Methodologies of Poverty and its Indicators in Jordan

Maha Khader Dawas
(Jordanian Department of Statistics)

Methodologies of Poverty and its indicators in Jordan

Prepared by

Maha Khader Dawass

Head of Poverty Statistics Division

Department of Statistic (DoS)

Amman, Jordan

mahad@dos.gov.jo

Am_maha123@hotmail.com

Copenhagen, Denmark, August 20-25, 2018

Abstract

This paper will discuss the methodologies of various kinds of poverty. The importance of poverty data and measurements lies in raising the issue of poverty to gain support to address it, identify the impacts of state policies, external influences and other factors, explore the situation before implementing the poverty-related programs and monitor the development of poverty - particularly with regard to the effects of policies and programs to alleviate it ,and to prepare reports on poverty measurement and evaluation in addition to reports on achieving the Sustainable Development Goals and Human Development reports.

The Household Income and Expenditure Survey are considered to be the optimal survey and the main source for measuring poverty indicators according to the international methodology issued by the World Bank.

Introduction

Since the beginning of the 1990s, the international community has witnessed several international conferences that have been presented to many important issues for many States. One of the most important documents that emerged was the road map towards the implementation of the United Nations Millennium Declaration, which focused on an integrated and comprehensive presentation of the current situation, and it carries potential work strategies aim at achieving the goals and commitments that undertaken to be executed by States, such as the development and eradication of poverty which they are the most important. These conferences also adopted the formulation of new principles reflecting the accumulated experience of humankind, such as democracy, development, human rights, the improvement of women's status, sustainable development in its economic and social dimensions and the fight against serious diseases of human existence.

Poverty is an essential obstacle to the sustainable development and for the economic growth rates. Poverty and deprivation are a threat to peace and political, social and security stability, because it creates a fertile environment in which various forms of deviation, extremism and unbridled opposition can appear and ultimately target the State itself. Therefore, Poverty reduction includes mechanisms for access and participation at the micro and institutional levels. For example, basic services, such as education and health, may be available free of charge and of adequate quantity and quality, but individuals and groups cannot access them because they are too poor to bear the costs associated with taking advantage of such services.

There is consensus on the need to develop a conceptual framework for the definition of poverty and methods measuring it and research in the relationship between it and other social indicators in spite of the prevalence of quantitative measurement in the studies and national plans of some Arab countries.

Concept of poverty

Poverty is defined as a situation of deprivation of the decent life that one or society should live. It means not only the lack of what is necessary for one's physical well-being, but also the deprivation of opportunities and choices of fundamental importance, such as a long life of living in which one enjoys health and creativity, an adequate standard of living, freedom, dignity, self-respect and respect for others. In addition to material deprivation, there are other aspects of poverty, such as retirement and alienation caused by marginalization, social and political distinction and loss of communication. Another aspect of poverty is the weakness to respond to external and internal shocks.

The poverty line is the cornerstone of any poverty analysis. The poverty line determines the level of income /expenditure at the minimum basic needs for survival of a person who is normally active. It is the dividing line between income and consumption of the poor and the non-poor. The individual is considered to be poor if his consumption is below the minimum level of the basic needs of the individual, and the minimum value of the basic needs of the individual "The cost of the basket for the category of least-consuming population "is defined as the poverty line. Individuals or families whose expenditure is below the poverty line are classified as poor and individuals or households whose expenditure or income is equal to or more than the poverty line are classified as not poor.

The poverty line is a method of measuring poverty, depending on the division of society into two categories, the poor and the non-poor. There are different types of poverty lines; the most important are the absolute poverty line and the extreme poverty line. The poverty line is defined according to the definition of poverty and the reality of the society under study. In the light of these types of poverty lines, some economic and social specialists have been able to measure poverty lines.

Concept of Monetary or Income poverty

Monetary poverty is defined as the inability to provide an adequate standard of living (which provides basic needs) and the situation of individuals either poor or non-poor is classified based on it. Identifying the poor requires identifying what we mean by poverty and the poor. Therefore, two questions must be answered: first, what is the indicator of the standard of living that should be used to measure the standard of living? Second, how can the poor and the non-poor be distinguished? In other words, the definition of poverty requires choosing a standard for measuring the standard of living and defining the poverty line that divides society into poor and non-poor. In this regard, the classification of individuals into poor and non-poor should not be based on the category to which the individual belongs. As noted, Ravalli on 1991, the diagnosis of poverty and the characteristics of the poor must be consistent. Consistency means that the poverty line has a fixed value over time or between different regions or groups of society. Thus, a

consistent comparison between individuals means that any two individuals with the same level of real consumption are classified as poor or not poor, regardless of time or place.

Measuring this type of poverty requires detailed data on the income and consumption of each household on all goods during a given reference period, which is obtained through income, expenditure and consumption surveys or living standards surveys conducted by many Arab countries.

Below the monetary poverty line are two main types:-

Abject Poverty Line

It is defined as the level of income or expenditure necessary for the household or individual to secure the basic needs of food that provide him the required calories to practice his usual daily activities. Thus, the average value of food poverty line (Abject poverty) in the Kingdom was JD.336 per capita per year in 2010 (around JD 28 per month). At the standard household level (5.4) individual valued at JD.1814.4 per year and JD.151.2 per month based on the Household Expenditure and Income Survey (2010) which is implemented by the Department of Statistics (DoS) every two years.

Absolute Poverty Line

The absolute poverty line is defined as the level of income or expenditure necessary for the household or individual to provide the basic needs of food and non-food. The basic needs of non-food are related to housing, clothing, education, health and transportation. The absolute poverty line is the figure estimated line measured by the minimum level of expenditure required to cover the basic needs of the individual (food and non-food)[1].

Thus, the general poverty line for the individual was JD.814 annually while the non-food poverty line reached JD.478 per capita per year by the Household Expenditure and Income Survey of 2010.

Importance of poverty lines

The poverty lines have many objectives; the most important is monitoring the poverty phenomenon. It aims mainly at identifying the poor in society through estimating the number and percentage of people who are unable to obtain the minimum basic needs for human beings. We can estimate the percentage of poor through the Poverty ratio indicator but we cannot know through the percentage of poverty the depth of it, which mean, we cannot know through the poverty ratio indicator the poverty of the poor, and to know the poverty of the poor we must estimate the poverty gap through which we can estimate the size of the deficit in the amounts needed to raise the poor below the poverty line and put them on the poverty line.

Another indicator of poverty is the severity of poverty which measures the extent of difference in the income / expenditure of the poor themselves. This indicator is useful if we are concerned with the poorest or a certain category of poor from a certain level to a better one by the available financial resources. Through each poverty measure, we can estimate a concept or indicator of poverty indicators which are important tools to evaluate policies adopted by the government to reduce poverty.

The aim at defining the poverty lines is to create a description of the phenomenon of poverty. Through poverty lines the phenomenon of poverty for different groups of society can be monitored, such as comparing the phenomenon of poverty between regions, governorates, labor sectors, household size, or the characteristics of it. It is also possible through the poverty feature to describe the nature, extent and breadth of the phenomenon and it with the social, economic and demographic characteristics of the poor. Therefore, the poverty profile is very useful for identifying policies that target the poor in society through region, sub-district, work, sex or any other characteristics of the poor.

Poverty does not affect the poor only but it is also a global concern when global environmental issues are discussed, due to its implications on land distribution, soil depletion, solid waste and waste disposal. The issue of protecting the environment from degradation requires institutional support for the poor, raising awareness as well as combating inevitable degradation. Therefore, renewable resources must be used and ensuring that the needs of the current generation will be met without compromising the future generations meeting their needs. This is the responsibility of local planners as well as local, national and global institutions.

The occurrence and continuation of poverty are attributed to many economic, social, cultural, environmental and political factors. Several factors have contributed to the creation and persistence of poverty, such as economic policies related to economic reform and the consequent reduction of the government spending, and greater trend towards economic market. Not to mention the internal and international conflicts, which are the main factors that contributed generating the poverty in many Arab countries? The most important factors of poverty are: poor distribution of incomes and resources, mismanagement of resources, environmental degradation, population pressure and marginalization of the role of important groups in society such as women.

The importance of poverty data and measures are to raise awareness of the issue of poverty, gain support to address it, identify the effects of State policies, external influences and other factors on poverty, explore situations before implementing programs on poverty and to monitor the development of poverty, particularly with regard to the impact of policies and programs to alleviate it , make reports to measure and estimate it, reports to achieve sustainable development goals for the millennium and human development reports.

Thus, the poverty studies in recent years have shifted from tackling the current poverty situation to poverty dynamics and the extent of the impact of exposing to crisis and the mechanisms adopted by the households in case of shocks.

Therefore, the discovery of households most likely to fall into poverty as a result of shocks and strategies to get out of crisis is the fundamental part of policy-making to help these families, leading to better design of public interventions to help individuals, families and society and to better develop of the social risk management tools they may face. Many social protection or social security (such as unemployment insurance, disability benefits and health insurance) are an attempt to reduce volatility in income levels and thus reduce the likelihood that the family will fall into poverty. In this sense, these programs are a "safety net". This methodological framework focuses on the potential poverty status of households because they do not have assets that may help them to cross these crises.

History of Measuring Poverty in Jordan

The first official survey on measuring poverty in Jordan was in 1973 and a survey in 1989 titled: "Poverty Pockets Survey in the Hashemite Kingdom of Jordan". In this survey, the poverty line was calculated to a model household by using standard food basket. In light of this, the percentages of absolute and abject poor household were identified, in addition to calculating the other poverty indicators. In 1994 and 2001, the World Bank experts upgraded the poverty lines for 1987 based on the consumer price index. A study on poverty was also prepared and implemented by the World Bank experts in cooperation with a national team formed for this purpose from various ministries and public institutions during 2004 after publishing the Household Expenditure and Income Survey 2002/2003 results. In this survey, the poverty lines and indicators were calculated. A detailed report on the results of the poverty calculations was prepared linking them to several demographic, health, social and economic characteristics of the poor. The poverty indicators were updated in 2006 and 2008 based on the Household Expenditure and Income Survey (HEIS) data in order to update the poverty lines. A detailed report on poverty indicators was also prepared and linked to many demographic, health, social and economic characteristics of the poor in 2010.

Methodology of calculating poverty lines in the study of: Poverty in Jordan - 2010

The poverty measurement methodology adopted in Jordan is the methodology for meeting the caloric requirements for measuring the poverty line of the World Bank and its calculation of the various indicators. The Household Expenditure and Income Survey (HEIS) is the main source for measuring poverty indicators.

Monetary Poverty

This methodology, which relies on the methods of meeting the minimum basic needs of the individual and the household, consists of five main phases that can be summarized as follows:

First Phase: Estimating the daily calorie requirements for Jordanians, taking into consideration the physiological structure of the body: (by gender, age and weight in kilogram) in addition to taking into consideration the variance in daily physical activity undertaken by the individual based on individual characteristics data from the sample of the Household Expenditure and Income Survey – 2010, through:

✓ Calculating the average weights of Jordanian population aged 10 years and more by gender according to James and Schofield (1990) schedules, with an update of Jordanians weights based on the Employment and Unemployment Survey carried out by the Jordanian Department of Statistics (DoS).

Table 1: Average Weights of Jordanians by age and sex/ weight in kilogram

Age in years	Males	Females
10	26.7	25.2
11	29.7	28.3
12	33.4	31.7
13	43.8	41.2
14	50.1	45.0
15	56.5	51.9
16	62.0	56.4
17	66.0	59.1
18-29	71.5	60.1
30-59	77.6	71.2
60+	76.7	73.7

Source: Estimates the poverty in Jordan survey

✓ Calculating average weights of Jordanian population by age and sex and compensating with the basal metabolic rate (BMR) to calculate calorie requirements for each age group and by type, by the World Health Organization (WHO).

Table 2: Equation used to calculate calorie requirements

	Age range (years)	BMR
Men	10–18	(16.6*W + 572)
	18–30	(15.4*W+ 717)
	30–60	(11.3*W + 901)
	> 60	(8.8*W + 500)
Women	10–18	(7.4W + 217)
	18–30	(13.3W + 35)
	30–60	(8.7W + 865)
	> 60	(9.2W + 302)

✓ Taking average caloric requirements by type of professional work and sex, reaching 1.78 for men and 1.64 for females. Then, multiplying BMR by the average caloric needs of professional work by sex. Thus the individual and family needs of calorie can be determined based on their place of residence, the age and gender of the family members from the Household Expenditure and Income Survey Sample 2010.

Table 3: Daily calorie needs of Jordanians by age and sex 2010\ calorie

Age(years)	Males	Females
Less than 2 years	791	740
2-5	1618	1480
6-9	1924	1689
10	1990	1728
11	2084	1790
12	2199	1858
13	2522	2048
14	2720	2124
15	2917	2262
16	3092	2353
17	3216	2406
18-29	3156	2262
30-59	3167	2375
+60	2710	2247

Source: Estimates the poverty in Jordan survey, The Poverty Statistics Division estimates by the (HEIS) 2010

Accordingly, Jordanian population in 2010 need about 2347 calorie per capita per day.
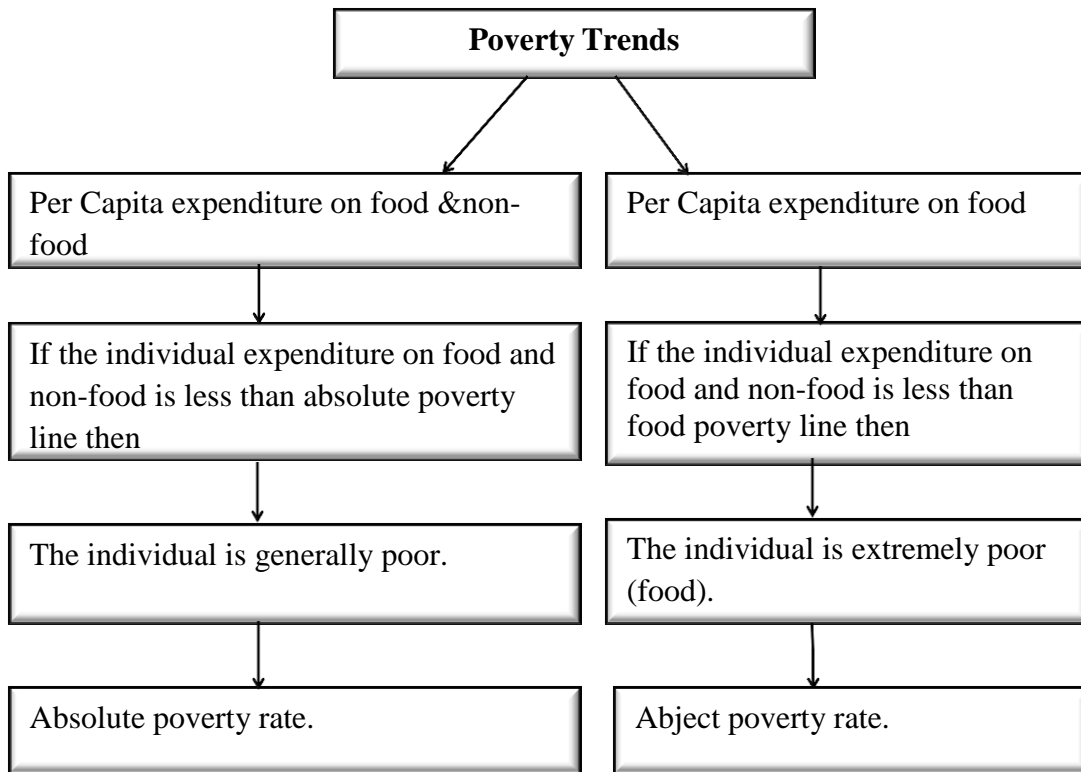
Second Phase: Estimating the actual calorie intake by individuals through transferring the consumed quantities of food items by individuals (each in their household) into calories, using pre-prepared transformation coefficients of calorie based on data and measurements of the World Food Organization, in addition to data from of the Ministries of Health and Agriculture, and the Jordanian Food and Drug Administration. These coefficients transfer the food basket of the Jordanian consumers from quantities in kilogram to calories. Thus, the average daily calorie intake per capita reached 3,125/ calories.

Third Phase: Calculating the cost of the single calorie, by dividing the total daily expenditure by individual on food by the actual calorie intake of the individual. The results of the survey indicated that the cost of a thousand calories at the Kingdom level reached 0.5121 piasters - 2010.

Fourth Phase: Using the average calorie cost for the lowest expenditure population deciles (first to third deciles), the food poverty line is calculated for every household in the sample by multiplying the average quantity of calorie requirements for the individual according to body weight, age, gender, and daily physical activity, by the average calorie cost. As for the general food poverty line, it is the weighted average calculated for the food poverty lines of all members of the sample.

Fifth Phase: Calculating the non-food poverty line. This line is calculated by adopting the minimum cost of households' expenditure on non-food items for a population whose food consumption is close to the food poverty line. The expenditure on non-food items is monitored by the total expenditure of these households. The expenditure share of this category is then calculated and added to the food poverty line to reflect the general poverty line at a level of well-being that suits the living situation in Jordan. And evaluation of the basket of non-food items and their relationship with the food basket and estimated coefficients to measure the importance of expenditure on food from the total expenditure called the Orshansky Coefficient "and was adopted for all the households in the Kingdom. Through this methodology, poverty indicators could be calculated for a given period or year based on living standards which means the pattern of household expenditure on various goods and services for the household, including the proportion of expenditure on food commodities out of the total household expenditure.

Figure 1: Trends of Poverty

```
                        ┌─────────────────────────┐
                        │     Poverty Trends      │
                        └─────────────────────────┘
              ┌───────────────────┴───────────────────┐
              ▼                                         ▼
┌────────────────────────────────┐   ┌────────────────────────────────┐
│ Per Capita expenditure on food  │   │ Per Capita expenditure on food │
│ &non-food                       │   │                                │
└────────────────────────────────┘   └────────────────────────────────┘
              │                                         │
              ▼                                         ▼
┌────────────────────────────────┐   ┌────────────────────────────────┐
│ If the individual expenditure   │   │ If the individual expenditure  │
│ on food and non-food is less    │   │ on food and non-food is less   │
│ than absolute poverty line then │   │ than food poverty line then    │
└────────────────────────────────┘   └────────────────────────────────┘
              │                                         │
              ▼                                         ▼
┌────────────────────────────────┐   ┌────────────────────────────────┐
│ The individual is generally     │   │ The individual is extremely    │
│ poor.                           │   │ poor (food).                   │
└────────────────────────────────┘   └────────────────────────────────┘
              │                                         │
              ▼                                         ▼
┌────────────────────────────────┐   ┌────────────────────────────────┐
│ Absolute poverty rate.          │   │ Abject poverty rate.           │
└────────────────────────────────┘   └────────────────────────────────┘
```

Poverty line index method

It depends on the hypothesis that the physical structure of the human does not change over short periods of time, which means the need for calories will not change also in short periods of time, as well as the pattern of food and expenditure of the categories of society will not change during short periods of time.

Through a quick look on the methods of installation of indices, we notice that they depend, in the first place, on the nature of the phenomenon that intended to be studied and its change over time. In the second place, they depend on the data nature available on this phenomenon and its accuracy.

In the absence of weights for the comparison period and its availability for the base period, the relative Lasper number is the most common and used method for being the most reflective of the developments on the studied phenomenon. Therefore, the method of the number of relative Lasper should be relied on to construct the poverty line index, which will be the basis for the estimation of poverty indicators.

For the purposes of deriving the food poverty line and estimating the general poverty line, the price index for the food and non-food goods was calculated at the governorates level based on the

relative importance of all the goods consumed by the households in each governorate. Then, linked to the prices of those goods to calculate the price index for all goods, then estimated the calories cost of each food basket for each governorate, taking into consideration the geographic distribution of the population, and the differences in consumption patterns with the difference in relative importance of the consumed goods among the governorates.

Indicators of Poverty in Jordan

✓ **Absolute Poverty rate**

This indicator is called the heads count and is calculated by dividing the population whose expenditure is below the general poverty line on the total population at the Kingdom level. The poverty rate was 14.4% according to the results of poverty in Jordan 2010.

✓ **Poverty Gap Indicator**

This indicator reflects the size of the total cash gap to elevate the household below the poverty line above it. For purposes of comparison, this gap is calculated as a percentage of the total value of consumption of the population when their consumption is equal to the poverty line. The poverty gap index meets one of the required advantages in the poverty indicators, which is the advantage of monotony and similarity. As when, the income of poor decreases, the poverty gap increases. The cash value of the poverty gap at the Kingdom's level was JD.167.8 million (the cash value of poverty gap is defined as the total difference between the poverty line and the average expenditure per poor individual.

✓ **Poverty Severity Indicator**

This indicator measures the variance in the degree of poverty among the individuals below the poverty line. It is calculated by considering it equal to the average of the total relative squares of the poverty gaps. The poverty severity indicator is a relative measure similar to the standard deviation, providing an image of diversity in poverty levels among the poor themselves. The higher the value of the indicator, the more the variance is.

✓ **Abject Poverty rate**

This indicator measures the percentage of hunger poverty of the population below the abject poverty line. It is calculated by dividing the number of the population whose expenditure is below their food poverty line to the total population at the level of the Kingdom.

✓ **Gini Coefficient**

This coefficient measures the inequality in the distribution of total income. The index of justice improves as the value of the coefficient approaches zero and justice diminishes as it approaches the correct one.

Non- Monetary poverty "Quality Life Index" 2010

The Multi-Dimensional Poverty Index is international indicator measure poverty in developing countries and has been prepared by the Human Development Report Office of the United Nations Development Program (UNDP).

Because, the issue of economic reform has become an urgent need in the many circumstances that Jordan faces, and the economic situation is not only the expression of poverty, the interest in other aspects of life, such as health, education, housing and living conditions should be highlighted. ..Etc.

Poverty is known as deprivation of the decent life that family members should live. It does not mean the lack of what is necessary for material well-being but also of multiple living standards such as health, education, housing and others.

But for multidimensional indicator, it identifies multiple deprivations at the individual level in the areas of health, education and standard of living. It uses data from the Household Expenditure and Income Survey and classifies all individuals in their households as poor or non-poor based on a number of deprivation indicators. The indicators are then compiled into a scale and methodology that reflects the extent of multidimensional deprivation.

The role of the state in facing the multidimensional poverty is a key role. Therefore, the state should seek to develop a clear strategy, on which different programs in health care and education, and improving the standard of living build upon it, linked to specific and clear goals with a time frame. Several aspects addressing multidimensional poverty should be focused on, such as social and economic policies that the State budget targeted, and re-allocation of expenditure for items related to the care of the poor to have higher allocations than in previous years.

Objectives of measuring Quality Life Index

✓ Measuring other needs that cannot be obtained in return for money only, such as personal security and health insurance.
✓ Studying the living standards of families with its different social, economic, environmental and other dimensions based on the household expenditure and income survey (HEIS).
✓ Is based on measuring the extent to which actual satisfaction of basic needs is met and not by measuring the income available to meet these needs at the household level.
✓ Develop and follow up social, economic and other policies related to the standard of living.

Methodology of Quality Life Index

The Quality Life Index measures the satisfaction of basic needs at the household level. It is used also to measure the proportion of population within different living standards. The most important steps to calculate the index of life quality are the following:

1. Determining the main dimension of the standard of living
2. Choosing a number of statistical indicators to represent each dimension.
3. Determining a mark for the household for each indicator.
   - Mark Zero for extreme deprivation of basic needs.
   - Mark 2 for maximum satisfaction of essential needs.
   - Mark 1 for deprivation threshold of basic need.
4. Calculating the dimension indices considering that the value of the dimension index is equal to the mean of the marks of the dimension indicators.
5. Calculating the general index of the living standard assuming it equal the mean of the dimension indices values.

In choosing indicators of quality life index, the following are taken into consideration:

- The indicator has the ability to distinguish between the households of different living standards.
- The household mark of the indicator that applies at the individual levels is equal to of its member.
- The largest area of living standard is covered by a few indicators as possible.
- Composite indices are calculated from multiple question data within the questionnaire.
- Balance in the number of some indicators is fulfilled with the importance of the population areas and groups that they represent in the dimension.
- In the absence of a value of a given indicator, the considered dimension index is calculated on the basis of the values of the other dimension indicators.

Based on the Household Expenditure and Income Survey 2010 data and the indicators it provided, index of quality life included five dimensions, each measured by four to thirteen indicators. Table (4) shows the dimensions and number of indicators for each dimension.

Table 4: Dimensions and Indicators of Life Quality Index, 2010

Dimension	Number of indicators
Education	8
Health	7
Household Services	13
Housing	9
Economic	4
Total Quality Life index	**41**

In order to simplify and standardize the distribution of households according to the values of the quality of life index, its dimension indices or indicator marks, households will be classified according to the above mentioned values to five standards of living, as follows:

- Very low: Households with values below 0.75.
- Low: Households whose values are between (0.75 to less than 1.00).
- Middle: Households whose values are between (1.00 to less than 1.25).
- High: Households whose values are between (1.25 to less than 1.50).
- Very high: Households whose values are between (1.50 to 2.00).

For the purposes of the analytical report of the quality of life index which prepared by the Department of Statistics (DOS), the ratios of the quality of life index included in the above methodology have been redistributed to three levels, which are below the average level and include both "very low and low", average standard of living and includes "middle" level, the standard of living above the average includes both the "high and very high" levels.

Some results of the quality of life index, 2010, issued by (DOS)

Education Index

The data showed that about 16% of households of below the average standard of living "very low and low" in education both by level of education, overcrowding index in classes for the primary or secondary levels, enrollment index, distance to nearest primary and secondary school…

Health Index

The quality of life below the average was "very low and low" at the level of the Kingdom 17.1% in all indicators of the dimension as an indicator of the percentage of health insured individuals, the index of smoking , the index of disability and disease ...

Housing Index

The results indicated that one-third of households in the Kingdom are below the average standard of living and fifth of the households had above average life level, whether in the dominant material of wall index, the bathroom-type index, or the overcrowding index…

Housing Services and Area Index

11.6% of Jordanian households are below the average of the standard of living, around 45% of households are in the middle standard of living, and 43.7% of households are above the average of the living standard" high and very high" in dimension indicators "water availability, sanitation type, and the main source of drinking water...".

Economic Index

The results showed that 22% of the households with the living standard below the average, while 33.3% of households are in middle standard and 44.6% of households are above the average.

Arab References:

1. Department of Statistic, Household and Income Survey, 2010.
2. Department of Statistic, Poverty Status in Jordan, 2010.
3. Department of Statistic, Price division.
4. Baker, Mohammad Hussein, Measuring Poverty in Economic and Social Committee of West Asia Countries, Series of Poverty Alleviation Studies (3). United Nations, New York, 1996, P. (1).
5. Al Sqour et al., 1989, p. 17 (Pockets of Poverty in the Hashemite Kingdom of Jordan Study).
6. Study of income distribution in Jordan, AlAssaf, Ghazi, 1973.
7. Baker, Mohammad Hussein, Poverty in the Arab Region: Concepts and Measurement Methodologies, 2007, p. 26.
8. Sqour et al, 1993, p. 11.
9. Baker, Mohammad Hussein,(2007), Analysis of living standards in Iraq.
10. Food and Agriculture Organization of the United Nation.

Foreign References:

1. Food and Agriculture Organization of the United Nation.
2. World Bank (1994), (2001).
3. Revallion (1991), (1998).
4. James and Schofield 1990.