The Patterns and Determinants of Household Welfare Growth in Jordan

2002–2010

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Abstract

Jordan's economic growth in the past decade has translated into a significant rise in household consumption and a decline in poverty and inequality indicators. Yet, the sentiment of the overall population seems to point to worsening disparities. Using official household expenditure surveys for 2002, 2008, and 2010, this paper analyzes the patterns and determinants of household welfare growth and examines the extent to which economic growth has been inclusive of the more vulnerable groups. Using counterfactual decompositions, the paper dwells first on the dynamics observed behind the drop in poverty and inequality. It then carries out regression analysis using re-centered influence functions

to examine the economic determinants of household welfare growth throughout the decade. The paper finds that welfare growth as opposed to welfare distribution was the main driver behind poverty reduction, and that the drop in inequality was primarily driven by a regional catching-up effect. In addition, the analysis identifies rent, access to human capital services, and more importantly employment in the services sector and the public sector as the major determinants of welfare growth in Jordan. Public hiring in particular was used extensively as a tool for poverty alleviation, especially for residents outside the capital.

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I. Introduction

Market-oriented reforms and a favorable external environment, especially between 2000 and 2007, have propelled Jordan's real economic growth to an average of 6.1 percent over the last decade. Consistently outperforming MENA's growth, estimated at an average of 4.5 percent, this improvement in economic activity has translated into a significant growth in consumption and household welfare, with poverty incidence numbers showing a concrete decline in poverty¹ indicators across the whole Kingdom. Tellingly, this reduction in poverty levels came amidst evidence of a decline in inequality, one that is supported empirically by the improvement in the Gini index calculated across the distribution of household consumption distribution between 2002 and 2010².

Yet, despite these impressive economic indicators, the overall sentiment in recent years seems to point to a worsening of inequality levels. This comes amidst persistently high unemployment³, weaker economic growth since the end of 2008⁴, and an inequitable welfare growth throughout 2008-2010 where wealthier Jordanians reaped much of the benefits⁵. This recent deterioration in the economic situation threatens to overturn all the progress made throughout the decade. Moreover, and combined with the general regional sentiment, it is perhaps less surprising to note that the wave of demonstrations have reflected the population's discontent with not only what they perceive as worsened economic welfare, but also with the current state of the country's institutions. In particular, the effectiveness of both the government and the Parliament has been called into question, and the population is, more vocally than ever, demanding greater accountability and transparency in the management of public affairs. Clearly then, these demands are a sign that macroeconomic indicators, as good as they are, have not resonated with the country's popular sentiment and aspirations. It can also be argued that political exclusion may have trumped purely economic advancements.

With perceptions and economic indicators apparently at odds, the interest of this paper is focused on examining household welfare in Jordan, defined by per capita expenditure, across the

¹ As calculated in this paper and in other works such as World Bank (2009).

² Also computed in later sections of the paper.

³ Unemployment declined from 15.3 percent in 2002 to 12.5 percent in 2010.

⁴ GDP growth between 2009 and 2011 has grown at an average of 3.5 percent compared to 6.6 percent between 2000 and 2008.

⁵ This is explained later in the paper but can be observed visually through the growth-incidence curve of Figure 1.

past decade. Through analyzing changes in the distribution of welfare, the paper examines the extent to which economic growth in Jordan has been inclusive of the more vulnerable groups of the society throughout this period, and goes further into identifying the sources of these variations. The objectives of the study are therefore threefold. First, the paper looks to illustrate the welfare trends in the Kingdom during the decade and depict the changes in poverty and inequality measures. Second, it opts to capture the dynamics observed behind the drop in poverty and inequality measures and tries to highlight the role of welfare growth versus welfare distribution in dictating such change. Third, the study tries to investigate the determinants of welfare across time and across socio-economic groups so as to inform on the drivers of welfare growth and consequently the drivers of inequality.

To achieve these objectives the paper uses official household surveys for 2002, 2008 and 2010 to compare household consumption averages across time, income groups and regional cohorts such as rural-urban regions or across governorates. The paper then resorts to the official Jordanian poverty line to compute poverty and inequality measures⁶ before undertaking counterfactual decompositions of these indices using the Datt-Ravallion (1991) decomposition method. Finally, using regression analysis, the paper investigates the economic determinants of household welfare changes throughout the decade and focuses on defining the role of employment, income sources and human capital services in accentuating such welfare variation from a time dimension (between 2002 and 2010), and across the different income groups in Jordan.

The rest of the paper is composed of five sections. Section II briefly presents the data used in the analysis and discusses some methodological issues. The section also defines the concept of household welfare used throughout the study. Section III examines the patterns of household consumption, poverty and inequality in Jordan throughout the last decade. The section also refers to perception issues and highlights the trend changes observed starting 2008. Section IV considers the variations in the distribution of welfare between 2002 and 2010, and reveals the dynamics observed behind the decline in poverty and inequality across the Kingdom. The section discusses counterfactual decompositions computed for the poverty and inequality measures and looks at the regional differences observed. Section V takes the analysis further and observes more closely the determinants of household welfare by estimating Re-centered Influence

⁶ The software Adept has been used to compute and tabular expenditure, poverty and inequality indices.

Functions (RIF). The section highlights the impact of economic factors such as sector employment, access to human capital services, and income sources among others on household consumption. RIF regressions not only allow for the observation of changes in such impact across time, but also to determine the impact of the selected welfare determinants across the various income groups of the society. Section VI concludes.

II. Data Used and Methodological Issues

The paper uses a panel of cross-sectional household surveys referred to as the Jordan Household Expenditure and Income Survey (HEIS) and conducted by the Jordanian Department of Statistics (DoS) in the years 2002, 2008 and 2010. The questionnaires of the three surveys are very similar and offer information on household demographics; households' dwellings, properties, and assets; individuals' education, employment status, and economic activities; household productive activities, income, and income sources; regional residency; distance and access of households to various services and utilities along with individuals' health status⁷. Additionally, the surveys collect information on household expenditure and consumption from own production, gifts and offerings, of various food and non-food items, along with household spending on other different services such as education, health and entertainment. The information is collected using an expenditure diary methodology and captures the overall consumption of Jordanian households all year long⁸.

Utilizing the above data, the paper defines the household welfare⁹ measure as being per capita household consumption in real terms. Additionally, welfare growth is depicted as the changes that occurred to the level of such consumption between 2002 and 2010 in a first instance, and 2008-2010 in a second one. The paper calculates consumption as the sum of household expenditure on all goods and services on the one hand, and the estimated value of

⁷ The information from bullet (vi) is not available in all questionnaires and can be found mainly in the 2010 survey. In 2002 a separate survey has been conducted on these issues. The paper uses data on access to services from this particular survey, aggregates it on a sub-regional level and uses it in the regression analysis and counterfactual decompositions performed in later sections of the study.

⁸ A note of caution should be taken into account related the surveys design. The household surveys in Jordan might underestimate the expenditure of the richest segment of the population as the largest share of the non-respondents and the households that dropped the questionnaire are considered as richer Jordanians. Hence the samples might consequently be skewed. Therefore results for the upper income distribution must be approached with caution. The representation of expenditure surveys for the richest parts of the population is a common problem in the literature.

⁹ Referred to often in this study as simply "welfare".

household own-production of food along with in-kind gifts and offerings on the other hand. Price adjustments are undertaken on three levels. First, prices from the expenditure surveys are used to estimate the Jordanian dinar (JD) value of own-production and gifts. Second, spatial prices are calculated using the official monthly price data collected by DoS and used to take into account the price variations among governorates. Third, per capita consumption is calculated in real terms using inflation derived from the official consumer price index (CPI) computed also by DoS with 2010 selected as the base year. Real per capita household consumption is therefore used to calculate poverty and inequality incidences, and conduct micro and macro decompositions¹⁰. Furthermore, the poverty line calculated in this paper is estimated at JD813.7 per capita per year in 2010 prices. The line is based on the 2010 consumption data and uses the minimum calories intake and calories requirement methodology to compute it, and is adjusted to adult equivalency scale^{11 12}. Given the aforementioned points, the paper moves on to discuss the trends of welfare growth and consequent changes in poverty and inequality that occurred in Jordan throughout the last decade. The paper focuses primarily on the periods 2002-2010 and 2008-2010.

III. Patterns of Welfare Growth, and Poverty and Inequality Changes

III.1. Patterns of Welfare Growth

As a result of robust economic growth (average of 6.4 percent) during 2002-2010, household per capita consumption significantly increased by 28 percent over the same period (Table 1). However the strong increase was not evenly distributed among the different regions of the Kingdom. With a 31 percent increase, household per capita consumption was strongly depicted for households residing in rural areas, compared to a growth of 25.7 percent for their urban resident counterparts. This is mostly linked to three phenomena: the population movements over the past decade and the consequent internal migration from rural areas to urban

¹⁰ The Datt-Ravallion (1991) ones as described later in the paper.

¹¹ This poverty line was calculated jointly by World Bank and DoS staff and the details on the methodology for its computation can be found in the background paper for the Jordan Poverty Reduction Strategy: *"The Hashemite Kingdom of Jordan: A Note on Updating Poverty Measurement Methodology."*, World Bank 2012, Washington D.C.

¹² It should be noted that the poverty incidences in this study do not correspond to the official figures published by the Department of Statistics. This is mainly due to the difference in the base year selected and the usage of consumption data and not solely expenditure as DoS publications signal. It should also be noted that this paper is more interested in analyzing consumption, poverty and inequality trends than depicting nominal values.

centers, especially the capital Amman (see Table 2 for population distribution changes); the changes in sector productivity and employment perspective, especially those with large concentration in rural areas (see Table 10 for a breakdown of sectoral employment by region); and finally the public sector transfers and government programs that focused extensively on rural regions. These arguments are discussed further throughout the paper.

Looking at welfare growth from a governorates perspective, the Northern governorates saw the best performance in the Kingdom. Table 1 reveals that the largest rates of welfare growth in 2002-2010 were depicted in the Northern and North-Eastern governorates, mainly Zarqa (52.7 percent), Jarash (48.9 percent), Mafrqa (38.5 percent), Irbid (25.9 percent), and Balqa (23.5 percent)¹³. One important contributor to this increased welfare is their proximity with Syria; these governorates have benefitted from the economic and trade openness that this neighboring country saw in the past decade. This opened further opportunities for cross-border trading with Syria,¹⁴ pushing residents of these areas to import cheaper Syrian goods and export both goods and services with higher value added. As a result household real per capita consumption increased at a faster rate than in other parts of the Kingdom. Additionally, household consumption in these areas has indirectly benefitted from several special economic zones that were set up during this period in those governorates; and that employed many of their residents¹⁵. On the other hand, Amman, with the biggest population in the Kingdom, registered one of the lowest rates of welfare increase (8th of the 12 governorates in Jordan). While this increase remains significant (double digit figure) and average per capita household consumption remains the largest (in real terms) in Jordan, Table 1 indicates a noteworthy catching-up effect between the governorates and the capital in the past decade¹⁶.

¹³ Karak in the center of the country has also recorded a strong growth in per capita consumption of 32.1 percent.

¹⁴ Economic growth in Syria for the period 2002-2010 averaged 4.9 percent. Syrian imports to Jordan increased from US\$97 million in 2002 to US\$308 in 2010, while Jordanian exports to Syria augmented from US\$69.8 million to US\$233.5 over the same period (Source: Jordan Department of Statistics).

¹⁵ Jordan has 18 special economic zones out of which 6 are in the Northern governorates (Zarqa, Jarash, Mafrqa, Irbid and Balqa).

¹⁶ The ratio of real per capita household expenditure in Amman to the average per capita expenditure in the Kingdom (excluding the capital) has decline from 1.55 percent in 2002 to 1.42 percent in 2010.

Table 1: Mean Per Capita Real Consumption

Jordanian Dinars	2002	2010	% change (02-10)	2008	% change (08-10)
Urban	1,403	1,765	25.7	1,596	10.5
Rural	1,070	1,402	31.0	1,170	19.9
Governorates					
Amman	1,679	2,054	22.4	1,859	10.5
Balqa	1,198	1,480	23.5	1,294	14.3
Zarqa	1,015	1,550	52.7	1,322	17.3
Madaba	1,262	1,482	17.5	1,198	23.7
Irbid	1,178	1,484	25.9	1,364	8.7
Mafraq	937	1,298	38.5	1,068	21.5
Jarash	1,102	1,641	48.9	1,260	30.3
Ajlun	1,064	1,228	15.4	1,260	-2.6
Karak	1,262	1,667	32.1	1,283	30.0
Tafiela	1,143	1,364	19.4	1,178	15.8
Ma'an	987	1,211	22.7	1,185	2.2
Aqaba	1,196	1,411	18.1	1,424	-0.8
Consumption Quintiles					
Lowest quintile	516	707	37.0	650	8.8
Q2	789	1,044	32.3	955	9.3
Q3	1,054	1,368	29.8	1,239	10.4
Q4	1,444	1,838	27.3	1,640	12.0
Highest quintile	2,844	3,551	24.8	3,107	14.3
				0	
Kingdom	1,330	1,702	28.0	1,518	12.1

Source: World Bank Staff Calculations using Official Household Income and Expenditure Surveys.

Despite popular belief, welfare growth has been pro-poor in Jordan. Looking at the quintile distribution in Table 1, the summary statistics indicate that the increase in per capita real consumption was the highest for the bottom two quintiles compared to the upper ones¹⁷. This suggests that the richest Jordanians benefited relatively less from the growth in the Kingdom's overall welfare. This result is upheld when examining the growth incidence curve of Figure 1. Indeed the downward slope of the curve supports the above claim and graphically highlights the relative welfare gains made by the poorest Jordanians between 2002 and 2010. This indicates that the economic growth of the past decade in Jordan not only reduced poverty, but also contributed to the decline in inequality and managed, to a certain extent, in reducing the welfare gap among Jordanians.

While quantitative indicators support this claim, it is frequently reported that the population's overall perception has been of dissatisfaction with the country's economic performance. This is often fueled by non-economic parameters related to accountability,

¹⁷ Two considerations should be made when examining these percentage changes: (i) the low nominal base from which the poorest quintile consumption depart, (ii) the downward bias that is potentially depicted in the upper quintile sample as the richest households often under report their consumption and have lower response rates in expenditure surveys.

corruption, and freedom of expression, job quality, migration, changes in consumption preferences and standards, or other sociological factors¹⁸. It should be noted that most of this popular tension started building after 2008 when the Kingdom saw a period of economic slowdown, especially between 2009 and 2012, which was further exacerbated by popular movements inspired by the Arab spring that swept the region starting in 2011. As we will see later in this paper, the poor economic performance during that period has reversed the welfare trends previously observed and threatens to undo all the gains made so far during the decade.

III.2. Patterns of Poverty Changes

As a result of the welfare pattern observed earlier and the consequent growth in per capita household consumption, poverty declined sharply for the period 2002-2010. The overall poverty rate in Jordan declined by around 17.1 percentage points and reached around 14.9 percent in 2010 (Table 2). This decrease in poverty was depicted across the Kingdom but was particularly accentuated in rural areas. Looking at the poverty headcount rates in Table 2, poverty declined by 23.2 percentage points in rural regions compared to 15.1 percentage points in urban ones. Part of the drop in poverty was due to population movements during this period, with the poor

¹⁸ The Jordan Development Policy Review (World Bank 2012) examines in depth some of the mentioned factors.

leaving rural areas and settling in urban centers, essentially in the capital Amman. Indeed the 7.8 percentage points decline in the share of rural poor out of the total poor¹⁹ was also accompanied by a decline in the share of rural residents albeit at a slower rate²⁰ (also see Table 2 for distribution of population).

Table 2: Poverty by Geographic Regions

Poverty Line = JD813.7	Poverty Headcount Rate (P1)			Distribution of the Poor (P2)			Distribution of Population (P3)			P1 change		P2 change		P3 change	
	2002	2010	change	2002	2010	change	2002	2010	change	2008	(08-10)	2008	(08-10)	2008	(08-10)
Urban	29.4	14.4	-15.1	71.7	79.5	7.9	77.8	82.6	4.8	17.1	-2.8	72.6	6.9	81.7	-3.9
Rural	40.8	17.6	-23.2	28.3	20.5	-7.9	22.2	17.4	-4.8	28.9	-11.3	27.4	-6.9	18.3	3.9
									0.0						
Amman	21.6	11.7	-9.8	25.4	30.4	5.0	37.7	38.6	0.9	14.6	-2.9	30.0	0.4	39.6	-1.9
Balqa	40.8	22.5	-18.3	9.0	10.1	1.1	7.1	6.7	-0.4	25.7	-3.2	8.0	2.1	6.0	1.1
Zarqa	46.1	15.2	-31.0	21.6	15.2	-6.4	14.9	14.9	0.0	18.2	-3.1	13.0	2.2	13.8	1.2
Madaba	23.7	13.7	-10.0	1.8	2.3	0.5	2.5	2.5	0.0	19.9	-6.1	2.4	-0.1	2.3	0.2
Irbid	32.8	15.4	-17.4	18.8	18.5	-0.2	18.3	17.9	-0.4	21.3	-5.9	20.4	-1.9	18.5	-0.2
Ma'raq	49.9	20.0	-29.8	6.7	6.3	-0.4	4.3	4.7	0.4	36.4	-16.4	9.3	-3.0	4.9	-0.6
Jarash	42.6	6.8	-35.8	4.1	1.3	-2.8	3.1	2.9	-0.2	22.5	-15.7	3.5	-2.2	3.0	0.1
Ajlun	31.6	26.6	-5.0	2.4	4.3	2.0	2.4	2.4	0.0	17.4	9.2	2.1	2.3	2.3	0.1
Karak	27.6	13.9	-13.8	3.5	3.6	0.1	4.0	3.9	-0.1	23.0	-9.1	5.1	-1.5	4.3	-0.3
Tafiela	30.5	17.8	-12.7	1.5	1.6	0.1	1.5	1.3	-0.2	26.5	-8.7	1.9	-0.3	1.4	0.1
Ma'an	45.4	26.6	-18.8	3.0	3.4	0.4	2.1	1.9	-0.2	31.0	-4.4	3.0	0.4	1.8	0.3
Aqaba	34.0	19.7	-14.3	2.2	3.0	0.8	2.0	2.2	0.2	12.8	6.9	1.4	1.5	2.2	-0.1
Kingdom	32.0	14.9	-17.1	100.0	100.0	0.0	100.0	100.0	0.0	19.3	-4.4	100.0	0.0	100.0	0.0

Source: World Bank Staff Calculations using Official Household Income and Expenditure Surveys

Table 2 reveals a regional pattern for poverty changes. All governorates witnessed a strong and commendable decline in poverty in the past decade; the Northern governorates were the best performers, while the capital Amman performed the worst. To a large extent, the poverty profile across governorates replicates the results highlighted earlier when discussing the regional dimension of households' welfare growth. Northern and North-Eastern governorates have witnessed larger drops in poverty rates in the past decade. In particular, Irbid and Zarqa, second and third in terms of population size respectively, registered substantial declines in poverty headcount rates by 17.4 and 30.9 percentage points, and are therefore the largest contributors to the overall poverty drop in the Kingdom. On the other hand, the poverty rate in Amman registered the slowest decline among all the governorates in Jordan²¹ with only 9.9 percentage

¹⁹ Which occurred between 2002 and 2010.

²⁰ The share of rural residents out of total population dropped by 4.8 percentage points.

²¹ Except for the governorate of Ajlun.

points. In addition to departing from a lower poverty base, this slower decline is also partly due to internal migration towards the capital. This has exacerbated poverty especially given that the migrants appear to be predominantly poor²².

The good performance of the Northern governorates²³, in terms of greater growth in consumption and a greater decline in poverty, cannot be solely explained by the catching-up effect. Three contributing factors can be noted. First, these governorates benefitted from their geographical position as being at the intersection of trade activities between Jordan and its neighboring countries, mainly Syria, Iraq, West Bank & Gaza (WBG) and Israel. In effect, cumulative trade with these countries increased from US\$1.8 billion in 2002 to 2.3 billion in 2010²⁴. Second, they have benefitted from increased public expenditure. In effect, according to the household surveys, 10.7 percent of households in Northern governorates have received at least one kind of public transfer²⁵ in 2002, a ratio that has increased considerably to 68.3 percent in 2010. This compares to 7.1 and 50.5 percent in those respective years for household in the rest of the Kingdom²⁶. Additionally, public investment seems to have been directed towards these regions. In the absence of historical data, more recent official budget figures for 2009-2011 proxy the level of government focus provided for these governorates. Figures indicate that an average of 43.5 percent of total capital spending allocated for governorates has in effect been disbursed in these areas compared to 28.4 percent for the other regions (excluding Amman)²⁷. Hence such government attention has had positive spillover effect on welfare growth and poverty reduction in these regions. Third, public sector employment has been used as a tool to alleviate

²² Refer once again to the poverty and population distribution figures in Table 2.

²³ The Northern governorates are specified in this study as the governorates of Zarqa, Irbid, Jarash, Mafraq and Balqa.

²⁴ The largest growth in trade was with Syria. Figures from the Jordanian Department of Statistics indicates the following changes in trade activities by the respective countries:

* *Jordanian Imports (2002 vs. 2010)*: US\$97 mln vs. US\$377 mln from Syria, US\$752 mln vs. US\$234 mln from Iraq, US\$12 mln vs. US\$37 mln from WBG, and US\$126 mln vs. US\$89 mln from Israel.

* *Jordanian exports (2002 vs. 2010)*: US\$70 mln vs. US\$258 mln from Syria, US\$605 mln vs. US\$1131 mln from Iraq, US\$27 mln vs. US\$62 mln from WBG, and US\$137 mln vs. US\$107 mln from Israel.

²⁵ The Household Income and Expenditure Surveys of 2002 and 2010 present three categories of transfers: the National Aid Fund, other government transfers, and other types of public transfers.

²⁶ Excluding Amman, the ratio is calculated at 14.9 and 68.9 percent respectively in 2002 and 2010.

²⁷ Figures are taken from the official 2011 and 2012 official budgets published on the website of the General Budget Department www.gbd.gov.jo. It should be noted that the figures in the text do not reflect all capital spending in Jordan but projects that are governorate specific. In effect, capital spending in the Northern governorates averaged 15.4 percent of the overall investment spending in the Kingdom (2009-2011), compared to 10.1 percent for Amman and 10.3 for the rest of governorates. A significant average of 64.2 percent of total capital spending is actually allocated for what the budget regional classification labels as “central expenditures”, which represent investment spending conducted on projects that cater for the whole Kingdom and are not regionally focused.

poverty and as a policy to absorb the increasing number of job seekers in the Jordanian labor force²⁸. As highlighted later on in the study (refer to Table 10), residents of the Northern governorates have usurped a large share of such employment, especially in the military and defense sector.

III.3. Patterns of Inequality

The inequality trend has mirrored largely the welfare and poverty patterns observed in the years 2000s. Indeed inequality, as measured by the Gini coefficient, has dropped across the Kingdom from 0.345 in 2002 to 0.329 in 2010. However, the decline was not homogeneous and some regional differences can be depicted. Calculating the Gini coefficient across various regions of Jordan, Table 3 below suggests that the decrease in inequality in rural areas was stronger than in urban ones. Consequently, these regional results signal a strong negative correlation in Jordan between household per capita consumption and inequality indicators. Indeed, governorates that registered the largest growth in household welfare, such as the Northern regions, saw the strongest decline in inequality during the period 2002-2010. This once again supports the claim of a pro-poor economic growth in the past decade. That being said, only three governorates saw an increase in inequality among which is the capital Amman²⁹. Despite the mild increase in inequality in Amman, this potentially has a strong effect on inequality perceptions in Jordan. This is especially the case when one considers that residents of the capital are usually more vocal due to better access to policy makers and to means of expressing their discontent in a louder fashion. This pushes the analysis to provide a quick snapshot of the winners and losers from the welfare growth process in Jordan. This attempt helps in better understanding popular complaints over the decline in the overall wellbeing of the population despite the positive patterns depicted for household consumption, poverty and most importantly inequality. Winners and losers are discussed next in the analysis.

²⁸ Jordan has a fertility rate of 3.8 (in 2009 and 3.7 in 2002) that is higher than the 2.4 (in 2009 and 2.5 in 2002) estimated for middle income countries and even higher than rate registered for the lower middle income countries of 3 (in 2009 and 3.3 in 2002). Source: World Development Indicators 2011.

²⁹ The other two being Ajlun and Karak according to the calculations in Table 3.

Table 3: Gini coefficient by geography

	2002	2010	change (02-10)	2008	change (08-10)
Kingdom	0.345	0.329	-0.016	0.318	0.012
Urban	0.350	0.336	-0.013	0.321	0.015
Rural	0.300	0.271	-0.029	0.260	0.011
Amman	0.362	0.368	0.006	0.347	0.021
Balqa	0.350	0.317	-0.033	0.282	0.035
Zarqa	0.296	0.276	-0.020	0.242	0.034
Madaba	0.281	0.276	-0.005	0.226	0.050
Irbid	0.290	0.277	-0.013	0.286	-0.008
Ma'raq	0.282	0.257	-0.025	0.261	-0.004
Jarash	0.327	0.227	-0.100	0.225	0.002
Ajlun	0.229	0.252	0.022	0.227	0.025
Karak	0.298	0.299	0.000	0.266	0.032
Tafiela	0.244	0.236	-0.008	0.232	0.005
Ma'an	0.296	0.260	-0.036	0.286	-0.026
Aqaba	0.319	0.244	-0.075	0.258	-0.014

Source: World Bank Staff Calculations using Official Household Income and Expenditure Surveys.

III.4. Winners and Losers

It can be argued that the welfare growth over the past decade has benefited the poor in Jordan but not necessarily the most vocal. To endorse this claim, the paper refers to the growth incidence curve calculated for per capita household consumption for the period 2002-2010 and portrayed in Figure 1 (left-hand side). The negative slope observed reveals that the poorest in Jordan have benefitted from the rise in welfare over the past decade relatively more than the rich. This is evident as the aggregate annual growth in real per capita consumption for households up to the 45th percentile of the population distribution is higher than the mean welfare growth in the Kingdom. It is also higher than the welfare growth of all other households from the upper percentiles.

Despite the rise in consumption, these figures indicate that the middle and upper-middle class Jordanians are now relatively worse off, and that the consumption gap with the poor has been shrinking. This might create a perception of impoverishment among those groups of the population, pushing them to express their discontent vis-à-vis the overall economic situation. This category of the society is often the most influential and has evidently better access to the political establishment and to the media. It is therefore surely the most vocal and their discontent is often made public and quickly reaches policy makers. Delving further into the results and observing growth incidence curves for both urban and rural areas (Figures 2a and 2b), the study portrays the winners and losers from household welfare growth on a regional basis. Those figures confirm the previous results and indicate that the middle class across all Jordan saw

relatively a very small change in welfare in the past decade³⁰. In effect, the relative winners were actually the poor and lower-middle class households in both the rural and urban population (up to the 45th percentile of the respective population distribution) who saw their real consumption significantly improve, while losers can be identified as the rural rich (over the 70th percentile) and the urban rich (over the 80th percentile) households. Such an outcome is the result of many socio-economic factors that characterize the growth process in Jordan over this time period. These factors range from changes in productivity and economic returns observed in various sectors, to access to services such as education and health that contribute to human capital formation, to more micro aspects related to the household composition and individual characteristics. The paper will not dwell here on the determinants of welfare changes in the 2000s and will leave it to subsequent sections of the study.

Meanwhile, the popular discontent cannot be solely explained by the general perception of worsening wellbeing and the relative losses and gains in welfare growth. One needs to examine carefully the welfare patterns post-2008, a period that saw a severe slowdown in economic activity and a rise in unemployment. To do so, the paper re-calculates the welfare, poverty and inequality indicators for the period 2008-2010, using the respective household surveys, and discusses the observed trends next. As is discussed later, the period 2008-2010 threatens to reverse the welfare gains observed during the decade.

³⁰ The incidence curves become flatter for middle percentiles.

III.5. However All Trends Reversed Starting in 2008

Despite an overall improvement in welfare over the past decade, the increase in inequality observed since 2008 has contributed significantly to the population's overall level of discontent and the general feeling of worsening welfare conditions. The issue of public perception highlighted earlier can also be linked to the economic performance observed in the second half of the decade, especially since 2008. Looking at the data from the 2008 household income and expenditure survey, the figures indicate that the welfare trend observed in the first half of the decade was reversed, with economic growth becoming anti-poor and unequal. Table 1 reveals that growth in welfare between 2008 and 2010 was positively correlated with richer

quintiles. Indeed, the growth in per capita real consumption for Jordanians in the upper quintiles averaged 14.3 and 12 percent, respectively, compared to 8.8 and 9.3 for the bottom two quintiles, signaling a widening of welfare inequality. Such a finding is confirmed by the Gini coefficients calculated in Table 3 and which registered an increase in both urban and rural areas, and in 8 out of the 12 governorates,³¹ including the capital Amman, between 2008 and 2010. This pattern reversal and the widened welfare gap are highlighted graphically in the growth incidence curves plotted in Figures 1 (for the overall Kingdom), and Figures 3a and 3b (for the rural and urban regions). These diagrams show an upward slope for the different curves, indicating consequently that welfare growth in these two years was beneficial for the rich, making the middle class and the poor in Jordan relatively worse-off despite the positive growth in their consumption levels. This is evident as the aggregate annual growth in real per capita consumption for households up to the 60th percentile of the population distribution is lower than both the mean welfare growth in the Kingdom and the consumption growth of the upper quintiles. Additionally, the overall growth in welfare was mainly driven by the very rich and consequently deepening the sentiment of dissatisfaction and frustration for the rest of the population. Only the upper 25 percentile in rural Jordan had a consumption growth higher than the overall mean for these regions, a situation that is exacerbated in urban areas - with traditionally more vocal population - as only the upper 5 percentile relatively benefitted from such welfare growth.

All of the above indicators have supported the argument that the majority of Jordanians have accumulated a sentiment of impoverishment and increased hardship in the period (2009-2011) that saw a severe slowdown in economic activity with GDP growth averaging only 3.4 percent³² and unemployment stagnating at 12.8 percent³³. This perception has arguably been sufficient to overshadow the achievements, in terms of welfare growth, observed for the whole decade. Having briefly examined consumption trends for 2008-2010 and highlighted issues of perceived inequality in Jordan, the paper will explore the sources of variation in the distribution of welfare in the Kingdom and will focus solely on the time period 2002-2010, the time frame of interest in this study.

³¹ Between 2002 and 2010, only 2 governorates witnessed an increase in inequality as measured by the Gini coefficient in Table 3.

³² Real GDP growth dropped from 7.2 percent in 2008 to 5.5 percent in 2009, and 2.3 and 2.5 percent thereafter in 2010 and 2011 respectively.

³³ This is the average rate for 2009-2011. Indeed according to the Department of Statistics, Unemployment rate registered 12.9 percent in 2009, 12.5 percent in 2010 and 12.9 percent in 2011.

IV. Sources of Variation in the Distribution of Welfare

To reveal the dynamics behind the observed decline in poverty and inequality between 2002 and 2010, the paper chooses to dissect the observed variation in these measures. Such dissection enables the paper to understand the role of welfare growth and welfare redistribution in determining such changes in household welfare levels observed over the past decade. To do so, the paper resorts in this section to decompositions on an aggregate level. As a first step, the paper decomposes the computed poverty measures using the Datt-Ravallion decomposition method. As a second step, the paper delves further into the question of regional disparity and uses a three-pronged decomposition approach for the Gini coefficient. The section presents the methodology adopted for these different sets of decomposition before exploring further the empirical results obtained.

IV.1. Counterfactual Decompositions of Poverty and Inequality Measures - Methodology

Poverty indices are usually calculated on the basis of a distribution of living standards, in this case household real per capita consumption. This distribution is entirely characterized by its mean and the degree of inequality as represented by the associated Lorenz curve (Essama-Nssah et al 2010). Consequently, all poverty measures are a function of these two factors (mean and inequality). A poverty measure is thus written as: $P_t = P(z/\mu_t, L_t)$ where z is the poverty line, μ_t is the mean consumption at date t and L_t is the parameters fully describing the Lorenz curve at date t ³⁴. Taking this into perspective, counterfactual decompositions can therefore be utilized to compute the contribution of each of the above factors to the change in overall poverty over a certain period of time. Essama-Nssah et al (2010) explains that the basic idea behind undertaking such decomposition is to compare observed poverty outcomes (measured by any poverty index) to what they would have been if one of the two factors varied while holding the other one fixed. To do so, and given a fixed poverty line, the paper resorts to an aggregated decomposition method introduced by Datt-Ravallion (1991). The Datt-Ravallion decomposition calculates the contribution of changes in the mean of the distribution (called the growth component) and relative inequality (called redistribution component) to the overall changes in poverty levels or

³⁴ Datt-Ravallion (1991).

severity. More specifically, the change in poverty (measured by any poverty index P^{35}) over dates t and $t+n$ ³⁶ is decomposed according to the Datt-Ravallion (1991) method into three components:

$$P_{t+n} - P_t = G(t, t+n; r) + D(t, t+n; r) + R(t, t+n; r) \quad (1)$$

with r being the reference date with respect to which the change in poverty is decomposed, and where:

$$G(t, t+n; r) = P(z/\mu_{t+n}, L_t) - P(z/\mu_t, L_t) \quad (2)$$

$$D(t, t+n; r) = P(z/\mu_t, L_{t+n}) - P(z/\mu_t, L_t) \quad (3)$$

$$\begin{aligned} R(t, t+n; t) &= G(t, t+n; t+n) - G(t, t+n; t) \\ &= D(t, t+n; t+n) - G(t, t+n; t) \end{aligned} \quad (4)$$

G refers to the “Growth component”, D refers to the “Redistribution component”, and R is a “Residual component for $r=t$ ”. The “growth” component is defined as the measure of the change in poverty due to a change in the mean of the welfare distribution while holding the Lorenz curve constant at a pre-defined reference level. The “redistribution” component is determined as the measure of the change in poverty due to change in the Lorenz curve of the welfare distribution while holding the mean consumption at constant reference level. The “residual” component typically exists when the changes in the mean of the selected poverty measure are dependent from the precise Lorenz curve, or vice versa³⁷. Quantifying the contribution of growth vs. redistribution components in poverty reduction in Jordan enables the paper to reveal whether the growth in household welfare and shifts in income distribution has helped or hurt the poor during the period of strong economic growth between 2002 and 2010.

A three-fold decomposition of the overall Gini measure of inequality is also performed with the objective of delving further into the question of regional disparity. This follows a framework proposed by Lambert and Aronson (1993) and Essama-Nssah et al (2010) in which the overall

³⁵ This paper will decompose the Poverty Headcount (P0), the Poverty Gap (P1), and the Squared Poverty Gap (P2) indices.

³⁶ n being the period of choice.

³⁷ According to Datt-Ravallion (1991) this occurs when the poverty measure is not additively separable. This paper does not dwell on the decomposition methodology and the mathematics behind it. For further details on the latter aspects, refer to the Datt-Ravallion (1991) paper.

Gini coefficient (G_I) is divided into a “between-group” inequality component (G_B), a “within-group” inequality component (G_W), and an “overlapping” component among the two groups (G_O)³⁸. These three components are defined in the following way. First, the between-group inequality component measures the Gini coefficient of a distribution in which every household is assigned the per capita real consumption of its equivalent group and not the overall sample mean consumption. Second, the within-group inequality is derived by constructing a sample distribution where households are sorted by groups initially and then by per capita consumption, in a way where the richest household of group (g) will be located next to the poorest household from group ($g+1$). The within-group inequality coefficient is then calculated by subtracting the between-group inequality coefficient from the concentration coefficient of this constructed distribution³⁹. Finally, the overlapping coefficient is calculated by subtracting the concentration coefficient from the sample distribution obtained by ranking households according to their per capita consumption (from poorest to richest) with no group considerations from the overall Gini coefficient⁴⁰. The paper assesses the size of between or within-group inequality in the distribution of economic welfare in Jordan, and does this on an urban-rural level from one side and on governorates level from the other. The paper moves next to discuss the empirical findings from undertaking the various decompositions of poverty and inequality measures described above.

IV.2. Counterfactual Decompositions of Poverty and Inequality Measures – Empirical Results

The results of the Datt-Ravallion decomposition, reported in Table 4, suggest that despite a reduction in inequality, the growth effect dominates the redistribution effect in reducing poverty in Jordan between 2002 and 2010. On average, both changes in the mean of real per capita household consumption and in relative inequality associated with the growth process have pushed for poverty reduction in Jordan. However, when comparing the magnitude of the contributions, the pure growth effect, or what Essama-Nssah et al (2010) calls the scale effect, dominates the redistribution effect. Hence, despite a more equal distribution in terms of

³⁸ Additivity criterion applies: $G_I = G_B + G_W + G_O$.

³⁹ Called “lexicographic income parade” by Lambert and Aronson (1993).

⁴⁰ Refer to the Essama-Nssah et al (2010) paper for further details on the mathematics behind this type of decomposition.

household consumption across the Jordanian population, the sharp decline in poverty observed in 2002-2010 is mostly due to the strong rise in consumption levels rather than the reduction in inequality. It is however interesting to note that the contribution of the redistribution effect becomes larger as we move away from the decomposition of the headcount index and examine poverty incidences that reflect poverty severity such as P1 and P2. Indeed the contribution of the redistribution effect more than doubles from 12.3 percent when looking at the decomposition of P0 to 29.7 percent when examining the decomposition of P2. These findings endorse the argument that the poorest in Jordan have been successful in reducing the gap with the rich in the past decade, a positive contribution brought forward by the strong economic growth of the past decade.

Table 4: Growth and Redistribution Decomposition of Poverty Changes

Change in incidence of poverty (%) Poverty Line = JD813.7	2002	2010	Actual change	Growth	Interaction	Redistribution
Poverty Headcount Rate (P0)	<i>Contribution to Change (%)</i>					
Kingdom	32.0	14.9	-17.1	83.3	4.4	12.3
Urban	29.4	14.4	-15.1	83.1	3.1	13.8
Rural	40.8	17.6	-23.2	79.1	6.2	14.6
Poverty Gap (P1)						
Kingdom	8.4	2.9	-5.5	83.1	-6.4	23.3
Urban	7.6	2.7	-4.8	82.1	-6.6	24.5
Rural	11.3	3.7	-7.6	82.2	-7.1	24.9
Squared Poverty Gap (P2)						
Kingdom	3.1	0.9	-2.2	83.8	-13.5	29.7
Urban	2.8	0.8	-2.0	82.4	-13.3	30.9
Rural	4.4	1.2	-3.2	85.0	-15.9	30.9

Source: World Bank Staff Calculations using Official Household Income and Expenditure Surveys

The previous findings are replicated when taking into account the regional dimension. Similar to the overall national poverty case, findings from Table 4 suggest that regional poverty levels are also predominantly determined by the deviations from the mean per capita real consumption (growth effect). Regional disparities are therefore mostly due to the differences in growth levels observed in household consumption levels between rural and urban families over the past decade. However one should not neglect the important contribution made by the reduction in inequality within these regions, a phenomenon that is more accentuated in rural areas compared to urban ones (respectively 14.6 and 13.8 percent). Having established that household welfare growth was the main driver behind the reduction in overall poverty in Jordan,

Table 5 examines the contribution of different governorates in such decline. It is clear from the results that the largest contributors were respectively Zarqa, Amman, Irbid and Mafraq. Indeed, around 75 percent of the poverty decline in the past decade came as a result of the reduction in poverty in these 4 governorates. This primarily reflects the economic development observed in these governorates, particularly the Northern ones, and the weight that these governorates constitute in the population, especially the capital Amman.

Table 5: Regional Poverty Decomposition		
Poverty Line = JD813.7	Absolute change	Percentage change
Change in poverty (P0)	-17.1	100.0
Total Intra-sectoral effect	-17.0	99.8
Population-shift effect	-0.1	0.7
Interaction effect	0.1	-0.4
Intra-sectoral effects:		
Amman	-3.7	21.7
Balqa	-1.3	7.6
Zarqa	-4.6	27.1
Madaba	-0.2	1.5
Irbid	-3.2	18.7
Mafraq	-1.3	7.5
Jarash	-1.1	6.5
Ajlun	-0.1	0.7
Karak	-0.6	3.2
Tafiela	-0.2	1.1
Ma'an	-0.4	2.3
Aqaba	-0.3	1.7

Source: World Bank Staff Calculations using Official Household Income and Expenditure Surveys.

On another note, the three-fold decomposition of the Gini coefficient over the period 2002-2010 reveals that the inequality in Jordan is also driven by consumption level differences among the various regions in the Kingdom. Table 6 indicates that the within-group inequality is the major component of overall inequality that has been increasing over time. Indeed looking at the urban-rural grouping, the share of the within-group component has increased from 68.2 percent of total inequality in 2002 to 74.4 percent in 2010 and hence dominates the between-group component. This suggests that the reduction in inequality, observed in the past decade in Jordan, has been mainly driven by more equitable income distribution within residents of each area, rural and urban, rather than by differences in average real income.

However, when considering the governorate groupings, calculations yield different findings. In this case, Table 6 indicates a slightly more dominant role for between-group effect (33 and 27.8 percent in 2002 and 2010 respectively) along with a significant contribution of the

overlap component (43.3 and 47.2 respectively over the same periods). This highlights the existing regional disparities inside Jordan that are largely explained by differences in the level of consumption between these regions rather than a redistribution of welfare within them. Nevertheless, the decline of the between-group inequality over time points to a decline in those regional disparities and therefore a convergence among governorates in terms of consumption levels. This again reflects some success of the strong economic performance over the past decade in providing a more equitable welfare growth among the various governorates of the Kingdom.

Table 6: Decomposition of the Gini Coefficient by Population				
	2002	2010	2002	2010
	<i>Level</i>		<i>Contribution (%)</i>	
Kingdom	0.345	0.329	100	100
Urban-Rural				
Within	0.235	0.245	68.2	74.4
Between	0.043	0.030	12.6	9.2
Overlap	0.066	0.054	19.2	16.4
Governorates				
Within	0.082	0.082	23.7	25
Between	0.114	0.091	33.0	27.8
Overlap	0.149	0.155	43.3	47.2

Source: World Bank Staff Calculations using Official Household Income and Expenditure Surveys.

As addressed next in the paper, these findings are partly attributed to policy decisions taken in the country to redistribute the economic returns of this boom towards governorates using mechanisms such as cash transfers, education and health services and more importantly public sector employment. While these tools have had some success so far, they come at a very high fiscal cost and have reached their limits. The economic crisis in the country since 2009 has revealed the weakness of these tools in addressing equity concerns, and their fiscal costs have indeed exacerbated macro volatility in the country, therefore jeopardizing recovery in economic activity and long-term sustainable future growth⁴¹. It can be argued that since these tools have not been utilized extensively since 2009, as it did previously in the decade, it has contributed to reversing the pro-poor economic growth trend⁴². This has therefore contributed significantly to the general population's perception of increased inequality and poverty. Having said this, the

⁴¹ Refer to the World Bank's Jordan Development Policy Review (2012) for an extensive analysis of the role of macro volatility, fiscal policy, public sector employment, subsidies, trade, service delivery, and political reforms on Jordan's economic growth and competitiveness.

⁴² As explained in previous sections.

paper turns to examine these tools among other determinants of household welfare growth from a more micro perspective in the next section.

V. The Determinants of Welfare Change

V.1. Computing Re-centered Influence Functions

Having highlighted the drivers behind the change that occurred in the distribution of welfare from an aggregate perspective, the paper turns to examine more closely the determinants of welfare growth. To do so, this section resorts to estimating Re-centered Influence Function (RIF) regressions. RIF regressions is a widely used tool that links unconditional quantiles⁴³ to socio-economic and household characteristics, with the objective of depicting the determinants of household welfare change and the driving patterns of growth incidence observed earlier. RIF regressions also allows for undertaking both aggregate a detailed decompositions of any statistic for which one can compute an influence function (Firpo et al 2009).

The paper follows closely Firpo et al (2009) and Essama-Nssah et al (2010) in the identification strategy, methodology and mathematical annotations and defines the RIF of the τ^{th} quantile of the distribution y in the following way:

$$RIF(y; q_\tau) = q_\tau + IF(y; q_\tau) = q_\tau + \frac{[x - I(y \leq q_\tau)]}{f_y(q_\tau)} \quad (5)$$

where IF is the influence function of the quantile of the distribution of a random variable y , and $f_y(q_x)$ is the density function of y evaluated at the τ^{th} quantile. By law of iterated expectation the distributional statistic of interest can be written as the conditional expectation of the rescaled influence function known as the RIF regression (Essama-Nssah et al 2010). The RIF regression for the τ^{th} quantile is therefore expressed as $E[RIF(y; q_\tau) | x]$ so that the unconditional quantile is equal to:

$$q_\tau = \int E[RIF(y; q_\tau, F_y) | x] dF(x) \quad (6)$$

⁴³ In this paper's case expenditure quantiles.

Once again, the paper follows Firpo et al (2009) and Essama-Nssah et al (2010) in estimating a linear approximation of the RIF regression at each quantile τ^{th} ⁴⁴, while an OLS regression of log real per capita consumption is also used on the overall sample. Through these regressions, the paper utilizes a wide set of characteristics and links them with the growth incidence curve. This also allows accounting for the heterogeneity of the impact of these characteristics across quantiles. Consequently the paper observes the factors that induced changes in the household living standards whether through widened or reduced welfare differentials among the poor, middle and upper class Jordanians. In the rest of the section, the paper first identifies the variables used as characteristics or determinants of household welfare, building on the work of Shaban et al (2001) but also widening the set of covariates used⁴⁵. Subsequently, the paper dwells on the findings from the empirical estimations of the RIF and OLS regressions. The paper particularly focuses its analysis on the impact of services, income sources and sectoral employment both on a Kingdom and regional levels.

V.2. Identifying Determinants of Household Welfare

The paper identifies seven vectors of socio-economic and regional characteristics as determinants of welfare growth. The first vector is household demographics reflecting the composition of families, as this is expected to have a direct implication on the levels of consumption. Second, characteristics of the household head which captures their education and labor status, as it is often the case that heads are the prime providers of income in their families and have a dominant weight in household spending decisions. Third, household ownership of dwelling, also expected to have a direct impact on household consumption. As for the fourth vector it reflects household income sources. This vector identifies households that are benefitting from any rent sources as opposed to labor income, or whether they receive any cash transfers from the government⁴⁶. This illustrates the implication of access to additional financial resources, or crowding out of labor income if substitution occurs, on consumption and inequality. The fifth vector is household access to selected public and private services. The paper uses the

⁴⁴ According to the authors, the expected value of the linear approximation of the RIF regression is equal to the expected value of the true conditional expectation since the expected value of the approximation error is zero.

⁴⁵ The additional covariates used in this paper are those related to income sources, services, and sectoral employment (refer to Tables 8 and 9 for a complete list of these variables).

⁴⁶ Mainly through the National Aid Fund (NAF).

household surveys to construct an index to measure the distance of household dwellings to the nearest service provider. This indicates whether households in Jordan have access to services such as education, health or other infrastructure that either increase consumption or creates savings. Two criteria were used to identify these services: the depth of reforms and transformation that occurred in these sectors in the past decade, this is the case for education and health, or the lack of access and lack of public investments in the case of sewage networks⁴⁷. Sixth, sectoral⁴⁸ employment for various household members is also examined. This helps capturing the changes in consumption due to sectoral transformation that occurred between 2002 and 2010. Changes that occurred in value added, productivity and employment, and which often translates into changes in household returns (income or wages) coming from those sectors. Finally, the paper controls for regional residency in order to capture the effect of governorates on household spending⁴⁹.

V.3. Services and Income Sources as Determinants of Welfare Growth

Tables 8 and 9 (in Annex) display the findings from running the Re-centered Influence Function (RIF) regression for 2002 and 2010. The signs and the statistical significance of the covariates coefficients across the different percentiles reveal that the regional welfare bias towards Amman and urban areas has been indeed been reduced in the past decade. With 6 out of the 11 coefficients turning positive and statistically significant across the entire population distribution, findings suggest that consumption levels in the governorates are catching up with the capital and consequently reducing the household welfare gap. This confirms earlier results on the role of the decline in intra-regional disparities and its effects in reducing overall inequality in Jordan⁵⁰. Furthermore, the economic transformation that occurred in the past decade in Jordan seems to have accentuated the role of rent in increasing household welfare as opposed to labor income. Indeed Tables 8 and 9 suggest that receipt of rent and income from capital assets has contributed positively to the increase in household consumption in both 2002 and 2010, with the

⁴⁷ Access to services controls for the supply side effects and their implications on household welfare. It should be noted that services such as electricity and water are very much accessible by all Jordanians and were therefore omitted from the empirical model.

⁴⁸ Sectors were grouped as to match the ones presented in the official Jordanian National Accounts.

⁴⁹ A list of the above covariates along with summary statistics on the differences in means between 2002 and 2010 can be found in Table 7 (refer to Annex).

⁵⁰ Reflects the results found earlier on the dominance of the between-group component for reducing inequality.

impact being larger in the latter years especially in the case of capital assets⁵¹. As expected, the magnitude of the impact of rent and capital assets' income on household consumption is positively correlated with the upper percentiles⁵². This suggests that the benefits from these income sources, in terms of welfare increase, are largely reaped by richer Jordanian.

Looking at the services vector, findings point out to the fact that access to infrastructure and expansion of human capital services has also contributed to the growth in household welfare in the past decade. This is particularly the case when observing the coefficients for sewage and education sector. For the sewage services covariate, results indicate that the improvement in household access to such service⁵³ reflects public investments made in the past decade for expanding the sewage systems across the Kingdom. As for schooling services, the welfare gains made from improved access to education sector, especially universities, reflect the increase in supply of both public and private education facilities across the different governorates between 2002 and 2010⁵⁴. It is interesting to note though the diminishing returns from infrastructure projects in those sectors as revealed by the decline of the magnitude of the impact between 2002 and 2010. This signals the reduction in the infrastructure gap across the Kingdom, for those sectors at least, during this period. Having highlighted the impact of rent and access to human capital and infrastructure services in increasing household welfare and reducing inequality, the paper moves next to investigate the implications of employment in different sectors on household consumption.

V.4. Sectoral Employment and Welfare Growth

Employment generated by most economic sectors in Jordan exhibited diminishing welfare returns across the population distribution and therefore contributed to reducing the welfare gap. To test this hypothesis and examine the impact of employment on household welfare across quantiles, Figure 4 (in Annex) plots the coefficient estimates of the sectoral

⁵¹ The coefficients of receipt of income from capital assets were found to be statistically significant on more occasions across the different percentiles than income received from rent. This occurred over both 2002 and 2010.

⁵² Refer to the increasing magnitude in the coefficients as we move to richer percentiles in Tables 8 and 9.

⁵³ RIF regressions indicates a positive coefficient and statistically significant in most percentiles especially in 2010.

⁵⁴ Jordan has been engaged in education sector reform under the program of the knowledge economy. This has set a conducive environment to increase the number of schools and universities. It went up from xxx to 3466 between 2002 and 2010 for schools, and from 22 to 26 for universities over the same period.

employment covariates⁵⁵ obtained from the RIF regressions for each sector and at each percentile of the population income distribution⁵⁶⁵⁷. Figure 4 reveals that the returns to finance, real estate, mining, and family services sectors, in terms of per capita real consumption, have been positive and statistically significant across most of the quantiles. This points to an increase in household welfare generated by employment in these sectors across the whole population distribution and throughout the decade. Out of these four sectors only the real estate sector had an impact that was lower in magnitude for 2010 compared to 2002.

However, the above pattern is not upheld when examining the other sectors. The plots in Figure 4 reveal diminishing welfare returns of all other sectors with the impact turning negative in upper quantiles⁵⁸. Therefore, employment generated by these economic sectors has thoroughly reduced inequality in both 2002 and 2010. In particular, manufacturing and construction sectors contributed positively to the welfare of the poor and therefore reduced inequality at the lower tale of the distribution (up to the 20th percentile). Furthermore, the positive welfare returns from trade, tourism, and transport & telecom casted a wider net including the poor and lower middle class as it was depicted for households up to the 40th percentile.

Similar results were found for education and defense, two sectors that are largely dominated by the public sector. This reflects the magnitude of the employment created in those sectors along with the increase in wages and social benefits provided to civil servants and military personnel over the past decade in Jordan. The above described pattern is upheld in 2002 and 2010⁵⁹, suggesting little changes in the structure of these economic activities. On the other hand, this harmonized pattern is not depicted for the agriculture sector. While welfare returns to the agriculture sector employment have been somehow flat across quantiles in 2002, Figure 4 reveals a U-shape plot in 2010 that is skewed towards the upper ends of the distribution. Thus,

⁵⁵ More precisely these variables reflect whether the household has a at least one member working in a determined sector (education, defense, transport, tourism etc...). The sectors selected are similar to the ones provided officially by the department of statistics in the national accounts' value added breakdown of GDP.

⁵⁶ As a reminder, the paper uses household per capita expenditure to proxy the income distribution of the Jordanian population.

⁵⁷ The coefficients estimates themselves can be found in Table 9.

⁵⁸ The results on the upper percentiles should be taken with caution. Indeed, as most household surveys, the Jordan HIES have low reporting on expenditure data for richer segments of the population especially those at the upper end of the population income distribution. Therefore the sample distribution might have a bias by design of the survey where the rich are under-represented. However, the paper is forced to work with these constraints as no further data on these households is available to the authors.

⁵⁹ The magnitude of the impact is more strongly observed in 2010 though.

having more employed household members in the agriculture sector increases welfare for up to the 20th percentile before strongly reducing it for up to the 95th percentile.

Pushing the sectoral analysis further, the paper highlights the regional dimension for sector employment. Table 10 displays the share of household with members employed in the various sectors by governorates and compares the two periods 2002 and 2010. The Table reveals that between 2002 and 2010 the share of urban households with employment in defense, finance and family services sectors have increased solely, while a drop was depicted in all the other sectors. These findings are replicated for rural households with the trade sector however recording an increase instead of the finance sector. The results reflect three trends. The first being the transformation in the Jordanian economy in which sectors with higher value added contribution such as finance played a bigger role in employment especially in urban centers. The second being the employment substitution that occurred in rural areas away from the agriculture jobs towards the trade sector ones. This is in line with Jordan's trade expansion especially with bordering countries mainly Iraq, Syria (both saw significant opening of their economies in the past decade), and Israel (especially to benefit from the FTA with the USA). The third is the expanding role of the public sector in employment creation especially through the defense sector. This is particularly accentuated for rural residents who were largely absorbed in the various military units. Looking further into the regions, the paper finds that agriculture, transport & telecom and manufacturing were the sectors in which employment declined across most of regions in the Kingdom⁶⁰. On the other hand, employment in defense, education and tourism sectors rose in the largest number of governorates respectively (refer Table 10). This echoes previous findings and highlights the importance of the public sector (defense and education) along with the non-tradable sectors (tourism and finance) in generating employment in the past decade. The returns in those sectors are usually higher than traditional sectors such as manufacturing and agriculture, therefore explaining the increase in overall household welfare and, consequently, the drop in inequality.

⁶⁰ Agriculture dropped across all governorates, Transport & Telecom across 11, and Manufacturing across 10.

Table 10: Sector Distribution by Governorate (%)

Governorate	Amman		Balqa		Zarqa		Madaba		Irbid		Mafraq		Jarash		Ajlun		Karak		Tafiela		Ma'an		Aqaba		Urban		Rural	
	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010	2002	2010
Agriculture	1.3	1.0	10.5	4.9	2.1	1.2	5.4	1.3	5.8	3.6	6.1	3.6	10.1	3.8	3.6	6.1	6.9	4.5	5.0	0.0	2.4	0.9	0.7	0.7	2.5	1.5	8.6	5.2
Mining	0.8	0.2	0.5	0.3	1.8	0.0	1.2	0.4	0.8	0.1	0.0	0.3	0.0	0.0	0.4	0.3	10.1	5.7	8.6	6.9	7.5	4.2	5.2	2.5	1.4	0.5	2.1	1.0
Manufacturing	16.0	14.3	10.5	8.5	20.2	19.3	12.4	3.6	10.1	8.1	3.4	4.7	5.2	5.9	3.7	5.5	4.8	4.8	8.0	6.8	2.3	1.4	7.5	3.8	14.6	12.7	7.4	6.2
Elec & Water Sector	1.6	1.0	3.7	0.9	2.0	0.6	0.6	1.6	1.7	1.0	1.9	0.4	1.0	0.0	0.4	0.9	1.1	0.8	3.6	0.9	6.3	1.6	8.5	7.5	2.1	1.1	1.7	0.8
Construction	8.4	6.8	4.0	4.1	7.1	7.2	6.1	2.0	6.6	6.9	3.9	3.3	5.4	13.3	2.4	6.1	2.1	3.8	1.4	7.6	2.1	1.9	3.9	3.4	7.3	6.9	3.7	3.6
Trade	23.3	21.7	13.1	16.8	21.2	20.4	11.4	10.7	16.7	15.6	12.3	8.6	10.6	15.0	6.9	7.2	8.2	5.7	7.9	6.5	8.5	5.8	9.2	9.9	20.8	19.1	8.8	9.0
Tourism	3.8	3.4	2.7	2.8	2.4	3.0	1.2	3.7	1.5	2.1	1.6	1.1	0.7	2.6	1.2	1.2	0.7	0.9	0.5	0.2	4.6	2.9	6.0	5.9	3.1	3.1	1.2	1.1
Transport & Telecom	11.7	12.1	9.5	6.3	10.5	9.3	11.2	8.8	9.7	9.0	5.9	5.6	10.3	7.8	7.7	2.2	7.5	4.1	11.4	6.3	11.6	10.9	34.8	26.1	11.4	10.7	8.8	6.2
Finance	2.9	3.5	1.7	1.4	1.0	2.3	0.6	0.1	1.1	0.5	0.3	0.1	0.6	0.0	1.3	0.2	0.3	0.8	0.0	0.4	1.4	0.5	1.0	0.0	2.1	2.3	0.6	0.4
Real Estate	5.9	1.1	2.3	0.6	2.6	0.0	1.2	0.1	1.5	0.3	0.7	0.2	1.5	2.0	2.3	0.0	0.7	0.0	0.0	0.0	1.3	0.0	0.2	3.2	4.0	0.8	0.9	0.3
Defense	13.0	14.8	26.3	29.5	17.7	17.4	35.4	42.3	28.7	34.0	42.5	46.7	39.1	38.1	43.0	47.1	36.4	39.4	32.6	39.9	34.3	47.5	19.6	21.2	18.1	20.8	38.3	45.5
Education	11.2	9.9	15.1	15.3	10.0	7.3	15.6	6.8	15.1	11.8	15.9	15.4	13.8	15.5	12.4	12.9	21.4	20.5	12.7	15.6	17.6	17.9	10.1	15.8	12.9	11.0	12.9	12.9
Health	5.9	4.6	8.3	6.7	3.9	2.9	2.3	3.7	5.8	4.7	4.4	5.3	6.4	2.1	7.9	5.5	7.4	7.3	7.3	5.7	4.7	3.0	4.3	4.7	5.8	4.6	5.2	4.3
Social Services	4.5	0.4	4.0	0.9	4.1	0.4	4.1	0.1	3.9	0.6	3.7	0.1	2.4	0.0	2.4	0.0	1.6	0.2	3.1	1.2	1.0	1.2	1.8	0.3	4.1	0.5	3.0	0.3
Family Services	3.1	6.7	1.3	2.3	0.2	0.4	na	2.0	0.3	1.1	na	0.3	na	na	na	0.4	0.3	2.0	na	1.2	na	0.7	0.3	0.0	1.7	3.7	0.4	1.0

Note: The table reads, in Amman 1.3 percent of households have at least one member working in the agriculture sector in 2002.

Source: World Bank Staff Calculations using official 2002 and 2010 Household Income and Expenditure Surveys.

VI. Conclusions

Jordan's strong economic growth in the past decade has been translated into a substantial increase in the level of household consumption. This has led to a considerable decline in both poverty and inequality indicators across the Kingdom. Despite popular belief, welfare growth between 2002 and 2010 has benefitted the poor relatively better than the richer segments of society. From this perspective, it has succeeded in reducing the welfare gap between the two groups. A regional pattern also emerges from the empirical findings of this paper. While the commendable decline in poverty and inequality was observed across the Kingdom, regional discrepancies can be depicted. The Northern governorates were the best performers in terms of welfare indicators. These areas benefitted particularly from three incidents: Jordan's regional trade expansion especially with Syria, public spending both in terms of government transfers and capital spending, and public employment especially in the defense sector. On the other hand, the capital Amman, with the highest share of the population, fared among the worst performers. These observed regional trends were accompanied by population movements with the poor rural household migrating towards Amman throughout the decade and increasing the pressure on the capital city amidst worsening conditions. This has been endorsed by the paper's earlier results

when examining inequality measures. Indeed, the Gini coefficient has dropped in all regions of the Kingdom except in the capital Amman, explaining as a result part of the recent observed popular discontent.

By resorting to a series of macro decompositions, the paper concludes on the dynamics that governed the changes in household welfare distribution and that occurred between the years 2002 and 2010. Findings suggested that despite an overall reduction in inequality, the growth effect dominated the redistribution effect and was consequently the main driver behind poverty reduction in Jordan. Additionally, the paper found that regional consumption disparities were depicted mostly as a result of differences in average real household consumption, with the inequality effect being more accentuated in rural areas. Inequality in Jordan is therefore linked to consumption level differences between different regions of the Kingdom. Differences that were found to have been reduce though during the past decade. Alongside the regional dimension, and looking more closely at the determinants of welfare growth, the paper signals that rent and access to human capital services and infrastructure have all played a role in increasing welfare and reducing inequality in Jordan. Employment generated by most economic sectors had diminishing welfare returns across the population distribution and therefore contributed also to reducing the welfare gap. This is particularly the case for services sectors and the public sector, with the employment in the latter used extensively as a poverty alleviation tool

However, it should be strongly acknowledged that the tangible improvement in poverty and inequality indicators has been accompanied by a popular perception of worsening welfare conditions especially in recent years. As argued in this paper, this popular perception has been nurtured by three factors. First, while welfare growth between 2002 and 2010 has benefitted the poor, it did not necessarily do so for the most vocal. These segments of the population are usually urban centers residents, the middle and upper income classes who all together have better access to politicians, policy-makers and media and can therefore express loudly their dissatisfaction. Second, the rapid deterioration of economic and welfare growth since end-2008 deepened public perception of increased hardship especially for the middle and poorer segments of the Jordanian society. This period (2009-2012) of economic activity slowdown and stagnant double-digit unemployment came amidst an increase in inequality with the upper 5th percentile of the income distribution in the Kingdom recording much superior growth consumption rates than the middle class and poor. This situation is threatening to overturn all the achievements of the

past decade in terms of welfare growth and reduction in poverty and inequality. Third, the popular discontent with the country's institutions and their effectiveness in tackling needs of the population have also played a role in overshadowing the economic achievements of the past decade. This was made evident from the increased demand for greater accountability and transparency in the management of public affairs and deeper political reforms. These demands have manifested with continuing demonstration since January 2011.

The combination of tangible welfare growth in the past decade versus popular discontent in recent years opens the door to question the limitations of the Jordanian growth model. It questions the extent to which some of the major determinants of welfare growth, such as public sector employment, will continue to exert the same positive impact going forward.

Annex: Figures and Tables

Figure 4: Sectors Contribution to Welfare - Percentile Trend

Figure 4 (continue): Sectors Contribution to Welfare - Percentile Trend

Table 7: Summary Statistics

Table 7: Summary Statistics							
Variable	Covariate Type	2002		2010		Difference in Means	t-stat
		Mean	Std. Dev.	Mean	Std. Dev.		
Household Demographics							
Household Size	continuous	6.456	2.883	5.440	2.332	-1.016	-9.08 *
Number of Children less than 15 year old	continuous	2.484	2.092	1.863	1.785	-0.621	-7.47 *
Share of Workers in Household	continuous	0.206	0.160	0.227	0.180	0.020	2.78 *
Dwelling Characteristics							
Household owns its dwelling	binary	0.732	0.443	0.770	0.421	0.038	2.05 *
Household Head Characteristics							
HH Head is a Female	binary	0.103	0.305	0.135	0.342	0.032	2.28 *
HH Head is Unemployed	binary	0.045	0.208	0.258	0.438	0.213	14.21 *
HH Head Reads&Writes	binary	0.125	0.331	0.096	0.294	-0.030	-2.23 *
HH Head has Elementary	binary	0.188	0.390	0.158	0.365	-0.030	-1.83 *
HH Head has Preparatory	binary	0.229	0.421	0.282	0.450	0.052	2.80 *
HH Head has Vocational	binary	0.006	0.079	0.004	0.065	-0.002	-0.68
HH Head has Secondary	binary	0.117	0.321	0.128	0.334	0.011	0.81
HH Head has Intermediary	binary	0.077	0.267	0.084	0.277	0.006	0.55
HH Head has a Bachelors	binary	0.078	0.268	0.100	0.300	0.022	1.79
HH Head has a Postgrad	binary	0.019	0.135	0.026	0.159	0.008	1.19
HH Head aged [24-40]	binary	0.222	0.416	0.244	0.430	0.022	1.22
Income Sources							
HH Receives Gov. Assistance	binary	0.085	0.279	0.107	0.309	0.022	1.71
HH has Income from Rent	binary	0.825	0.380	0.786	0.410	-0.038	-2.24 *
HH has Income from Capital Assets	binary	0.108	0.311	0.047	0.212	-0.061	-5.43 *
Regional Residency							
Urban	binary	0.711	0.453	0.749	0.434	0.037	1.97 *
Balqa	binary	0.083	0.276	0.046	0.210	-0.037	-3.52 *
Zarqa	binary	0.132	0.338	0.074	0.262	-0.057	-4.45 *
Madaba	binary	0.035	0.184	0.038	0.190	0.003	0.35
Irbid	binary	0.187	0.390	0.138	0.345	-0.049	-3.14 *
Ma'raq	binary	0.057	0.231	0.070	0.256	0.014	1.32
Jarash	binary	0.030	0.171	0.016	0.126	-0.014	-2.17 *
Ajlun	binary	0.024	0.153	0.019	0.137	-0.005	-0.80
Karak	binary	0.057	0.233	0.046	0.210	-0.011	-1.17
Tafiela	binary	0.024	0.154	0.014	0.119	-0.010	-1.67
Ma'an	binary	0.035	0.185	0.034	0.181	-0.002	-0.21
Aqaba	binary	0.026	0.159	0.016	0.126	-0.010	-1.62
Economic Activity							
HH has worker(s) in Agriculture	binary	0.050	0.217	0.022	0.148	-0.027	-3.45 *
HH has worker(s) in Mining	binary	0.020	0.141	0.008	0.088	-0.013	-2.53 *
HH has worker(s) in Manufacturing	binary	0.120	0.325	0.110	0.312	-0.010	-0.74
HH has worker(s) in Elec & Water Sector	binary	0.021	0.144	0.010	0.099	-0.011	-2.16 *
HH has worker(s) in Construction	binary	0.060	0.237	0.059	0.235	-0.001	-0.13
HH has worker(s) in Trade	binary	0.161	0.367	0.163	0.370	0.002	0.15
HH has worker(s) in Tourism	binary	0.024	0.153	0.027	0.162	0.003	0.42
HH has worker(s) in Transport & Telecom	binary	0.111	0.314	0.101	0.301	-0.009	-0.72
HH has worker(s) in Finance	binary	0.013	0.113	0.019	0.135	0.006	1.05
HH has worker(s) in Real Estate	binary	0.025	0.157	0.007	0.082	-0.018	-3.48 *
HH has worker(s) in Defense	binary	0.259	0.438	0.271	0.444	0.012	0.64
HH has worker(s) in Education	binary	0.128	0.334	0.112	0.315	-0.016	-1.15
HH has worker(s) in Health	binary	0.055	0.228	0.045	0.206	-0.010	-1.12
HH has worker(s) in Social Services	binary	0.036	0.187	0.005	0.068	-0.032	-5.36 *
HH has worker(s) in Family Services	binary	0.008	0.090	0.033	0.180	0.025	4.07 *
Access to Services							
HH access to Sewage Network	binary	0.475	0.499	0.542	0.498	0.067	3.15 *
Distance to Public Health Facility	continuous	5828	3566	5628	3589	-200	-1.30
Distance to Private Health Facility	continuous	12761	8621	10166	8684	-2595	-6.98 *
Distance to Public Education Facility	continuous	1293	498	1452	652	159	6.33 *
Distance to Private Education Facility	continuous	10372	7205	8191	7588	-2180	-6.85 *
Distance to Public University	continuous	14276	7286	15276	6882	1000	3.29 *
Distance to Private University	continuous	18238	6263	16700	6053	-1538	-5.82 *

Note: A t-test for difference in means was calculated for all variables.

* Refers to a difference that is statistically significantly different than 0 at less than 5%.

Source: World Bank Staff Calculations using official 2002 and 2010 Household Income and Expenditure Surveys.

Table 8: OLS and RIF Regression Coefficients on Log Per Capita Real Consumption, 2002

Equation Name (year=2002)	OLS	Quantile 10	Quantile 20	Quantile 30	Quantile 40	Quantile 50	Quantile 60	Quantile 70	Quantile 80	Quantile 90
Dep. Variable:	LPCONS	RIFQT_10	RIFQT_20	RIFQT_30	RIFQT_40	RIFQT_50	RIFQT_60	RIFQT_70	RIFQT_80	RIFQT_90
Household Demographics										
Household Size	-0.061 <i>0.003 ***</i>	-0.053 <i>0.006 ***</i>	-0.053 <i>0.005 ***</i>	-0.055 <i>0.004 ***</i>	-0.056 <i>0.004 ***</i>	-0.058 <i>0.004 ***</i>	-0.059 <i>0.004 ***</i>	-0.058 <i>0.004 ***</i>	-0.064 <i>0.005 ***</i>	-0.074 <i>0.007 ***</i>
Number of Children<15	-0.079 <i>0.003 ***</i>	-0.092 <i>0.007 ***</i>	-0.099 <i>0.006 ***</i>	-0.095 <i>0.005 ***</i>	-0.088 <i>0.005 ***</i>	-0.082 <i>0.005 ***</i>	-0.080 <i>0.005 ***</i>	-0.076 <i>0.005 ***</i>	-0.069 <i>0.006 ***</i>	-0.055 <i>0.008 **</i>
Share of Workers in Household	0.342 <i>0.048 ***</i>	-0.353 <i>0.065 ***</i>	-0.134 <i>0.056 **</i>	0.033 <i>0.052</i>	0.240 <i>0.053 ***</i>	0.430 <i>0.055 ***</i>	0.603 <i>0.062 ***</i>	0.893 <i>0.076 ***</i>	1.069 <i>0.104 ***</i>	0.889 <i>0.172 ***</i>
Dwelling Characteristics										
Dwelling Owned	0.080 <i>0.014 ***</i>	0.030 <i>0.026</i>	0.032 <i>0.023 *</i>	0.039 <i>0.021 **</i>	0.043 <i>0.021 ***</i>	0.063 <i>0.021 ***</i>	0.082 <i>0.022 ***</i>	0.102 <i>0.025 ***</i>	0.118 <i>0.029 ***</i>	0.129 <i>0.039 ***</i>
Household Head Characteristics										
HH Head is a Female	0.108 <i>0.017 ***</i>	0.089 <i>0.028 ***</i>	0.053 <i>0.023 **</i>	0.076 <i>0.021 ***</i>	0.075 <i>0.021 ***</i>	0.077 <i>0.021 ***</i>	0.098 <i>0.023 ***</i>	0.143 <i>0.027 ***</i>	0.136 <i>0.034 ***</i>	0.116 <i>0.048 ***</i>
HH Head is Unemployed	-0.077 <i>0.021 **</i>	-0.058 <i>0.045</i>	-0.116 <i>0.038 ***</i>	-0.109 <i>0.032 ***</i>	-0.084 <i>0.030 ***</i>	-0.034 <i>0.028</i>	-0.050 <i>0.028 *</i>	-0.040 <i>0.030</i>	-0.029 <i>0.035</i>	-0.072 <i>0.046</i>
HH Head Reads&Writes	0.098 <i>0.018 ***</i>	0.154 <i>0.035 ***</i>	0.082 <i>0.029 ***</i>	0.060 <i>0.024 **</i>	0.051 <i>0.023 **</i>	0.052 <i>0.023 **</i>	0.070 <i>0.024 ***</i>	0.090 <i>0.027 ***</i>	0.085 <i>0.032 ***</i>	0.119 <i>0.041 ***</i>
HH Head has Elementary	0.175 <i>0.016 ***</i>	0.260 <i>0.034 ***</i>	0.202 <i>0.027 ***</i>	0.151 <i>0.023 ***</i>	0.114 <i>0.022 ***</i>	0.111 <i>0.021 ***</i>	0.132 <i>0.022 ***</i>	0.130 <i>0.025 ***</i>	0.138 <i>0.029 ***</i>	0.193 <i>0.038 ***</i>
HH Head has Preparatory	0.223 <i>0.016 ***</i>	0.330 <i>0.033 ***</i>	0.287 <i>0.026 ***</i>	0.235 <i>0.023 ***</i>	0.209 <i>0.022 ***</i>	0.164 <i>0.022 ***</i>	0.141 <i>0.022 **</i>	0.136 <i>0.025</i>	0.154 <i>0.030 **</i>	0.182 <i>0.038</i>
HH Head has Vocational	0.237 <i>0.044 ***</i>	0.328 <i>0.099 ***</i>	0.346 <i>0.078 ***</i>	0.253 <i>0.084 ***</i>	0.278 <i>0.081 ***</i>	0.256 <i>0.082 ***</i>	0.185 <i>0.082 ***</i>	0.108 <i>0.080 ***</i>	0.206 <i>0.098 ***</i>	0.087 <i>0.104 ***</i>
HH Head has Secondary	0.345 <i>0.018 ***</i>	0.401 <i>0.034 ***</i>	0.362 <i>0.029 ***</i>	0.371 <i>0.025 ***</i>	0.348 <i>0.025 ***</i>	0.307 <i>0.025 ***</i>	0.292 <i>0.026 ***</i>	0.285 <i>0.030 ***</i>	0.280 <i>0.035 ***</i>	0.367 <i>0.049 ***</i>
HH Head has Intermediary	0.372 <i>0.020 ***</i>	0.453 <i>0.036 ***</i>	0.472 <i>0.030 ***</i>	0.412 <i>0.028 ***</i>	0.384 <i>0.028 ***</i>	0.348 <i>0.028 ***</i>	0.303 <i>0.030 ***</i>	0.283 <i>0.034 ***</i>	0.248 <i>0.040 ***</i>	0.327 <i>0.054 ***</i>
HH Head has a Bachelors	0.569 <i>0.021 ***</i>	0.440 <i>0.032 ***</i>	0.460 <i>0.027 ***</i>	0.476 <i>0.025 ***</i>	0.509 <i>0.026 ***</i>	0.531 <i>0.027 ***</i>	0.551 <i>0.029 ***</i>	0.592 <i>0.035 ***</i>	0.644 <i>0.045 ***</i>	0.730 <i>0.067 ***</i>
HH Head has a Postgrad	0.671 <i>0.032 ***</i>	0.437 <i>0.039 ***</i>	0.471 <i>0.035 ***</i>	0.479 <i>0.035 ***</i>	0.527 <i>0.037 ***</i>	0.572 <i>0.038 ***</i>	0.620 <i>0.047 ***</i>	0.676 <i>0.058 ***</i>	0.809 <i>0.079 ***</i>	1.097 <i>0.129 ***</i>
HH Head aged [24-40]	-0.160 <i>0.011 ***</i>	-0.026 <i>0.022</i>	-0.054 <i>0.019 ***</i>	-0.098 <i>0.016 ***</i>	-0.129 <i>0.016 ***</i>	-0.152 <i>0.015 ***</i>	-0.156 <i>0.016 ***</i>	-0.186 <i>0.018 ***</i>	-0.264 <i>0.021 ***</i>	-0.346 <i>0.029 ***</i>
Income Sources										
HH Receives Gov. Assistance	-0.227 <i>0.017 ***</i>	-0.334 <i>0.040 ***</i>	-0.281 <i>0.030 ***</i>	-0.250 <i>0.024 ***</i>	-0.214 <i>0.023 ***</i>	-0.185 <i>0.022 ***</i>	-0.192 <i>0.022 ***</i>	-0.179 <i>0.024 ***</i>	-0.192 <i>0.027 ***</i>	-0.158 <i>0.034 ***</i>
HH has Income from Rent	0.097 <i>0.016 ***</i>	0.063 <i>0.031 **</i>	0.073 <i>0.027 ***</i>	0.082 <i>0.025 ***</i>	0.107 <i>0.024 ***</i>	0.083 <i>0.024 ***</i>	0.101 <i>0.025 ***</i>	0.120 <i>0.028 ***</i>	0.120 <i>0.032 ***</i>	0.164 <i>0.043 ***</i>
HH has Income from Capital Assets	0.183 <i>0.014 ***</i>	0.115 <i>0.020 ***</i>	0.116 <i>0.019 ***</i>	0.126 <i>0.018 ***</i>	0.121 <i>0.018 ***</i>	0.136 <i>0.018 ***</i>	0.157 <i>0.020 ***</i>	0.191 <i>0.023 ***</i>	0.230 <i>0.028 ***</i>	0.336 <i>0.043 ***</i>
Regional Residency										
Urban	0.038 *** <i>0.012 ***</i>	0.013 <i>0.024</i>	0.002 <i>0.020</i>	0.018 <i>0.018</i>	-0.008 <i>0.017 **</i>	0.021 <i>0.018 ***</i>	0.050 *** <i>0.018 ***</i>	0.066 *** <i>0.020 ***</i>	0.085 *** <i>0.023 ***</i>	0.069 *** <i>0.029 ***</i>
Balqa	-0.258 <i>0.018 ***</i>	-0.208 <i>0.039 ***</i>	-0.229 <i>0.032 ***</i>	-0.210 <i>0.028 ***</i>	-0.246 <i>0.026 ***</i>	-0.216 <i>0.025 ***</i>	-0.236 <i>0.027 ***</i>	-0.247 <i>0.030 ***</i>	-0.303 <i>0.035 ***</i>	-0.419 <i>0.048 ***</i>
Zarqa	-0.348 <i>0.015 ***</i>	-0.268 <i>0.030 ***</i>	-0.303 <i>0.025 ***</i>	-0.290 <i>0.022 ***</i>	-0.315 <i>0.021 ***</i>	-0.312 <i>0.021 ***</i>	-0.328 <i>0.022 ***</i>	-0.385 <i>0.024 ***</i>	-0.409 <i>0.029 ***</i>	-0.515 <i>0.039 ***</i>
Madaba	-0.086 <i>0.031 ***</i>	0.004 <i>0.054</i>	-0.001 <i>0.051</i>	0.021 <i>0.047</i>	0.005 <i>0.047</i>	-0.068 <i>0.046 ***</i>	-0.097 <i>0.048 ***</i>	-0.100 <i>0.054 ***</i>	-0.145 <i>0.061 ***</i>	-0.226 <i>0.077 ***</i>
Irbid	-0.200 <i>0.017 ***</i>	-0.115 <i>0.032 ***</i>	-0.111 <i>0.028 ***</i>	-0.120 <i>0.025 ***</i>	-0.152 <i>0.024 ***</i>	-0.138 <i>0.024 ***</i>	-0.173 <i>0.026 ***</i>	-0.223 <i>0.030 ***</i>	-0.271 <i>0.035 ***</i>	-0.400 <i>0.048 ***</i>
Mafraq	-0.217 <i>0.025 ***</i>	-0.213 <i>0.059 ***</i>	-0.145 <i>0.047 ***</i>	-0.161 <i>0.040 ***</i>	-0.186 <i>0.038 ***</i>	-0.174 <i>0.036 ***</i>	-0.220 <i>0.037 ***</i>	-0.186 <i>0.040 ***</i>	-0.208 <i>0.044 ***</i>	-0.302 <i>0.054 ***</i>
Jarash	-0.161 <i>0.033 ***</i>	-0.059 <i>0.067</i>	-0.008 <i>0.056</i>	0.009 <i>0.050</i>	-0.095 <i>0.048 **</i>	-0.115 <i>0.046 **</i>	-0.172 <i>0.046 ***</i>	-0.206 <i>0.052 ***</i>	-0.249 <i>0.060 ***</i>	-0.496 <i>0.077 ***</i>
Ajlun	-0.152 <i>0.032 ***</i>	0.017 <i>0.065</i>	0.064 <i>0.056</i>	0.008 <i>0.052</i>	-0.089 <i>0.051 *</i>	-0.086 <i>0.049 *</i>	-0.208 <i>0.051 ***</i>	-0.249 <i>0.056 ***</i>	-0.321 <i>0.063 ***</i>	-0.501 <i>0.073 ***</i>
Karak	-0.132 <i>0.025 ***</i>	-0.042 <i>0.049</i>	-0.024 <i>0.041</i>	-0.054 <i>0.036</i>	-0.084 <i>0.035 **</i>	-0.068 <i>0.035 *</i>	-0.146 <i>0.038 ***</i>	-0.157 <i>0.042 ***</i>	-0.173 <i>0.050 ***</i>	-0.313 <i>0.066 ***</i>
Tafiela	-0.058 <i>0.033 ***</i>	0.088 <i>0.063</i>	0.145 <i>0.056 ***</i>	0.043 <i>0.051</i>	0.029 <i>0.050</i>	-0.016 <i>0.049</i>	-0.067 <i>0.051</i>	-0.154 <i>0.057 ***</i>	-0.216 <i>0.064 ***</i>	-0.366 <i>0.075 ***</i>
Ma'an	-0.142 <i>0.033 ***</i>	-0.109 <i>0.067</i>	-0.069 <i>0.056</i>	-0.057 <i>0.048 **</i>	-0.098 <i>0.047 **</i>	-0.102 <i>0.046 **</i>	-0.126 <i>0.048 ***</i>	-0.159 <i>0.053 ***</i>	-0.211 <i>0.059 ***</i>	-0.280 <i>0.075 ***</i>
Aqaba	-0.188 <i>0.033 ***</i>	-0.281 <i>0.075 ***</i>	-0.167 <i>0.060 ***</i>	-0.187 <i>0.050 ***</i>	-0.142 <i>0.048 ***</i>	-0.151 <i>0.047 ***</i>	-0.191 <i>0.048 ***</i>	-0.165 <i>0.052 ***</i>	-0.136 <i>0.061 **</i>	-0.140 <i>0.081 **</i>

Significance Level: *10%, **5%, and ***1%; standard errors are reported in *italic*.

(cont...)

Table 8: OLS and RIF Regression Coefficients on Log Per Capita Real Consumption, 2002 (cont.)

Equation Name (year=2002)	OLS	Quantile 10	Quantile 20	Quantile 30	Quantile 40	Quantile 50	Quantile 60	Quantile 70	Quantile 80	Quantile 90
Dep. Variable:	LPCONS	RIFQT_10	RIFQT_20	RIFQT_30	RIFQT_40	RIFQT_50	RIFQT_60	RIFQT_70	RIFQT_80	RIFQT_90
<i>Economic Activity</i>										
HH has worker(s) in Agriculture	-0.050 <i>0.023 **</i>	0.055 <i>0.050</i>	0.000 <i>0.040</i>	-0.017 <i>0.035</i>	-0.046 <i>0.031 *</i>	-0.049 <i>0.030 **</i>	-0.074 <i>0.030 ***</i>	-0.133 <i>0.033 ***</i>	-0.113 <i>0.038 ***</i>	-0.107 <i>0.047 **</i>
HH has worker(s) in Mining	0.077 <i>0.031 **</i>	0.258 <i>0.050 ***</i>	0.161 <i>0.051 ***</i>	0.182 <i>0.048 ***</i>	0.129 <i>0.045 ***</i>	0.053 <i>0.044</i>	0.023 <i>0.048</i>	-0.004 <i>0.054</i>	-0.013 <i>0.064</i>	-0.096 <i>0.076</i>
HH has worker(s) in Manufacturing	-0.107 <i>0.016 ***</i>	0.099 <i>0.030 ***</i>	0.031 <i>0.026</i>	-0.022 <i>0.023</i>	-0.045 <i>0.022 *</i>	-0.091 <i>0.022 ***</i>	-0.163 <i>0.023 ***</i>	-0.228 <i>0.026 ***</i>	-0.292 <i>0.030 ***</i>	-0.336 <i>0.041 ***</i>
HH has worker(s) in Elec & Water Sector	-0.009 <i>0.029</i>	0.123 <i>0.060 **</i>	0.053 <i>0.052</i>	0.072 <i>0.045</i>	0.020 <i>0.043</i>	-0.021 <i>0.041</i>	-0.056 <i>0.043</i>	-0.071 <i>0.047</i>	-0.118 <i>0.056 **</i>	-0.145 <i>0.080 *</i>
HH has worker(s) in Construction	-0.111 <i>0.019 ***</i>	0.085 <i>0.038 **</i>	0.008 <i>0.032</i>	-0.016 <i>0.029</i>	-0.064 <i>0.028 **</i>	-0.119 <i>0.028 ***</i>	-0.148 <i>0.028 ***</i>	-0.207 <i>0.031 ***</i>	-0.292 <i>0.035 ***</i>	-0.308 <i>0.047 ***</i>
HH has worker(s) in Trade	-0.040 <i>0.015 **</i>	0.119 <i>0.028 ***</i>	0.082 <i>0.024 ***</i>	0.058 <i>0.021 ***</i>	0.018 <i>0.021</i>	-0.011 <i>0.020</i>	-0.060 <i>0.021 ***</i>	-0.128 <i>0.024 ***</i>	-0.183 <i>0.029 ***</i>	-0.255 <i>0.041 ***</i>
HH has worker(s) in Tourism	-0.051 <i>0.028 *</i>	0.042 <i>0.058</i>	0.090 <i>0.046 *</i>	0.076 <i>0.041 *</i>	0.028 <i>0.041</i>	-0.015 <i>0.041</i>	-0.126 <i>0.042 ***</i>	-0.210 <i>0.046 ***</i>	-0.185 <i>0.056 ***</i>	-0.282 <i>0.069 ***</i>
HH has worker(s) in Transport & Telecom	-0.053 <i>0.016 **</i>	0.113 <i>0.031 ***</i>	0.065 <i>0.027 **</i>	0.047 <i>0.024 **</i>	0.004 <i>0.023</i>	-0.035 <i>0.022</i>	-0.089 <i>0.023 ***</i>	-0.151 <i>0.026 ***</i>	-0.203 <i>0.030 ***</i>	-0.294 <i>0.038 ***</i>
HH has worker(s) in Finance	0.120 <i>0.036 ***</i>	0.110 <i>0.050 ***</i>	0.116 <i>0.045 ***</i>	0.087 <i>0.044 **</i>	0.124 <i>0.046 ***</i>	0.126 <i>0.049 ***</i>	0.080 <i>0.053</i>	0.091 <i>0.063</i>	0.017 <i>0.079</i>	0.111 <i>0.133</i>
HH has worker(s) in Real Estate	0.073 <i>0.029 ***</i>	0.117 <i>0.035 ***</i>	0.104 <i>0.034 ***</i>	0.108 <i>0.032 ***</i>	0.038 <i>0.035</i>	0.046 <i>0.036</i>	0.048 <i>0.041</i>	0.051 <i>0.050</i>	0.070 <i>0.066</i>	0.036 <i>0.098</i>
HH has worker(s) in Defense	-0.037 <i>0.013 ***</i>	0.180 <i>0.025 ***</i>	0.118 <i>0.022 ***</i>	0.084 <i>0.020 ***</i>	0.021 <i>0.019</i>	-0.030 <i>0.019 *</i>	-0.092 <i>0.019 ***</i>	-0.180 <i>0.022 ***</i>	-0.229 <i>0.026 ***</i>	-0.293 <i>0.036 ***</i>
HH has worker(s) in Education	-0.018 <i>0.015</i>	0.164 <i>0.024 ***</i>	0.137 <i>0.022 ***</i>	0.112 <i>0.021 ***</i>	0.056 <i>0.021 ***</i>	0.013 <i>0.022</i>	-0.022 <i>0.023</i>	-0.106 <i>0.027 ***</i>	-0.204 <i>0.031 ***</i>	-0.262 <i>0.043 ***</i>
HH has worker(s) in Health	0.024 <i>0.019</i>	0.175 <i>0.031 ***</i>	0.131 <i>0.029 ***</i>	0.114 <i>0.027 ***</i>	0.067 <i>0.027 **</i>	0.014 <i>0.027</i>	-0.021 <i>0.029</i>	-0.090 <i>0.033 ***</i>	-0.130 <i>0.040 ***</i>	-0.093 <i>0.059</i>
HH has worker(s) in Social Services	-0.024 <i>0.024</i>	0.086 <i>0.043 **</i>	0.088 <i>0.036 **</i>	0.050 <i>0.034</i>	0.013 <i>0.033</i>	-0.013 <i>0.033</i>	-0.053 <i>0.036 *</i>	-0.123 <i>0.041 ***</i>	-0.151 <i>0.047 ***</i>	-0.090 <i>0.067</i>
HH has worker(s) in Family Services	0.338 <i>0.057 ***</i>	-0.100 <i>0.057 *</i>	-0.059 <i>0.046</i>	-0.061 <i>0.043</i>	-0.085 <i>0.047 *</i>	-0.046 <i>0.050</i>	0.018 <i>0.052</i>	0.119 <i>0.064 *</i>	0.473 <i>0.087 ***</i>	1.432 <i>0.181 ***</i>
<i>Access to Services</i>										
HH access to Sewage Network	0.033 <i>0.012 ***</i>	0.011 <i>0.021</i>	-0.001 <i>0.019</i>	0.012 <i>0.017</i>	0.029 <i>0.017 *</i>	0.025 <i>0.017</i>	0.027 <i>0.019</i>	0.023 <i>0.021</i>	0.026 <i>0.025</i>	0.055 <i>0.034 *</i>
Distance to Public Health Facility	1.06E-05 <i>1.98E-06 ***</i>	9.07E-06 <i>4.37E-06 **</i>	7.64E-06 <i>3.53E-06 **</i>	9.86E-06 <i>3.00E-06 ***</i>	9.11E-06 <i>2.84E-06 ***</i>	1.04E-05 <i>2.74E-06 ***</i>	1.13E-05 <i>2.86E-06 ***</i>	1.02E-05 <i>3.14E-06 **</i>	1.12E-05 <i>3.51E-06 ***</i>	8.83E-06 <i>4.57E-06 **</i>
Distance to Private Health Facility	8.21E-06 <i>1.18E-06 ***</i>	9.15E-06 <i>2.24E-06 ***</i>	6.47E-06 <i>1.93E-06 ***</i>	6.11E-06 <i>1.74E-06 ***</i>	6.32E-06 <i>1.69E-06 ***</i>	7.68E-06 <i>1.67E-06 ***</i>	8.06E-06 <i>1.78E-06 ***</i>	7.33E-06 <i>1.98E-06 ***</i>	7.21E-06 <i>2.32E-06 ***</i>	1.09E-05 <i>3.03E-06 ***</i>
Distance to Public Education Facility	-3.76E-05 <i>1.14E-05 ***</i>	6.94E-05 <i>2.47E-05</i>	-1.61E-05 <i>2.03E-05</i>	-1.58E-05 <i>1.74E-05</i>	-4.63E-05 <i>1.68E-05 ***</i>	-2.37E-05 <i>1.65E-05</i>	-1.45E-05 <i>1.70E-05</i>	-5.61E-05 <i>1.84E-05 ***</i>	-7.72E-05 <i>2.07E-05 ***</i>	-1.27E-04 <i>2.65E-05 ***</i>
Distance to Private Education Facility	-1.29E-05 <i>1.83E-06 ***</i>	-1.61E-05 <i>3.73E-06 ***</i>	-1.54E-05 <i>3.14E-06 ***</i>	-1.48E-05 <i>2.76E-06 ***</i>	-1.13E-05 <i>2.64E-06 ***</i>	-1.24E-05 <i>2.61E-06 ***</i>	-1.28E-05 <i>2.71E-06 ***</i>	-1.14E-05 <i>2.97E-06 ***</i>	-1.09E-05 <i>3.31E-06 **</i>	-7.88E-06 <i>4.20E-06 ***</i>
Distance to Public University	-3.06E-06 <i>1.21E-06 **</i>	-4.33E-06 <i>2.33E-06 *</i>	-2.87E-06 <i>2.07E-06</i>	-3.06E-06 <i>1.85E-06 *</i>	-3.35E-06 <i>1.80E-06 **</i>	-3.47E-06 <i>1.76E-06 **</i>	-3.85E-06 <i>1.87E-06</i>	-2.32E-06 <i>2.06E-06</i>	-2.29E-06 <i>2.32E-06</i>	-1.76E-06 <i>2.95E-06</i>
Distance to Private University	1.09E-06 <i>1.31E-06</i>	8.99E-06 <i>2.43E-06 ***</i>	6.06E-06 <i>2.08E-06 ***</i>	6.99E-06 <i>1.86E-06 ***</i>	1.82E-06 <i>1.85E-06</i>	9.47E-09 <i>1.84E-06</i>	1.20E-06 <i>1.95E-06</i>	-2.09E-06 <i>2.20E-06</i>	-3.49E-06 <i>2.59E-06</i>	-1.47E-05 <i>3.53E-06 ***</i>
Constant	7.446 <i>0.039 ***</i>	6.481 <i>0.073 ***</i>	6.862 <i>0.060 ***</i>	7.007 <i>0.053 ***</i>	7.292 <i>0.052 ***</i>	7.426 <i>0.051 ***</i>	7.532 <i>0.054 ***</i>	7.767 <i>0.061 ***</i>	8.075 <i>0.074 ***</i>	8.701 <i>0.103 ***</i>
Observations	10027	10027	10027	10027	10027	10027	10027	10027	10027	10027
R-squared/Pseudo R-squared	0.541	0.190	0.264	0.316	0.337	0.354	0.357	0.338	0.305	0.242
F-statistic	188	26	65	118	154	179	169	132	83	35

Significance Level: *10%, **5%, and ***1%; standard errors are reported in *italic*.

Table 9: OLS and RIF Regression Coefficients on Log Per Capita Real Consumption, 2010

Equation Name (year=2010)	OLS	Quantile 10	Quantile 20	Quantile 30	Quantile 40	Quantile 50	Quantile 60	Quantile 70	Quantile 80	Quantile 90
Dep. Variable:	LPCONS	RIFQT_10	RIFQT_20	RIFQT_30	RIFQT_40	RIFQT_50	RIFQT_60	RIFQT_70	RIFQT_80	RIFQT_90
Household Demographics										
Household Size	-0.098 <i>0.003 ***</i>	-0.084 <i>0.006 ***</i>	-0.085 <i>0.005 ***</i>	-0.086 <i>0.004 ***</i>	-0.089 <i>0.004 ***</i>	-0.091 <i>0.004 ***</i>	-0.094 <i>0.004 ***</i>	-0.100 <i>0.005 ***</i>	-0.110 <i>0.006 ***</i>	-0.124 <i>0.007 ***</i>
Number of Children<15	-0.074 <i>0.004 ***</i>	-0.097 <i>0.008 ***</i>	-0.093 <i>0.006 ***</i>	-0.099 <i>0.006 ***</i>	-0.096 <i>0.005 ***</i>	-0.086 <i>0.005 ***</i>	-0.081 <i>0.005 ***</i>	-0.068 <i>0.006 ***</i>	-0.056 <i>0.007 ***</i>	-0.024 <i>0.008 ***</i>
Share of Workers in Household	0.184 <i>0.039 ***</i>	-0.265 <i>0.052 ***</i>	-0.052 <i>0.042 ***</i>	0.080 <i>0.042 ***</i>	0.239 <i>0.042 ***</i>	0.376 <i>0.045 ***</i>	0.458 <i>0.052 ***</i>	0.470 <i>0.064 ***</i>	0.501 <i>0.091 ***</i>	0.440 <i>0.144 ***</i>
Dwelling Characteristics										
Dwelling Owned	0.098 <i>0.033 ***</i>	-0.073 <i>0.052 ***</i>	-0.018 <i>0.047 ***</i>	0.028 <i>0.048 ***</i>	0.032 <i>0.048 ***</i>	-0.003 <i>0.050 ***</i>	0.040 <i>0.052 ***</i>	0.122 <i>0.058 ***</i>	0.204 <i>0.073 ***</i>	0.444 <i>0.085 ***</i>
Household Head Characteristics										
HH Head is a Female	0.099 <i>0.014 ***</i>	0.004 <i>0.021 ***</i>	-0.006 <i>0.017 ***</i>	0.010 <i>0.017 ***</i>	0.027 <i>0.017 ***</i>	0.058 <i>0.018 ***</i>	0.083 <i>0.020 ***</i>	0.110 <i>0.023 ***</i>	0.178 <i>0.030 ***</i>	0.251 <i>0.044 ***</i>
HH Heas is Unemployed	-0.118 <i>0.019 ***</i>	-0.100 <i>0.040 **</i>	-0.088 <i>0.031 ***</i>	-0.089 <i>0.029 ***</i>	-0.106 <i>0.026 ***</i>	-0.089 <i>0.026 ***</i>	-0.062 <i>0.027 **</i>	-0.092 <i>0.030 ***</i>	-0.165 <i>0.035 ***</i>	-0.210 <i>0.043 ***</i>
HH Head Reads&Writes	0.098 <i>0.017 ***</i>	0.117 <i>0.035 ***</i>	0.074 <i>0.026 ***</i>	0.084 <i>0.024 ***</i>	0.066 <i>0.023 ***</i>	0.070 <i>0.024 **</i>	0.071 <i>0.026 ***</i>	0.061 <i>0.029 **</i>	0.093 <i>0.035 ***</i>	0.163 <i>0.045 ***</i>
HH Head has Elementary	0.029 <i>0.023 ***</i>	0.065 <i>0.049 ***</i>	0.031 <i>0.038 ***</i>	0.044 <i>0.035 ***</i>	-0.007 <i>0.032 ***</i>	0.004 <i>0.032 ***</i>	0.006 <i>0.034 ***</i>	-0.028 <i>0.037 ***</i>	-0.019 <i>0.044 ***</i>	0.017 <i>0.055 ***</i>
HH Head has Preparatory	0.076 <i>0.023 ***</i>	0.159 <i>0.047 ***</i>	0.108 <i>0.037 ***</i>	0.097 <i>0.034 ***</i>	0.044 <i>0.031 ***</i>	0.043 <i>0.031 ***</i>	0.046 <i>0.033 ***</i>	0.014 <i>0.036 **</i>	0.011 <i>0.043 **</i>	0.053 <i>0.055 ***</i>
HH Head has Vocational	0.089 <i>0.065 **</i>	0.148 <i>0.143 ***</i>	0.032 <i>0.119 ***</i>	-0.030 <i>0.110 ***</i>	0.050 <i>0.101 ***</i>	0.107 <i>0.093 ***</i>	0.075 <i>0.088 ***</i>	0.067 <i>0.094 ***</i>	0.005 <i>0.098 ***</i>	0.030 <i>0.106 ***</i>
HH Head has Secondary	0.181 <i>0.024 ***</i>	0.231 <i>0.048 ***</i>	0.178 <i>0.038 ***</i>	0.181 <i>0.035 ***</i>	0.145 <i>0.033 ***</i>	0.161 <i>0.033 ***</i>	0.167 <i>0.035 ***</i>	0.140 <i>0.040 ***</i>	0.123 <i>0.047 ***</i>	0.206 <i>0.061 ***</i>
HH Head has Intermediary	0.223 <i>0.026 ***</i>	0.308 <i>0.049 ***</i>	0.263 <i>0.039 ***</i>	0.263 <i>0.037 ***</i>	0.220 <i>0.035 ***</i>	0.225 <i>0.036 ***</i>	0.212 <i>0.038 ***</i>	0.171 <i>0.043 ***</i>	0.140 <i>0.052 ***</i>	0.114 <i>0.066 ***</i>
HH Head has a Bachelors	0.406 <i>0.026 ***</i>	0.288 <i>0.047 ***</i>	0.286 <i>0.037 ***</i>	0.344 <i>0.035 ***</i>	0.335 <i>0.033 ***</i>	0.381 <i>0.034 ***</i>	0.415 <i>0.037 ***</i>	0.446 <i>0.042 ***</i>	0.486 <i>0.053 ***</i>	0.620 <i>0.074 ***</i>
HH Head has a Postgrad	0.503 <i>0.033 ***</i>	0.311 <i>0.054 ***</i>	0.323 <i>0.043 ***</i>	0.370 <i>0.042 ***</i>	0.359 <i>0.041 ***</i>	0.394 <i>0.042 ***</i>	0.447 <i>0.047 ***</i>	0.512 <i>0.055 ***</i>	0.664 <i>0.073 ***</i>	0.910 <i>0.112 ***</i>
HH Head aged [24-40]	-0.142 <i>0.010 ***</i>	-0.013 <i>0.021 ***</i>	-0.029 <i>0.017 ***</i>	-0.069 <i>0.016 ***</i>	-0.099 <i>0.015 ***</i>	-0.148 <i>0.015 ***</i>	-0.156 <i>0.016 ***</i>	-0.201 <i>0.017 ***</i>	-0.243 <i>0.020 ***</i>	-0.290 <i>0.026 ***</i>
Income Sources										
HH Receives Gov. Assistance	-0.274 <i>0.014 ***</i>	-0.314 <i>0.032 ***</i>	-0.253 <i>0.023 ***</i>	-0.222 <i>0.021 ***</i>	-0.235 <i>0.020 ***</i>	-0.239 <i>0.019 ***</i>	-0.252 <i>0.020 ***</i>	-0.251 <i>0.021 ***</i>	-0.269 <i>0.024 ***</i>	-0.286 <i>0.031 ***</i>
HH has Income from Rent	0.068 <i>0.033 **</i>	0.182 <i>0.054 ***</i>	0.118 <i>0.049 **</i>	0.082 <i>0.049 *</i>	0.110 <i>0.050 **</i>	0.149 <i>0.051 ***</i>	0.116 <i>0.053 **</i>	0.070 <i>0.059 ***</i>	0.033 <i>0.074 ***</i>	-0.138 <i>0.086 ***</i>
HH has Income from Capital Assets	0.232 <i>0.021 ***</i>	0.097 <i>0.031 ***</i>	0.101 <i>0.027 ***</i>	0.079 <i>0.026 ***</i>	0.123 <i>0.026 ***</i>	0.157 <i>0.027 ***</i>	0.211 <i>0.029 ***</i>	0.247 <i>0.034 ***</i>	0.354 <i>0.044 ***</i>	0.445 <i>0.069 ***</i>
Regional Residency										
Urban	-0.025 <i>0.012 *</i>	-0.011 <i>0.028 ***</i>	-0.036 <i>0.022 ***</i>	-0.049 <i>0.021 **</i>	-0.035 <i>0.020 *</i>	-0.050 <i>0.019 ***</i>	-0.030 <i>0.020 ***</i>	-0.029 <i>0.021 ***</i>	-0.013 <i>0.023 ***</i>	0.004 <i>0.027 ***</i>
Balqa	-0.164 <i>0.023 ***</i>	-0.221 <i>0.048 ***</i>	-0.130 <i>0.035 ***</i>	-0.144 <i>0.033 ***</i>	-0.134 <i>0.032 ***</i>	-0.119 <i>0.032 ***</i>	-0.132 <i>0.034 ***</i>	-0.166 <i>0.037 ***</i>	-0.234 <i>0.044 ***</i>	-0.195 <i>0.054 ***</i>
Zarqa	0.013 <i>0.017 ***</i>	0.030 <i>0.033 ***</i>	0.059 <i>0.027 **</i>	0.050 <i>0.026 *</i>	0.047 <i>0.026 *</i>	0.014 <i>0.026 ***</i>	0.011 <i>0.027 ***</i>	0.033 <i>0.029 ***</i>	0.003 <i>0.034 ***</i>	-0.024 <i>0.041 ***</i>
Madaba	0.157 <i>0.020 ***</i>	0.189 <i>0.040 ***</i>	0.218 <i>0.035 ***</i>	0.176 <i>0.035 ***</i>	0.146 <i>0.034 ***</i>	0.115 <i>0.034 ***</i>	0.142 <i>0.036 **</i>	0.206 <i>0.041 ***</i>	0.204 <i>0.049 ***</i>	0.103 <i>0.056 *</i>
Irbid	-0.061 <i>0.018 ***</i>	-0.113 <i>0.036 ***</i>	-0.044 <i>0.029 ***</i>	-0.043 <i>0.028 ***</i>	-0.044 <i>0.028 ***</i>	-0.072 <i>0.028 ***</i>	-0.062 <i>0.029 **</i>	-0.039 <i>0.031 ***</i>	-0.055 <i>0.036 ***</i>	-0.033 <i>0.043 ***</i>
Mafrq	0.007 <i>0.023 ***</i>	-0.065 <i>0.048 ***</i>	0.015 <i>0.038 ***</i>	0.024 <i>0.036 ***</i>	0.044 <i>0.035 ***</i>	0.017 <i>0.035 ***</i>	-0.006 <i>0.036 ***</i>	0.024 <i>0.037 ***</i>	0.008 <i>0.043 ***</i>	0.081 <i>0.049 ***</i>
Jarash	0.178 <i>0.035 ***</i>	0.239 <i>0.065 ***</i>	0.258 <i>0.055 ***</i>	0.294 <i>0.054 ***</i>	0.280 <i>0.056 ***</i>	0.296 <i>0.055 ***</i>	0.199 <i>0.056 ***</i>	0.196 <i>0.061 ***</i>	0.133 <i>0.077 *</i>	-0.097 <i>0.079 ***</i>
Ajlun	-0.302 <i>0.036 ***</i>	-0.362 <i>0.087 ***</i>	-0.329 <i>0.066 ***</i>	-0.304 <i>0.059 ***</i>	-0.273 <i>0.056 ***</i>	-0.293 <i>0.054 ***</i>	-0.271 <i>0.057 ***</i>	-0.348 <i>0.058 ***</i>	-0.298 <i>0.068 ***</i>	-0.270 <i>0.073 ***</i>
Karak	0.017 <i>0.024 ***</i>	-0.072 <i>0.050 ***</i>	0.023 <i>0.040 ***</i>	0.035 <i>0.038 ***</i>	0.047 <i>0.037 ***</i>	0.042 <i>0.036 ***</i>	0.081 <i>0.038 **</i>	0.060 <i>0.041 ***</i>	0.014 <i>0.048 ***</i>	0.050 <i>0.060 ***</i>
Tafela	0.044 <i>0.038 ***</i>	-0.062 <i>0.085 ***</i>	0.059 <i>0.066 **</i>	0.124 <i>0.061 ***</i>	0.043 <i>0.061 ***</i>	0.040 <i>0.062 *</i>	0.041 <i>0.065 **</i>	0.099 <i>0.069 ***</i>	0.001 <i>0.072 ***</i>	0.152 <i>0.086 ***</i>
Ma'an	-0.118 <i>0.028 ***</i>	-0.267 <i>0.064 ***</i>	-0.106 <i>0.050 **</i>	-0.107 <i>0.046 **</i>	-0.099 <i>0.042 **</i>	-0.092 <i>0.042 **</i>	-0.112 <i>0.043 ***</i>	-0.072 <i>0.043 *</i>	-0.016 <i>0.051 ***</i>	0.013 <i>0.055 ***</i>
Aqaba	-0.196 <i>0.044 ***</i>	-0.269 <i>0.104 ***</i>	-0.021 <i>0.076 ***</i>	0.079 <i>0.069 ***</i>	-0.041 <i>0.068 ***</i>	-0.104 <i>0.067 *</i>	-0.168 <i>0.067 ***</i>	-0.276 <i>0.067 **</i>	-0.381 <i>0.077 ***</i>	-0.427 <i>0.090 ***</i>

Significance Level: *10%, **5%, and ***1%; standard errors are reported in *italic*.

(cont...)

Table 9: OLS and RIF Regression Coefficients on Log Per Capita Real Consumption, 2010

Equation Name (year=2010)	OLS	Quantile 10	Quantile 20	Quantile 30	Quantile 40	Quantile 50	Quantile 60	Quantile 70	Quantile 80	Quantile 90
Dep. Variable:	LPCONS	RIFQT_10	RIFQT_20	RIFQT_30	RIFQT_40	RIFQT_50	RIFQT_60	RIFQT_70	RIFQT_80	RIFQT_90
<i>Economic Activity</i>										
HH has worker(s) in Agriculture	0.003 0.027	-0.018 0.064	-0.007 0.046	-0.006 0.042	-0.043 0.039	-0.003 0.039	-0.005 0.040	-0.002 0.042	0.018 0.052	-0.028 0.054
HH has worker(s) in Mining	0.150 0.042 ***	0.234 0.100 **	0.179 0.077 **	0.176 0.071 ***	0.206 0.066 ***	0.008 0.066	0.054 0.066	0.087 0.069	0.058 0.075	0.069 0.096
HH has worker(s) in Manufacturing	-0.065 0.014 ***	0.085 0.029 ***	0.031 0.023	-0.004 0.022	-0.033 0.021	-0.095 0.021 ***	-0.129 0.022 ***	-0.149 0.024 ***	-0.200 0.029 ***	-0.216 0.039 ***
HH has worker(s) in Elec & Water Sector	0.020 0.036	0.221 0.048 ***	0.197 0.047 ***	0.135 0.054 **	0.139 0.056 **	0.102 0.063	0.021 0.065	-0.067 0.072	-0.139 0.082 *	-0.310 0.100 ***
HH has worker(s) in Construction	-0.082 0.017 ***	0.149 0.036 ***	0.013 0.031	-0.064 0.028 ***	-0.107 0.027 ***	-0.138 0.026 ***	-0.183 0.026 ***	-0.225 0.028 ***	-0.208 0.034 ***	-0.183 0.043 ***
HH has worker(s) in Trade	-0.021 0.013	0.178 0.024 ***	0.109 0.020 ***	0.046 0.019 **	0.002 0.019	-0.038 0.019 **	-0.066 0.020 ***	-0.105 0.023 ***	-0.155 0.028 ***	-0.242 0.037 ***
HH has worker(s) in Tourism	-0.060 0.022 ***	0.168 0.042 ***	0.027 0.037	0.027 0.035	-0.035 0.035	-0.079 0.034 ***	-0.104 0.038 **	-0.152 0.041 ***	-0.190 0.051 ***	-0.262 0.061 ***
HH has worker(s) in Transport & Telecom	-0.028 0.014 **	0.105 0.029 ***	0.067 0.023 ***	0.024 0.022	-0.019 0.021	-0.077 0.021 ***	-0.094 0.022 ***	-0.113 0.024 ***	-0.138 0.029 ***	-0.136 0.039 **
HH has worker(s) in Finance	0.059 0.028 **	0.132 0.029 ***	0.115 0.029 ***	0.081 0.032 **	0.060 0.034 *	0.078 0.038 ***	0.060 0.045	0.071 0.055 *	-0.007 0.073	0.022 0.111
HH has worker(s) in Real Estate	0.121 0.047 ***	0.242 0.037 ***	0.194 0.048 ***	0.172 0.053 ***	0.183 0.055 ***	0.209 0.061 ***	0.288 0.071 ***	0.166 0.094 *	0.124 0.132	-0.065 0.190
HH has worker(s) in Defense	-0.029 0.012 **	0.194 0.023 ***	0.121 0.019 ***	0.061 0.018 **	0.002 0.017	-0.048 0.017 ***	-0.100 0.018 ***	-0.167 0.020 ***	-0.216 0.025 ***	-0.236 0.034 ***
HH has worker(s) in Education	-0.036 0.014 **	0.149 0.025 ***	0.097 0.020 ***	0.053 0.020 ***	0.019 0.020	-0.032 0.021	-0.076 0.022 ***	-0.122 0.025 ***	-0.176 0.031 ***	-0.274 0.042 ***
HH has worker(s) in Health	0.009 0.019	0.111 0.033 ***	0.117 0.026 ***	0.079 0.027 ***	0.057 0.028 **	-0.001 0.029	-0.039 0.032	-0.063 0.036 *	-0.082 0.044 *	-0.132 0.058 **
HH has worker(s) in Social Services	-0.057 0.053	0.239 0.079 **	0.064 0.086	0.021 0.089	0.045 0.089	-0.022 0.084	-0.132 0.086	-0.200 0.092 **	-0.251 0.102 **	-0.206 0.145
HH has worker(s) in Family Services	0.386 0.027 ***	0.065 0.024 ***	0.056 0.022 **	0.068 0.022 **	0.070 0.024 ***	0.130 0.025 ***	0.223 0.029 ***	0.466 0.035 ***	0.770 0.056 ***	1.182 0.111 ***
<i>Access to Services</i>										
HH access to Sewage Network	0.025 0.012 **	-0.070 0.022 ***	-0.045 0.019 **	-0.015 0.018	0.008 0.018	0.010 0.018	0.033 0.019 *	0.046 0.021 **	0.047 0.025 *	0.120 0.032 ***
Distance to Public Health Facility	2.99E-06 2.10E-06	9.74E-07 4.63E-06	3.51E-06 3.50E-06	-3.06E-06 3.21E-06	-4.51E-06 3.06E-06	-4.40E-06 3.01E-06	2.21E-06 3.10E-06	4.65E-06 3.31E-06	8.03E-06 3.87E-06	1.20E-05 4.80E-06 ***
Distance to Private Health Facility	8.62E-06 1.66E-06 ***	9.29E-06 3.38E-06 ***	7.92E-06 2.72E-06 ***	1.15E-05 2.57E-06 ***	1.03E-05 2.50E-06 ***	9.41E-06 2.47E-06 **	8.66E-06 2.59E-06 **	1.04E-05 2.82E-06 ***	7.70E-06 3.25E-06 **	3.53E-06 3.90E-06
Distance to Public Education Facility	2.24E-05 1.01E-05 **	-5.57E-05 2.23E-05 **	-5.27E-05 1.67E-05 ***	-5.84E-05 1.54E-05 ***	-1.00E-05 1.51E-05	9.56E-06 1.49E-05	3.56E-05 1.53E-05 **	7.52E-05 1.59E-05 ***	1.17E-04 1.91E-05 ***	1.68E-04 2.23E-05 ***
Distance to Private Education Facility	-6.78E-06 1.58E-06 ***	-6.92E-06 3.35E-06 **	-7.42E-06 2.59E-06 ***	-7.96E-06 2.42E-06 ***	-6.33E-06 2.38E-06 ***	-5.42E-06 2.36E-06 ***	-7.05E-06 2.48E-06 ***	-9.69E-06 2.64E-06 ***	-6.43E-06 3.06E-06 **	-3.29E-06 3.69E-06
Distance to Public University	-7.37E-06 1.29E-06 ***	-1.09E-05 2.62E-06 ***	-8.31E-06 2.12E-06	-7.50E-06 2.04E-06 ***	-6.89E-06 2.00E-06 ***	-9.42E-06 1.98E-06 ***	-8.29E-06 2.07E-06 ***	-7.68E-06 2.24E-06 **	-9.27E-06 2.69E-06 **	-4.11E-06 3.14E-06
Distance to Private University	-8.26E-06 1.92E-06 **	2.64E-06 4.07E-06	-5.16E-06 3.20E-06	-9.48E-06 3.02E-06 ***	-7.73E-06 2.97E-06 ***	-7.11E-06 2.93E-06 **	-9.60E-06 3.05E-06	-1.29E-05 3.30E-06 ***	-1.40E-05 4.09E-06 ***	-1.64E-05 4.57E-06 **
Constant	8.030 0.045 ***	7.264 0.091 ***	7.585 0.071 ***	7.840 0.066 ***	7.900 0.064 ***	8.058 0.064 ***	8.149 0.067 ***	8.331 0.074 ***	8.542 0.092 ***	8.668 0.113 ***
Observations	11223	11223	11223	11223	11223	11223	11223	11223	11223	11223
R-squared/Pseudo R-squared	0.582	0.196	0.273	0.325	0.366	0.390	0.395	0.390	0.358	0.282
F-statistic	257	31	81	146	222	269	260	218	123	41

Significance Level: *10%, **5%, and ***1%

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