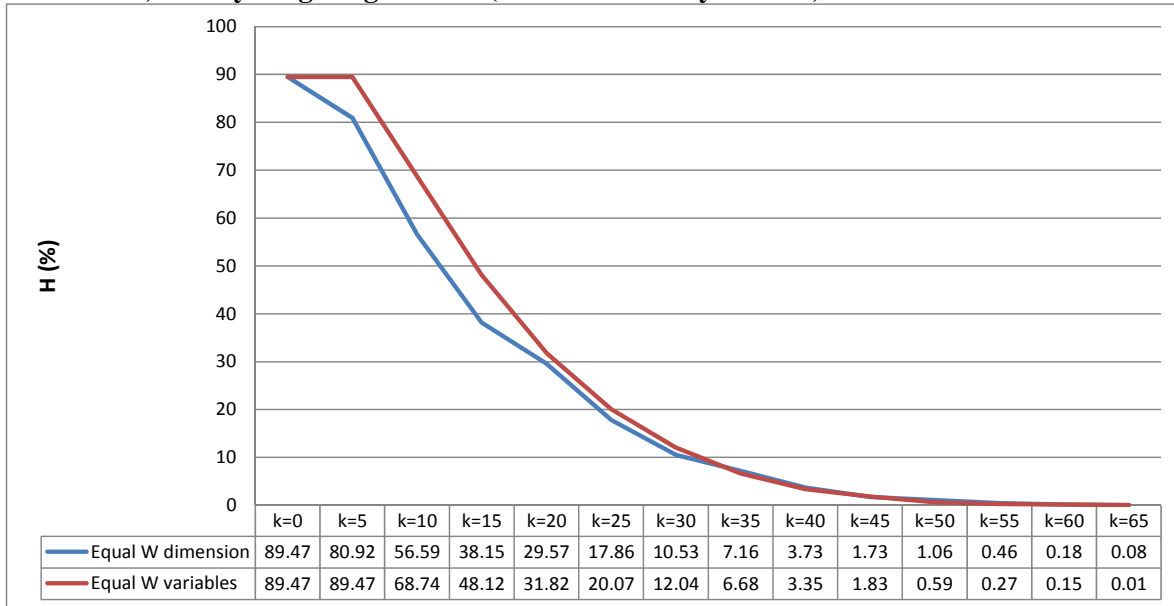|	k=0	k=5	k=10	k=15	k=20	k=25	k=30	k=35	k=40	k=45	k=50	k=55	k=60	k=65
Equal W dimension	89.47	80.92	56.59	38.15	29.57	17.86	10.53	7.16	3.73	1.73	1.06	0.46	0.18	0.08
Equal W variables	89.47	89.47	68.74	48.12	31.82	20.07	12.04	6.68	3.35	1.83	0.59	0.27	0.15	0.01

Figure A4. Incidence of poverty (H) for different levels of *k* (as % of total number of dimensions) and by weighting method (children 12 to 17 years old)
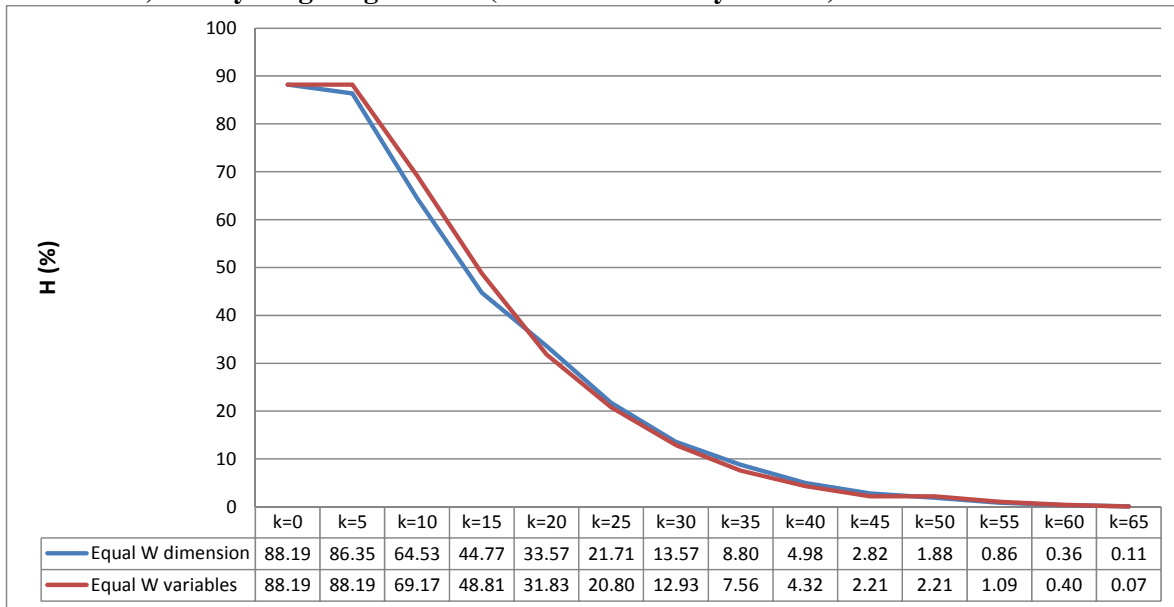
	k=0	k=5	k=10	k=15	k=20	k=25	k=30	k=35	k=40	k=45	k=50	k=55	k=60	k=65
Equal W dimension	88.19	86.35	64.53	44.77	33.57	21.71	13.57	8.80	4.98	2.82	1.88	0.86	0.36	0.11
Equal W variables	88.19	88.19	69.17	48.81	31.83	20.80	12.93	7.56	4.32	2.21	2.21	1.09	0.40	0.07

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Table A1. IPM-N: Multidimensional Child and Adolescent Poverty Index: Dimensions and Variables

Dimension	Deprivation	Indicator	Cutoff point source	Age
Education	No access to early education	No access to early education (quality care that stimulates cognitive and socioemotional development)	Authors (based on literature and Colombia's current early childhood development polity)	3 to 5 years old
	No school attendance	No attendance to school (public or private)	Colombia MPI measure	6 to 17 years old
	School lag	If the child is 2 or more years older than the regular age for his/her grade	Colombia's Ministry of Education guidelines	6 to 17 years old
Nutrition	Chronic under nutrition	Stunting - Low height for age	World Health Organization Guidelines	0 to 17 years old
	Food insecurity	If anyone in the household skipped all meals (breakfast, lunch and dinner) at least once in the previous week of the survey.	Authors	0 to 17 years old
Health	No health insurance	If the child is not covered by any health insurance (subsidized or contributory)	Colombian MPI	0 to 17 years old
	Barriers to health care in case of need	If the child was sick and did not have access to institutional care, or if he/she did not have access to prescribed medicines	Colombian MPI with some variations by authors	0 to 17 years old
	Vaccination	Completed scheme of vaccines (DPT and MMR)	Colombian Health Department's guidelines	0 to 5 years old
Water and sanitation	No access to clean water	Source of water inadequate for human use (e.g. rivers, uncovered wells, or rain water)	Colombian MPI	0 to 17 years old
	No access to sanitation	No facilities for sanitary disposal of excreta	Colombian MPI	0 to 17 years old

Dimension	Deprivation	Indicator	Cutoff point source	Age
Housing	Overcrowding	4 or more people per room for children 0 to 5 years old; and 3 or more people per room for children 6 or older	Colombian MPI with some variations by authors (same threshold for urban and rural)	0 to 17 years old
	Inadequate floor	Dirt floor	Colombian MPI	0 to 17 years old
	Unsafe construction materials	Walls made of vegetable materials, cardboard, zinc or recycled materials	Colombian MPI	0 to 17 years old
Financial security	Economic hardship	If household head reports that household income is insufficient to meet the minimum needs of the household and he/she is unemployed; or if he/she reports not having paid the bills (school, housing or utilities) for at least 4 consecutive months	Authors	0 to 17 years old
Safety	Abuse	If the child is punished using punches, kicks, hitting with hand or objects	Authors	0 to 17 years old
	Neglect	If the primary care giver is a person under 18 years old or f he/she stays alone.	Colombian MPI with authors variation (include children aged 6 to 11)	0 to 11 years old
	Exposure to violent of unsafe environment	If the child lives in a household where at least one person has been victim of a violent act (homicide, kidnapping, assault or rape) or if the head of household reports feeling very unsafe in the neighborhood or community.	Authors	0 to 17 years old
Recreation and time use	No access to recreation or leisure activities	No options of play, recreation or stimulating time use such as sports, artistic activities, bike riding, going to a park or a museum, or reading (in the week previous to the survey)	UNICEF	0 to 17 years old
	No access to parks or green areas	If the household is not close to a park or green area	Authors	0 to 17 years old
Information	No access to information	No access to at least two of the following: a radio, television, telephone, internet or newspapers/magazines	UNICEF with variation by authors	0 to 17 years old

Table A2. Multidimensional Child and Adolescent Poverty by region/department

	0 a 2	3 a 5	6 a 11	12 a 17	Al children
Chocó	74.2	69.8	75.6	77.0	74.8
Guajira	58.5	65.9	66.4	64.9	64.5
Córdoba	58.6	54.8	58.3	53.6	56.2
Nariño	48.0	55.7	49.5	50.1	50.5
San Andrés	36.1	50.6	55.2	51.7	50.4
Cauca	43.7	48.1	48.0	47.8	47.3
Atlántica	33.0	41.4	42.6	43.5	41.2
Orinoquia-Amazonía	36.2	44.0	37.2	41.5	39.6
Antioquia	23.5	43.1	34.2	36.3	35.1
Oriental	23.5	37.3	27.8	28.7	28.9
Boyacá	25.2	32.4	27.3	28.8	28.4
Central	21.0	29.2	25.1	30.8	27.2
Valle	20.9	24.9	22.0	25.4	23.5
Bogota	16.7	16.3	17.7	20.2	18.2
National	**28.6**	**37.0**	**33.6**	**35.2**	**34.0**

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