Multidimensional Child Deprivation in Syria

A comparative research 2001, 2009

June 2014

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Preface

This is a product of a tripartite cooperation among the Central Bureau of Statistics, the Planning and International Cooperation Commission of the Syrian Arab Republic, and the United Nation Children Fund in Syria in 2012. A detailed analysis of the datasets from the Family Health Surveys on the living standards and child wellbeing in Syria has resulted in two reports - “The Multi-dimensional Poverty in Syria” and “The Multi-Dimensional Child Deprivation in Syria”.

It is for the first time in Syria that studies of this kind had been conducted using datasets from the Family Health Survey (2001) and the Family Household Health Survey (2009). These reports present the status and progression of poverty and deprivation from multiple dimensions, including education and health for the period 20012009-. Among others, these reports will serve as the baseline to measure the impact of the crisis on living conditions in Syria in the future.

The Central Bureau of Statistics takes this opportunity to thank all who contributed to this work.

Director of Central Bureau of Statistics
Dr. Ihssan Amer

UNICEF Acknowledgment

This report is a result of cooperation between the Central Bureau of Statics of Syria (CBS) and UNICEF Syria which aims to improve the understanding of poverty and deprivation in Syria. The CBS management and team worked closely with the authors by providing the raw datasets and in the development of the methodologies and assumptions, and in the construction and analysis of the datasets.
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Technical Committee

A technical committee was formulated with the decision number 813/m dated 282012/6/, to follow up on the study on “Living conditions and children welfare in Syria” with two dimensions (Multidimensional Poverty in Syria and Multidimensional Child Deprivation in Syria), the director of the Central Bureau of Statistics CBS was the head of the committee, with the membership of the following:

Dr. Ali Rustum	Director of Demographic and Social Statistics - CBS
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Executive Summary

This report constructs **Multidimensional Child Deprivation Indices (MCDIs)** of Syria in 2001 and 2009, adopting child-centered approach and focusing on child wellbeing, environment, and potentials, to analyze the dynamics of child deprivation and its main components and assess the impact of related national development policies in terms of children rights, potentials, and general environment.
The report aims to measure **incidence (H) and intensity (A) of child deprivation** across dimensions, time, and regions; and by using mixed participatory approach which depends on MODA methodology prepared by UNICEF and the Multidimensional Poverty Index (MPI) methodology prepared by OPHI.
The report constructs two MCDIs for two child age groups; the first one is for the **children aged 0 - 4 years** (MCDI-a, henceforth) and the second one is for the **children aged 5 -17 years** (MCDI-b, henceforth) to cover the child's life cycle.

National MCDI results

The results between 2001 and 2009 show that the MCDIs in Syria, for both child age groups, witnessed significant improvement in the children surrounding environment and their wellbeing and potentials; however, the child deprivation in 2009 still relatively high and varied largely across regions.
The MCDI-a, for children 0 - 4 years old, decreased dramatically by 50 per cent between 2001 and 2009. This decrease occurred in both urban and rural areas, yet the child deprivation in rural is almost double the urban one in 2009, which mirrors the imbalanced development in Syria. Furthermore, the **incidence** of multidimensional deprivation within this age group witnessed a notable drop from 44 per cent in 2001 to 25 per cent in 2009; and this has accompanied with a relatively slight decrease in the **intensity** of multidimensional child deprivation for the same age group from 50 per cent in 2001 to 45 per cent in 2009.
The MCDI-b, for children **5 -17** years old, dropped sharply by 33 per cent between 2001 and 2009; this decreased associated with sharper drop in MCDI-b in rural areas by 39 per cent, comparing to 23 per cent drop in urban areas; which narrowed the gap between rural and urban areas. Additionally, the **incidence** of multidimensional deprivation within this age group decreased significantly from 30 per cent to 21 per cent between 2001 and 2009; while the deprivation **intensity** decreased slightly from 60 per cent to 57 per cent during the same period.

National MCDI results

MCDIs values in both age categories show that all dimensions witnessed statistically significant decrease during the period 2001 and 2009 reflecting a general improvement in all dimensions (shelter, sanitation, water, information, Nutrition, health, and education).
The dimensions that are related to standard of living (shelter, sanitation, water, and information) for both age groups have been improved due to government focus on infrastructure and subsidies as a part of its social policies to ensure basic living needs including drinking water and proper sanitation for all citizens; in addition to the telecommunication revolution which has facilitated substantially the access to information. However, the government policies seemed to focus more on achieving quantitative goals rather than the quality.
Nutrition deprivation sharply decreased for the children aged 0 - 4 years between 2001 and 2009; however, it stayed high in 2009 with large number of children suffering wasting and/or stunning and/or underweight. Such deprivation is usually associated with lack of healthy and suitable food for the mother and the child, proper maternity and child health care, in addition to the poor parents' educational

attainments, material poverty, restricted access to resources by women, and community culture.
Health deprivation decreased for the age group (0-4) during the studied period, and in 2009 this deprivation was relatively low due to the adopted public health policy that concentrated on accessing to immunization for all children; yet the main provider for primary health care of children in Syria is becoming the private sector, and this increased the financial burden on households.
Education deprivation, for the age group (**5 -17**), slightly decreased by 8 per cent between 2001 and 2009; this sluggish improvement left 19 per cent of children in the same age group deprived of education in 2009, despite the fact that the government has increased the number of schools and opened the educational sector widely to the private sector.
As a result, Nutrition dimension was the main relative contributor in the deprivation of children of the age group 0 - 4 (MCD-a), and it was increasing over the studied period. Also the relative contribution of health and water witnessed a slight increase. While, education was the main relative contributor of deprivation of **children aged 5 -17 years**, and it was increasing over the studied period; while the contribution of other dimensions dropped sharply during the studied period.

Governorates results

The MCDIs results show that the imbalanced performances across regions are massive. In general, Eastern and Northern regions have had the highest deprived headcount ratio, while the Coastal region has had the lowest ratio.
The highest MCDI-a score, in 2009 and for children aged 0 - 4 years, witnessed in Deir-ez-zor, Al-Hasakeh, Rural Damascus, and Aleppo, respectively. While, the lowest MCDI-a occurred in Al-Sweida, Lattakia, Tartous, and Damascus, respectively. Furthermore, the period 2001 - 2009 has observed a significant decline in MCDI-a in all Syrian governorates except for Rural Damascus in which MCDI-a has not changed significantly.
The highest MCDI-b score, in 2009 and for **children aged 5 -17 years**, witnessed in Aleppo, Deir-ez-zor, Al-Hasakeh, Al-Rakka, and Rural Damascus, respectively. In contrast, the lowest MCDI-b occurred in Tartous, Al-Sweida, Lattakia, and Damascus, respectively. The period 2001 - 2009 has observed a significant decline in MCDI-b in all Syrian governorates except for Damascus and Quneitra in which MCDI-a have not changed significantly.
The imbalances between rural and urban and between governorates are extensive and reflecting inequality between regions in Syria. Moreover, the MCDI deprivation is concentrated in the Eastern region and in Aleppo and Rural Damascus for both examined age groups, where the population of the last two governorates alone accounts for more than 35 per cent the total population.
The imbalanced development need to be tackled through inclusive development strategy at national level, and should give a special attention to improving of the children capabilities in different regions.

Policy oriented conclusions

During the studied period, the Syrian government has not adopted a comprehensive and holistic strategy targeting childhood development and alleviation of child deprivation; although, the 10th Five Year Plan (2006 - 2010) included a preliminary plan for childhood which concentrated on creating enabling environment for child wellbeing in line with Child Rights Convection. The plan aimed to mainstream the child rights and development across development policies, and to increase the awareness of it (PICC, 2006). This preliminary plan has not translated into comprehensive childhood strategy and child-oriented policies and programs. However, different development policies and programs have been

implemented during 2001 and 2009. They have not targeted children in specific, but considered the concept of poverty alleviation and improvement the standard of livings. These policies and programs suffered from the lack of coordination, and sometimes, they were contradicted.

> *"The 10th Five Year Plan in terms of childhood has not translated into comprehensive childhood strategy and child-oriented policies and programs.*

The development model in Syria was based on providing universal public services including health, education, and housing infrastructure including electricity, water, sanitation, and communication, in addition to subsidize basic food and energy derivatives (SCPR, 2013). Supposedly, children have benefited from such universal services and subsidies like other members of the family.

The implementation of neoliberal policies during the studied period which included a gradual application of cost recovery principle in health and education services, reduction in basic food subsides, and partial liberalization of energies prices affected negatively the wellbeing of Syrian households. At the same time the major institutional reforms were postponed, thus the institutions continued to be suffered from weak participation and lack of efficiency and accountability (PICC, 2009).

The quantitative expansion of services provided by public and private sectors during the studied period did not accompanied with improve in the quality of the services. Moreover, the reallocation of universal subsidies to people in need has not succeeded due to weak institutional and administrative performance (PICC, 2011).

The slow improvement in education and Nutrition in national MCDIs reflects major challenges for the education and health systems, since the impact of universality of social services like: health care, education, early childhood development, Nutritional support and monitoring programs, depends highly on the "depth" of the coverage and quality of services.

The impact of social service universality also depends on the intersection, consistency and coordination between their strategies, and all aimed to serve one vision for human development. Infrastructure development has broad public health impacts, and primary health care have significant impact on educational attainment of children and their development. Moreover, education of women and men is a key to ensure the continuity of the development cycle, and the disruption of the deprivation and poverty cycle.

Overall, an inclusive and participatory strategy for childhood development is crucial for the future of Syria; in this regard, designing and implementing institutional reform aiming to enhance respecting human rights, and thus, the child rights and invest in their capabilities within accountable and coordinated process is a crucial first step.

Introduction

This report aims to analyze the multidimensional child deprivation using the available data of 2001 and 2009 in Syria, based on child-centered approach, to identify the main improvements and challenges of development strategy in terms of enhancing children capabilities, wellbeing, and living conditions. In this regard, the report constructed multidimensional deprivations indices which consist of different development dimensions across governorates in Syria; these results used to assess key policies that associated with child deprivation.

The reports' indices built on recent approaches of both UNICEF, Multiple Overlapping Deprivation Analysis (MODA) (De Neubourg et al, 2012) and Oxford Poverty and Human Development Initiative (Alkire and Foster 2007, 2011). Both approaches are widely used presenting strong tools to demonstrate knowledge on child deprivation. This report used an adapted multidimensional poverty methodology benefiting from MODA approach. However, unlike MODA this report composed the Multidimensional Child Deprivation Index (MCDI, henceforth) following Alkire and Foster approach. The MCDI allows an analysis of overall deprivation and at the same time uses Shapely decomposability approach to examine changes in each governorate and in each dimension keeping the advantages of dashboard approaches (Roche, 2013). Moreover, MCDI is presented for Syria for the years of 2001 and 2009 using micro data and the child as a unit of analysis, depending on Family Health Surveys (FHS, henceforth). MCDI is produced for two child age categories to cover the dynamics of child life cycle, the first category is children aged between 0 - 4 years and the second one is the **children aged 5 -17 years**. The index is decomposed across regions and governorates, measures deprivations headcount and **intensity**, using seven dimensions and thirteen indicators. The cutoffs points for each indicator have been defined depending on literature and consultations with national researchers[1].

Moreover, the report has the methodological advantages of using a dynamic analysis across two points of time 2001 - 2009, and testing the statistical robustness of difference across years, and between regions in each year, besides conducting sensitivity analysis to different cutoff points.

In general the report shows that Syria has had an improvement in children wellbeing measured by Multidimensional Child Deprivation Index for each of the two age categories (0 - 4 years and **5 -17** years), during the period of 2001 - 2009. This improvement, especially in some governorates, has not eliminated the regional imbalance of development in Syria. The dimensions related to standard of living have been improved due to the government focus on infrastructure and subsidies, in addition to the telecommunication revolution occurred in the last decade. The relatively sluggish improvement in education dimension reflects a serious challenge to human capital accumulation, and the relative slow development in Nutrition indictors particularly during the last decade highlights the institutional inefficiencies, which did not contribute in translating the quantitative expansion into qualitative development of human life.

The results of the report can be used as a benchmark to measure the impact of the crisis in Syria on the children wellbeing, and provide tools that can be used by researchers and policy makers to draw lessons learned on the effectiveness of development strategy before the crisis[2] which helps in diagnosing its developmental roots.

The first section begins with an overview of multidimensional child deprivation concept and measures, section two covers MCDI in Syria including methodology, data and indicators, MCDIs dynamics results at both national governorate levels in all dimensions, and then the report concludes.

[1] Researchers from Central Bureau of Statistics and Planning and International Cooperation Commission in Syria participated in customizing the indicators to the Syrian context.

[2] The crisis is the term used in this report to express the situation in Syria since March 2011

Multidimensional Child Deprivation Overview

This section reviews the main approaches that measure multidimensional child deprivation; while (Annex 1) highlights the main literature about the concept of multidimensional deprivation. Additionally, the section review the key development policies related to child deprivation in Syria.

A. Multidimensional Child Deprivation Measures

The report depends on Sen's capabilities and functionings' approach which focuses on the freedom of a person to choose her functions, and in order to do this, an individual requires having a set of attributes to reach the minimum level of well-being. The capability approach is about what people are able to be or to do, and it differs from the resource-based approaches which focus only on what people have. Sen mentioned that there is a need to shift the focus from the means of living such as income to the actual opportunities a person has (Sen, 2009).

Concepts that adapt holistic framework to measure child wellbeing differ in whether to include subjective measurements or not; latest trends suggest the importance of including subjective measures as growing literature indicate the children's perspectives on what is "wellbeing", such measurements are commonly used in measuring the emotional and psychological domains of wellbeing, but lately other dimensions such as safe environment and material wellbeing are also included in number of studies (Layard and Dunn, 2009).

Degree of dimensionality was the distinct characteristic to classify studies, at one end the studies that are based on monetary measures that conceptualize child poverty depending on her family income, and although that this measure is a strong political tool as it can give a poverty count, depth and severity, and most of all is practical as data is available, still this measure do not measure data on level of the individual child, that is child is not the unit of analysis (Roelen and Gassmann, 2008). For example, Corak' practical approach set guidelines for measuring child poverty for public policy use; although the principal start with recognition of multidimensionality of child poverty depending on CRC, it focuses on the importance of practicality of the measurement and defend income-based measurement as an appropriate proxy for child poverty (Corak, 2005).

On the other end, there are studies that use composed indices in attempt to measure multiple domains of children lives to express their level of deprivation/wellbeing. Bristol Deprivation Index (that have been used by Gordon et al, 2001 for developing countries) measure seven domains: food, safe drinking water, sanitation facilities, health care facilities, shelter, education and information. The choice of indicators within each domain should be following both: the recognized international standards, especially CRC, and the availability of data; in each domain the poverty line is at the point of sever deprivation definition, Gordon et al, 2001 set the identification of absolute poverty at sever deprivation in two or more domains within the index. Further use of the index by Atkinson, 2003 and Alkire and Foster, 2007 used the "union approach" which consider a child poor when deprived in one of the domains, referred also to an "intersecting" approach that define poverty when deprivation occurs in all domains (Roelen and Gassmann, 2008). The use of Bristol Deprivation Index was mainly in developing countries.

Bradshaw et al, 2007 composed the Child Wellbeing Index for 25 EU countries (EU Child Wellbeing Index); the index is composed of eight clusters: material situation, housing, health, subjective wellbeing, education, children relationships, civic participation, and risk and safety, the eight clusters included 23 domains and 51 indicators within the domains. Z-scores are first calculated for each variable and averaged for each domain, and then average of all domains is calculated to have the overall score for the index, no different

weights were given for indicators; although using z-scores other than means gives an implicit weight on the basis of the degree of dispersion, z-scores also enable taking into account the rank order (Bradshaw et al, 2007; Roelen and Gassmann, 2008).

For the United States a "Child and Youth Well-Being Index" was constructed by Land et al, 2001, and it was constructed by seven domains: material wellbeing, health, safety, productive activity, place in the community, intimacy, and emotional wellbeing. The objective of the study was different than those conducted in the European Union countries which reflected by the choice of indicators, as the main purpose of the index was to study trends across time and for different groups (especially ethnic groups) thus requiring specific disaggregation (Roelen and Gassmann, 2008). The index depended highly on subjective indicators for wellbeing (Land et al, 2006).

Another related index is the Child Development Index, 2012 that follows the footsteps of the UNDP Human Development Index (UNDP, 2011). It is composed of 3 indicators in 3 domains; the first one is health with the under five mortality rate indicator, the second dimension is education based on the enrolment rate in primary school indicator, and the last one is Nutrition using underweight indicator. Each indicator has equal weighting against the other so the index is an average score of the three values.

The main global advocate for children rights' and wellbeing, UNICEF, adapted holistic approach to identify and measure child poverty started with the Global Study on Child Poverty and Disparities to measure and analyze multidimensional child poverty, it produced several valuable country studies (UNICEF 2007). UNICEF constructed two indices one for developing and the other for the rich countries. For the rich countries, the "Child Deprivation Index" is composed by 14 items that a household should be able to afford their children focusing on domains presented by Bradshaw et al, 2007 for the EU Child Wellbeing Index (UNICEF, 2012 and Bradshaw et al, 2012). For developing countries Demographic Health Surveys (DHS) or Multi Indicator Cluster Survey (MICS) data were used across the world as the most disaggregated data available to reach an operational definition on deprivation (Gordon et al, 2001).

Moreover, UNICEF developed a tool to measure multidimensional child poverty called Multiple Overlapping Deprivation Analysis (MODA) which is child-centered approach and the child is the unit of analysis instead of household, it is internationally comparable (when using Cross Country MODA), uses the life cycle approach, analyses overlapping deprivations between different dimensions, and its analysis is adapted to country specific context (when using National MODA).

B. Development Policies and Child Deprivation in Syria

During the period 2001 and 2009 the government did not adopt a comprehensive and holistic strategy to alleviate child deprivation. However, the 10th FYP adopted a preliminary plan for childhood (PICC, 2006) which concentrated on creating an enabling environment for child wellbeing and empowerment, in line with the Child Rights Convection. The targets of this plan were to develop a legislative framework to protect and enhance the child rights and protection, and to develop the cooperation between the public and private and civil sectors to support the child rights and address the identified challenges faced by children in Syria. These challenges included: alleviate child labor, provide the educational and health services to improve the health and Nutrition status of children especially in the poor areas, impose standards for the healthy housing conditions, identify a minimum income for the household, and decrease inequality across regions (PICC, 2006). The childhood plan were to mainstream the child rights and development issues across the development policies and increase the awareness of it.

The implementation did not reflect the adopted plan as no holistic childhood strategy was developed and adopted by the government and few particular child oriented policies and programs were implemented. However, different policies and programs have been implemented during period 2001 to 2009 which did not target children specifically, but considered the concept of poverty alleviation and investment in human capital and improve the standard of livings; yet it suffered from lack of coordination and sometimes from contradictions in their goals and impacts.

The development model in Syria was based on providing universal public services including health, education, and housing infrastructure including electricity, water, sanitation, and communication, in addition to subsidize basic food and energy derivatives. Children supposedly benefited from such universal services and subsidies as other members of the family.

The adoption of neoliberal policies during the studied period which contained a gradual implementation of cost recovery principle in health and educational services, reduction in basic food subsides, and partial liberalization of energies prices affected negatively the wellbeing of Syrian households. At the same time the major institutional reform were postponed, thus the institutions continued to suffer from weak participation and lack of efficiency and accountability, and this is considered as the key reason for not achieving social objectives of the 10th FYP and have magnified the impact of the neoliberal policies on the population, such as targeted Infant and child mortality rates, illiteracy rate, and school enrollment (PICC, 2009).

The quantitative expansion of services provided by public and private sectors during the studied period did not accompanied with improve in the quality of services due to the lack of institutional reforms. Moreover, the reallocation of universal subsidies to people in need did not success due to the weak institutional and administrative performance (PICC, 2009).

This report measures the child deprivation from multidimensional perspective, and attempt to understand the performance between 2001 and 2009 giving the main policies and circumstances that affecting the child deprivation.

II. Multidimensional Child Deprivation Index of Syria

This report aims to calculate the MCDI of Syria in two years 2001 and 2009 using National Family Health Surveys data. The analysis focuses on the dynamics of MCDI in Syria reflecting the impact of the national development policies in terms of children rights, potentials, and general environment as adopted in the 10th FYP. The negative impact of the current crisis in Syria on the MCDI needs to be tackled thoroughly in a separate study.

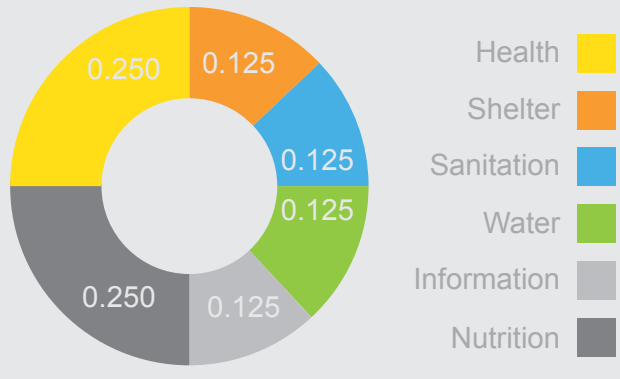
A.Methodology

Multidimensional Child Deprivation Index (MCDI) aims to measure child poverty by adopting child-centered approach and focusing on child wellbeing, environment, and potentials. MCDI identifies poor children aged below 18 years by using mixed approach which depends on MODA methodology prepared by UNICEF and the Multidimensional Poverty Index (MPI) methodology prepared by (Alkire and Foster, 2007, 2011a). The advantages of the MPI approach is the ability of presenting the value of deprivation in form of one index which allows an analysis of overall deprivation yet, with decomposability feature using Shapley approach, it examines changes in each governorate and in each dimension which keeps the advantages of dashboard approaches (Roche, 2013).

Based on this methodology, to cover the life cycle of the children the report constructed two MCDIs; the first one is for the children aged **0 - 4** years (MCDI-a, henceforth) and the second one is for the **children aged 5 -17 years** (MCDI-b, henceforth), The MCDI-a includes six dimensions and eleven indicators, while the MCDI-b includes five dimensions and eight indicators.

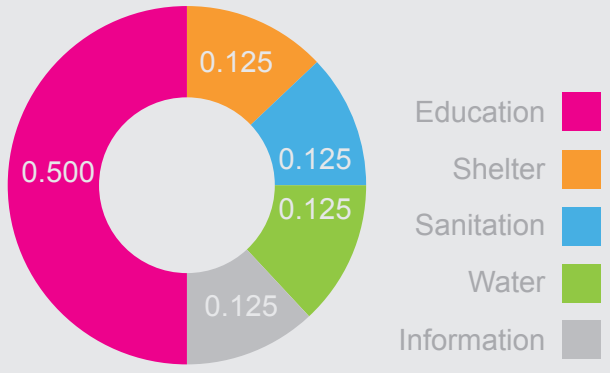
The weighting of MCDI is based on the argument that the health, education and standard of living domains have equal weight following the MPI approach. Thus, the only two domains (standard of living and health) of MCDI-a are equally weighted (Figure-1i); also each domain contains equally weighted dimensions. Similarly, the only two domains (standard of living and education) of MCDI-b are equally weighted; also each domain contains equally weighted dimensions. (Figure-1ii)

Figure1(i) MCDI-a — The MCDIs' dimensions and weightings



(i) MCDI-a: for children aged 0 - 4 years

Figure1(ii) MCDI-b — The MCDIs' dimensions and weightings



(ii) MCDI-b: for children aged 5 - 17 years

Source: Authors assumptions based on MODA and MPI methodologies.

In this report the child is the unit of analysis and not the household, thus, all dimensions and indicators are related to each child. Table (1) shows MCDI's seven dimensions and their related indicators. It is worth mentioning that the analysis did include the life cycle approach to distinguish between children age groups; group (a) 0 - 4 years old and group (b) 5 -17 years old.

MCDI has two types of thresholds; the first one is (c) which is the threshold on each indicator level to identify the deprived/poor child. For example, within the education dimension, the threshold of the first indicator is to have a child of compulsory school age but not attending school, and for the second indicator the threshold is to have a child beyond primary school age and has no primary education certificate. For water, the thresholds of deprivation is that child in the household has unimproved water source, or the time needed to reach the water source is more than 30 minutes.

The second threshold is (K), and the child is considered deprived if $c_i \geq K$, , where c_i is the sum of dimensions for each child. To identify the multidimensionally deprived children, a cut-off of K = 33 per cent is adopted similar to multidimensional poverty index cut-off (Alkire, 2011), which reflects the deprivation in more than two dimensions. This threshold is usually used to distinguish between the deprived and non- deprived children. In case a child scores c_i is equal or or greater to K = 33 per cent, this child is considered multidimensionally deprived.

The MCDIs values are calculated by multiplying two measures: the multidimensional headcount ratio (H) and the **intensity** of deprivation (A) (Alkire et al, 2013).

$$MCDI = H * A$$

The headcount ratio, H, is the proportion of children who are multidimensionally deprived:

$$H = q/n$$

Where q is the number of children who are multidimensionally deprived and n is the total number of children.

The **intensity** of poverty (A) reflects the proportion of the dimensions, d, in which the deprived children are deprived. This proportion is calculated by summing up the deprivation scores of deprived

Table 1: MCDI's dimensions and indicators

Dimensions	MCDI-a	MCDI-b	Age group	Indicators
1-Shelter	✓	✓	0 - 17	Overcrowding
	✓	✓	0 - 17	Ceiling and floor materials
2- Sanitation	✓	✓	0 - 17	Access to improved sanitation
3- Water	✓	✓	0 - 17	Access to improved water source
	✓	✓	0 - 17	Distance to water source
4- Information	✓	✓	0 - 17	Availability of information devices
5- Nutrition	✓	×	0 - 4	Underweight
	✓	×	0 - 4	Stunting
	✓	×	0 - 4	Wasting
6- Education	×	✓	6 - 17	School attendance
	×	✓	15 - 17	Complete primary education
7- Health	✓	×	0 - 4	Immunization
	✓	×	0 - 4	Medical treatment of diarrhea or fever

children only ci (k), divided by the total number of dimensions multiplied by the total number of poor children (q):

$$A = \Sigma ci\ (k) / qd$$

The MCDIs help to create profiles of deprived children, thus they provide an opportunity to identify the total deprivation in addition to the deprivation in each dimension by different region within the country. This helps in providing in-depth understanding of child deprivation. This provides policy makers with the necessary information to come up with appropriate strategies and policies; and to design right mechanisms and tools to meet the national development objectives.

This report analyzes the MCDIs in Syria, covering the life cycle of children, from different angles, first from its components (headcount and **intensity**), secondly from dimensions' contribution to the MCDIs, thirdly the disaggregation across regions and governorates in Syria, lastly all angles studies across time 2001 - 2009 to measure MCDIs dynamics.

B. Data and Variables

The report depends on two surveys of the Family Health Surveys conducted in Syria in 2001 (9500 households) and 2009 (24883 households) (see Annex 2 for more details). The samples of these surveys are representative on the governorate and urban rural levels, the first stage of the samples was choosing the stratum and clusters then the second stage was choosing randomly the households in each cluster. The variables' labels in the two surveys have been unified.

In order to analyze multidimensional child deprivation in Syria during the studied period, the report constructed MCDIs of Syria based on seven instead of eight dimensions adopted by MODA since the data of protection from violence dimension in Syria is available only for the year 2009. The dimensions adopted in the report have been adjusted in terms of constructing and choosing indicators and thresholds in a participatory approach with national counterparts to reflect more accurately the socioeconomic status in Syria and to deal with the lack of data in some aspects. In general, the applied MCDIs included three types of dimensions; the first one is standard of living dimension including shelter conditions, sanitation, water, and access to information. In this dimension the analysis based on the household that if the household is deprive from improved water for instance the children in this household considered deprived from water; the second dimension is education presented by school enrollment and having primary certificate; and the third type is health dimensions consisting of child Nutrition, child immunization, and access to basic health care. In the education and health dimension the analysis based on the each child status so we can find two children in the same household one of them is deprive from education for example while the other is not. The following deprivation criteria have been adopted:

- Shelter: if a child is living in a household where the floor is not made of cement or tiles, and its ceiling is not made of cement or wood; the ceiling condition is not available for 2001, or if the density in household room is 4 people or above,
- Sanitation: if a child is living in a household where the sanitation is not connected to public network or covered pits, or the household has no toilet facilities, or the household has shared toilet facilities located outside its dwelling,
- Water: if a child is living in a household where the source of water is not public network or public tab or bottled water or the household treats the water to drink or family members need more than 30 minutes to reach water source,
- Information: if a child is living in a household that has no TV, or fixed phone, or mobile phone, in 2001 mobile phone was not existed in FHS,
- Nutrition: if a child up to five years old has one or more of "weight to age", "height to age", "weight to height" measures below the World Health Organization (WHO) standards by more than two standard errors (Leroy, 2011).

- Education: if a child aged above 14 years old (and less than 18) and has no primary education certificate, or if a child aged between 6 and 17 years old and not attending to school.
- Health: if a child has no vaccination at all, or a child has not been treated from fever or diarrhea.

III.Multidimensional Child Deprivation Index (MCDI) Results

The MCDIs results are presented to cover several analytical angles which are children's life cycle, time, geographical areas, and dimensions; in addition to the MCDIs, incidence, and intensity results.

A. MCDI dynamics at national level

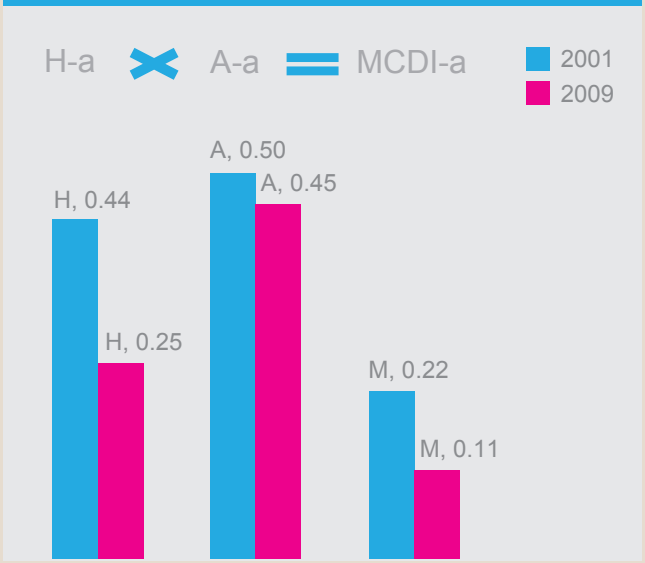
The results [3] between 2001 and 2009 show that the MCDIs in Syria, for both child age groups in this report witnessed steady improvements in the children surrounding environment and their wellbeing and potentials; however, the child deprivation in 2009 still relatively high and highly varied across regions.

On one hand, the Multidimensional Child Deprivation Index for children aged **0 - 4** years (MCDI-a) decreased dramatically by 50 per cent from 0.22 in 2001 to 0.11 in 2009 (Figure, 2i). This decrease reflected dramatic drops in MCDI-a in urban areas from 0.16 in 2001 to 0.08 in 2009; and in rural areas from 0.27 in 2001, to 0.15 in 2009. The gap between rural and urban areas still huge in 2009, that the child deprivation in rural is almost double the urban one, which mirrors the imbalanced development in Syria. On the other hand, the Multidimensional Child Deprivation Index for **children aged 5 -17 years** (MCDI-b) dropped sharply from 0.18 in 2001 to 0.12 in 2009; this decreased associated with sharper drop in MCDI-b in rural areas from 0.23 to 0.14 between 2001 and 2009, comparing to the decrease in urban areas from 0.13 to 0.10 in 2001 and 2009 respectively, which narrowed the gap between rural and urban areas, in terms of MCDI-b. (Figure, 2ii)

MCDI is a product of two components headcount ratio (H) and deprivation intensity (A) of deprived children. In this regards, the percentage of children aged **0 - 4** years who are suffering from multidimensional deprivation to the total children in the same age group (H-a) in Syria witnessed a notable drop from 44 per cent in 2001 to 25 per cent in 2009; and this has accompanied with a relatively slight decrease in deprivation intensity (A-a), that multidimensionally deprived children in 2009 were deprived on average in 45 per cent of the dimensions comparing to 50 per cent in 2001 (Figure 2i).

In terms of the second age group, the **children aged 5 -17 years**, the deprivation headcount ratio (H-b) decreased significantly from 30 per cent to 21 per cent between 2001 and 2009; while the deprivation intensity (A-b) decreased slightly from 60 per cent to 57 per cent during the same period (Figure 2ii).

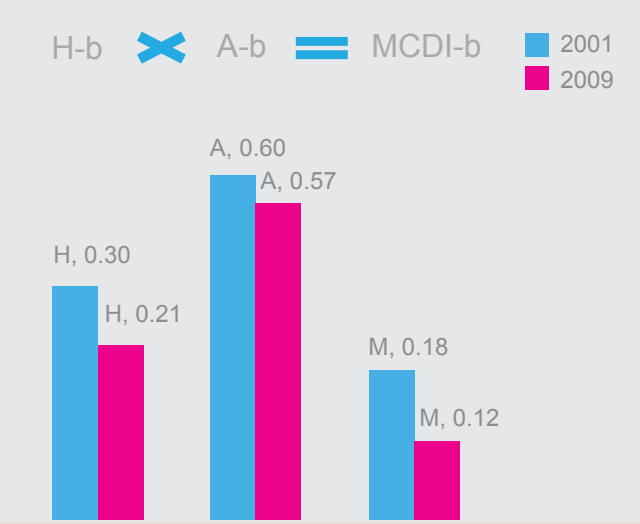
Figure 2 (i) MCDI-a — MCDIs results for Syria in 2001, and 2009



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

[3] The report used Stata software version 12 (StataCorp., 2011) in the analysis of data and information, and the ADePT Maps software version 2.0 (World Bank, 2008) to generate related maps.

Figure 2 (ii) MCDI-b — MCDIs results for Syria in 2001, and 2009



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

In terms of the relative contribution of MCDI-a dimensions the results show that Nutrition was the main relative contributor of MCDI-a over the studied period, that in 2001 this contribution was 39 per cent, and increased to 45 per cent in 2009. Moreover, the contribution of shelter was 14 per cent in 2009 increasing from 12 per cent in 2001; while the relative contribution of health witnessed a slight increase from 11 per cent in 2001 to 12 per cent in 2009. Water contribution increased from 10 per cent in 2001 to 12 per cent in 2009, whereas, information contribution decrease sharply from 21 per cent in 2001 to 11 per cent in 2009; and sanitation contribution dropped from 7 per cent in 2001 to 5 per cent in 2009 to become the lowest contributor in MCDI-a(Figure 3i).

> *"In terms of the relative contribution of MCDI-a dimensions the results show that* Nutrition *was the main relative contributor over the studied period.*

Figure 3 (i) MCDI-a — Relative contribution of MCDIs' dimensions for Syria (2001 and 2009)

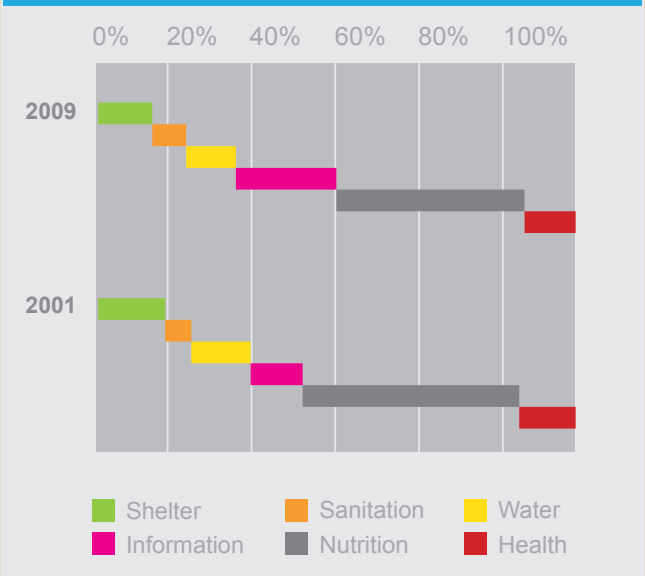
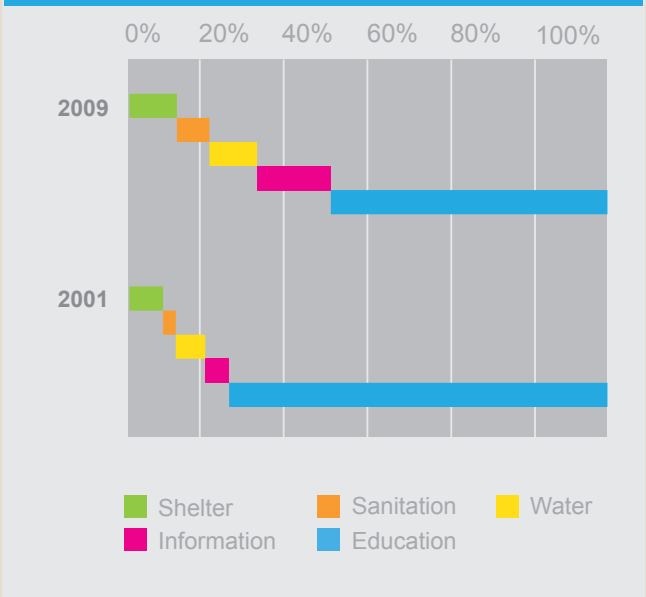


Figure 3 (ii) MCDI-b — Relative contribution of MCDIs' dimensions for Syria (2001 and 2009)



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

In terms of the relative contribution of MCDI-b (for **children aged 5 - 17 years**) dimensions, deprivation of education was the main relative contributor of MCDI-b over the studied period, that in 2001 this contribution was 58 per cent, and increased to 79 per cent in 2009. While the contribution of other dimensions dropped sharply during the studied period to reach 7, 6, 5, and 3 per cent in 2009 for shelter, water, information, and sanitation respectively (Figure 3ii).

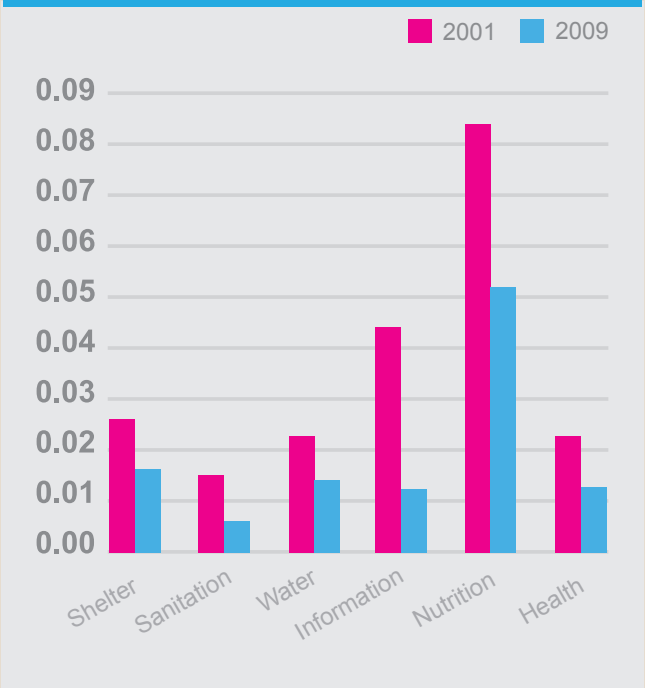
> *"In terms of the relative contribution of MCDI-b dimensions, deprivation of education was the main relative contributor over the studied period.*

MCDIs values in both age categories and for each dimension over time show that all dimensions witnessed statistically significant decrease during the period 2001 and 2009 reflecting a general improvement in all dimensions (Figure 4i, 4ii).

The MCDIs results in Syria reflect the development strategy that has been adopted during the first decade of the millennium. For the children aged **0-4** years, Nutrition deprivation sharply decreased, yet it stayed high in 2009; reflecting a huge number of children aged **0 - 4** years who had suffered from wasting and/or stunning and/or underweight. This deprivation associated with lack of healthy and suitable food for mother and children, proper maternity and child health care, in addition to the poor parents' education backgrounds, material poverty, and community culture, among other factors. The deprivation of health for the same age group (**0 - 4** years) was relatively low due to the concentration of the public health policy on accessing to immunization for all children, yet the main provider of the primary health care for children is the private sector.

The dimensions that are related to standard of living for both age groups have been improved due to the government focus on infrastructure and subsidies as a part of its social policies to assure basic needs including drinking water and proper sanitation for all citizens. However, this strategy seemed to focus more on achieving quantitative goals rather than the quality as in the case of drinking water in Rural Damascus (PICC, 2009). Other factor that has contributed to the reduction in MCDIs Syria is the telecommunication revolution which has reflected in a surge of using mobile phones and broadcasting channels. This has affected positively the access to information in terms of tools availability and not in terms of the capability of a child to use these tools or to the quality and impact of obtained information.

Figure 4 (i) MCDI-a — MCDIs values for Syria by dimension (2001 and 2009)



Source: FHS surveys 2001 and 2009 in Syria and authors'calculations.

Figure 4 (ii) MCDI-b

MCDIs values for Syria by dimension (2001 and 2009)

Source: FHS surveys 2001 and 2009 in Syria and authors'calculations.

The expansion in education infrastructure and personnel has contributed in the decrease of absolute education MCDI-b (**children aged 5 -17 years**) in Syria between 2001 and 2009. Nevertheless, the relative contribution of this dimension has increased dramatically. This could be explained by the institutional weaknesses which have reflected in low productivity, high corruption, absence of monitoring and evaluation systems, low quality of public services including education (SCPR 2013). Moreover, incentives for the basic education enrollment have been affected negatively by the weak performance of the labor market, child labor in informal sector, and lack of law enforcement regarding the compulsory education. During the last decade, unexpectedly, the labor force participation rate dropped significantly for male and female in urban and rural areas, and the economy created only 400 thousand job opportunities instead of planned 1600 thousands (Nasser and Mehchy, 2012). Another factor related to household decisions towards education is the recent partial liberalization of the public services which increase the cost of these services from household's perspective.

B. MCDI dynamics at governorate level[4]

The MCDIs results show that the imbalanced performances across regions are massive. In general, Eastern and Northern regions have had the highest deprived headcount ratio, while the Coastal region has had the lowest ratio.
For children aged **0 - 4** years, in 2009, Deir-ez-zor, Rural Damascus, Al-Hasakeh, Aleppo, and Al-Rakka are the most deprived governorates respectively. In Contrast, Al-Sweida, Lattakia, Tartous, and Damascus are the least deprived governorates respectively in terms of headcount ratio (Figure 5i). For instance, this ratio in Deir-ez-zor governorate from Eastern region is about 165 per cent of the national ratio, whereas in Al-Sweida from Southern region it equals to 18 per cent.

> *"For children aged 0 - 4 years, in 2009, Deir-ez-zor, Rural Damascus, Al-Hasakeh, Aleppo, and Al-Rakka are the most deprived governorates respectively*

[4] For detailed results of each governorate see Annex 4

Figure 5 (i) H-a: for children aged 0 - 4 years

Headcount ratio (H) across governorates (2001 and 2009)

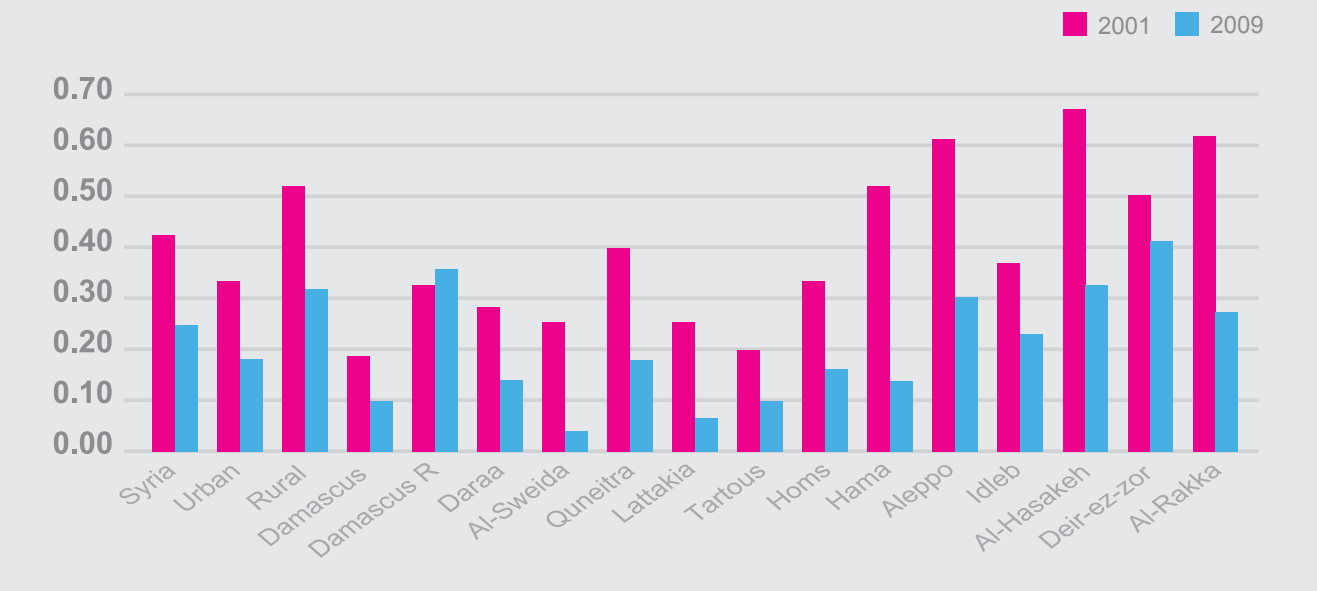
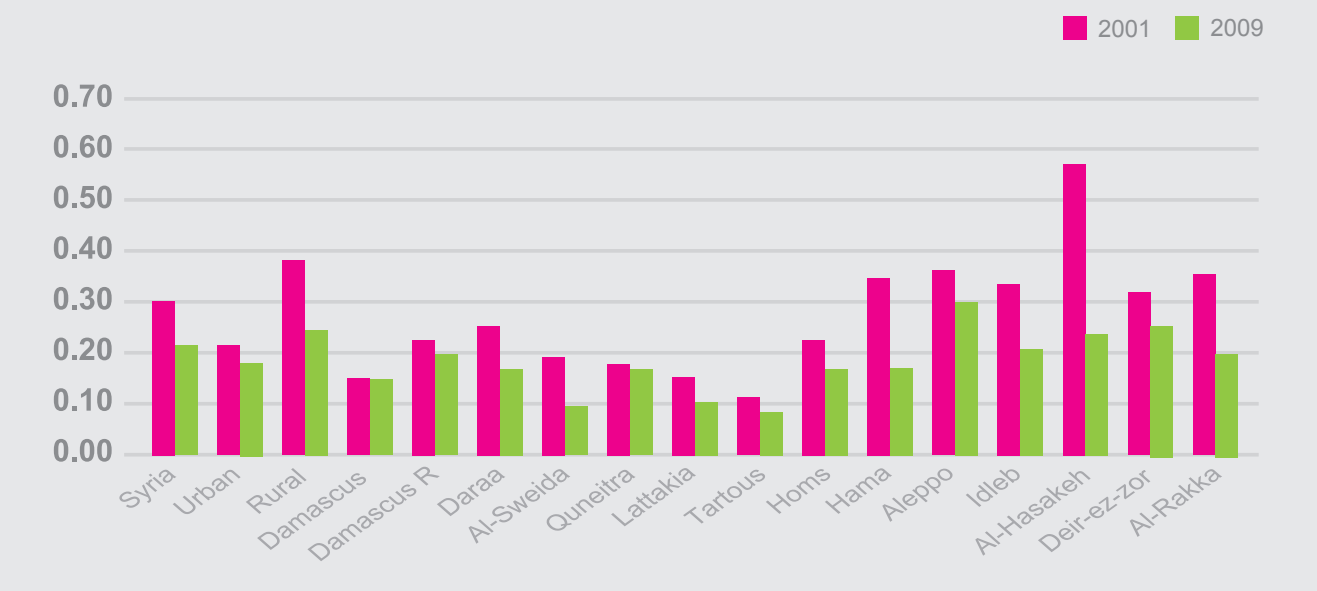


Figure 5 (ii) H-b: for children aged 5-17 years

Headcount ratio (H) across governorates (2001 and 2009)



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

The period 2001 - 2009 has witnessed a significant decline in (H-a) ratio in all Syrian governorates except for Rural Damascus in which the (H-a) ratio has not witnessed a statistically significant change.

For children aged 5 - 17 years, in 2009, Aleppo, Deir-ez-zor, Al-Hasakeh, and Al-Rakka are the most deprived governorates respectively. In Contrast, Tartous, Al-Sweida, Lattakia, and Damascus are the least deprived governorates respectively in terms of headcount ratio (Figure 5ii). The period 2001 - 2009 has witnessed a significant decline in (H-b) ratio in all Syrian governorates except for Damascus and Quneitra in which the (H-b) ratios have not changed significantly.

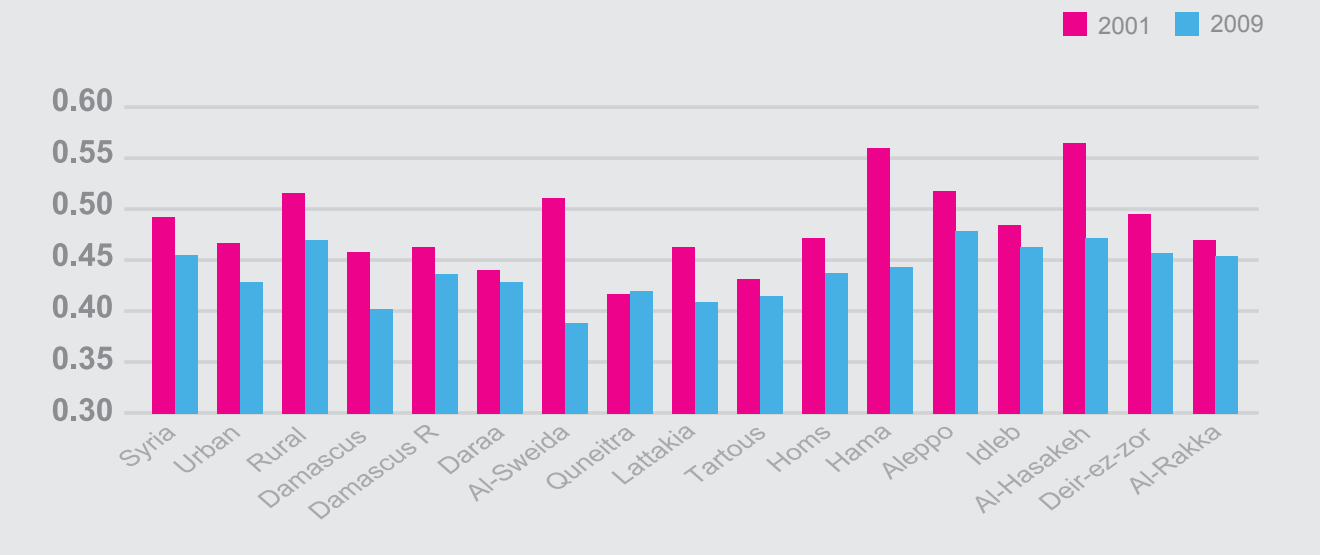
"For children aged 5 -17 years, in 2009, Aleppo, Deir-ez-zor, Al-Hasakeh, and Al-Rakka are the most deprived governorates respectively.

In terms of deprivation intensity for children aged **0 - 4** years (A-a) that is defined as the average proportion of dimensions of "human development domains" in which children are deprived; in 2009, the highest intensity ratios of child deprivation occurred in Aleppo, Al-Hasakeh, Idleb, and Deir-ez-zor, respectively. The lowest intensity ratios occurred in Al-Sweida, Damascus, Lattakia, and Tartous, respectively (Figure 6i). The period 2001 - 2009 has observed a significant decline in (A-a) ratio in all Syrian governorates except for Quneitra, Idleb, Tartous, Al-Rakka, and Daraa in which the (A-a) ratios have not changed significantly.

For deprivation intensity for children aged 5- 17 years (A-b), in 2009, the highest intensity ratios of child deprivation occurred in Deir-ez-zor, Rural Damascus, Al-Rakka, and Al-Hasakeh, respectively. The lowest intensity ratios occurred in Damascus, Al-Sweida, Daraa, and Hama, respectively (Figure 6ii). The period 2001 - 2009 has observed a significant decline in (A-b) ratio

Figure 6 (i) A-a: for children aged 0 - 4 years

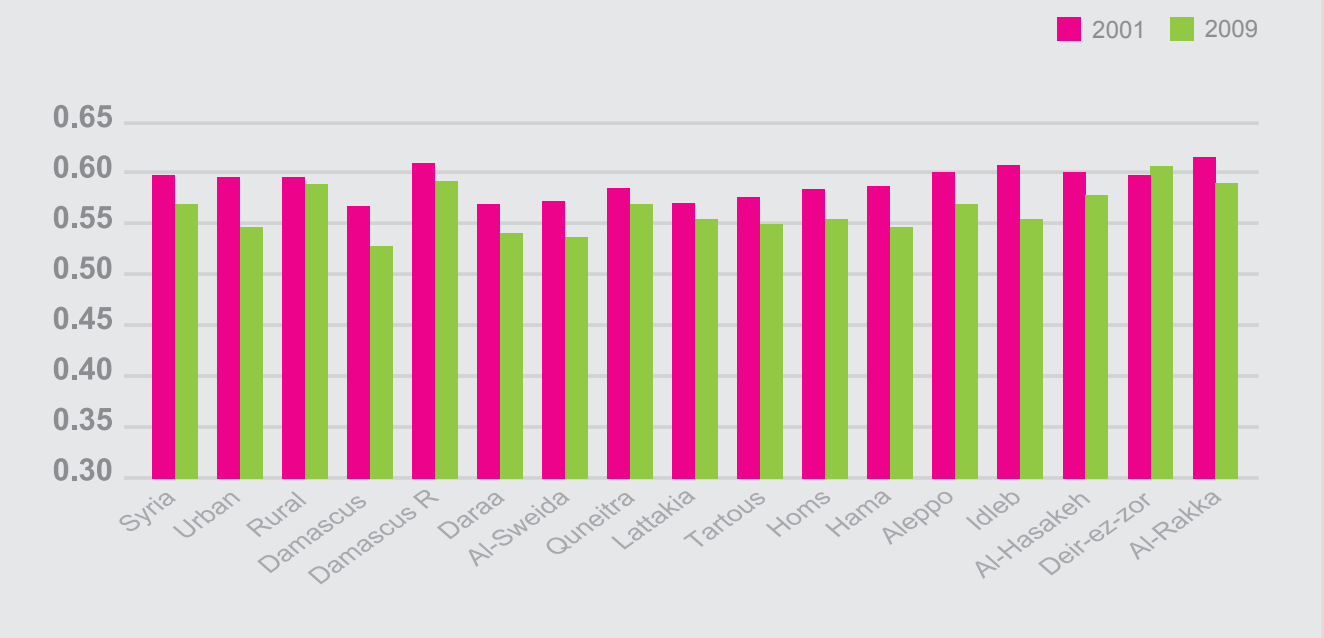
Intensity (A) across governorates (2001 and 2009)



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Figure 6 (ii) A-b: for children aged 5 - 17 years

Intensity (A) across governorates (2001 and 2009)



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

in all Syrian governorates except for Deir-ez-zor, Quneitra, Lattakia, and Al-Sweida in which the (A-b) ratios have not changed significantly. The intensity ratio in Syria in the whole studied period was relatively high, and it was higher for the deprived **children aged 5 -17 years** comparing to the deprived children aged **0 - 4** years.

MCDI, as a product of the headcount ratio (H) and intensity (A), measures the average deprivation of Syrian children from the «human development domains». For MCDI-a for children aged **0-4** years, in 2009, the highest MCDI-a score witnessed in Deir-ez-zor, Al-Hasakeh, Rural Damascus, and Aleppo, respectively. The lowest MCDI-a occurred in Al-Sweida, Lattakia, Tartous, and Damascus, respectively (Figure 8i). The period 2001 - 2009 has observed a significant decline in MCDI-a in all Syrian governorates except for Rural Damascus in which MCDI-a has not changed significantly.

For MCDI-b for **children aged 5 -17 years**, in 2009, the highest MCDI-b witnessed in Aleppo, Deir-ez-zor, Al-Hasakeh, Al-Rakka, and Rural Damascus, respectively. The lowest MCDI-b occurred in Tartous, Al-Sweida, Lattakia, and Damascus, respectively (Figure 8ii). The period 2001 - 2009 has observed a significant decline in MCDI-b in all Syrian governorates except for Damascus and Quneitra in which MCDI-a have not changed significantly.

Overall, the child deprivation in Syria reduced during the studied period; however it is still high for both age categories. The imbalances between rural and urban and between governorates are huge and reflecting inequality between regions in Syria. Moreover, the MCDI deprivation is concentrated in the Eastern region and in Aleppo and Rural Damascus, where the population of the last two governorates alone accounts for almost 35 per cent the total population.

Figure 7 (i) MCDI-a: for children aged 0 - 4 years

MCDIs dynamics across governorates (2001 and 2009)

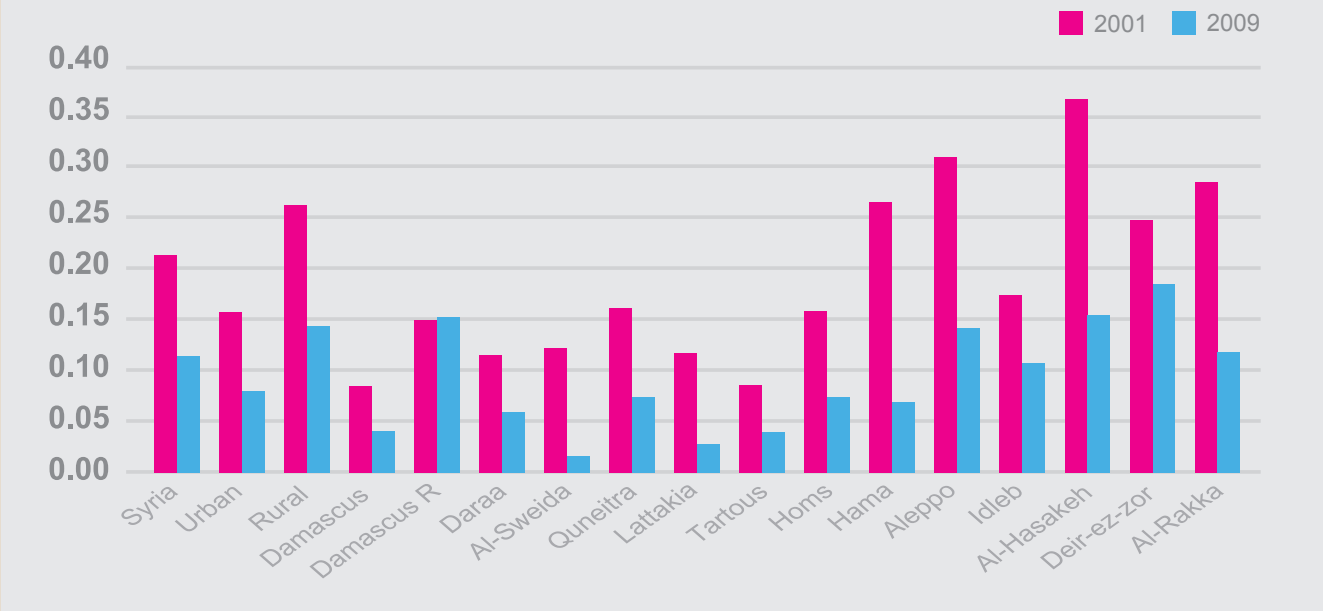
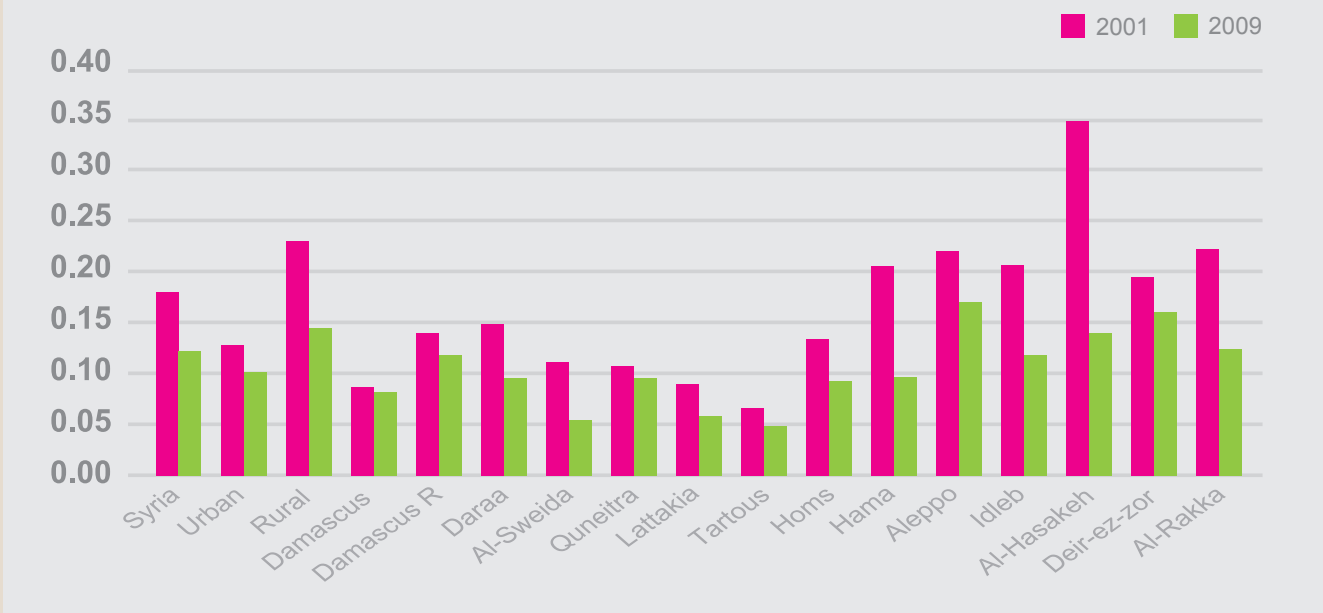


Figure 7 (ii) MCDI-b : for children aged 5 - 17 years

MCDIs dynamics across governorates (2001 and 2009)



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

C. MCDI dimensions analysis across governorates and time

This section provides an analysis of each dimension in the MCDIs dimensions across governorates and time, this helps in diagnosing the main improvements and challenges of human development of children during the studied period across geographical regions covering children's life cycle. The following analysis illustrated the absolute and relative contribution of each dimension to the national MCDIs for each of the two age groups, in addition to the MCDI of each dimension that takes into consideration deprivation in other dimensions according to k=33 per cent, and the headcount ratio (H) of each dimension that shows the percentage of deprived children in specific dimension regardless the status of deprivation in other dimensions (non censored dimension).

a) Shelter

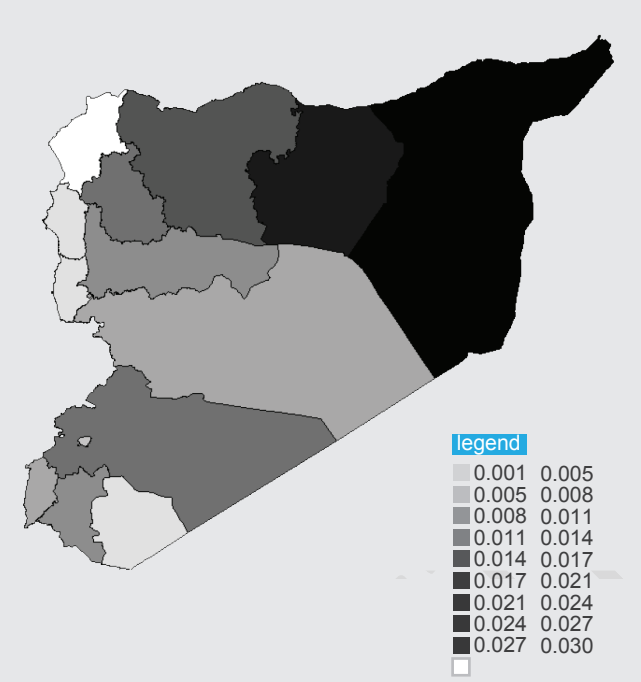
The shelter dimension consists of two indicators, crowding of persons in each room, and house floor and ceiling; the indicators is a reflection of the housing conditions and welfare, and it also has impact on health conditions. A significant reduction in shelter deprivation between 2001 and 2009 has been achieved in both age groups. The results show that shelter MCDI-a has reduced from 0.026 in 2001 to 0.016 in 2009, yet, the governorates of Rural Damascus, Quneitra, and Deir-ez-zor has witnessed an increase in shelter MCDI-a between 2001 and 2009 (Annex 3 Figure8i).

The shelter MCDI-b has dropped from 0.018 to 0.008 during the same period, and all governorates have witnessed a decrease in shelter MCDI-b (Annex 3 Figure 8ii). In 2009, the most deprived governorates in terms of both MCDI-a and MCDI-b were Al-Hasakeh, Deir-ez-zor, and Al-Rakka,(see Map1i and Map1ii).

The percentage of children aged between 0 and 4 years, who are deprived from appropriate shelter has decreased from 29 per cent in 2001 to 25 per cent in 2009. The percentage of the deprived children aged between 5 and 17 years has decreased from 27 per cent to 20 per cent during the studied period. For both age groups, the percentage of deprived children in terms of shelter has decreased in all regions and governorates except of Daraa, Quneitra, and Deir-ez-zor, in addition to Rural Damascus for the age group between 0 and 4 years.

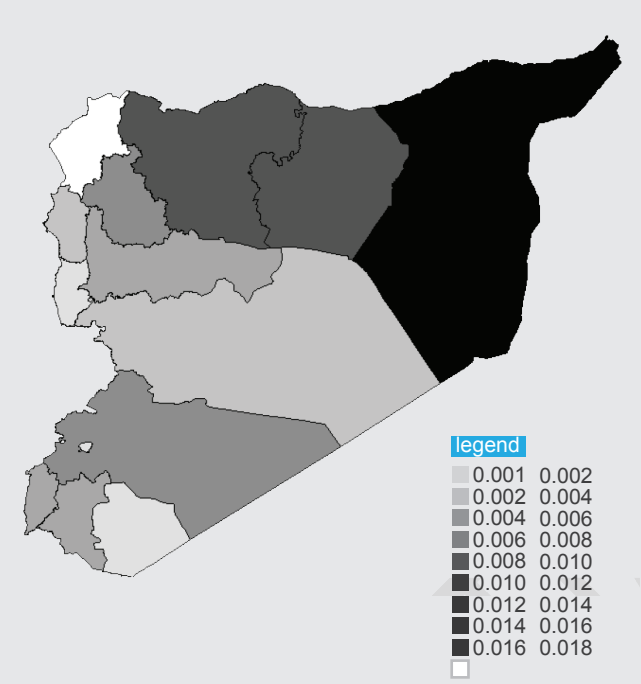
The relative contribution of shelter dimension in MCDI-a has increased from 12 per cent in 2001 to 14 per cent in 2009, and the increase has occurred in all governorates except Al-Sweida, Lattakia, and Idleb in which this contribution has witnessed a decrease. Whereas, this contribution in MCDI-b has decreased from 10 per cent to 7 per cent between 2001 and 2009 and this decrease has covered all governorates except Rural Damascus, Quneitra, and Deir-ez-zor in which the relative contribution of shelter in MCDI-b has increased.

Map1 (i) Shelter MCDI-a in 2009



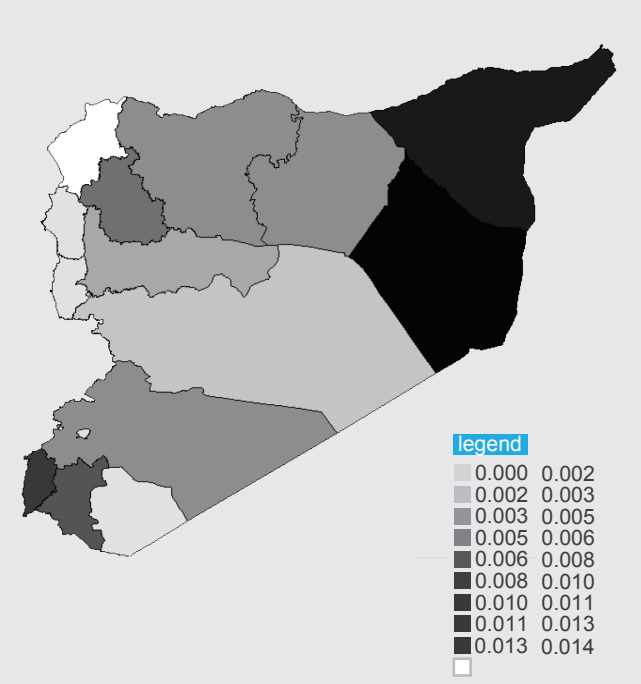
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Map1 (ii) **Shelter** MCDI-b **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Map2 (i) **Sanitation** MCDI-a **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

b) Sanitation

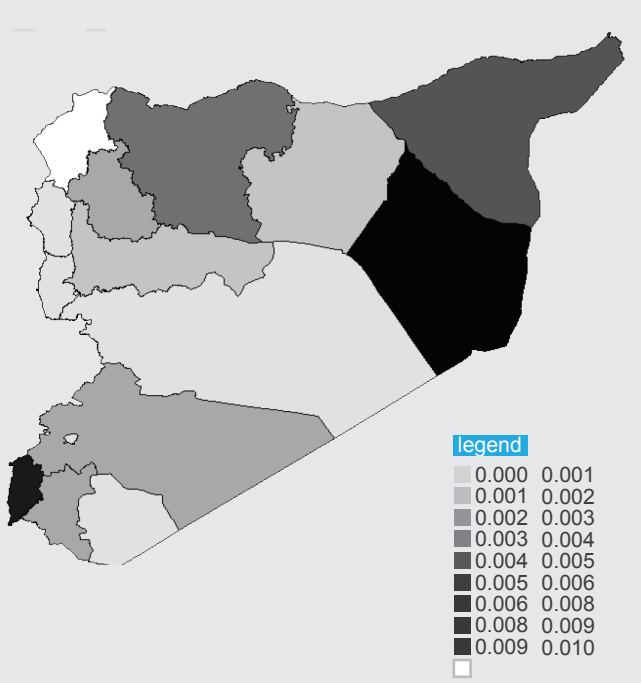
The improved sanitation is a proxy for better health conditions for children within the households and for good public services in communities. In Syria, and between 2001 and 2009, the deprivation from an improved sanitation has declined sharply in both age groups. The results show that sanitation MCDI-a has reduced from 0.015 in 2001 to 0.006 in 2009, yet, the governorates of Rural Damascus, and Deir-ez-zor have witnessed an increase in sanitation MCDI-a between 2001 and 2009 (Annex 3 Figure 9i). The sanitation MCDI-b has declined from 0.012 to 0.003 during the same period, and all governorates have witnessed a decrease in sanitation MCDI-b (Annex 3 Figure 9ii).

In 2009, the most deprived governorates in terms of both sanitation MCDI-a and sanitation MCDI-b were Al-Hasakeh, Deir-ez-zor, and Quneitra (see Map2i and Map2ii).

> *"In 2009, the most deprived governorates in terms of both sanitation MCDI-a and sanitation MCDI-b were Al-Hasakeh, Deir-ez-zor, and Quneitra.*

The percentage of children aged between 0 and 4 years, who are deprived in terms of improved sanitation has decreased from 14 per cent in 2001 to 7 per cent in 2009, and the percentage of the deprived children aged between 5 and 17 years has decreased from 12 per cent to 5 per cent during the same period. For both age groups, the percentage of deprived children from improved sanitation has declined sharper in rural areas and it has decreased in all regions and governorates except of Deir-ez-zor, in addition to Rural Damascus and Quneitra for the age group between 0 and 4 years.

Map2 (ii) **Sanitation** MCDI-b **in 2009**



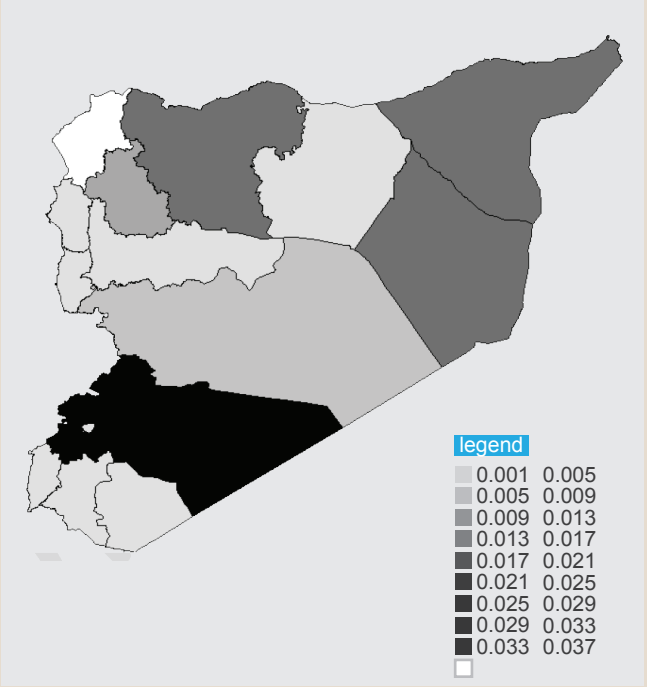
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

The relative contribution of sanitation dimension in MCDI-a has decreased from 7 per cent in 2001 to 5 per cent in 2009, and the decrease has occurred in all governorates except of Rural Damascus, Daraa, Quneitra, and Deir-ez-zor. Similarly, this contribution in MCDI-b has decreased from 7 per cent to 3 per cent between 2001 and 2009 and this decrease has covered all governorates except Quneitra and Deir-ez-zor in which the relative contribution of sanitation in MCDI-b has increased during the studied period.

c) Water

Drinking water dimension is defined as accessing to near and clean source of water that is a crucial element for wellbeing of children life. The main issue of water in Syria is the difference between inputs and outcomes of the related public projects, since the drinking water public pipelines cover wide area of the country; however, the quality of water in many regions is low.

Map3 (i) **Water** MCDI-a **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

The deprivation from water has declined in both age groups between 2001 and 2009 with a sharper decrease in the deprivation of the **children aged 5 -17 years**. The results show that water MCDI-a has reduced significantly from 0.022 in 2001 to 0.014 in 2009, yet, Rural Damascus have witnessed an increase in water MCDI-a between 2001 and 2009, and the deprivation in Damascus has slightly increased (Annex 3 Figure10i). The water MCDI-b has declined from 0.018 to 0.008 during the same period, and all governorates have witnessed a decrease in water MCDI-b except Rural Damascus in which it has slightly increased (Annex 3 Figure10ii). In 2009, the most deprived governorates in terms of both water MCDI-a and water MCDI-b were Rural Damascus, Aleppo, Deir-ez-zor, and Al-Hasakeh respectively (see Map3i and Map3ii).

> *The deprivation from water has declined in both age groups between 2001 and 2009 with a sharper decrease in the deprivation of the children aged 5 -17 years.*

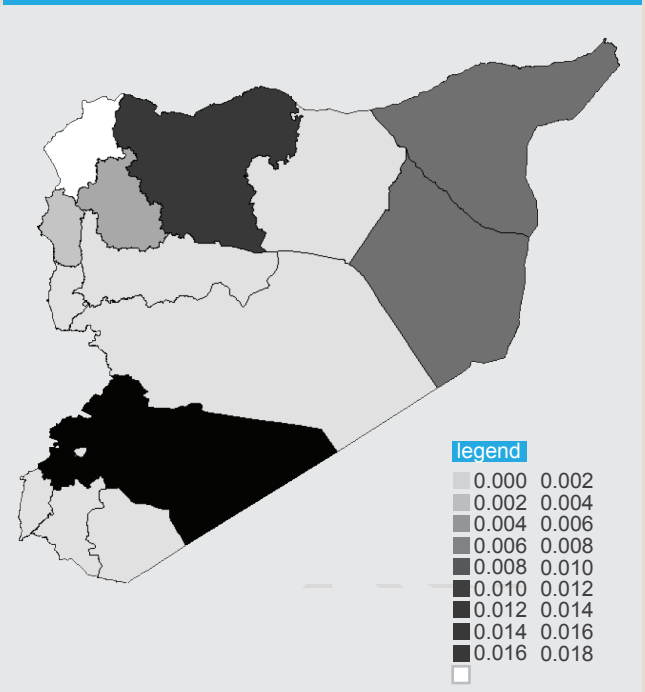
The percentage of children aged between 0 and 4 years, who are deprived in terms of water has decreased from 25 per cent in 2001 to 22 per cent in 2009, and the percentage of the deprived children aged between 5 and 17 years has decreased from 26 per cent to 21 per cent during the same period. For both age groups, the percentage of deprived children from water has increased significantly in urban areas from 13 per cent in 2001 to 18 per cent in 2009; whereas, it has witnessed a notable decrease in rural areas during this period.

The relative contribution of water dimension in MCDI-a has increased from 10 per cent in 2001 to 12 per cent in 2009, and the increase has occurred in almost all governorates. However, this contribution in MCDI-b has decreased significantly from 10 per cent to 6 per cent between 2001 and 2009 and this decrease has covered all governorates except Rural Damascus, Daraa, and Tartous in which the relative contribution of water in MCDI-b has increased during the studied period.

d) Information

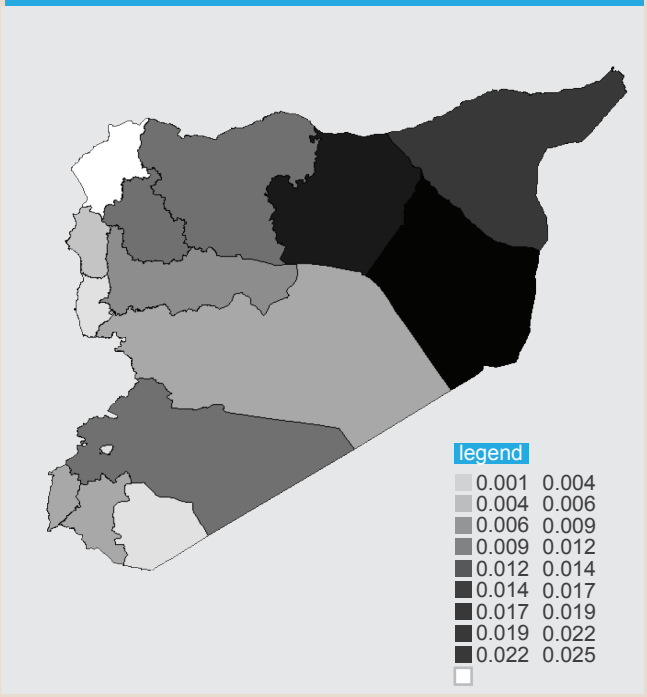
Access to information is an important proxy for children empowerment. A significant improvement in providing appropriate access to information between 2001 and 2009 has been achieved; this has reduced the deprivation in this dimension for both age groups. The results show that information MCDI-a has reduced significantly from

Map3 (ii) **Water** MCDI-b **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Map4 (i) **Information** MCDI-a **in 2009**

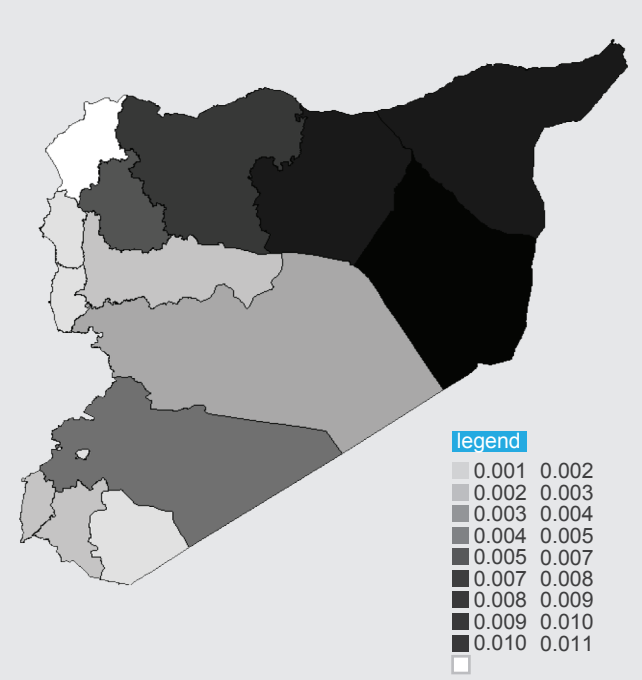


Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

0.045 in 2001 to 0.012 in 2009, this decrease has occurred in all governorates (Annex 3 Figure11i). Likewise, the information MCDI-b has declined from 0.028 to 0.006 during the same period, and all governorates have witnessed a decrease (Annex 3 Figure11ii).

In 2009, the most deprived governorates in terms of both information MCDI-a and information MCDI-b were Deir-ez-zor, Al-Rakka, Al-Hasakeh, and Aleppo respectively (see Map4i and Map4ii). The percentage of children in both age categories, who are deprived in terms of information, has decreased sharply. The first age group (**0 - 4** years), this percentage has witnessed a drop from 59 per cent in 2001 to 16 per cent in 2009, and the second age group (**5 -17** years), it has declined from 54 per cent to 11 per cent during the same period. For both age groups, the percentage of deprived children from information has decreased significantly in all regions and governorates.

Map4 (ii) Information MCDI-b in 2009



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

> *For both age groups, the percentage of deprived children from information has decreased significantly in all regions and governorates.*

The relative contribution of information dimension in MCDI-a has decreased significantly from 21 per cent in 2001 to 11 per cent in 2009, and the decrease has occurred in all governorates. Similarly, this contribution in MCDI-b has decreased from 15 per cent to 5 per cent between 2001 and 2009 and this decrease has covered all governorates.

e) Nutrition

The child Nutrition dimension composes of several indicators representing the outcome of many factors that affect Nutrition of children. In general, and between 2001 and 2009, child Nutrition deprivation has decreased significantly. The Nutrition dimension is only included in the MCDI-a that covers children aged between 0 and 4 years. The results show that Nutrition MCDI-a has reduced significantly from 0.085 in 2001 to 0.051 in 2009, this decrease has occurred in all governorates (Annex 3 Figure12).

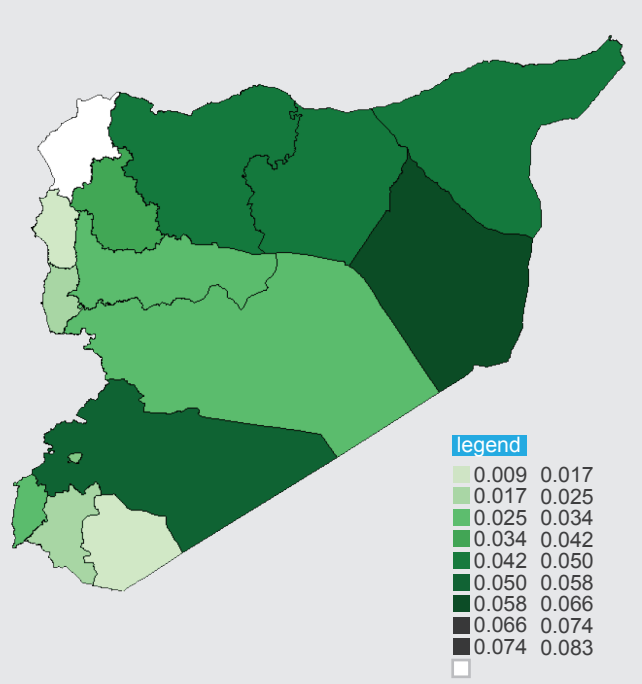
In 2009, the most deprived governorates in terms of Nutrition MCDI-a were Deir-ez-zor, Rural Damascus, Al-Hasakeh, and Aleppo respectively (see Map5).

> *The results show that* Nutrition *MCDI-a has reduced significantly, this decrease has occurred in all governorates.*

The story of child Nutrition in terms of MCDI-a reflects the improvement of welfare, infrastructure, public services, and education in all regions, the percentage of children who are deprived in terms of child Nutrition was 43 per cent in 2001 decreasing to 38 per cent in 2009. The percentage of deprived

children from Nutrition has decreased significantly in all regions and governorates except Damascus and Homs.

Map 5 **Nutrition** MCDI-a **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

The relative contribution of nutrition dimension in MCDI-a has increased significantly from 39 per cent in 2001 to 45 per cent in 2009 to become the main contributor to the MCDI-a. This increase has occurred in all governorates except Rural Damascus which has witnessed an insignificant decrease during the studied period.

f) Education

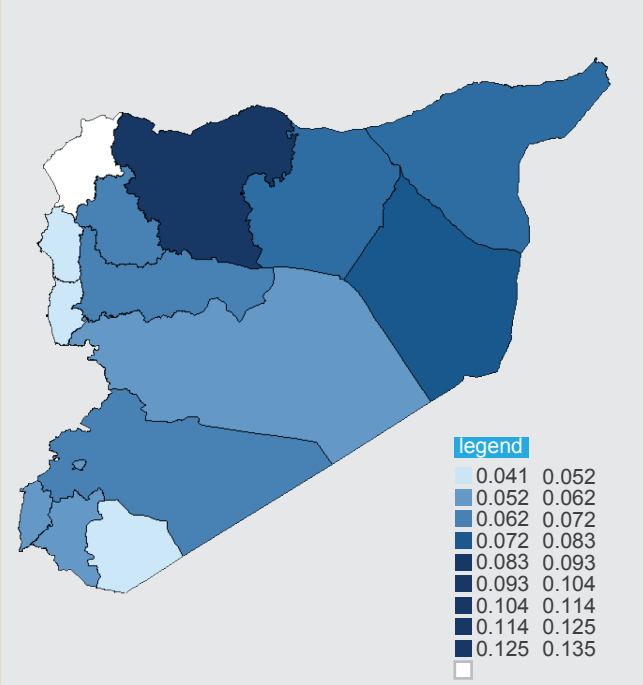
The education dimension consists of two indicators, the first one is completing the child 15 years and above the primary education, and the second is school enrollment of the child between 6 and 17 years old. The education dimension could be a proxy for the knowledge level of children in households.

Education dimension mirrors difficulties for children to obtain primary education certificate, or to enroll in school. These difficulties include culture constraints, income poverty, and accessibility to education facilities. In general, and between 2001 and 2009, child education deprivation has decreased slightly. The education dimension is only included in the MCDI-b that covers children aged between 5 and 17 years. The results show that education MCDI-b has reduced slightly from 0.105 in 2001 to 0.096 in 2009, this decrease has occurred in all governorates except Damascus and Aleppo (Annex 3 Figure13).

In 2009, the most deprived governorates in terms of education MCDI-b were Aleppo, Deir-ez-zor, Al-Rakka, and Al-Hasakeh respectively (see Map6).

The percentage of children aged between 5 and 17 years, who are deprived in terms of education, has decreased slightly from 21 per cent in 2001 to 19 per cent in 2009. The percentage of deprived

Map 6 **Education** MCDI-b **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

children from education has decreased slightly in all regions and governorates except Damascus and Aleppo which have witnessed an increase in the percentage of children who are deprived in education.

The relative contribution of education dimension in MCDI-b has increased sharply from 58 per cent in 2001 to 79 per cent in 2009 to become the main contributor and cause of the deprivation among children aged between 5 and 17 years. This relative increase has occurred in all regions and governorates.

> *"The relative contribution of education dimension in MCDI-b has increased sharply to become the main contributor and cause of the deprivation among children aged between 5 and 17 years.*

g) Health

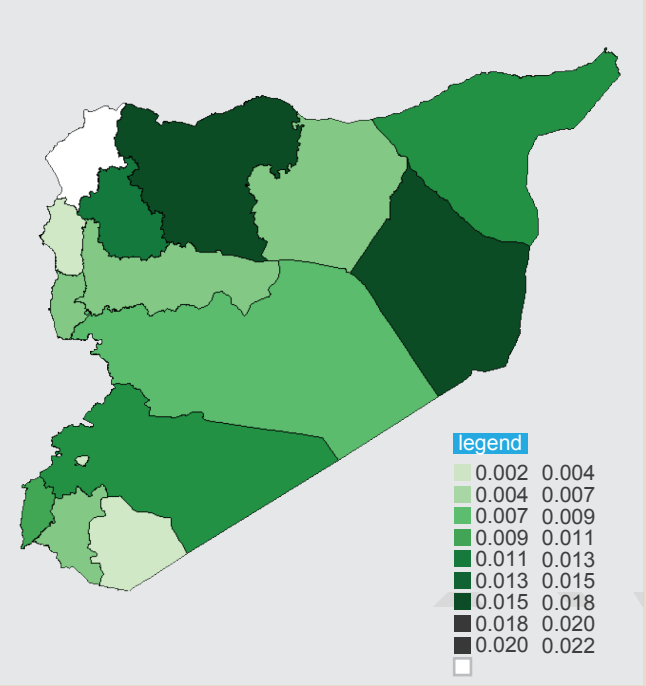
Health dimension consists of two indicators; the first one is child immunization against any disease, the second indicator is having a treatment and medical advice for child in case of ill. Health dimension mirrors difficulties for family to access to primary health services. These difficulties include culture constraints, income poverty, and accessibility to health facilities.

In general, and between 2001 and 2009, child health deprivation has decreased significantly. The health dimension is only included in the MCDI-a that covers children aged between 0 and 4 years. The results show that health MCDI-a has reduced significantly from 0.023 in 2001 to 0.013 in 2009, this decrease has occurred in all governorates except Idleb which has witnessed a slight increase (Annex 3 Figure14).

In 2009, the most deprived governorates in terms of health MCDI-a were Deir-ez-zor, Aleppo, Idleb, and Al-Hasakeh respectively (see Map7).

> *"The results show that health MCDI-a has reduced significantly, this decrease has occurred in all governorates except Idleb which has witnessed a slight increase.*

Map 7 Health MCDI-a **in 2009**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

The percentage of children aged between 0 and 4 years, who are deprived in terms of health, has decreased from 10 per cent in 2001 to 7 per cent in 2009. The percentage of deprived children from health has decreased in all regions and governorates except Idleb, Tartous, and Al-Rakka which have witnessed an increase in the percentage of children who are deprived in health. The relative contribution of health dimension in MCDI-a has increased slightly from 10.6 per cent in 2001 to 11.7 per cent in 2009.

Conclusion and Policy Recommendations

The report shows that Syria has achieved an improvement in children wellbeing measured by Multidimensional Child Deprivation Index for each of the two age groups examined, during the period of 2001 - 2009.

The results based on both 2001 and 2009 data show that the MCDIs in Syria for both child age groups categories (**0 - 4** years and **5 -17** years) witnessed steady improvements in the children living conditions and their wellbeing and potentials; however, the child deprivation in 2009 still relatively high, as 25 per cent of first age group and 21 per cent of the second age group were found to be deprived, and varied largely across regions.

The Multidimensional Child Deprivation Index for children aged **0 - 4** years (MCDI-a) decreased dramatically by 50 percent between 2001 and 2009. This decrease has reflected a dramatic drop in the MCDI-a of urban areas from 0.16 in 2001 to 0.08 in 2009; and in rural areas from 0.27 in 2001 to 0.15 in 2009. The gap between rural and urban areas persisted and is considerably large in 2009, as the child deprivation in rural areas being almost double that of the urban ones, which mirrors the imbalanced development in Syria.

The Multidimensional Child Deprivation Index for **children aged 5 -17 years** (MCDI-b) also dropped sharply by 33 percent between 2001 and 2009; the decrease was sharper in the MCDI-b of rural areas from 0.23 to 0.14 between 2001 and 2009, comparing to the decrease in urban areas from 0.13 to 0.10 during the same period, which narrowed the gap between rural and urban areas, in terms of MCDI-b.

The percentage of children aged **0 - 4** years were found to be suffering from multidimensional deprivation to the total children in the same age group (H-a) in Syria witnessed a notable drop from 44 per cent in 2001 to 25 per cent in 2009. However, this was accompanied with a relatively slight decrease in deprivation intensity (A-a), as multidimensionally deprived children in 2009 were deprived on in 45 per cent of the dimensions compared to 50 per cent in 2001. Whereas, the deprivation headcount ratio (H-b) of the **children aged 5 -17 years** decreased significantly from 30 per cent to 21 per cent between 2001 and 2009; while the deprivation intensity (A-b) decreased slightly from 60 per cent to 57 per cent during the same period.

In terms of the relative contribution of different dimensions of MCDI-a, the results show that Nutrition dimension was the main relative contributor in the deprivation of children of the age group **0 - 4** (MCD-a), and it was increasing over the studied period; also the relative contribution of health and water witnessed a slight increase during the period 2001 - 2009. The contribution of information, shelter, and sanitation dropped during the same period.

In terms of the relative contribution of the dimensions of MCDI-b (for **children aged 5 -17 years**), deprivation in education was the main relative contributor of MCDI-b and it was increasing over the studied period of time; while the contribution of other dimensions dropped sharply during the studied period.

For the children aged **0 - 4** years; although Nutrition deprivation sharply decreased it stayed high in 2009 reflected in the high number of children suffering wasting and/or stunning and/or underweight. MalNutrition is an accumulative and complex condition, and Nutrition status of children is strong indicator of their current and future wellbeing. It is an indicator of status of their mothers, and later their families economically and socially. Such deprivation is usually associated with lack of healthy and suitable food for the mother and the child, proper maternity and child health care, in addition to poor parents' educational attainments, material poverty, restricted access to resources by women, and community culture toward women status, and culture of Nutrition. The deprivation of health for the same age group was relatively low due to the adopted public health policy that concentrated on accessing to immunization for all children; yet the main provider for primary health care of children in Syria is the private sector

according to the family health survey and health expenditure survey (CBS, 2010), which increases the financial burden on households; this could reflect on poorer health conditions for children in the future.

The dimensions that are related to standard of living for both age groups were found to be improved due to government focus on infrastructure and subsidies as a part of its social policies to ensure basic living needs including drinking water and proper sanitation for all citizens. However, this strategy seemed to focus more on achieving quantitative goals rather than the quality as the analysis presents in the case of drinking water in Rural Damascus. Other factor that has contributed to the reduction in MCDIs Syria is the telecommunication revolution which has reflected in a surge of using mobile phones and broadcasting channels. This has affected positively the access to information in terms of tools availability and not in terms of the capability of a child to use these tools or to the quality and impact of obtained information which needs further investigation.

Despite the fact that the government has increased the number of schools and opened the educational sector widely to the private sector, the relative contributions of education and Nutrition to national MCDIs have increased significantly. This could be explained by the institutional weaknesses which reflected in low productivity and quality in social sectors, high institutional corruption, and absence of monitoring and evaluation systems for institutional performance (PICC, 2009). These issues if remained unaddressed would prevent any significant improvement of the status of children in Syria. The impact of universality of social services like: health care, education, early childhood development, Nutritional support and monitoring programs, depends highly on the "depth" of the coverage and quality of services. In addition, the impact of social sector universality also depends on the intersection, consistency and coordination between their strategies and policies, and all aimed to serve one vision for human development. Infrastructure development have broad public health impacts, and primary health care have significant impact on the educational attainment of children and their development of their future development, and education of women and men is key to ensure the continuity of the development cycle, and the disruption of the deprivation and poverty cycle. The results found across dimensions indicate fragmentation and miss coordination across sectors, possibly resulting from lack of unified and broader social vision for children, and human development at large.

The imbalances between rural and urban areas and between governorates are extensive and reflecting considerable inequalities between regions in Syria. Moreover, the MCDI deprivation is concentrated in the Eastern region and in Aleppo and Rural Damascus for both examined age groups, where the population of the last two governorates alone accounts for more than 35 per cent the total population. The imbalanced development need to be tackled through inclusive development strategy at national level, and should give a special attention to improving of the children capabilities in different regions especially the most deprived one, depending on a child-rights based vision and strategy.

Although MCDI in Syria shows improvement during the studied period, the government, needs to draw lessons from the analysis of both the educational and health systems before the crisis especially for children. Since, child deprivation in one or more of MCDI dimension could result in delaying or hindering children development and may result in life-long poverty. The human, social, economic, and cultural cost of the exclusion of children, and their future selves, from their society would be of an extensive cost to Syria.

This report, analyzed the multidimensional child deprivation in Syria the data of the years: 2001 and 2009 using the MCDI approach, contributes to the knowledge and understanding of the

developmental roots of the current crisis in Syria including the imbalanced development and the weak institutional performance.

Overall, developing an inclusive and participatory strategy for childhood development is crucial for the future of Syrian young society; in this regard, designing and implementing institutional reforms aiming to enhance respecting child rights and investing in their capabilities within an accountable and coordinated process is crucial first step.

> *"Developing an inclusive and participatory strategy for childhood development is crucial for the future of Syrian young society.*

This report creates a benchmark to evaluate the catastrophic impact of the current crisis on the child deprivation in Syria at national and regions levels, where the Syrian children have been suffering from inhuman forms of deprivation and abuse; such as killing kidnapping, displacement, exposure to violence in different forms, loss of family members, child labor, loss or disruption of basic standard of livings including water, electricity, sanitation facilities, and lack of access to health and education services among other things. Evaluating the crisis impact on children in Syria using multidimensional deprivation indices is the next important step of this research work. Moreover, this report can be followed by a comprehensive analysis of human development in Syria using money-metric and multidimensional poverty in addition to the child deprivation indices.

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Annex (1): Multidimensional Child Deprivation Concept

The capability approach includes two main concepts; the first one is the functionings which refers to the various things a person may succeed in doing or being (e.g. being healthy), this is related to a person's achievements in terms of objective well-being. The second concept is the capabilities which refer to the real (not only formal) freedom of a person to achieve her functions (e.g. ability to be healthy) (Sen, 1999). Since this approach is extending the focus beyond the material poverty, it could be well reflected in the multidimensional nature of poverty analysis (Hick, 2012). This kind of analysis is required and inescapable as many vulnerable households are suffering from issues not related directly to the lack of resources such as poor health and educational infrastructure.

The development of child wellbeing concept in both domains of policy and research was mainly driven by two major global events. The first event was the ratification of Child Rights Convention (CRC) in early 1990s, and the second was the Alma Atta declaration 1978. The CRC has helped in rooting child deprivations in a normative framework agreed by the majority of countries in the world, which provides a solid underpinning for approaching child well-being measurement and analysis (Statham and Chase, 2010 and World Health Organization, 1978).

The interest in understanding child poverty (and wellbeing) rose since the 1970s and has rapidly evolved through the last two decades due to number of reasons including the fact that children are directly dependent on their environment, children are at more risk to poverty, when they grow up in poverty there is a high possibility to live their adulthood in poverty, and children are affected by poverty in a different way than adults (Roelen and Gassmann, 2008). Another reason was behind rapid development of child-focused approaches to measure poverty and wellbeing was the increasing need for monitoring and evaluation indicators and tools for child wellbeing policies (Statham and Chase, 2010).

Many literatures define poor child as a child who is deprived from adequate economic, social, physical, and environmental resources and opportunities, and who suffers from a lack of family protection and appropriate community infrastructure. UNICEF adds that poor children are unable to enjoy their rights and to achieve their full potentials, and used the following working definition:»Children living in poverty experience deprivation of the material, spiritual and emotional resources needed to survive, develop and thrive, leaving them unable to enjoy rights, achieve their full potential or participate as full and equal members of society" (UNICEF, 2005).

In terms of differences with adult poverty, child poverty has life-long consequences since childhood poverty has permanent effects on children; moreover, child poverty has intergenerational transmission mechanisms, which means that children are recipients of poverty from their families and, in the future, pass their poverty to their own children (Marshall, 2003).

The basis of child poverty concept and tools were developed to measure and descript them varied among researchers and countries. Some concepts are based on the values of development and needs versus those based on values of child rights. Develpmentalists approach focuses on deprivation and the impact of deprivation on the future life of those children as adults, while those who uptake the child rights approach highlights the existent potentials of children and the needs of children to live better life, now and not only in the future as adults (Statham and Chase, 2010). Other concepts that describe child wellbeing as material wellbeing and subsequently adapt measurements that are uni-dimensional, whereas; there are concepts that present wellbeing as a total state of material, physical, mental and emotional wellbeing, this concept is multidimensional in its measurement. The later type of concepts depends on tools that vary in their level of multidimensionality (Roelen and Gassmann, 2008, and Statham and Chase, 2010).

Debates on the necessity of extending the

concept of child wellbeing to focus on dimensions other than only wellbeing were less intense than those made on human poverty in general, and by the late 1990s there were a general consensus that child wellbeing should be multidimensional. The question however, and that attracted many debates, is the level of dimensionality of the concepts and consequently the number of domains and indicators needed to express and measure wellbeing. The consensus on a holistic approach on child wellbeing was supported by growing global will not to only eradicate poverty but also to improve the quality of life backed by the Child Rights Convention.

Annex (2): FHS and the Samples Characteristics

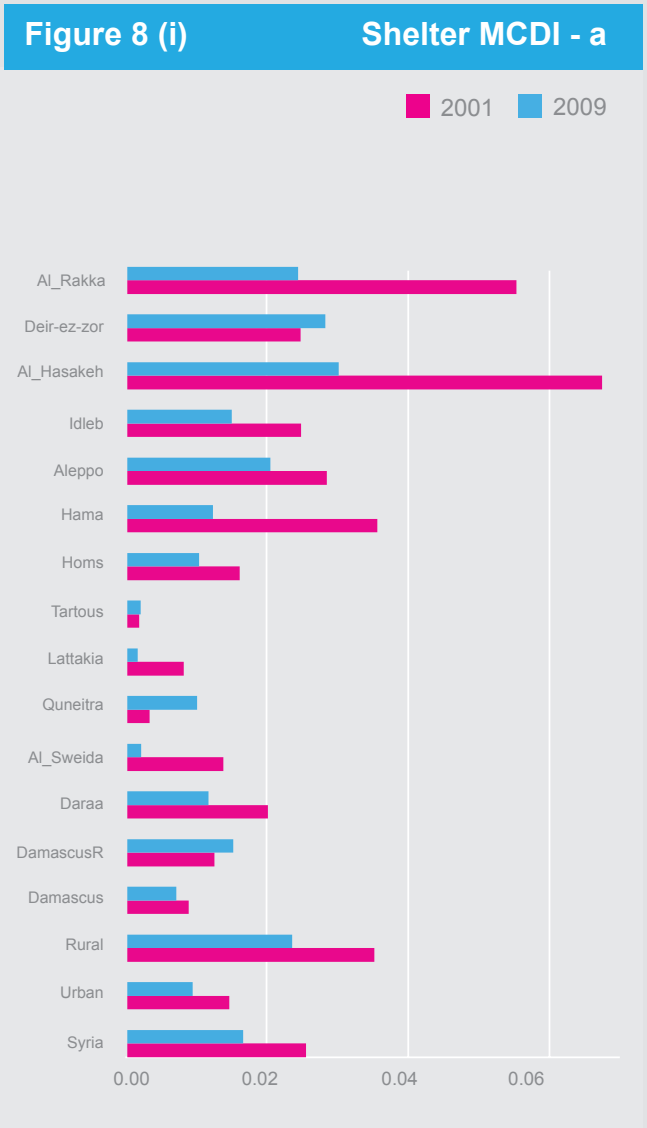
The Family and Health Surveys in 2001 and in 2009 designed to be representative on the governorates/place of residence, the 2001 survey included 9500 households and the 2009 survey included 24883 households. The surveys used multi stages stratum cluster random samples in both years; and samples were cross sectional so there is no panel data.

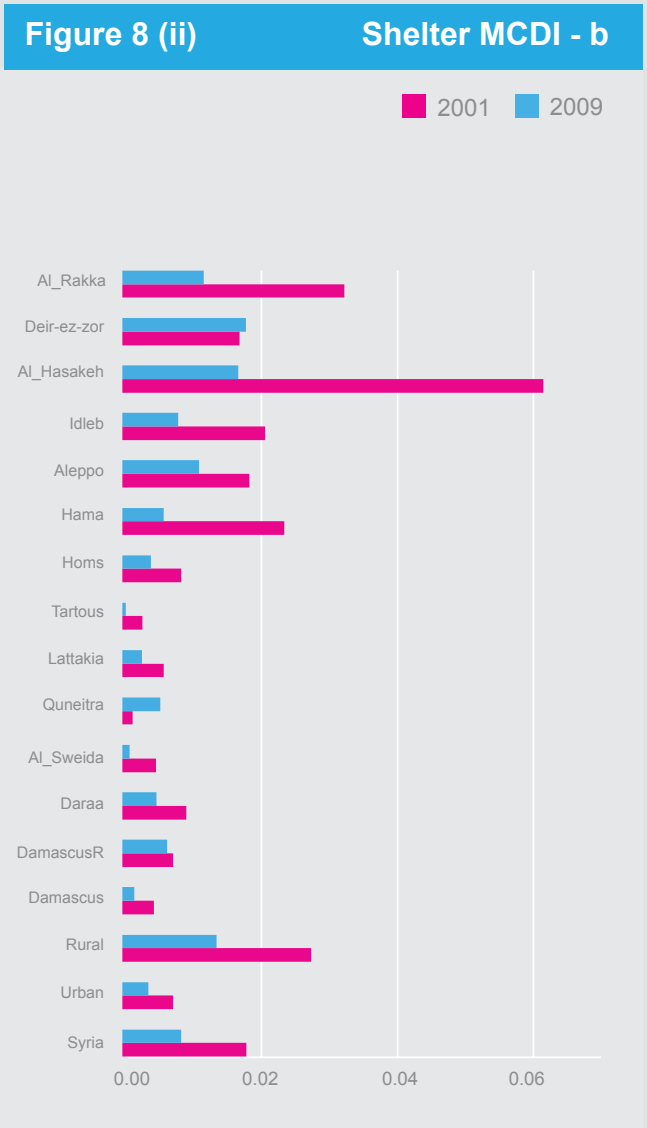
Number of Observations (person)							
		FHS 2001			FHS 2009		
		All	0- 4	5- 17	All	0- 4	5- 17
Syria	**Total**	53075	6595	18943	127733	16522	40712
Urban/Rural	**Urban**	26654	3111	8936	61349	7399	18670
	Rural	26421	3484	10007	66384	9123	22042
Governorates	**Damascus**	5318	514	1677	8680	879	2341
	DamascusR	6808	867	2410	19318	2405	5724
	Daraa	2335	381	840	8405	1408	2941
	Al_Sweida	1103	118	310	4573	451	1118
	Quneitra	234	40	84	5569	730	2014
	Lattakia	2739	263	798	6445	583	1610
	Tartous	2268	231	715	5539	482	1345
	Homs	4466	569	1405	7293	847	2138
	Hama	3871	521	1409	7682	945	2391
	Aleppo	11515	1343	4418	16837	1973	5783
	Idleb	3113	428	1180	8664	1322	2940
	Al_Hasakeh	4069	521	1639	10516	1303	3562
	Deir-ez-zor	2965	471	1117	9852	1858	3686
	Al_Rakka	2271	328	941	8360	1336	3119

Source: FHS surveys 2001 and 2009 in Syria.

Annex (3): Absolute Dimensions Contribution to MCDIs by Regions and Time

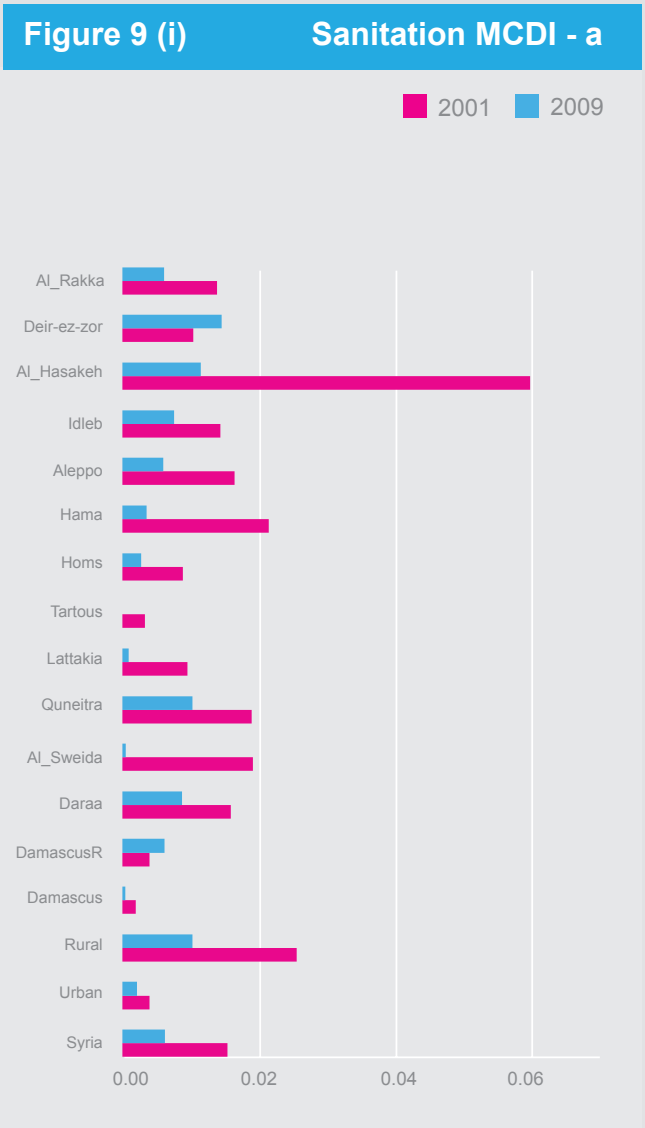
Figure (8): Shelter absolute contribution to MCDI across governorates 2001- 2009

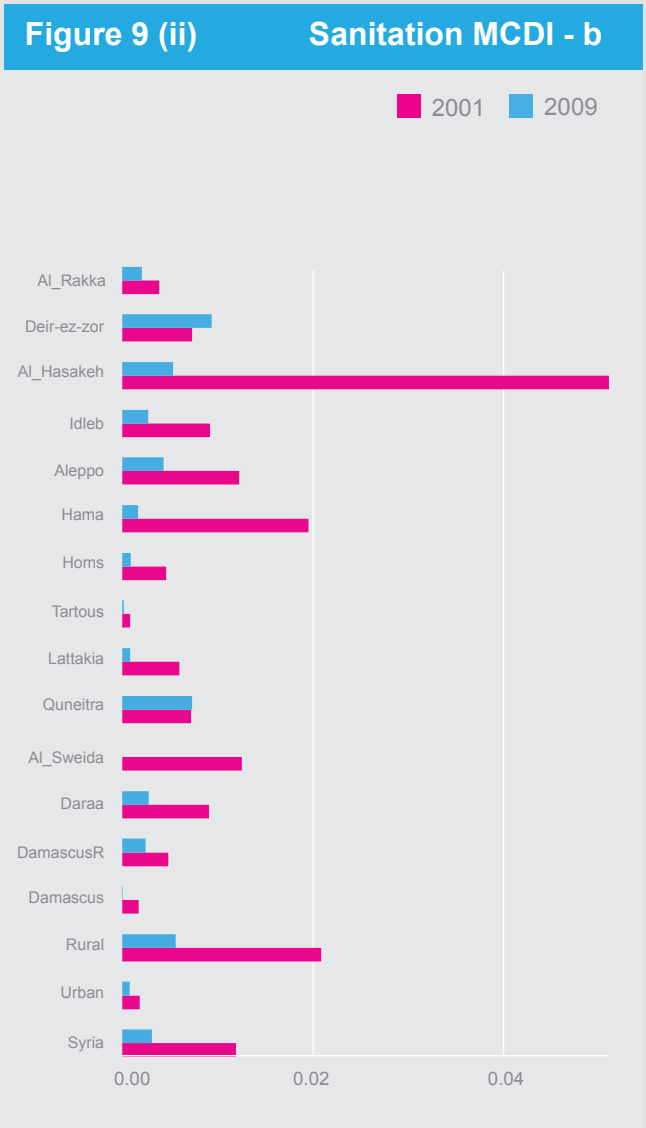




Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

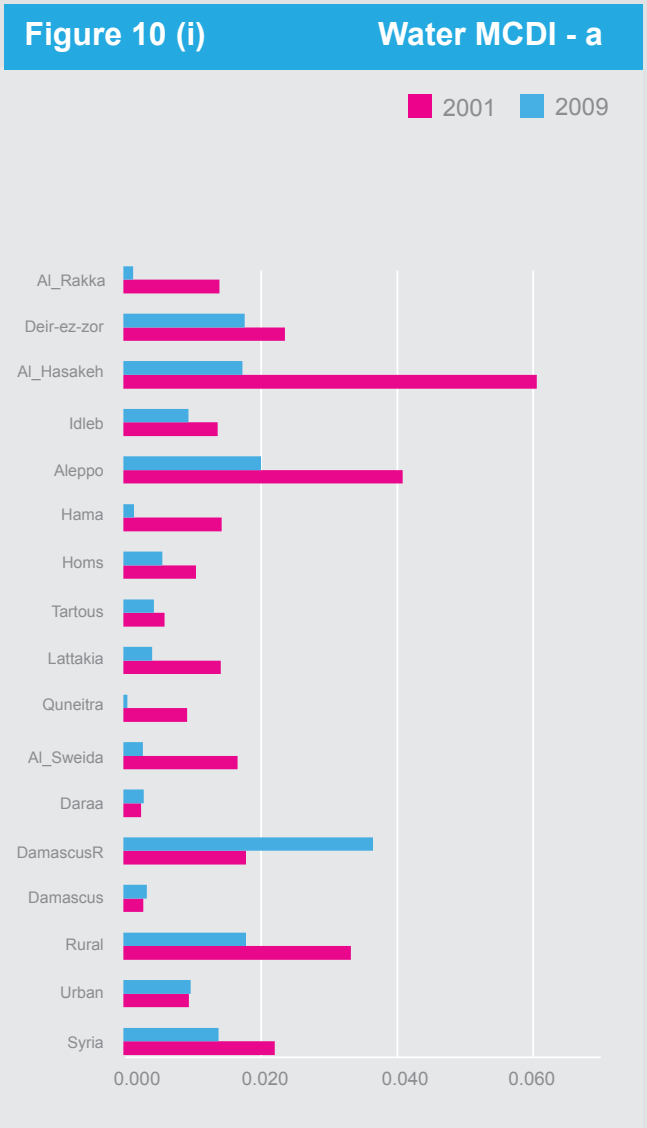
Figure (9): Sanitation absolute contribution to MCDI across governorates 2001- 2009

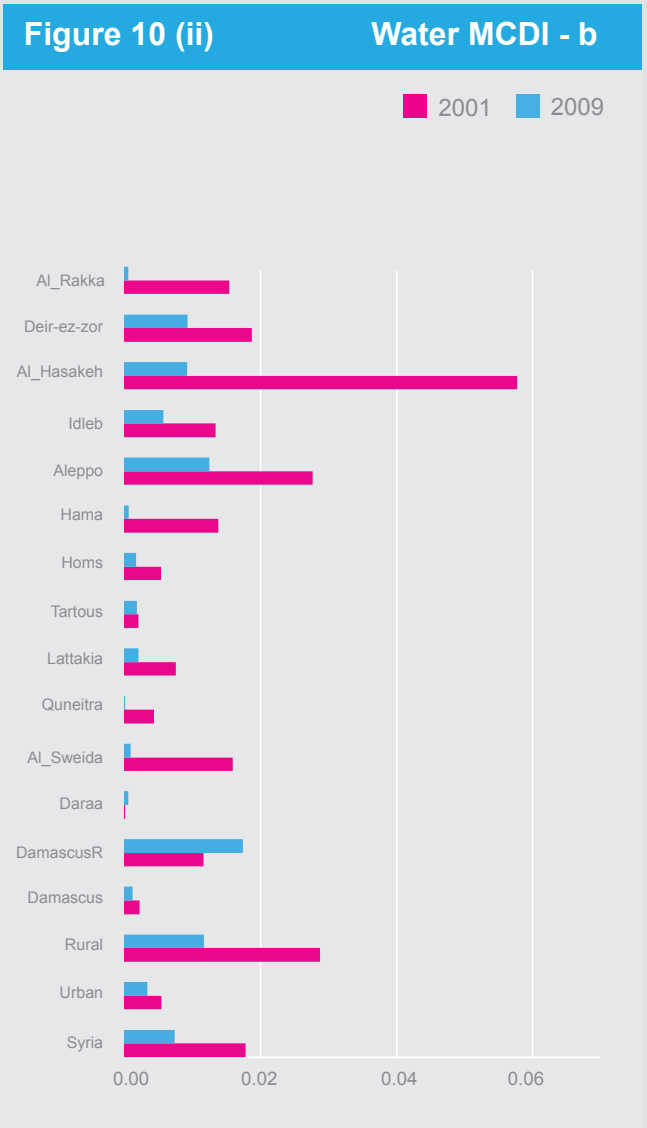




Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

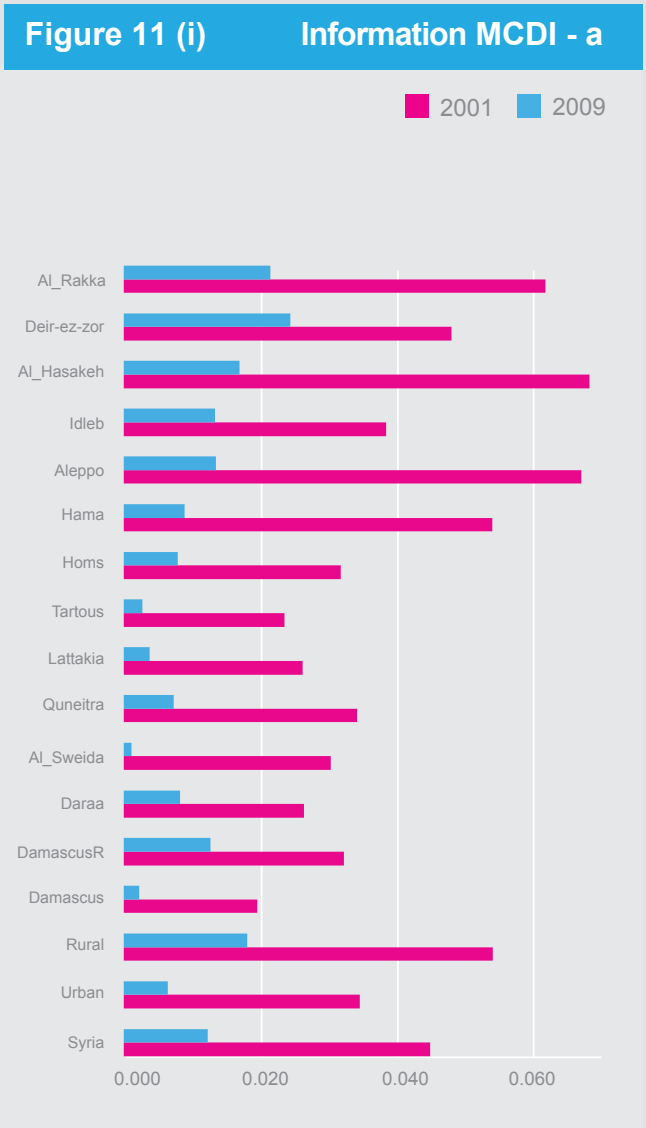
Figure (10): **Water absolute contribution to MCDI across governorates 2001- 2009**

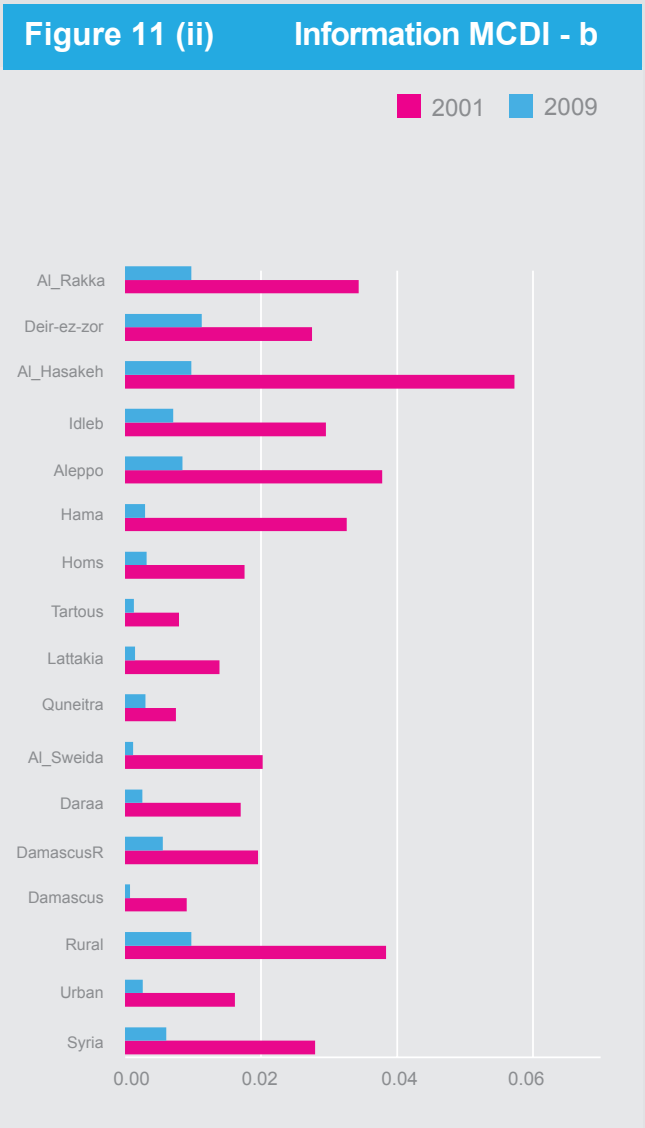




Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Figure (11): Information absolute contribution to MCDI across governorates 2001- 2009





Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

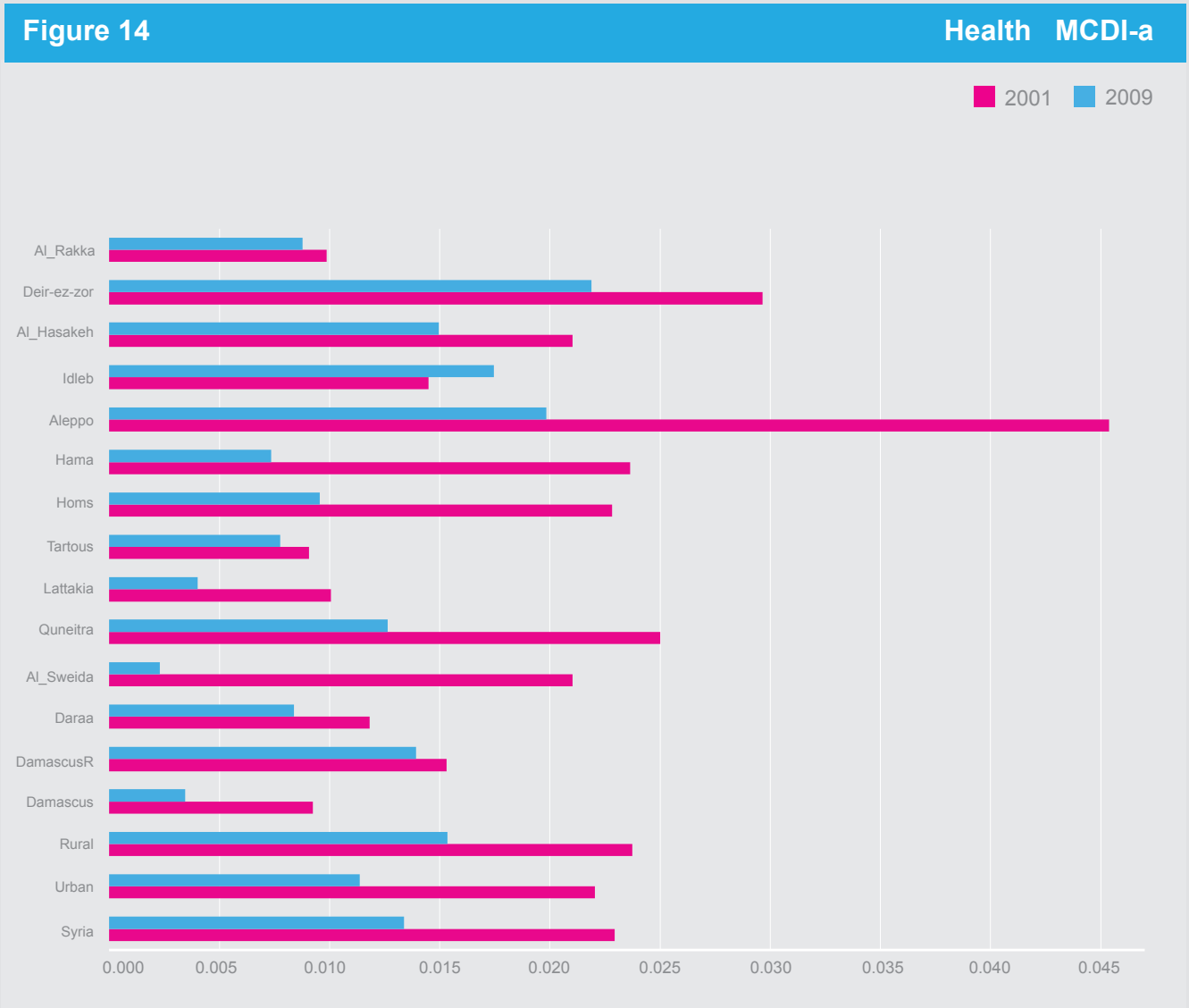
Figure (12): Nutrition absolute contribution to MCDI-a across governorates 2001- 2009

Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Figure (13): Education absolute contribution to MCDI-b across governorates 2001-2009

Source: FHS surveys 1993, 2001 and 2009 in Syria and authors' calculations.

Figure (14): Health absolute contribution to MCDI-a across governorates 2001- 2009



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

Annex(4): MCDI by Dimensions Across Governorates and Time

This is a brief of MCDIs by dimensions across the fourteen Syrian governorates and time. For each governorate, the following points are mentioned:

- The region of each governorate (Southern, Northern, Eastern, Middle, and Coastal),
- The rank of each governorate according to MCDI-a for children aged **0 - 4** years and MCDI-b for children aged **5 -17** in 2009 among other Syrian governorates, while 1st is the least deprived governorate and 14th is the worst,
- The significance of the positive or negative changes in MCDI performance across time in each governorate. This is distributed over the period between 2001 and 2009,
- The main MCDI dimensions that contributed to the deprivation of each governorate across time.

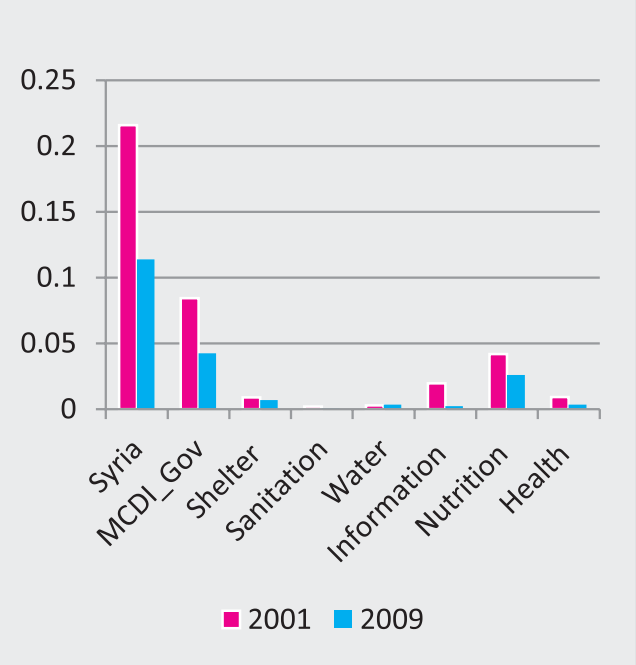
The report considered the governorates ranked 1 to 5 as low deprived, 6 to 9 as medium deprived, and 10 to 14 as highly deprived

• Damascus (Capital):

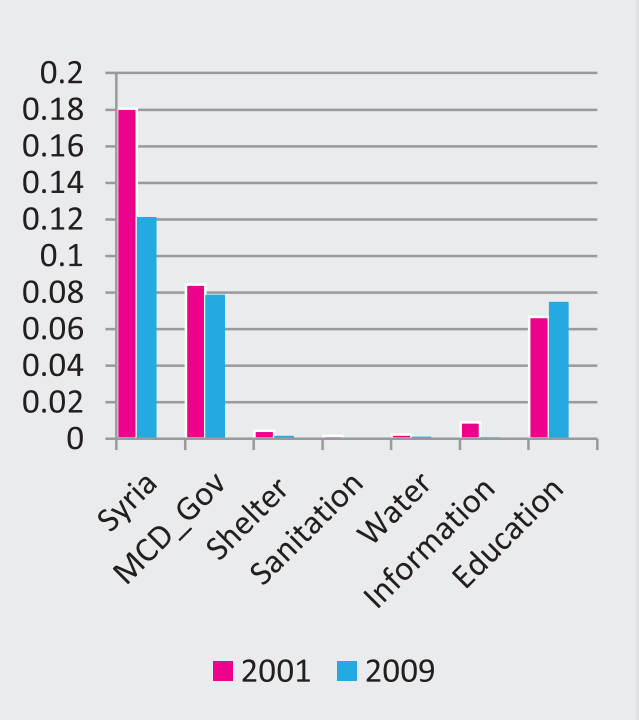
Region: Southern

MCDI	MCDI-a	MCDI-b
Rank	4 (Low deprivation)	4 (Low deprivation)
Performance 2001 - 2009	Significant improvement	No significant change
Key contributors	Nutrition	Education

MCDI-a **Damascus**



MCDI-b **Damascus**



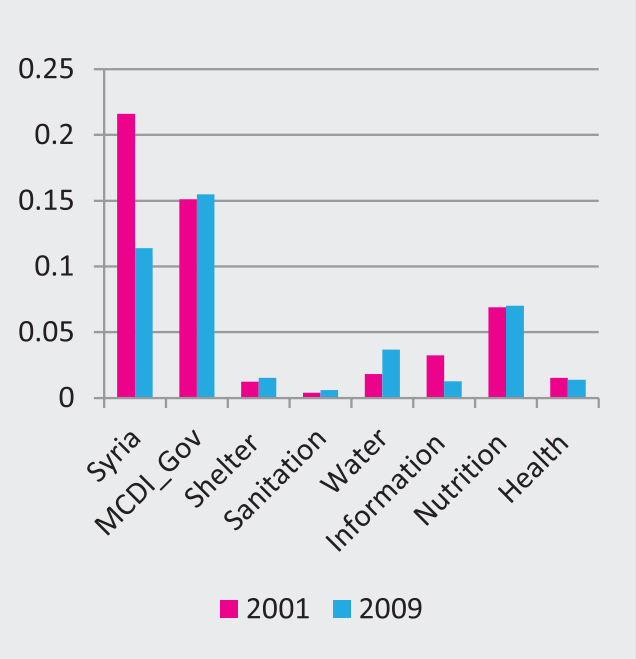
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Rural Damascus:

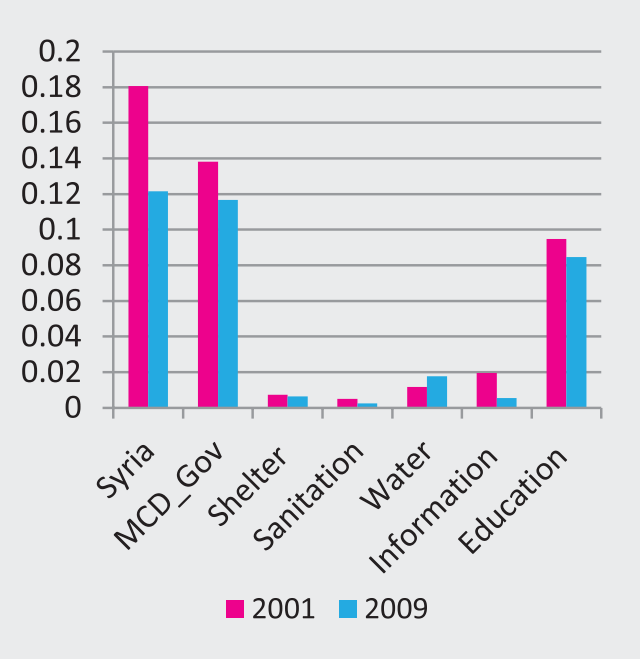
Region: Southern

MCDI	MCDI-a	MCDI-b
Rank	12 (High deprivation)	10 (High deprivation)
Performance 2001 - 2009	No significant change	Significant improvement
Key contributors	Nutrition and Water	Education and Water

MCDI-a **Rural Damascus**



MCDI-b **Rural Damascus**



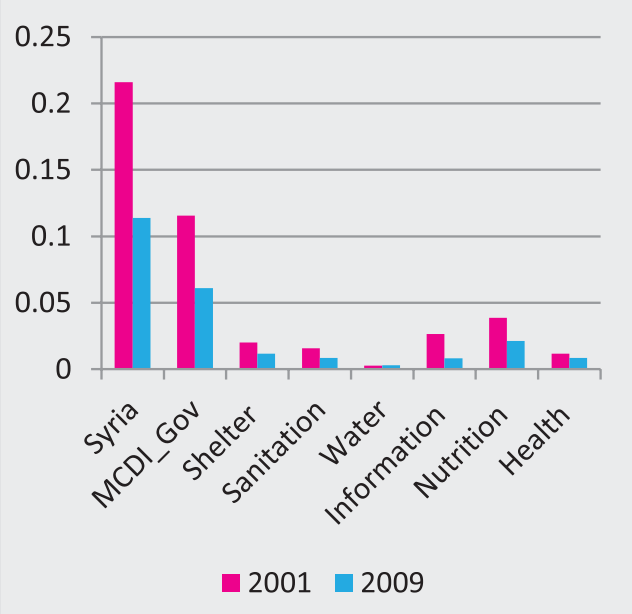
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Daraa:

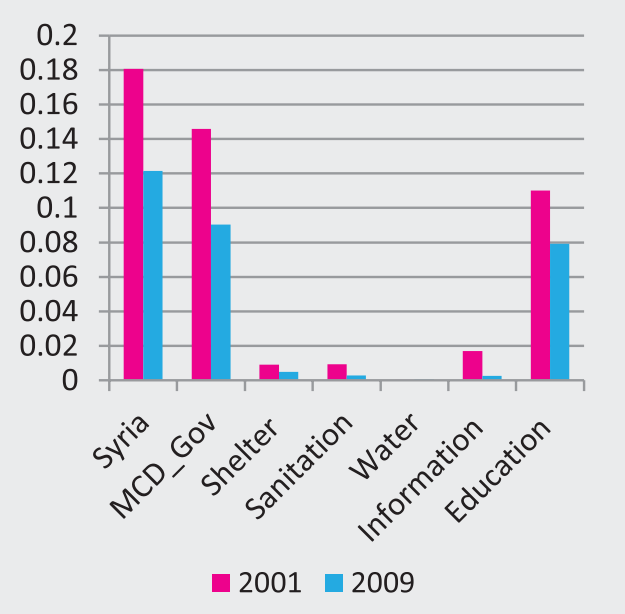
Region: Southern

MCDI	MCDI-a	MCDI-b
Rank	5 (Low deprivation)	5 (Low deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition and shelter	Education and shelter

MCDI-a **Daraa**



MCDI-b **Daraa**



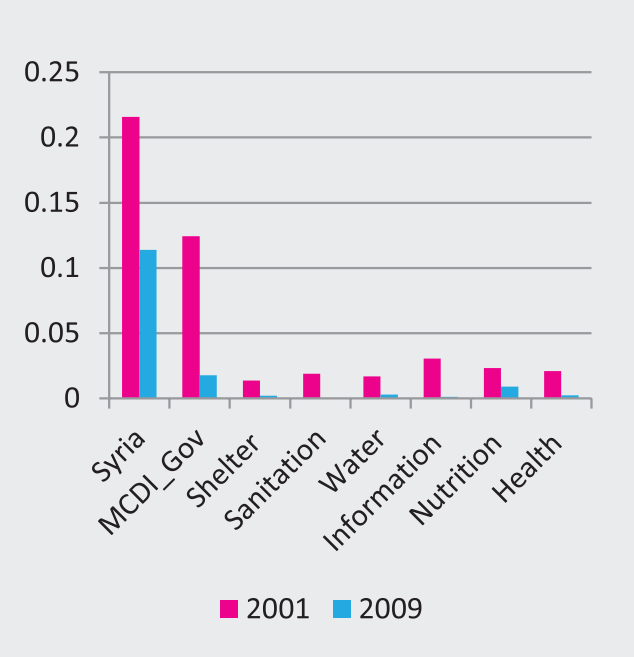
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

- **Al-Sweida:**

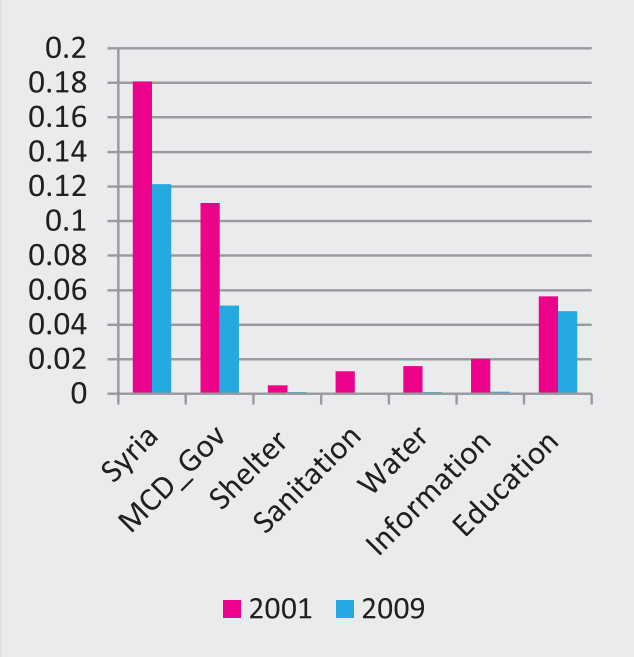
Region: Southern

MCDI	MCDI-a	MCDI-b
Rank	1 (best performer)	2 (Low deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition	Education

MCDI-a **Al-Sweida**



MCDI-b **Al-Sweida**



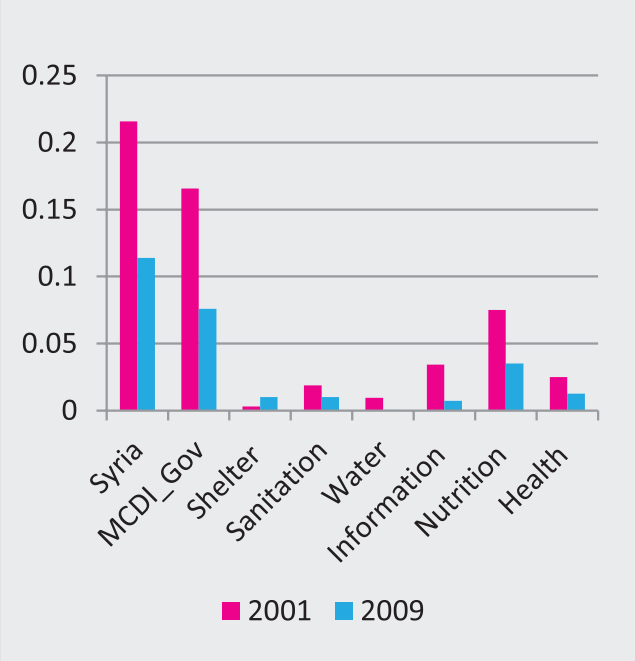
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Quneitra:

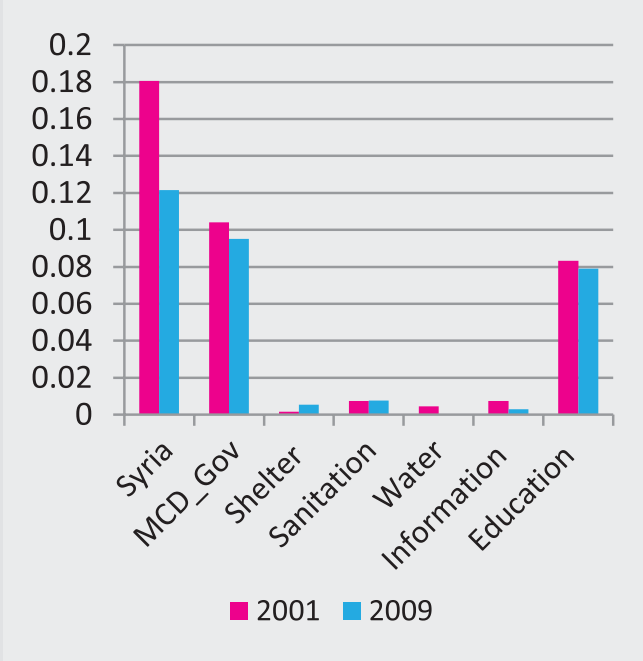
Region: Southern

MCDI	MCDI-a	MCDI-b
Rank	7 (Medium deprivation)	8 (Medium deprivation)
Performance 2001 - 2009	Significant improvement	No significant change
Key contributors	Nutrition and Health	Education

MCDI-a **Quneitra**



MCDI-b **Quneitra**



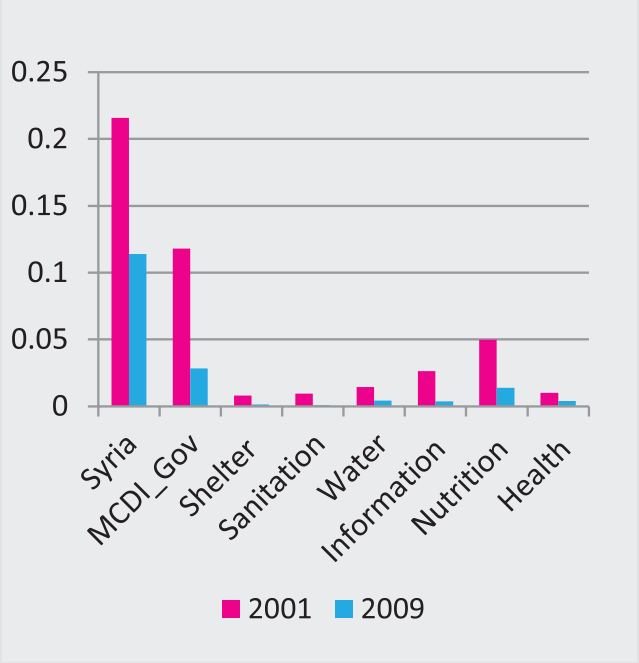
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Lattakia:

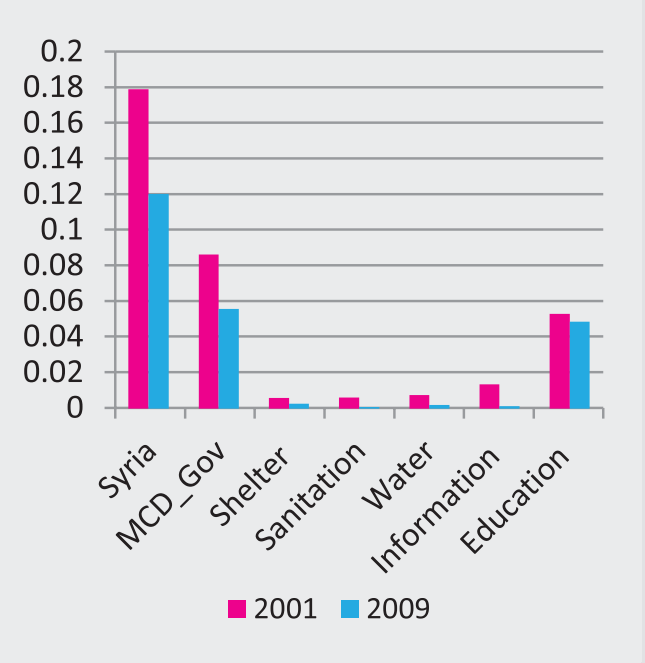
Region: Coastal

MCDI	MCDI-a	MCDI-b
Rank	2 (Low deprivation)	3 (Low deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition	Education

MCDI-a **Lattakia**



MCDI-b **Lattakia**



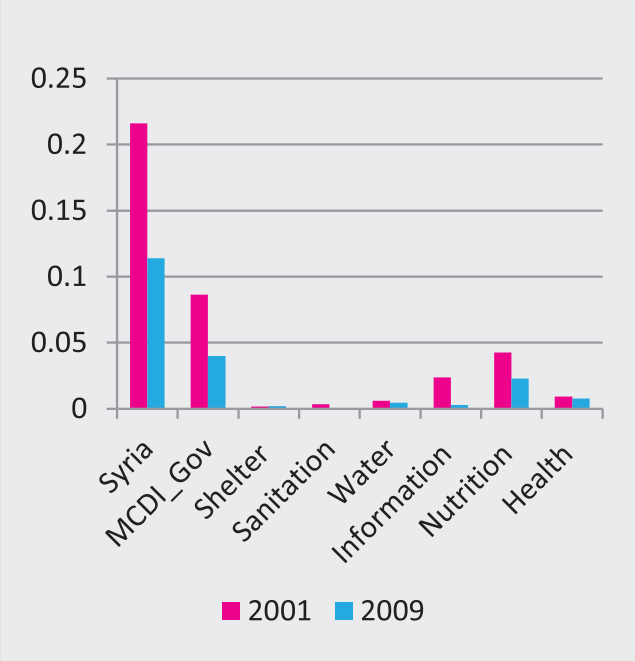
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

•Tartous:

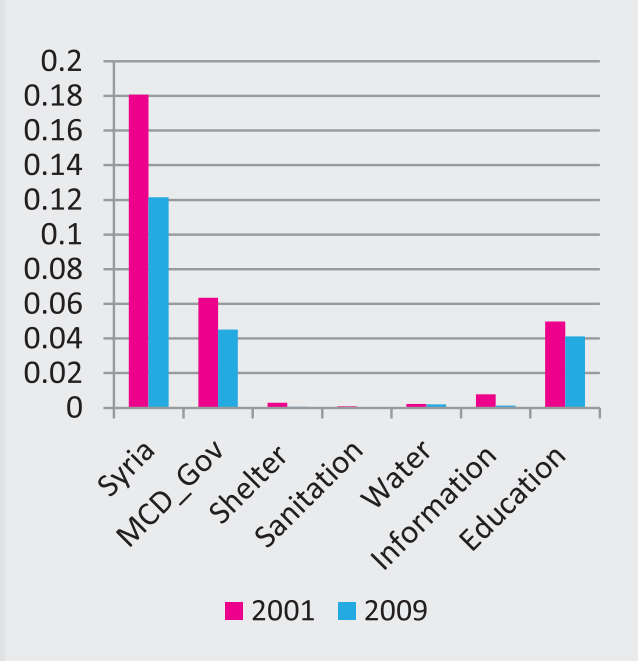
Region: Coastal

MCDI	MCDI-a	MCDI-b
Rank	3 (Low deprivation)	1 (Best performer)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition	Education

MCDI-a **Tartous**



MCDI-b **Tartous**



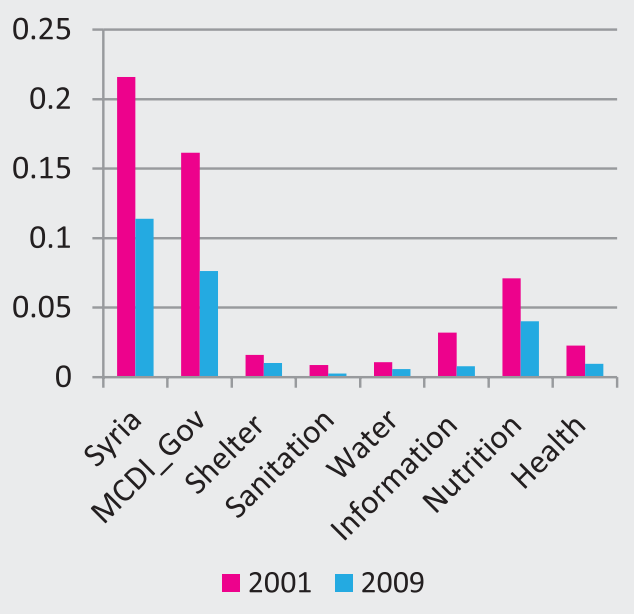
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Homs:

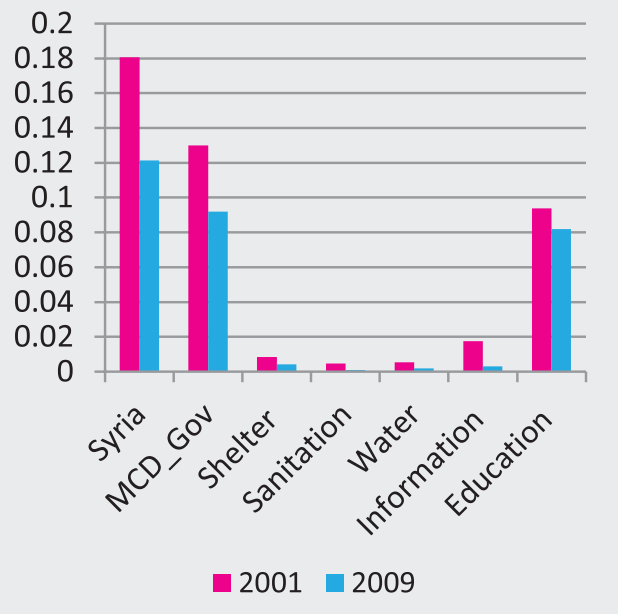
Region: Middle

MCDI	MCDI-a	MCDI-b
Rank	8 (Medium deprivation)	6 (Medium deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition	Education

MCDI-a **Homs**



MCDI-b **Homs**



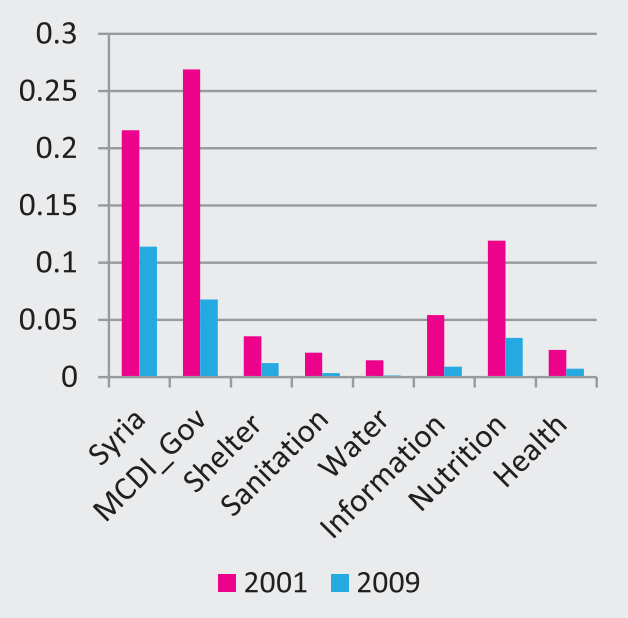
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Hama:

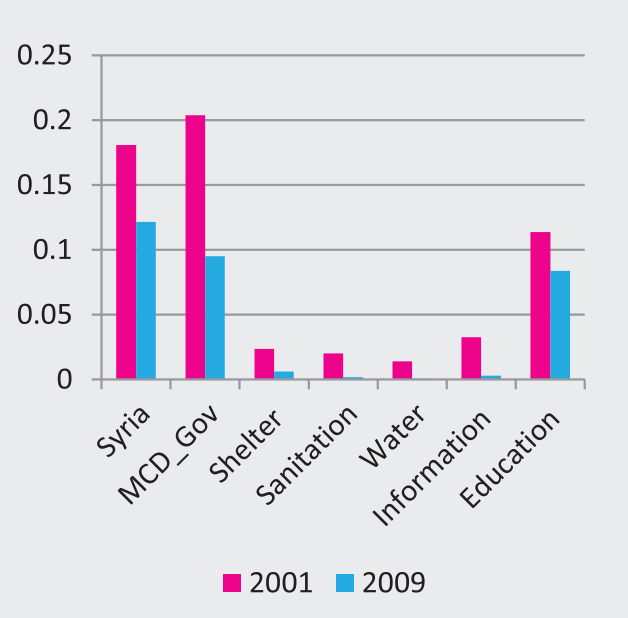
Region: Middle

MCDI	MCDI-a	MCDI-b
Rank	6 (Medium deprivation)	7 (Medium deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition	Education

MCDI-a **Hama**



MCDI-b **Hama**



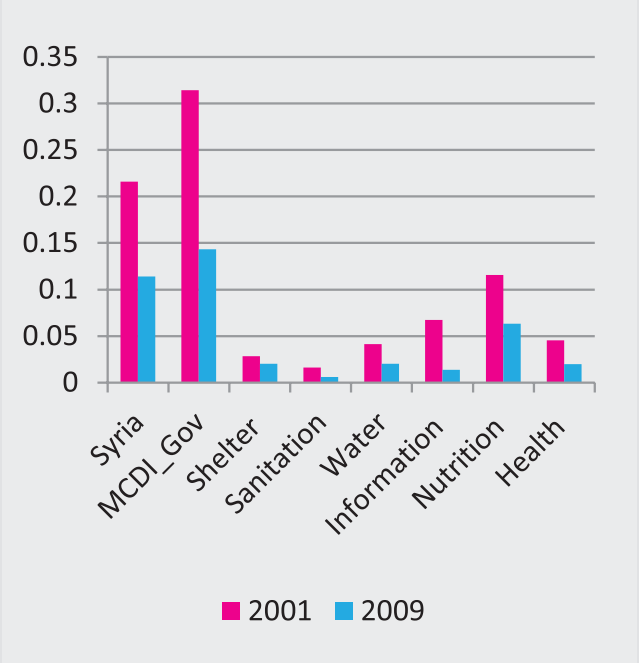
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Aleppo:

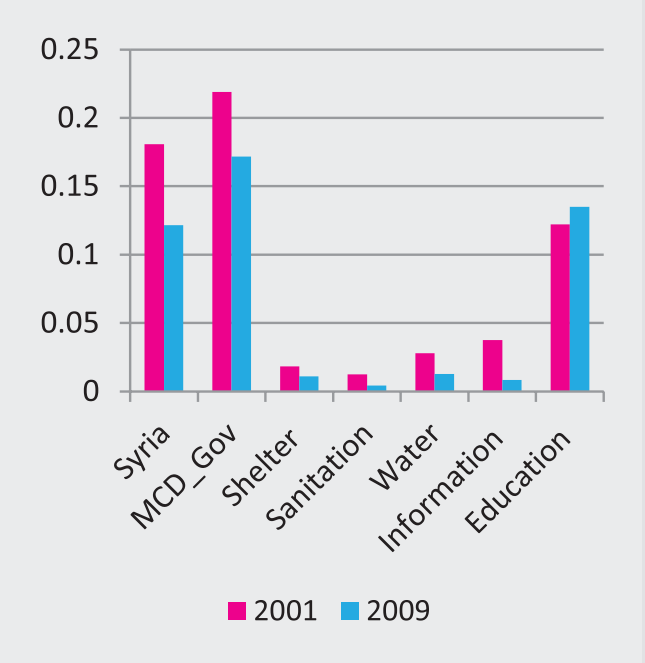
Region: Northern

MCDI	MCDI-a	MCDI-b
Rank	11 (High deprivation)	14 (Worst performer)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition, shelter, water	Education and water

MCDI-a **Aleppo**



MCDI-b **Aleppo**



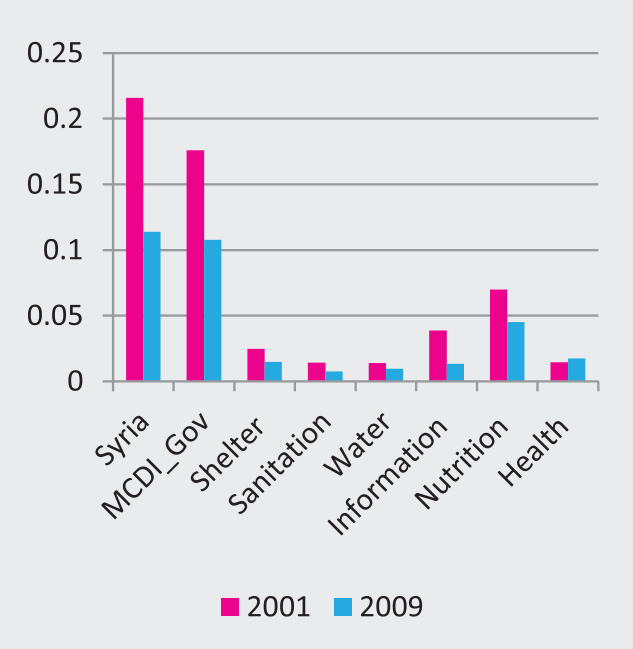
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Idleb:

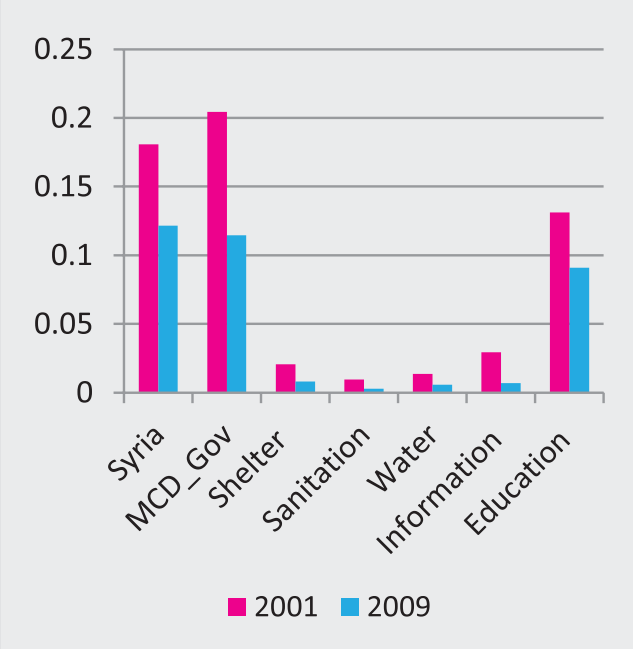
Region: Northern

MCDI	MCDI-a	MCDI-b
Rank	9 (Medium deprivation)	9 (Medium deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition, health and shelter	Education

MCDI-a **Idleb**



MCDI-b **Idleb**



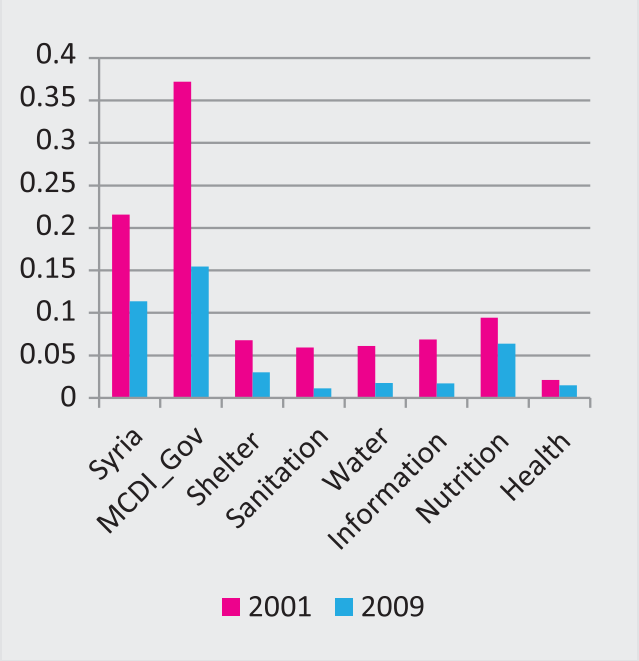
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• AL Hasakeh:

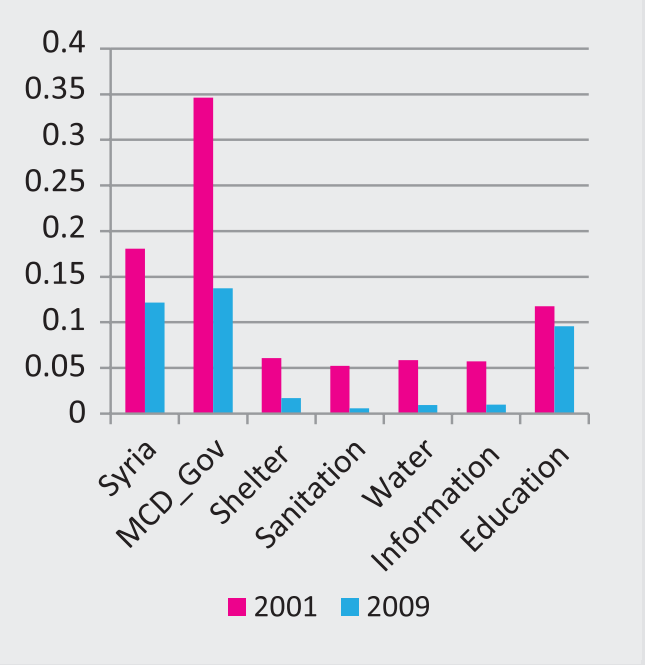
Region: Eastern

MCDI	MCDI-a	MCDI-b
Rank	13 (High deprivation)	12 (High deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition, shelter and water	Education and shelter

MCDI-a **Al_Hasakeh**



MCDI-b **Al_Hasakeh**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• Deir-ez-zor :

Region: Eastern

MCDI	MCDI-a	MCDI-b
Rank	14 (Worst performer)	13 (High deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition, shelter, water, and health	Education, shelter, and information

MCDI-a **Deir-ez-zor**

MCDI-b **Deir-ez-zor**

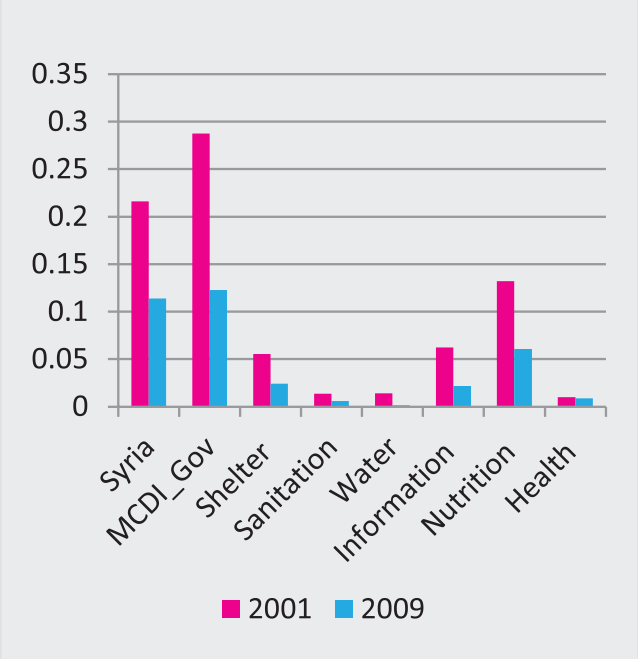
Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.

• AL Rakka:

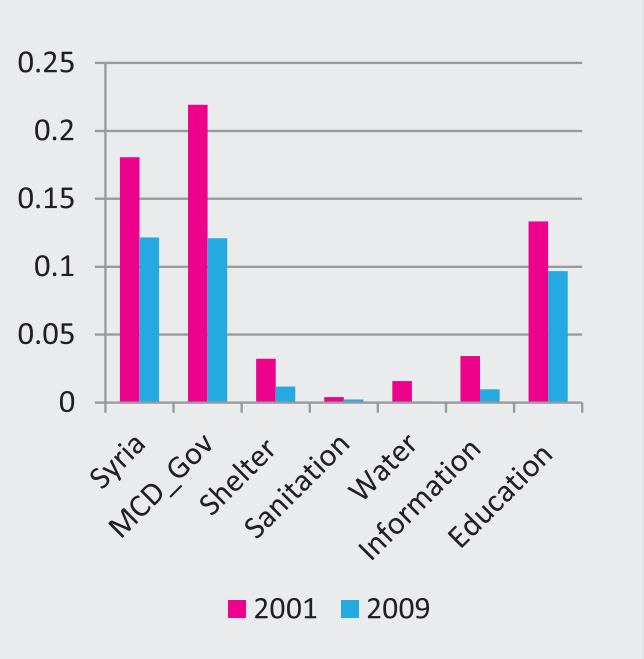
Region: Eastern

MCDI	MCDI-a	MCDI-b
Rank	10 (High deprivation)	11 (High deprivation)
Performance 2001 - 2009	Significant improvement	Significant improvement
Key contributors	Nutrition, shelter, information	Education, shelter, and information

MCDI-a **Al_Rakka**



MCDI-b **Al_Rakka**



Source: FHS surveys 2001 and 2009 in Syria and authors' calculations.