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# Hashemite Kingdom of Jordan Poverty Update

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# Jordan Poverty Update - Volume II: Appendices

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## APPENDIX I. TECHNICAL DETAILS RELATED TO SECTION I: POVERTY IN 2006

### 1. *Analysis of Prices*

#### 1.1 *Spatial price indices by Governorates in Jordan*

Jordan has 12 Governorates. The following paragraphs describe the methodology used to construct the spatial prices indices by Governorates. In the construction of these indices we used a basket consisting of 452 items of consumption of which 193 were food items

Suppose  $a_j$  is the population share of the  $j$ th Governorate ( $j$  varies from 1 to 12) and  $w_{ij}$  is the budget share of the  $i$ th item of consumption in the  $j$ th Governorate, (where  $i$  varies from 1 to  $n$ ). Then we obtained the national basket (or budget share) as

$$\bar{w}_i = \sum_{j=1}^{12} a_j w_{ij} \quad (1)$$

Similarly if  $p_{ij}$  is the price of the  $i$ th item of consumption in the  $j$ th Governorate, then one can construct a national price  $\bar{p}_i$  for the  $i$ th item of consumption as

$$\bar{p}_i = \sum_{j=1}^{12} a_j p_{ij} \quad (2)$$

The spatial price indices are constructed relative to the national prices. We can follow two alternative approaches, namely, Laspeyres and Paasche. We used the Laspeyres approach because it has a convenient property, which we will discuss below. The spatial price index for the  $j$ th Governorate is given by

$$P_j = \sum_{i=1}^n \bar{w}_i (p_{ij} / \bar{p}_i) \quad (3)$$

where  $n$  is the total number of items of consumption (equal to 452). Multiplying (3) by  $a_j$  and summing over  $j$ , we obtain

$$\sum_{j=1}^{12} a_j P_j = 100 \quad (4)$$

where use has been made of the fact that  $\sum_{i=1}^n \bar{w}_i = 100$ . This equation shows that the weighted average of the spatial price indices for Governorates is equal to 100, where weights are proportional to the population of Governorates. The spatial price index for the Whole Kingdom is equal to 100. Thus  $P_j$  provides the relative cost of different Governorates relative to the average cost of living in the Whole Kingdom.

The price calculations were performed using the consumption basket of the bottom quintile from the 2006 survey for quarters 3 and 4. The basket consisted of 452 items of consumption of which 193 were food items. The detailed calculations are available on request. Table 1.1 presents the spatial price indices separately for food, non-food and total expenditures for the average of quarters 3 and 4 in 2006.

It can be verified that the weighted average of spatial price indices for Governorates with weight proportion to the population of Governorates is equal to 100, which is cost of living for the Whole Kingdom. For instance, the non-food spatial price index for Amman is 104.8, which means that the non-food prices in Amman governorate are 4.8% higher than the average of the Whole Kingdom. Mafraq and Ajlun have the lowest costs of living in terms of both food and non-food items of consumption.

**Table I.1. Spatial price indices for governorates for the 3<sup>rd</sup> and 4<sup>th</sup> quarter of 2006**

<b>Governorate</b>	<b>Food</b>	<b>Non-food</b>	<b>Total</b>
Amman	102.6	104.8	103.9
Balqa	98.2	97.6	97.8
Zarqa	100.0	98.3	99.0
Madaba	96.2	97.1	96.7
Irbid	98.7	96.1	97.1
Mafraq	94.9	96.1	95.6
Jarash	101.2	96.5	98.3
Ajlun	94.8	96.1	95.6
Karak	96.9	97.9	97.5
Tafiela	97.8	97.0	97.3
Maan	97.9	96.0	96.8
Aqaba	99.8	98.2	98.8
Whole Kingdom	100.0	100.0	100.0

## 1.2 Consumer Price Indices

The consumer price indices measure the changes in cost of living over time. The prices in Jordan are collected monthly. We had the monthly price indices for the Whole Kingdom in 2002, 2003 and 2006. The 2002 calendar year is the base period for which the index is set equal to 100. The 2002 Household Income and Expenditure Survey (HIES) was conducted covering the period from March 2002 to February 2003. The first quarter 2002 is the period from March to May, the second quarter is the period from June to August, the third quarter is the period from September to November and the fourth quarter is the period from December 2002 to February 2003.

The 2006 HIES was conducted for only two quarters, the third quarter covering the period from July to September and the fourth quarter covering the period from October to December 2006. Using the monthly price indices we computed the average price indices for the different quarters and the survey and calendar months. Table 1.2 presents the price indices. It is noted that inflation rate was very low in 2002. The price index hardly moved over different quarters of 2002-03. However, the inflation rate accelerated in 2006. The overall inflation rate between 2002 and 2006 (calendar months) was

15.51%; the food prices increased by 19.70% and the non-food prices increased by 13.14%. The inflation rate is also very high between quarter 3 and quarter 4 of 2006.

**Table I.2. Price indices for the whole Kingdom**

	Calendar months 02	Quarter1 of 2002 survey	Quarter2 of 2002 survey	Quarter3 of 2002 survey	Quarter4 of 2002 survey	Whole year of 2002 survey	Quarter3 of 2006 survey	Quarter4 of 2006 survey	Calendar months 06
Total	100	100.29	99.80	100.12	100.73	100.24	116.37	118.70	115.51
Food	100	101.90	98.45	99.04	99.99	99.84	120.28	126.32	119.70
Non-food	100	99.38	100.57	100.73	101.16	100.46	114.15	114.38	113.14

The inflation rates are not expected to be the same in different Governorates. To capture accurately the impact of inflation on the living standards we must use the CPI for each Governorate. It is somewhat strange that the monthly CPI is available for 2006 but not for 2002-03 although the monthly figures for 2006 are with respect to the base year 2002. Thus we can tell how the prices have changed between the 2002 calendar year and every month in 2006 but we can not tell how prices have changed between the two survey periods. Recall that 2002-03 survey was conducted covering the period from March 2002 to February 2003. Given the monthly CPI for each Governorate in 2006, we computed the CPI for quarter 3 and quarter 4 in 2006 and the entire 2006 calendar year for each Governorate (with base year 2002=100). The results are presented in Table 1.3. It is noted that the CPI vary quite substantially across the different Governorates.

**Table I.3. Consumer price indices for 2006 : Base year 2002=100**

Governorate	Q3 Food	Q3 Non-food	Q3 Total	Q4 Food	Q4 Non-food	Q4 Total	Avg. of			Calendar Year 2006 Food	Calendar Year 2006 Non-food	Calendar Year 2006 Total
							Avg. of Q3 & Q4 Food	Avg. of Q3 & Q4 Non-food	Avg. of Q3 & Q4 Total			
Amman	122.3	112.2	116.2	126.8	112.7	117.8	124.5	112.5	117.0	121.4	110.9	115.1
Balqa	124.6	113.2	117.8	129.9	113.5	121.1	127.2	113.3	119.4	121.7	111.9	116.9
Zarqa	120.7	111.9	115.9	126.8	112.5	118.6	123.7	112.2	117.2	119.0	110.8	114.9
Madaba	121.7	112.8	116.9	127.0	113.4	119.2	124.3	113.1	118.1	120.0	111.8	115.9
Irbid	122.8	114.0	117.6	128.1	115.0	120.6	125.5	114.5	119.1	120.8	112.9	116.8
Mafraq	122.5	114.3	117.8	128.0	115.1	121.1	125.3	114.7	119.4	119.7	112.9	116.7
Jarash	122.7	114.2	117.3	127.4	114.8	120.4	125.1	114.5	118.9	120.1	113.0	116.6
Ajlun	119.7	116.8	118.2	126.1	117.6	121.9	122.9	117.2	120.0	118.0	115.4	117.7
Karak	123.3	114.3	117.7	128.7	114.6	120.8	126.0	114.4	119.3	121.0	113.2	117.1
Tafiela	126.5	116.1	120.5	133.2	116.2	124.4	129.9	116.1	122.5	124.0	114.5	119.7
Maan	120.7	112.5	115.9	124.3	112.6	118.1	122.5	112.5	117.0	118.2	111.1	114.9
Aqaba	121.3	107.6	113.3	125.5	108.1	115.2	123.4	107.8	114.2	119.3	107.2	112.5
Kingdom	120.28	114.15	116.37	126.32	114.38	118.70	123.3	114.3	117.5	119.7	113.1	115.5

Our object is to measure price changes at the Governorate level between the two survey periods. Table 1.3 gives the quarterly price indices for 2006 with respect to the base of 2002 calendar year. We used this information with the spatial price indices presented in Table 1.1 to obtain Tables 1.4-1.6, which provide price indices which are comparable across Governorates and over time. Looking at Table 1.2, we note that the changes in prices for the Whole Kingdom in different quarters of 2002 were very small, so it will be reasonable to assume that the percentage changes in prices in the Whole Kingdom are of the same magnitude in each Governorate in different quarters of 2002. Using this assumption we constructed Tables 1.4-1.6 which provides the comparisons of prices changes across all quarters and for each Governorate separately for food, non-food and both food and non-food items of consumption. These tables provide the complete information about price changes at the Governorate level.

**Table I.4. Price indices at governorate level: Food : quarter3& 4, 2006 prices whole Kingdom =100**

Governorate	Calendar	Survey periods 2002				Survey periods 2006				Calendar
	2002	q1	q2	q3	q4	2002	q3	Q4	Avg q3&q4	2006
Amman	82.4	83.91	81.07	81.56	82.34	82.22	100.7	104.5	102.6	100.0
Balqa	77.2	78.66	76.00	76.45	77.19	77.07	96.2	100.2	98.2	94.0
Zarqa	80.8	82.36	79.57	80.05	80.82	80.70	97.5	102.5	100.0	96.1
Madaba	77.4	78.86	76.19	76.65	77.38	77.27	94.1	98.3	96.2	92.8
Irbid	78.6	80.14	77.42	77.89	78.64	78.52	96.6	100.8	98.7	95.0
Mafraq	75.8	77.22	74.60	75.05	75.78	75.66	92.8	97.0	94.9	90.7
Jarash	80.9	82.45	79.66	80.14	80.91	80.79	99.3	103.1	101.2	97.2
Ajlun	77.1	78.56	75.90	76.35	77.09	76.97	92.3	97.2	94.8	91.0
Karak	76.9	78.34	75.69	76.14	76.87	76.76	94.8	98.9	96.9	93.1
Tafiela	75.3	76.78	74.18	74.62	75.34	75.23	95.3	100.4	97.8	93.4
Maan	79.9	81.46	78.70	79.18	79.94	79.82	96.5	99.4	97.9	94.5
Aqaba	80.9	82.42	79.63	80.11	80.88	80.76	98.1	101.5	99.8	96.5
Kingdom	81.1	82.64	79.84	80.32	81.10	80.98	97.6	102.4	100.0	97.1

**Table I.5. Price indices at governorate level: Non-food: quarter3& 4, 2006 prices whole Kingdom =100**

Governorate	Calendar	Survey periods 2002				Survey periods 2006				Calendar
	2002	q1	q2	q3	q4	2002	Q3	Q4	Avg q3&q4	2006
Amman	93.1	92.57	93.68	93.83	94.22	93.57	104.5	105.0	104.8	103.3
Balqa	86.1	85.55	86.58	86.71	87.08	86.48	97.4	97.7	97.6	96.3
Zarqa	87.7	87.12	88.17	88.31	88.68	88.07	98.1	98.6	98.3	97.2
Madaba	85.8	85.27	86.29	86.43	86.80	86.20	96.8	97.3	97.1	95.9
Irbid	84.0	83.43	84.43	84.57	84.92	84.34	95.7	96.5	96.1	94.8
Mafraq	83.7	83.21	84.21	84.34	84.70	84.12	95.7	96.4	96.1	94.6
Jarash	84.3	83.74	84.74	84.88	85.24	84.65	96.2	96.7	96.5	95.2
Ajlun	82.0	81.54	82.52	82.65	83.00	82.43	95.8	96.5	96.1	94.7
Karak	85.6	85.05	86.07	86.21	86.58	85.98	97.8	98.0	97.9	96.9
Tafiela	83.5	82.98	83.98	84.11	84.47	83.88	96.9	97.0	97.0	95.6
Maan	85.3	84.76	85.78	85.91	86.28	85.68	95.9	96.1	96.0	94.7
Aqaba	91.1	90.52	91.60	91.75	92.14	91.50	98.0	98.5	98.2	97.6
Kingdom	87.5	86.97	88.02	88.16	88.53	87.92	99.9	100.1	100.0	99.0

**Table I.6. Price indices at governorate level: Food and Non-food : quarter 3&4, 2006 prices whole Kingdom =100**

Governorate	Calendar	Survey periods 2002				Survey periods 2006				Calendar
	2002	q1	q2	q3	q4	2002	q3	Q4	Avg q3&q4	2006
Amman	88.81	89.07	88.64	88.92	89.46	89.02	103.2	104.6	103.9	102.3
Balqa	81.91	82.15	81.75	82.01	82.51	82.10	96.5	99.2	97.8	95.8
Zarqa	84.46	84.71	84.29	84.56	85.08	84.66	97.9	100.1	99.0	97.0
Madaba	81.93	82.17	81.77	82.03	82.53	82.12	95.8	97.7	96.7	95.0
Irbid	81.56	81.80	81.40	81.66	82.16	81.76	95.9	98.3	97.1	95.3
Mafraq	80.05	80.28	79.89	80.14	80.63	80.24	94.3	96.9	95.6	93.4
Jarash	82.74	82.98	82.57	82.84	83.34	82.93	97.1	99.6	98.3	96.5
Ajlun	79.64	79.87	79.48	79.73	80.22	79.83	94.1	97.1	95.6	93.7
Karak	81.76	82.00	81.60	81.86	82.36	81.96	96.2	98.8	97.5	95.7
Tafiela	79.46	79.70	79.31	79.56	80.05	79.65	95.8	98.9	97.3	95.1
Maan	82.71	82.96	82.55	82.81	83.32	82.91	95.8	97.7	96.8	95.1
Aqaba	86.52	86.77	86.35	86.62	87.16	86.73	98.0	99.6	98.8	97.3
Kingdom	85.08	85.33	84.91	85.18	85.70	85.28	99.0	101.0	100.0	98.3

## 2. *Analysis of expenditures*

### 2.1 *Per capita expenditure*

As pointed out the 2002 Household Income and Expenditure Survey (HIES) was conducted covering the period from March 2002 to February 2003. The first quarter 2002 is the period from March to May, the second quarter is the period from June to August, the third quarter is the period from September to November and the fourth quarter is the period from December 2002 to February 2003. The 2006 HIES was conducted for only two quarters, the third quarter covering the period from July to September and the fourth quarter covering the period from October to December 2006.

In the case of income, the recall period of the respondents was one full year so we can obtain the meaningful growth rates in the real per capita income after making appropriate adjustments for the changes in prices. But for expenditures the recall period is each quarter in the survey, so we cannot make meaningful comparisons of growth rate of per capita expenditure because the periods in the two surveys are different. The observed growth rate will also capture seasonal effects, which cannot be averaged out because of different time periods. The closely comparable quarters are 2<sup>nd</sup> and 3<sup>rd</sup> in the 2002-03 survey with 3<sup>rd</sup> and 4<sup>th</sup> quarters in the 2006 survey.

Table 1.7 presents the per capita nominal expenditures in the comparable quarters. The households in 2002-03 spent 36.3% of their total expenditure on food. In 2006, the share of food in the total expenditure declined to 33.3% so the share of expenditure on non-food increased from 60.3% in 2002-03 to 63.1% in 2006. The share of expenditure on alcohol and tobacco remained almost the same. The increase in the

share of non-food expenditure indicates that the average standard of living has increased during the past four years.

Table 1.7 also presents the expenditure shares for the bottom 20% of the population based on per capita expenditure. The population in the 1<sup>st</sup> quintile can be regarded as the poor. As expected, the poor spend greater share of their total expenditure on food. The share of food expenditure for the poor declined from 40.9% in 2002-03 to 38.5% in 2006. It indicates that the average standard of the poor has also increased during this period.

It is interesting to note that the poor spent about 6% of their expenditure on alcohol and tobacco, which is very high compared to 3.5% spent by all households.

**Table I.7. Per capita nominal expenditures in comparable quarters**

Source	2002-03	2006	Shares 02-03	Shares 06
<b>All households</b>				
Food	93	110	36.3	33.3
Alcohol & Tobacco	9	12	3.5	3.6
Non-food	154	208	60.3	63.1
Total expenditure	256	330	100.0	100.0
<b>Households in the 1st quintile</b>				
Food	35	46	40.9	38.5
Alcohol & Tobacco	5	7	6.0	5.8
Non-food	46	66	53.2	55.7
Total expenditure	86	119	100.0	100.0

## 2.2 *Gini index and quintile shares of per capita expenditure*

Table 1.8 presents the Gini index and quintile shares based on per capita expenditure. It is noted that the Gini index has declined by 4.2% indicating that inequality has declined quite strongly. This is also evident from the expenditure shares by quintiles. The share of the first quintile has increased by 7.8%. The 2<sup>nd</sup> and 3<sup>rd</sup> quintiles also have made gains their shares. Thus, the growth measured in terms of per capita expenditure has been pro-poor.

**Table I.8. Gini index and quintile shares of per capita expenditure in comparable quarters**

	2002	2006	Growth rate
Gini index	39.3	37.6	-4.2
Quintile shares			
1	6.7	7.2	8.1
2	10.7	11.2	4.6
3	14.7	15.0	1.9
4	21.1	20.9	-0.7
5	46.8	45.6	-2.5
Total	100.0	100.0	0.0

### 2.3 Growth rates in per capita real expenditures

In the calculations of real expenditure, we used the Food price index to deflate the per capita food expenditure and the non-food price index to deflate per capita non-food expenditure. The real per capita total expenditure was obtained as the sum per capita real food and non-food expenditures. Expenditures on alcohol and tobacco are included in non-food expenditures.

The per capita real expenditure in the whole Kingdom has increased by 9.5% between the comparable periods. In the Maan Governorate, the per capita real expenditure has increased by 20.2%. Other Governorates which have performed better than average are Baqa, Zarqa, Madaba, Irbid and Mafraq. Karak and Tafielia have done badly: the per capita real expenditure has declined by 11.8 and 10 percent respectively.

**Table I.9. Per capita real expenditure in comparable quarters**

Governorates	2002	2006	Growth rate
Amman	367	389	6.1
Balqa	260	289	11.1
Zarqa	213	255	19.9
Madaba	273	317	16.3
Irbid	258	297	15.2
Mafraq	202	240	18.7
Jarash	241	259	7.6
Ajlun	250	247	-1.2
Karak	267	235	-11.8
Tafielia	246	221	-10.0
Maan	217	261	20.2
Aqaba	243	263	8.0
Kingdom	289	316	9.5

### **3. Construction of poverty line**

#### **3.1 Construction of poverty line in Jordan**

Having sorted out the issue of prices, we can construct the poverty lines for Jordan. We construct poverty thresholds that are consistent in terms of maintaining a fixed minimum standard of living across regions and over time. The proposed methodology provides average poverty thresholds for food and non-food items of consumption.

The new poverty thresholds have been constructed based on the newly available Household Expenditure and Income Survey conducted in 2006. The survey was done in two rounds, July-September (3<sup>rd</sup> quarter) and October-December (4<sup>th</sup> quarter) in 2006. Thus, the basic poverty basket has been constructed using the consumption patterns prevailing in Jordan in quarters 3 and 4, 2006.

#### **3.2 Development of new food poverty thresholds for Jordan**

Caloric requirements. The food poverty line may be constructed using the calorie requirements (norms) of individuals. This is a very common approach used in many countries to construct food poverty line.

Since the calorie norms vary from country to country depending on factors such as age, sex, body weight and activity levels, it is important that we adopt norms appropriate for the country being studied. In the construction of Jordanian poverty line, we should use the caloric norms that are appropriate for the Jordanian population. We followed the following procedure to construct the caloric norms, which are appropriate for the Jordanian population.

First we obtained the average weight of the Jordanian population that is 10 years old and over. The weights obtained from James and Schofield (1990) together with recent update on Jordanian adult body weights obtained from a module to Employment Unemployment Survey in May 2002 served as the basis as presented in Table 1.11

**Table I.10. Average weight of Jordanians**

<b>Age</b>	<b>Male</b>	<b>Female</b>
10	26.7	25.2
11	29.7	28.3
12	33.4	31.7
13	43.8	41.2
14	50.1	45
15	56.5	51.9
16	62	56.4
17	66	59.1
18-29	71.5	60.1
30-59	77.6	71.2
60+	76.7	73.7

Note: Age groups 18 and up from Jordan Ministry of Health special “Behavioral Risk” module added to May 2002 Employment, Unemployment Survey. For ages 10 through 17, information was obtained from James and Schofield (1990) and then the weight of the teens (13 to 17) were adjusted to match the ratio of the weight of the 18-29 age group in the Behavioral Risk study and James and Schofield (1990).

Given the average weight of the population by age and sex, one can use the following standard formulae to estimate the basal metabolic rate (BMR) caloric or energy requirements of individuals while at rest.

<b>Male by age</b>	<b>Equation for calorie per day</b>
10-17 years	$17.5*W+651$
18-29 years	$15.3*W+679$
30-59 years	$11.6*W+879$
60+ years	$13.5*W+487$
<b>Female by age</b>	
10-17 years	$12.2*W+746$
18-29 years	$14.7*W+496$
30-59 years	$8.7*W+829$
60+ years	$10.5*W+596$

Individual BMR requirements calculated by these formulae need to be multiplied by a factor to reflect an individual’s activity level. The average BMR multipliers for current activity level are given as follows:

Males with light activity = 1.55

Female with light activity = 1.56

Male with moderate activity = 1.78

Female with moderate activity = 1.64

Male with heavy activity = 2.10

Female with heavy activity = 1.82

Since we did not have the activity levels of each individual in the household, we decided to use the moderate activity multipliers for both male and female. Thus, we

multiplied BMR requirements for male individuals by 1.78 and female individuals by 1.64.

The calorie requirements so calculated for the population aged 10 years and older are presented in Table 1.11.

**Table I.11. Daily caloric requirement of Jordanians**

Age	Male	Female
<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
Average: 2006	2340	

The calorie requirements for children under 10 years of age by sex were obtained directly from FAO Nutrition Technical Assistance (FANTA) project. They are based on National Center for Health Statistics (NCHS, USA) median weights at mid-point of age range. For the younger children, less than two years old, an allowance was made for likely infection.

It can be seen that calorie requirements vary substantially with age and sex. Children require fewer calories than the adults. Also, males require considerably more calories than females. Most studies on poverty specify a single calorie requirement for everyone in the population (for instance 2000 calories per person per day). This would, obviously, bias the estimates of poverty incidence. The incidence of poverty among the families with children will likely be overestimated and the families with proportionally more adults would be underestimated.

To obtain the average nutritional requirements of the population, one needs to aggregate the per person calorie requirement of each individual in the sample households in the survey. This aggregation was performed by means of the weighted average method with the weight equal to population weight given to each sample household.<sup>2</sup>

It is noted Table 1.11 that the Jordanian population in 2006 required an average of 2340 calories per person per day.

<sup>2</sup> Population weights were determined by multiplying sample weights by household size.

Calorie intake and calorie cost. Having decided upon the calorie requirements, the next step is to convert required calories into a food poverty line, which is the expenditure on food that is required to meet the exogenously determined calorie requirements. If we know the cost of buying the calories, then the food poverty line will be equal to calorie requirements multiplied by the cost of calories. Thus, the next step will be to determine the cost of calories.

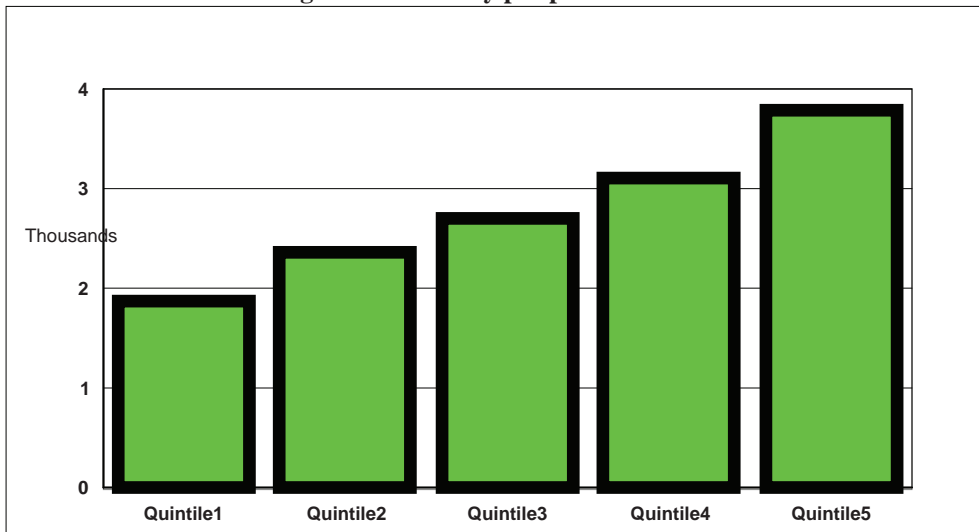
Jordan's HEIS 2006 provides information on quantities of food consumed by the households. These food quantities can be converted into calories by means of food calorie conversion factors, which are generally available from the country's nutritional departments. Unfortunately, the detailed calorie conversion factors are not available in Jordan. Jordan's health department provided us with calorie conversion factors for some commodities, which we supplemented with conversion factors obtained from the FAO web site.

Given the quantities of food consumed by each sample household, we could compute the actual calorie intake of each sample household by multiplying the quantities by the calorie conversion factors. Dividing the calorie intake of each household by its size gave us each household's per-capita calories intake.

Do the richer households have a greater per-capita calorie intake than the poorer households? To answer this question, we constructed quintiles on the basis of per-capita total household expenditure (based on Jordan's HEIS 2006, quarters 3 & 4).

Figure 1.1 presents the per-capita calorie intake by quintiles. It is noted that the bottom quintile consumes 1875 calories per person per day whereas the top quintile consumes 3792 calories per person per day. Thus, there exists a huge difference in calorie consumption between the rich and the poor. This huge difference may partly be due to the fact that the richer households have greater wastage of food than the poorer households.

**Figure I.1. Per day per person calorie intake**



Given the per-capita food expenditure and per-capita calorie intake, we can calculate the calorie cost for each quintile by dividing the food expenditure by the calorie

intake. The last column in Table 1.13 presents the calorie cost in JD per 1000 calories. It can be seen that the population in the bottom quintile spends JD 0.2775 in order to be able to consume 1000 calories whereas the population in the top quintile spends JD .5427 in order to be able to consume the same 1000 calories. This huge difference in calorie costs is due to the fact that richer households tend to consume rich food, which is more expensive.

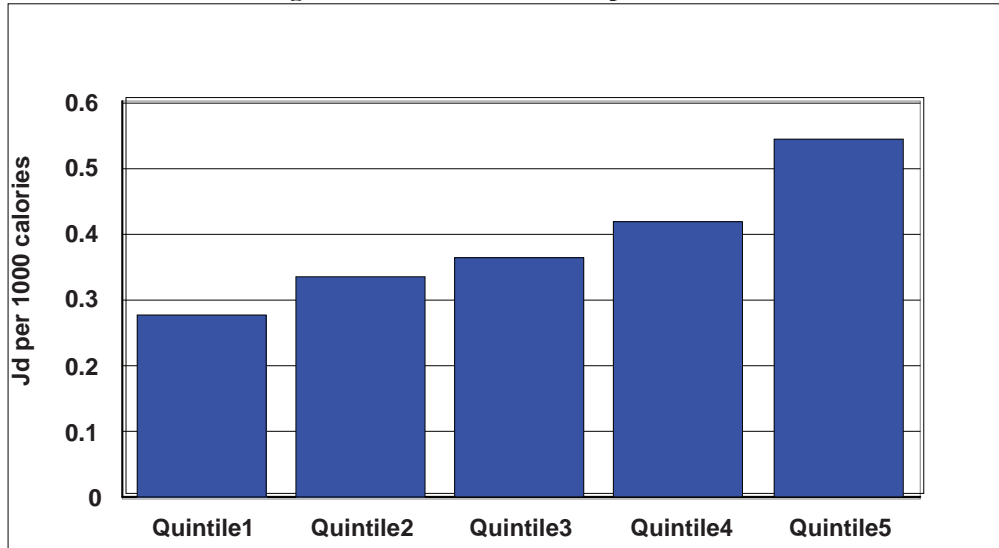
It is obvious that in the determination of food poverty line, we cannot take account of expensive tastes of the rich households. If we did, then the poverty line will be so high that most of the population will be poor. When the government adopts a poverty line, it agrees on a minimum standard of living to which everyone in the society should be entitled. If the poverty line is too high, then the government would not be able to fulfill its commitment to maintain the minimum standard of living of its population. The poverty line should not be so low that almost everyone in the society is non-poor. In such a situation, the government may not be motivated enough to raise the standard of living of those who are unable meet the absolute basic needs. These absolute basic needs are not completely absolute. They are relative to the society's overall standard of living. So in determining the poverty line, we have to decide upon a reference group, whose consumption pattern (or calorie cost) we should use in order to build on the poverty line.

**Table I.12. Calorie cost by quintiles: Quarter 3 & 4, 2006**

	<b>Per capita</b>	<b>Per day</b>	<b>Calorie cost</b>
Quintiles	Food cost	calorie intake	per 1000 calorie
Quintile1	190	1875	0.2775
Quintile2	291	2367	0.3367
Quintile3	361	2709	0.3654
Quintile4	477	3119	0.4190
Quintile5	751	3792	0.5427
Whole Kingdom	414	2772	0.4092

The calorie cost is an important determinant of the standard of living of a household. Technical proof that calorie cost adjusted for regional food prices is a monotonically increasing function of the society's minimum standard of living was provided in the earlier poverty assessment report for Jordan. The calorie cost increases as we move from a lower quintile to a higher quintile, which implies that the calorie cost increases more or less monotonically with the household's per-capita consumption expenditure. It is obvious that the reference group should contain the population that can generally be regarded as poor. This suggests that the population belonging to the bottom quintile may be a good reference group, which on average spends JD .2775 in order to consume 1000 calories (Figure 1.2). So we have decided to determine the food poverty line using the calorie cost of JD .2775 (per 1000 calories).

**Figure I.2. Caloric cost in JD per 1000 calories**



Since the cost of buying food varies across the governorates and over time, the calorie costs need to be accordingly adjusted. This adjustment can be done using the spatial price indices for food given in Tables 1.4. Table 1.13 represents the calorie cost per 1000 calories in quarters 3 & 4, 2006 for each governorate. The differences in calorie costs across governorates are attributed to the differences in food prices.

**Table I.13. Caloric cost by Governorates based on 1st quintile 2006 (in quarters 3 & 4)**

Governorate	Quarter3	quarter4	Avg q3&q4
Amman	0.2794	0.2899	0.2846
Balqa	0.2670	0.2782	0.2726
Zarqa	0.2706	0.2845	0.2776
Madaba	0.2613	0.2727	0.2670
Irbid	0.2680	0.2796	0.2738
Mafraq	0.2576	0.2693	0.2634
Jarash	0.2756	0.2861	0.2808
Ajlun	0.2561	0.2698	0.2630
Karak	0.2631	0.2745	0.2688
Tafiela	0.2645	0.2785	0.2715
Maan	0.2678	0.2758	0.2718
Aqaba	0.2722	0.2816	0.2769
Whole Kingdom	0.2707	0.2843	0.2775

### 3.3 Food poverty lines

Multiplying the calorie requirements by calorie costs gave the food poverty lines for each sample household in the survey. Using the method of weighted averages, we computed the average food poverty lines for each governorate and for Jordan. These results are presented in Table 1.15. The estimated food poverty line for the Whole

Kingdom is estimated to be JD 59.8 per person per quarter. The differences in calorie costs across governorates are attributed to the differences in food prices and also the population composition. For instance, if a governorate has more children, whose caloric requirements are less, it will have lower food poverty line.

<b>in JD per quarter</b>	
<b>Governorate</b>	<b>Food</b>
Amman	62.0
Balqa	58.5
Zarqa	58.9
Madaba	58.6
Irbid	59.1
Mafraq	55.6
Jarash	57.9
Ajlun	57.7
Karak	57.6
Tafiela	58.2
Maan	58.6
Aqaba	57.1
Whole Kingdom	59.8

### 3.4 *Non-food poverty line*

The determination of the non-food poverty line is more difficult than the food poverty line. It is obvious that we should include only those non-food items that are deemed absolutely essential.

One approach is to specify some non-food items of consumption that are deemed essential, for instance, adequate clothing, shelter, education and medical services. Given the market prices of these items, we can get an amount for minimum non-food expenditure. However, this approach may be viewed as arbitrary and can be subject to controversy. Thus, this approach is generally not used. Although the concept of poverty is subjective, we should try to measure it as objectively as possible so that we can make poverty comparisons over time and across various socioeconomic and demographic groups. We propose to use the standard consumer theory to determine the non-food poverty line.

In the standard consumer theory, a consumer maximizes a utility function  $u(\mathbf{q})$  by choosing a bundle of goods and services  $\mathbf{q}$  to satisfy the budget constraint  $\mathbf{p}\mathbf{q} = \mathbf{x}$ ,  $\mathbf{p}$  being the price vector and  $\mathbf{x}$  is the total available income to spend. From this theory, we can derive the expenditure function for each commodity, which is the minimum expenditure on the commodity that will be required to obtain a  $u$  level of utility at a given price vector  $\mathbf{p}$ . If we add the expenditure functions of all commodities, we obtain the total income or expenditure function. Thus, the total expenditure function is the minimum total expenditure that will be required by a consumer to enjoy a  $u$  level of utility.

Suppose we have obtained the food poverty line  $F$  on the basis of nutritional requirements. Substituting  $F$  into the food expenditure function (derived from the consumer theory), we can solve it for the utility level  $u_z$ , which will be implied by the food poverty line at the given price vector  $\mathbf{p}$ . Using  $u_z$  into the total expenditure function, we can obtain the total poverty line,  $z$ , which will be consistent with the utility level  $u_z$ . The non-food poverty line will be equal to  $z-F$ . This procedure is equivalent to determining the total poverty line at the point where the per capita food expenditures of the households is equal to per capita household food poverty line. The non-food poverty line is obtained as the difference between the total poverty line and the food poverty line.

A typical household in Jordan is of size 6. We first determined the non-food poverty line for households of size 6. The following steps were followed.

Step1. Calculate the ratio of a household's per-capita food expenditure to the household's per-capita food poverty line multiplied by 100. This ratio will be equal to 100, when the household's per-capita food expenditure is equal to the household's per-capita food poverty line, which is denoted by  $fwel$ .

Step2. Generate logarithm of per-capita expenditure, which is denoted by  $lpc\_exp$ .

Step3. Regress  $fwel1$  on  $lpc\_exp$  using the weighted regression method, with weight equal to the households represented by the sample households. This regression is run on the households of size 6.

$$fwel1 = - 489.18 + 119.51 * lpc\_exp, \quad R^2 = .31$$

(-13.58)    (17.75)

where figures in brackets are t values.

Step4. Calculate  $lpc\_exp$  at the point where  $fwel1=100$ . This gave the average total poverty line for households of size 6 for Jordan as equal to JD 138.4 per quarter. Given the average food line of JD 58.8 per quarter for the households of size 6 for Jordan, we obtained the average non-food poverty line for the households of size 6 for Jordan in 2006 as equal JD 79.6 (per person per quarter).

The above procedure provides the non-food poverty line at the national level. To achieve consistency of the non-food poverty line across the governorates, we have to ensure that the real non-food poverty line is the same across all governorates. Or in other words we have make adjustment for the non-food spatial prices. Since the spatial non-food prices indices are given in Table 1.5, then given that the non-food poverty line for Jordan is JD 79.6, we can easily calculate the non-food poverty line of households of size 6 for each governorate and for quarter3 and 4. These estimates are presented in Table 1.15.

**Table I.14. Per capita non-food poverty line for household size of 6 by Governortates:2006**

Governorate	Quarter3	quarter4	Avg q3&q4
Amman	83.2	83.5	83.4
Balqa	77.5	77.7	77.6
Zarqa	78.0	78.5	78.2
Madaba	77.0	77.4	77.2
Irbid	76.2	76.8	76.5
Mafraq	76.2	76.7	76.4
Jarash	76.6	77.0	76.8
Ajlun	76.3	76.7	76.5
Karak	77.8	78.0	77.9
Tafiela	77.1	77.2	77.2
Maan	76.3	76.4	76.4
Aqaba	78.0	78.4	78.2
Whole Kingdom	79.5	79.6	79.6

Finally, we made an adjustment for economies of scale. Using a model proposed by Kakwani (2000), we estimated the economies of scale parameter for non-food as equal to 0.92. In the estimation of this parameter, we assumed that there are no economies of scale in the food consumption. Suppose the non-food poverty line for the households of size 6 as derived from Table 1.15 is denoted by  $nfl_{line\_6}$ , then the non-food line for all households was estimated as

$$nfl_{line} = nfl_{line\_6} \times \left[ \frac{size}{6} \right]^{(\theta-1)} \quad (5)$$

Note that in (5) the non-food poverty line for households of size 6 is invariant to value of  $\theta$ , which means that whatever value of  $\theta$ , the non-food poverty line for the reference household of size 6 will always be the same. A methodology similar to this has been suggested by Deaton and Zaidi (1998).

The total poverty line is derived as the sum of food and non-food poverty lines. The average poverty lines for food, non-food and the total poverty lines are presented in Table 1.15. The average poverty line for the Whole Kingdom in 2006 is JD 139 per person per quarter.

#### 4. Incidence of poverty

##### 4.1 Poverty in Jordan

Having decided upon the poverty line, the next step is to measure poverty in the Kingdom. This study focuses on three aspects of poverty – including incidence, depth, and severity. These are captured by the general class of Foster-Greer-Thorbecke (FGT) (1984) poverty measures. The incidence of poverty is measured by the headcount ratio, which simply estimates the percentage of population that lives below the poverty line.

The depth of poverty is estimated by the poverty gap ratio. The poverty gap ratio can be defined by the average distance below the poverty line as a proportion of that line, where the average is formed over the entire population, counting the non-poor as having zero poverty gaps. Thus, the sum of poverty gaps (aggregated across all individuals) reflects the minimum amount of consumption that is required to be transferred to bring all the poor up to the poverty line.

The severity of poverty measure represents the mean of the squared proportionate poverty gaps. Unlike the headcount ratio and the poverty gap ratio, it takes into account inequality among the poor. The severity of poverty measure is sensitive to the distribution of consumption among the poor, in that weights in the calculation are more heavily given to those whose consumption falls far below the poverty line. Hence, the severity of poverty index is more sensitive to change in welfare of the ultra-poor than it is to the moderately poor.

Tables 1.15 present the empirical estimates of these three measures by governorates.

The percentage of poor in Jordan is 12.99% in 2006. All the three poverty measures show that Amman has the lowest incidence of poverty and Mafraq has the highest incidence of poverty. The percentage of poor in Amman is 9.43% whereas in Mafraq, it is 22.98%. There is large regional disparity in poverty in Jordan.

**Table I.15. Incidence of poverty in Jordan 2006**

Governorate	Actual estimates			Ranking		
	% of poor	Gap ratio	Severity ratio	% of poor	Gap ratio	Severity ratio
Amman	9.43	1.83	0.56	1	1	1
Balqa	15.28	3.50	1.17	6	6	6
Zarqa	14.87	2.80	0.83	5	4	3
Madaba	9.99	2.39	0.79	2	2	2
Irbid	12.11	2.71	0.93	3	3	4
Mafraq	22.98	5.96	2.50	12	12	12
Jarash	16.65	4.05	1.36	8	9	9
Ajlun	17.67	4.00	1.35	9	8	8
Karak	21.68	4.90	1.54	11	11	10
Tafiela	19.13	3.97	1.21	10	7	7
Maan	12.71	2.90	1.02	4	5	5
Aqaba	15.46	4.56	1.74	7	10	11
Jordan	12.99	2.80	0.93	6.5	6.5	6.5

**Table I.16. Incidence of poverty in Jordan 2006 by Urban and Rural Areas**

Governorate	Urban	Rural	Whole Kingdom
Amman	9.2	14.1	9.4
Balqa	14.5	17.3	15.3
Zarqa	15.0	12.1	14.9
Madaba	8.9	13.5	10.0
Irbid	11.6	14.2	12.1
Mafraq	16.1	27.4	23.0
Jarash	12.8	21.4	16.7
Ajlun	17.8	17.2	17.7
Karak	24.6	20.3	21.7
Tafiela	23.7	8.2	19.1
Maan	8.7	18.0	12.7
Aqaba	9.7	49.1	15.5
Jordan	11.8	18.7	13.0

The average poverty rates for the two quarters of 2006 that are covered in the survey are 13.0%. 7.6% is the percentage of poor in both quarters. 5.10% is the percentage of poor in quarter 3 but non-poor in quarter 4 and similarly, 5.68 is the percentage of poor in quarter 4 and non-poor in quarter 3.

**Table I.17. % of poor by quarters 2006**

Poor quarter3	12.7
Poor quarter4	13.3
Average of quarter3 & 4	13.0
Poor in both quarters	7.6
Poor in quarter 3 & non-poor in quarter 4	5.1
Poor in quarter 4 & non-poor in quarter3	5.7

**Table I.18. Number of poor by governorate: 2006**

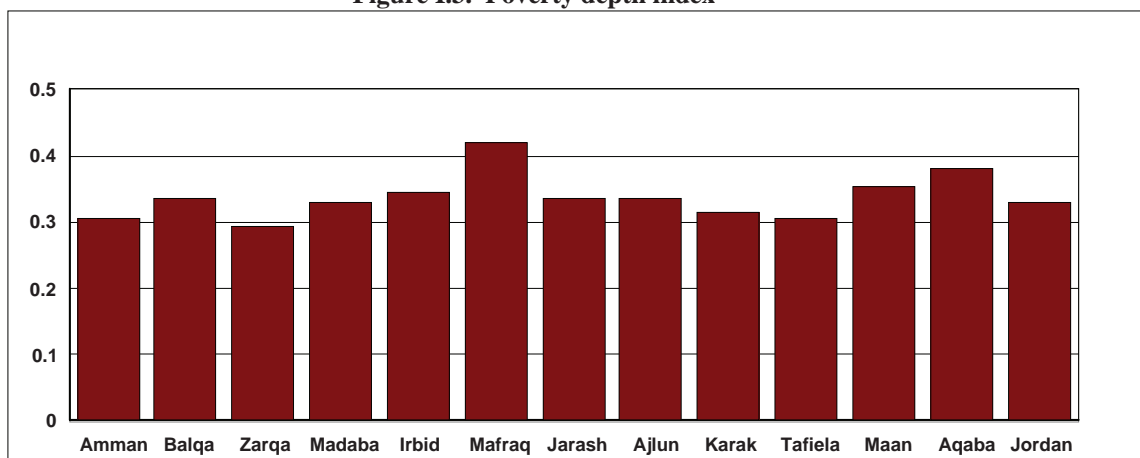
Governorate	Number of poor	
	in thousands	in %
Amman	195.7	27.7
Balqa	55.6	7.9
Zarqa	121.7	17.2
Madaba	14.0	2.0
Irbid	121.2	17.2
Mafraq	58.2	8.2
Jarash	27.3	3.9
Ajlun	22.9	3.2
Karak	45.9	6.5
Tafiela	15.5	2.2
Maan	12.3	1.7
Aqaba	15.6	2.2
Jordan	706.0	100.0

## 5. *Depth of poverty*

In this section we look at how poverty is distributed among the poor. If most of the poor are concentrated near the poverty line, one can say that poverty is shallow. If most of the poor are concentrated near the zero level of consumption, one can say that poverty is very deep (or extremely serious). To measure the depth of poverty, Kakwani and Son (2005) have proposed an index called “Poverty Depth Index (PDI)”. This index is defined as the ratio of severity of poverty index to the poverty gap ratio. The index takes the value 0, when the entire density function collapses at the poverty line, which is an extreme case of shallow poverty. The index takes value 1 when the density function collapses at 0 per capita consumption (or income), which is an extreme case of most severe poverty. Between these two extremes, the reality lies somewhere in between. The index takes value 0.5 when the density function is proportional to per capita consumption. This situation may be regarded as a benchmark; thus, as a rule, one can that poverty is deep if the PDI is greater than 0.5.

As seen from Figure 1.3, the value of PDI for Jordan is 0.33, which is much less than 0.5. We can say that poverty in Jordan is not deep. It means that poverty can be eliminated with lesser efforts.

**Figure I.3. Poverty depth index**



## 6. *Analysis of labor market in Jordan 2006*

### 6.1 *Dependency ratio*

The major earnings of the households come from labor markets. All persons in the households do not participate in the labor market. Generally children and elderly do not work and are dependent on those who are of working age. Thus, the household composition is a key determinant of the standard of living of the household and its members. Table 1.19 presents the household composition by quintiles formed on the basis of per capita real household income. The real income is derived from household nominal income by adjusting it for cost of living differences across governorates.

It is evident that the lower quintiles have proportionally more children than the higher quintiles. Almost 50% of the population in the bottom quintile consists of children. In the top quintile, 22.6% population is children. Generally children are not in labor force and thus do not contribute to household income.

Elderly 60 years and over are generally not in the labor force so we classify them as dependent population. We calculate the demographic dependency ratio as the ratio of total population to those who are of working age (15-59 years old). For example, a demographic dependency ratio of 2.1 implies that one working age person is supporting 2.1 persons in the population. It is noted that the demographic dependency ratio is declining monotonically as we go from lower to higher quintiles. Thus, demographic dependency is very high among the poorer households.

**Table I.19. Population composition in Jordan by quintiles: 2006**

<b>Age groups</b>	<b>1st quintile</b>	<b>2nd quintile</b>	<b>3rd quintile</b>	<b>4th quintile</b>	<b>5th quintile</b>	<b>Total pop</b>
Children 0-4y	13.6	13.9	12.4	10.7	7.4	11.6
Children 5-14y	35.9	31.6	25.4	20.1	14.2	25.5
Youth 15-24y	19.3	20.0	23.3	25.3	23.7	22.3
Adults 25-59y	28.1	30.6	33.7	37.5	42.0	34.4
Elderly 60+	3.1	3.9	5.1	6.4	12.7	6.2
Total population	100.0	100.0	100.0	100.0	100.0	100.0
Demographic dependency ratio	2.1	2.0	1.8	1.6	1.5	1.8

**Table I.20. Household composition by quintiles: 2006**

<b>Age groups</b>	<b>1st quintile</b>	<b>2nd quintile</b>	<b>3rd quintile</b>	<b>4th quintile</b>	<b>5th quintile</b>	<b>Total pop</b>
Children 0-4y	1.00	0.91	0.74	0.58	0.33	0.67
Children 5-14y	2.63	2.07	1.52	1.09	0.63	1.47
Youth 15-24y	1.42	1.31	1.39	1.37	1.05	1.29
Adults 25-59y	2.06	2.00	2.01	2.02	1.86	1.98
Elderly 60+	0.23	0.26	0.30	0.34	0.56	0.36
All persons	7.33	6.54	5.97	5.40	4.44	5.77

## 6.2 *Education profile of the population*

Table 1.21 presents the education profiles of the population 15 years old and over. It is noted that 54.9% of the adult population belonging to the bottom quintile does not have the basic education. This figure for the top quintile is 30.4%. The percentage of adult population with secondary and higher education increase monotonically as we move from lower to higher quintiles. It is evident from these results that education attainment is an important determinant of people's standard of living. The population living in the poorer households has lower educational attainment.

**Table I.21. Education status of the population 15 years and over: 2006**

Quintiles	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total
	Shares					
Less than basic education	54.9	47.2	41.1	36.9	30.4	40.8
Basic education	24.5	24.4	26.4	22.7	16.5	22.5
Vocational	0.5	0.8	0.9	0.8	0.5	0.7
Secondary	13.4	16.3	17.3	19.2	19.6	17.5
Tertiary	6.8	11.3	14.2	20.4	33.0	18.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

### 6.3 *Employment status of the population 15 years old and over*

The labor market provides incomes to households through employment. The percent of population in the households that is employed can be said to be a good indicator of the household standard of living. Table 1.22 presents the employment status of the households classified by quintiles. It is noted that 19.3% of the household members are employed in the bottom quintile. In the top quintile this figure is 41.4%. The per capita household employment increases monotonically as we move from lower to higher quintiles.

The percentage household members who are unemployed are very high in the bottom quintile. 13.1% of household members in the bottom quintile are looking for a job but are unable to find one.

The percentage of inactive population is 67.6 in the bottom quintile. It means that in the poor households belonging to the bottom quintile more than two third of the household members are not working and therefore are not making any contribution to the household earnings. Thus, the population living in the poorer households has lower level of per capita employment and high level of per capita unemployment and high level of inactive population.

**Table I.22. Employment status of the population 15 years and over: 2006**

	Shares					
Quintiles	1 <sup>st</sup> quintile	2 <sup>nd</sup> quintile	3 <sup>rd</sup> quintile	4 <sup>th</sup> quintile	5 <sup>th</sup> quintile	Total
Employee	15.1	22.9	25.7	29.8	34.7	26.6
Employer	0.8	1.1	1.6	1.8	3.7	2.0
Own account and family worker	3.4	3.4	3.6	3.9	3.0	3.5
Unemployed	13.1	10.0	9.3	8.8	6.1	9.1
Not in labor force	67.6	62.7	59.7	55.7	52.5	58.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

**Table I.23. Number of employed persons per household by quintiles**

Quintiles (per capita real income)	Employed persons
Quintile1	0.72
Quintile2	0.97
Quintile3	1.15
Quintile4	1.33
Quintile5	1.44
All households	1.16

**Table I.24. Employment by sectors 2006**

Sector	1st quintile	2nd quintile	3 <sup>rd</sup> quintile	4th quintile	5th quintile	Total
Employment shares by sectors						
Agriculture	3.8	1.7	2.0	1.4	1.3	1.7
Industry	30.7	24.2	23.7	18.8	15.4	20.6
Service	65.6	74.1	74.4	79.8	83.4	77.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

#### 6.4 *Other labor market characteristics*

In Table 1.25, the labor force participation rate is defined as the percentage of persons who are either employed or unemployed. Only 32.4% population in the households belonging to the first quintile is in the labor force. In the top quintile, 47.5% population is in the labor market.

Unemployment rate is defined as persons who are unemployed as percentage of the total labor force (both employed and unemployed). This is the usual definition of unemployment rate. It is noted that unemployment rate is 40.3% among the persons belong to the first quintile, whereas the unemployment rate is only 12.9% in the top quintile.

It must be emphasized that generating employment is necessary but not sufficient to reduce poverty. It is possible that households may be poor even if they are employed. The phenomenon of working poor has been widely observed in many countries. How productive is employment is an important determinant of poverty. In Table 1.24 we calculated the earnings per employed person by different quintiles. It is noted the earning per employed person in the bottom quintile is about one third of that in the top quintile. Thus, the poorer households not only have lower level of per capita employment but also have lower earnings of those who are employed.

**Table I.25. Labor market indicators of population 15 years old and over: 2006**

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop
Labor force participation rate	32.40	37.29	40.28	44.34	47.50	41.18
Unemployment rate	40.3	26.7	23.1	19.9	12.9	22.2
Earning per employed person	1792	2323	2605	2885	4716	3246

Note: earnings refers to all employed persons both employee and self employed.

## 6.5 Education and employability

The poorer households have lower level of per capita employment. Is it because they have lower level of education? In this section we explore to what extent education determines the employment. Table 1.25 presents the employment by educational level calculated for each quintile.

In Jordan, 35.2% of the employed labor force has less than basic education. This figure in the bottom quintile is 62.3%. Thus, a large proportion of employed work force in the bottom quintile will be expected to have lower earnings. It is surprising to note that only 1.6% of employed work force has completed vocational education. This figure does not vary much across different quintiles. What is the cause of such low employment in vocational education? Is employability of vocational graduates the main problem? In Table 1.27 we look at the probability of being employed among the people with different educational attainments.

**Table I.26. Employment by education status of the population 15 years and over: 2006**

Quintiles	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	Total
	quintile	quintile	quintile	quintile	quintile	
<b>Shares</b>						
Less than basic education	62.3	51.1	39.6	30.7	20.4	35.2
Basic education	12.9	15.2	22.8	20.8	14.7	17.6
Vocational	1.5	2.0	2.0	1.8	1.1	1.6
Secondary	14.0	15.6	15.2	16.2	13.6	14.9
Tertiary	9.3	16.1	20.4	30.6	50.1	30.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

It is noted that the probability of being employed is highest among the vocational graduates. 74% of vocational graduates are employed. The probability of being employed among the tertiary educated persons is 0.53. The persons with lower education do have lower probability of being employed. Thus education does improve the prospects of being employed.

The probability of being employed increases monotonically as we move from lower quintiles to higher quintiles. This result holds for all levels of education. For instance a person belonging to the first quintile with tertiary education has a probability of being employed as equal to 0.27. His or her chance of being employed increases to 0.63 if he or she belongs to the top quintiles. It means that with the same education, the richer population has greater chance of being employed than the poorer population. This suggests that although education improves the chances of being employed but there are some other factors that determine the employability. The other factors are closely related to the household composition.

<b>Quintiles</b>	<b>1st quintile</b>	<b>2nd quintile</b>	<b>3rd quintile</b>	<b>4th quintile</b>	<b>5th quintile</b>
Less than basic education	0.22	0.30	0.30	0.30	0.28
Basic education	0.10	0.17	0.27	0.32	0.37
Vocational	0.59	0.66	0.67	0.83	0.94
Secondary	0.20	0.26	0.27	0.30	0.29
Tertiary	0.27	0.39	0.44	0.53	0.63
<b>Total</b>	<b>0.19</b>	<b>0.27</b>	<b>0.31</b>	<b>0.36</b>	<b>0.41</b>

### 6.6 *Education and unemployment rate*

As already stated, the unemployment rate is defined as the unemployed persons as a percentage of the total labor force (employed and unemployed). The poorer quintiles have much higher unemployment rate. The unemployment rate increases monotonically as we move from lower to higher quintiles. This result holds for all levels of education. It means that with the same level of education, the poor have higher unemployment rate than the non-poor.

The unemployment rate is very high among the tertiary educated persons. The unemployment rate is 58% among those who are tertiary educated but belong to the bottom quintile.

<b>Quintiles</b>	<b>1st Q</b>	<b>2nd Q</b>	<b>3rd Q</b>	<b>4th Q</b>	<b>5th Q</b>
Less than basic education	31.0	16.9	13.5	12.2	5.7
Basic education	59.1	41.4	25.7	21.1	14.2
Vocational	35.3	16.8	25.1	4.6	0.0
Secondary	34.3	24.9	21.9	17.2	11.8
Tertiary	58.0	37.7	35.1	27.3	15.6
<b>Total</b>	<b>40.3</b>	<b>26.7</b>	<b>23.1</b>	<b>19.9</b>	<b>12.9</b>

### 6.7 *Education and earnings from employment*

It is widely observed phenomenon that education enhances people's earning capability. Many people argue that education is an investment with very high rates of returns. Table 1.28 presents the earnings per employed person. In the calculations of these earnings we have not made any adjustments for hours of work. A general conclusion is that persons with more education earn more from employment. There is an exception. People with less than basic education tend to earn more than those with basic education. The returns from vocational education are very low. May be this is that the main reason that the employment share of those with vocational education is very low.

An important point to be made is that with the same level of education, the poor have much lower earnings from employment. This suggests that although education improves people's earnings but it is not the only factor that determines people's earning capability.

**Table I.27. Earnings per employed by education status**

Quintiles	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total
Less than basic education	1814	2279	2639	2953	4389	2794
Basic education	1308	1698	1966	2132	2641	2145
Vocational	1490	2432	2622	2364	2815	2441
Secondary	1894	2360	2639	2934	4537	3174
Tertiary	1963	2844	3090	3278	5448	4346
Total	1792	2323	2605	2885	4716	3246

**Table I.28. Per capita real income by poverty status :2006**

	Poor	Non-poor
<b>Actual income JD per year</b>		
Employment income	255.0	533.7
Enterprise income	51.8	175.2
Property income	1.7	16.3
Transfers	135.8	252.4
Rent	57.0	202.5
Other income	0.7	0.2
Total income	502.0	1180.3
<b>Income shares</b>		
Employment income	50.8	45.2
Enterprise income	10.3	14.8
Property income	0.3	1.4
Transfers	27.1	21.4
Rent	11.4	17.2
Other income	0.1	0.0
Total income	100.0	100.0

**Table I.29. Characteristics of poor and non-poor households**

	Poor Households	Non-Poor Households	All Households
Children	4%	2%	2%
Household size	8%	6%	6%
Adults as % of all household members	51%	57%	57%
% of adults with less than basic education (% of adults)	52%	34%	36%
Employed as % of all household members	14%	21%	20%
Employed adults as % of all adults in household	26%	36%	34%
Per capita real income (JD/month)	42	99	91
Earnings per employed (JD/month)	190	280	272

## 7. *Iraqi Population in Jordan*

Based on the HIES, an estimated 25,440 Iraqis lived in Jordan in 2006. In Jordan 34.4% of population are adults aged 15 to 59 years old whereas among Iraqis, the adult population is 42.4%.

**Table I.30. Population composition of Iraqi population: 2006**

<b>Age groups</b>	<b>Iraqis</b>	<b>Total pop</b>
Children 0-4y	9.7	11.6
Children 5-14y	18.8	25.5
Youth 15-24y	19.8	22.3
Adults 25-59y	42.4	34.4
Elderly 60+	9.3	6.2
All ages	100.0	100.0
Demographic dependency ratio	1.6	1.8
Population in million	0.0254	5.3873

Table 1.31 shows that Iraqis have more educational attainment than the total Jordanian population. Among Iraqis 15 years and older, 44.2% have tertiary education whereas in the Jordanian population, only 18.5% have completed tertiary education.

**Table I.31. Education status of Iraqi population 15 years and older 2006**

<b>Education levels</b>	<b>Iraqis</b>	<b>Total pop</b>
Less than basic education	27.7	40.8
Basic education	12.7	22.5
Vocational	0.0	0.7
Secondary	15.4	17.5
Tertiary	44.2	18.5
Total population	100.0	100.0

Table 1.32 shows that among 15 years and older Iraqis, only about 20% are employed and the remaining 80% of the population is either unemployed or not in labor force. Compared to the total Jordanian population, Iraqis are not doing well in the labor market despite the fact that they have attained more education. Table 1.34 shows that unemployment rate among Iraqis is 38.8% while for the whole population, it is 22.2%. Their labor force participation rate is also much lower; only 34.96% as against 41.18% for the whole population.

It is interesting to note that earning per employed person among Iraqis is JD 8039 per year while earnings per employed person in the whole population is only JD 3246 per year. Iraqi employed persons earn more mainly because they are more educated.

**Table I.32. Employment status of Iraqi population 15 years and older 2006**

	Iraqis	Total pop
Employee	13.9	26.6
Employer	3.9	2.0
Own account and family worker	3.6	3.5
Unemployed	13.6	9.1
Not in labor force	65.0	58.8
Total population	100.0	100.0

**Table I.33. Labor market indicators of Iraqi population 15 years old and over : 2006**

	Iraqis	Total pop
Labor force participation rate	34.96	41.18
Unemployment rate	38.80	22.20
Earning per employed person	8039	3246

Table 1.34 shows per capita real incomes of Iraqi households is more than double that of the whole population. The transfer income among Iraqis is more than four times that of the whole population. Most of their transfer income comes from foreign sources. They do not get any government transfers. They have more income from rent and property. Compared to whole population, Iraqi households are very affluent.

**Table I.34. Per capita real income of households headed by Iraqis: 2006**

Income components	Iraqis		Total Population	
	Income JD per year	Income share	Income JD per year	Income share
Employee income	627.7	23.9	497.5	45.5
Own account and employer	459.9	17.5	159.4	14.6
Rent	298.8	11.4	184.0	16.8
Property	209.5	8.0	15.2	1.4
<b>Transfer</b>	<b>1030.0</b>	<b>39.2</b>	<b>237.1</b>	<b>21.7</b>
Pensions	21.7	0.8	93.0	8.5
Social pensions	2.4	0.1	2.8	0.3
Insurance pensions	0.0	0.0	0.1	0.0
Govt. transfers	1.0	0.0	48.8	4.5
Non-Govt. transfers	12.0	0.5	26.8	2.5
Foreign transfers	937.7	35.7	34.1	3.1
Gifts	55.3	2.1	31.6	2.9
Other	0.0	0.0	0.2	0.0
<b>Total income</b>	<b>2625.9</b>	<b>100.0</b>	<b>1093.4</b>	<b>100.0</b>

## Poverty among Iraqi households

Table I.35. Poverty among Iraqis: 2006

	Iraqis	Total pop
Per capita real expenditure	631	316
Percentage of poor	1.5	12.99
Poverty gap ratio	0.5	2.80
Severity of poverty	0.1	0.93

## APPENDIX II. TRENDS IN WELFARE OF THE POPULATION

Table II.1 Subdistrict poverty incidence ranking

Subdist. Name 2006	Poverty incidence ranking 2002	Poverty incidence ranking 2006	Subdist. Name 2002
Aghwar	26	16	Aghwar
Aghwar Janoobiyah	6	3	Aghwar Janoobiyah
Ain Albasha	22	34	Ain Albasha
Ajlun	70	79	Ajlun, Sakhray, Orjan
Al-Ardha	55	58	Al-Ardha
Al-Jami'ah	87	85	Al-Jami'ah
Amman Qasabah	78	57	Amman Qasabah
Aqaba	76	78	Aqaba
Areedh	40	32	Areedh
Athroh	43	26	Athroh (with Maan)
Ayy	60	43	Ayy
Azraq	14	50	Azraq
Badiyah Shanaliyah	4	8	Badiyah Shamaliyah (Salheiah)
Badiyah Shanaliyah Gharbiyah			Badiyah Shamaliyah Gharbiyah with Mafraq with Manshiyah, and
	27	19	Khaldiyyah
Bal'ama	20	15	Bal'ama
Bani Kenanah	56	73	Bani Kenanah
Bani Obeid	54	81	Bani Obeid
Bierain	9	68	Bierain
Borma	47	18	Borma
Bsaira	53	14	Bsaira
Dair Al kahf	11	13	Dair Al kahf
Dair Alla	15	33	Dair Alla
Deiban	51	62	Deiban, Mlaih
Dhlail	2	25	Dhlail
Diesah	12	7	Diesah with Quairah
Faisaliyah	64	67	Faisaliyah, Madaba, Jrainah, Maeen,
Faqo'e	45	23	Faqo'e
Fuhais&Mahes	89	89	Fuhais&Mahes
Ghawr Al-mazra'a	25	5	Ghawr Al-mazra'a
Hasa	58	53	Hasa
Hashemiyah	16	51	Hashemiyah
Hosban	73	70	Hosban, Na'oor,
Hosha	18	10	Hosha
Huseiniya	5	66	Huseiniya
Iel	50	82	Iel
Ira & Yarqa	88	88	Ira & Yarqa
Irbid	75	63	Irbid
Irhab	33	42	Irhab

Subdist. Name 2006	Poverty incidence ranking 2002	Poverty incidence ranking 2006	Subdist. Name 2002
Jafr	10	21	Jafr
Jarash	31	41	Jarash
Jizah	19	24	Jizah
Jrainah	65	65	Jrainah, Maeen, Faisaliyah, Madaba
Karak	83	49	Karak
Khaldiyah	28	11	Khaldiyah with Mafraq with Manshiyah, Badiah Shamaliyah Gharbiyah
Koorah	32	56	Koorah
Kufranjah	68	9	Kufranjah
Ma'an	44	83	Ma'an (and Athroh)
Madaba	66	75	Madaba (with Jrainah, Maeen, Faisaliyah)
Maeen	67	38	Maeen, Madaba, Jrainah, Faisaliyah)
Mafraq	29	74	Mafraq with Manshiyah, Badiah Shamaliyah Gharbiyah and Khaldiyah)
Manshiyah	30	86	Manshiyah, Mafraq, Badiah Shamaliyah Gharbiyah and Khaldiyah
Marka	79	64	Marka
Mazar Janoobi	81	60	Mazar Janoobi, Mo'ab
Mazar Shamali	34	59	Mazar Shamali
Mestabah	69	47	Mestabah
Mlaih	52	46	Mlaih, Deiban,
Mo'ab	82	80	Mo'ab, Mazar Janoobi,
Mowjeb	38	6	Mowjeb, Qasr,
Mraighah	7	20	Mraighah
Muaqqar	41	37	Muaqqar, Rugm al-shami
Na'oor	74	84	Na'oor, Hosban
Om-Elqottain	35	55	Om-Elqottain, Sabha,
Orjan	71	17	Orjan, Ajlun, Sakhras,
Petra	59	52	Petra/Wadi Mousa
Qasr	39	28	Qasr, Mowjeb
Qatraneh	37	12	Qatraneh
Quairah	13	4	Quairah with Diesah
Quaismeh	62	76	Quaismeh
Ramtha	49	71	Ramtha
Rugm al-shami	42	27	Rugm al-shami, Muaqqar,
Russeifa	23	30	Russeifa
Rwaished	1	1	Rwaished
Sabha	36	31	Sabha, Om-Elqottain
Sahab	77	48	Sahab
Sakhras	72	40	Sakhras, Orjan, Ajlun,
Salt	84	54	Salt
Serhan	17	39	Serhan

<b>Subdist. Name 2006</b>	<b>Poverty incidence ranking 2002</b>	<b>Poverty incidence ranking 2006</b>	<b>Subdist. Name 2002</b>
Shobak	61	72	Shobak
Shoonah Janoobiyah	21	29	Shoonah Janoobiyah
Tafiela	63	45	Tafiela
Taybeh	48	69	Taybeh
Um Al-Jemal	8	44	Um Al-Jemal
Um Al-Rasas	24	22	Um Al-Rasas
Um Elbasatien	85	87	Um Elbasatien
Wadi Araba	3	2	Wadi Araba
Wadi Essier	86	77	Wadi Essier
Wastiyah	57	36	Wastiyah
Zarqa	46	61	Zarqa
Zay	80	35	Zay

**Table II.2. % of poor, standard errors and confidence interval: 2006**

<b>Sub-districts</b>	<b>% of poor</b>	<b>Standard error</b>	<b>Confidence interval</b>	
11011	12.2	0.8	10.7	13.8
11021	10.7	0.7	9.2	12.1
11031	8.0	1.1	5.7	10.2
11041	2.0	0.4	1.2	2.8
11051	6.6	1.1	4.4	8.7
11061	14.2	3.9	6.6	21.9
11071	23.7	4.6	14.6	32.8
11072	26.2	6.4	13.6	38.8
11081	16.6	5.1	6.6	26.6
11082	22.7	6.0	10.8	34.5
11091	4.4	2.6	-0.7	9.6
11092	1.4	1.7	-2.0	4.7
11093	8.7	4.1	0.7	16.6
12011	13.0	3.7	5.8	20.2
12012	12.1	4.8	2.8	21.5
12013	17.5	5.7	6.4	28.6
12014	0.0	0.0	0.0	0.0
12021	22.3	6.1	10.3	34.3
12031	18.0	5.5	7.1	28.8
12041	17.5	3.5	10.7	24.4
12051	0.0	0.0	0.0	0.0
13011	11.9	1.7	8.5	15.3
13012	9.2	4.2	0.9	17.5
13013	23.4	6.2	11.3	35.5
13014	13.4	5.1	3.4	23.3
13021	19.2	2.2	14.8	23.5

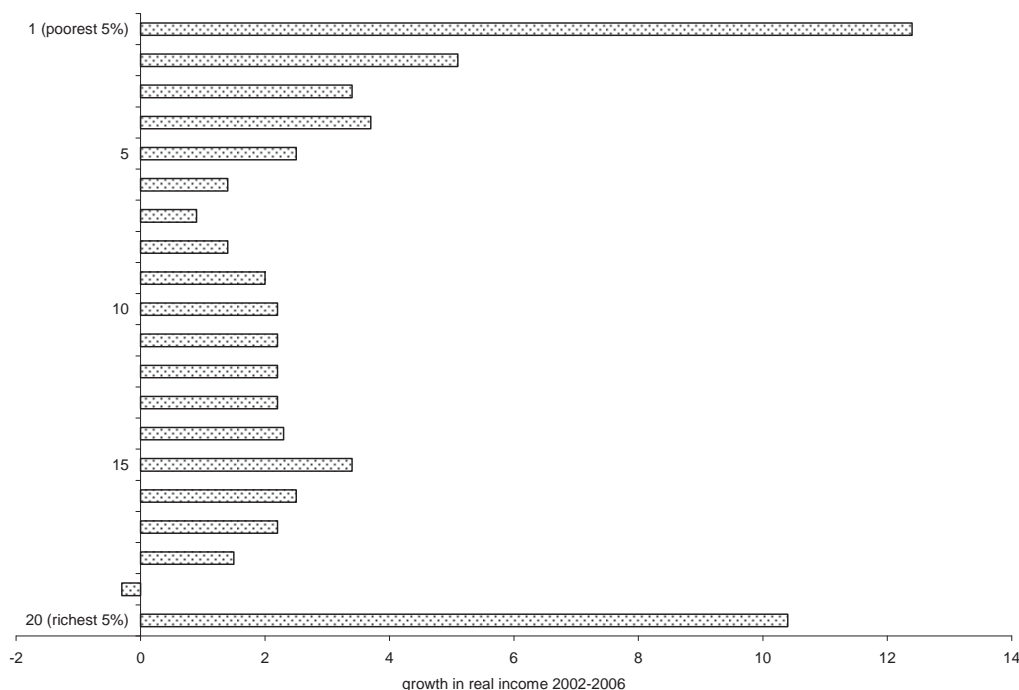
<b>Sub-districts</b>	<b>% of poor</b>	<b>Standard error</b>	<b>Confidence interval</b>	
13031	13.1	5.0	3.3	23.0
14011	8.2	4.0	0.3	16.1
14012	10.4	4.6	1.4	19.4
14013	16.6	5.4	6.0	27.2
14014	9.4	4.3	1.1	17.8
14021	11.4	4.6	2.3	20.5
14022	18.3	5.6	7.4	29.3
14023	14.3	5.2	4.2	24.4
21011	11.1	1.1	9.0	13.2
21021	8.6	2.0	4.6	12.5
21031	12.3	2.9	6.6	18.0
21041	8.5	2.3	4.0	12.9
21051	31.4	4.1	23.4	39.4
21061	5.6	2.1	1.4	9.8
21071	12.0	4.7	2.7	21.3
21081	9.0	4.2	0.7	17.3
21091	17.1	5.7	6.0	28.2
22011	8.4	4.5	-0.4	17.2
22012	31.5	7.1	17.7	45.4
22013	16.0	5.3	5.5	26.5
22014	1.9	2.0	-2.1	5.9
22021	42.8	7.6	27.8	57.8
22022	18.9	5.9	7.3	30.4
22023	15.0	5.2	4.8	25.2
22024	34.5	7.2	20.3	48.7
22025	12.7	4.9	3.1	22.3
22031	28.3	6.7	15.1	41.4
22032	16.2	5.6	5.3	27.1
22033	36.1	7.1	22.2	50.0
22034	36.1	7.4	21.6	50.7
22041	73.7	6.9	60.2	87.1
23011	16.0	5.5	5.3	26.7
23012	14.2	5.2	4.0	24.4
23013	29.1	6.8	15.9	42.4
24011	5.9	3.4	-0.8	12.7
24012	16.2	5.5	5.4	26.9
24013	29.7	6.7	16.6	42.7
24021	36.9	7.2	22.8	51.0
31011	13.6	5.3	3.2	24.0
31021	12.0	4.9	2.4	21.6
31022	5.9	3.6	-1.0	12.9
31031	22.4	6.1	10.5	34.3

<b>Sub-districts</b>	<b>% of poor</b>	<b>Standard error</b>	<b>Confidence interval</b>	
31032	44.5	7.2	30.3	58.7
31041	52.8	7.6	37.9	67.7
31042	45.4	7.6	30.5	60.3
31051	15.5	5.5	4.8	26.3
31061	24.7	6.4	12.3	37.2
31071	35.6	7.1	21.8	49.5
32011	15.0	5.3	4.7	25.3
32021	31.9	6.8	18.6	45.3
32031	13.0	4.8	3.5	22.5
33011	5.1	3.3	-1.4	11.7
33012	5.4	3.3	-1.2	11.9
33013	26.6	6.4	14.1	39.1
33014	27.1	6.6	14.1	40.1
33015	23.1	6.4	10.5	35.8
33021	13.1	5.1	3.0	23.2
33031	8.6	4.3	0.1	17.1
33041	10.3	4.6	1.2	19.4
34011	6.5	3.8	-1.0	14.0
34012	63.8	7.8	48.5	79.1
34021	46.6	7.9	31.2	62.1
34022	44.4	7.4	29.8	58.9
	13.0	0.3	12.4	13.6

## APPENDIX III. DETAILS FOR SECTION III: STATISTICAL ANALYSIS VS. POPULAR PERCEPTIONS

### 1. *Analysis of income and its components*

**Figure III.1. Growth in real income by increments of 5 percent of the population**



#### 1.1 *Per capita real income*

Having sorted out the issue of price, we can now explore how the average standard of living has changed between the two survey periods. We first look at the per capita income. The income can be derived from many sources. The major source is the income from employment, which includes wages and salary in both cash and kind. The transfer income is the second largest income source. It includes pensions, social benefits, insurance pension, gifts received in cash and kind, transfers from Government and Non-government agencies and transfers from abroad. The rent is the third largest income source. This component is large because it includes the imputed rent of the owner occupied households. The property income includes rent from land, profits from bonds, loans, bank deposits and dividends.

The table presents the per capita real income for 2006. The real income was calculated from the nominal income by making adjustments for costs of living differences between governorates. The real income is in the average of 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2006 prices for the Whole Kingdom (price index is 100 for the period July-December 2006). The income shares of various income components have also been calculated for each quintile. The quintiles were calculated using the per capita real household income.

Compared to other countries, the share of transfer income is very high in Jordan. Its contribution to total in 2006 was 21.70%. Among the poor households belonging to the bottom quintile, the transfers contributed 31.7% to the total income. Thus, the livelihood of the poor depends heavily on the transfer income. It is obvious that without these transfer income, the poor will have much lower standard of living. The average per capita transfer income among the poor households was JD 114.3 per year in 2006 but the households in the top quintile, who we refer to as the rich households, enjoyed per capita transfer income of JD489.6 per year. Generally our perception is that the most of transfers go to the poor households. This perception is not correct. The rich households are enjoying much higher absolute transfer income.

The transfer income has many components. From the policy point of view it will be important to evaluate the pro-poorness of each of these income components. We may now look at individual components of transfer income.

Following is the description of various transfers.

- Pension: retirement pension received either from government or private sector.
- Social benefits: is the amount of money received for a person when he retires (if the establishment is registered with the social security corporation SSC), or the received amount of money for a person because of work accident.
- Insurance pension: is the amount of money received by a person from an insurance company, (these money not related to work).
- Gifts: cash gifts and value of in-kind gifts.
- Government transfers: money received as assistance from NAF, assistance from other government agencies and non-assistance received from other governmental agencies.
- Non-government transfers: money received from relatives, non-government and non-profit establishments like assistance and any other government agencies.
- Foreign transfers: money received from overseas households.

Among all transfers, pension is the largest component contributing 8.5% to the total household income; the share of the bottom quintile is 8.7% and that of the top quintile is 7.7%. It seems that pensions are distributed more or less uniformly (as proportion of total income) across all quintiles. If we look at the absolute value of pensions, we find that the poor receive much less pension than the rich.

The transfers from Government and Non-profit organizations to households are pro-poor. The poor households (belonging to the first quintile) receive 12% of their income from Government transfers and 5.4% from the non-profit organizations. The households in the top quintile receive only 2.4% of their income from Government transfers and only 1.8 from non-profit organizations. If we look at the absolute values of transfers we find that households in the top quintile receive lot more transfers on per capita basis. We can conclude that transfers are pro-poor but there is lot of leakage to the non-poor. It means that transfers are not well targeted. The per capita Government transfers going to the households in the bottom quintile is only 70% of that going to the households in the top quintile.

The large proportions of foreign transfers are going to the rich households and thus they are not pro-poor.

**Table III.1. Per capita real income 2002, in 2006 JDs per year**

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop	HH has government employee
Employee income	150.4	293.8	409.6	569.4	975.4	479.7	661.6
Own account and employer	40.6	61.7	87.3	136.7	298.9	125	87.8
Rent Building rent	60.6	94.6	139.4	189.5	498.7	196.6	179.4
Other rent	60.1	93.6	137.2	183.9	488.3	192.6	175.2
Property	0.4	1	2.2	5.6	10.4	4	4.2
Land rent	5.4	15.7	23.8	36.1	128.4	41.9	23.1
Deposits inside Jordan	0.1	0.6	0.8	1.5	2.4	1.1	1.7
Deposits outside Jordan	0.5	0.2	1.6	1.5	18.9	4.5	2
Bonds	0	0	0	0	1.4	0.3	0
Loans	0	0	0	0	0	0	0
Dividends Profits and interests	0	0.1	0.2	0.3	4.3	1	2
Other property income	4.8	14.8	20.8	32.8	100.6	34.8	17.1
Transfer	0.1	0	0.3	0	0.1	0.1	0.3
Pensions Social pensions	85.8	111.8	136.6	203	521.5	211.7	182.1
Insurance pensions	39.8	59.9	72.4	99.7	201.3	94.6	91.2
Gifts	0.4	0.5	1.2	3.9	21.3	5.5	4.4
Government (NAF)	0.5	0.2	0.6	0.3	0.5	0.4	0.4
Government (Zakat)	15.3	22.2	28	39.9	65.7	34.2	32.7
Government (other)	17.2	8	5.4	4	1.5	7.2	4.4
Non-Govt. transfers (households)	0.6	0.2	0.3	0.6	0	0.3	0.1
Non-Govt. transfers (non-profit int)	0.4	1	2.3	3.9	11.5	3.8	6.8
Non-Govt. transfers (other)	6.9	8.5	11.5	17.8	39	16.7	10.7
	0.8	0.3	0.2	0.1	1.3	0.6	0.1
	0.1	0.2	0.2	0.6	0.4	0.3	0.1

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop	HH has government employee
Non-resident transfers	3.9	10.8	14.4	32.2	179	48.1	31.2
Other income	0	0.2	0.1	0.1	1.7	0.4	0.2
Total income	342.9	577.9	796.7	1134.8	2424.7	1055.3	1134.1

**Table III.2. Share of 2002 real income from various sources**

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop	HH has Govt. employee
Employee income	44%	51%	51%	50%	40%	45%	58%
Own account and employer	12%	11%	11%	12%	12%	12%	8%
Rent	18%	16%	17%	17%	21%	19%	16%
Building rent	18%	16%	17%	16%	20%	18%	15%
Other rent	0%	0%	0%	0%	0%	0%	0%
Property	2%	3%	3%	3%	5%	4%	2%
Land rent	0%	0%	0%	0%	0%	0%	0%
Deposits inside Jordan	0%	0%	0%	0%	1%	0%	0%
Deposits outside Jordan	0%	0%	0%	0%	0%	0%	0%
Bonds	0%	0%	0%	0%	0%	0%	0%
Loans	0%	0%	0%	0%	0%	0%	0%
Dividends	0%	0%	0%	0%	0%	0%	0%
Profits and interests	1%	3%	3%	3%	4%	3%	2%
Other property income	0%	0%	0%	0%	0%	0%	0%
Transfer	25%	19%	17%	18%	22%	20%	16%
Pensions	12%	10%	9%	9%	8%	9%	8%
Social pensions	0%	0%	0%	0%	1%	1%	0%
Insurance pensions	0%	0%	0%	0%	0%	0%	0%
Gifts	4%	4%	4%	4%	3%	3%	3%
Government (NAF)	5%	1%	1%	0%	0%	1%	0%
Government (Zakat)	0%	0%	0%	0%	0%	0%	0%

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop	HH has Govt. employee
Government (other)	0%	0%	0%	0%	0%	0%	1%
Non-Govt. transfers (households)	2%	1%	1%	2%	2%	2%	1%
Non-Govt. transfers (non-profit int)	0%	0%	0%	0%	0%	0%	0%
Non-Govt. transfers (other)	0%	0%	0%	0%	0%	0%	0%
Non- resident transfers	1%	2%	2%	3%	7%	5%	3%
Other income	0%	0%	0%	0%	0%	0%	0%
Total income	100%	100%	100%	100%	100%	100%	100%

**Table III.3. Per capita real income 2006, in 2006 JDs per year**

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop	HH has Govt. employee
Employee income	154.1	293.6	409.6	573.9	1056.6	497.5	716.3
Own account and employer	39.1	62.5	101.8	153.2	440.3	159.4	75.9
Rent Building	52.1	85.1	115.6	168.6	498.8	184.0	134.3
rent	51.8	84.4	114.6	162.8	478.5	178.4	132.9
Other rent	0.3	0.7	1.1	5.8	20.3	5.6	1.4
Property	0.6	1.5	4.0	6.7	63.3	15.2	7.6
Land rent	0.1	0.2	0.2	0.7	7.5	1.7	2.9
Deposits inside Jordan	0.1	0.0	0.1	0.3	12.5	2.6	0.1
Deposits outside Jordan	0.0	0.0	0.0	0.0	0.9	0.2	0.0
Bonds	0.0	0.0	0.0	0.0	1.7	0.3	0.0
Loans	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Dividends	0.0	0.0	0.2	1.1	11.3	2.5	1.3
Profits and interests	0.4	1.4	3.5	4.5	29.4	7.8	3.1
Other property income	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Transfer	114.3	141.7	180.1	260.2	489.6	237.1	201.8

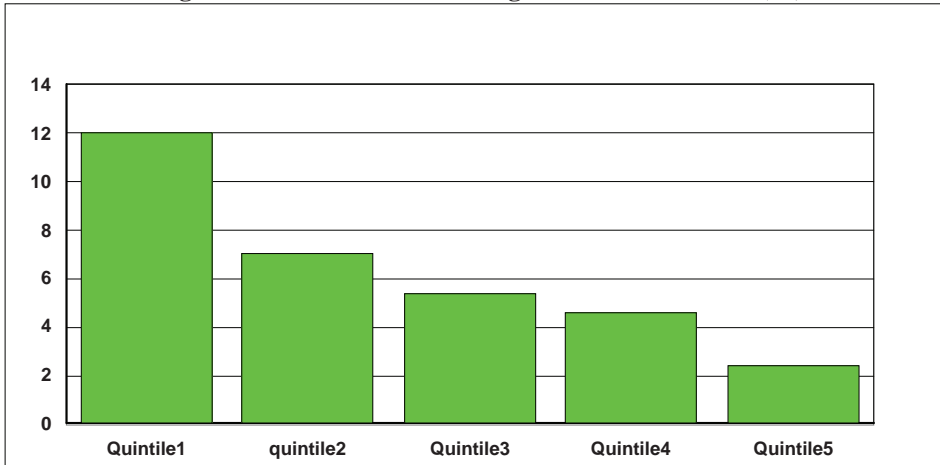
	<b>1st quintile</b>	<b>2nd quintile</b>	<b>3rd quintile</b>	<b>4th quintile</b>	<b>5th quintile</b>	<b>Total pop</b>	<b>HH has Govt. employee</b>
Pensions	31.3	54.1	75.1	107.4	197.3	93.0	84.4
Social pensions	0.1	0.3	1.3	3.9	8.5	2.8	3.3
Insurance pensions	0.0	0.2	0.0	0.0	0.0	0.1	0.0
Gifts	16.9	21.6	28.1	34.0	57.3	31.6	27.1
Government (NAF)	21.0	10.9	6.0	3.4	1.8	8.6	3.4
Government (Zakat)	0.4	0.3	0.5	0.3	0.5	0.4	0.7
Government (other)	21.8	30.1	37.1	50.1	59.6	39.7	66.4
Non-Govt. transfers (households)	18.4	18.4	22.1	24.0	41.6	24.9	12.8
Non-Govt. transfers (non-profit int)	0.7	0.3	0.2	0.9	0.5	0.5	0.1
Non-Govt. transfers (other)	0.5	0.4	0.6	1.6	4.0	1.4	0.3
Non- resident transfers	3.1	5.2	9.1	34.6	118.4	34.1	3.2
Other income	0.0	0.1	0.1	0.0	1.0	0.2	0.1
Total income	360.2	584.4	811.3	1162.6	2549.5	1093.4	1135.9

**Table III.4. Share of 2006 real income from various sources**

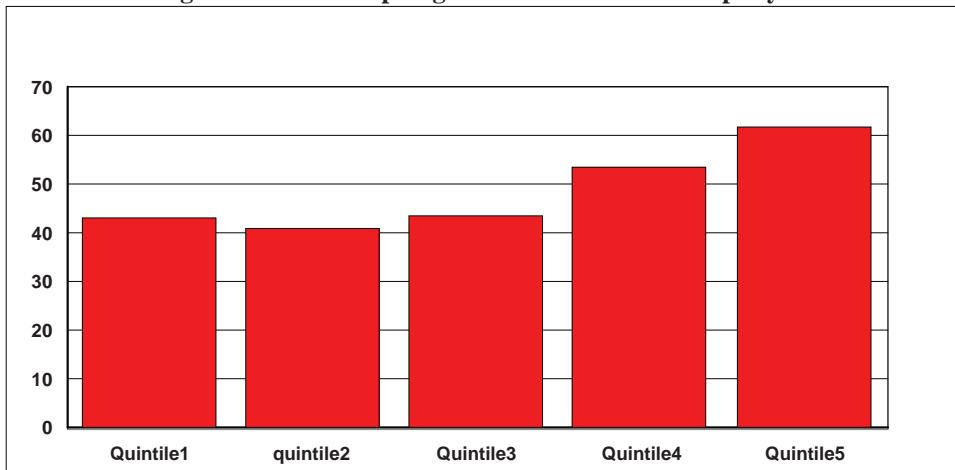
	<b>1st quintile</b>	<b>2nd quintile</b>	<b>3rd quintile</b>	<b>4th quintile</b>	<b>5th quintile</b>	<b>Total pop</b>	<b>HH has Govt. employee</b>
Employee income	43%	50%	50%	49%	41%	46%	63%
Own account and employer	11%	11%	13%	13%	17%	15%	7%
Rent	14%	15%	14%	15%	20%	17%	12%
Building rent	14%	14%	14%	14%	19%	16%	12%
Other rent	0%	0%	0%	0%	1%	1%	0%
Property	0%	0%	0%	1%	2%	1%	1%
Land rent	0%	0%	0%	0%	0%	0%	0%
Deposits inside Jordan	0%	0%	0%	0%	0%	0%	0%
Deposits outside	0%	0%	0%	0%	0%	0%	0%

	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile	Total pop	HH has Govt. employee
Jordan							
Bonds	0%	0%	0%	0%	0%	0%	0%
Loans	0%	0%	0%	0%	0%	0%	0%
Dividends	0%	0%	0%	0%	0%	0%	0%
Profits and interests	0%	0%	0%	0%	1%	1%	0%
Other property income	0%	0%	0%	0%	0%	0%	0%
Transfer	32%	24%	22%	22%	19%	22%	18%
Pensions	9%	9%	9%	9%	8%	9%	7%
Social pensions	0%	0%	0%	0%	0%	0%	0%
Insurance pensions	0%	0%	0%	0%	0%	0%	0%
Gifts	5%	4%	3%	3%	2%	3%	2%
Government (NAF)	6%	2%	1%	0%	0%	1%	0%
Government (Zakat)	0%	0%	0%	0%	0%	0%	0%
Government (other)	6%	5%	5%	4%	2%	4%	6%
Non-Govt. transfers (households)	5%	3%	3%	2%	2%	2%	1%
Non-Govt. transfers (non-profit)	0%	0%	0%	0%	0%	0%	0%
Non-Govt. transfers (other)	0%	0%	0%	0%	0%	0%	0%
Non-resident transfers	1%	1%	1%	3%	5%	3%	0%
Other income	0%	0%	0%	0%	0%	0%	0%
Total income	100%	100%	100%	100%	100%	100%	100%

**Figure III.2. Income shares of government transfers (%)**



**Figure III.3. Per capita government transfer: JD per year**

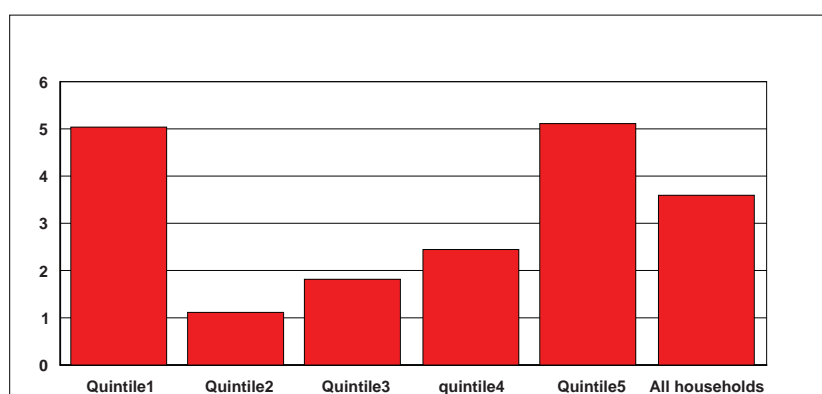


### 1.2 Explaining growth rate of real per capita income.

The recall period for income is the whole year during the calendar months of 2002 and 2006. If we make the appropriate adjustment for prices, we can compare how the average standard of living has changed in Jordan between 2002 and 2006. The nominal income was adjusted for price changes between calendar months between 2002 and 2006, which gave us the per capita real incomes. The growth rate was then calculated from the per capita real incomes. These growth rates are presented for each income component in Table 3.3. It is noted that during four years, the per capita total income for the average household increased by 3.6%. This is a low growth rate of income given that the per capita GDP increased at a faster rate during the same period.

It is interesting to note that per capita income for the poor households belonging to the bottom quintile increased by 5% and for the richer households belonging to the top quintile it increased by 5.1% during the same period. The growth rates are much lower for the households belonging to 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quintiles. It seems that growth process has been pro-poor and also pro-rich but has been anti- middle class (Figure III).

**Figure III.4. Growth rates of per capita real income by quintiles**



**Table III.5. Growth rates of per capita real income by quintiles: between 2002 to 2006**

	1st Q	2nd Q	3rd Q	4th Q	5 <sup>th</sup> Q	Total pop
<b>Growth rates</b>						
Employee income	2.5	-0.1	-0.0	0.8	8.3	3.7
Own account and employer	-3.7	1.2	16.7	12.1	47.3	27.5
Rent	-14.1	-10.1	-17.1	-11.1	0.0	-6.4
Property	-88.3	-90.2	-83.2	-81.6	-50.7	-63.6
Transfer	33.1	26.7	31.9	28.2	-6.1	12.0
Pensions	-21.3	-9.8	3.7	7.8	-2.0	-1.7
Social pensions	-85.7	-53.7	11.9	-1.3	-60.0	-48.7
Insurance pensions	-90.7	21.4	-97.4	-94.1	-95.8	-86.4
Govt. transfers	137.9	348.5	450.1	532.4	374.2	328.8
Non-Govt. transfers	151.5	112.6	91.2	43.2	13.6	52.7
Foreign transfers	-19.8	-52.1	-37.2	7.6	-33.9	-29.1
Gifts	10.6	-2.5	0.2	-14.7	-12.7	-7.7
Other	-93.3	-77.0	38.4	-100.0	-43.3	-46.8
Total income	5.0	1.1	1.8	2.5	5.1	3.6
<b>Contributions to growth rates</b>						
Employee income	1.1	-0.0	-0.0	0.4	3.3	1.7
Own account and employer	-0.4	0.1	1.8	1.5	5.8	3.3
Rent	-2.5	-1.7	-3.0	-1.8	0.0	-1.2
Property	-1.4	-2.4	-2.5	-2.6	-2.7	-2.5
Transfer	8.3	5.2	5.5	5.0	-1.3	2.4
Pensions	-2.5	-1.0	0.3	0.7	-0.2	-0.2
Social pensions	-0.1	-0.1	0.0	-0.0	-0.5	-0.3
Insurance pensions	-0.1	0.0	-0.1	-0.0	-0.0	-0.0
Govt. transfers	7.3	5.5	4.5	4.0	2.0	3.5
Non-Govt. transfers	3.4	1.7	1.4	0.7	0.2	0.9
Foreign transfers	-0.2	-1.0	-0.7	0.2	-2.5	-1.3
Gifts	0.5	-0.1	0.0	-0.5	-0.3	-0.2
Other	-0.0	-0.0	0.0	-0.0	-0.0	-0.0
Total income	5.0	1.1	1.8	2.5	5.1	3.6

To understand the patterns of growth in income, it is important to know the contributions of each income source to growth rate of the total per capita income. We use the following methodology to calculate these contributions.

There are 5 income components and suppose there  $\bar{x}_i$  is the mean per capita real income from the  $i$ th income source, then the mean per capita total real income  $\bar{x}$  can be written as

$$\bar{x} = \sum_{i=1}^5 \bar{x}_i \quad (1)$$

Taking the first difference of (5) both sides we obtain

$$\frac{\Delta \bar{x}}{\bar{x}} = \sum_{i=1}^5 \frac{\bar{x}_i}{\bar{x}} \left[ \frac{\Delta \bar{x}_i}{\bar{x}_i} \right] \quad (2)$$

which shows that the growth rate of mean per capita total real income is equal to the weighted average of the growth rates of per capita mean real incomes of each income source with weight equal to share of the each income source. Thus,  $\frac{\bar{x}_i}{\bar{x}} \left[ \frac{\Delta \bar{x}_i}{\bar{x}_i} \right]$  is the contribution of the  $i$ th income source to the growth rate of mean per capita total real income. These contributions have been calculated for each quintile in Table 39. This methodology quantifies the factors that have contributed to growth in per capita real income.

The employment income, own account income and transfers contribute 7.4% to the total growth rate of 3.6%. The income sources that contribute negatively to the total growth rate are rent and property income. The growth rate of property income is -63.6%, which contributes to a reduction in total growth rate by 2.5%. The rent has contributed to a reduction in total growth rate by 1.2%. The transfer income has contributed to increase in total growth rate by 2.4%. Thus the transfer income plays an important role in the improvement of standard living.

The poor households belonging to the bottom quintile have higher growth rate mainly due to transfer income, which has contributed 8.9% to the total growth rate of 5%. The labor income for the poor has not increased at all during the past four years. The rental and property incomes together have contributed to a reduction in income by 4%.

The rich households (those belonging to the top quintile) have benefited most from the labor market. The labor income which consists of employment income and own account income (enterprise income) has contributed 9.1% to their growth rate of 5.1%. These household have loss of growth in mainly property and transfer incomes. It is interesting to note that the Government transfers have contributed 2% to their growth rate. The foreign transfers have contributed to reduction in their growth rate by 2.5%.

The middle income households have suffered loss of growth in property and rent income. The government transfers have contributed almost 5% to their growth rate. The

employment income has made negligible contribution to their growth rate. This may be due to weaker employment rate among these households. We will look at the labor market characteristics by quintiles at a later stage.

## 2. *Per capita real income by Governorates*

**Table III.6. Per capita real income**

<b>Governorates</b>	<b>2002</b>	<b>2006</b>	<b>Growth rate</b>
Amman	1257	1312	4.3
Balqa	1044	1013	-3.0
Zarqa	803	868	8.1
Madaba	928	931	0.3
Irbid	1011	1012	0.1
Mafraq	816	969	18.7
Jarash	856	833	-2.6
Ajlun	922	958	3.9
Karak	1061	1057	-0.4
Tafiela	1012	887	-12.3
Maan	809	923	14.1
Aqaba	1004	1091	8.7
Kingdom	1055	1093	3.6

## 3. *Gini index and quintile shares*

Table III.7 presents the Gini index and quintile share of per capita income. The Gini index has increased by 1.94% in four years between 2002 and 2006. The income share of the bottom 20% of the population has increased by 1.38%. It means that the poor have benefited proportionally more than the non-poor. The income share of the top 20% of the population has increased by 1.48%. The increase in the Gini index is mainly explained by the declining income shares of the population falling in the 2<sup>nd</sup> to 4<sup>th</sup> quintile. Thus, the population falling between the 20<sup>th</sup> to 80<sup>th</sup> percentiles has suffered a relative decline in their standard of living. The population in the 2<sup>nd</sup> quintile has suffered the most relative decline.

**Table III.7. Gini index and quintile shares per capita real income**

	<b>2002</b>	<b>2006</b>	<b>Growth rate</b>
Gini index	38.81	39.56	1.94
Quintile shares			
Quintile 1	6.5	6.6	1.38
Quintile 2	11.0	10.7	-2.40
Quintile 3	15.1	14.8	-1.73
quintile 4	21.5	21.3	-1.12
quintile 5	46.0	46.6	1.48
Total	100.0	100.0	0.00

**Table III.8. The percentage of population with access to assets: 2006**

	<b>Q1 (poorest)</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5 (richest)</b>	<b>Population</b>
Animals	7.7	6.7	7.2	7	5.5	6.7
Land	12.2	17	23.2	3.8	34	22
Owner occupies building	58.3	68.2	72.1	7.9	82.3	71.7
Rented building	2.6	5.6	8.2	2.2	22.3	10.2
Non-residential own use	1.4	2.3	3.5	4.5	5.3	3.4
Non-residential rented	1	1.3	2.1	3.5	6.6	2.9
Deposits in banks	1	1.5	2.6	5.1	11.6	4.3
Stocks	0.2	0.3	1.2	1.5	4.5	1.5
Bonds	0	0	0	0	0.4	0.1

**Table III.9. The percentage of population with access to assets: 2002**

	<b>Q1 (poorest)</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5 (richest)</b>	<b>Population</b>
Animals	19.3	17.3	16.1	14	10.6	15.2
Land	15.8	23	25.9	1.4	37.9	26.4
Owner occupies building	68.1	71	75.3	7.1	82.1	73.5
Rented building	4.8	9.7	14.7	8.1	29.4	14.9
Non-residential own use	3.4	4.1	5.1	6.1	6.7	4.9
Non-residential rented	0.8	2.1	3.7	3.7	8.3	3.6
Deposits in banks	1.1	3.2	4.9	5.5	15.7	6
Stocks	0.1	0.5	0.7	1.2	4.1	1.3
Bonds	0	0	0	0	0	0

## APPENDIX IV. DETAILED DISCUSSION FOR SECTION IV: IMPACT OF FUEL SUBSIDY REMOVAL

### 1. *Fuel Subsidies*

Prior to 2003, Jordan received below-market price oil from Iraq. Jordan also receives below market price gas from Egypt. The combination of cheap source and low international prices meant there was no incentive to free fuel prices. After 2003 as Jordan lost Iraq as a source of inexpensive oil and as international fuel prices increased, Jordan made a plan for eliminating fuel subsidies. In July and September 2005 Jordan increased consumer prices of fuels. In September 2005, some products increased by as much as 130%. At that time, the GOJ gave every public sector employee a salary increase of 50JD per month.

In April 2006, consumer prices of energy products were increased again. On average prices increased by 42 percent, yet these prices were still below market prices. To compensate the population, the GOJ announced cash transfers to all households with income below 1000JD per person per year. Public sector employees received from their employers, NAF recipients received the maximum and others could apply at post offices. The population was paid in two installments using formula below to determine the total amount received:

Income per person per year	transfer (April 2006)
<400JD	25JD (max 150JD/family)
400-800 JD	15JD (max 90JD/family)
800-1000JD	10JD (max 60JD/family)

The budget for this increase was JD32 million for the public sector and JD33 million for the private sector for a total of JD65 million.

In September 2007, the MOF studied the issue in preparation for 2008 price increases. They calculated that at the existing consumer prices, international prices would have to be at \$60 a barrel to have no subsidies. Every increase of \$1 per barrel would cost the budget \$35 million (because Jordan uses 35 million barrels per year). At \$90 per barrel, subsidies would cost the budget \$1 billion in 2008. The MOF calculated the additional annual per capita income required for consumers to maintain fuel consumption. Going from the poorest to richest deciles, subsidy removal would cost an additional JD11, JD15.5, JD18.7, JD21.8, JD24.8, JD28.5, JD33.2, JD40, JD52.2, JD99.5 per person per year. The MOF proposed to increase public sector salaries by JD30/month for employees earning less than 300JD and 25JD/month for those earning more than 300JD. Parliament preferred an increase of 45-50 JD/month. (The former package would cost JD32 million while the latter costs JD40 million)

On February 9, 2008, a major price adjustment took effect.

<i>Item</i>	<i>Old price</i>	<i>new price</i>	<i>increase</i>
Regular	430 fils	unleaded (90)	575 fils 33%
Unleaded	640 fils	unleaded (95)	660 fils 3%
Super	605 fils	unleaded (95)	660 fils 9%
Kerosene	315 fils	555 fils	76%
Diesel	315 fils	555 fils	76%
Heavy oil for			
Electricity	JD165	JD348	111%
Gas	JD4.25	JD6.5	53%

Electricity prices were also adjusted based on the following

<b>Category</b>	<b>Old tariff/kW (fils)</b>	<b>New tariff/kW (fils)</b>	<b>In crease percentage</b>
1-160kW	31	32	3%
161-300kW	59	71	20%
301-500kW	67	85	26.8%
Over 500kW	82	113	25.6%
Commercial subscribers	63	86	36.5%
Small-size industry subscribers	41	49	19.5%
Medium-size industry subscribers	N/A	49.24	-
Large-size industry subscribers	N/A	64.53	-
Agriculture subscription	31	47	51%
Water pumps	40	41	2.5%
Hotels	60	86	26.6%
TV and radio stations	61	86	26.2%
Armed Forces	N/A	77.01	-
Ports sector	N/A	58	-
Street illumination	N/A	35.29	-

The 2008 price increases were the first time that prices have been at international levels. (Previous rounds of increases reduced subsidies but not entirely.) There are two exceptions. First, gas cylinders are still subsidized. Second, super and unleaded have

been and will continue to be higher than true prices. (90 is 4% above market prices and 95 is 16% above market prices. Note that regular gasoline will no longer be available.)

Electricity generation depends on two sources: heavy oil and Egyptian gas, with Egyptian gas accounting for 80-85% of inputs. The price of heavy oil was increased by 111% on February 9, 2008. Egypt provides gas at prices which are currently about 50% below international markets. Revised electricity tariffs will be determined at the conclusion of ongoing negotiations with the Egyptians on increasing the quantity available at the below-market prices. It is expected that electricity costs for households using less than 160kilowatts per month will not increase. Prices for those consuming more will increase enough to cross-subsidize the under 160kw/m group. (There will be no budget allocated to electricity subsidies.)

Water prices are also expected to increase due to the heavy use of electricity to pump water. The water regulatory agency will determine new prices after electricity prices are determined.

Fuel prices have not been deregulated. The government plans to liberalize imports.<sup>1</sup> For the time being, a committee will be meeting monthly to decide on prices for the following month, with the 9<sup>th</sup> of each month as the increase day.

The 2008 budget does not include fuel subsidies. However, due to the fact that subsidies were in place up to Feb 9 and continue for gas cylinders until April, the GOJ is expected to return to Parliament with a supplemental budget.

**Table IV.1. Expenditure on each product as share of total household expenditure**

	Poor	Q1 (poorest)	Q2	Q3	Q4	Q5 (richest)
Gas cylinder	5%	4%	3%	3%	3%	2%
Solar	0%	0%	0%	0%	0%	2%
Kerosene	3%	2%	2%	2%	2%	1%
Regular gas	2%	4%	5%	5%	6%	6%
Super gas	0%	0%	0%	1%	1%	4%
Diesel (car)	1%	1%	1%	1%	1%	1%
Taxi	2%	2%	2%	2%	2%	2%
Service in city	1%	1%	1%	1%	0%	0%
Bus in city	2%	1%	1%	1%	1%	0%
Bus between cities	3%	2%	2%	2%	2%	1%
Electricity	8%	5%	5%	5%	4%	4%
All fuel-related expenditures	35%	27%	28%	27%	27%	26%

## 2. *Compensating Measures*

The Government announced several mechanisms to compensate the population. They usually refer to these mechanisms as “a social safety net.”

<sup>1</sup> One newspaper article said that after 2 years, imports will be fully liberalized and the price deregulated. The MOF indicated that no timeframe has been determined and some form of regulation will continue to be in place, and may or may not act to determine prices.

The following mechanisms have been announced:

### *2.1 NAF*

Monthly aid will increase from JD26 to JD36 per family member. The maximum increased from JD 156 to JD 180 for a five-member family. (Note that in May 2007, the maximum benefit per beneficiary was raised to JD 33 per month. The increase as of February 2008 is therefore JD 3 per beneficiary for those who had already received the JD7 increase.) The MOF indicated that they do not want NAF benefits to exceed civil servant salaries which in some cases are less than JD180/month.

NAF currently has 234,000 individuals benefiting. Of these, 40,000 had already benefited from the JD7/month increase (and were receiving JD33/month prior to the compensating measures). The rest were receiving JD26/month. The compensating measures provide an additional JD7.5 million on top of the JD60 million per year usual budget. The NAF budget has not been increased to accommodate any new beneficiaries.

### *2.2 Public sector employees and retirees.*

Additional JD50 per month for civil servants, military and security personnel whose (base)<sup>2</sup> pay is less than JD300. (This is 85% of all employees) Additional JD45 per month for civil servants, military and security personnel whose (base) pay is more than JD300. (Retroactive to January 1, 2008) The pay increase will also cover retired civil servants, military and security personnel. (Pensions will increase by this amount.) There are a total of 600,000 public sector employees and retirees. The budget for this increase is JD355million/year.

### *2.3 SSC*

Additional JD30 for beneficiaries of the Social Security Corporation (which includes private sector jobs. This was announced for 6 months, though in practice may be difficult to remove.

### *2.4 Private Sector*

The safety net includes pay raises and cash allowances to households with an annual per capita income of less than JD1,000. This was done in 2006 and they will use the same lists. Note that public sector employees will not get it this year. It is expected that households will receive about 150JD in two installments of 75JD.

Families apply at post offices as in 2006. Families are considered ineligible if the Tax Department and SSC and Public Sector Salary lists don't show evidence of them earning more than JD1,000 per person per year. 430,000 families are expected in 2008 to get the money. It is clear that they will pay many people whose income is over the cut

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<sup>2</sup> For purpose of this calculation, allowances which are received by all personnel are included with base pay (the sum needs to be less than 300JD). Allowances for special categories of personnel is not included.

off but are not registered with the tax office. (We estimate that the GOJ pays 4 times more than need to if they could target well.) Total budget for this is JD40 million for 2008.

### *2.5 Thirteen basic items will be exempt from taxation*

Thirteen basic food items (including milk, rice, corn oil, sugar, etc.) will be exempt from both General Sales Tax and customs duties. Note that since 1994 there have not been fixed prices for any of these commodities. Prices for these commodities will not be regulated now either. It is assumed that the retailers will pass the savings onto consumers. The lost revenue from this measure is estimated at JD30 million.

### *2.6 Bread*

Bread has been and will remain subsidized by the government. The Ministry of Industry and Trade supplies subsidized flour to bakeries that use it to make traditional bread. This bread is sold at regulated prices. There is no limit to the quantity of subsidized flour bakeries can purchase and all bakeries are eligible. Consumers cannot buy subsidized flour. The 2008 budget for subsidized flour was JD165 million. It has now been increased to JD175 million in order to compensate bakeries for the higher cost of fuel

**Table IV.2. Percentage of persons belonging to households, which received in 2006 any of the following transfers**

	Q1 (poorest)	Q2	Q3	Q4	Q5 (richest)	Total pop	Poor	Non- poor
Pension	13.7	20.4	26.4	31	32.2	24.8	21.1	25.3
Social benefits	0	0.1	0.4	0.8	0.8	0.4	0.1	0.5
Insurance pension	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2
Government transfer (NAF)	14.9	7.4	4.7	3	1.6	6.3	15.1	5
Government transfer (Zakat)	1.2	1	0.7	0.7	0.6	0.8	1.2	0.8
Other government transfers	79.6	85.3	84.6	80.4	65.9	79.2	84	78.4
government employment	9.3	19.7	22.8	27	23.5	20.5	16.6	21

**Table IV.3. Percent of each quintile that benefits from having a government employee, receives government transfers, NAF, Zakat or Social Security**

	Q1 (poorest)	Q2	Q3	Q4	Q5 (richest)
Govt. employment	9%	20%	23%	27%	24%
Govt transfers (other)	80%	85%	85%	80%	66%
NAF	15%	7%	5%	3%	2%
Zakat	1%	1%	1%	1%	1%
SSC	14%	20%	26%	31%	32%

**Table IV.4. The distribution of beneficiaries by quintile**

	Q1 (poorest)	Q2	Q3	Q4	Q5 (richest)	Total
Govt employment	13%	26%	23%	23%	15%	100%
Govt transfers (other)	20%	22%	21%	20%	17%	100%
NAF	47%	23%	15%	10%	5%	100%
Zakat	29%	23%	18%	16%	15%	100%
SSC	11%	17%	21%	25%	26%	100%

**Table IV.5. The distribution of benefits actually received by quintile of beneficiaries**

Govt (other)	11%	15%	19%	25%	30%	100%
NAF	49%	25%	14%	8%	4%	100%
Zakat	20%	15%	25%	15%	25%	100%
SSC	7%	12%	16%	23%	42%	100%

### 3. *The price elasticity of poverty and poverty reform index*

This section considers the problem of bringing marginal reforms in government taxes and subsidy policies so that aggregate poverty is minimized. This is accomplished by calculating a poverty reform index based on the price elasticity of poverty for different items of consumption.

Suppose  $x$  is the total per capita expenditure of a household, which can be written as sum of the expenditures on different items of consumption:

$$x = \sum_{i=1}^n q_i p_i$$

where  $n$  is the total number items of consumption;  $p_i$  and  $q_i$  are the price and quantity of the  $i$ th item of consumption. A change in any price will impact the standard of living of the poor and the non-poor households differently. And hence the impact of a price change will have different impact on the magnitude of poverty. Suppose  $\eta_i$  is the price elasticity of poverty with respect the  $i$ th price  $p_i$ , it implies that if  $p_i$  increases (decreases) by 1%, the poverty will increase (decrease) by  $\eta_i$  %. This elasticity provides a linkage between changes in prices and changes in poverty. Suppose when all prices increase by 1%, then the real value of total expenditure of households will decrease, which in turn will increase poverty. Suppose  $\eta$  is the total price elasticity of poverty, which implies that if all prices increase (decrease) by 1%, the total poverty will increase (decrease) by  $\eta$  . It is obvious that the total price elasticity of poverty must be equal to the sum of the individual price elasticity of poverty:

$$\eta = \sum_{i=1}^n \eta_i$$

Table 19 presents the price elasticity of poverty. The calculations are presented for the poverty gap ratio and severity of poverty index. The severity of poverty index gives greater weight to the ultra poor, those who are far below the poverty line.

The total price elasticity of poverty for the poverty gap ratio is 3.64, it means that when all prices increase by 1%, the poverty gap ratio will increase by 3.64%. It implies that poverty is highly sensitive to price changes. The total poverty elasticity for the severity index is 4.03, which means that severity index is even more sensitive to price changes than the poverty gap ratio. This also means that the ultra poor are more impacted by price changes.

If food prices increase by 1%, the poverty gap ratio will increase by 1.38% and severity index will increase by 2.28%. Thus increase in food prices will hurt the ultra poor more than the poor. Similarly, the decline in food prices will benefit the ultra poor more than the poor.

By looking at the price elasticity of poverty we cannot conclude whether the price increases or price decreases are pro-poor or anti-poor. When a price increases (or

decreases), it has both income effect and distribution impact. It is the distribution impact which tells us whether the price changes are pro-poor or anti-poor. In order to capture The distribution impact we decompose the price elasticity  $\eta_i$  as

$$\eta_i = \frac{\mu_i}{\mu} \eta + \left( \eta_i - \frac{\mu_i}{\mu} \eta \right)$$

where  $\mu_i$  is the mean expenditure on the  $i$ th item of expenditure and  $\mu$  is the mean total expenditure. The first term in the right hand side is the income effect of prices and the second term in the bracket is the distribution impact. If the distribution impact is positive (negative), the  $i$ th price increase will hurt the poor (non-poor) more than the non-poor (poor). This leads us to suggest that the poverty reform index (PRI):

$$\varphi_i = \frac{\mu \eta_i}{\mu_i \eta}$$

If  $\varphi_i$  is greater than 1, it implies that the increase (decrease) in the  $i$ th price will hurt (benefit) the poor more than the non-poor. Similarly if  $\varphi_i$  is less than 1, it implies that the increase (decrease) in the  $i$ th price will hurt (benefit) the non-poor more than the poor

If our objective is to minimize poverty, then the items of consumption, which have values of  $\varphi_i$  greater than 1 should be subsidized; the larger is the value of  $\varphi_i$ , the greater is the justification for subsidizing the  $i$ th item of consumption. Similarly, the items of consumption, which have values of  $\varphi_i$  less than 1, can be taxed because such taxes will hurt the non-poor more than the poor.

From the values of the poverty reform index it is evident that the items of consumption that should be subsidized are food, fuel and lighting, housing, transport and communication, education, health and personal care. The payments for pensions and social security are also highly anti-poor and hurt the poor proportionally more than the non-poor. (See Table 24).

The PRI for alcohol and tobacco is 1.64, which means that any tax on alcohol and tobacco will hurt the poor more than the non-poor. Interesting the value of index is 0.47 for the severity index. It means that ultra poor will be less impacted by the taxes on alcohol and tobacco.

Similarly the value of PRI for housing is 2.64 when we measure poverty by poverty gap ratio. It implies that any housing subsidy will benefit the poor more than the non-poor. The value of index is 0.64 when we measure poverty by the severity index. This suggests that the ultra poor will benefit less by housing subsidy.

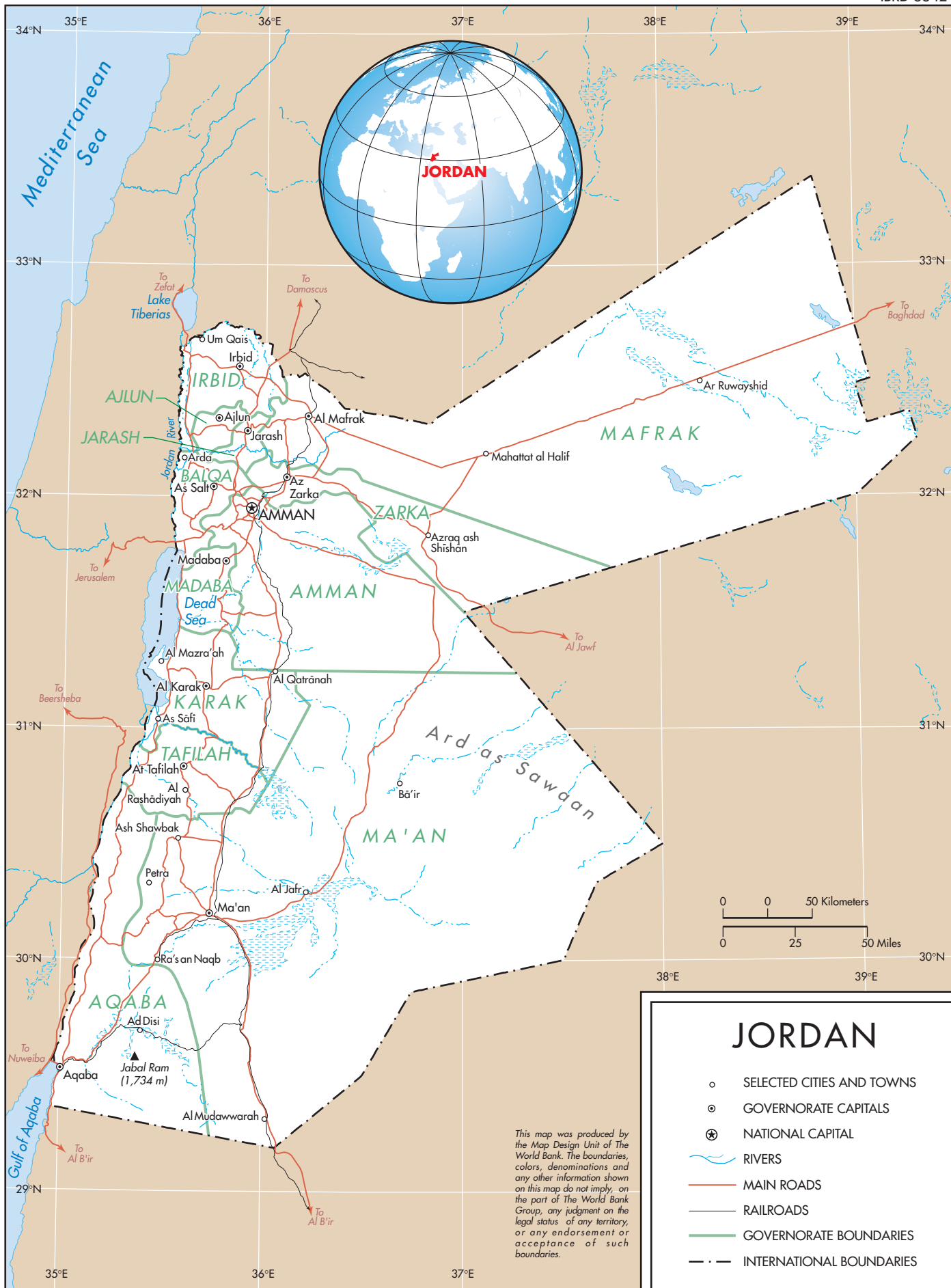
The values of PRI are very high for both the poverty measures.

**Table IV.6. Price elasticity of poverty gap ration and poverty reform index 2006**

Item of expenditure	Price elasticity of poverty		Poverty reform index	
	gap ratio	Severity index	gap ratio	Severity ratio
Food	1.38	2.28	1.14	1.70
Alcohol & Tobacco	0.22	0.07	1.64	0.47
Non-food	2.05	1.78	0.89	0.70
Gifts to others	0.07	0.74	1.00	9.22
Housing	1.53	0.41	2.64	0.64
Fuel & lighting	0.62	0.74	3.41	3.66
Transport & communication	0.41	0.41	1.22	1.11
Education	0.33	0.35	1.21	1.17
Health	0.13	0.14	1.41	1.41
Personal care	0.30	0.34	2.79	2.86
Culture & recreation	0.05	0.05	1.05	0.94
Pension	0.01	0.01	2.51	2.42
Social security	0.06	0.06	2.33	2.14
Total expenditure	3.64	4.03	1.00	1.00

## MAP SECTION





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# JORDAN

- SELECTED CITIES AND TOWNS
- ⊙ GOVERNORATE CAPITALS
- ⊛ NATIONAL CAPITAL
- ~ RIVERS
- MAIN ROADS
- RAILROADS
- GOVERNORATE BOUNDARIES
- - - INTERNATIONAL BOUNDARIES