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INCOME AND MULTIDIMENSIONAL CHILD POVERTY IN CHILE

USING THE NEW POVERTY MEASUREMENT METHODOLOGY

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1

Abstract

El presente seminario aborda la pobreza infantil en Chile desde la nueva metodología de medición de pobreza (publicada en Enero de 2015 por el Ministerio de Desarrollo Social), tanto con un enfoque por ingresos como con un enfoque multidimensional. El objetivo es enfatizar la importancia de desarrollar herramientas para medir y caracterizar adecuadamente la pobreza en la niñez, dada su sobrerrepresentación en las medidas de pobreza en el país, y dada la gravedad de las consecuencias negativas que esta puede generar en el desarrollo futuro de un niño o adolescente. Este trabajo analiza cómo se comportan los patrones de pobreza infantil en el tiempo, medido a partir de los datos de la Encuesta de Caracterización Socioeconómica, desde 1990 hasta 2013 para la metodología tradicional, y desde 2006 hasta 2013 para la nueva metodología. Primero se utiliza el enfoque monetario para mostrar la sobrerrepresentación de la población infantil en la población pobre del país, luego se analiza la dinámica entre la pobreza por ingresos y la multidimensional, y para concluir se ahonda en las privaciones que vive la población infantil desde un enfoque multidimensional. Se utiliza la metodología de agregación de Alkire y Foster (2007) para calcular los indicadores de pobreza multidimensional, lo que permite analizar ciertos subgrupos de la población. Los resultados muestran que a pesar de los indicadores no ser específicos para niños, todas las medidas agregadas de pobreza multidimensional son mayores para la población infantil que para la población adulta, al igual que con el enfoque monetario. Además se muestra que sí existe un valor al medir la pobreza desde una perspectiva multidimensional, ya que ambos enfoques identifican a segmentos diferentes de la población, existiendo un *overlap* de menos del 40% de los pobres por ingresos.

This seminar addresses child poverty in Chile from the new poverty measurement methodology (released in January 2015 by the Ministry of Social Development), both from an income and a multidimensional approach. The objective is to emphasize the importance of developing appropriate tools to measure and characterize child poverty, given its overrepresentation on poverty measures in the country and the gravity of the negative consequences poverty has over a child's future development. This work analyzes the evolution of child poverty patterns in time, measured with data from the CASEN Household Survey, from 1990 to 2013 for the traditional methodology, and from 2006 to 2013 for the new methodology. The overrepresentation of children in poverty measures is shown using a monetary approach. Then this work analyzes the dynamics of income and multidimensional poverty, to finish with a deeper study of the specific deprivations children experience at a household level and a description of aggregated multidimensional poverty measures. The Alkire & Foster (2007) methodology is used to measure aggregated multidimensional indicators, which allows to analyze certain sub groups of the population. Results show that although indicators for the multidimensional measure are not child-specific, the aggregated indicators show a higher poverty rate for children than for adults, which is also the case using a monetary approach. In addition, its shown that using a multidimensional measure does add value, since both methodologies identify different segments of the population, having an overlap of less than 40% of the income poor.

Index

1. Introduction and motivation

Eradicating poverty has been one of the most important goals in the international agenda in the past decades, and constitutes one of the priorities of the Millennium Development Goals, set by the international community. It has mobilized billions of dollars in international aid for poverty alleviation and development (USD 134.8 billion in net Official Development Assistance (ODA) in 2013 alone[1]) and has motivated countless academic researchers with the goal to better understand its determinants and to find more accurate tools to measure it.

The amount of poor people living with under a dollar a day has been cut in halve since 1990, which means there has been unquestionable progress in poverty alleviation in the past few decades. But in spite of this progress and of rising international cooperation and national efforts in developing and developed countries, there remain hundreds of millions of poor people in the world who are not only living with less than a dollar a day, but also suffer from hunger, malnutrition, lack of food security, no access to education, jobs, drinking water, or health attention, are vulnerable to diseases, and live in unsafe environments. All of these are dimensions of human wellbeing that allow an individual to live freely, and the deprivation of which represent current limitations to their development and to the fulfillment of their freedom and wellbeing in the future, thus making all of this issues relevant when addressing poverty alleviation policies.

The most common approach to poverty has been defined in terms of income shortfall, classifying as poor individuals or family groups whose income is below a certain threshold or poverty line, commonly determined by some minimum nutritional and non-nutritional requirements to live. This indirect approach to poverty uses income or expenditure as a proxy of the capacity of an individual or family group to satisfy certain basic needs. A very common poverty measure is the World Bank's USD 1.25 a day (adjusted for Purchasing Power Parity), which is generally used to make cross country comparisons and its progress in time. To measure the evolution of poverty through time every country uses its own poverty line defined by specific country definitions of wellbeing.

This work bases its analysis on the comparison of child poverty[2] to overall and adult poverty in Chile, using an Income and a Multidimensional approaches, mainly from the 2006 to 2013 CASEN Surveys. The latest survey data[3] shows that 22.0% of children are income poor in Chile, compared to 11.8%

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[1] http://www.oecd.org/newsroom/aid-to-developing-countries-rebounds-in-2013-to-reach-an-all-time-high.htm

[2] It considers as children all persons of age 0 to 17, and adults all individuals 18 or older.

[3] CASEN 2013

of adults and 14.4% of the overall population; which means that 39.1% of the income poor are children, when only 25.6% of the population is under 18 years old. The Poverty Gap[4] for children is 6.1%, double of the adult Poverty Gap, which means children are poorer, both in the extent of poverty and in the intensity of it. Children account for 40.8% of the total poverty gap[5].

There are also 7.47 out of 100 children living in extreme poverty, compared to 3.49 adults. From 2006 to 2013 income child poverty decreased by 43%, compared to 53% for the adult population, which has meant progress in poverty eradication, but signals a clear disparity for children when compared to overall poverty (CASEN 2013).

This results highlight the importance of focusing on child poverty due to the over representation of children in overall poverty and compared to other age groups, which along with their high dependency and higher vulnerability to the damaging effects of poverty and inequality on their future development, makes them an important target of poverty alleviation policy (Minujin, Delamónica, & Davidziuk, 2006).

The particular focus on children also responds to widely accepted political agreements, such as the UN Convention on Children's Rights and the Millennium Development Goals to eradicate poverty, hunger, gender inequality, reduce child mortality and attain universal primary education. These, make focusing on improving children's opportunities and well-being a legitimate development goal in itself. At the same time, there is increasing evidence showing that investing in children is connected with a broader economic and social development process (Boyden & Dercon, 2012).

Poverty plays a dynamic role in children's development. Given the multiple dimension of a child's life, the deep interconnection of this domains makes children susceptible to adverse consequences of poverty and its repercussions throughout its lifetime. Adversity in the fulfillment of their physical-motor, cognitive, social or emotional abilities plays an important part in later cognitive development and educational attainment, both of which are linked to earnings and productivity later in life (Grantham-McGregor, et al., 2007).

There is little evidence of the effects of early intervention in children's development due to lack of longitudinal databases, but there is increasing recognition of the higher risk poor children

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[4] Mean income shortfall from the poverty line, expressed as a percentage of the national poverty line (World Bank)

[5] Percentage contribution of age groups to total poverty, according to FGT procedure in (Foster, Greer, & Thorbecke, 1984)

experience in their cognitive and other vital development. Small distresses to biological processes of development before the age of five can have long-term effects on the brain's structural and functional capacity; and poverty is associated with such disturbances in the form of inadequate nutrition, inexistent social interactions, inadequate development environment, and insufficient cognitive stimulus, to name a few. Poverty is therefore associated with reduced years of schooling and less learning per year in school. International evidence suggests that early cognitive and socio-emotional development are strong determinants of school progress. Therefore, as stated above, the failure to reach a child's full cognitive developmental potential will have long-term effects over their productivity and earnings, which has a direct link to the intergenerational transmission of poverty (Grantham-McGregor, et al., 2007). In this sense, while the largest costs of child poverty are borne by children themselves, society also pays a high price (Child Poverty - Indicators to Measure Progress for the SDGS, 2015).

In fact, the definition of child poverty we choose has effects over the indictors used to measure it, over policy design and impact evaluation of poverty alleviation policies. Therefore it becomes important to understand child poverty as multidimensional phenomenon and not only a monetary one that implies the possibility of multiple deprivations. This multidimensional view for both overall and child poverty starts from the recognition that economic development does not automatically improve the wellbeing of the population in all aspects of life, therefore economic growth is considered essential but not sufficient for the realization of the overall human potential (United Nations Development Programme, 2010). Thus it is not economic growth per se that matters for children, but rather the quality of it, meaning growth that eradicates absolute poverty and reduces risks and relative deprivations by offering greater opportunities to poor families (Boyden & Dercon, 2012).

Several Latin-American countries have already began adopting multidimensional measures to complement their official national income poverty measures, like Colombia, México, Argentina, Peru and recently Chile. Advancing towards a wider spectrum of countries with official multidimensional poverty measures help conceive child poverty as a deprivation of certain basic conditions to live that are closely related to children's and human rights.

Chile has a recently published new multidimensional poverty measure based on the compliance of basic needs, regarding the dimensions of Education, Health, Occupation and Social Security, and Housing Conditions. This new measure puts the country in a path of a more comprehensive understanding of the specific deprivations of the poor, and the construction of better tools to

appropriately and more directly understand and address those specific needs with poverty alleviation policies, which go beyond a monetary spectrum. Using this methodology child poverty is measured by counting the percentage of children living in deprived households. Although it does not allow us to identify poor children with child specific indicators, it allows to identify children living in overall deprived conditions, which affect all members of a household especially a child's development.

In Latin America, ECLAC (United Nations Economic Commission for Latin America and the Caribbean) in coalition with UNICEF (United Nations Children's Emergency Found) have promoted a child poverty measure based on compliance of children's rights, declared in the Children's Rights Convention, to which all countries in the region are signatory. This methodology was developed by UNICEF, Bristol University and the London School of Economics in 2003, and was based in the Bristol indicators, adapted for the specific situation of the region. The value of this methodology relies on the recognition that child poverty hinders the fulfillment of children's rights and their capabilities, and limits their ability to do so in the future. This approach makes the fulfillment of children's rights a moral and political obligation of governments.

Developing appropriate multidimensional child poverty measures and making child poverty a moral and political priority is a must, leading us closer to understanding where deprivations focus and the characteristics of those families, since the presence of multiple deprivations seriously compromise a child's development and implies the loss of opportunities to fulfill their potential, develop personally and contribute to the development of the region. Poverty exacerbates the generational transmission of poverty (ECLAC - United Nations, 2013), and compromises a sustainable and long term social and economic development. The post 2015 international development agenda recognizes that each country has the moral obligation of widening their poverty alleviation programs and demonstrate in actions the political will of making child poverty and inequality a priority in their agendas (ECLAC - United Nations, 2010).

The post 2015 agenda poses a challenge and an opportunity for the development on future agreements and national poverty policy, the possibility of not forgetting anyone while advancing towards development, and giving all citizens a just opportunity in life, reaching a development path in which dignity and human rights are a reality for all (Grupo de Alto Nivel sobre la Agenda de Desarrollo post-2015, 2013). To UNICEF and many international cooperation agencies this path starts by focusing on child poverty eradication (UNICEF, 2000).

Eliminating cycles and mechanisms of poverty transmission requires defining well planned political actions directed to specific demographic sectors defined by multidimensional measures. Poverty alleviation policies cannot only be defined in terms of present poverty but also focus on building social security networks that allow to mend the effects of multiple deprivations in the future and get rid of the mechanisms of poverty transmissions that affect the population, especially those most vulnerable to shocks. This means to redirect efforts towards making sure those most vulnerable to poverty are properly identified and targeted (United Nations, 2013).

This work first analyses the dynamics of child income poverty through time according to the traditional poverty measurement methodology from 1990 to 2013 using CASEN Survey data, and according to the new income poverty measurement methodology from 2006 to 2013. It also digs deeply on the dynamics of income poverty and the new multidimensional poverty measures that complement each other, and in a sense justifies the use of a multidimensional approach, since they do not identify the same population. It also proposes a deeper analysis of multidimensional poverty by indicator and by overall multidimensional measures (Headcount, Intensity and Adjusted Headcount), based on the Alkire & Foster (2007) aggregation method, for different sub groups of the population.

According to income poverty measures data shows and undeniable overrepresentation of children in income poverty by all different measures of the extent, intensity and severity of income shortfall, indicating an important disparity of the distribution of income among different age groups of the overall population, situation that worsens while looking at child poverty in rural areas.

Multidimensional poverty results show that although specific deprivations are not always higher for children, since most indicators are adult specific, there is a higher percentage of children with deprivations in some concerning issues, like housing indicators. And in spite of most indicators not being child-specific, the overall measures of poverty do show an overrepresentation of children in multidimensional poor households as well.

We end this study by making a sensitivity analysis of the difference among child and overall multidimensional poverty, by showing that no matter the cutoff for a cross dimension identification of poor households, child poverty is consistently higher than overall and adult multidimensional poverty, except for the last cutoff that shows a slightly higher rate for adults. Measures such as the Multidimensional Poverty Index (MPI) released in the UNDP Human Development Reports uses different poverty cutoffs to identify several poverty states, which range from severe poverty to

8

vulnerability. In the case of the new multidimensional methodology for Chile this possibility might be worth adopting as well (Alkire, Conconi, & Suman, 2014), and as shown would also imply higher rates of severe poverty and vulnerability for children.

In the discussion we approach how an income and multidimensional approach can lead public policy in opposite directions, and compare the new multidimensional methodology to the one developed by ECLAC and UNICEF using CASEN 2013 data, to finish with the conclusions in the last section.

2. New methodology for income poverty measurement in Chile

The institution in charge of measuring income poverty in Chile is the Ministry of Social Development (former MIDEPLAN) and uses the CASEN Household Survey (National Socio-Economic Characterization Household Survey) to do so since 1990. A household has been considered poor if the per capita income in the household is below the "poverty line", which is the minimum income required to satisfy basic nutritional and non-nutritional needs of a person; and is considered to live in extreme poverty if the per capita income level of its members is below the "extreme poverty line", the minimum income required to satisfy only an adequate calorie intake. The basic assumption of this method is that households that have sufficient income to satisfy basic nutritional needs, are also able to satisfy other basic needs.

The poverty and extreme poverty lines are derived from the value of a Basic Food Bundle, which is built according to nutritional needs and consumption patterns from the National Household Budget Survey (Encuesta de Presupuesto Familiar). From 1990 to 2011 the poverty line was built upon consumption patterns of 1986-1987, which remained intact until recent months, and was updated on a yearly basis according to the Consumer's Price Index (CPI). The minimum calorie intake and consumption pattern of the population was translated into a bundle of food items and constitutes the extreme poverty line, since per capita income below this threshold would imply a nutritional deprivation. The poverty line is constructed by multiplying the value of the Basic Food Bundle by the Orshansky coefficient[6] (which is the inverse of food consumption over total consumption) of a reference population group (the group of households that consume the minimum nutritional requirements).

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[6] (Fisher, 1992)

Until 2011 the value of the BFB varied among rural and urban areas, being lower for rural families, who have been assumed to have a higher personal consumption. The ratio between expenditure in food and non-food goods is also higher in urban than in rural areas assuming a more expensive cost of life for urban families.

This approach had not been modified from its original specifications for 25 years, and the ministry used only an income approach up to 2011. But since January 2015 with the release of the results of CASEN 2013 the ministry uses a new income approach that accounts for changes in consumption patterns across time and sets higher standards for poverty measurement, along with a new multidimensional approach that complements the income measure and recognizes poverty as a much deeper and more complex issue than income shortfall.

The new income poverty measurement methodology introduces some long overdue updates to the traditional methodology[7]. These alterations include mainly: 1) the update of the BFB according to the 2011-2012 Household Budget Survey which updates consumption patterns; 2) the use of equivalence scales to account for economies of scale in some expenditures in the household, which results in different poverty lines according to the size of the household; 3) the no-adjustment of income to the national account system as it had been done by ECLAC (Economic Commission for Latin America and the Caribbean – United Nations) from 1987 to 2011; 4) the widening of the imputation of income by allocation of lease; and 5) the no-differentiation of the poverty line for urban or rural families. [8]

2.1 Beyond the Headcount Ratio

According to Sen (1976) there are two main issues that must be resolved when attempting to measure poverty, one is to identify the poor, and the second to aggregate the information on the poor in a poverty measure. "The most common procedure for aggregation seems to be to count the number of the poor and check the percentage of the total population belonging in this category, called the Headcount ratio", which is what the Ministry has been doing since 1990.

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[7] This process included the work of the "Comisión para la Medición de la Pobreza", "Mesa Técnica Interinstitucional" which was carried out by the National Institute of Statistics, the Ministry of Social Development and ECLAC, the "Panel de Expertos CASEN 2013" and the Oxford Poverty and Human Development Initiative (OPHI)

[8] For further detail on the specifications of the New Income Poverty Measurement Methodology see "Nueva Metodología de Medición de la Pobreza por Ingresos y Multidimensional" (Jan, 2015) Ministry of Social Development

Although the Headcount Ratio is easy to compute and understand it does not account for the average intensity of the income shortfall and much less for the severity of it. The measure remains unchanged if the situation of an individual already under the poverty line worsens, since it overlooks the intensity of poverty among the poor (Sen, 1976).

To account for the extent of the income shortfall of the poor Foster, Greer & Torbeck developed a family of indices in their 1984 publication that measure the intensity and severity of income shortfall. The FGT index family also allow the analysis of poverty by population subgroups. The FGT indices correspond to FGT-0 equal to the Headcount Ratio, the FGT-1 or the Poverty Gap Index and the FGT-2 or Squared Poverty Gap, which emphasizes the situation of the poorest poor.

The poverty Gap Index can be interpreted as the average poverty gap among the poor, as percentage of the poverty line required to lift all the poor from their income to reach the poverty line, which is far a better measure than the Headcount in the sense that a reduction of income of a person below the poverty line increases the poverty measure (thus satisfies the Monotonicity Axiom), but a transfer of income to anyone who is richer does not necessarily increase poverty (violates the Transfer Axiom) (Sen, 1976).

From now on we will not only focus our analysis on the headcount ratio, but will also include intensity and severity income poverty measures to account for a deeper understanding of poverty among different population groups and its evolution in time.

3. Importance of Multidimensional Poverty Measures

Most countries in the world use an income approach to measure the percentage of their population living in poverty, nonetheless international debates have recently emphasized the importance of measuring poverty with more elaborate tools than income that allow a more comprehensive and deeper analysis of the circumstances in which poor families and individuals live, in order to better address the issue and successfully design policies to target those most in need. The tools available to measure poverty rely on how one understands what poverty truly means, thus existing countless variations to its meaning and approaches to identify it.

Although an income approach would be a sensible and sufficient one in a world where markets were perfect and complete, every individual had the same income/calorie conversion, individuals whose income is right above the threshold were also considered as vulnerable by the measure, and a

predictable allocation of income among all different needs and family members was the case, it is logical to think that this conditions rarely ever occur in reality. According to Amartya Sen there are five different sources of variation among real income and the advantages we can obtain from it: personal heterogeneities, environmental diversity, variation in social environment, differences in relative perspectives and family distribution (Sen, 1999, p. 90).

Under a technical view, there are several limitations in attempting to identify poor individuals using only an income approach, since it might not capture the true essence of poverty, or highlight their specific deprivations. A more accurate approach to identify them would have to include other dimensions of human wellbeing that cannot not be captured by income measures only. Different conceptions of poverty have been developed alongside with the income approach, which have been widely discussed and refined in recent years due to more advanced statistical tools and further data availability, using a multidimensional approach, most of which are influenced mainly by Amartya Sen's capability approach and a human's rights perspective.

Sen's capability approach addresses poverty in a philosophical sphere giving a more sensible understanding of what it means to be poor, and thus how we should attempt to measure it in order to successfully identify those deprived of certain *functionings* or their freedom to live the life they desire. Although reaching a more philosophical understanding of poverty this view has several policy implications since it encourages us to use different tools to identify the poor in a more extended array of dimensions in which a person may or may not be deprived. In the words of Amartya Sen:

"The concept of functionings refers to the things a person considers valuable doing or having. A person's capabilities consist in alternative combinations of functionings that seem feasible. A capability is a kind of freedom, or the substantial freedom of achieving alternative combinations of functionings, or said in a least formal manner, the freedom of having different life styles" (Sen, Development as Freedom, 1999)

According to Sen there are 3 arguments in favor of addressing poverty this way, first*, stating that "poverty can be sensibly identified in terms of deprivation of capabilities, concentrating in deprivations that are intrinsically important (in contrast to low income, which is only instrumentally important). Second, arguing that there are other influences over the deprivation of capabilities, and therefore over real poverty, other than low income (since income is not the only instrument for creating capabilities). And third, the instrumental relationship of low income and low capabilities is*

variable among communities and even among families and individuals (the impact of income on capabilities is contingent and conditional)" (Sen, 1999).

Although this approach has been widely accepted in national and international poverty debates, it leaves room for multiple interpretations of which this capabilities are, thus being interpreted in many different ways according to cultural and political contexts, making it difficult to determine a fixed group of indicator feasible of being measured (Minujin, Delamónica, & Davidziuk, 2006).

A second very common way to pursuit a multidimensional poverty approach is a human's rights approach, which is often linked to the Capabilities approach. "A human's rights-based approach means that the situation of poor people is viewed not only in terms of welfare outcomes but also in terms of the obligation to prevent and respond to human rights violations" (UNICEF, 2000)

Human rights have a double dimension since they have an intrinsic value and at the same time have an instrumental value in the sense that they enable the enjoyment of wellbeing. Therefore, poverty and extreme poverty in particular, and the impossibility of the fulfillment of human rights have a very close link, since poverty is experienced when human rights are systematically violated. A human's right or a children's rights approach has to do with giving the poor power and expanding their freedom to structure their own lives (ACNUDH , 2004).

Most of the academic and international debates of poverty are implicitly or explicitly inspired in Sen's capability approach, and it demands the evolution of social development to be judged in term of the strengthening of our freedoms. On the other hand most human rights are associated with a person's fundamental freedoms, to live free of poverty, free of malnutrition, free from diseases, free from environmental hazards, etc. Human freedom is therefore the link between a human right's approach and the capability approach. Looking at poverty from a capability approach should, therefore, create a strong link among poverty and human rights (ACNUDH , 2004).

All arguments in favor of a multidimensional approach to poverty converge on an important idea: income alone cannot possible be an adequate measure of poverty since it makes it very easy for a nation to focus on income-rising policies, treating poverty as a monetary issue, when it's clearly a much deeper one. This view risks to consider the reduction of income poverty as the ultimate goal of poverty reduction policy missing out on the opportunity to more accurately identify poor families based on a direct approach of measuring the fulfillment of their human rights, freedoms, basic needs or capabilities. "*It's dangerous to look at poverty through the limited perspective of deprivation of income and from there justify investments in education, health, etc. with the argument that they are*

proper means to reach the goal of reducing income poverty. This would be a confusion of means with an end." (Sen, 1999)

The real policy implication of this debate arises when trying to identify the poor and when gathering information on which are their specific needs and deprivations, in order to target them directly, instead of focusing solely on income, which can be less effective to achieve a proper characterization of poor families. Considering a multidimensional approach to measure overall poverty implies the possibility of analyzing the social context in which individuals are immerse and by all means including them in policy design. The indicators included in a multidimensional measure are much linked to how a society conceives poverty and human dignity and wellbeing, in most cases overlapping to some basic human's rights.

Although income alone does not give policy makers the tools to properly identify the poor or their particular deprivations, or those of their families, it does give us a broader and more general scene that must be taken into consideration and complemented with a multidimensional measure. Although income cannot buy wellbeing, in a more general sense it does determine the possibility of fulfilling certain basic needs. Income poverty measures will be taken as a starting point to compare different population subgroups and from there dig deeply in the specific deprivations of the poor, according to Chile's multidimensional poverty measure.

4. Income poverty among different age subgroups

To describe a broad scenario of income poverty in the country, table N°1 shows the headcount ratio at a national scale and by urban and rural areas, for 6 different age subgroups of the population. Income headcount ratio can vary greatly among different population groups. The data shown in table N°1 describes how age groups of 0 to 3 years old and 4 to 17 years old present a higher poverty rate of 23.2% and 21.7% respectively, standing out from the rest of subgroups. This situation worsens when comparing urban to rural areas, showing that 40.8% of children from 0 to 3 years old are poor in rural areas, while this number drops to 20.7% in urban areas (See Table below).

The intensity of poverty is also much more severe for the first two age groups showing a poverty gap of 6.84% for the poorest group, the 0 to 3 age group, and 5.9% for the 4 to 17 age group. Distinguishing among geographical area, the poverty gap reacts in a similar way as the headcount

ratio, almost doubling for the rural population between 0 and 3 years old, and more than doubling for the following age group.

Graph N° 1: Headcount Ratio and Poverty Gap by age subgroup, 2013
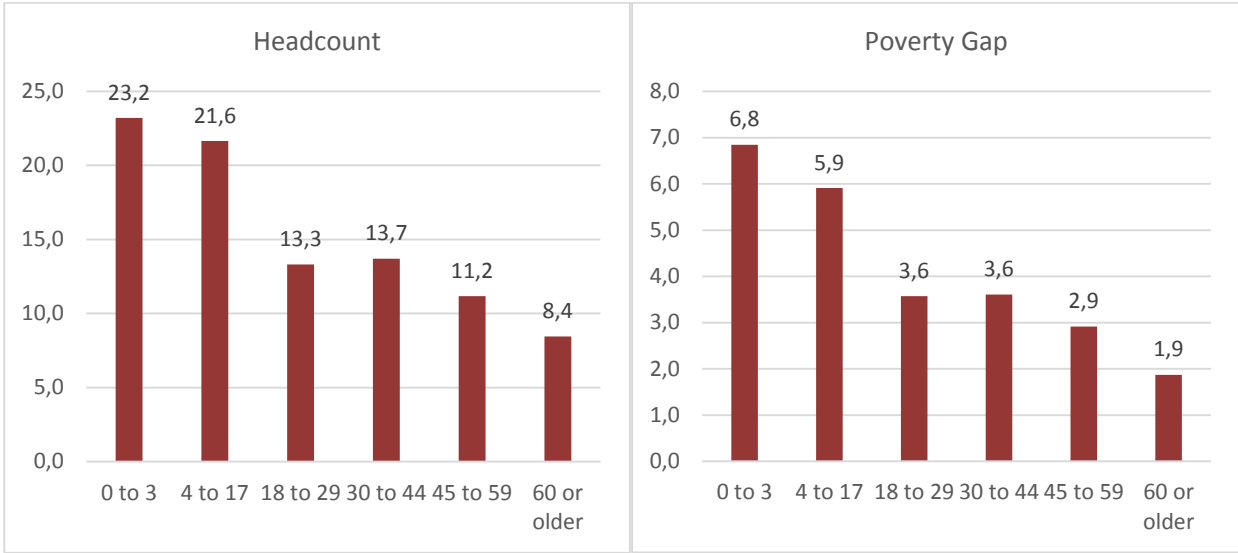
Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

From the graphs above the overrepresentation of children in total poverty becomes evident and worth of analyzing in detail. In terms of contribution to overall poverty 32.6% of the income poor are children between 4 and 17 years old, which is the largest contribution among all age groups. Aggregating the contribution of children from 0 to 3 with 4 to17, children account for 39.1% of the poor. From the 14.4% headcount ratio, 18.2% are adults between 18 and 29, 18.1% are adults from 30 to 44, 14.7% are adults from 45 to 59, and 9.8% are adults older than 60.

Since poor families generally have more children than non-poor families, children are disproportionally represented among the poor, and thus, no other age group is more likely to live in poverty (UNICEF, 2000). This is corroborated with the data presented above.

For the following sections we use only two age categories, children and adults, assuming that in spite of the consequences of poverty reaching very different levels for children of different ages, the analysis becomes more straight-forward by making a simple desegregation that can give a general description of the overall situation.

Table N° 1: Poverty Headcount Ratio and Poverty Gap Index by age group, 2013[9]

Age	Headcount			Poverty Gap		
	Total	Urban	Rural	Total	Urban	Rural
0 to 3	23,2	20,7	41,8	6,8	6,1	12,4
4 to 17	21,6	19,1	39,5	5,9	5,1	11,4
18 to 29	13,3	11,9	24,9	3,6	3,2	6,9
30 to 44	13,7	11,4	29,7	3,6	3,0	8,1
45 to 59	11,2	9,2	23,3	2,9	2,3	6,6
60 or older	8,4	6,7	18,4	1,9	1,4	4,3

Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

5. Importance of focusing on Child poverty

Children who live in poverty suffer not only the deprivation of economic resources, but also of spiritual and emotional resources needed to live, develop properly and prosper, which hinders their ability to fulfill their rights and reach their full potential or take an active role in society (UNICEF, 2005, p. 18). The more detailed study of child poverty becomes a priority not only because is clearly the most affected age group of all, but also is the most vulnerable group to the damaging effects of poverty over their future development and the exercise of their freedom.

Many studies have shown that undernourished, uneducated poor children are likely to become undernourished, uneducated poor adults. "Since a good start in life – especially in the first few months – is critical to the physical, intellectual and emotional development of every individual, poverty in early childhood can prove to be a handicap for life" (UNICEF, 2000).

Childhood is defined by the development of emotional, mental and cognitive abilities that will define children for the rest of their lives. At age 10 the basic learning ability of a child has already been determined, and at age 15 their body size, reproductive potential and overall health has already been deeply influenced by their life experiences up to that moment (Harper, 2004). Therefore the deprivation of those resources and basic services required to develop properly can have serious

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[9] Chilean survey data will be analyzed using the New Income Poverty Measurement Methodology released in January 2015 by the Ministry of Social Development, unless stated otherwise.

effects over a child's cognitive and physical development, having the potential to harm their future opportunities.

Poverty that affects childhood is particularly severe, and no other age group suffers the effects of poverty in a similar manner, since they can last a life time. Measuring child poverty in a separate way than adult poverty has to do with studying how poverty particularly affects children in order to be able to design appropriate public policies to target child poverty directly and avoid the irreversible harms of poverty in children's lives (Minujin, Delamónica, & Davidziuk, 2006).

Additionally, in comparison to overall poverty, child poverty is more rigid in expansionary cycles of the economy and more elastic in recessions, which explains how in the last decades child poverty has reduced with a slower pace than overall poverty, making children more vulnerable to possible contractionary cycles of the economy (ECLAC - United Nations, 2013).

CASEN Survey data shows that the number of children is higher in income poor households than in non-income poor households which explains the overrepresentation of children among the poorest households[10].

As mentioned before, in Chile there are 22.0% of children living below the poverty line, compared to 11.77% for the adult population and 14.4% in overall poverty, which means a difference of 7.59 percentage points between overall and child poverty, this is an obvious despair situation in detriment of children.

According to the traditional poverty measurement methodology in Chile, since 1990 there has been a consistently higher headcount ratio, extreme poverty headcount ratio, poverty gap and FGT-2 index for children than in the overall population, as can be seen in the graph N° 2 below. [11]Although the gap among child and adult poverty has closed compared to 1990, child poverty in 2013 was more than double that of adults.

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[10] According to CASEN 2013 the first income decile from the income distribution has in average 1.8 children, and has an average size of 4.41 people, while the tenth decile has 0.6 children per household in average, and 3.16 members overall, and the average number of children in poor households is 1.44, while for non-poor and the overall population is 0.75 and 0.84, respectively (see annex N°1).

[11] See annex N° 2 for further detail on Traditional Methodology in income poverty measures from 1990 to 2013.

Graph N° 2: Income Poverty Headcount by age subgroup according to the traditional income poverty methodology, 1990-2013
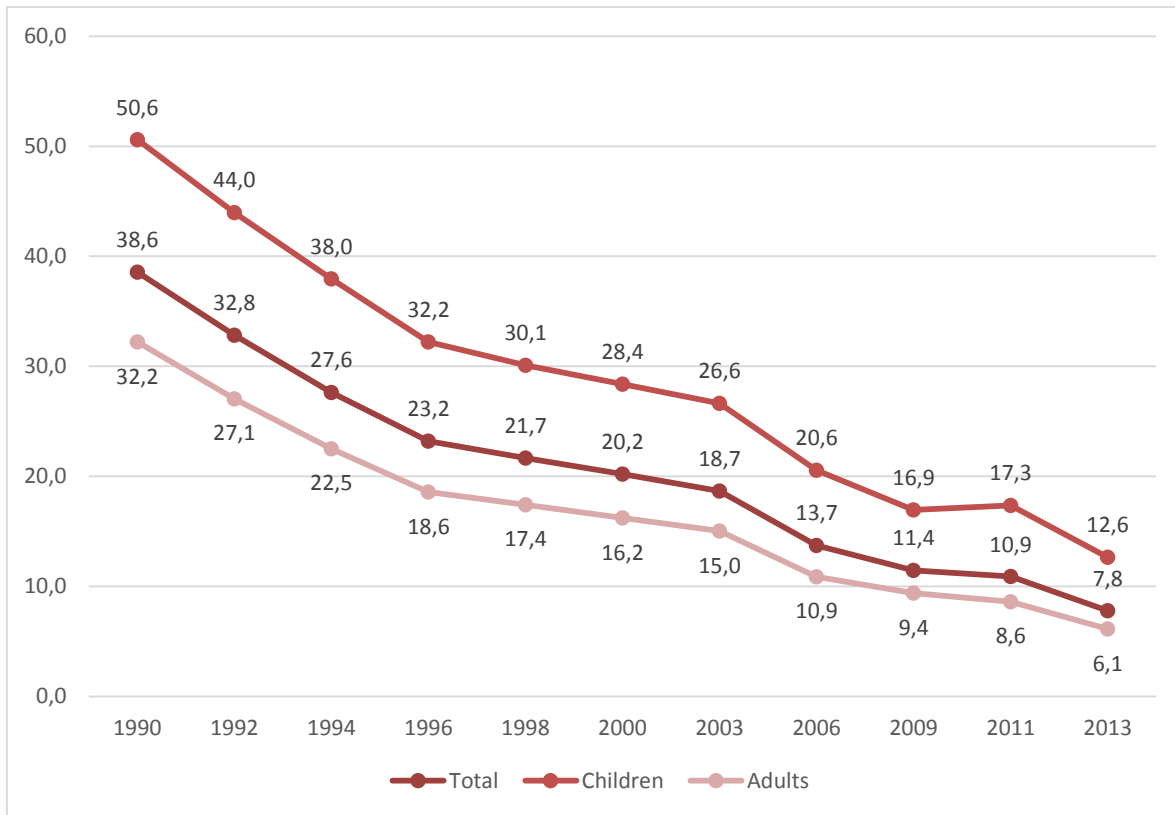
Child poverty is larger in every region of the country, with the highest headcount ratio for children belonging to La Araucanía (38.1%), Los Ríos (33.5%), Maule (32.2%) and Bío Bío (31.7%). The lower child poverty rates belong to Antofagasta (6.3%) and Magallanes (9.2%).

Graph N° 3: Income poverty Headcount Ratio by region, 2013
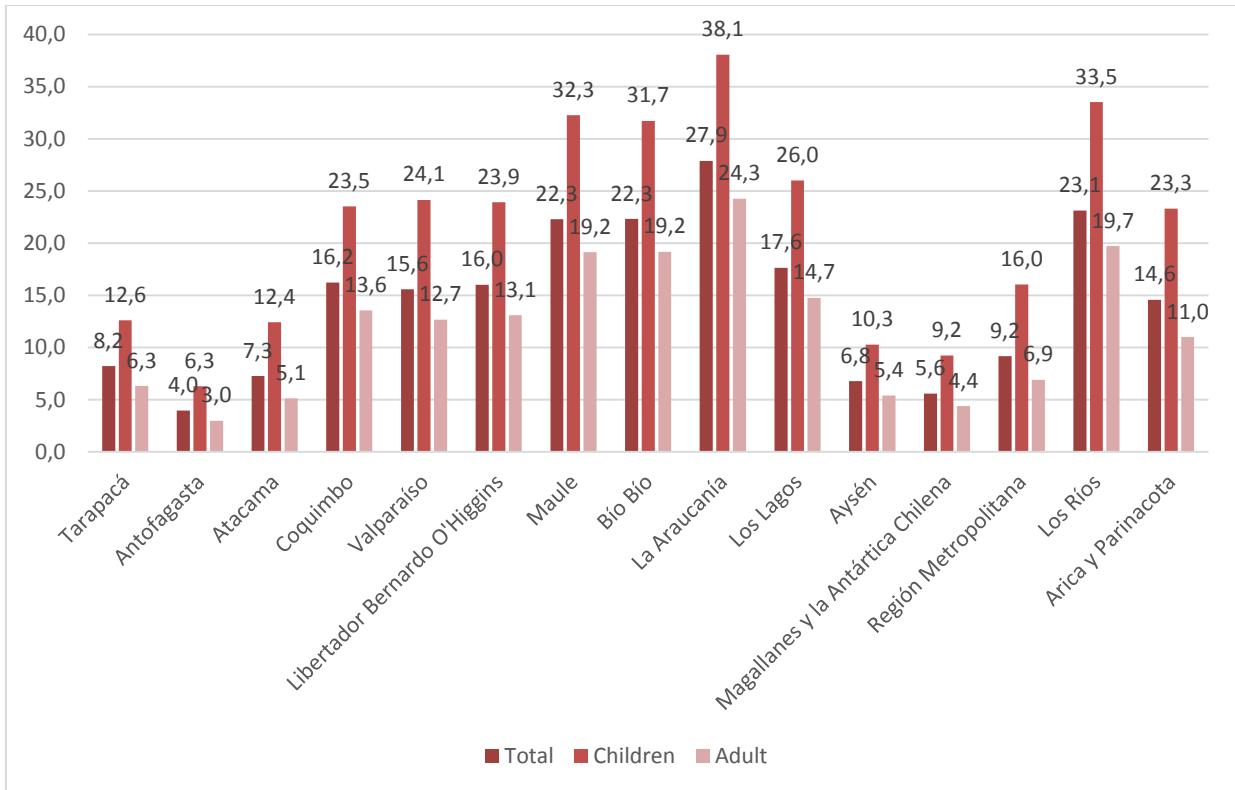
Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Measures from 1990 to 2013 show a consistent reduction in overall income poverty over the years with the exception of the period between 2006 and 2009, when poverty raised from 3.2% to 3.6%. Nonetheless, child poverty has risen in two time periods from 1998-2000 and 2006 -2009. Although in most time periods both overall and child poverty have fallen, child poverty has fallen relatively less than overall poverty in all periods of time except for the 2006-2009 time period.

For extreme poverty headcount child poverty has fallen with a slower pace than overall extreme poverty in all time periods except for 1994-1996 and 1996-1998. In the 1998-2000 time period extreme poverty fell by 0.7% whilst child poverty increased by 0.8%. And in 2006-2009 both overall and child extreme poverty increased (see annex N°2).

According to the new income poverty measure in Chile for all time periods the headcount, extreme poverty headcount, the poverty gap and FGT-2 Index are higher for Children than for the overall population. All this measures have dropped since 2006 to 2013 for both adult and children but have dropped relatively less for children in all time periods. For example, from 2006 to 2013 the poverty Headcount ratio has fallen by 53.1% for adults, and only by 43.3% for children. This has meant that

in 2013 both headcount ratios, the poverty gap and the FGT-2 are proportionately larger for children than they were in 2006 in comparison with the adult population, meaning that the percentage of child poverty over that of adults has become larger.

The extreme poverty headcount for children in 2013 is more than double that of the adult population, but has shown the largest relative fall from 2006, compared to other measures.

From 2006 to 2013 there has been a larger fall in the severity of child poverty, measured by the FGT-2 index, than in the extent of it, showing a fall of nearly 60% compared to 43%[12].

Table N° 2: Income Poverty measures: Poverty Headcount, Extreme Poverty Headcount, Poverty Gap and FGT-2, 2006-2013

Year	Poverty Headcount			Extreme Poverty Headcount			Poverty Gap			FGT-2		
	Overall	Children	Adults	Overall	Children	Adults	Overall	Children	Adults	Overall	Children	Adults
2006	29,1	38,7	25,1	12,6	18,5	10,1	9,3	13,2	7,7	4,3	6,3	3,5
2009	25,3	35,0	21,7	9,9	14,6	8,2	7,7	11,2	6,5	3,6	5,2	3,0
2011	22,2	32,9	18,4	8,1	12,8	6,4	7,1	10,4	5,9	3,4	5,0	2,8
2013	14,4	22,0	11,8	4,5	7,5	3,5	3,8	6,1	3,0	1,6	2,6	1,3

Source: On the basis of special tabulations of data from CASEN 2006-2013, Ministry of Social Development

As noted above income poverty is much higher for rural than for urban areas, showing an even deeper gap among children. In 2013 he headcount ratio for urban areas is half of that of rural areas reaching 39.97% of the child population. For the overall population extreme income poverty is almost three times higher in rural areas and at least twice larger for children. The same situation is observed for the poverty gap and the FGT-2 index. The larger reduction in income poverty since 2006 was experienced in the 2011 to 2013 time period, showing a drop of 37.7% in urban headcount ratio and a 26.1% reduction in rural areas, although rural areas showed a very despair reduction regarding child poverty, falling only by 20.7%[13].

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[12] See Annex N° 3
[13] See Annex N° 4

6. Dynamics of income and multidimensional poverty that justify the use of a multidimensional measure

"An important recent development in poverty measurement research has been the definition of a robust multidimensional framework. The reason for its emergence is that the well-being depends on both monetary and non-monetary dimensions of life. A person with sufficiently high income may not always be well-off with respect to some non-monetary dimensions of life, since it may not be possible to trade income and some non-income dimensions. It also may be necessary to develop policies to address specific deprivations or combinations of deprivations" (Alkire, Apablaza, Chakravarty, & Yalonetzky, 2013).

In an aggregated level there is a high correlation among income poverty and multidimensional poverty, but this relation is not so clear at an individual level. Though, it becomes necessary to examine child poverty though both methodologies, in order to allow the construction of effective poverty eradication policies (ECLAC - United Nations, 2013)

The focus of the following analysis is to figure out if multidimensional poverty measures can be a complement to income poverty measures. If the income poor people are the same as the multidimensional poor, then multidimensional poverty measures aren't adding anything and are not needed, at least as headline measures (Alkire S. , 2012). The Oxford Poverty and Human Development Initiative (OPHI) has undertaken several researches looking to find the value in complementing income poverty measures with multidimensional ones at the country level, finding in many cases that the overlap between monetary measurements and multidimensional deprivations is much less perfect than it was assumed.

Findings tell us that there is a value in measuring multidimensional poverty since the people identified as poor in both methods are not always the same, usually only one third of them are income poor and multidimensional poor. Among the more extreme poor, the match is not necessarily better, therefore allowing us to believe that there is a value in measuring multidimensional poverty. Even if the total headline figures are the same, they are identifying different households (Alkire S. , 2012).

This findings are corroborated by the data used in Chile that shows that in 2013 from the 14.4% of the overall income poor, only 5.5% are both multidimensional and income poor, meaning an overlap of 38.2% of the income headcount ratio, close to the OPHI'S findings. This percentage does not vary

much amongst children or adult, but has consistently decreased for all groups since 2006. The population who is multidimensional poor but not income poor sums up 14.9% of the population. For the extreme poor (4.5%) there is a 2.0% of the overall population who are both multidimensional and extreme income poor, representing a 44.3% overlap[14].

Analyzing income and multidimensional poverty dynamics for the child population, we find that in 2013 there is an 8.1% of children who are both income and multidimensional poor, meaning there are 15.3% of children identified as multidimensional poor, but not income poor, representing a 36.9% overlap of the income poor. In the extreme poverty measure there are 7.5% of children considered multidimensional and income poor, representing a 44.9% overlap.

Graph N° 4: Income and multidimensional poverty overlap according to income poverty situation, 2009-2013

Graph N° 5: Income and multidimensional poverty overlap according to extreme income poverty situation, 2009-2013
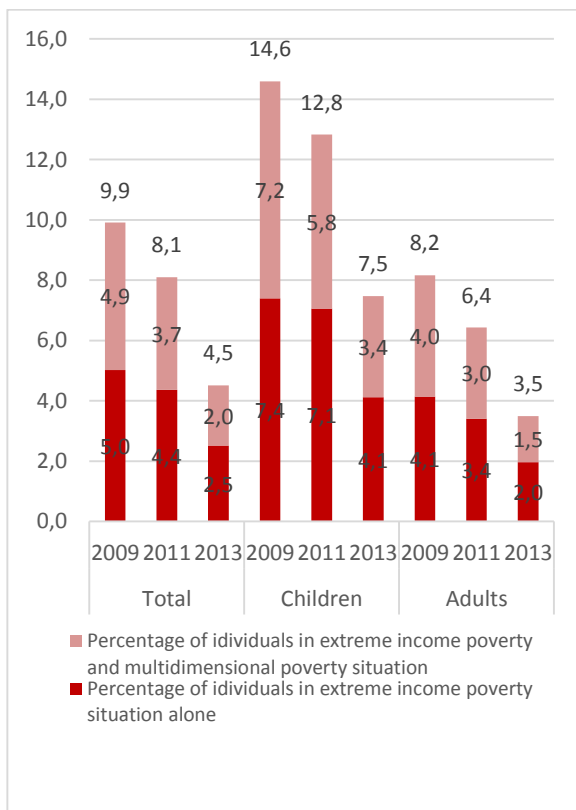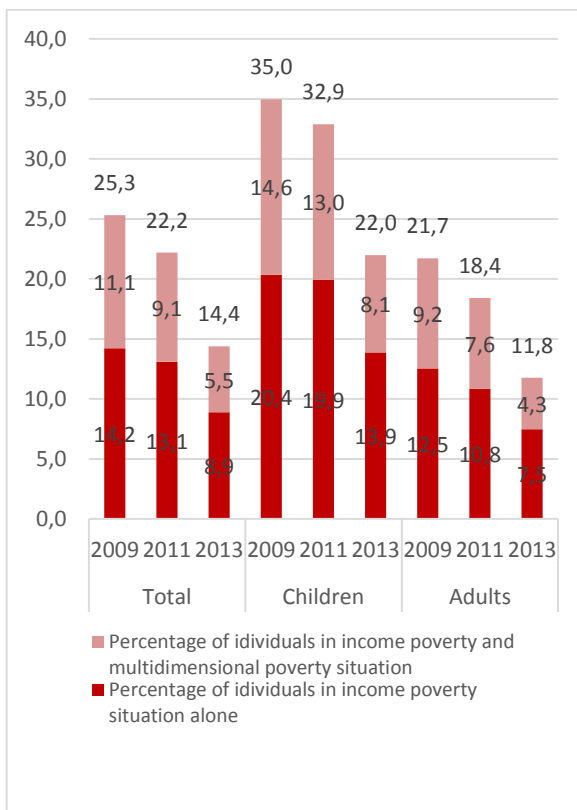
Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

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[14] See annex N°4 for detail on income and multidimensional poverty dynamics

The largest overlap is found in extreme poverty headcount, allowing us to infer that a larger proportion of the extreme poor are also multidimensional poor, when compared to overall poor, although the match is still below 50%, meaning that both methods don't even identify as poor half of the same income poor individuals.

When comparing urban and rural areas an important observation arises, since the percentage of the population identified as income and multidimensional poor is larger in rural areas, both for children and adults, and even slightly higher for children. The overlap of income and multidimensional poor in rural areas for children is 47.2%, being the population segment with the highest overlap as proportion of the income poor, compared to 34.5% for urban areas. The data allow us to conclude that rural areas experience a tougher poverty situation than urban areas, since not only present higher income and multidimensional headcount ratios, but also a larger proportion of the population are both income and multidimensional poor, identifying a very vulnerable segment of the population.

7. Multidimensional poverty in Chile

A multidimensional poverty measure allows a more comprehensive understanding of the true panorama of poverty in the country. They can be of great use when designing public policy to reduce poverty in various dimensions, when evaluating social programs that aim to improve specific dimensions of wellbeing non-related to income, and when trying to identify and address poverty traps. It also allows to directly measure deprivations in certain socially relevant life conditions of the family group.

As mentioned above, there are two main issues when addressing a poverty measurement methodology: identification of the poor among the total population and aggregation of the available information on the poor in a poverty index. For both this purposes Alkire & Foster (2007) proposed a methodology that has been widely used in recent years especially in LA, by Colombia, Mexico and now Chile, and in international poverty measurement like the UNDP's Multidimensional Poverty Index, and by ECLAC and UNICEF to measure child poverty in L.A. It has been widely used because it presents a family of indices that are fairly easy to construct, understand and communicate.

Poverty measures that include multiple dimensions can be distinguished according to which of the following operations they include : i) apply dimensional cutoffs to identify a person deprived in each dimension ii) aggregate across dimensions iii) identify whether a person is multidimensionally poor and iv) aggregate across people (or households). Identification in the multidimensional sphere is more complex than in an income approach, since it involves identification of deprivations in each dimension as well as across dimensions. (Alkire S. , 2011)

The New Multidimensional Poverty measure in Chile, uses the Alkire & Foster aggregation procedure, but uses national indicators as part of the identification process. Some of this indicators are the same with those proposed by A&F since the dimensions of human wellbeing are common to all conceptions of poverty.

The dimensions and indicators included in the measure are the following:[15]

Education	Health	Occupation and Social Security	Housing
School Attendance	Malnutrition in Children	Occupation	Overcrowding
School Lag	Suscription to Health Care	Social Security	Housing Conditions
Schooling	Health Care Attention	Pensions	Basic Services

The analysis unit for multidimensional poverty in Chile is the household for several reasons: there are shared resources in the household, which means that any deprivation would affect all members; it is consistent with income poverty measurement which also considers the household as a unit of analysis and it is consistent with poverty alleviation public policy at a household level.

The multidimensional index includes four dimensions and each dimension includes three indicators. A household is considered deprived in each indicators if at least one of its members belonging in the population targeted by the indicator does not reach the specific threshold for a certain indicator.

7.1 Aggregation by dimension

There are 3 possible ways to aggregate among dimensions using a cutoff (k) of the number of dimensions in which an individual (or household) can be deprived in to classified as poor. One is the *intersection approach* which considers poor every individual (or household) with deprivation in all dimensions (k=N, the total number of dimensions). The *union approach* classifies as poor individuals who are deprived in any dimension (k=1). And the *dual-cutoff approach*[16] sets a number between 1 and N as cutoff. Chile uses the latter with a cutoff of 3 out of 12 possible deprivations to be considered multidimensional poor (poverty cutoff k=25%, with equal weight for all 12 indicators).

Since indicators are calculated according to the specific target population for each indicator, the following child poverty analysis will have to have in mind that the consequent conclusions are much related to the distribution of individuals in the household. Considering that the entire household is considered as multidimensional poor, even if the deprivations concentrate in one or a few of its members the constitution of households regarding variables as gender and age, can determine which age sub-groups of the population are the most affected.[17]

In order to thoroughly study the characteristics of child poverty, a more appropriate methodology would measure the extent of poverty at the individual level and not at a household level, since the conclusions of this results might be too influenced by family composition of the poor and non-poor households, making it difficult to differentiate the situation of different children in the same household. Therefore, this analysis measures child poverty as the percentage of children living in poor households deprived in certain dimensions which allows to identify not poor children per se, but children living in poor households, who may or may not be poor themselves. In spite of this, given their high dependency, the situation of its parents and family have an important and direct effect over their wellbeing (Minujin, Delamónica, & Davidziuk, 2006), thus justifying the usefulness of a household level measure to account for their overall wellbeing.

In Education, School Attendance has an 18 or younger age target, therefore one can explain why there are 6.4% of children living in deprived households in 2013 compared to 3.8% of adults, and 4.5% for the overall population. Deprivations in School Attendance have fallen by 34.7% from 2009 to 2013, representing the largest fall in this dimension. School Lag also has a 21 or under age target

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[16] It's called dual-cutoff approach because it defines a deprivation cutoff and a poverty cutoff (k)
[17] See annexes N° 7 and N° 8 for the overall percentage of households and individuals deprived in each indicator

which also explains the 5.5% children living in deprived households, compared to 3.8% for adults and 3.1% for the overall population. From 2009 to 2013 deprivations in this indicator have fallen by 12.4% for the overall population and by 3% for children, given the rise in deprivations for children from 2011 to 2013 of 7.7%. Schooling deprivation represents the larger deprivation rate of all indicators, with 34.6% of the overall population living in Schooling deprived households in 2013, as 31.1% of children, but has shown the least progress since 2009 reducing only in 6.2% the population deprived n this indicator in the reference period. This measure is higher for adults which is influenced by the fact that the target population group are people of age 18 or older.

Graph N° 6: Percentage of Individuals Living in Households Deprived in Education Indicators, 2009-2013
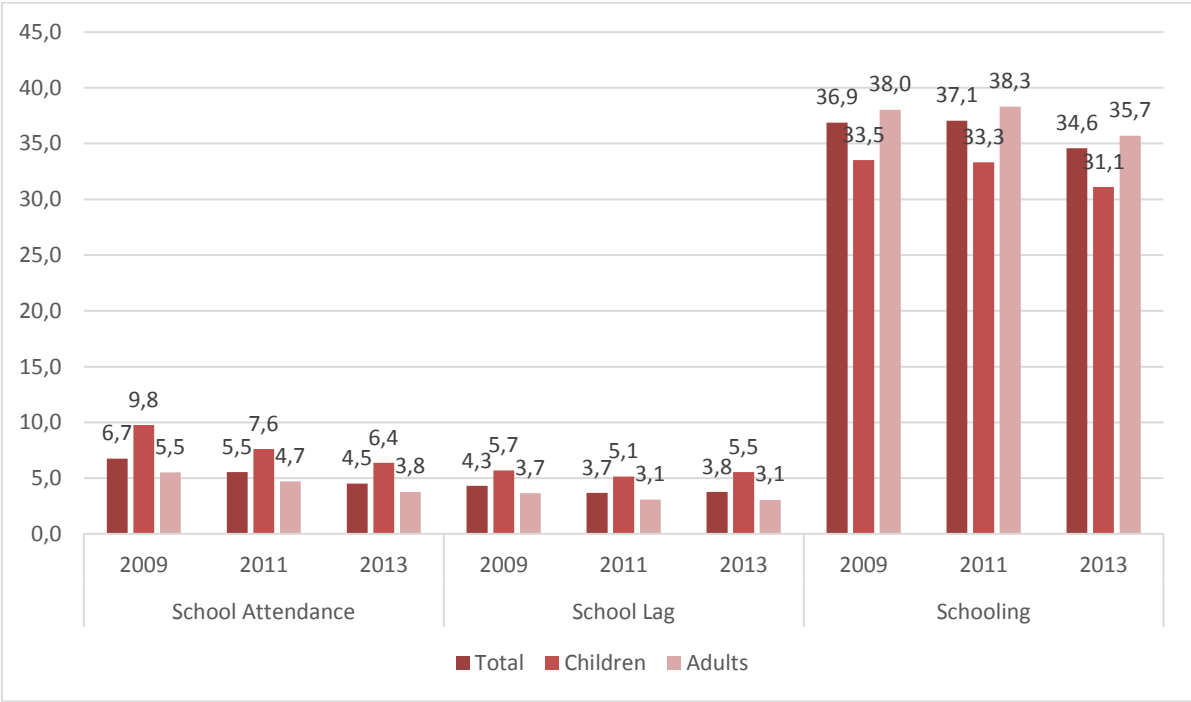
In the Health dimension, when analyzing Malnutrition in Children one can expect a higher deprivation rate for the child population since the reference age group are children from 0 to 6 years old, showing 12.1% of children in 2013 are living in households deprived in this indicator, while this affects only 5.2% of adults and 6.9% of the overall population. From 2009 to 2011 there was a sharp rise in the percentage of the population affected by this deprivation, rising by 19.3%, from 6.05% to 7.2% of the population living in households with malnourished children. Although from 2011 to 2013

the overall deprivation rate fell, in the whole reference period there was a 13.4% increase, which compares with a rise of 18.6% for population under 18 years old. In Subscription to Health Care there is a lesser percentage of the child population being affected by this deprivation when compared to the adult and overall population, as well as for Health Care Attention. Both of these indicators have shown a decrease from 2009 to 2013, being larger for deprivations in Health Care Attention, falling by 43.9% from 8.93% in 2009 to 5.0% in 2013, falling by a similar ratio for the child population. Subscription to health Care showed an increase in deprivations from 2011 to 2013 by 3%, a 23.9% fall in the overall period, and a 25.0% fall for the child population.

Graph N° 7: Percentage of Individuals Living in Households Deprived in Health Indicators, 2009-2013

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

In reference to the Occupation and Social Security dimension, none of the indicators are child specific therefore show in two cases a lower deprivation rate for children, and in one case a roughly higher one. We can highlight the slightly higher percentage of child population deprived in Social Security access, when compared to the adult or overall population, although this indicator has shown a homogeneous fall for all age groups, falling by 13.5% from 2009 to 2013 overall, from 37.9% of the overall population and 38.8% of children in 2009, to 32.8% overall and 33.0% in children. This

indicator presents the second largest percentage of population living in deprived households, after schooling. Pensions and Occupation show a slightly lower deprivation rate for the child population, and a considerately lower rate in Pensions, since the target population for this indicator are woman over 65 years old and man over 60. In 2013 there were only 5.9% of children living in households deprived in Pensions, compared to 12.7% of adults, and 11.0% for the overall population.

In the 2009-2013 time period deprivations in Occupation showed the largest fall, dropping in 30.9% the overall population with deprivations in this indicator, while Social Security deprivations fell by 13.5% and Pensions deprivation rose in 1.2%, falling in very similar proportions for the child population.

Graph N° 8: Percentage of Individuals Living in Households Deprived in Occupation and Social Security Indicators, 2009-2013
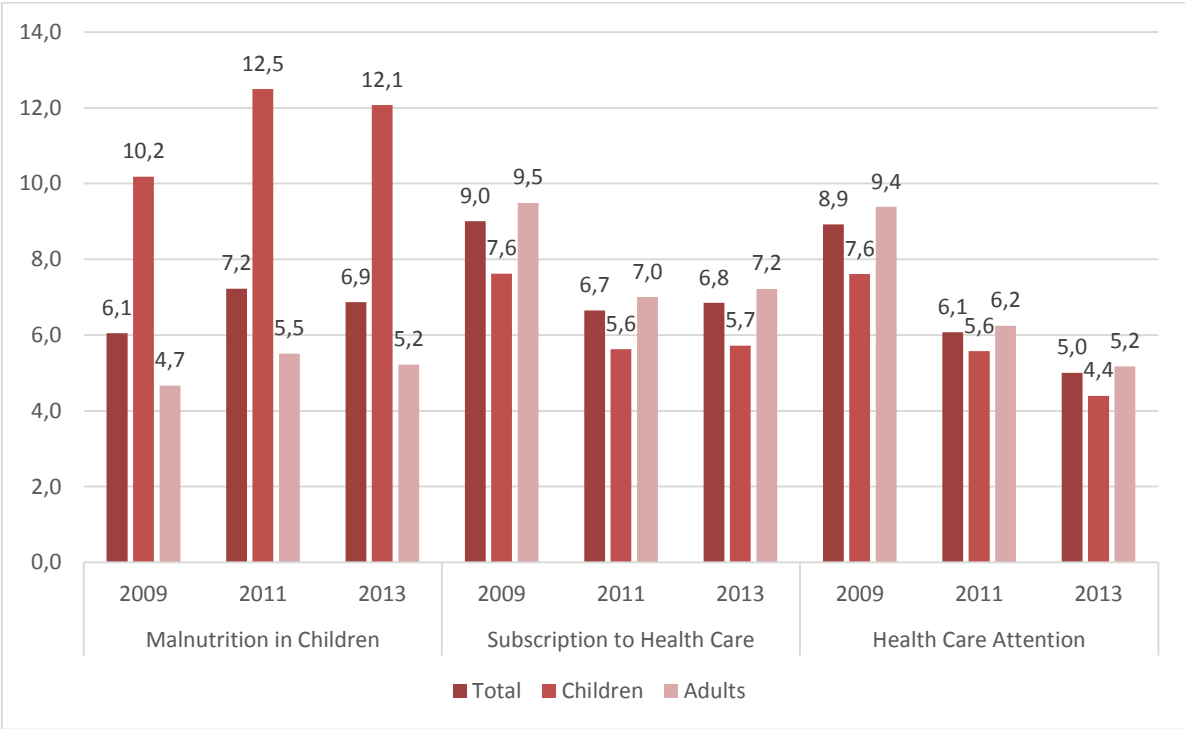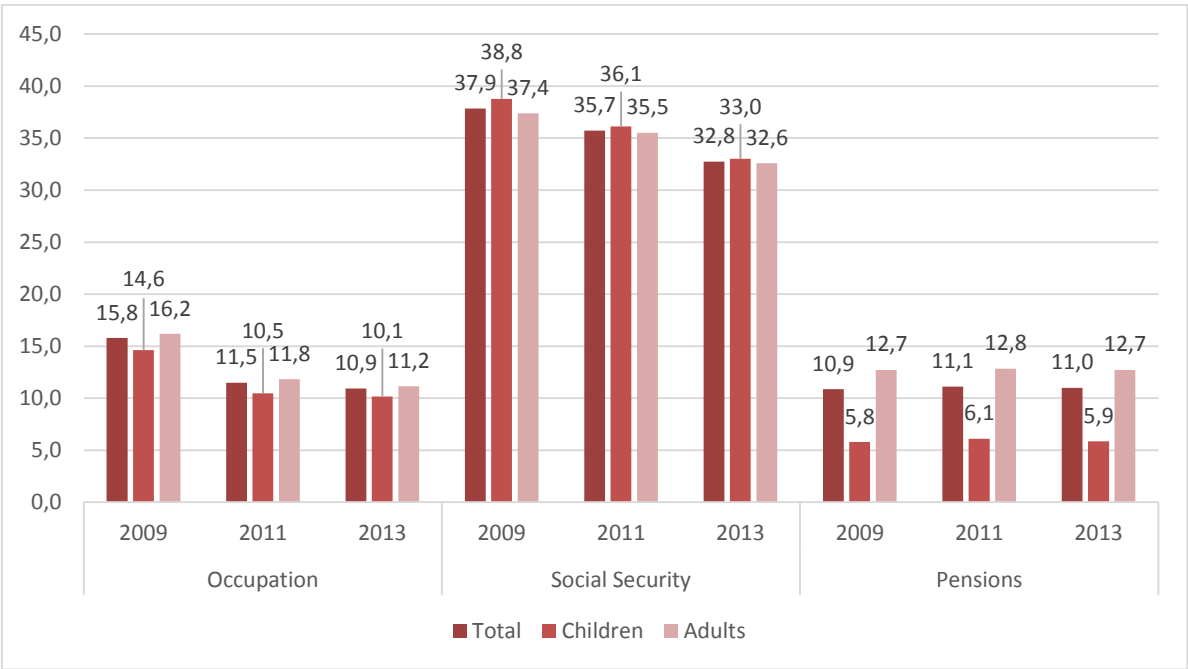

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

Finally for the Housing dimension, all three indicators show a higher rate of deprivations for children than for the overall population for all time periods, considering that the target population for all three indicators was the entire population. Overcrowding presents the highest difference between adult and child deprivation rates, showing that in 2013 22.0% of the child population lived in overcrowded households, while only 10.6% of the adult population also did, representing a 13.4% of the overall population.

The rate of decrease of this estimates is also lower for the child population between 2009 and 2013, falling only by 8.7% compared to a 19.0% fall for the adult population and 16.0% overall. Regarding housing conditions in 2013 13.5% of the population lived in households deprived in Housing Conditions.

Graph N° 9: Percentage of Individuals Living in Households Deprived in Housing Indicators, 2009-2013
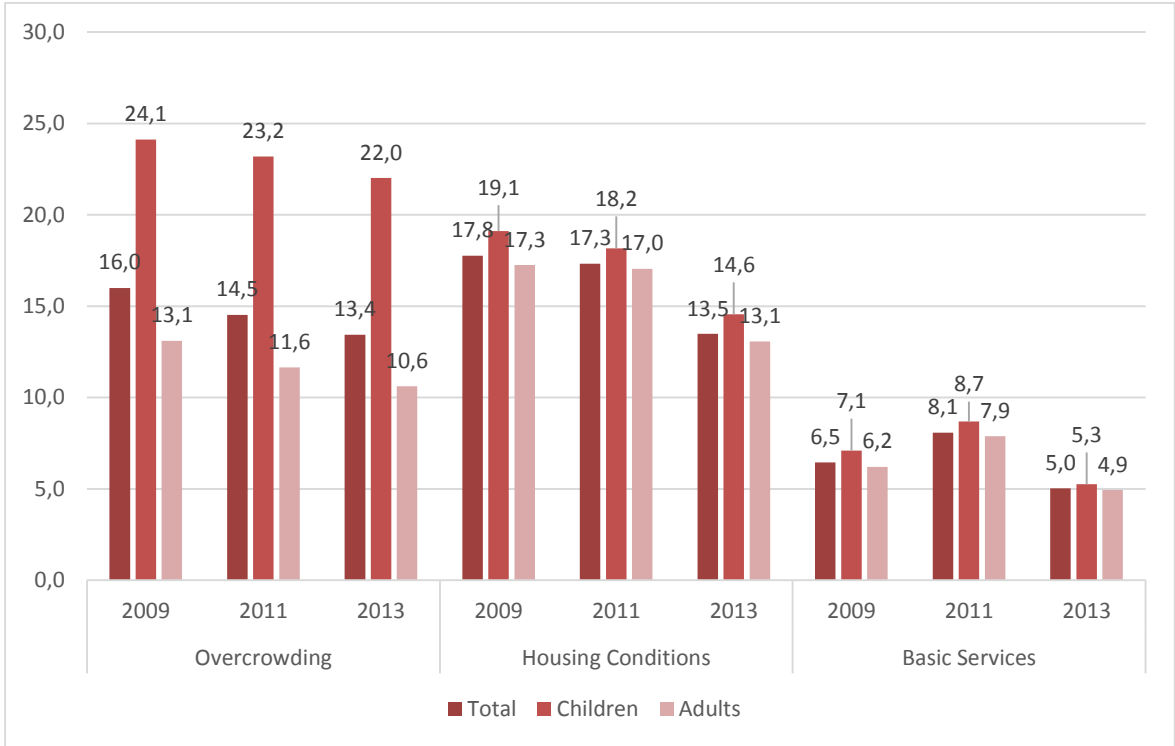
Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

7.2 Aggregated Multidimensional Poverty Measures

Alkire & Foster stablish two basic measures for aggregating poverty: the Headcount ratio (H), which, as the income headcount, gives us the percentage of the population considered multidimensional poor, meaning the percentage of households and individuals who are deprived in three or more indictors. This indicator is insensitive to the number of deprivations experienced by the poor. And the Adjusted Headcount Ratio (M0, which combines the headcount ratio with the intensity of deprivations among the poor (A). A represents the percentage of weighted dimensions in which the average poor is deprived. The intensity accounts for the extent of simultaneous deprivations poor people experience. M0 is the total number of deprivations that poor households (individuals)

experience divided by the total amount of deprivations the population can experience (Ministerio de Desarrollo Social, Jan, 2015).

The downside to this synthetic measures is that it is insensitive to the depth of poverty in each dimension. If a household of individual becomes more deprived in a given indicator, the poverty measure does not necessarily increase.

The Alkire & Foster (2011) method does include two other synthetic measures: the Adjusted Poverty Gap (M1) and the squared Adjusted Poverty Gap (M2), which are built from the FGT index and do account for the depth of the deprivations in each indicator, but can only be used when the indicators involve more than one threshold of deprivation. In the measure designed for Chile, each indicator has only one threshold, which means that M1 and M2 cannot be measured.

The aggregated multidimensional poverty measures shown in table N° 3 below, have a similar behavior than income poverty when comparing child to adult poverty. Child poverty is higher in terms of the multidimensional headcount ratio for all years, in terms of the intensity of deprivations among the poor, and in the adjusted headcount ratio. The multidimensional headcount is 19.4% for adults, which means 19.4 out of 100 adults in the country live in households deprived in 3 or more indicators, and it is 20.5% higher for children.

The intensity of deprivations is also higher for children than for adults, meaning that among poor children, the number of deprivations are higher than for adults - poor children are deprived in a larger quantity of indicators than poor adults. The overall multidimensional poverty index is 7.0% for children and 5.7% for adults showing that accounting for the intensity of deprivations, the total multidimensional poverty is 1.3 percentage points larger for children.

Table N° 3: Aggregated multidimensional poverty measures, 2009-2013

| Year	Multidimensional Headcount (H)			Intensity of Deprivation (A)			Multidimensional Poverty Index (M0=HA)		
	Total	Children	Adults	Total	Children	Adults	Total	Children	Adults
2009	27,5	29,7	26,7	30,8	31,6	30,5	8,5	9,4	8,1
2011	24,3	26,5	23,5	30,1	30,9	29,8	7,3	8,2	7,0
2013	20,4	23,3	19,4	29,5	30,0	29,3	6,0	7,0	5,7

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

Focusing on the evolution of multidimensional poverty, the table above shows that from 2009 to 2013 the amount of individuals living in multidimensional poor households decreased at a slower pace for children than for adults, falling by 27.4% for adults and only by 21.4% for children, and so did the intensity of deprivations and the adjusted headcount ratio[18].

The multidimensional headcount ratio can also be desegregated by different demographic variables[19]. Comparing urban to rural areas the situation is similar to what we observed with an income approach. There is a larger proportion of individuals living in multidimensional poor households in rural than urban areas. The multidimensional headcount is 35.0 % in rural areas, which is more than one third of the population, compared to 18.3% for urban areas. This rates are higher when focusing on child poverty, the headcount ratio rises to 36.9% for rural areas and 21.4% for urban areas. This results show us that rural areas concentrate a much larger proportion of multidimensional poor people, special of multidimensional poor children.

Graph N° 10: Multidimensional Poverty Headcount (H), 2013
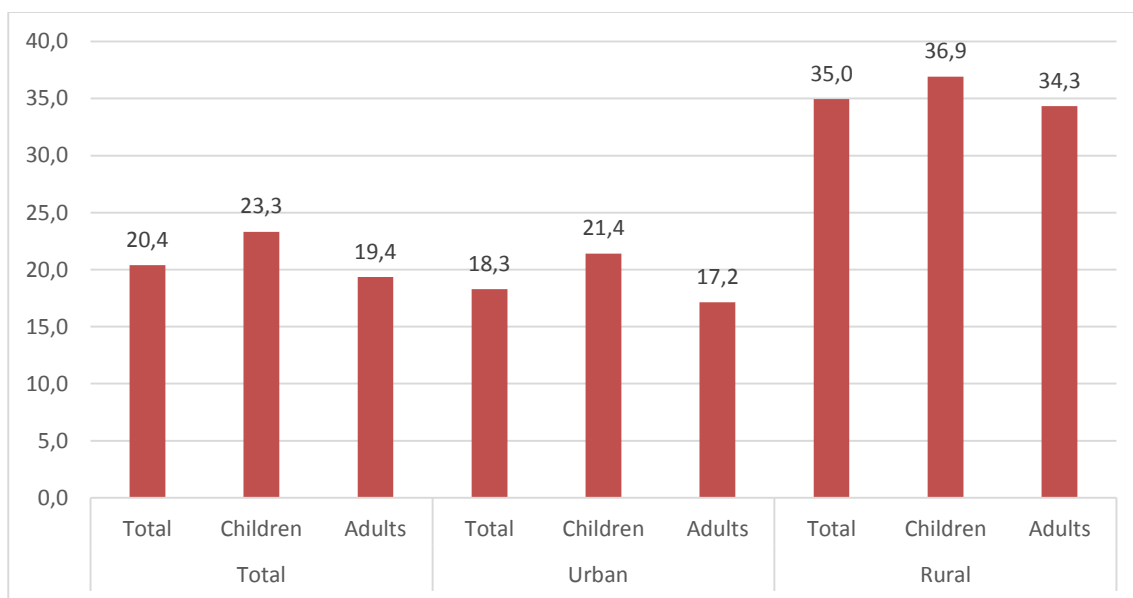
Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

The intensity of deprivations is also larger for children, especially in rural areas were average deprivations reach 31.3%. Although the average deprivations among the poor do not vary much by

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[18] See annex N°9 for absolute and relative variation rates
[19] See annex N° 10 for detail on multidimensional poverty measures by geographical areas and it's time variations

geographical zone and age group this slight differences do have incidence over the multidimensional poverty index. M0 reaches 10.6% of the rural population overall and 11.6% of children in rural families, contrasting to 6.4% of children in urban families.

Graph N° 11: Intensity of Deprivations (A), 2013
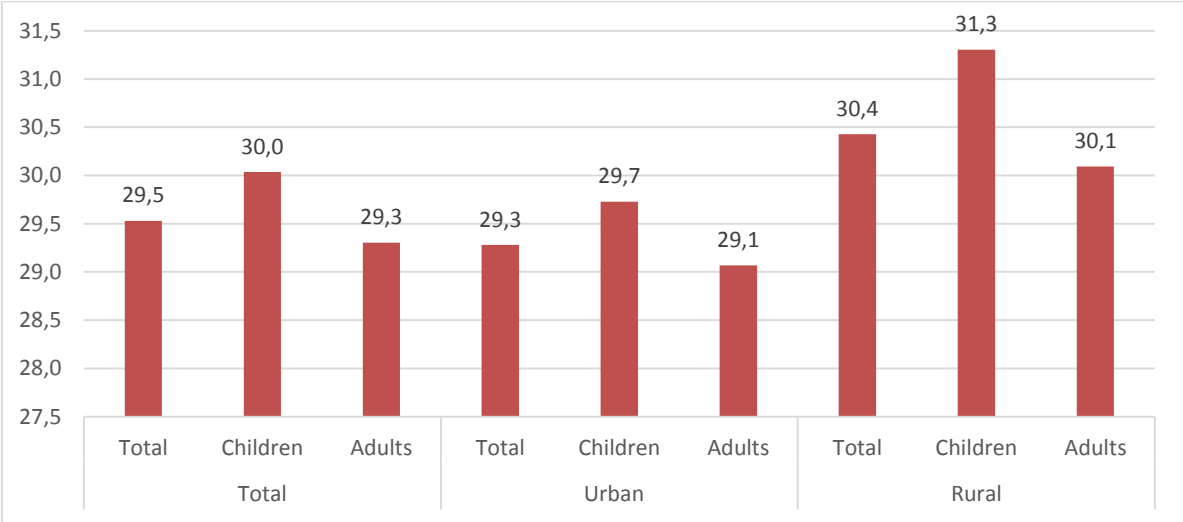
Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Graph N° 12: Multidimensional Poverty Index (M0), 2013
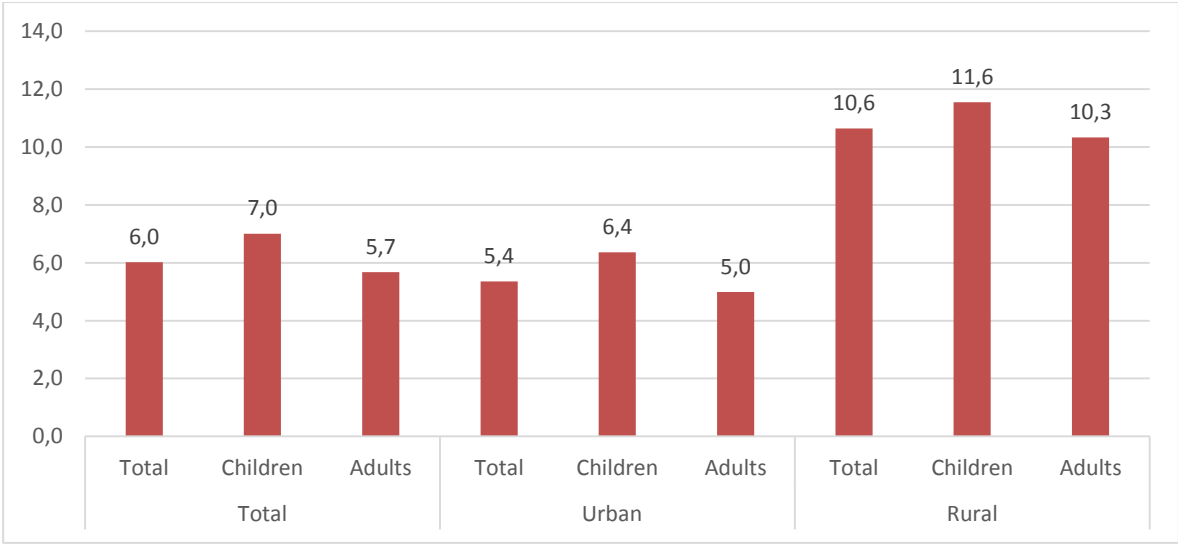
Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Analyzing the multidimensional measures by region, we observe a more homogeneous situation than the income poverty panorama, although some regions present multidimensional poverty that

escapes the national average. For all regions child multidimensional poverty is larger than adult poverty following the same pattern as income poverty.

La Araucanía is the worst off region in the country regarding multidimensional poverty, where 28.5% of its population live in multidimensional poor household, and so do 31.3% of its children. Los Lagos and Atacama also present very high rates of multidimensional poverty with 26.1% and 26.2% of the population living in deprived households, respectively. Atacama also presents the highest intensity of deprivation, showing that not only is one of the poorest regions in terms of the extent of multidimensional poverty, but also regarding the intensity of the deprivations among the poor.

Magallanes presents the lower multidimensional headcount ratio with only 11.8% of its population living in deprived households, and 13.7% of its children. It also presents the lowest intensity of deprivations and therefore the lowest Multidimensional Poverty Index.[20]

Graph N° 13 shows how for different values of the cutoff k, the adjusted headcount ratio is higher for children than for adults and the overall population, except for k=8 which is the limit of maximum amount of deprivations experienced by the population, where the headcount is 0.016 for the adult population, and 0.012 for children. The overall results shows that the conclusions of a higher poverty rate for children remains unmodified in spite of the poverty cutoff chosen for dimension aggregation[21], except when reaching the upper limit for deprivation number (k=8), where children show a slightly smaller headcount.

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[20] See Annex N° 11 for detailed regional multidimensional poverty measures
[21] See Annex N° 12 for further detail on multidimensional poverty measures by cutoff level

Graph N° 13: Multidimensional Adjusted Poverty Headcount, by poverty cutoff (M0), 2013
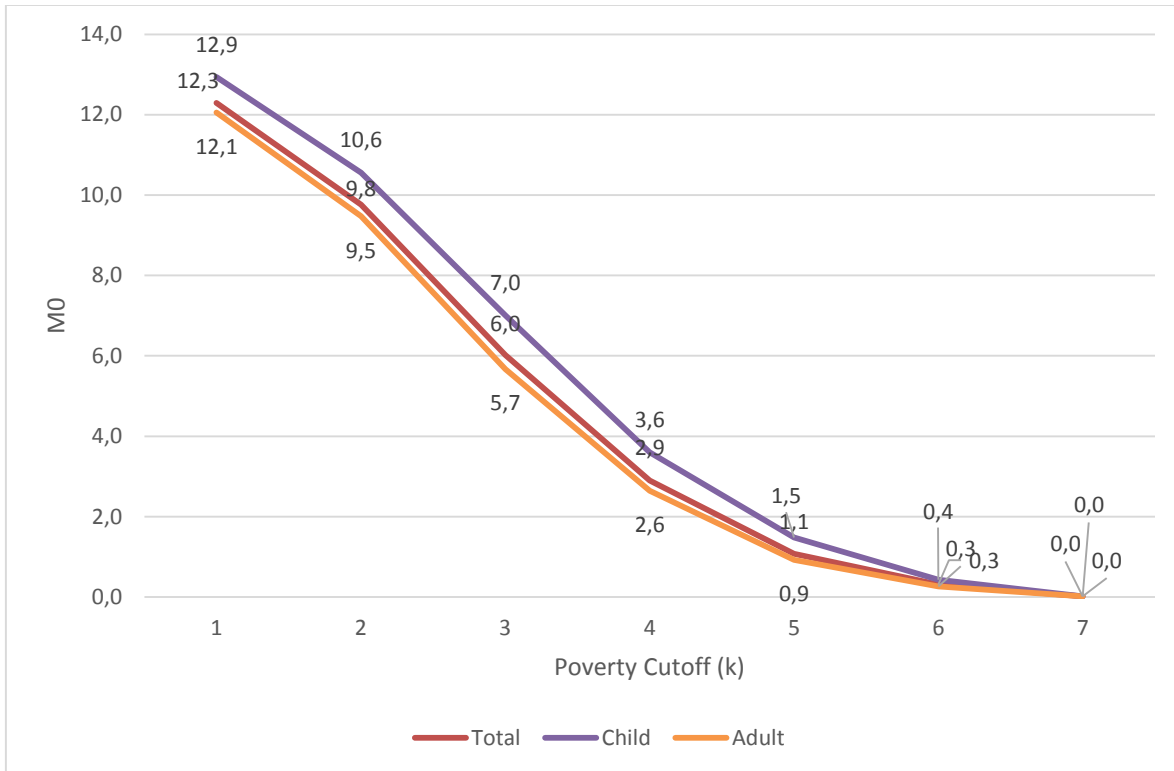
8. Discussion

An example of how an income and a multidimensional approach to poverty may lead public policy in completely different directions is the situation of Atacama. Multidimensional measures show that from 2011 to 2013 there was an increase in the child poverty headcount in the region, rising from 26.1% to 28.6%. The intensity of deprivations for children also increased from 30.2% to 32.7%, meaning there are more families considered as multidimensional poor, and those families are suffering from even more intense deprivations in 2013 than in 2011. This rise was marked by an increase in the percentage on children living in households with deprivations in school lag, schooling, child malnutrition, subscription to health care, housing conditions and access to basic services[22], from which we can highlight a sharp rise in the percentage of children living in schooling, child malnutrition, and housing deprived households.

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[22] For details on Atacama's deprivations rate by indicator for 2011 and 2013, see annex N° 14

In contrast, in the same time period, the child income poverty headcount fell by 52%, from 25.9% in 2011 to 12.4% in 2013, showing an important contrast among the two methodologies. The extreme poverty headcount fell by 65% in the same period, from 9.4% to 3.3%, and both the poverty gap and the FGT-2 index also fell by more than halve, showing that the rise in income led to both a fall in the extent of income poverty and in the intensity and depth of it.

Public policy based on an income approach might place Atacama as the region with the highest rate of decrease in poverty in the last period, while looking at the same situation with a broader approach the situation takes a 180 degree turn, since it is also the only region with a rise in multidimensional poverty for that time period.

There are two events than might have contributed to such evolution of multidimensional poverty in the region, the presence of continuous droughts that might have to do with child malnutrition, for example, and a 6.8 Richer scale earthquake in March of 2013, which left some damages in housing conditions and in access to water, which can also be reflected in the multidimensional poverty indicators.

Income and multidimensional poverty rate evolution in the region point in opposite directions, transmitting a clear message in favor of expanding the array of information used to make public policy decisions: income alone can be very far from describing a deeper picture of wellbeing in a region, and should, by all means, be complemented with a multidimensional approach. With the absence of a multidimensional approach, Atacama seems to stand in a relatively advantaged position compared to all other regions in the country, but has faced the worsening in wellbeing in 5 of the 12 multidimensional indicators from 2011 to 2013.

The new multidimensional poverty measurement methodology has an important value, since it allow to redirect public policy in favor of a much deeper analysis of the needs of the population, which has started to take a more important role in many countries in the region, especially in countries that have already adopted multidimensional approaches to poverty. The challenge from this point on, is to actually make use of these powerful tools, and to include them as important determinants of future policy decisions, which has indeed represented a challenge in many countries in the region.

In a different topic, it is important to note that although the new poverty measurement methodology does offer the possibility to measure the extent of multidimensional child poverty, it

holds certain limitations to a more accurate identification of poor children. Since most indicators are not child-specific and the unit of analysis is the household, this methodology allows to identify the percentage of children living in poor households, not poor children per se.

Having in mind that poverty strikes children more harshly than adults, since it represents a risk to the proper development of their cognitive and non-cognitive abilities, the failure to achieve their appropriate development may seriously hinder their long-term productivity and sustain intergenerational cycles of poverty. The long term effects of poverty in adults, both individually and as a society, compared to children, are much less permanent and severe. This justifies the urgency to focus policy efforts on children's development, and for that purpose develop child-specific indicators to measure poverty. In this sense, having tools to measure the specific life conditions of each child in a household is undoubtedly relevant and in order to do so the country must direct political efforts to create or abide to an existing child-specific poverty measure, that permits a cross country and cross-time comparison of the evolution of children's specific deprivations.

Many organizations such as ECLAC, UNICEF, OPHI and the World Bank have already undertaken child poverty measurements, showing that the existing international and national level data can be used to construct indicators that allow to track progress over time. In Latin America ECLAC and UNICEF have developed a particular approach of the Bristol indicators for child poverty, which includes only child-specific indicators. This measure includes 6 dimensions: nutrition, education, housing conditions, access to water, sanitation and information, in which a child can be non-deprived, or moderately or severely deprived. This dual cut approach is also useful when trying to distinguish the intensity of the deprivations in each specific dimension.

The modification of this methodology to fit the availability of data from the CASEN 2013 survey is shown in a comparative chart in annex N° 13. In order to make this methodology comparable to the Chilean multidimensional method we defined an equivalent deprivation cutoff (k). In this case we compare the results for 3 different cutoffs: $k_1 = 16.7\%$, $k_2 = 33.3\%$ and $k_3 = 50\%$ [23].

Results show that for all different cutoffs, child poverty is higher using the child-specific indicators in the ECLAC-UNICEF methodology than in the one developed by the Ministry of Social Development. Although some of the indicators are similar, the methodology used by the MSD

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[23] Fort the ECLAC-UNICEF methodology k_1 represents 1 out of 6 dimensions, k_2 represents 2 out of 6 and k_3 3 out of 6. For the Chilean methodology k_1 represents 2 out of 12, k_2 represents 4 out of 12 and k_3 6 out of 12.

includes a broader array of indicators, most of which are not child specific. Table N°4 shows that 57% of children in 2013 presented at least 1 of the 6 deprivations in the ECLAC-UNICEF methodology, while 19.6% presented 2 and 4.2% experienced 3 out of 6 deprivations[24]. When compared to the MSD methodology one could have expected larger percentages (since the unit of analysis is the household), but the difference in methodology defines a smaller percentage of poor children for all three cutoffs.

Table N° 4: Multidimensional child poverty headcount ratio for the ECLAC-UNICEF and MSD[25]

k	ECLAC-UNICEF	MSD
$k_1 = 16.7\%$	57,0	44,7
$k_2 = 33.3\%$	19,6	9,7
$k_3 = 50\%$	4,2	0,8

Source: On the basis of special tabulations of data from CASEN 2011 and 2013, Ministry of Social Development

This comparison serves as a useful exercise that shows how the definition of child poverty has clear effects on the magnitude of the deprivations one can identify. The above results show that focusing on child-specific indicators such as those used by ECLAC and UNICEF identifies a larger percentage of children living in poverty.

These results are undoubtedly influenced by methodological differences that make it very hard to compare them, such as the number of indicators, unit of analysis and the definition of poverty each one is based on, but both of them serve as examples and lessons for the construction of a child specific measure in the future, that includes a proper national definition of child poverty and more elaborate instruments to measure the extent and the intensity of the wide array of deprivations children experience and affect their physical, emotional and cognitive development.

Finally, it is worth noting that although multidimensional poverty has been an important part of the poverty debate worldwide for more than a decade, the focus remained on income poverty, which has led most poverty reduction policies in the developing world, although it has been shown to be insufficient in the goal to properly identify the poor.

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[24] Disaggregated results by dimension show that 6.1% of children present deprivations in Nutrition, 13.4% in Sanitation, 14.2% in Housing Conditions, 4,8% in Water Access, 1.3% in Education and 32.5% in Access to Information (CASEN 2013)
[25] Ministry of Social Development

The Sustainable Development Goals set by the international community to substitute the Millennium Development Goals (MDGs) once their deadline is reached by the end of 2015, for the first time make multidimensional poverty a priority in the international development agenda. The MDGs based its poverty reduction targets only on the World Bank's USD 1.25 a day, which made them very narrow-minded objectives, although several international organizations such as the very own United Nations Development Programme (UNDP) and the World Bank itself had already developed and publicized the use of multidimensional approaches of poverty.

Each country must work with the objective of defining wellbeing and the parameters of human development under its own terms, as well as those policies and strategies to better address the particular political, cultural and social situation they face. And although international multidimensional measures are very useful to make cross-country comparisons and to include every country in a deeper analysis of poverty, its determinants and the way forward; there is an important value in the mindset switch a country goes through while trying to determine and measure the specific needs of its population.

9. Conclusion

Using survey data, this work has examined the behavior of income poverty measures and multidimensional poverty measures through time, using the new income measurement methodology proposed by the Ministry of Social Development, with a specific focus on child poverty.

Data shows that child poverty is concerning issue due to the overrepresentation of children in the overall poverty measures and its damaging effects over their well-being and future development possibilities. Desegregation of the income Headcount ratio and the Poverty gap Index, show that age groups of 0 to 3 years old and 4 to 17 years old are markedly affected by higher poverty rates than the rest of the population. In 2013 children account for 39% of the income poor headcount. Although this measures have decreased in time, it's still an alarming situation.

When analyzing the dynamics of income and multidimensional poverty in the country the findings suggest that both methods are identifying different people. In 2013 only 5.5% of the income poor are also multidimensional poor, which represents a 38.2% overlap of the population identified by both methods, suggesting there is a value in complementing the income measure with a

multidimensional one. For the child population there is an 8.1% of children identified as booth income and multidimensional poor, representing an even lower overlap of 36.9%. In rural areas there is a higher percentage of individuals identified as poor by both measures suggesting a larger proportion of the population suffering of income and multidimensional deprivations. All of these measures are larger for children.

Income poverty is significantly higher in rural areas of the country especially for rural children, but representing a higher gap between children and adults in urban areas.

The indicators included in the new multidimensional poverty measure designed by the Ministry of Social Development are defined to measure poverty at the household level, since they have different age specific target populations. This makes the identification of multidimensionally deprived children depend on the poverty situation of the household as a whole. An ideal child poverty measure would identify poor children at an individual level, recognizing the specific deprivations each child experiences. This method suggests that a more general analysis of the situation in which children are immerse has a valuable interpretation as well, since it recognizes that the deprivations the members of a family experience, have serious detrimental effects on children particularly, given their high vulnerability to the damages of poverty in their future development.

At an indicator level, the most alarming results show that children are particularly more affected by deprivations in Housing Conditions, which can bring serious repercussions to a child's development opportunities.

An important fact of multidimensional poverty measurement in childhood is noting that the social environment in which a child develops is very relevant since children are very sensible to their external environment, thus including indicators that reflect deprivations in dimensions such as access to information and communication is an important improvement opportunity to the Chilean Multidimensional measurement.

Multidimensional poverty indicators show that the overrepresentation of children in total poverty holds for this methodology as well but presents a smaller gap between adult and child poverty, indicating a more even distribution of multidimensional deprivations among different age groups. Although multidimensional poverty is higher in rural areas, the gap between child and adult poverty is larger in urban areas of the country.

The territorial gap in both income and multidimensional poverty measurement remains one of the most troubling results since they do not show a sign of decreasing in time, since they have become wider for some time periods, in both methodologies. This gap is primarily concerning for children since there are clear disparities in the life conditions of this population group according to geographical areas of the country, especially in regions like La Araucanía and Atacama.

Although developing a multidimensional poverty measure is a clear and strong step in the direction of conceiving poverty as more complex issue than income shortfall, the measurement of child poverty requires a stronger effort to measure child specific deprivations at an individual level such as child mortality rates, cognitive development, nutritional indicators, access to information and social protection services, etc. The use of this multidimensional approach allows to take a deeper look into situations that with an income approach only would be overlooked, generating important policy implications, and allowing a much further analysis of the specific needs of the population in different regions.

Chile has made important progress in reducing child poverty in the past 15 years and has made countless efforts in terms of public policies and social programs destined to children's development, but still has a long way to go to eradicate child poverty completely. Developing a child specific multidimensional measure would be an important step to making child poverty eradication a priority of poverty alleviation policies.

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Annexes

Annex N° 1: Number of children and size of the average household by income decile, 2013
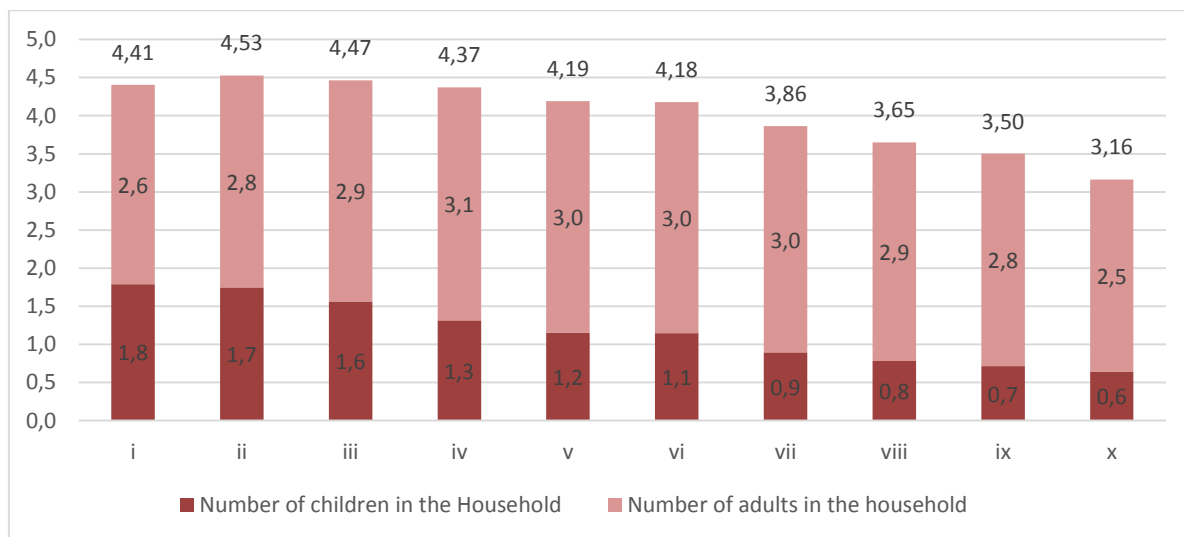
Decile	Number of children in the Household	Number of adults in the household	Total
i	1,8	2,6	4,41
ii	1,7	2,8	4,53
iii	1,6	2,9	4,47
iv	1,3	3,1	4,37
v	1,2	3,0	4,19
vi	1,1	3,0	4,18
vii	0,9	3,0	3,86
viii	0,8	2,9	3,65
ix	0,7	2,8	3,50
x	0,6	2,5	3,16

Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Annex N° 2: Income poverty measures, 1990-2013 (Traditional Methodology)

Year	Poverty Headcount			Extreme Poverty Headcount			Poverty Gap			FGT-2		
	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult
1990	38,6	50,6	32,2	13,0	19,2	9,7	14,9	20,8	11,8	8,0	11,5	6,1
1992	32,8	44,0	27,1	9,0	13,6	6,6	11,6	16,4	9,1	5,7	8,3	4,4
1994	27,6	38,0	22,5	7,6	11,5	5,6	9,8	14,1	7,6	5,0	7,4	3,8
1996	23,2	32,2	18,6	5,8	8,6	4,3	7,8	11,3	6,0	3,9	5,6	2,9
1998	21,7	30,1	17,4	5,6	8,2	4,3	7,5	10,7	5,8	3,8	5,5	2,9
2000	20,2	28,4	16,2	5,6	8,3	4,3	7,0	10,1	5,5	3,7	5,4	2,8
2003	18,7	26,6	15,0	4,7	7,2	3,5	6,3	9,3	4,9	3,2	4,8	2,5
2006	13,7	20,6	10,9	3,2	5,1	2,4	4,4	6,7	3,4	2,2	3,3	1,7
2009	11,4	16,9	9,4	3,6	5,4	2,9	3,9	5,8	3,2	2,2	3,1	1,8
2011	10,9	17,3	8,6	3,1	5,0	2,5	3,5	5,6	2,8	1,8	2,9	1,5
2013	7,8	12,6	6,1	2,5	4,0	2,0	2,5	4,0	2,0	1,3	2,0	1,1
Absolute variation												
1990-1992	-5,7	-6,6	-5,2	-4,0	-5,6	-3,1	-3,4	-4,4	-2,8	-2,3	-3,2	-1,7
1992-1994	-5,2	-6,0	-4,5	-1,5	-2,1	-1,0	-1,8	-2,3	-1,4	-0,7	-1,0	-0,5
1994-1996	-4,4	-5,7	-3,9	-1,8	-2,9	-1,3	-1,9	-2,8	-1,6	-1,2	-1,8	-0,9
1996-1998	-1,5	-2,1	-1,2	-0,1	-0,4	0,0	-0,3	-0,6	-0,2	-0,1	-0,1	0,0
1998-2000	-1,5	-1,7	-1,2	0,0	0,1	-0,1	-0,5	-0,6	-0,4	-0,1	-0,1	-0,1
2000-2003	-1,5	-1,8	-1,2	-0,9	-1,1	-0,7	-0,7	-0,9	-0,6	-0,5	-0,6	-0,4
2003-2006	-5,0	-6,1	-4,2	-1,5	-2,1	-1,1	-1,9	-2,6	-1,5	-1,0	-1,4	-0,8
2006-2009	-2,3	-3,6	-1,5	0,4	0,3	0,5	-0,4	-0,9	-0,2	0,0	-0,2	0,1
2009-2011	-0,6	0,4	-0,8	-0,5	-0,4	-0,4	-0,4	-0,3	-0,4	-0,3	-0,3	-0,3
2011-2013	-3,1	-4,7	-2,5	-0,6	-1,0	-0,5	-1,0	-1,6	-0,8	-0,5	-0,8	-0,4
Relative variation												
1990-1992	-14,8%	-13,1%	-16,0%	-30,6%	-29,1%	-31,7%	-22,5%	-21,3%	-23,3%	-28,2%	-27,5%	-28,5%
1992-1994	-15,9%	-13,7%	-16,8%	-16,2%	-15,7%	-15,2%	-15,6%	-13,9%	-15,9%	-12,6%	-11,4%	-12,4%
1994-1996	-16,0%	-15,1%	-17,5%	-23,9%	-25,4%	-23,3%	-19,9%	-19,8%	-20,8%	-23,1%	-23,9%	-23,2%
1996-1998	-6,6%	-6,6%	-6,2%	-2,4%	-4,1%	0,0%	-4,4%	-5,2%	-3,0%	-1,5%	-2,3%	-0,2%
1998-2000	-6,7%	-5,6%	-6,9%	-0,7%	0,8%	-1,3%	-6,3%	-5,2%	-6,4%	-3,2%	-1,9%	-3,5%
2000-2003	-7,6%	-6,2%	-7,3%	-16,1%	-13,1%	-17,1%	-10,5%	-8,4%	-10,6%	-13,4%	-11,3%	-13,5%
2003-2006	-26,5%	-22,8%	-27,7%	-31,4%	-29,1%	-31,4%	-30,6%	-28,0%	-30,9%	-32,0%	-30,1%	-31,8%
2006-2009	-16,5%	-17,6%	-13,6%	11,9%	5,6%	20,5%	-9,6%	-12,8%	-4,7%	-0,1%	-5,9%	7,0%
2009-2011	-4,9%	2,4%	-8,3%	-12,6%	-8,0%	-14,5%	-10,4%	-4,7%	-13,0%	-14,4%	-9,0%	-16,8%
2011-2013	-28,4%	-27,1%	-28,8%	-20,3%	-20,1%	-19,9%	-29,1%	-28,3%	-29,1%	-28,4%	-28,8%	-27,6%
1990-2013	-79,8%	-75,0%	-81,0%	-80,8%	-79,4%	-79,4%	-83,3%	-80,9%	-83,2%	-83,4%	-82,3%	-82,4%

Source: On the basis of special tabulations of data from CASEN 1990-2013, Ministry of Social Development

Annex N° 3: Absolute and relative variation of income poverty measures, 2006-2013

Year	Poverty Headcount			Extreme Poverty Headcount			Poverty Gap			FGT-2		
	Overall	Children	Adult	Overall	Children	Adult	Overall	Children	Adult	Overall	Children	Adult
Absolute variation												
2006-2009	-3,8	-3,8	-3,4	-2,7	-3,9	-2,0	-1,6	-2,0	-1,2	-0,7	-1,1	-0,5
2009-2011	-3,1	-2,1	-3,3	-1,8	-1,8	-1,7	-0,7	-0,7	-0,6	-0,2	-0,2	-0,2
2011-2013	-7,8	-10,9	-6,6	-3,6	-5,4	-2,9	-3,2	-4,3	-2,8	-1,8	-2,4	-1,5
Relative variation												
2006-2009	-13,1%	-9,7%	-13,6%	-21,3%	-21,0%	-19,6%	-16,9%	-15,5%	-16,1%	-17,0%	-17,1%	-15,0%
2009-2011	-12,3%	-5,9%	-15,2%	-18,3%	-12,1%	-21,2%	-8,7%	-6,7%	-9,0%	-5,8%	-4,7%	-5,3%
2011-2013	-35,2%	-33,2%	-36,0%	-44,3%	-41,8%	-45,6%	-45,9%	-41,5%	-48,3%	-52,4%	-48,1%	-54,8%
2006-2013	-50,6%	-43,3%	-53,1%	-64,1%	-59,5%	-65,6%	-59,0%	-53,8%	-60,5%	-62,8%	-59,0%	-63,6%

Source: On the basis of special tabulations of data from CASEN 2006-2013, Ministry of Social Development

Annex N° 4: Income poverty measures by geographical area, 2006-2013

Year		Poverty Headcount			Extreme Poverty Headcount			Poverty Gap			FGT-2		
		Total	Children	Adult	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult
2006	Total	29,1	38,7	25,1	12,6	18,5	10,1	9,3	13,2	7,7	4,3	6,3	3,5
	Urban	25,8	35,2	21,8	10,6	16,1	8,3	8,0	11,7	6,5	3,6	5,5	2,9
	Rural	51,8	62,3	47,4	26,1	34,8	22,5	18,3	23,7	16,1	8,9	11,9	7,6
2009	Total	25,3	35,0	21,7	9,9	14,6	8,2	7,7	11,2	6,5	3,6	5,2	3,0
	Urban	22,6	32,0	19,1	8,5	12,8	6,9	6,8	10,0	5,6	3,1	4,6	2,5
	Rural	43,4	54,4	39,2	19,3	26,4	16,6	1,4	19,1	12,5	6,8	9,2	5,8
2011	Total	22,2	32,9	18,4	8,1	12,8	6,4	6,4	9,8	5,2	2,7	4,3	2,2
	Urban	19,9	30,4	16,2	7,2	11,7	5,6	5,6	8,9	4,5	2,4	3,9	1,9
	Rural	37,7	50,4	33,4	14,5	20,9	12,2	11,4	16,1	9,8	5,1	7,3	4,3
2013	Total	14,4	22,0	11,8	4,5	7,5	3,5	3,8	6,1	3,0	1,6	2,6	1,3
	Urban	12,4	19,4	10,0	3,8	6,5	2,8	3,3	5,3	2,5	1,4	2,3	1,1
	Rural	27,9	40,0	23,9	9,6	14,7	7,9	7,7	11,5	6,4	3,2	4,9	2,7
Absolute variation													
2006-2009	Total	-3,8	-3,8	-3,4	-2,7	-3,9	-2,0	-1,6	-2,0	-1,2	-0,7	-1,1	-0,5
	Urban	-3,2	-3,2	-2,7	-2,1	-3,2	-1,4	-1,2	-1,7	-0,9	-0,5	-0,9	-0,3
	Rural	-8,4	-8,0	-8,2	-6,8	-8,4	-5,9	-16,9	-4,6	-3,6	-2,1	-2,7	-1,8
2009-2011	Total	-3,1	-2,1	-3,3	-1,8	-1,8	-1,7	-1,4	-1,4	-1,3	-0,8	-1,0	-0,8
	Urban	-2,7	-1,6	-2,9	-1,3	-1,1	-1,3	-1,1	-1,1	-1,1	-0,7	-0,8	-0,6
	Rural	-5,6	-4,0	-5,8	-4,8	-5,5	-4,4	10,0	-3,0	-2,7	-1,7	-1,9	-1,5
2011-2013	Total	-7,8	-10,9	-6,6	-3,6	-5,4	-2,9	-2,5	-3,7	-2,1	-1,1	-1,7	-0,9
	Urban	-7,5	-10,9	-6,2	-3,4	-5,2	-2,7	-2,4	-3,6	-1,9	-1,0	-1,6	-0,8
	Rural	-9,8	-10,4	-9,4	-4,9	-6,2	-4,3	-3,7	-4,6	-3,3	-1,8	-2,4	-1,6
Relative variation													
2006-2009	Total	-13,1%	-9,7%	-13,6%	-21,3%	-21,0%	-19,6%	-16,9%	-15,5%	-16,1%	-17,0%	-17,1%	-15,0%
	Urban	-12,2%	-9,2%	-12,5%	-19,7%	-20,2%	-17,1%	-15,4%	-14,5%	-14,0%	-14,8%	-15,7%	-11,8%
	Rural	-16,2%	-12,8%	-17,3%	-26,0%	-24,2%	-26,2%	-92,2%	-19,4%	-22,1%	-23,7%	-22,5%	-23,3%
2009-2011	Total	-12,3%	-5,9%	-15,2%	-18,3%	-12,1%	-21,2%	-17,7%	-12,2%	-20,1%	-23,3%	-18,2%	-25,6%
	Urban	-11,9%	-5,1%	-15,2%	-15,7%	-8,9%	-19,3%	-16,6%	-10,7%	-19,5%	-22,6%	-16,9%	-25,4%
	Rural	-13,0%	-7,3%	-14,8%	-25,1%	-20,8%	-26,3%	696,9%	-15,5%	-21,8%	-24,9%	-20,8%	-26,1%
2011-2013	Total	-35,2%	-33,2%	-36,0%	-44,3%	-41,8%	-45,6%	-40,0%	-37,8%	-41,1%	-41,5%	-39,5%	-42,5%
	Urban	-37,7%	-36,0%	-38,5%	-47,4%	-44,7%	-49,0%	-42,2%	-40,0%	-43,4%	-43,2%	-41,3%	-44,2%
	Rural	-26,1%	-20,7%	-28,2%	-33,8%	-29,7%	-35,5%	-32,5%	-28,4%	-34,1%	-36,1%	-32,5%	-37,6%
2006-2013	Total	-50,6%	-43,3%	-53,1%	-64,1%	-59,5%	-65,6%	-59,0%	-53,8%	-60,5%	-62,8%	-59,0%	-63,6%
	Urban	-51,9%	-44,8%	-54,3%	-64,4%	-59,8%	-65,8%	-59,3%	-54,2%	-60,8%	-62,5%	-58,9%	-63,2%
	Rural	-46,1%	-35,9%	-49,5%	-63,3%	-57,8%	-64,9%	-57,9%	-51,2%	-59,9%	-63,4%	-58,6%	-64,6%

Source: On the basis of special tabulations of data from CASEN 2006-2013, Ministry of Social Development

Annex N° 5: Income and multidimensional poverty dynamics, 2009-2013

Year	Multidimentional Poverty Headcount			Income poverty Headcount			Poverty Overlap			Extreme Income Poverty Headcount			Extreme Poverty Overlap		
	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult
2009	27,5	29,8	26,7	25,3	35,0	21,7	11,1	14,6	9,2	9,9	14,6	8,2	4,9	7,2	4,0
2011	24,3	26,4	23,5	22,2	32,9	18,4	9,1	13,0	7,6	8,1	12,8	6,4	3,7	5,8	3,0
2013	20,4	23,4	19,4	14,4	22,0	11,8	5,5	8,1	4,3	4,5	7,5	3,5	2,0	3,4	1,5
Absolute variation															
2009-2011	-3,3	-3,4	-3,2	-3,1	-2,1	-3,3	-2,0	-1,6	-1,6	-1,8	-1,8	-1,7	-1,1	-1,4	-1,0
2011-2013	-3,9	-3,0	-4,2	-7,8	-10,9	-6,6	-3,6	-4,9	-3,3	-3,6	-5,4	-2,9	-1,7	-2,4	-1,5
Relative variation															
2009-2011	-11,8%	-11,4%	-11,9%	-12,3%	-5,9%	-15,2%	-18,0%	-11,2%	-17,5%	-18,3%	-12,1%	-21,2%	-23,5%	-19,9%	-24,9%
2011-2013	-16,0%	-11,3%	-17,7%	-35,2%	-33,2%	-36,0%	-39,6%	-37,6%	-43,1%	-44,3%	-41,8%	-45,6%	-46,6%	-41,9%	-49,3%
2009-2013	-25,9%	-21,4%	-27,5%	-43,2%	-37,2%	-45,8%	-50,5%	-44,5%	-53,0%	-54,5%	-48,8%	-57,2%	-59,1%	-53,5%	-61,9%

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

Annex N° 6: Multidimensional Poverty Measurement: Dimensions and Indicators

Dimension I. Education:

Indicator 1. School attendance: A household is considered deprived in School Attendance if at least one of its members of age 4 to 18 years old is not attending school at the time of the interview, and has not graduated from secondary school, or at least one member of age 6 to 26 years old with a permanent condition or a long lasting condition is not currently attending school.

Indicator 2. School Lag: A household is considered deprived in School Lag if at least one of its members of age 21 or less is currently attending primary or secondary school, and is lagged behind two or more years according to the grade that corresponds according to her/his age.

Indicator 3. Schooling: A household is considered deprived in schooling if at least one of its members of age 18 or more has accomplished less years of schooling than those established by law, according to its age.

Dimension II. Health

Indicator 4. Malnutrition in Children: A household is considered deprived in Malnutrition in Children if at least one of its members of age 0 to 6 is overweight, obese, undernourished or in risk of undernourishment.

Indicator 5. Health Care System Subscription: A household is considered deprived in Health System Subscription if at least one of its members is not subscribed to any sort of health care system and does not have any other health insurance.

Indicator 6. Health Care Attention: A household is considered deprived in Health Care Attention if at least one of its members: Had a health problem in the previous three months and has not had health care attention for one of the following reasons: Thought of attending but has not had time; thought of attending but has not had money; thought of attending but has trouble reaching the health care location; tried to get an appointment but could not get one. Or, during the previous twelve months has been in medical treatment for an AUGE illness but has not been covered by the GES System (Explicit Health Guarantees System) for one of the following reasons: Decided not to wait to get an AUGE or GES appointment; thought the attention by AUGE could be of lesser quality; the paper work to have access to GES or AUGE is too complicated; GES or AUGE did not cover specific needs of the disease; did not know the illness was covered by AUGE; does not belong in the age group covered by AUGE; or other reasons.

Dimension III. Occupation and Social Security

Indicator 7. Occupation: A household is considered deprived in Occupation if at least one of its members of age 18 or older (or younger than 19 if has completed secondary school) is unoccupied, meaning, has no current job and has been looking for a job in the reference period.

Indicator 8. Social Security: A household is considered deprived in Social Security if at least one of its members of age 15 or older that is currently occupied does not contribute to a pension system and is not an independent worker with completed post-secondary education.

Indicator 9. Pensions: A household is considered deprived in Pensions it at least one member does not receive a contributive pension (women of age 60 or older, or man of age 65 or older) and does not receive income for lease, profit withdrawal, dividends or interests.

Dimension IV. Housing

Indicator 10. Overcrowding: A household is considered deprived in Overcrowding if the number of people in the household per bedroom is larger than 2.5.

Indicator 11. Housing conditions: A household is considered deprived in Housing Conditions if the house has floors, walls or roof in bad conditions (state of conservation "bad"); or live in precarious

housing: shack; and housing made from reutilized construction materials (plastic, tin, cardboard, etc.)

Indicator 12. Basic Services: A household is considered deprived in Basic Services if: housing does not have access to clean water from a water supply network in urban areas; or it does not have access to clean water from distribution network or system above or below ground (including underground aquifer, river, lake, "noria", or water truck) in rural areas; or both in urban and rural areas, housing has faucet outside or/and has no proper excreta disposal system (any solutions different to W.C. connected to sewage or septic tank)

Annex N° 7: Percentage of households deprived by multidimensional indicators, 2009-2013

Dimension	Indicator	2009	2011	2013
Education	**School Attendance**	4,7	3,6	3,1
	School Lag	2,9	2,5	2,6
	Schooling	34,4	34,3	31,9
Health	**Malnutrition in Children**	4,3	5,1	4,7
	Subscription to Health Care	7,9	5,9	6,1
	Health Care Attention	8,7	6,0	4,8
Occupation and Social Security	**Occupation**	12,8	9,4	9,0
	Social Security	33,6	31,8	29,5
	Pensions	11,0	11,1	10,7
Housing	**Overcrowding**	11,5	10,2	9,3
	Housing Conditions	17,4	17,2	13,6
	Basic Services	6,8	8,4	5,3

Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Annex N° 8: Percentage of individuals living in households deprived by multidimensional indicators, 2009-2013

Dimension	Indicator	2009	2011	2013
Education	School Attendance	6,7	5,5	4,5
	Rezago Escolar	4,3	3,7	3,8
	Schooling	36,9	37,1	34,6
Health	Malnutrition in Children	6,1	7,2	6,9
	Subscription to Health Care	9,0	6,7	6,8
	Health Care Attention	8,9	6,1	5,0
Occupation and Social Security	Occupation	15,8	11,5	10,9
	Social Security	37,9	35,7	32,8
	Pensions	10,9	11,1	11,0
Housing	Overcrowding	16,0	14,5	13,4
	Housing Conditions	17,8	17,3	13,5
	Basic Services	6,5	8,1	5,0

Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Annex N° 9: Absolute and relative variation of multidimensional poverty measures, 2009-2013

Year	Multidimensional Headcount (H)			Intensity of Deprivation (A)			Multidimensional Poverty Index (M0=HA)		
	Total	Children	Adult	Total	Children	Adult	Total	Children	Adult
Absolute variation									
2009-2011	-3,2	-3,1	-3,1	-0,7	-0,7	-0,7	-1,2	-1,2	-1,1
2011-2013	-3,9	-3,2	-4,2	-0,6	-0,9	-0,5	-1,3	-1,2	-1,3
Relative variation									
2009-2011	-11,8%	-10,5%	-11,8%	-2,3%	-2,1%	-2,3%	-13,8%	-12,4%	-13,8%
2011-2013	-16,0%	-12,2%	-17,7%	-1,9%	-2,9%	-1,6%	-17,6%	-14,7%	-19,1%
2009-2013	-25,9%	-21,4%	-27,4%	-4,2%	-5,0%	-3,9%	-29,0%	-25,3%	-30,2%

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

Annex N° 10: Multidimensional poverty measures by geographical area, 2009-2013

Year		Multidimensional Headcount (H)			Intensity of Deprivation (A)			Multidimensional Poverty Index (M0=HA)		
		Total	Children	Adult	Total	Children	Adult	Total	Children	Adult
2009	Total	27,5	29,7	26,7	30,8	31,6	30,5	8,5	9,4	8,1
	Urban	25,1	27,4	24,2	30,6	31,3	30,2	7,7	8,6	7,3
	Rural	44,0	44,9	43,6	31,8	33,0	31,4	14,0	14,8	13,7
2011	Total	24,3	26,5	23,5	30,1	30,9	29,8	7,3	8,2	7,0
	Urban	21,5	24,0	20,7	29,8	30,6	29,5	6,4	7,4	6,1
	Rural	43,0	44,0	42,6	31,0	32,1	30,7	13,3	14,1	13,0
2013	Total	20,4	23,3	19,4	29,5	30,0	29,3	6,0	7,0	5,7
	Urban	18,3	21,4	17,2	29,3	29,7	29,1	5,4	6,4	5,0
	Rural	35,0	36,9	34,3	30,4	31,3	30,1	10,6	11,6	10,3
Absolute Variation										
2009-2011	Total	-3,2	-3,1	-3,1	-0,7	-0,7	-0,7	-1,2	-1,2	-1,1
	Urban	-3,5	-3,4	-3,5	-0,7	-0,6	-0,7	-1,2	-1,2	-1,2
	Rural	-1,0	-0,9	-1,1	-0,8	-0,9	-0,8	-0,7	-0,7	-0,7
2011-2013	Total	-3,9	-3,2	-4,2	-0,6	-0,9	-0,5	-1,3	-1,2	-1,3
	Urban	-3,3	-2,6	-3,6	-0,6	-0,9	-0,5	-1,1	-1,0	-1,1
	Rural	-8,0	-7,1	-8,2	-0,6	-0,8	-0,6	-2,7	-2,6	-2,7
Relative Variation										
2009-2011	Total	-11,8%	-10,5%	-11,8%	-2,3%	-2,1%	-2,3%	-13,8%	-12,4%	-13,8%
	Urban	-14,1%	-12,3%	-14,3%	-2,3%	-2,1%	-2,3%	-16,1%	-14,1%	-16,3%
	Rural	-2,4%	-2,0%	-2,4%	-2,6%	-2,7%	-2,4%	-4,9%	-4,6%	-4,8%
2011-2013	Total	-16,0%	-12,2%	-17,7%	-1,9%	-2,9%	-1,6%	-17,6%	-14,7%	-19,1%
	Urban	-15,1%	-10,9%	-17,2%	-1,9%	-3,0%	-1,6%	-16,7%	-13,5%	-18,5%
	Rural	-18,6%	-16,2%	-19,3%	-1,9%	-2,4%	-1,8%	-20,2%	-18,2%	-20,8%
2009-2013	Total	-25,9%	-21,4%	-27,4%	-4,2%	-5,0%	-3,9%	-29,0%	-25,3%	-30,2%
	Urban	-27,1%	-21,8%	-29,0%	-4,2%	-5,0%	-3,9%	-30,2%	-25,7%	-31,8%
	Rural	-20,6%	-17,8%	-21,3%	-4,4%	-5,0%	-4,2%	-24,1%	-21,9%	-24,6%

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

Annex N° 11: Multidimensional Poverty measures by region, 2009-2013

Region	Year	Multidimensional Headcount (H)			Intensity of Deprivation (A)			Multidimensional Poverty Index (M0=HA)		
		Total	Children	Adult	Total	Children	Adult	Total	Children	Adult
Tarapacá	2009	31,6	34,8	29,8	32,4	33,0	32,0	10,2	11,5	9,5
	2011	24,2	25,6	23,8	29,9	30,7	29,5	7,2	7,9	7,0
	2013	17,8	19,5	17,1	29,5	30,2	29,1	5,3	5,9	5,0
Antofagasta	2009	30,7	35,2	28,6	31,5	32,3	31,1	9,7	11,3	8,9
	2011	25,0	28,5	23,6	30,6	30,9	30,4	7,6	8,8	7,2
	2013	20,7	23,2	19,9	30,4	30,4	30,4	6,3	7,0	6,0
Atacama	2009	35,0	35,5	34,4	31,9	32,9	31,5	11,2	11,7	10,8
	2011	25,0	26,1	24,6	30,1	30,2	30,0	7,5	7,9	7,4
	2013	26,2	28,6	25,5	31,1	32,7	30,4	8,1	9,4	7,8
Coquimbo	2009	30,7	32,3	30,1	30,1	30,6	30,0	9,2	9,9	9,0
	2011	25,1	26,8	24,5	29,6	30,5	29,3	7,4	8,2	7,2
	2013	21,6	23,2	21,2	30,1	31,1	29,7	6,5	7,2	6,3
Valparaíso	2009	24,4	26,5	23,6	30,6	31,7	30,1	7,4	8,4	7,1
	2011	22,8	25,3	22,2	30,4	31,2	30,2	7,0	7,9	6,7
	2013	18,0	20,6	17,1	29,7	30,5	29,4	5,3	6,3	5,0
Libertador Bernardo O'Higgins	2009	27,4	30,1	26,5	31,2	32,1	30,9	8,6	9,6	8,2
	2011	26,9	27,6	26,4	29,2	29,5	29,0	7,8	8,1	7,7
	2013	21,1	22,1	20,8	30,0	30,8	29,7	6,3	6,8	6,2
Maule	2009	29,1	29,8	28,8	29,8	30,7	29,4	8,7	9,2	8,5
	2011	31,8	33,3	31,2	30,5	32,3	29,9	9,7	10,7	9,3
	2013	21,9	23,7	21,3	29,6	30,4	29,3	6,5	7,2	6,2
Bío Bío	2009	28,2	30,2	27,4	31,0	31,8	30,6	8,8	9,6	8,4
	2011	28,7	28,8	28,7	30,4	31,4	30,1	8,7	9,0	8,6
	2013	22,4	26,3	21,1	29,5	30,2	29,2	6,6	7,9	6,2
La Araucanía	2009	37,2	40,1	35,9	31,8	32,5	31,4	11,8	13,0	11,3
	2011	33,3	36,3	32,3	31,5	32,7	31,0	10,5	11,9	10,0
	2013	28,5	31,3	27,6	30,3	30,6	30,1	8,6	9,6	8,3
Los Lagos	2009	34,5	36,6	33,5	31,1	31,9	30,8	10,7	11,7	10,3
	2011	29,0	30,9	28,5	29,6	30,4	29,2	8,6	9,4	8,3
	2013	26,1	27,1	25,6	29,7	30,8	29,3	7,7	8,4	7,5
Aysén	2009	32,4	34,3	31,7	30,2	30,1	30,1	9,8	10,3	9,5
	2011	26,9	27,8	26,5	29,4	29,9	29,2	7,9	8,3	7,7
	2013	22,3	23,1	21,8	29,3	29,5	29,2	6,5	6,8	6,4
Magallanes y la Antártica Chilena	2009	18,5	20,8	17,9	27,9	27,6	28,1	5,2	5,7	5,0
	2011	13,6	17,9	12,5	29,9	29,9	29,9	4,1	5,3	3,7
	2013	11,8	13,7	11,5	27,6	27,6	27,6	3,3	3,8	3,2
Región Metropolitana	2009	24,8	26,5	24,1	30,6	31,2	30,3	7,6	8,3	7,3
	2011	20,0	23,0	19,1	29,8	30,5	29,5	6,0	7,0	5,6
	2013	18,0	21,7	16,7	29,0	29,1	28,9	5,2	6,3	4,8
Los Ríos	2009	29,7	28,6	30,0	31,0	31,9	30,6	9,2	9,1	9,2
	2011	25,3	27,0	24,6	30,1	30,9	29,8	7,6	8,3	7,3
	2013	22,9	25,7	21,7	29,7	30,7	29,4	6,8	7,9	6,4
Arica y Parinacota	2009	25,4	29,3	24,1	32,6	33,6	32,2	8,3	9,8	7,8
	2011	27,1	31,4	25,3	29,7	30,1	29,5	8,1	9,4	7,5
	2013	23,6	24,8	23,2	30,6	31,6	30,2	7,2	7,8	7,0

Source: On the basis of special tabulations of data from CASEN 2009-2013, Ministry of Social Development

Annex N° 12: Multidimensional Poverty measures, by variation of the poverty cutoff (K), 2013

Poverty Cutoff (k)	Multidimensional Headcount (H)			Intensity of Deprivation (A)			Multidimensional Poverty Index (M0=HA)		
	Total	Child	Adult	Total	Child	Adult	Total	Child	Adult
1	73,2	73,2	73,1	16,8	17,7	16,5	12,3	12,9	12,1
2	42,8	44,7	42,2	22,8	23,6	22,5	9,8	10,6	9,5
3	20,4	23,3	19,4	29,5	30,0	29,3	6,0	7,0	5,7
4	7,9	9,7	7,3	36,7	37,1	36,5	2,9	3,6	2,6
5	2,4	3,3	2,1	44,2	44,2	44,2	1,1	1,5	0,9
6	0,6	0,8	0,5	52,2	52,1	52,3	0,3	0,4	0,3
7	0,0	0,0	0,0	71,8	70,3	72,5	0,0	0,0	0,0
8	0,0	0,0	0,0	75,0	75,0	75,0	0,0	0,0	0,0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0

Source: On the basis of special tabulations of data from CASEN 2013, Ministry of Social Development

Annex N° 13: CEPAL-UNICEF[26] dimensions of poverty measure, and adaptation for CASEN Survey 2013 data

Dimension	CEPAL/UNICEF		CEPAL/UNICEF adapted for CASEN 2013	
	Moderate deprivation	Severe deprivation	Moderate deprivation	Severe deprivation
Nutrition	Global undernourishment or at least -2 standard deviations from a reference pattern	Global severe undernourishment or at least -3 standard deviations from a reference pattern	Perception of the nutritional state of the child (under 6 years old): undernourished or in risk of undernourishment or obese	Perception of the nutritional state of the child (under 6 years old): overweight
Access to drinking water	Origin of water: well or waterwheel	Unsafe origin of water: river or spring waters	Origin of water: well or waterwheel	Unsafe origin of water: river or spring waters
	Water supply outside the property: public basin or cistern	Takes more than 15 minutes to access water in the household	Water supply outside the property: public basin or cistern	
Sanitation	No sewage system in the household but has septic tank or well or access to sewage outside the household	No sewage system	No sewage system in the household but has septic tank or well or access to sewage outside the household	No sewage system
Housing Conditions	Overcrowding: more than 3 people per bedroom	Overcrowding: more than 5 people per bedroom	Overcrowding: more than 3 people per bedroom	Overcrowding: more than 5 people per bedroom
	Flooring: soil	Transitory homes: tents	Flooring: soil	
	Walls or roof built with unsafe materials	Walls or roof built with waste materials	Walls made of adobe, mud, rushes, or other handcrafted materials. Or roof made of hay, reed, thatch, or cane	Precarious homes, made with unsafe or waste materials
Education	Children that having attended to school, dropped out before reaching the compulsory years of education	Children that have never attended school	Children that having attended to school, dropped out before reaching the compulsory years of education	Children that have never attended school
Access to information	No access in the household to two of the following: mobile or home telephone, electricity, radio and TV	No access in the household to mobile or home telephone, electricity, radio and TV	No access in the household to two of the following: mobile or home telephone, electricity, internet or computer.	No access in the household to mobile or home telephone, electricity, internet or computer.

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[26] (ECLAC - United Nations, 2010)

Annex N° 14: Percentage of individuals living in households deprived by multidimensional indicators in Atacama, 2011-2013

Dimension	Indicator	2011	2013
Education	School Attendance	10,1	7,5
	School Lag	6,4	6,7
	Schooling	29,7	35,0
Health	Malnutrition in Children	13,0	16,8
	Subscription to Health Care	6,5	8,4
	Health Care Attention	5,3	3,8
Occupation and Social Security	Occupation	8,7	8,6
	Social Security	31,2	29,9
	Pensions	7,4	4,8
Housing	Overcrowding	26,9	26,1
	Housing Conditions	19,0	21,2
	Basic Services	5,6	5,7

Source: On the basis of special tabulations of data from CASEN 2011 and 2013, Ministry of Social Development