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Children in situations of multidimensional poverty

A comparative analysis of multidimensional poverty approaches in Argentina during the Bicentennial period (2010-2016).

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INTRODUCTION

In recent years, many conceptual and methodological approaches have been proposed to define child poverty (Alkire and Foster, 2009; Minujin and Nandy, 2012; UNICEF/CEPAL, 2012; CEPAL; 2013; Nandy and Main, 2015). There is a wide consensus about considering poverty as a multidimensional phenomenon, and several contributions in Latin America support this approach (CEPAL/UNICEF, 2013, UNICEF/CONEVAL, 2013).

These works agree in their criticism of indirect measurements of poverty, namely those based on household income. They criticize that there is not an invariably direct relationship between utility maximization and the thresholds for income or consumption established by these measurements. Indeed, according to Sen, this very link is debatable because the choices that a person makes do not always express or maximize their utility. Identifying households or individuals according to their incomes or their capacity for consumption does not mean that those identified as not poor obtain the basic basket of goods and services that evidence wellbeing.

These arguments are especially significant when measuring child poverty. The absence of monetary poverty is not enough to preclude deficits in the emotional space, to avoid physical or verbal abuse, to ensure school attendance, a high-quality education, or proper healthcare attention.

It is a priority to develop poverty measurements that directly consider all dimensions along which poverty can be experienced. These alternative measurements that consider multiple dimensions of human rights (housing, sanitation, health, education, among others) provide valuable information and represent poverty in its complexity. Proper measurement is a necessary contribution in order to produce solutions.

In Argentina, official poverty measurement based on households' income was resumed in 2015. In the second semester of 2016, the Instituto Nacional de Estadística y Censos (INDEC, National Institute of Statistics and Censuses), through the Encuesta Permanente de Hogares (EPH, Permanent Household Survey), estimated that 32.2% of the population was below the poverty line and that 6.3% of the population was below the line of extreme poverty. They also estimated that 45.8% of children 0-14 years old were living in poverty and 9.6% were living in extreme poverty. Based on this information, and considering recent progress in the field of poverty measurement, it is important to move forward to direct estimations of poverty, with the objective of granting visibility to child poverty.

The present document builds on prior work with the objective of defining the multiple dimensions of child poverty (Tuñón and González, 2013; Tuñón and Poy, 2014; Tuñón, Poy, and Coll, 2015; Tuñón, Poy, and Coll, 2017). The conceptual framework considers children human and social rights, recognized by Argentine State through a wide range of norms and institutions. The document presents the dimensions and indicators through which the space of child poverty is defined, and it offers an estimation of child poverty using three approaches: that of the University of Bristol, that of the Oxford Poverty and Human Development Initiative (OPHI), and that of UNICEF known as Multiple Overlapping Deprivation Analysis (MODA). The estimations are conducted using micro-data from the Encuesta de la Deuda Social Argentina (EDSA, Argentine Social Debt Survey) Bicentennial Series (2010-2016), which is carried out annually by the Observatorio de la Deuda Social Argentina (ODSA, Observatory of Argentine Social Debt) at the Universidad Católica Argentina (UCA, Catholic University of Argentina).

THE SURVEY

The survey, *la Encuesta de la Deuda Social Argentina* (EDSA), was specifically created to measure human and social development, and includes a section for children development. The respondent is the mother, the father or the principal caretaker of the child.

The sample is stratified by socioeconomic level according to the education profile of the heads of household across a classification of residential areas (Census units). Five residential socio-educational spaces result: Very Low, Low, Medium, and Medium High.

In the geographic universe of the EDSA, 20 residential areas of more than 80,000 habitants each are considered: The Metropolitan Area of Greater Buenos Aires (including the Autonomous City of Buenos Aires, and parts of the Urban Interior of Buenos Aires), Greater Córdoba, Greater Rosario, Greater Mendoza and San Rafael, Greater Salta, Greater Tucumán and Tafi Viejo, Mar del Plata, Greater Paraná, Greater San Jose, Greater Resistencia, Neuquén-Plottier, Zárate, Goya, La Rioja, Comodoro Rivadavia, Ushuaia, and Rio Grande.

The sampling criteria used in the selection of cases was the radial-level census data, corresponding to the 2001 National Census carried out by the Instituto Nacional de Estadística y Censos (INDEC, National Institute of Statistics and Censuses). In the production of these statistics over the relevant period, a weight was applied to adjust the population estimates to the sociodemographic structure of the 2010 National Census. The total numbers of cases in 2010, 2011, 2012, 2013, 2014, 2015, and 2016 were, respectively, 6,396, 5,598, 5,426, 4,715, 4,929, 4,634, and 5,325 children between 0 and 17 years of age.

CONCEPTUAL FRAMEWORK AND THE DEFINITION OF CHILD POVERTY FOR THE CASE OF ARGENTINA

Introducing human rights as a parameter in the definition of poverty invokes a paradigm shift in the problem of poverty, as those rights are thereafter transformed from a moral question to legal responsibilities that can be demanded of governments and that challenge families, societies, and states (PNUD, 2000; O'Donnell, 2002; Hunt, Osmani, and Nowak, 2002; Pemberton, Gordon, and Nandy, 2012).

The first phase in constructing a deprivation index consisted in defining the space of human and social rights, taking as normative frameworks the rights declared in the Convention on the Rights of the Child (UN, 1989), the rights included in the Law of Integral Protection of the Rights of Children and Adolescents that was passed in Argentina, and the responsibilities outlined in the Sustainable Development Goals (SDG, 2015-2030). The SDGs establish as a goal to "end poverty in all its forms everywhere" and, specifically, to "reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions". Within these contexts, the present document proposes a framework that measures deprivation in six dimensions of child rights: (1) food security, (2) sanitation, (3) decent housing, (4) health, (5) early-childhood stimulation (for children aged 0 to 3) and education (for children aged 4 to 17), and (6) information (Tuñón, 2013; Tuñón and González, 2013; Tuñón and Poy, 2014; Tuñón, Poy, and Coll, 2015, 2016, 2017).

Figure 1. Dimensions and Indicators according to the two thresholds (moderate and severe) of the Bristol Methodology

DIMENSION	THRESHOLD OF TOTAL DEPRIVATION	THRESHOLD FOR SEVERE DEPRIVATION
FOOD SECURITY	Children experienced hunger in the past 12 months due to lack of financial resources to purchase food.	Children experienced hunger in the past 12 months due to lack of financial resources to purchase food and did not receive direct food assistance.
SANITATION	Children in households without access to running water.	Children in households without running water and that lack adequate sanitation services (they have no toilet or a toilet that does not flush).
	Children in households that lack appropriate sanitation services (they have no toilet or a toilet that does not flush).	
HOUSING	Children in households with 4 or more people per habitable room.	Children in households with 5 or more people per habitable room.
	Children in households with walls made of non-plastered bricks, adobe (with or without plaster), wood, scrap metal, fiber cement, cardboard (corrugated or not), palm fronds, straw, or discarded materials.	Children in households with walls made of wood, scrap metal, fiber cement, cardboard (corrugated or not), palm fronds, straw, or discarded materials.
HEALTH	Children who have not visited the doctor in the past 12 months.	Children who have not visited the doctor in the past 12 months and do not have age-appropriate vaccinations.
	Children who do not have age-appropriate vaccinations.	
INFORMATION	Children that lack 5 or more of the following components: fixed home phone, cell phone, Internet access, a home library, children's books, or a computer.	Children that lack all of the following components: fixed home phone, cell phone, Internet access, a home library, children's books, or a computer.
EARLY-CHILDHOOD STIMULATION / EDUCATION	Children (0-3 years old) that suffer 3 or more of the following deficits: they are not read stories, they are not played with, they do not attend an educational institution, and in their households verbal or physical abuse is used as a form of punishment.	Children (0-3 years old) that suffer all of the following deficits: they are not read stories, they are not played with, they do not attend an educational institution, and in their households verbal or physical abuse is used as a form of punishment.
	Children (4-5 years old) that do not attend an educational institution or that attend an educational institution that lacks physical education and music classes.	Children (4-5 years old) that do not attend educational institution.
	Children (6-12 years old) that do not attend school or that attend schools that lack 4 or more of the following subjects: physical education, music, art, foreign language, or computation/information technology.	Children (6-12 years old) that do not attend school or that attend schools that lack all of the following subjects: physical education, music, art, foreign language, or computation/information technology.
	Children (13-17 years old) that do not attend school or that attend schools that lack foreign language or computation/information technology classes.	Children (13-17 years old) that do not attend school.

Figure 2. Dimensions, Indicators, and Weights according to the MODA and OPHI Methodologies

DIMENSION	DEPRIVATION THRESHOLDS	WEIGHT	
		MODA	OPHI
FOOD SECURITY	Children experienced hunger in the past 12 months due to lack of financial resources to purchase food.	0.167	0.167
SANITATION	Children in households without access to running water.	0.167	0.083
	Children in households that lack appropriate sanitation services (they have no toilet or a toilet that does not flush).		0.083
HOUSING	Children in households with 4 or more people per habitable room.	0.167	0.083
	Children in households with walls made of non-plastered bricks, adobe (with or without plaster), wood, scrap metal, fiber cement, cardboard (corrugated or not), palm fronds, straw, or discarded materials.		0.083
HEALTH	Children who have not visited the doctor in the past year.	0.167	0.083
	Children who do not have age-appropriate vaccinations.		0.083
INFORMATION	Children that lack 5 or more of the following components: fixed home phone, cell phone, Internet access, a home library, children's books, or a computer.	0.167	0.167
EARLY-CHILDHOOD STIMULATION / EDUCATION	Children (0-3 years old) that suffer 3 or more of the following deficits: they are not read stories, they are not played with, they do not attend an educational institution, and in their homes there is verbal or physical abuse as a form of punishment.	0.167	0.167
	Children (4-5 years old) that do not attend an educational institution or that attend an educational institution that lacks physical education and music classes.		
	Children (6-12 years old) that do not attend school or that attend schools that lack 4 or more of the following subjects: physical education, music, art, foreign language, or computation/information technology.		
	Children (13-17 years old) that do not attend school or that attend schools that lack foreign language or computation/information technology classes.		

METHODOLOGICAL APPROACH ADOPTED FOR MEASURING CHILD DEPRIVATION IN ARGENTINA

Every measurement of multidimensional poverty involves two different moments (Sen, 1981): *identification* and *aggregation*. The former defines which children are considered deprived in *each* dimension, according to a specific *cut-off*. The latter defines who are considered poor in the summary measurement. There are distinct global approaches for the measurement of multidimensional poverty in general, and in child poverty specifically. Each of these approaches presupposes differences in the moments of identification and aggregation. A summary of these approaches is presented in Figure 3, where the most relevant characteristics of the

Bristol, OPHI, and MODA approaches are described. In this document, the characteristics and the evolution of multidimensional child poverty in Argentina from 2010 to 2016 are examined. Child poverty is estimated using the three methodologies detailed above. The technical purpose of this document was to gain an understanding of the advantages and limitations of these approaches and to compare the results obtained.

All three methodologies use the same indicators and dimensions, and together those dimensions represent the space of children rights. With respect to the moment of identification, the *union approach* was used because it is most consistent with a rights-based framework for the study of multidimensional poverty. To that point, the following methodological decisions were made:

(1) In the case of the Bristol methodology, two deprivation thresholds were defined (one for total deprivation and another for severe deprivation), and a child was considered poor in the multidimensional space if he or she was deprived in any dimension. Children with at least one severe deprivation were considered in a situation of extreme or severe poverty (CEPAL, 2013).

(2) In the case of the OPHI approach, only one threshold was used: that which corresponded to the "total" threshold in the abovementioned Bristol methodology. The OPHI methodology is comprised of nine indicators that correspond to six dimensions. With respect to the second moment of identification, the cut-off (k value) used to identify poor children in the multidimensional space was chosen to be equivalent to one dimension (that is, k=1/6, or 16.7%). That decision was made in order to be consistent with a rights-based framework for the multidimensional space.

(3) Just as with the OPHI approach, the MODA methodology also employed a single threshold that corresponds with the "total" threshold of the Bristol methodology. Each indicator was measured within its dimension through the union approach (de Neubourg et al., 2012). That is, a child with a deficit in at least one indicator in a dimension is considered deprived in that dimension. And, as follows, a child deprived in at least one dimension would be considered poor in the multidimensional space.

Figure 3. Summary of the Distinct Characteristics of each Methodology for the study of Multidimensional Child Poverty

	BRISTOL	OPHI	MODA
GENERAL FEATURES	This was the first global attempt at measuring multidimensional child poverty (Gordon et al., 2003). This methodology fits within the child-rights framework. The unique feature of this methodology is that it uses levels of deprivation (mild, moderate, severe, and extreme).	Complies with the axiomatic perspective of Sen and can be adjusted to the capabilities approach (Alkire and Foster, 2009). Although the study of child poverty has not been its focus, this methodology can be adapted to that purpose.	This was specifically designed to study child poverty. It fits within the child rights framework. The general approach for MODA takes up four aspects: (a) the child is the unit of analysis, (b) the whole lifecycle is considered, (c) the superposition or overlap of deprivations is studied, and (d) profiles of children that suffer the sharpest deprivations can be analyzed (de Neubourg et al., 2012:7)
IDENTIFICATION	The unique feature in this methodology was the use of two thresholds: severe and moderate. This generates three possible situations: severe deprivation, moderate deprivation, and the absence of deprivation. In the identification stage, the union approach is used: if a child has at least one deprivation (severe or moderate) in at least one dimension, the child is considered deprived; if the child has at least one severe deprivation, the child is considered in a situation of extreme poverty (CEPAL, 2013: 104).	The unique feature of OPHI is that it prioritizes an analysis using indicators before moving on to the dimensions that those indicators represent. The identification criteria follows the dual cutoff method: the first moment of identification is realized within each indicator such that an individual has a deficit in that indicator if found below that indicator's threshold; the second moment of identification takes place within the multidimensional space, such that an individual is poor if his or her vector of deprivation counts follows the condition $ci > k$.	MODA prioritizes analysis at the level of dimensions. This means defining how to aggregate indicators to dimensions. MODA utilizes the union approach to capture all children that have a deficit in any of the indicators in a dimension and assumes that if they are deprived in an indicator then they are deprived in the corresponding dimension. If the indicators are not considered as rights in themselves but as components of rights, then the analysis would instead use the intersection approach (de Neubourg et al., 2012).
AGGREGATION	In CEPAL-UNICEF (CEPAL, 2013) the methods of Bourguignon and Chakravarty are utilized, which only allow for a union approach.	OPHI has contributed significantly to the multidimensional measurement of poverty. To the traditional headcount ratio, Alkire and Foster (2009), extending the FGT indices, added the adjusted headcount ratio (among other advances), which complies with Sen's axioms.	MODA also uses the measurements proposed by Alkire and Foster (2009) and presented by OPHI.
EXTENTIONS	This methodology is also able to consider (a) the incidence of deprivation in each dimension, and (b) the count or tally of deprivations as an approximation of the intensity of the deficit.	This methodology is also able to consider (a) the count of deficits per indicator, (b) the contribution of each indicator to the intensity of poverty, and (c) the contribution of different population subgroups to	This methodology is also able to consider (a) an analysis of deficits for each indicator, (b) an analysis of deprivation for each dimension, (c) an analysis of profiles of the children with respect to their deprivation in

	BRISTOL	OPHI	MODA
		multidimensional poverty through a decomposition of the indices by those subgroups.	each dimension, (d) an average count of deprivations per child / an analysis of overlapping deprivations, (e) an analysis of aggregated means for the incidence and intensity of the deprivations in the multidimensional space, and (f) a decomposition of the averages for population subgroups.
ADVANTAGES	The use of the "double threshold" can be beneficial to distinguish different situations of poverty. In particular, to focus on more serious situations of deprivation.	It is transparent in its application and calculation and intuitive in its interpretation. The results fit with the axiomatic focus of the multidimensional methodology.	The global focus permits the capture of different articulations of multidimensional poverty. Certain aspects such as the overlap of deprivations and the construction of profiles are useful to detect more severe situations of poverty.
DISADVANTAGES / LIMITATIONS	The principal problem is the use of distinct deprivation thresholds for each unit of analysis, which requires assigning to each unit a distance from the thresholds. To do that, a score is given which is treated as a scale variable but is actually representing an ordinal variable.	Requires the definition of a value, k, which then conditions the results obtained. The definition of a k value is not directly consistent with the axiomatic approach when k is greater than one dimension (that is, it does not comply with the principal of no substitutability).	In aggregating by dimension, the possibility of examining the intensity of the deficits at the indicator level is lost, and for that reason the measurement is less sensitive to changes in intensity.

MAIN RESULTS

This section presents three sets of results that arise from the application of three different methodologies that calculate and analyze multidimensional poverty (Bristol, MODA, and OPHI), in order to understand the changes that occur in the results when using different approaches. It is important to emphasize that, while discrepancies do arise in the poverty rate between the three indices, the evolution of poverty is consistent for all three and follows a clear downward trend.

As will be seen, the largest difference in child poverty estimations is between the Bristol and MODA approaches on the one hand, and the OPHI approach on the other. The first two interpret the rights-based framework by defining as poor any child with a deficit in any indicator, because that deficit signals deprivation in the whole corresponding dimension and, therefore, poverty in the multidimensional space; whereas the OPHI methodology interprets the rights-based framework by summing deficits in indicators across dimensions and defines as poor any child whose sum total is equivalent to or greater than one dimension. This difference is important at the moment of evaluating the intensity of child poverty.

Bristol Methodology

In the case of the Bristol and MODA approaches, the multidimensional child poverty rate was 58.7% in 2016. This rate represents the headcount ratio (H), which is the ratio of children with at least one deprivation to the total number of children in the population. A rate of 58.7% means that almost 6 out of every 10 children in urban Argentina experienced deprivation in at least one of the six dimensions under study (Table 1 in the Appendix). Further, according to the Bristol and MODA approaches, between 2010 and 2016 multidimensional child poverty in Argentina fell by 5.1 percentage points (p.p.).

The Bristol methodology allows for differentiation between situations of deprivation in terms of severity. Extreme and moderate poverty are defined by conceptually-determined thresholds as opposed to by a number (or count) of deprivations. Extreme poverty comprises deprivations that are particularly severe because their adverse consequences are difficult to reverse in the short or medium term, while moderate poverty implies deprivations whose adverse consequences are possible to reverse in the medium term. The rate of extreme poverty registered a decrease of 9 p.p. and stood at 14.8% in 2016, while the rate of moderate poverty increased by 3.9 p.p. and stood at 42.5% in 2016. This shows that part of the population of children overcame extreme poverty and entered moderate poverty.

A detailed analysis of each of the dimensions of poverty using the Bristol methodology reveals that the decrease in child poverty previously described is due fundamentally to improvements in sanitation and access to information (with decreases of 9.7 and 7.3 p.p. between 2010 and 2016, respectively). A positive evolution was also registered in education and early-childhood stimulation (3.5 p.p.). In the space of child health, the incidence of deprivation moved steadily upward until the final inter-year period of 2014/2015 in which a light recuperation was noted, but that light decrease in the poverty rate does not overcome the overall regressive trend within the Bicentennial period. Finally, in the spaces of housing and food security, changes in the levels of total deprivation are tenuous, and the incidence rate in these dimensions was particularly persistent during the years analyzed. Nonetheless in both cases there were improvements at the level of severe deprivations, with decreases of 3.9 p.p. and 1.9 p.p. between 2010 and 2016, respectively. That suggests that while part of the population was lifted out of the most extreme poverty in the dimensions of housing and food security, those children were not sufficiently lifted out of poverty in these dimensions altogether (Table 2 in the Appendix).

MODA Methodology

The MODA methodology also uses a rights-based framework, but instead of qualitatively determining levels of severity of poverty like the Bristol methodology the MODA methodology does so through different *k* values as in the Alkire & Foster methodology developed by OPHI.

As mentioned above, the MODA methodology registers the same poverty rate (H) as the Bristol methodology. But under the MODA methodology, the intensity (A) of the poverty experienced can be measured. The intensity (A) refers to the average number of deprivations experienced by the deprived (that is, by the poor). The MODA methodology shows that the intensity of poverty decreased from 33.2% to 30% between 2010 and 2016 (Table 1 in Appendix). Since each dimension has a similar weight in the MODA methodology, this intensity score means that by 2016—and for the chosen *k* value—poor children in urban Argentina experienced about a third of the possible deprivations in the multidimensional space. In other words, poor children experienced on average 1.8 deprivations (out of 6 possible).

The intensity of poverty (A) can also be used to adjust the headcount ratio (Alkire & Foster, 2009). Using the headcount ratio as the poverty rate does not adequately account for individuals that increase their poverty over time by becoming deprived in dimensions in which they were previously not deprived. Because the

headcount ratio already counted those people as poor, their additional deprivations are not reflected by an increase in the poverty rate. This imprecision can be corrected by the adjusted headcount ratio (M0), which is the intensity score (A) multiplied by the headcount ratio (H). In the case of the MODA methodology applied to children in Argentina, the adjusted headcount ratio (M0) changed from 0.211 in 2010 to 0.176 in 2016. This coefficient can be understood as the average number of deprivations suffered by poor children in relation to the number of possible deprivations that can be experienced by all of society. That is to say, at the end of the Bicentennial period, poor children experienced 17.6% of the total deficits that all children in Argentina could have experienced (Table 1 in Appendix).

A particular feature of the MODA methodology is that it allows for an analysis of the overlap of deprivations (Table 3 in the Appendix). In 2016, 48.3% of poor children experienced deprivations in more than one dimension, and the rest experienced deprivation in just one dimension (2.1% in food security, 5.2% in information, 7.3% in early-childhood stimulation and education, 9.7% in sanitation, 12.6% in housing, and 14.9% in health). Poverty experienced in more than one dimension decreased by 7.9 p.p. between 2010 and 2016, and the proportion of children deprived in just one dimension increased, such as in housing and health (6.6% and 4.7%, respectively).

OPHI Methodology

In the case of the OPHI methodology, the multidimensional child poverty rate (H) in 2016 was 38.7%. The OPHI approach also registers a decrease in multidimensional child poverty, in this case of 9.6 p.p. from 2010 to 2016. As was explained in the previous section, the difference between these measurements is due to the form in which the identification thresholds are determined, which are more discriminating in the OPHI methodology compared to the other methodologies (Table 1 in the Appendix).

The intensity (A) of poverty under the OPHI methodology also decreased, this time registering a decrease of 1.6 p.p. from 30.2% to 28.7%. This is less than the reduction observed under the MODA methodology. As is to be expected, the adjusted headcount ratio (M0) for the intensity of deprivations also decreased, from 0.145 to 0.110 between 2010 and 2016 (Table 1 in the Appendix).

With the OPHI methodology it is also possible to follow the evolution of each indicator (Table 2 in the Appendix). In the dimension of sanitation, the principal indicator was access to the water grid, followed by access to sanitation services. Improvement in this dimension came from a decrease in the deficit of sanitation services of 7.5 p.p. and a decrease in the lack of (or deficit in) access to the water grid of 5.4 p.p. In the space of housing, deficit in severe overcrowding decreased but deficit in the quality of housing materials did not. In the space of education, a significant decrease was recorded in the indicators related to information, and a smaller decrease was recorded in the indicator for early-childhood stimulation and education (7.3 p.p. and 3.5 p.p., respectively). Finally, deficits in the indicators in the dimension of health also saw declines.

In sum, regardless of the methodology used, the number of dimensions, or the weights used for each dimension, a decline in multiple-deprivations is observed during the period. The decline under the OPHI methodology is more pronounced and relatively equal to the movement of severe deprivations under the Bristol methodology.

Sociodemographic Cross Sections

Regardless of the methodology used to estimate multidimensional child poverty, it is evident that certain attributes of the home and of the child are associated with a greater propensity to experience deprivations. One such sociodemographic attribute is age, in that adolescents are more likely to be poor in the multidimensional space than school-age children and those in early childhood. This difference between age groups is due to the dimension of education, as

there is a higher rate of deficit in school attendance (not attending school) for adolescents aged 13-17 years old. This difference between age groups may also be attributed to improvements in primary school educational offerings and a 2014 law that made attendance at the initial level of school compulsory for 4-year-olds (Table 4 in the Appendix).

Another sociodemographic attribute is social stratification. The social sectors that have precarious, informal, or low-skilled socio-occupational integration are in a regressive situation compared to the professional middle class. Gaps in inequality—with disparities in magnitude according to the poverty estimation methodology—increased between 2010 and 2016. Under the OPHI methodology, the poverty rate for the lower stratum went from 3.2 times higher to 12.4 times higher than the poverty rate of the upper stratum between 2010 and 2016. Under the MODA and Bristol methodologies, the gap in poverty rates between the two strata increased from threefold to fourfold in the same period. The inequality gap increased due to a significant reduction of deprivations in the professional middle class, while in the socio-occupational sector of the marginal worker there were no statistically significant changes in the number of deprivations observed in the relevant period.

The inequality gap in the socio-residential space was stable between 2010 and 2016. Under the OPHI methodology, an increase is seen in the in the regressive gap between children in the informal space of urban slums or urban settlements and children in the formal upper-middle urban spaces. The gap in poverty rate between the two groups expanded from 4 times higher to 5.7 times higher for the children in urban slums or urban settlements. In the other methodologies, the gap stayed constant between 2.8 and 2.6 times.

While the multidimensional child poverty rate is much higher for the population that claims cash transfers such as the Universal Child Allowance (*Asignación Universal or Hijo*, or AUH) compared to those who do not claim such benefits, the decrease in poverty for this group between 2010 and 2016 is significant. In the case of the OPHI methodology, the decrease in deprivations in this population between 2010 and 2016 was 13.6 p.p., while in the rest of the population the decrease was of 8.5 p.p. And according to the Bristol and MODA methodologies, the decrease was of 7.1 p.p. in the population that uses the AUH and 4.9 p.p. in the rest of the population (Table 4 in the Appendix).

The urban areas with the greatest reduction of multidimensional child poverty are the Autonomous City of Buenos Aires (CABA) and what is referred to as the rest of the urban interior. Under the OPHI methodology that decrease was of 21.9 and 13.9 p.p. between 2010 and 2016, and under the MODA and Bristol methodologies the decrease was of 18 and 12.6 p.p., respectively.

CONCLUSION

The Observatorio de la Deuda Social Argentina (Observatory of Argentine Social Debt) has long measured poverty as a multidimensional phenomenon with a human rights framework. To this end, the Barómetro de la Deuda Social de la Infancia (Barometer of Childhood Social Debt) within the Observatory has been using the Bristol methodology for research into child poverty for years, which was the methodology proposed regionally by UNICEF and CEPAL. In the present document, a comparative analysis was presented for three approaches that define and calculate multidimensional poverty in different ways but use the same dimensions that are based in the human and social development of children.

While these methodologies differ in deprivation thresholds and poverty calculations, they coincide in their orientation towards conceptual definitions of poverty that arise from scientific investigation in the field of development and can be linked to existing societal norms.

In the case of children in Argentina, it is clear that the rate of multidimensional child poverty continued a positive downward trend. However, it is also clear that

the problem remains great. Using Bristol and MODA approaches, almost 6 out of every 10 children were poor in terms of their ability to exercise their fundamental rights in 2016. Applying an approach based on OPHI methodology, which is more demanding than the former, almost 4 out of every 10 children were poor. Regardless, structural child poverty in the dimensions of human and social development is a grave problem that affects a very relevant proportion of urban children and adolescents. A consensus definition of poverty can be achieved through debate about which deprivations are considered unacceptable. An accurate measurement of poverty so defined can then advance the public agenda to the discussion of relevant solutions. These are the objectives to which the Observatorio de la Deuda Social Argentina aspires with this document, which is presented to those in academic and technical fields, government officials, organizations of civil society, for discussion and advancement in the definition of poverty and in the pursuit of solutions.

APPENDIX

Table 1

Rates of multidimensional poverty

Change in percentage of children ages 0-17. Years 2010-2016..

Bristol Methodology	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
Incidence of total poverty (H)	63,7	62,4	63,4	61,8	60,1	58,7	**58,7**	**61,3**	**-5,1**	***
Moderate poverty (no severe deprivations)	39,9	42,8	42,7	42,5	42,9	42,7	**43,8**	**42,5**	**3,9**	***
Extreme poverty (at least one severe deprivation)	23,8	19,6	20,7	19,2	17,2	15,9	**14,8**	**18,9**	**-9,0**	***

MODA Methodology	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
Incidence (H)	63,7	62,4	63,4	61,8	60,1	58,7	**58,7**	**61,3**	**-5,1**	***
Intensity (A)	33,2	30,7	30,4	29,5	30,0	30,7	**30,0**	**30,7**	**-3,2**	***
Adjusted Headcount (M0)	0,211	0,192	0,193	0,182	0,180	0,180	**0,176**	**0,188**	**-0,035**	***

OPHI Methodology	2010	2011	2012	2013	2014	2015	2016	Avg.		Sig.
Incidence (H)	47,8	41,5	42,3	40,3	39,8	39,0	**38,3**	**41,4**	**-9,6**	***
Intensity (A)	30,2	28,9	28,6	27,9	27,8	28,7	**28,7**	**28,8**	**-1,6**	***
Adjusted Headcount (M0)	0,145	0,120	0,121	0,113	0,111	0,112	**0,110**	**0,119**	**-0,035**	***

Note: k=1/6 for MODA and OPHI
Source: EDSA-Bicentenario (2010-2016), Observatorio de la Deuda Social Argentina (ODSA-UCA).

Table 2

Rates of deprivation by dimension or indicator

Change in percentage of children ages 0-17. Years 2010-2016.

Bristol (total threshold) & MODA Methodologies	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
Food Security	9,2	7,3	7,9	8,3	7,6	6,1	**8,7**	**7,9**	**-0,5**	
Sanitation	27,5	24,7	22,2	20,4	20,1	19,3	**17,8**	**21,8**	**-9,7**	***
Housing	26,7	23,9	26,2	25,0	25,3	25,2	**25,2**	**25,4**	**-1,5**	*
Health	21,3	24,8	26,4	25,5	27,2	27,6	**22,7**	**25,0**	**1,4**	*
Information	23,1	16,8	16,6	14,5	14,6	14,9	**15,8**	**16,8**	**-7,3**	***
Early-childhood stimulation / Education	19,0	17,6	16,4	15,6	13,4	14,9	**15,4**	**16,1**	**-3,5**	***

Bristol Methodology (severe threshold)	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
Food Security	6,5	5,4	5,5	4,9	4,6	3,5	**4,5**	**5,0**	**-1,9**	***
Sanitation	6,7	4,5	5,0	5,3	4,6	4,0	**3,4**	**4,8**	**-3,3**	***
Housing	8,6	6,7	7,0	5,4	5,3	6,7	**4,7**	**6,4**	**-3,9**	***
Health	0,6	0,8	0,8	1,0	0,8	0,5	**0,6**	**0,7**	**0,0**	
Information	3,2	2,0	2,5	1,7	2,0	1,8	**2,0**	**2,2**	**-1,3**	***
Early-childhood stimulation / Education	5,2	5,2	5,5	5,6	3,9	3,4	**2,9**	**4,5**	**-2,4**	***

OPHI Methodology	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
Lack of food security	9,2	7,3	7,9	8,3	7,6	6,1	**8,7**	**7,9**	**-0,5**	
No running water	19,6	17,7	15,6	14,0	13,7	14,9	**14,2**	**15,8**	**-5,4**	***
Deficit in sanitation	14,5	11,5	11,6	11,7	10,9	8,4	**7,0**	**10,9**	**-7,5**	***
In household with 4 or more people per bedroom	10,3	7,9	10,1	8,5	8,8	9,6	**5,9**	**8,7**	**-4,4**	***
Deficit in quality of housing material	21,0	19,3	20,8	19,8	21,0	21,2	**22,3**	**20,8**	**1,3**	*
Lacking age-appropriate vaccinations	2,1	2,2	2,4	2,0	2,0	2,3	**1,6**	**2,1**	**-0,5**	**
No medical checkup within previous year	19,8	23,4	24,9	24,5	26,0	25,8	**21,7**	**23,6**	**1,9**	**
Lacking informational resources	23,1	16,8	16,6	14,5	14,6	14,9	**15,8**	**16,8**	**-7,3**	***
Deficit in educational offerings	19,0	17,6	16,4	15,6	13,4	14,9	**15,4**	**16,1**	**-3,5**	***

Note: k=1/6 for MODA and OPHI
Source: EDSA-Bicentenario (2010-2016), Observatorio de la Deuda Social Argentina (ODSA-UCA).

Table 3

Analysis of overlapping dimensions

Change in percentage of children ages 0-17. Years 2010-2016.

Bristol (total threshold) & MODA Methodologies	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010
Deprivations in multiple dimensions	56,2	50,7	50,2	48,1	50,7	51,1	**48,3**	**50,9**	**-7,9**
Deprivation only in Food security	2,0	1,2	1,0	2,5	2,2	1,5	**2,1**	**1,8**	**0,1**
...only in Sanitation	9,7	11,0	9,0	7,9	7,9	7,3	**9,7**	**9,0**	**0,0**
...only in Housing	5,9	9,0	10,8	11,4	9,5	9,6	**12,6**	**9,7**	**6,6**
...only in Health	10,2	15,3	16,4	18,4	18,4	19,3	**14,9**	**15,9**	**4,7**
...only in Information	7,0	4,0	4,4	4,0	4,5	3,7	**5,2**	**4,7**	**-1,8**
...only in Early-childhood stimulation / Education	9,0	8,8	8,2	7,6	6,8	7,5	**7,3**	**7,9**	**-1,7**

Note: At k=1/6
Source: EDSA-Bicentenario (2010-2016), Observatorio de la Deuda Social Argentina (ODSA-UCA).

Table 4

Analysis of sociodemographic cross sections

Change in percentage of children ages 0-17. Years 2010-2016.

Bristol (total threshold) & MODA Methodologies	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
TOTAL	63,7	62,4	63,4	61,8	60,1	58,7	**58,7**	**61,3**	**-5,1**	***
GENDER										
Female	65,2	61,8	62,2	60,9	59,6	58,2	**58,2**	**61,0**	**-7,0**	***
Male	62,3	63,0	64,6	62,6	60,6	59,1	**59,1**	**61,7**	**-3,2**	***
AGE GROUP										
0-4 years old	59,0	58,2	56,5	53,9	53,3	49,5	**51,1**	**54,7**	**-7,8**	***
5-12 years old	60,6	59,5	59,7	59,3	56,3	55,3	**55,8**	**58,1**	**-4,7**	***
13-17 years old	72,8	71,0	75,1	72,8	72,2	72,7	**70,0**	**72,4**	**-2,8**	***
SOCIOECONOMIC STATUS										
Marginal worker	79,7	77,8	78,4	75,8	75,9	78,0	**78,9**	**77,8**	**-0,8**	
Integrated laborer	67,0	66,2	65,8	64,0	64,4	62,2	**61,8**	**64,5**	**-5,2**	***
Middle-class non-professional	39,8	43,4	41,5	43,8	38,8	39,3	**35,1**	**40,3**	**-4,7**	***
Middle-class professoinal	26,5	21,1	25,4	18,5	17,8	13,5	**13,7**	**19,3**	**-12,8**	***
SOCIORESIDENTIAL STATUS										
Slums or settlements	88,9	87,0	84,8	87,5	92,5	83,5	**88,1**	**87,4**	**-0,7**	***
Low/vulnerable	77,6	74,4	80,4	75,7	70,4	72,2	**72,3**	**74,9**	**-5,3**	***
Lower-middle to middle	60,5	58,6	57,3	57,7	55,3	54,7	**52,6**	**56,7**	**-7,9**	***
Upper-middle	31,7	39,7	40,2	35,7	38,1	37,0	**33,7**	**36,6**	**2,1**	***
RECEIVES AUH										
No	57,9	58,1	58,7	57,2	55,0	52,1	**53,0**	**56,1**	**-4,9**	***
Yes	77,6	72,3	74,4	71,9	71,7	73,2	**70,6**	**73,1**	**-7,1**	***
REGION										
CABA	44,6	40,2	40,4	29,9	32,4	25,6	**26,6**	**34,6**	**-18,0**	***
Urban cone	71,0	70,0	72,9	71,5	70,1	69,5	**70,9**	**70,8**	**-0,1**	***
Greater urban interior	57,9	57,5	55,2	56,6	53,2	55,7	**53,5**	**55,7**	**-4,3**	***
Rest of the urban interior	62,5	61,0	61,1	59,8	57,3	51,8	**50,0**	**57,7**	**-12,5**	***

Bristol (total threshold) & MODA Methodologies	2010	2011	2012	2013	2014	2015	2016	Avg.	Diff. 2016-2010	Sig.
TOTAL	47,8	41,5	42,3	40,3	39,8	39,0	**38,3**	**41,4**	**-9,6**	***
GENDER										
Female	49,6	40,7	41,1	39,4	39,9	38,4	**37,6**	**41,1**	**-11,9**	***
Male	46,2	42,3	43,4	41,2	39,7	39,6	**38,9**	**41,7**	**-7,3**	***
AGE GROUP										
0-4 years old	43,7	40,3	40,0	38,0	36,3	35,0	**32,7**	**38,1**	**-11,0**	***
5-12 years old	43,2	35,4	35,7	33,9	33,6	32,9	**33,2**	**35,5**	**-10,0**	***
13-17 years old	58,5	52,3	54,0	52,5	52,5	52,6	**51,3**	**53,5**	**-7,2**	***
SOCIOECONOMIC STATUS										
Marginal worker	65,6	61,4	62,4	56,0	59,7	59,8	**63,5**	**61,3**	**-2,1**	
Integrated laborer	48,5	43,2	41,5	40,4	40,9	41,5	**38,1**	**42,1**	**-10,4**	***
Middle-class non-professional	26,3	21,5	19,0	23,0	18,7	18,0	**14,7**	**20,3**	**-11,6**	***
Middle-class professoinal	19,9	5,1	15,0	12,4	5,9	4,2	**5,1**	**9,3**	**-14,8**	***
SOCIORESIDENTIAL STATUS										
Slums or settlements	79,4	70,3	68,0	73,7	74,2	66,8	**71,3**	**71,8**	**-8,1**	***
Low/vulnerable	61,8	54,4	59,9	55,9	52,2	57,1	**52,8**	**56,5**	**-9,0**	***
Lower-middle to middle	42,3	36,9	34,5	33,2	32,7	32,9	**31,1**	**34,9**	**-11,1**	***
Upper-middle	18,8	17,0	19,2	15,6	18,9	14,4	**12,4**	**16,6**	**-6,4**	***
RECEIVES AUH										
No	41,8	35,5	37,4	35,1	34,8	32,6	**33,4**	**35,9**	**-8,5**	***
Yes	62,2	55,3	53,6	52,0	51,0	53,2	**48,6**	**53,8**	**-13,6**	***
REGION										
CABA	37,5	29,6	24,6	17,6	25,9	16,6	**15,6**	**24,3**	**-21,9**	***
Urban cone	52,7	45,8	48,8	46,6	46,8	45,9	**47,1**	**47,8**	**-5,6**	***
Greater urban interior	43,5	39,8	39,8	38,2	33,6	37,8	**34,2**	**38,2**	**-9,3**	***
Rest of the urban interior	46,0	39,0	37,6	39,1	36,1	34,3	**32,1**	**37,8**	**-13,9**	***

Note: k=1/6 for MODA and OPHI
Source: EDSA-Bicentenario (2010-2016), Observatorio de la Deuda Social Argentina (ODSA-UCA).

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