Income Distribution and Poverty in Jordanian Nomadic Communities

Doukhi A. Hunaiti[*]

ABSTRACT

This study aims to measure the patterns of income and consumption expenditures prevailing in the nomadic region of Jordan. It also aims to measure the level of poverty and welfare by calculating the income distribution equality and then it measures the difference in poverty levels between the community groups. Samples of 318 families out of 3140 families were selected randomly from seven remote communities in the southern nomadic region. The data were collected using the technique of personal interviews by the aid of two standard questionnaires designed for this purpose. Descriptive statistical analysis, poverty gap, Lorenz curve, Gini coefficient and Pigou's measures were used to achieve the study purpose. The study concluded that the difference between families' income can be attributed to the difference between the types of work, not to the working rate and due to the families' capital. The study showed that the family expenditure mean for a family with an average of 7.4 people is JD 239 per month. The abject poverty line reached up to JD162 per family per month. The absolute poverty line was JD 392 per family per month. While the Gini coefficient was 0.2 for expenditure and 0.3 for the income. The level of socio-economic welfare was 191 degree measured by Pigou scale. The study also showed that the percentage of abject poverty in the sample is 3.3% and the percentage of absolutely-poor families is 13.5%. The reasons behind the family poorness from the families' perspective are that 64% of them are unemployed, or because of having a large family size and female-headed households. Whereas 68% of the studied families think that providing them with job opportunities is the best solution to overcome the poverty problem.

Keywords: Poverty gap, Gini coefficient, Income distribution.

INTRODUCTION

According to the World Bank (2000), poverty is the pronounced deprivation in well-being and the poor are those whose expenditure (or income) falls below a poverty line. Poverty and income distribution equality are considered some of the economical and social problems that face many of the developing countries, especially in the rural and nomadic areas. Therefore, the main priority of Jordan development plans was given to employment, equity and poverty. The patterns of poverty are a central issue in policy making and policy reform in Jordan. Several policies that have undergone reform, such as food price subsidies, general cash transfers and expansion in public sector employment, have traditionally been justified on the basis of supporting the needy. Reforming public sector institutions and policies to increase economic growth requires careful attention to the impact of such reforms on the poor. As a result, the number of poor Jordanians declined from 24% in 1980 to less than 12% in 1997 (Radwan et al., 2001; World Bank,1999). Another study estimated that the percentage of poor in Jordan fell by a third from 21.3 percent in 1997 to 14.2 percent in 2002 (World Bank, 2004). The inequality of income, reflected by Gini coefficient, was improved with the

[*] Associate Professor in Agricultural Economy and Rural Development, Faculty of Agriculture, Mu'tah University, Al-Karak, Jordan. Email: doukhih@yahoo.com
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coefficient declining from 0.4 in 1980 to 0.36 in 1997 (Harrigan et al., 2006; Radwan et al., 2001).

Poverty means being unable to satisfy the essential needs, according to the measures and standards that can be evolved in the light of materialistic, physiological or social standards. Interest is often directed toward the materialistic measurement of poverty, especially on the light of income level; pattern and distribution. Nevertheless, there is an effect of the social, political, cultural and behavioral factors on poverty level and attitudes.

LITERATURE REVIEW

Woden (1997) investigated the household characteristics and the characteristics of the areas in which they live in relation to consumption, poverty, growth and inequality in Bangladesh. He found that education, demographics, land ownership, occupation and location all affect consumption and poverty. The gains in per capita consumption associated with many of these household characteristics remained stable over time, education and land ownership contributed the most to inequality.

Sadeghi et al. (2001) tried to explore the determinants of poverty in the rural areas in Iran. The study utilized farm and household cross-sectional data for 1998- 1999 that were collected through personal interviews with 350 farmers from the Savejbolagh district. The effects of explanatory variables on income are interpreted to have the reverse effects on poverty. The dependent variable is a natural logarithm of the farmer's annual income. The explanatory variables included such variables as the number of sons, farmer's age and experience, level of education, type of production technologies and town distance. The results show that alleviation of poverty and income disparities can be achieved by making improvements on the assets of the poor farmers.

In a field survey conducted by the Ministry of Planning (1996) about setting a program for developing and promoting the Southern Nomadic Region, the survey proposed

recommendations and suggested a number of projects and small businesses to create job opportunities for developing the growing population clustering in the area. Such projects also aim to lower the gap between the nomadic and urban areas income and it has been found that 70% of the total family incomes are less than JD200 monthly/family and 13% of the households were placed below the abject poverty line and 39% below the absolute poverty line. The study showed that the major economic activities in the region are livestock production. The percentage of people engaged in this activity is 85% of the total population, 49% of these families depend on this activity to cover their basic needs; i.e. to be self-sufficient. The abject poverty line for the families whose average size is 7.3 capita is JD88 monthly/family. On the other hand, the absolute poverty line is JD139/month/family; for the family that pays a rent for their house, where the average house rent was JD21/month/family, the absolute poverty line for the families who don't pay rents is JD118 monthly/family. Al-Mosa (1996) study on the desert colonies in Jordan Nomadic Region showed that the monthly income of 37.2% of the families in Jordan nomadic area is JD60-120, while it is less than JD120 for 5.7% of the families. Also, the income of a quarter of the families in the Nomadic Region falls into the monthly income category of JD120–180, the monthly income of 23.6% of the families falls into the income category of JD181-300 monthly/family and only 8.5% of the families get more than JD 300 monthly/family.

Hunaiti and Refaae (2001) concluded that the monthly abject poverty line in the nomadic area in Jordan for the family with the size of 7.4 members was JD100. While the absolute poverty line reached JD200 and JD162 for the families paying rent and the families who do not pay rent, respectively. The study also showed that the percentage of the abjectly-poor families is 3.8% and the absolutely-poor families reached 28% and 15% from the families who pay rent and who do not pay rent, respectively.

Al-Hunaiti and Al-Tayeb (2003) concluded that abject

poverty line reached JD14.9 monthly per capita and the absolute poverty line reached up to JD25.2 monthly per capita. The results showed that the percentage of abjectly-poor families reached 18.2 % and the absolutely-poor families reached up to 49.3%.

Regarding the income and the expenditure patterns prevailing in the remote society in Jordan and measuring the level of welfare by the equality of income distribution and the poverty gap, Al-Hunaiti (2005) showed that differences in income between the poor and non-poor families are mainly affected by the type of work, not period of work, ownership and the retirement salaries. The monthly average family expenditures were JD233.7 for 8.19 members. The Gini coefficient reached 0.29, Kuznets index 0.25 and Pigou's measure identifying the socioeconomic level was 166 degree.

About specifying the Leyden poverty line and measuring the perspectives of those families in explaining poverty and its causes, Hunaiti (2006) concluded that there is no statistically significant difference between poor families and non-poor families in relation to their accurate perspective about poverty. The abject poverty line for the families living in abject poverty rated as JD 12 monthly per person, while it rated as JD14 for families classified as "poor". From the perspective of the families who don't live in poverty, the abject poverty line is JD17 monthly per person. Regarding the Leyden poverty line for abjectly-poor families, it rated as JD28 monthly per person, JD 33 for poor and JD 40 for families who do not live in poverty. The main causes of poverty from the families' points of view are lack of jobs, large families and the old age of the family head, the handicapped family head or his death. The results of the exploratory factor analyses reveal that there are three factors causing poverty: (1) structural factor which is the most important one in explaining poverty, (2) the individual factor and (3) the fatalistic factor.

This study relates positively to other international researches conducted previously on the developing countries

that concluded the importance of structural factors in explaining the beliefs of people and their perspectives on poverty and its causes. On the other hand, these factors ranked differently with reference to their importance, especially in the industrial countries such as the USA and Australia, where the personal factors play the major role in identifying poverty and its causes in those places. Therefore, this result shows the difference between beliefs of members of the society towards poverty according to the economical and developmental levels. Hunaiti (2004) identified relative poverty line in the remote areas in the Southern Region in Jordan using Townsend method and the one-dollar method scorching the purchasing power of the American dollar. The study concluded that the relative poverty line in the region is JD25.18 per month per capita and the degree of depravation per capita according to the relative Townsend method is 57%, while the percentage of members who did not achieve the share at one dollar a day is 27.6%, this line is considered low compared to the officially announced in Jordan.

OBJECTIVES

A useful starting point for an analysis of the determinants of poverty can be a poverty profile. A poverty profile is an important descriptive tool for examining the characteristics of poverty in the country. Poverty profile tables provide key information on the correlates of poverty and hence also provide important clues to the underlying determinants of poverty. This study attempts to contribute to developing the rural and nomadic areas by providing the data and information related to this region, especially in the scope of poverty and incomes, amongst them are:

1.   Identifying the income patterns and the average family's annual consumption expenditure, which prevail in the nomadic community in Jordan.

2.   Measuring the abject and absolute poverty lines, poverty gap and welfare using the equality of income distribution between different society groups.

3.   Identifying the perception of families about the reasons of their poverty in the nomadic areas.

METHODOLOGICAL APPROACH

Methods of measuring and analyzing poverty , which are based on the income capacity to provide the necessary consumption needed, have been developed to become more accurate and clear from the point of view of the concept and measurement methodology and hence, new methods of poverty line measurement have evolved. Poverty line can be identified as the income (expenditure) level required to cover the dietary and non-dietary needs of the nomadic person. As the income at this level will negatively affect the efficiency of the nomadic person at work and production, it will worsen his health, psyche and the different conditions that keep a distance between him and the lowest level of the requirements of the person who can play a positive role in the society. This method is the most widely used for measuring and analyzing poverty, which has been developed by the World Bank and it is the accredited method of studies of the Ministry of Social Development and Ministry of Planning in Jordan.

There are two types of poverty: (1) the abject poverty, where families or individuals can only satisfy the basic dietary needs, meaning that the lowest cost of basic nutrients covers the necessary energy calories, which is the least level needed to keep a person alive. (2) the absolute poverty line, which is the sum of the cost of the food basket providing the minimum nutritional intake, in addition to the cost of other non-food basic needs, besides other basic needs like clothes and shoes, health, education and housing shelter. It is measured by the lowest level of income (expenditure) required to cover these needs (Radwan et al., 2001). Inequality and poverty are related to each other and, practically and generally, decreasing inequality would

decrease poverty[1].

Description of the Region and Study Area

The Jordan Badia region comprises 81.3% of the total area of Jordan. It is an arid zone with less than 200 mm rain fall annually. The area covers most of the desert areas which is divided geographically into 25939 km^2 in the northern descent representing 35.7% of the area, 9663 km^2 in the middle descent with an average of 13.3% of the descent area and 37056 km^2 in the southern desert with an average of 51 % of the total desert area (Tabini, 1995). The area of the study is limited to the Bedouin areas in the Southern region. The study area is situated geographically south of the capital Amman and is joined to four governorates: Karak, Tafielah, Maan and Aqaba. Our study concentrates on the areas situated at the peripheries of the governorate and away from the centre of the cities and the main services.

Data Collection

To achieve the study objectives, the researcher designed two primitive questionnaires to collect data from the families included in the study sample. Personal interviews were used in order to collect data to evaluate expenditures on dietary goods, other expenditures, expenditures on the non-dietary goods and on services in some of the Bedouin villages in the southern region. The questionnaire contains seventeen consumption groups; each contains a number of dietary goods except the last group, which includes some of the non-dietary services only. The questionnaire included special divisions related to the self-consumptions of the produced maternal, the "corporeal" presents expenditures of the families, expenditures of servants staying with the families and paid for from their own salaries and spending on buying durable and used goods. The questionnaire also involves special items on income according to sources such as salaries

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[1]See McKay (2002) for the definition of inequality and poverty and their dimensions and relation.

and corporeal advantages like food residence, dress… etc. It also includes workers' income, the rental income, like rents of real estate, land rent, profit of deposits, loans, drafts, corporations, shares, allotment and partnership, besides any kind of ownership incomes. The questionnaire involves other current remittances (pension, seal security, insurance compensations, monetary and corporeal presents and remittance from residents and nonresidents).

This questionnaire with its three parts is used to evaluate the real patterns of consumption and income. They were collected at three stages; the quantities and values of goods are evaluated monthly. The result is then multiplied by 4 to get the family's consumption in 4 months. The same process is repeated in the second and third round, while the three rounds are summoned to give the value of the family's consumption and income annually.

The Population and Sample Study

The study sample included 318 Bedouin families out of the total number of families located in seven clusters under three developmental units:

1. Qatranah –Karak Governorate, which includes Qatranah, Sad Al-Sultan and Damkhi.

2. AlHasa unit –Tafielah Governorate, which includes Wadi Al Abiad and Alhasa.

3. Alhusainieh –Ma'an Governorate, which includes Aljuruf and Alhusaineih.

Our study sample includes any family that is conforming to the survey frame of the incomes and expenditures for the year 2003, which was applied on all governorates in Jordan including our study governorates. The relative change coefficient in the Southern Region (the sample governorate) that expresses the relative standard error in the value of the mean family income is 6%-10%. The random cluster sample method was used at two stages. The first stage involves withdrawing a block sample from the clusters that contain a number of blocks exceeding five, where the withdrawing

process is achieved using the simple random method. The second stage includes selecting sample families by withdrawing from the block using the method of the systematic random sample.

Method and Analysis

The poverty line for a household, z_i , may be defined as the minimum spending/consumption (or income, or other measure) needed to achieve at least the minimum utility level u_z , given the level of prices (**p**) and the demographic characteristics of the household (**x**), so: $z_i = e$ (**p, x, u_z**). In practice, we cannot measure u_z , or even **e(.)** and so a more pragmatic approach is needed. There are two approaches. One is to compute a poverty line for each household, adjusting it from household to household to take into account differences in the prices they face and their demographic composition. The second, the more widely used approach, is to construct one per capita poverty line for all individuals, but to adjust *per capita y_i* for differences in prices and household composition. The adjusted *per capita y_i* is then compared with the one poverty line to determine if the individual is living below, or above it. With this approach, it is easier to talk of "the poverty line" and present it as a single number (Ravallion, 1998).

The headcount index (P_0) measures the proportion of the population that is poor. It is popular because it is easy to understand and measure, but it does not indicate how poor the poor people are. The percentage of abject poor families is calculated according to the following equation.

$$P_0 = \frac{N_p}{N} \qquad \qquad \text{…………………..(1)}$$

Where P_0 is the percentage of poor families, N_p is the number of families below poverty line and N is the total number of families. It simply measures the proportion of the population that is considered poor.

The *poverty gap index (P_S)* measures the extent to which

individuals fall below the poverty line (the poverty gaps) as a proportion of the poverty line. The sum of these poverty gaps gives the minimum cost of eliminating poverty, if transfers were perfectly targeted. The measure does not reflect changes in inequality among the poor.

The poverty gap was calculated according to following equation (Mitchell, 1984). Assume that the number of poor people is $y_1….y_g$, then:

$$P_s = \frac{\sum_{i=1}^{g}(Z - Y_i)}{NZ} \qquad …………………...(2)$$

Where P_S is the poverty gap in JD monthly or annually, Z represents the poverty line and N represents the total number of families. The poverty gap can be calculated as follows:

$$T = Q(Z - M) \qquad ………………...(3)$$

Where T is the poverty gap, Q is the number of poor, individual or family, Z is the income or the expenditure equal to absolute line (absolute poverty Line) in Jordanian Dinar (JD) monthly or annually and M is the family or individual income mean. However, the poverty gap, which is often considered as representing the depth of poverty, is the mean distance separating the population from poverty line, with the non-poor being given a distance of zero. The poverty gap is a measure of the poverty deficit of the entire population in which the notion of "poverty deficit" captures the resources that would be needed to lift all the poor out of poverty through perfectly targeted cash transfers (Coudouel et al., 2002).

MEASURES OF INEQUALITY

The standard Gini index measures twice the surface between the Lorenz curve, which maps the cumulative income share on the vertical axis against the distribution of the population on the horizontal axis and the line of equal

distribution (Coudouel et al., 2002). The Gini coefficients for income (consumption) were calculated to show the Inequalities. Descriptive statistical method was used to measure the equality of distributing incomes and expenditures, using the most pervading scales; i.e. Lorenz curve and Gini coefficient, according to the followings equation:

$$G = 1 - \left[\frac{1}{1000} \sum_{i=1}^{n} w_i \left(s_i + s_{i-1} \right) \right] …………………...(4)$$

Where G is the Gini coefficient, S_i is the accumulative community for the income percentages with respect to the category i. S_{i-1} is the accumulative communities itself with respect to the previous category. W_i is the percentage of families in the category i and n is number of categories (Wodon and Yitzhaki, 2002).

PIGOU WELFARE INDEX

To measure the level of welfare according to A.C.Pigou method (Kakawani, 1980), two equations were used.

$$W = M(1 - G) \qquad ………………...(5)$$

$$W = \frac{M}{1 + G} \qquad ………………...(6)$$

Where W is the economical and social welfare index, M is the mean family or individual income, G is the Gini coefficient for equal distribution of income and expenditure.

RESULTS AND DISCUSSION

Distribution of Income and Expenditure

The family income survey provides important indicators about individuals' or family's income in two opposite directions. The first is the evaluation of the mean of the total individual and family income and the evaluation of that mean

on each group level of those that reflect directly the progressive level of income. The second is the effect of the difference on incomes distribution.

Table (1) shows that the percentage of the family's mean monthly income mean in the southern nomadic area to its mean size, which was measured to be 7.4 members, is JD357 and the median of the total families income which is considered by some socialists a poverty line in the area is JD287. The Coefficient of Variance (C.V.) is 1.05%, which shows the accuracy of data and that the sample well-presents the community from which it is taken. It has been concluded that the monthly income of 77.8 % of the families does not exceed JD333 which is the mean closed to the general mean JD357. The result shows that 23% of the families in the area contain 45.3% of the total incomes in it. However,

because of the cautions that income indicators show some sort of bias towards the low incomes in the developed areas, as it doesn't reflect the real standard of life, so the income indicators are replaced by consumption expenditure indicator for family and individuals to measure living standard.

Furthermore, Table (1) shows that the mean of the monthly expenditures in the Southern Nomadic area of Jordan, with the mean family size being 7.4 people, is JD239. Some socialists consider that the poverty line in the areas is JD220. The C.V. is 0.5% indicating the accuracy of data and its representation of the society from which it is drawn. It has been found that the expenditure of 77% of the families in the area does not exceed JD336 per month, while 57% of the families' income does not exceed JD247 per month.

Table (1): The distribution of families according to income and expenditure categories in southern nomadic area (JD/month).

Family distribution by income/ expenditure category (JD)	Income			Expenditure	
	Percentage of families	**Accumulative percentage of families**	**Mean of monthly family income (JD's)**	**Percentage of families**	**Mean of monthly family expenditure (JD's)**
< 100	2.2	2.2	84.2	4.4	75.8
101-200	18.5	20.7	170.9	36.7	170.1
201-300	36	56.7	255	42.2	246.7
301-400	20.4	77.1	325.3	12	335.3
401-500	8.4	85.5	448.8	2.5	440
501-600	6.9	92.4	555.5	0.7	520
601-700	2.9	95.3	660.4	0.4	690
701-800	1.8	97.1	761.4	0.4	730
801-900	0.7	97.8	830	0.4	870
> 900	2.2	100	2048.8	0.4	1528
Mean			356.8		239
std. deviation			375.9		124.5
Median			287		220
C.V.			%1.05		%0.5

Sources of Families' Current Income

Table (2) shows the mean of the families current monthly incomes (JD/month/family). It has been found that the highest income was recorded for the people who own their livestock business; whereas their mean income from this source was JD414 per month per family. The median of the income from this source was JD58, which is biased to the higher income and the distribution of income according to this source is different. The second highest income was for those who work in horticulture, where the mean income recorded reached JD369 and the median JD183. The off-farm income, mainly from government employment and remittances, has allowed the sustaining of agricultural activities income from on-farm activities representing 35% of the total income in

Jordan (Martini el al., 2008). The rural communities usually seek government employment because of the higher income it generates and the younger ones consider it as a secure source of livelihood.

The third highest income source was labors. It reached JD253 per month. The income mean was JD225; while on the country level it was JD210 per month per family, which means that the income mean from this source is equal at the regional and general levels. It is more equal with respect to income destination compared to the other sources. This result is similar to the results of previous studies (Ministry of Planning, 1996; Hunaiti, 2005) and with the general level of the country (Department of Statistics, 2004).

Table (2): The distribution of the mean of the family's monthly income according to the sources of income (JD/month /family).

Source of income	Southern nomadic area		Jordan*
	Mean of income	**Median of income**	**Mean of income**
Income from employment	253	225	211.1
Income from horticulture cultivation	369.3	182.5	-
Income from livestock enterprise	413.5	57.5	-
Income from labors	75	75	55
Property income, rents, land, building	59.6	50	87.5
Property income, shares profits, partnership	20	10	-
Property income, other prosperities	106.4	80	18.7
Pensioned and social security	168.9	16.2	-
Remittance income – Grant Fund	52.9	50	-
Remittance income- fund from families	43.3	25	-
Foreign remittance from individuals	10	10	-
Rent of owned residence	32.9	30	-
Self-produced by household for own consumption	3.3	3	-
Other incomes- others	200	200	0.2
Total of income	365.8	287	401

*Department of Statistics (2004), p. 62.

Family Expenditures on the Expenditure Items

Table (3) shows the mean of the family's monthly

expenditures on goods and services, where the highest mean expenditure was on food items with an average of

JD105 per family compared with the mean JD187 at the country level, which means low expenditures level on food in these areas compared with the general level in Jordan. This emphasizes the relative importance of expenditures on food; it reached 36% at the general level, but it didn't exceed 28% at the nomadic area level. This was attributed to the low income and its distribution on other life necessaries, such as installments, house rents and commitment. The mean of the expenditures on such requirements is JD79.5 per month. This 21%

measuring relative importance given to them is considered as one of the liabilities deducted from the current income; whereas the expenditure on education and health care comes closer to the general country level. The mean expenditure on those two items is JD46 at the general level; while it reaches JD42 at the nomadic area level. In spite of the low income mean in the nomadic areas, the relative importance given to those two items is 11% there, compared to 9% at the general level.

Table (3): The distribution of monthly expenditure items.

Expenditure items	Southern nomadic area		Jordan*	
	Expenditure mean	Relative importance	Expenditure mean	Relative importance
Food and beverages	105.1	27.6	187.13	36.16
Clothing and footwear	23.2	6.1	25.02	4.83
Housing and related expenditure	10	2.6	12.15	2.35
Rent of the rented residence	28.85	7.6	79.53	15.37
Fuel, lighting, water and garbage	18	4.7	27.82	5.38
Furniture and house utensils	6.6	1.7	16.98	3.28
Transportation & communication	20	5.3	68.15	13.17
Education	26.6	7	31.88	6.16
Medical care	15.6	4.1	14.29	2.76
Gifts	23.6	6.2	-	-
Culture and recreation	19.3	5.1	27.54	5.32
Pay installments	50.7	13.3	-	-
Other expenditures	33.3	8.7	26.56	5.13
median	239	100	517.05	100

*Department of Statistics (2004), p.190.

The Distribution of the Families' Monthly Expenditure

The information taken from the expenditure survey is beneficial to our study on expenditure distribution. The interest in this subject has been increasing in the past few years after many studies. It shows that the economic development in some developing countries is associated with the increasing difference in incomes distribution, especially between the rural and urban societies. This requires observing the development of income

distribution, so that we can take the necessary procedures in order to redistribute the incomes to insure increasing the equality. Lorenz Curve is simply a graphic representation that shows the difference in incomes or expenditure distribution by describing the difference between the absolute equality line in expenditure distribution and the real distribution curve (Kuznets, 1973).

The distribution equality of monthly expenditures

according to certain expenditures categories is shown in Table (4). Lorenz curve for expenditure shows semi-equality in expenditure in the sample as shown in Figure (1). Furthermore, Table (4) shows the monthly income distribution and the inequality in income distribution as it appears in Figure (2). To express this in a numerical indicator, Gini coefficient is used. This indicator represents the venation (gap) between equality line and Lorenz curve divided by the total area of distribution represented by the triangle confined between absolute equality line and the vertical and horizontal coordinates.

Gini coefficient value varies from zero to one, where zero value indicates the absolute equality. As the value increases above zero, the income and expenditure distribution drives away from the absolute equality level; therefore, the income distribution is increasingly getting worse with the increasing value of Gini coefficient until it becomes the worst when its value becomes one (Robert and Lester, 1975).

Table (5) shows the calculation of Gini coefficient [equation 4]. The estimated Gini coefficient for expenditure is 0.20 and Gini coefficient for income is 0.308. We noticed that the expenditure distribution in the area is close to the equality, where the equality percentage of expenditure is 80% at the total number of families. As far as the income is concerned, it is still at an acceptable income distribution level in the area compared to the country's general level 39.6% in 2002 (Shahateet, 2006). But we noticed that Gini coefficient value for rural areas is 29% in Hunaiti (2005), which is coming closer to its level in the nomadic area in this study.

Table (4): The distribution of families monthly expenditures (monthly income) according to expenditures/income categories.

| Expenditure/ income category (JD)	Expenditure distribution				Income distribution			
	No. of families	Percent of families	Total expenditure	Percent of expenditure	No. of families	Percent of families	Total income	Percent of income
<100	12	4.4	910	1.4	6	2.2	505	0.5
101-200	101	36.7	17185	26.2	51	18.5	8718	8.9
201-300	116	42.2	28618	43.5	99	36	25242	25.7
301-400	33	12	11065	16.8	56	20.4	19731	20.1
401-500	7	2.5	3080	4.7	23	8.4	10323	10.5
501-600	2	0.73	1040	1.6	19	6.9	10555	10.8
601-700	1	0.36	690	1	8	2.9	5283	5.4
701-800	1	0.36	730	1.1	5	1.8	3807	3.9
801-900	1	0.36	870	1.3	2	0.7	1660	1.7
>900	1	0.36	1528	2.3	6	2.2	12293	12.5
Total	275	100	65716	100	275	100	98117	100
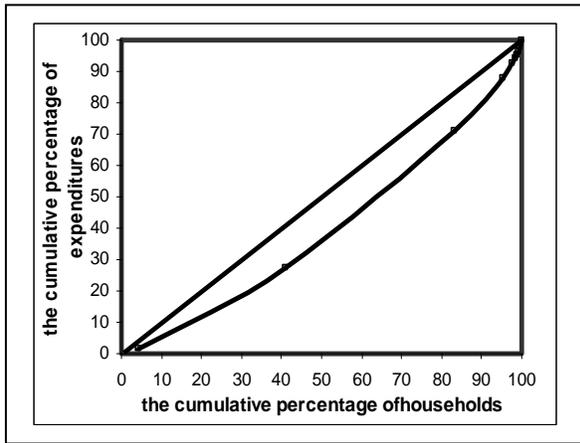
Figure (1): Lorenz curve according to the variation of levels in expenditure distribution.
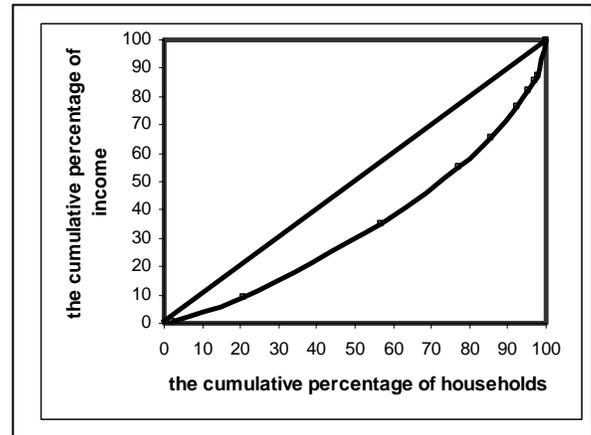

Figure (2): Lorenz Curve according to the variation of levels in income distribution.

Table (5): Gini coefficient for the expenditure and income monthly distribution between families.

Income / expenditure categories	Expenditure					Income				
	S_i	S_{i-1}	$S_i+ S_{i-1}$	W_i	$W_i(S_i+ S_{i-1})$	S_i	S_{i-1}	$S_i+ S_{i-1}$	W_i	$W_i(S_i+ S_{i-1})$
<100 JD	1.4	-	1.4	4.4	6	0.5	-	0.5	2.2	1.1
101-200	27.5	1.4	28.9	36.7	1062.1	9.4	0.5	9.9	18.5	183.9
201-300	71.1	27.5	98.6	42.2	4159.9	35.1	9.4	44.5	36	1603
301-400	87.9	71.1	159	12	19.8	55.2	35.1	90.4	20.4	1840.1
401-500	92.6	87.9	180.5	2.5	459.5	65.8	55.2	121	8.4	1011.9
501-600	94.2	92.6	186.8	0.73	135.9	76.5	65.8	142.3	6.9	983
601-700	95.2	94.2	189.4	0.36	68.9	81.9	76.5	158.4	2.9	460.8
701-800	96.4	95.2	191.6	0.36	69.7	85.8	81.9	167.7	1.8	304.9
801-900	97.7	96.4	194	0.36	70.6	87.5	85.8	173.3	0.7	126
>900 JD	100	97.7	197.7	0.36	71.9	100	87.5	187.4	2.2	409
Total	-	-	-	100	8012.5	-	-	-	-	6923.7

S_i is the accumulative percentages of expenditure or income with respect to the category i. W_i is the percentage of families in the category i.

Poverty Level in Nomadic Area

Using the poverty lines marked by Al-Hunaiti and Al-Tayeb (2004), we can conclude that the percentage of abjectly-poor families in the nomadic area is 3.3% and the percentage of absolutely-poor families is 13.5%, based on the income data. Based on expenditures data, the percentage of the families below the abject poverty line is 5.6% and of those below the absolute poverty line

is 28.5% though all studies in Jordan depend upon the expenditure in calculating the poverty percentage.

Comparing this result with the results of previous studies, such as the studies of the Ministry of Planning (1996), Al-Hunaiti (1997) and Al-Hunaiti and Al-Tayeb (2003), we found that the percentage of poor families is decreasing. But when comparing this percentage with the general level of the country for the year 2002 which

reached 14.2% (World Bank ,2004), we notice that the poverty percentage is still high compared with the general level.

Poverty Gap

The poverty line distinguishes the poor from the non-poor. However, it doesn't reflect the size of the poverty problem, like the number of poor, the gap separating them from the poverty line and the difference of poverty intensity. Nevertheless, we can use the poverty line as a reference to conclude many comparable indicators between different variables, including countries and periods, which reflect different poverty problems (Mitchell, 1984).

The poverty gap in the area of study measures the size of the gap between incomes or real expenditures of the poor and of those consistent to the poverty line; i.e. it refers to the extra money that the poor must make (in general as a part of total income or consumption) in order to reach the poverty line for the sample; thus measuring the poverty depth as estimated by [equation 3] is,

T = 91(186.5-239)= 4777 JD

Using the data of family monthly expenditures and family absolute monthly expenditures, the absolute poverty gap reached up to JD4778 for all families.

Pigou Measure

To measure the welfare level, the World Bank developed Pigou's method by Kakwoni (1980) to measure the welfare level based on two variables: the mean of the family or per capita of income and one of the scales of distribution equity (Gini standard). Pigou's method explains the mathematical equations for measurement, because the welfare implications are included in Gini coefficient as the mean of family or per capita expenditure or income [equations 5 and 6].

If we replace the mean of the family monthly income by the mean of the family monthly expenditure, by using Gini coefficient, we find the first equation (Kakwoni, 1980) as follows:

$$W = 239(1 - 0.20) = 191.2$$

and the second equation:

$$W = \frac{239}{1 + 0.20} = 199.16$$

The first equation is more responsive to the changes in the mean of the expenditure when Gini coefficient is less than one half, as it is the case in this study. This equation means that as the difference in expenditures increases, the welfare level decreases. The welfare level is zero when the difference in expenditure has reached the highest value. When the welfare is equal to the value of family mean expenditure, the welfare achieves the highest possible level. Welfare equation is less responsive to the changes in the mean of expenditure when Gini coefficient is higher than one half.

The second equation suggests that the level of welfare is not less than the income or the expenditure even when the value of Gini coefficient reaches the highest value (integer one), while the welfare level is equal to the mean of the expenditure when the distribution reaches the absolute equality limit; i.e. when the difference in expenditure level is zero.

Accordingly, the level of economical and social welfare of the area's community by the first equation, which is applied on the data of this study, is about 191 units, whereas it was about 199 units by the second equation which is inconsistent with the data of this study. Using both methods to measure the level of economical welfare comes out with the result that this welfare remains below the mean level.

Perspectives of Poverty

There are many approaches to measure poverty. Some of these approaches are simple with regard to its requirements of data and application, but restore some simple indicators only with limited accuracy when compared with poverty lines and methods. Such approaches are of interest for some developed countries because there are secured social nets that provide all people with the least limit of essential needs. Poverty problem is solved by the equal distribution of income and not stopping providing the least essential needs. In spite of all that, the perspective poverty line approach gives a primitive picture about the poverty line and the welfare degree required in the nomadic area.

When heads of families are asked about who considers his family as poor, 22% of them perceive their families as poor. They said that the family need JD162 per month for food as shown in Table (6) and the amount of money that covers the family's expenditures like food, clothes, transportation, education, medical services and housing was JD392 per month compared with other studies (Hunaiti, 2004, 2006). We noticed that the poverty line in the study area is higher than that in previous studies.

Table (7) reviews a summary of the reasons behind poverty. It shows that 64% of them attributed that to unemployment. The second reason was the family size, mentioned by 17% of the study sample. This result complies with the reasons mentioned in previous studies.

Table (6): Required income for subsistence limit and sufficiency limit.

Required category (JD)	Abject poverty		Absolute poverty	
	Percentage of families	Mean of the family size	Percentage of families	Mean of the family size
100<	16.7	4.5	1.4	3.75
160-101	42	6.6	2.2	4.8
220-161	33	8.8	5.1	6.1
280-221	6.1	10.9	5.8	6.2
340-281	1.8	9.2	25.7	7.7
400-341	0.4	12	29.3	8.8
500-401			24.3	11.7
600-501			4.3	8.8
> 600			1.8	
Overall	100	7.4	100	7.4
Mean	162		392.4	
Median	150		350	
Mode	150		300	
Std. Deviation	3		10.3	

Table (7): Distribution of poor families according to the main reason behind poverty.

The main reason	Percentage of families
Non availability of jobs to individuals and large size of family	64.4
Death of family sponsors (female-headed households)	16.9
Others	5.1
can't identify	5.1
Handicapped; or old family head	3.4

About the possibility of solving the poverty problem, Table (8) shows that 68% of the families say that the only solution for poverty is providing them with job opportunities. 12% of the families think that planning contributes to their welfare and happiness.

Table (8): Distribution of families that consider themselves poor.

Method of solving poverty problem	Percentage of families
Providing them with job opportunities	68
Family planning leads to welfare and happiness	12
Providing them with a salary from the social development department	4
Getting job then getting retired once again	2
Free higher education	2
Getting loans	2
can't specify	10
Total	100

CONCLUSIONS AND RECOMMENDATIONS

Human development policies are important for the poor and poverty alleviation. It can be concluded that the alleviation of poverty and income disparities can be achieved by making improvements in the assets of the poor farmers. Implicit in these results is that in order to make human capital, such as the level of education, effective in poverty alleviation, we need to introduce better production technologies and more modern inputs to farmers in the rural areas and furnish them with agricultural vocational training. It is important to continue investing in the health and education of the poor so they will be able to benefit from the higher education growth and the increased job opportunities.

It has been concluded that 77.8% of the families get mean monthly income that do not exceed JD333 which is close to the general mean JD357. It has been found that 77% of the families in the nomadic area do not spend more than JD336 per month, while 57% of the families' incomes do not exceed JD247 per month, which is close to the general income JD49.74 monthly per capita (Department of Statistics, 2004). We found that the area is still under the general mean of the country with 17.45 JD's difference per capita per month.

It has been found that the highest income is produced by the people who own a livestock business; as the income mean generated from this source is JD414 per month per family. The median of the income produced by this source was JD58, which is biased to the higher income group. The richer farmers tend to benefit the most from the output support and feed subsidies, while the small and poor farmers do lose the most from the policy reform process. Large flock holders tend to reduce flock size and the landless small livestock holders tend to reduce livestock numbers and rely more on off-farm activities.

Planning subsidized feedstuffs without setting any limit on the quantity of purchases increases demand on these subsidized feedstuffs, since the subsidy was not targeted to the poor and all income groups could benefit from the low prices, resulting in perverse income distribution effects. Furthermore, producer subsidies for barley provided little benefits to the poor, as most local red meat is consumed by upper-income groups or exported.

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