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Research Article

UNI AND MULTIDIMENSIONAL POVERTY OF "CHILD WITHIN HOUSEHOLD" IN URBAN AND RURAL AREAS OF IRAN IN 2012

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ABSTRACT
Poverty has affected the lives of millions of children around the world. Poverty, However, has multiple dimensions. The aim of the current study is to measure Uni and Multidimensional poverty of child within household in Urban and Rural areas of Iran based on Iran's Development Plans in 2012. In this study we used the statistical data on Household for measuring Uni and Multi-dimensional of poverty indices, in this article information theory approach, as formulated by Maasoumi and Logo, and weak focus approach on poverty of this approach was employed in measuring multidimensional poverty. With childhood divided into four age groups, Uni and Multidimensional poverty among households with child were examined. The results showed that Uni and Multi-dimensional of poverty indices in all studied age groups was higher in rural households than urban ones. Furthermore multidimensional poverty of the younger age group (0-5) has been more than the other three age groups, suggesting the existence of multidimensional deprivations in the early children's lives. Research findings can have implications for policy makers about seeking of efficient and effective policies in the field of child welfare. At the end, considering research findings, some recommendations have been offered.

Keywords: *Poverty, Multidimensional Poverty, Information Theory*

INTRODUCTION
The notion that poverty should be measured on the basis of a large number of variables has enjoyed an increasing support in the recent years. For a long time, particularly since the introduction of the economic concept of poverty by Booth (1892) and Rowntree (1901), the reference indicator has often been income or expenditure per capita. But while these indicators act as reasonably accurate and useful measures of economic performance, they have been subjected to severe criticisms by several authors, among them Townsend (1993), Ravaillon (1996) and Tsui (2002).
This has engendered attempts to find suitable multidimensional indicators which can capture the different facets of poverty.
The last decade has also witnessed an increasing recognition of the importance of child poverty measures (Ben-Arieh 2000) UNICEF's working definition of child poverty, presented in The State of the World's Children, implies that "Children living in poverty (are those who) experience deprivation of the material, spiritual and emotional resources needed to survive, develop and thrive, leaving them unable to enjoy their rights, achieve their full potential or participate as full and equal members of society" (UNICEF, 2005). Thus, addressing child poverty is inadequate only from monetary approach. Children's Specific requirements in terms of basic needs and the need for specific information for policy formulation are important reasons for developing a multidimensional approach for child poverty (Roelen *et al.*, 2009).
In measuring multidimensional poverty, both theoretical and methodological issues are importance. According to Asselin and Dauphin (Asselin, 2002), there are three major theoretical approaches to measure poverty, including Welfare approach, Basic needs approach, Capacities approach (Sen, 1985). In

methodological aspect, According to Sen (Sen, 1982), poverty measures differ with respect to the identification of the poor and the aggregation methods used to combine information about the poor into an overall poverty measure. The first characteristic is concerned with distinguishing the poor from the non-poor while the second feature of poverty measures refers to the way in which individual-level information of the poor is combined into a summary statistic.

Traditionally there are two identification approaches exist in literature, one is union and other is intersection approach. The union approach regards someone who is deprived in any single dimension as multidimensionally poor. It is commonly used, but as the number of dimensions increases it may be overly inclusive and may lead to exaggerated estimates of poverty. The intersection method requires someone to be deprived in *all* dimensions in order to be identified as poor. Often considered to be too restrictive, this method generally produces untenably low estimates of poverty (Alkire and Foster, 2007). The choice of aggregation technique is most fundamental when building a composite multidimensional poverty index founded on individual or household data and evaluating its outcomes.

In addition to the two traditional approaches (union and intersection) for measuring multidimensional poverty, a third approach was proposed for the first time in the Information Theory entitled Weak Focus on poverty that includes a middle situation. In this approach, indices can allow for substitution that is compensation, from an attribute that exceeds its poverty level to another that falls short of it. The individual does not have to be poor in all dimensions to be either found to be poor or non-poor in the multidimensional context (Maasoumi and Lugo, 2008), Massoumi believe that Weak Focus is, indeed, a very attractive feature of multidimensional approach which deserves to be examined in many real life situations.

In multidimensional approaches, poverty threshold is introduced for a number of investigated attributes and then these thresholds are aggregated based on methods. In this article we opt for the information theory approach as formulated by Maasoumi and Logo (2008) and aggregate poverty line was used based on this approach in which each attribute's poverty line plays a role in defining a multi-attribute poverty line, which incorporates the same weights for, and relationship between, the attributes as considered for each individual/unit. All of the axioms which support Foster, Greer, and Thorbecke index (FGT) are applied to individual summary functions of well being.

A number of researches have been conducted regarding children multidimensional poverty in different countries, Some of them have dealt with only measuring child multidimensional poverty (Roelen *et al.*, 2009; Biggeri *et al.*, 2010; Notten and Roelen, 2010; Roelen *et al.*, 2010) and some dealt with child chronic poverty and its dynamic (Bradbury *et al.*, 2001; Ballantyne *et al.*, 2003; Apablaza and Yalonetzky, 2011). A number of studies have also been dealt with measuring child poverty and its determinants in the household level using household longitudinal data (Findlay and Wright, 1992; Brady 2004; Corak, 2005)

With regard to child poverty seen under a multidimensional angle, the literature on Iran is very poor. Assessing the poverty indices has an important role in informing planners towards distributional effects of policies and guidelines. Since the data related to child in Iran are not produced, in this article, children in households with child are divided into four age groups and poverty indices in income (household cost), education, nutrition, housing and health dimensions, and also multidimensional poverty index are calculated for them in 2012.

MATERIALS AND METHODS

The data used in this research were the raw data of census from household socioeconomic characteristics (gauging of household income-cost) that this design is conducted by statistical center of Iran each year (Iran SCO, 2010). The census from 1963 is performed with the aim of availability to the structure of household budget. This design only includes the inhabitant usual households. The statistical population of this research includes households with child in country (Rural and Urban). According to the Convention on the Right of the Child (CRC), in this research the child is also introduced as individuals under 18 (UNRC, 1989), but in this research, households with child 19, 20 were also studied in order to observe

five-year of age-year intervals (division of five-year of child periods and Iran's five-year Development Plans). A sample of research includes households with child in 2012 (divided based on four age groups of 0-5 years, 6-10 years, 11-15 years, and 16-20 years). For analyzing data we used STATA Software.

Dimensions and Indicators in Measuring Poverty of Child within Household in Iran

Table 1 presents the set of Dimensions and indicators that are deemed to adequately reflect the poverty status of children in Iran

Table 1: Dimensions and indicators in measuring Poverty of child within household in Iran

Dimension		Indicator
Income(expenditure)		Houshold 's income(expenditure) based on absolute poverty line
Housing		Infrastructure per capita index
Health		HFC index(household financial contribution)
Nutrition		caloric intake by Household
Education	0-5 year old	Education years by household head with child of 0-5
	6-10 year old	
	11-15 and 16-20 year old	Presence or absence in school and completion of primary school

As it is shown in the Table 1, an absolute poverty line of country was used for measuring poverty in the dimension of income (based on Food Basket recommended by the Ministry of Health and OECD Equivalent Scale). The Food Basket, which was used for measuring poverty line (and income poverty), has been introduced based on 2080 k calorie on day. The threshold of 16.5(m^2) of per capita infrastructure level was also used for housing poverty. Nutritional poverty was measured based on the ratio of age and gender of household food caloric, then with applying average value of Food Basket in the country provinces and equivalent scale, nutritional poverty line was calculated. Finally, food poverty was measured by (Foster *et al.*, 1984). As Table 1 shows, five- year education threshold of the household head for age-group of five-year is used for education poverty and for other age groups "presence or absence of child in school" and "completion of primary school" are considered as a criterion for educational poverty. In this article, health poverty was measured using the approach of household financial contribution in health expenditures (household's exposure to catastrophic health expenditures). In other words, household financial contribution index was used for measuring health poverty and poverty threshold was considered 40% so that if the ratio of health expenditures to the household's capacity to pay exceeds from 40%, the household suffers from catastrophic health expenditures (WHO, 2000).

As it was mentioned, weak focus approach on poverty of Information Theory (Maasoumi and Lugo, 2008) was used in measuring multidimensional poverty. Also we utilize equal weighting for attributes and three standards α values of FGT measures in which P_0 corresponds to the incidence of poverty (Headcount Measure), where all people living in poverty are counted equally. P_1 corresponds to the poverty gap, where the level of poverty for each individual will depend on how far that person is from the poverty line and P_2 corresponds the squared poverty gap, where individuals receive higher weight the larger their poverty gaps are (Alkire and Foster, 2007).

RESULTS AND DISCUSSION

Results

Table 2 indicates the calculation results of the poverty indices in multiple dimensions in age group of 0-5 years of age.

Table 2: Uni and Multi dimensional poverty indices in age group of 0-5 years of age

Age group:0-5 years of age									
Domains	**Rural**			**Urban**			**Country**		
	P_0	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**
Housing	0.46	0.14	0.06	0.34	0.09	0.03	0.38	0.12	0.05
Education	0.18	0.11	0.08	0.15	0.12	0.03	0.16	0.05	0.05
health	0.40	0.28	0.23	0.35	0.32	0.10	0.32	0.18	0.22
Nutrition	0.48	0.13	0.05	0.44	0.12	0.05	0.54	0.07	0.02
Expenditure	0.40	0.10	0.04	0.43	0.12	0.04	0.41	0.13	0.04
Multidimensional poverty	0.37	0.08	0.03	0.33	0.08	0.03	0.44	0.15	0.04

As Table2 presents, in 2012, poverty indicators (one-dimensional and multi-dimensional) were higher in rural areas of Iran for age group of 0-5 years old, compared to urban areas (apart from income poverty). In this age group, the highest rate of poverty was related to rural children nutrition. The multidimensional poverty rate in this age group in the entire country is 0.44

Table 3: Uni and Multi dimensional poverty indices in age group of 6-10 years of age

Age group:6-10 years of age									
Domains	**Rural**			**Urban**			**Country**		
	P_0	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**
housing	0.43	0.14	0.06	0.32	0.09	0.03	0.29	0.12	0.05
education	0.06	0.06	0.05	0.05	0.05	0.05	0.14	0.05	0.05
health	0.35	0.38	0.23	0.29	0.36	0.10	0.22	0.17	0.12
Nutrition	0.48	0.14	0.05	0.29	0.07	0.02	0.45	0.14	0.05
Expenditure	0.39	0.10	0.04	0.43	0.12	0.05	0.43	0.11	0.04
Multidimensional poverty	0.35	0.04	0.01	0.33	0.09	0.03	0.43	0.10	0.03

As seen in the table3, in the age group of 6-10 years old, the highest one-dimensional poverty rate was related to rural children nutrition. 48% of these children were suffering from nutrition poverty. In 2012, the multidimensional poverty rate was 43 percent in this age group.

Table 4: Uni and Multi dimensional poverty indices in age group of 11-15 years of age

Age group:11-15 years of age									
Domains	**Rural**			**Urban**			**Country**		
	P_0	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**
housing	0.44	0.14	0.06	0.32	0.08	0.03	0.37	0.11	0.05
education	0.21	0.08	0.04	0.18	0.06	0.02	0.10	0.07	0.03
health	0.48	0.44	0.13	0.25	0.36	0.39	0.31	0.16	0.19
Nutrition	0.41	0.15	0.06	0.29	0.07	0.03	0.48	0.15	0.06
Expenditure	0.39	0.10	0.03	0.39	0.11	0.04	0.37	0.10	0.04
Multidimensional poverty	0.38	0.05	0.02	0.31	0.08	0.04	0.40	0.10	0.03

According to Table 4, in this age group, rural children had higher poverty rates than urban children. In this age group, the rural children "health poverty rate" was higher than other dimensions of poverty. Also, 40% of children in this age group have been suffering from multidimensional poverty.

Table 5: Uni and Multi dimensional poverty indices in age group of 16-20 years of age

Age group:16-20 years of age									
Domains	**Rural**			**Urban**			**Country**		
	P_0	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**
housing	0.44	0.13	0.05	0.29	0.07	0.03	0.37	0.10	0.04
education	0.04	0.03	0.03	0.01	0.02	0.01	0.03	0.02	0.02
health	0.39	0.38	0.13	0.35	0.46	0.10	0.30	0.17	0.42
Nutrition	0.50	0.14	0.06	0.32	0.08	0.03	0.50	0.15	0.06
Expenditure	0.34	0.08	0.03	0.37	0.10	0.04	0.36	0.09	0.03
Multidimensional poverty	0.30	0.05	0.02	0.27	0.07	0.02	0.34	0.08	0.03

Based on Table5, in the age group of 16-20 years old, as well as other groups, poverty rate was higher in rural children compared to urban children (apart from income poverty). The nutrition poverty had the highest rate compared to other dimensions of poverty. In this age group, 34 percent of children were suffering from multidimensional poverty

DISCUSSION AND CONCLUSION

This paper has measured the poverty (one dimension and multidimensional) rate and severity of "children within families" in urban and rural areas of Iran in the year 2012 (the first year of applying the Fifth Economic, Social and Cultural Development Plan in Iran). The present study showed income poverty rate has been different from multidimensional poverty rate and this indicates that policies adopted for income poverty cannot totally remove poverty multifaceted nature and considering the issue of poverty requires a multidimensional view in human development parts (such as education, health, nutrition, and housing) and poverty should not only be measured from income or expenditure).

Based on the results, housing poverty in all studied age groups was higher in rural households than urban ones. The age group of 0-5 years old had experienced the highest level of housing poverty in 2012 compared to other groups. Shirvanian *et al.*, (2012) also showed both housing poverty dimensions; qualitative (safety index) and quantitative (concentration index), were found in almost every rural households. These findings suggest that the housing policy in Iran has no impact on housing poverty reduction, especially in rural communities.

The age group of 0-5 years old had experienced the highest level of educational poverty, compared to other groups. This finding is due to differences in the types of indicators used for this age group (completion of primary education of household head) as well as failure of programs and policies to eradicate illiteracy of family heads. The health poverty was also higher in rural areas than urban ones. According to the Fourth Development Plan, about the quantitative indicators of health sector, families' contribution of total health costs should be reduced to 30 percent at the end of the Fourth Development Plan. The percentage of households facing catastrophic payments should be reduced from 3.5 to 1 percent. Due to the high indices of health poverty in age groups, it can be argued that this Plan did not reach its goal to establish justice in health costs financing.

The results showed that the nutrition poverty in rural households was higher than urban ones. The study conducted by Kolahdooz *et al.*, (2011) showed high levels of nutrition poverty in rural households of Iran. The age group of 0-5 years old had experienced the highest level of nutrition poverty, compared to other groups. This finding suggests that inequity exists in nutrition security of Iranian children in different age groups. In 2012, the rate of income poverty in both urban and rural households of Iran was high. This

finding indicates that despite the legal provisions (Including equitable distribution of income through tax policies aimed at equitable redistribution of income, targeted subsidies and provision of community facilities to poor and low-income families) of the Fourth Development Plan, these policies failed to decrease the income poverty in families having children, in practice.

Like other dimensions of poverty, multidimensional poverty in Iranian rural families having children was higher than urban ones. Studies in Pakistan (Masood *et al.,* 2010) and Bhutan (Emma and Ura, 2008) had shown the same result. The age group of 0-5 years old had experienced the highest level of multidimensional poverty, compared to other groups. The results of other studies showed a higher rate of poverty in younger age groups (Biggeri *et al.*, 2010; Roelen *et al.*, 2010). Due to the negative and persistent effects of poverty on children health and welfare and the next generations (Brooks-Gunn and Duncan, 1997), this finding can have implications for policy makers regarding the efficient and effective planning and social policy.

Considering findings of this study and other studies, it is suggested to establish the food security and nutrition improvement of households having children, to reduce families' payments for health services, to have public education and an acceptable shelter, to determine a target for subsidy cash payments and replace it with strengthening health systems and to pay attention to families' education and nutrition (especially families who have children).

The present study had certain limitations. First, due to the lack of data relating to children in Iran, we were forced to employ the families who have children. Second, in terms of educational poverty, the indicators used in the age group of 0-5 years old were different from other three groups. This may reduce the comparison validity of educational poverty in the age groups. This was also originated from the lack of data relating to children.

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