the review of income and wealth

Review of Income and Wealth
Series 64, Number S1, October 2018
DOI: 10.1111/roiw.12396

INTER-GROUP EXPENDITURE GAPS IN THE ARAB REGION AND THEIR DETERMINANTS: APPLICATION TO EGYPT, JORDAN, PALESTINE AND TUNISIA

by Racha Ramadan*

Faculty of Economics and Political Science-Cairo University

Vladimir Hlasny

Ewha Womans University

And

Vito Intini

United Nations Department of Economic and Social Affairs

Economic inequality across socio-demographic groups in the Arab region is high and growing. This paper evaluates the differentials in household expenditures across rural/urban areas, female/male-headed households, non-educated/educated-headed households and non-employed/employed-headed households, in ten Household Income and Expenditure surveys from four Arab countries: Egypt (2008, 2010 and 2012), Jordan (2006 and 2010), Palestine (2007, 2010 and 2011) and Tunisia (2005 and 2010). Unconditional quantile regressions are used to analyze the differentials across the population distribution and to decompose them by source. Results show that Egypt and Tunisia exhibit relatively high expenditure gaps across rural/urban and non-educated/educated groups. Expenditure gaps in Jordan and Palestine and those across non-employed/employed and female/male headed households are more moderate. Overall, education and the return to it, geographic location and household composition play an important role in bringing about, as well as reducing, economic inequality across social groups.

JEL Codes: D31, D63, N35

Keywords: Arab region, blinder-oaxaca decomposition, economic inequality, unconditional quantile regression

1. Introduction

Inequality has many dimensions, including monetary and non-monetary ones. Among the former, income and wealth inequalities are highly contentious issues in the socioeconomic literature, particularly in light of the recent Sustainable Development agenda and development in inequality literature (Piketty, 2014). However, some level of inequality is unavoidable and even desirable as, to some extent, it reflects different levels of people's effort and talent. But inequality of

Note: The views expressed herein are those of the author(s) and do not reflect the views of the United Nations.

*Correspondence to: Racha Ramadan, Economics Department, Faculty of Economics and Political Science, Cairo University (racha.ramadan@feps.edu.eg).

outcomes is also connected to inequality of opportunity and people's perception of both of them, which is highly context-specific as it depends on many social, economic, political and psychological aspects, and which in turn is influenced by who people regard as their reference group (Verme *et al.*, 2014).

Over the past two decades, Arab countries have made important achievements concerning poverty and hunger reduction, and early-life opportunities including reduction of child and maternal malnutrition and an increase in school enrollment (World Bank, 2015a; Hlasny, 2017). Based on the Gini index, it is also widely perceived that overall inequality in the region—often measured in terms of consumption expenditures—is relatively low (Page, 2007). However, the 2010s saw uprisings and political instability in a number of Arab countries apparently linked to perceptions of economic deprivation, inequality and social injustice (Verme, 2014, 2014) in what has been termed the "*Arab inequality puzzle*" (World Bank, 2015a).

The Arab inequality puzzle may in part be explained by inter-group inequality between selected demographic groups. As stated by Iqbal (2012), "Deepening inter-group inequality, mainly worsening income distribution, has a greater likelihood of encouraging revolts against ruling predatory elites." Inter-group inequalities between rural/urban areas and cross-regions have been recognized as significant aspects of inequality in the region (Bibi and Nabli, 2010; Boutayeb and Helmert, 2011; Belhaj Hassine, 2014). Gender inequality is another important dimension of inequality in the region, with consequences for poverty and growth (Kanbur, 2013; Al Azzawi, 2015). Disparity and inequality can also be identified between groups with different socio-economic characteristics; such as income, education and employment (Fields, 1979; Heshmati, 2004; Boutayeb and Helmer, 2011; Weide and Milanovic, 2014). However, existing evidence is scanty and inconclusive with respect to inter-group comparisons for vulnerable demographic groups including the non-employed or non-educated, since methodological issues make such comparisons more difficult.

Despite this inconclusiveness, recent drops in public employment, combined with structural adjustment programs implemented over the last three decades, stagnating oil price, and the increasing restrictions imposed by Europe and Gulf Cooperation Council countries on migration flows originating from the region, send premonitory signals concerning a likely increase in inequality in countries set to be more affected by these trends. Moreover, persisting inter-group inequality patterns are found in childhood development indicators and international education test scores across Arab countries when compared to other developing countries (Hashemi and Intini, 2015; Hlasny and Intini, 2015a; Peragine *et al.*, 2015; Hlasny, 2017). These trends carry the risk of transmitting inequality further to the labor market and other swathes of Arab societies by means of high inequality of opportunity.

With significant unemployment rate and limited youth and women's opportunities, Arab countries still have a long path toward achieving social justice and prosperity. At the same time, economic growth and economic equality have been the key mottos in the drive toward social justice (Azour, 2014; Tessler *et al.*, 2015). Rising inequality of opportunity over the past decade and popular demand for more social justice had likely contributed to the uprisings (AfDB, 2012; Durante *et al.*, 2013 and Gatwand *et al.*, 2015). Hence, studying inequality between different socioeconomic groups and its determinants is highly relevant for the development

agenda and the stability of the Arab countries, and for our understanding of recent trends and future prospects. Determining if the inter-group inequality is caused by the endowments of various groups or by the returns to such endowments is required to draw policy implications.

The paper aims to fill an important void in the literature by measuring inequalities between various demographic groups and points on the consumption expenditure distribution across four Arab countries over time. The paper attempts to answer the following questions: Does the low overall level of inequality in these four countries hide more serious income inequalities between various demographic groups? What are the main dimensions of inequality—type of residence, or education or employment status of household heads? What are the determinants of inter-group inequalities—differential endowments of marketable characteristics between the groups, or differential returns to their endowments—and do these vary in importance across the expenditure distribution? Finally, how do inter-group inequalities and the driving forces behind them evolve over time?

The closest study to our undertaking is by Belhaj Hassine (2014), who used unconditional quantile regressions (UQR) to decompose rural/urban and non-metropolitan/metropolitan inequality in 12 Arab countries by source. UQR is used to decompose expenditure differentials at each wealth quantile into portions due to endowment differentials and those due to differentials in returns, and to evaluate trends in the inequalities and their sources across different wealth quantiles, countries and years. In the absence of definitive information regarding relevant reference groups, this paper will follow standard economic categories to partition the countries' societies in order to assess between-group inequality and its underlying structure and determinants in four Arab countries: Egypt (2008, 2010, 2012 and 2015), Jordan (2006, 2010 and 2013), Palestine (2007, 2010 and 2011) and Tunisia (2005 and 2010). The paper explores the differentials in total household expenditure per capita across rural/urban areas, female/male-headed households, non-educated/educated headed households and non-employed/employed-headed households. To explain the between-group expenditure gaps, differentials in endowments of household characteristics and in returns to these endowments are identified across the groups.

Our study advances Belhaj Hassine's analysis in several respects. First, we use an updated set of household surveys including two recent Palestinian, two Jordanian, and two Egyptian surveys following the public uprising in the country. Using these additional data sources, we comment on the socio-economic conditions in the countries at the onset and during the period of regional instability.

As our second contribution, we focus on additional dimensions of inequality suggested in existing literature as important drivers of inequality and social discontent. Beside rural/urban expenditure gaps, we study expenditure gaps across households with female versus male, non-educated versus educated, and non-employed versus employed heads. The choice of these dimensions is based on a standard classification of economic categories, and on the presumed key characteristics of disadvantaged and marginalized households. Poor and marginalized households are highly concentrated in rural areas, and more likely to have a female head. They also tend to have a less educated household head with a higher propensity to be

employed—often in inferior, informal, undercompensated jobs—in order to provide for their family.

As a third contribution, we perform various robustness tests of the options regarding the exact delineation of the educated versus the non-educated, and the employed versus the non-employed; regarding the appropriate adult-equivalence scales; regarding currency conversion rates; and regarding decomposition at the median versus the mean. Fourth, we explore the counterintuitive findings regarding the effect of gender and employment status on expenditure gaps. Finally, our study tells a different story than Belhaj Hassine. She studied static inequality in food, nondurable and total expenditures across the Arab region, while we emphasize evolution of inequality in the region in years leading up to the Arab uprisings, and years after the turmoil subsided.

The paper is organized as follows. The first section reviews the literature of inequality measurement in the Arab region. Section two describes the model. Section three presents our data. Estimation results and robustness checks are reported in sections four and five. Finally, section six concludes with a discussion of main lessons and their implications for policymaking.

2. Literature Review

Income distribution has an important role in the interplay between growth and poverty. This is not only a fairness and social-justice concern but also a problem for countries' development. According to Son and Kakwani (2004), initial levels of economic development and income inequality can significantly influence the extent to which economic growth reduces poverty. The literature about growth, inequality and poverty is rich but inconclusive. One branch suggests that high inequality may yield high economic growth through a higher propensity for saving and investment of the rich and through incentives it provides for innovation and entrepreneurship. Another branch provides evidence of a negative impact of inequality on growth. This negative relationship stems from a negative effect of deprivation on human capital of the poor, erosion of productivity, socio-political instability and outbreaks of conflict that may reduce investment (Boutayeb and Helmet, 2011; Ncube and Anyanwu, 2012; Bagchi and Svejnar, 2013; and UN-ESCWA, 2015). The relationship between inequality and growth may be non-linear (Ostry *et al.*, 2014). Above a certain threshold, inequality may undermine good-quality growth and poverty alleviation efforts (Chambers and Krause, 2010; Berg and Ostry, 2011). According to various United Nations organizations (ECA *et al.*, 2012), high inequality hampers economic growth and increases government costs of ensuring minimum levels of security.

The uprisings and political instability in the early 2010s shed light on reports of economic deprivation and rising income inequality in the Arab countries rather than on the countries' high level of growth. The Arab region is characterized by high and volatile economic growth that is not pro-poor. This growth is driven significantly by oil revenues. Inequality in economic distribution produces a disconnect between countries' economic growth and the wellbeing of their poor. However, this inequality is not well reflected in standard measures of aggregate inequality

such as the Gini coefficient. The Gini—which has been decreasing or stagnating in Arab countries during the past decade—does not account well for inequalities at the extreme ends of wealth and income distributions (Hlasny and Intini, 2015b). It also does not account explicitly for inequalities between different groups based on characteristics such as gender, region or education and employment status.

The low level of inequality in the Arab region reflected by low values of the Gini index may hide severe regional and inter-group inequalities (Salehi-Isfahani *et al.*, 2012; Belhaj Hassine, 2014). Inter-group inequality is particularly worrisome as it may yield intergenerational transmission of inequality, poverty traps for entire social groups, social polarization, tension and political instability (Stewart and Langer, 2007; Kabeer, 2010; UNDP, 2013). In fact, findings from micro-level data do not systematically point in the same direction, and paint a more complex picture of the extent and form of inequality across households. According to Bibi and Nabli (2010), country-level inequality trends in the region were mixed, and the lack of reliable data made it difficult to measure inequality accurately. Alvaredo and Piketty (2014) reached a similar conclusion but maintained that income inequality was relatively high in the region. Belhaj Hassine (2014) identified a complex profile of intergroup inequality using a recently harmonized set of household expenditure surveys. Proper measurement, understanding and eradication of inter-group inequalities are thus priorities for regional scholars and policymakers especially amid the flux following the Arab uprisings. Decomposing of inequality is relevant for the distribution measures and social protection policies needed to attenuate inequality (Bibi and El-Lahga, 2010).

Methodological literature provides a variety of approaches to decompose inequality. A well-established approach consists of decomposing inequality measures such as the Generalized Entropy (GE(α)) indices into the part that is due to inequality within groups and the part that is due to differences between groups (World Bank, 2005; Government of Jordan, UNICEF and UNDP, 2015). The most well-known decomposable entropy measures are Theil's T (GE(1)) and Theil's L (GE(0), or mean log deviation) indices. Using such measures allows us to put a figure on the relative importance of within-group and between-group inequality in the four Arab countries (Bibi and Nabli, 2009, 2010).

Existing evidence is mixed. Using the 1997 and 2002 Jordanian national household surveys, and several alternative measures of inequality, Shahateet (2006) identified serious regional differences in the level of economic inequality and its trend over time, and called for a more space-balanced approach to tackling inequality. On the other hand, El-Laithy *et al.* (2003) performed the Theil index decomposition on micro-level Egyptian data from 1995/1996 and 1999/2000. They found that 87 and 82 percent, respectively, of inequality at the national level could be explained by within-region disparities, while the rest could be attributed to disparities across regions. Similarly, Said (2007) used the Theil index decomposition to study the distributional pattern of real hourly wage in Egypt from 1988 to 2006. Using three nation-wide surveys (the 1988 Labor Force Survey, and the 1998 and 2006 Labor Market Panel Surveys), Said (2007) evaluated between-group gaps based on education (8 groups), occupation status (9 groups) and industry (14 groups). She found that within-group inequality played an important role in overall inequality.

Another approach is based on the commonly known regression-based Blinder-Oaxaca decomposition. This method helps to explain the distribution of the outcome variable of interest based on regression analysis of a set of explanatory variables that change with the socioeconomic status of the population. This method decomposes the gap in the means of the outcome variable between two groups (for instance, men and women) into the part that is explained by the group difference in the level of the explanatory variable considered (the x or so-called explained component), and the potentially different effect that this explanatory variable might have on the respective groups (the β or so-called unexplained component). Said and El-Hamidi (2005) explored the changes in the distribution of returns to education and gender wage premia in Egypt and Morocco using joint models of educational choice and wage determination. Using Blinder-Oaxaca decompositions of sector and gender wage gaps, and controlling for education, experience and regional indicators, they found that the unexplained component in public sector wage premia and in gender gaps—or the differentials in returns—have declined in Egypt, but substantially increased in Morocco over the 1990s. Biltagy (2014) examined the determinants of the gender wage gap in Egypt by applying the Blinder-Oaxaca decomposition to the 2006 wave of the Egyptian Labor Market Panel Survey (ELMPS 2006). She found that the female/male wage gap is 25 percent and that the gap can, for the most part, be attributed to discrimination against women.

One drawback of the standard Blinder-Oaxaca decomposition is that it only estimates the mean effect of a given variable on the gap in socioeconomic outcomes. In fact, the effects of covariates can differ along the income/expenditure/wage distribution—per-capita annual household expenditure here. Indeed, various methods have been developed over the last two decades to allow the Oaxaca approach to be used across the full distribution of the outcome variable. By doing so, these methods help measure the different impacts that explanatory variables have on the outcome variable at different quantiles of the distribution.

An alternative method that allows estimation of the impact of explanatory variables at different points on the welfare-aggregate distribution is the unconditional (or marginal) quantile regression (UQR) technique proposed by Firpo *et al.* (2009) and Fortin *et al.* (2010), and evaluated by Fournier and Koske (2012/1). The UQR technique estimates the impacts of explanatory variables on individual quantiles of the unconditional distribution of an outcome variable. It measures how the whole distribution, not only the mean, of the outcome variable will be affected by changes in explanatory variables. Using this approach, the expenditure differential between any two social groups at any quantile of the expenditure distribution can be decomposed into two effects: the *endowment* effect and the *returns* effect. The endowment effect is the "explained" part of the differential associated with the difference in values of household characteristics between the two groups, such as education levels, employment status, location, etc. The returns effect is the "unexplained" part of the differential interpreted as the effect of the differential returns to individual characteristics between the two social groups, computed at values of characteristics possessed by the advantaged group (Ndoye, 2015).

This approach allows us to identify the gaps across the entire expenditure distribution between any two groups, such as rural/urban, female/male, non-educated/

educated, or non-employed/employed, and to attribute the gap to the *endowment* or the *returns* effects of individual household characteristics. This approach has not been utilized adequately in decomposing inequality in Arab countries because it is a parametric and hence data-intensive approach, and relies heavily on high quality micro-data that have historically been scant in the region. To our knowledge, only Belhaj Hassine (2014) used the approach to study the determinants of inequality across 12 Arab countries. Belhaj Hassine decomposed inequality in households' expenditures on food and non-durables as well as total expenditures between households with rural/urban residence, and households with non-metropolitan/metropolitan residence. Using rural/urban decomposition, she found that the endowment effects dominate the returns effects and that both effects are larger at higher quantiles in most countries. Decomposition of non-metropolitan/metropolitan inequality revealed different patterns in the endowment and returns effects across Arab countries. Belhaj Hassine found that human capital and community characteristics are the most important factors responsible for the gaps between the rural/urban middle class and better-off households.

3. Methodology

Our approach consists of modeling the Recentered Influence Function (RIF) of a given welfare statistic of interest as a function of explanatory variables in order to estimate the impact of these variables on the unconditional (marginal) distribution of the welfare variable (Firpo *et al.*, 2007). Conditional expectation of the RIF will be modeled as a linear function of regressors as follows:

$$E\left[RIF\left(y,Q_\theta\right)/X\right]=X\beta+\varepsilon \tag{1}$$

where

$$RIF(y;Q_\theta/X)=q_\theta+IF(y,q_\theta).$$

$RIF\left(y,Q_\theta\right)$ is the recentered influence function of the θ^{th} quantile of y estimated by computing the sample quantile Q_θ and the density at that point by the Kernel method. q_θ is the population θ^{th} quantile of the unconditional distribution of the variable of interest y and $IF(y,q_\theta)$ is the influence function. In case of the mean, the RIF regression becomes the standard regression, as RIF will be simply the value of the outcome variable. In the case of distribution quantiles, the RIF regression is equivalent to the Unconditional Quantile Regression (UQR).

Here y is the household's annual expenditure per capita—the ratio of the total annual household expenditure to household size—in logarithmic form. X is a matrix of regressors. In general, inter-group inequality is thought to be driven by differences in households' human capital, socio-demographic characteristics and geographic location, so these characteristics are evaluated as main determinants explaining the expenditure differentials between demographic groups. The matrix of regressors X can be divided into five groups. The first group consists of household-head characteristics including age, age squared, gender and marital status.

The second group consists of binary indicators for the education level of the head (illiterate/no education—benchmark; primary to lower secondary; secondary; post-secondary through post-graduate). The third group includes binary indicators for the employment status (employee; employer; self-employed; other) and the employment sector (government; public; private; foreign/cooperative; other/missing) of the household head. The fourth group consists of household characteristics including household size, and the ratio of those below 14 years and those above 65 years of age in the household. Finally, the fifth group includes geographic location and rural/urban residence type indicators. The coefficients β in equation (1) can be estimated using the ordinary least squares (OLS) regression.

The RIF regression allows us to decompose the welfare gap between any two groups at various quantiles of the unconditional distribution of the welfare aggregate into two parts: the difference in households' endowments of characteristics—such as age, education, employment of the head, or geographic location—and the difference in the returns to these characteristics. The first part can be viewed as the part of inequality *explained* by various household characteristics, also known as the endowment effect. The second part can be viewed as *unexplained*, attributable to discrimination, inefficiency or segmentation in the market for human capital, known as the returns effect.

After estimating the RIF equation, the predicted values for the θ^{th} unconditional quantile will be used to decompose the expenditure gaps between the two groups of interest. The gaps are decomposed into the endowment and returns effects as follows:

$$\hat{Q}_\theta^i - \hat{Q}_\theta^j = \left\{ \hat{Q}_\theta^i - \hat{Q}_\theta^* \right\} + \left\{ \hat{Q}_\theta^* - \hat{Q}_\theta^j \right\}$$

$$= \left(\bar{X}^i - \bar{X}^j \right) \hat{\beta}_\theta^i + \bar{X}^j \left(\hat{\beta}_\theta^i - \hat{\beta}_\theta^j \right) \tag{2}$$

where *i*/*j* pairs represent the different groups for which we measure the welfare gap. In our case we analyze the expenditure differentials for each of the following pairs: rural/urban residence, female/male head, non-educated/educated head, non-employed/employed head. $\hat{Q}_\theta^i$ is the θ^{th} unconditional quantile of log annual expenditure per capita for group i (rural households, or households with female, non-educated, or non-employed heads). X is the vector of the means of covariates and $\hat{\beta}_\theta^i$ is the estimate of the unconditional quantile partial effects in group i. $\hat{Q}_\theta^* = X^j \hat{\beta}^i$ is the θ^{th} quantile of the unconditional counterfactual distribution that would have prevailed for group j if they received group i's returns to their characteristics.

The first term in equation (2), $\left(\bar{X}^i - \bar{X}^j \right) \hat{\beta}_\theta^i$, is the endowment effect. It is the contribution of the differences in the distributions of household characteristics to

inequality at the θ^{th} unconditional quantile. The second term, $\bar{X}^{j}\left(\hat{\beta}_{\theta}^{i}-\hat{\beta}_{\theta}^{j}\right)$, is the returns effect—the inequality due to the differences in the returns to household characteristics at the θ^{th} unconditional quantile (Firpo *et al.*, 2009; Firpo *et al.*, 2010).

4. Data

Inequality analysis in this paper is based on 12 harmonized household surveys from four Arab countries: Egypt, Jordan, Palestine and Tunisia. These are high quality, well-documented surveys that have been used successfully in a number of existing studies (Hlasny and Intini, 2015b; Jemmali, 2016; Abid *et al.*, 2016; Ammara and Jemmali, 2017; Hlasny and Verme, 2017; Kraft *et al.*, 2017). The provider of these data, Economic Research Forum (ERF), harmonized these surveys by standardizing all household characteristics and flow variables such as expenditure and income components according to their conceptual content, coding structure, and international standard definitions and classifications.

We are able to use multiple survey waves for all of the included countries. This allows us to follow the evolution of expenditures and of inequality over time and in the case of Egypt before and after the uprisings. For Egypt, we use the Household Income, Expenditure and Consumption Surveys (HIECS) for 2008/2009, 2010/2011, 2012/2013 and 2014/2015. For Jordan, three rounds of the Household Expenditure and Income Survey (HEIS) are used—the 2006, 2010 and 2013 waves. For Palestine, three waves of the Palestine Expenditure and Consumption Surveys (PECS), for 2007, 2010 and 2011, are available. And for Tunisia, the 2005 and 2010 rounds of the National Survey on Household Budget, Consumption and Standard of Living (EBCNV) are used. In the following regressions, the surveys are used one by one as cross-sectional samples.

The 12 datasets differ in their sample size, as well as in the levels and distribution of the included variables (table A1 in the Appendix). Annual total household expenditure per capita, the welfare aggregate of interest and a proxy for income in this study, is subject to particular differences across surveys. Refer to table A2 in the Appendix. From 2008 to 2015, average total expenditure per capita in Egypt increased by 44 percent (from 1,425 to 2,052, in 2005 international dollars PPP; UNSD, 2015). At the same time, there was a decrease in mean expenditure on food at the onset of the Arab Spring, before it started increasing again in 2012/2013. The increase in total expenditure was accompanied by a decrease in the average share of food in total expenditure, or Engel coefficient, from 49 percent in 2008 to 40 percent in 2015.

In Jordan, average total expenditure per capita increased by 21 percent during 2006–2013 (from $2,500 to $3,025). Food expenditure rose by 25 percent (from $762 to $955). Share of food in total expenditure surprisingly increased even as households' purchasing power improved, from 33 percent to 36 percent during 2006–2010, then decreased again by 2013 to 33 percent. In Palestine, both total household expenditure and food expenditure increased from 2007 to 2011 by 28 percent and 27 percent (from $3,759 to $4,826, and from $1,123 to $1,422), respectively. Share of food expenditure in total expenditure decreased from 35 percent in

2007 to 34 percent in 2011. In Tunisia, average total expenditure increased by 28 percent during 2005–2010 (from $2,601 to $3,332). At the same time, food expenditure rose by only 11 percent (from $906 to $1,005), making its share in average total expenditure slide from 41 percent to 34 percent.[1]

To study inequality in household expenditures between various demographic groups, we split households according to several standard economic categories: their residence in rural versus urban areas, and the employment status, education level and gender of the heads of households. In Palestinian surveys, the binary split of households into rural versus urban areas results in the omission of up to 900 households (21 percent of the sample) residing in refugee camps. With regard to education, we distinguish household heads who have completed no education or who are illiterate, against those with any educational achievement. In the Tunisian 2005 and 2010 surveys, information on educational achievement is missing for a substantial number of households. We impute education status for some of them using information on the ownership of computers connected to the internet, employment sector, or education of the spouse.[2] With regard to employment status, we distinguish household heads who are currently employed against those who are unemployed or currently not seeking work (i.e. out of formal labor force). These specifications of education and employment status are selected in view of conceptual considerations regarding important cutoffs in the variables, and the variables' empirical distributions.

4.1. *Characterization of Expenditure Quantiles*

We proceed by evaluating household characteristics and outcomes across different expenditure strata of the survey samples. Refer to table A3 in the Appendix. Dividing households according to their total expenditure per capita into five distinct groups (expenditure quintiles), we find that expenditures per capita vary significantly between the wealthiest and the poorest households, and the wealthiest and poorest groups contribute very different portions to aggregate expenditures.

Among our sample of surveys, Palestine (2007) and Tunisia (2008) had a higher degree of inequality between the richest one-fifth and the poorest one-fifth of households than other surveys, since the aggregate-expenditure share of the 5th

[1]As a byproduct, summary statistics such as these serve to inform of any systematic differences across national surveys and their waves. In particular, the three Palestinian waves appear comparable to one another, representative of the same population, and reflecting on socio-economic developments in the territory during 2007–2011 rather than on survey-administration challenges and changes in the sampling frame. This helps to alleviate concerns over the effect of the Israeli-Palestinian conflict and the 2006-2007 Gaza blockade on survey sampling quality. Similarly, the results for Egypt 2010 versus 2012 appear to reflect on socio-economic conditions in the country rather than on deteriorating sampling quality amidst the popular uprising. Documentation for the Egyptian and Palestinian surveys does not discuss any survey-administration challenges related to conflict.

[2]Imputation of missing values using a proxy variable affects coefficient standard errors. Because a single proxy variable with similar variance is used here, and because bootstrapping of the regression routine cannot be combined with sampling weights, bootstrapping would unduly affect standard errors on all coefficients. Regular standard errors are thus reported. These should be viewed as only approximate. The comparison of figures A12(c) and A18 in the appendix shows that this approximation is in fact quite accurate.

quintile (47.6 percent and 48.0 percent, respectively) was approximately eight times as high as the share of the 1st quintile (6.1 percent and 5.9 percent). In the following years, this ratio fell to 6.70 in Palestine in 2011, and to 7.20 in Tunisia in 2010.

In the 2008 and 2010 waves of the Egyptian data, the aggregate-expenditure share of the 5th quintile (41 percent) was 4.5-times as high as the aggregate-expenditure share of the 1st quintile (9 percent). In 2012 the ratio of aggregate-expenditure shares in Egypt declined to 4.15, a slight decrease in inequality between the poorest and the richest households. Such improvement can be explained by policy reforms implemented following the political instability of 2011, including increases in subsidy budgets and in public sector wages. However, by 2015 this ratio rose again to reach a value of 4.5. In Jordan, the aggregate-expenditure share of the 5th quintile to the share of the 1st quintile was 5.8 in both waves 2006 and 2010. In 2013, the share of aggregate expenditure of the poorest quintile increased while the share of the richest quintile decreased, leading to a decrease in the ratio of shares between the two quintiles to 5.2.

Repeating the analysis at the level of deciles, the same patterns emerge. Table A4 in the Appendix presents the shares of aggregate expenditure by population decile. For instance, Egypt saw the distribution of expenditures systematically narrowing during 2008–2012 with some reversal during 2012–2015. The share of total expenditure received by the poorest decile increased from 3.88 percent to 4.10 percent in 2012 (3.99 percent in 2015) while the share of the richest 10 percent decreased from 27.14 percent to 25.86 percent in 2012 (27.35 percent in 2015). In Palestine, the aggregate-expenditure share of the poorest 10 percent increased from 2.39 percent in 2007 to 2.76 percent in 2011, while the expenditure share of the richest 10 percent decreased from 31.85 percent to 30.15 percent.

Households' characteristics also differ markedly across the expenditure quintiles. For instance, in Egypt, more than 70 percent of the lowest quintile households live in rural areas, while over 60 percent of the richest quintile live in urban areas. This concentration of the poor in rural areas motivates the common labeling of rural areas as poverty pockets. Regarding the education level and employment status of household heads, only 32 percent of households in the poorest quintile in Egypt had an educated head in 2008. This rate increased over the years to 46 percent in 2015, compared to 67 percent in the highest expenditure quintile in 2015. With respect to household heads' employment status, the situation is conceptually and empirically different. Heads of poor households cannot afford staying out of labor force, and often accept underemployment or informal jobs with low wages. Hence, in Egypt, around 82 percent of household heads in the poorest quintile were employed in 2015 compared to only 56 percent in the richest quintile.[3] Refer to table A5 in the Appendix.

These patterns are common across the countries included in this study. The poorest households are much more likely to live in rural areas. In Jordan and Palestine, over two-thirds of poor households have educated heads, while in Egypt, only 32–46 percent of poor household heads are educated. Over time we observe a

[3]Statistical measurement issues probably contribute to this low employment rate in the highest quintile. Household heads in the richest quintile have a wider range of options for being economically active, may misreport their employment status, or may fail to respond to household survey, particularly when they are economically active.

decline in the disparity between the lowest and highest expenditure quintiles in terms of urbanization and education. On the other hand, in terms of gender and employment status of household heads, the prevalent pattern is that of divergence, with stagnating employment status among the poor and declining employment among the richest households.[4] A similar analysis at the level of expenditure-decile groups is reported in table A6 in the Appendix. In most countries, similarly to the findings for expenditure quintiles, the poor households are disproportionally concentrated in rural areas, with no education, especially in Egypt and Tunisia, and a high propensity to be employed. The disparity in urbanization and education rates between the poorest and richest households is falling over time, while the disparity in employment rates and gender of household heads is growing.

4.2. *Measures of Inequality*

For a different measure of inequality in expenditures, table A7 in the Appendix reports Gini coefficients estimated for total expenditure per capita and food expenditure per capita across the national surveys. In general, these Ginis are modest across the evaluated countries, and are typically further falling over time. In Egypt from 2008 to 2012, inequality in both total expenditure and food expenditure, as measured by the Gini, decreased from 31.3 to 29.6 and from 25.8 to 24.9, respectively. However, the Gini index for total expenditure per capita increased again in 2015 to reach 31.33. In Palestine, the Gini for total expenditure per capita similarly decreased during 2007–2011 from 40.8 to 38.4, while the food expenditure per capita Gini decreased from 33.4 to 31.5. In Tunisia, the total expenditure Gini fell from 41.4 to 38.5, and the food expenditure Gini fell from 33.3 to 32.3. The only exception to this trend is the estimated inequality in food expenditure per capita in Jordan, where the Ginis rose slightly from 33.2 in 2006 to 33.4 in 2010–2011. During the same period, the Gini for total expenditure per capita in Jordan decreased noticeably from 35.8 to 33.1.

In all surveys, total-expenditure inequality is higher in urban areas than in rural ones. The same results are evident for the food expenditure Gini, where inequality in food expenditure is also higher in urban areas (with the exception of Tunisia). Inequality in both total expenditures and food expenditures is higher among households with non-employed heads rather than employed heads. This is true across the vast majority of surveys, except Palestine 2007 and Tunisia 2005. Total inequality is lower among households with non-educated heads rather than educated heads (except for Jordan 2013, Palestine 2010 and 2011). In Jordan and

[4]In Palestine the demographic distribution is different because of the continuing Israeli-Palestinian conflict and the presence of refugees. These differences are worth noting. In 2007 households in both the poorest and the richest quintiles were concentrated in urban areas, with urbanization rates of 55 percent and 71 percent, respectively. The remaining households in the poorest quintile were distributed evenly between rural areas and refugee camps, while only 7 percent of the richest quintile lived in refugee camps. By 2011, the share of rich households living in refugee camps increased to 16 percent, while the share of poorest households living in refugee camps remained at the 2007 level of 24 percent. The share of households with an educated head is nearly the same for the poorest and highest quintiles with 78 percent and 80 percent, respectively, in 2007. These shares increased by 2011 to 80 percent and 81 percent for the lowest and highest quintiles, respectively. As in Egypt, status as employed is more prevalent in the poorest quintile (81 percent in 2011) than in the richest quintile (71 percent in 2011).

Tunisia in 2010, total expenditure Gini is nearly the same between households with educated heads and those with non-educated heads.

With respect to household heads' gender, inequality in both total expenditures and food expenditures is overwhelmingly higher among female-headed households across the 12 surveys. The single exception is Palestine 2007. These results indicate remarkable consistency of socio-economic trends across expenditure quantiles, and across the vast majority of surveys. We also find great heterogeneity among households with female heads, with some female-headed households presumably benefiting from substantial remittances from husbands or relatives residing away from their families, while other female-headed households more vulnerable and more likely to fall into poverty and be affected by inequality. The inter-group analysis illustrates that the profile of inequality differs somewhat based on which dimension we are tackling: total expenditure or food expenditure. Distinct demographic groups also experience a different extent of inequality. Moreover, interestingly, residence in rural/urban areas, education and employment status have different bearing on the degree of inequality experienced by the respective demographic groups.

Another inequality measure that can be used to decompose inequality into between-group and within-group components is the Theil index. Table A8 in the appendix shows that more than 80 percent of total inequality across surveys is attributable to within-group inequality, while the between-group inequality contributes no more than 15 percent.

These trends in survey data can be contrasted with those in the countries' national-accounts data to gauge how representative they are of real conditions in the respective economies. In Egypt and Jordan, during 2000–2013, GDP per capita rose by 37 percent from 7,811 to 10,732 and by 48 percent from 7,695 to 11,407 constant 2011 international dollars, respectively (figure A1 in the Appendix). In Tunisia, GDP per capita increased by 44 percent from 7,455 to 10,768 during the same period. In Palestine, on the other hand, GDP per capita rose by only 7 percent, from 4,206 to 4,484.

These increases in GDP per capita did not translate directly to changes in poverty. According to national poverty lines, poverty rate in Egypt rose from 19.6 percent in 2005 to 27.8 percent in 2015, and in Jordan, it rose from 13.0 percent in 2006 to 14.4 percent in 2010. In Palestine, on the contrary, poverty rate fell significantly from 35.5 percent in 2003 to 25.8 percent in 2011 even as GDP per capita stagnated. Finally, Tunisian poverty rate fell considerably during 2005–2010. Moreover, even these heterogeneous trends mask significant differences in poverty rates and their trends across rural and urban areas. In Egypt as of 2011, poverty rates were twice as high in rural areas as in urban areas. That compares to three times as high in 2005 and 2009. In Jordan as of 2010, and in Palestine as of 2003, rural poverty rate was 20 percent higher than the urban rate. In the following years in Palestine, poverty declined across all regions, but particularly in rural areas, where it fell to 75 percent of the urban poverty rate (table A9 in the Appendix).

Some caveats should be borne in mind here. The first reason for caution is that the coverage of household surveys is typically incomplete or inaccurate at the top tail (Hlasny and Intini, 2015b). This is an issue when measuring inequality in consumption expenditures since their surveys tend to understate true living standards at the top tail due to potentially irregular patterns in consumption

smoothing effects and difficulty in measuring expenditures on durables. However, using the top quintile or decile of households for the analysis rather than only the top 5 percent or 1 percent greatly mitigates these risks. Another reason for caution is the potential endogeneity of covariates. It cannot be excluded *a priori* that some covariates are correlated with the error term—such as employment sector or family composition—and in this context it is difficult to identify appropriate instrumental variables to tackle this problem. However, while we may not identify the precise causal contribution of these covariates, we expect the potential bias to be greatly mitigated by our controlling for households' other socio-economic circumstances, and we expect the estimated effects of our key explanatory variables to be robust. Indeed, robustness tests on the specification of the employment sector, household composition and other covariates have little bearing on the estimated endowment and returns effects (for instance, refer to figure A15). The decomposition model is valid and robust to minor data issues. In future analyses, panel data will be of great help to address the potential shortfalls.

5. Estimation Results

Results of the RIF regressions for individual expenditure deciles in the 12 household surveys are presented in Tables 1–16.[5] In this country-by-country decomposition of inequality, household expenditures per capita are standardized by differentials in costs of living across national regions, to render the results better representative of households' true consumption and welfare, and more policy relevant (Deaton and Zaidi, 2002; Krafft *et al.*, 2017).[6]

The discussion of results is divided into four subsections: the total inter-group expenditure gap in the four countries is discussed first. The second subsection discusses the endowment and the returns effects and their contribution to the total expenditure gaps. The third subsection reports on the main socio-economic determinants of the inter-group expenditure gaps. Finally, the evolution of the inter-groups gaps over time is presented in subsection 5.4.

[5]The analysis is conducted using software Stata 13 and the *oaxaca* (Jann, 2008) and *rifreg* (Firpo *et al.*, 2009) automatic do-file programs. Beside Egypt, Jordan, Palestine and Tunisia, the analysis was also performed on the 2009 Sudanese National Baseline Household Survey. These results are reported in table A11 and figure A17 in the appendix, but are removed from the main text to preserve space.

[6]This normalization is not used in cross-country comparisons, because there is presently no reliable consistently collected regional cost data for all of the considered countries and years. In within-country inequality decompositions, for survey waves where it was possible, we normalized expenditure figures by regional poverty lines. For surveys where regional poverty lines were unavailable, regionally-adjusted consumer price index (CPI) was used – namely Jordan and Palestine. Poverty lines and CPI are not exactly comparable for several reasons: poverty lines are based on only selected commodities, and take into account differing average regional household compositions. Regional poverty lines and CPIs are taken from various sources: Egypt 2008 and 2010—from Institute of National Planning, Egypt (2010; see also Sabry, 2009); Egypt 2012—from CAPMAS (2013); Jordan 2005 and 2010—from World Bank (2009) and Department of Statistics, Jordan (2015); Palestine 2007–2011—from PCBS (2017a and 2017b; see also UNRWA 2009); Tunisia 2005 and 2010—from National Institute of Statistics, Tunisia (2012).

Reflecting this heterogeneity in the available regional cost adjustments across countries, Belhaj Hassine (2014) corrected for regional price differences only in 5 out of 12 countries (Egypt, Iraq, Lebanon, Syria and Palestine), using region-level CPI.

TABLE 1
QUANTILE DECOMPOSITION FOR EGYPT (2008–2010–2012–2015) BY RURAL/URBAN HOUSEHOLDS

		2008			2010			2012			2015		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.218***	−0.310***	−0.476***	−0.197***	−0.296***	−0.410***	−0.114***	−0.175***	−0.278***	−0.186***	−0.196***	−0.410***
		(0.009)	(0.007)	(0.016)	(0.017)	(0.013)	(0.027)	(0.015)	(0.012)	(0.028)	(0.012)	(0.010)	(0.022)
	Endowment	−0.198***	−0.334***	−1.257***	−0.200***	−0.347***	−1.382***	−0.193***	−0.317***	−1.342***	−0.094***	−0.090***	−0.105***
		(0.012)	(0.008)	(0.018)	(0.021)	(0.015)	(0.035)	(0.020)	(0.014)	(0.035)	(0.015)	(0.012)	(0.021)
	Returns	−0.020	0.024**	0.781***	0.003	0.052***	0.972***	0.080***	0.142***	1.063***	−0.091***	−0.106***	−0.305***
		(0.014)	(0.009)	(0.021)	(0.025)	(0.017)	(0.038)	(0.023)	(0.016)	(0.040)	(0.018)	(0.013)	(0.028)
Endowment Effects (Explained)	Head char	0.002	−0.001	−0.003**	−0.005	−0.003	−0.002	−0.002	−0.003	−0.016***	−0.004	−0.007***	−0.019***
		(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)	(0.004)
	Head edu	−0.027***	−0.041***	−0.068***	−0.032***	−0.036***	−0.063***	−0.027***	−0.030***	−0.058***	−0.027***	−0.038***	−0.066***
		(0.004)	(0.003)	(0.004)	(0.006)	(0.004)	(0.007)	(0.005)	(0.004)	(0.007)	(0.004)	(0.003)	(0.006)
	Head empl	0.011***	0.003	−0.003	0.015**	0.006	0.006	0.010	−0.003	−0.007	−0.007	−0.014***	−0.004
		(0.004)	(0.003)	(0.004)	(0.006)	(0.004)	(0.007)	(0.006)	(0.004)	(0.008)	(0.004)	(0.003)	(0.005)
	Hh comp	−0.060***	−0.070***	−0.094***	−0.049***	−0.063***	−0.075***	−0.054***	−0.058***	−0.081***	−0.065***	−0.075***	−0.077***
		(0.003)	(0.003)	(0.005)	(0.005)	(0.005)	(0.009)	(0.005)	(0.005)	(0.008)	(0.004)	(0.004)	(0.008)
	Geo.location	−0.124***	−0.225***	−1.088***	−0.130***	−0.251***	−1.248***	−0.121***	−0.223***	−1.179***	0.009	0.043***	0.061***
		(0.011)	(0.007)	(0.017)	(0.020)	(0.014)	(0.033)	(0.018)	(0.012)	(0.033)	(0.014)	(0.010)	(0.018)
Returns Effects (Unexplained)	Head char	−0.536***	−0.097	−0.496**	0.191	−0.139	−0.464	−0.573***	−0.251	0.194	−0.091	−0.013	0.155
		(0.129)	(0.093)	(0.209)	(0.221)	(0.152)	(0.333)	(0.218)	(0.159)	(0.391)	(0.172)	(0.131)	(0.313)
	Head edu	−0.094***	−0.127***	−0.237***	−0.017	−0.097***	−0.221***	−0.059***	−0.089***	−0.270***	−0.020	−0.047***	−0.221***
		(0.012)	(0.009)	(0.020)	(0.024)	(0.016)	(0.036)	(0.022)	(0.016)	(0.039)	(0.018)	(0.014)	(0.033)
	Head empl	0.005	−0.010	−0.009	−0.010	−0.038	−0.016	0.001	−0.029	−0.010	−0.039	−0.015	−0.063
		(0.024)	(0.017)	(0.037)	(0.041)	(0.028)	(0.060)	(0.039)	(0.028)	(0.065)	(0.027)	(0.020)	(0.047)
	Hh comp	0.175***	0.238***	0.080	0.363***	0.244***	−0.066	0.144**	0.251***	0.128	0.176***	0.176***	0.009
		(0.045)	(0.032)	(0.068)	(0.076)	(0.052)	(0.112)	(0.069)	(0.049)	(0.118)	(0.053)	(0.041)	(0.097)
	Geo.location	−0.076***	−0.144***	−0.864***	−0.054**	−0.131***	−0.890***	−0.129***	−0.183***	−1.037***	0.016	0.051***	0.142***
		(0.012)	(0.008)	(0.019)	(0.021)	(0.014)	(0.033)	(0.020)	(0.014)	(0.036)	(0.014)	(0.011)	(0.023)
	Constant	0.506***	0.164*	2.308***	−0.470**	0.213	2.629***	0.695***	0.443***	2.059***	−0.134	−0.258*	−0.328
		(0.136)	(0.098)	(0.218)	(0.232)	(0.159)	(0.349)	(0.227)	(0.165)	(0.404)	(0.182)	(0.139)	(0.330)
	Observations		23,415			7,713			7,525			11,988	

Notes: Computed by the authors using HIECS 2008/09, 2010/11, 2012/13 and 2015 (OAMDI, 2014a, 2014b, 2014c,2014a, 2014b, 2014c,2014a, 2014b, 2014c, 2017b). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 2
QUANTILE DECOMPOSITION FOR JORDAN (2006–2010–2013) BY RURAL/URBAN HOUSEHOLDS

		Jordan 2006			Jordan 2010			Jordan 2013		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.097***	−0.147***	−0.325***	−0.007	−0.118***	−0.315***	−0.084***	−0.092***	−0.266***
		(0.036)	(0.034)	(0.052)	(0.029)	(0.028)	(0.053)	(0.024)	(0.018)	(0.028)
	Endowment	−0.127***	−0.170***	−0.248***	−0.077***	−0.067**	−0.155***	−0.113***	−0.060***	−0.099***
		(0.037)	(0.036)	(0.054)	(0.027)	(0.027)	(0.049)	(0.022)	(0.015)	(0.024)
	Returns	0.030	0.023	−0.077	0.070*	−0.052	−0.160***	0.029	−0.031	−0.167***
		(0.049)	(0.042)	(0.068)	(0.036)	(0.033)	(0.062)	(0.029)	(0.020)	(0.033)
Endowment Effects (Explained)	Head char	−0.004	−0.010	−0.013	−0.001	−0.008	−0.030**	−0.002	0.001	0.002
		(0.006)	(0.008)	(0.015)	(0.006)	(0.006)	(0.015)	(0.003)	(0.003)	(0.003)
	Head edu	−0.026*	−0.069***	−0.103***	−0.040***	−0.064***	−0.067***	−0.048***	−0.055***	−0.072***
		(0.015)	(0.015)	(0.024)	(0.012)	(0.013)	(0.020)	(0.011)	(0.008)	(0.012)
	Head empl	−0.003	0.019	0.009	−0.007	0.011	0.021	0.003	−0.002	−0.004
		(0.014)	(0.013)	(0.020)	(0.013)	(0.011)	(0.021)	(0.008)	(0.006)	(0.009)
	Hh comp	−0.045***	−0.102***	−0.085***	−0.016	−0.042***	−0.095***	−0.040***	−0.033***	−0.030**
		(0.014)	(0.019)	(0.024)	(0.015)	(0.016)	(0.028)	(0.011)	(0.009)	(0.013)
	Geo.location	−0.049*	−0.008	−0.056	−0.014	0.035**	0.017	−0.027**	0.028***	0.006
		(0.027)	(0.023)	(0.038)	(0.017)	(0.016)	(0.029)	(0.014)	(0.009)	(0.015)
Returns Effects (Unexplained)	Head char	−0.145	1.076**	0.809	−0.406	−0.063	3.036***	1.075***	0.559**	0.845*
		(0.563)	(0.463)	(0.761)	(0.489)	(0.442)	(0.843)	(0.375)	(0.263)	(0.435)
	Head edu	−0.164*	0.049	0.044	−0.095	0.003	−0.018	0.027	0.022	−0.101
		(0.085)	(0.070)	(0.114)	(0.065)	(0.058)	(0.111)	(0.060)	(0.043)	(0.070)
	Head empl	−0.024	0.131***	0.082	0.018	0.019	0.103	−0.033	0.002	−0.060
		(0.058)	(0.047)	(0.078)	(0.044)	(0.040)	(0.075)	(0.036)	(0.026)	(0.042)
	Hh comp	0.394	−0.030	0.145	0.205	0.060	−0.051	−0.009	0.202**	−0.501***
		(0.263)	(0.218)	(0.357)	(0.172)	(0.155)	(0.296)	(0.131)	(0.092)	(0.152)
	Geo.location	−0.029	0.006	−0.010	−0.015	0.038**	0.080**	−0.041***	0.022**	0.030*
		(0.023)	(0.019)	(0.032)	(0.018)	(0.017)	(0.032)	(0.015)	(0.011)	(0.017)
	Constant	−0.002	−1.209**	−1.149	0.363	−0.108	−3.311***	−0.990**	−0.838***	−0.380
		(0.593)	(0.488)	(0.802)	(0.491)	(0.444)	(0.847)	(0.389)	(0.272)	(0.450)
	Observations		2,897			2,845			4,850	

Source: Computed by the authors using Jordanian HEIS 2006, 2010/11 and 2013 (OAMDI, 2014d; ERF & DOS, 2013; OAMDI, 2017a). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 3
QUANTILE DECOMPOSITION FOR PALESTINE (2007–2010–2011) BY RURAL/URBAN HOUSEHOLDS

		2007			2010			2011		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.206**	0.070	−0.276***	0.125***	0.042	−0.171***	0.270***	0.097***	−0.184***
		(0.089)	(0.051)	(0.081)	(0.040)	(0.030)	(0.062)	(0.033)	(0.026)	(0.042)
	Endowment	0.250***	0.067	0.033	0.490***	0.117***	0.028	0.320***	0.161***	0.078**
		(0.063)	(0.048)	(0.071)	(0.052)	(0.034)	(0.081)	(0.034)	(0.031)	(0.039)
	Returns	−0.044	0.003	−0.309***	−0.365***	−0.075*	−0.198**	−0.050	−0.064*	−0.262***
		(0.100)	(0.061)	(0.099)	(0.059)	(0.041)	(0.096)	(0.044)	(0.037)	(0.053)
Endowment Effects (Explained)	Head char	0.000	−0.001	0.003	0.002	0.000	0.006	−0.005	0.001	0.009*
		(0.005)	(0.005)	(0.009)	(0.003)	(0.002)	(0.008)	(0.004)	(0.003)	(0.005)
	Head edu	−0.009	−0.003	0.001	−0.014*	−0.008	−0.012	−0.013**	−0.012**	−0.007
		(0.010)	(0.012)	(0.016)	(0.007)	(0.006)	(0.012)	(0.005)	(0.005)	(0.005)
	Head empl	−0.024	−0.007	0.0561**	−0.010	−0.013	−0.005	−0.0178**	−0.003	0.002
		(0.017)	(0.013)	(0.025)	(0.013)	(0.009)	(0.024)	(0.009)	(0.008)	(0.010)
	Hh comp	−0.003	0.010	0.013	−0.009	−0.006	−0.015	0.014*	0.002	−0.009
		(0.018)	(0.018)	(0.026)	(0.007)	(0.010)	(0.020)	(0.007)	(0.010)	(0.013)
	Geo.location	0.286***	0.068	−0.040	0.521***	0.144***	0.054	0.343***	0.172***	0.083**
		(0.060)	(0.043)	(0.064)	(0.050)	(0.032)	(0.076)	(0.034)	(0.030)	(0.038)
Returns Effects (Unexplained)	Head char	0.713	1.086	−0.096	0.326	−0.453	1.285	−0.674	−0.430	0.438
		(1.316)	(0.674)	(1.151)	(0.630)	(0.457)	(1.013)	(0.529)	(0.407)	(0.673)
	Head edu	−0.438**	0.041	−0.214	−0.153	−0.099	−0.007	−0.006	−0.025	−0.232**
		(0.212)	(0.113)	(0.190)	(0.097)	(0.070)	(0.156)	(0.079)	(0.060)	(0.101)
	Head empl	0.133	−0.017	0.106	−0.174	−0.153*	0.330*	0.150*	0.063	0.001
		(0.250)	(0.139)	(0.230)	(0.114)	(0.082)	(0.186)	(0.084)	(0.064)	(0.106)
	Hh comp	0.764	0.439	−0.160	0.166	0.410**	−0.066	0.370*	−0.057	1.031***
		(0.689)	(0.351)	(0.600)	(0.250)	(0.180)	(0.404)	(0.211)	(0.164)	(0.267)
	Geo.location	0.088	−0.282***	−0.433***	0.655***	−0.055	−0.183	0.317***	0.034	−0.133*
		(0.132)	(0.081)	(0.130)	(0.081)	(0.056)	(0.132)	(0.058)	(0.049)	(0.071)
	Constant	−1.304	−1.264*	0.488	−1.186*	0.275	−1.558	−0.207	0.351	−1.366*
		(1.472)	(0.743)	(1.276)	(0.661)	(0.478)	(1.064)	(0.554)	(0.429)	(0.703)
	Observations		1,029			3,227			3,413	

Notes: Computed by the authors using PECS 2007, 2010 and 2011 (OAMDI, 2014e,f,g). Standard errors computed using the delta method in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 4
QUANTILE DECOMPOSITION FOR TUNISIA (2005–2010) BY RURAL/URBAN HOUSEHOLDS

		2005			2010		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.197***	−0.175***	−0.276***	−0.274***	−0.185***	−0.260***
		(0.017)	(0.015)	(0.025)	(0.020)	(0.015)	(0.022)
	Endowment	−0.190***	−0.263***	−0.402***	−0.270***	−0.318***	−0.340***
		(0.020)	(0.018)	(0.030)	(0.027)	(0.019)	(0.028)
	Returns	−0.007	0.088***	0.126***	−0.004	0.132***	0.080**
		(0.025)	(0.021)	(0.036)	(0.032)	(0.022)	(0.034)
Endowment Effects (Explained)	Head char	0.005	0.006**	0.003	−0.011***	−0.003	0.001
		(0.003)	(0.003)	(0.005)	(0.004)	(0.003)	(0.004)
	Head edu	−0.029***	−0.061***	−0.162***	−0.031**	−0.071***	−0.154***
		(0.009)	(0.008)	(0.015)	(0.016)	(0.011)	(0.017)
	Head empl	−0.003	−0.009	−0.0462***	−0.007	−0.022***	−0.019**
		(0.008)	(0.007)	(0.011)	(0.008)	(0.006)	(0.008)
	Hh comp	−0.078***	−0.090***	−0.110***	−0.086***	−0.074***	−0.074***
		(0.007)	(0.007)	(0.010)	(0.008)	(0.006)	(0.008)
	Geo.location	−0.086***	−0.110***	−0.087***	−0.135***	−0.147***	−0.094***
		(0.017)	(0.014)	(0.024)	(0.022)	(0.015)	(0.022)
Returns Effects (Unexplained)	Head char	−0.379	−0.496**	−0.464	0.387	−0.578**	−0.669*
		(0.277)	(0.216)	(0.389)	(0.334)	(0.236)	(0.369)
	Head edu	−0.013	0.014	−0.050	0.190	−0.180	−0.044
		(0.051)	(0.040)	(0.072)	(0.186)	(0.130)	(0.203)
	Head empl	0.079**	0.038	0.024	0.155***	0.034	−0.031
		(0.036)	(0.029)	(0.051)	(0.040)	(0.028)	(0.043)
	Hh comp	0.108	0.078	0.105	0.003	0.190***	0.156
		(0.094)	(0.075)	(0.133)	(0.103)	(0.072)	(0.113)
	Geo.location	−0.032	−0.079**	0.047	−0.074	−0.138***	0.014
		(0.041)	(0.034)	(0.060)	(0.052)	(0.035)	(0.055)
	Constant	0.229	0.533**	0.465	−0.664	0.804***	0.653
		(0.304)	(0.239)	(0.427)	(0.405)	(0.286)	(0.447)
	Observations		12,305			11,278	

Notes: Computed by the authors using Tunisian EBCNV 2005 and 2010 (OAMDI, 2014c; OAMDI 2014d). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 5
QUANTILE DECOMPOSITION FOR EGYPT (2008–2010–2012–2015) BY FEMALE/MALE HOUSEHOLD HEAD

		2008			2010			2012			2015		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.036***	0.069***	0.167***	0.063***	0.061***	0.163***	−0.004	0.071***	0.132***	0.047**	0.091***	0.238***
		(0.013)	(0.011)	(0.026)	(0.018)	(0.019)	(0.039)	(0.021)	(0.017)	(0.039)	(0.018)	(0.015)	(0.033)
	Endowment	−0.121***	−0.077***	−0.123**	−0.133**	0.028	−0.192*	−0.087*	−0.008	0.086	−0.108**	0.068*	−0.080
		(0.032)	(0.024)	(0.061)	(0.053)	(0.050)	(0.116)	(0.051)	(0.036)	(0.091)	(0.045)	(0.035)	(0.080)
	Returns	0.157***	0.145***	0.291***	0.195***	0.033	0.355***	0.083	0.080**	0.046	0.155***	0.023	0.317***
		(0.033)	(0.025)	(0.063)	(0.055)	(0.051)	(0.119)	(0.053)	(0.037)	(0.095)	(0.046)	(0.036)	(0.084)
Endowment Effects (Explained)	Head char	−0.095***	−0.095***	−0.129***	−0.083***	−0.014	−0.061	−0.087**	−0.054**	−0.027	−0.150***	−0.006	−0.041
		(0.024)	(0.018)	(0.045)	(0.032)	(0.030)	(0.070)	(0.038)	(0.026)	(0.067)	(0.036)	(0.027)	(0.064)
	Head edu	−0.025***	−0.082***	−0.186***	−0.035**	−0.082***	−0.189***	−0.055***	−0.083***	−0.212***	−0.026**	−0.088***	−0.222***
		(0.009)	(0.007)	(0.017)	(0.014)	(0.013)	(0.031)	(0.014)	(0.010)	(0.027)	(0.010)	(0.009)	(0.022)
	Head empl	−0.021	0.037**	0.068*	−0.041	0.038	−0.050	−0.049	0.000	0.153***	−0.043	0.027	−0.004
		(0.021)	(0.015)	(0.039)	(0.041)	(0.038)	(0.089)	(0.033)	(0.023)	(0.059)	(0.027)	(0.020)	(0.048)
	Hh comp	0.045***	0.083***	0.143***	0.045***	0.098***	0.105***	0.130***	0.146***	0.183***	0.124***	0.143***	0.188***
		(0.006)	(0.006)	(0.013)	(0.009)	(0.011)	(0.019)	(0.016)	(0.012)	(0.028)	(0.013)	(0.011)	(0.021)
	Geo.location	−0.025***	−0.020***	−0.020**	−0.019***	−0.012*	0.003	−0.025***	−0.018***	−0.011	−0.013***	−0.009***	−0.001
		(0.004)	(0.003)	(0.010)	(0.005)	(0.006)	(0.013)	(0.006)	(0.004)	(0.011)	(0.005)	(0.003)	(0.004)
Returns Effects (Unexplained)	Head char	−0.089	0.264*	0.800**	0.224	−0.253	1.173**	0.367	−0.042	−0.136	−0.043	−0.079	0.682
		(0.181)	(0.135)	(0.340)	(0.251)	(0.227)	(0.536)	(0.301)	(0.209)	(0.542)	(0.258)	(0.198)	(0.464)
	Head edu	−0.044***	0.038***	0.144***	−0.007	0.036	0.171***	0.020	0.060***	0.218***	−0.051**	0.041**	0.225***
		(0.017)	(0.012)	(0.031)	(0.027)	(0.024)	(0.057)	(0.029)	(0.020)	(0.052)	(0.025)	(0.019)	(0.046)
	Head empl	−0.033	−0.102***	−0.115*	−0.015	−0.083*	0.021	−0.014	−0.043	−0.229**	0.026	−0.067**	0.032
		(0.032)	(0.023)	(0.059)	(0.053)	(0.048)	(0.113)	(0.051)	(0.036)	(0.092)	(0.039)	(0.030)	(0.070)
	Hh comp	−0.003	−0.055	0.090	0.106	−0.052	0.292**	−0.168**	−0.204***	0.300**	−0.157**	−0.109**	0.181
		(0.049)	(0.036)	(0.091)	(0.068)	(0.059)	(0.141)	(0.081)	(0.057)	(0.147)	(0.062)	(0.047)	(0.111)
	Geo.location	0.010	0.007	−0.026	0.070**	−0.003	0.166***	−0.005	0.050**	0.126**	−0.020	0.046**	0.042
		(0.022)	(0.016)	(0.041)	(0.029)	(0.026)	(0.062)	(0.035)	(0.024)	(0.062)	(0.027)	(0.021)	(0.049)
	Constant	0.315*	−0.007	−0.602*	−0.183	0.388	−1.467***	−0.119	0.258	−0.233	0.400	0.190	−0.844*
		(0.187)	(0.139)	(0.351)	(0.263)	(0.237)	(0.560)	(0.310)	(0.216)	(0.560)	(0.265)	(0.203)	(0.477)
	Observations		23,428			7,713			7,525			11,988	

Notes: Computed using HIECS 2008/09, 2010/11, 2012/13 and 2015 (OAMDI, 2014a, 2014b, 2014c,2014a, 2014b, 2014c,2014a, 2014b, 2014c, 2017b). Standard errors computed in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 6
QUANTILE DECOMPOSITION FOR JORDAN (2006–2010–2013) BY FEMALE/MALE HOUSEHOLD HEAD

		Jordan 2006			Jordan 2010			Jordan 2013		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.084*	0.302***	0.272***	0.015	0.176***	0.311***	−0.025	0.082***	0.257***
		(0.051)	(0.078)	(0.079)	(0.043)	(0.040)	(0.076)	(0.044)	(0.031)	(0.048)
	Endowment	−0.004	−0.188	−0.188	0.485***	0.061	−0.422	−0.197	0.034	0.065
		(0.237)	(0.348)	(0.355)	(0.144)	(0.125)	(0.259)	(0.162)	(0.118)	(0.206)
	Returns	0.088	0.490	0.460	−0.470***	0.115	0.733***	0.172	0.049	0.192
		(0.241)	(0.351)	(0.361)	(0.147)	(0.127)	(0.266)	(0.162)	(0.119)	(0.208)
Endowment Effects (Explained)	Head char	−0.080	−0.107	0.224	−0.006	−0.215***	−0.366**	−0.252***	−0.199***	−0.324***
		(0.120)	(0.176)	(0.181)	(0.079)	(0.069)	(0.144)	(0.072)	(0.053)	(0.093)
	Head edu	−0.111**	−0.358***	−0.390***	−0.091***	−0.118***	−0.177***	−0.054*	−0.082***	−0.198***
		(0.049)	(0.075)	(0.077)	(0.033)	(0.030)	(0.060)	(0.029)	(0.022)	(0.039)
	Head empl	−0.059	−0.070	−0.111	0.379***	0.105	−0.088	−0.165	−0.006	0.311*
		(0.222)	(0.323)	(0.332)	(0.117)	(0.102)	(0.212)	(0.141)	(0.103)	(0.181)
	Hh comp	0.239***	0.347***	0.081	0.203***	0.287***	0.216***	0.271***	0.320***	0.274***
		(0.068)	(0.099)	(0.100)	(0.047)	(0.043)	(0.082)	(0.047)	(0.033)	(0.051)
	Geo.location	0.009	0.000	0.008	−0.001	0.002	−0.007	0.002	0.001	0.002
		(0.007)	(0.013)	(0.010)	(0.007)	(0.007)	(0.015)	(0.003)	(0.002)	(0.003)
Returns Effects (Unexplained)	Head char	−1.438	1.435	−0.834	0.407	−1.231*	0.115	−0.399	−0.040	1.401*
		(1.147)	(1.638)	(1.713)	(0.764)	(0.658)	(1.378)	(0.643)	(0.474)	(0.831)
	Head edu	−0.046	0.480***	0.468***	−0.037	0.026	0.019	−0.167**	−0.062	0.157
		(0.106)	(0.146)	(0.158)	(0.082)	(0.070)	(0.147)	(0.077)	(0.057)	(0.100)
	Head empl	−0.013	0.062	0.063	−0.506***	−0.145	0.079	0.099	−0.066	−0.407**
		(0.230)	(0.334)	(0.344)	(0.127)	(0.110)	(0.230)	(0.147)	(0.107)	(0.189)
	Hh comp	0.137	−0.681**	0.382	−0.269	−0.193	0.992***	−0.451***	−0.227**	0.423**
		(0.254)	(0.327)	(0.376)	(0.185)	(0.158)	(0.332)	(0.140)	(0.105)	(0.183)
	Geo.location	−0.120	−0.027	−0.295	0.035	−0.047	−0.408**	−0.105	−0.084	−0.026
		(0.145)	(0.205)	(0.217)	(0.106)	(0.091)	(0.191)	(0.089)	(0.065)	(0.115)
	Constant	1.568	−0.779	0.676	−0.100	1.705**	−0.064	1.195*	0.527	−1.356
		(1.239)	(1.769)	(1.850)	(0.801)	(0.691)	(1.446)	(0.681)	(0.502)	(0.880)
	Observations		2,897			2,845			4,850	

Notes: Computed by the authors using Jordanian HEIS 2006, 2010/11 and 2013 (OAMDI, 2014d; ERF & DOS, 2013; OAMDI, 2017a). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 7
QUANTILE DECOMPOSITION FOR PALESTINE (2007–2010–2011) BY FEMALE/MALE HOUSEHOLD HEAD

		2007			2010			2011		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.343***	0.203***	0.409*	0.073	0.142**	0.216***	0.093***	0.095***	0.247***
		(0.084)	(0.056)	(0.244)	(0.065)	(0.056)	(0.083)	(0.035)	(0.035)	(0.064)
	Endowment	0.072	0.404***	−0.672	0.637***	0.307*	0.551**	0.235***	0.303***	0.061
		(0.206)	(0.133)	(0.657)	(0.202)	(0.163)	(0.264)	(0.076)	(0.082)	(0.168)
	Returns	0.272	−0.201	1.080	−0.564***	−0.165	−0.335	−0.143*	−0.208**	0.186
		(0.213)	(0.137)	(0.668)	(0.209)	(0.167)	(0.273)	(0.079)	(0.085)	(0.176)
Endowment Effects (Explained)	Head char	0.060	0.317***	0.770	0.214	−0.005	0.164	0.122*	0.166**	0.195
		(0.180)	(0.116)	(0.574)	(0.179)	(0.142)	(0.232)	(0.069)	(0.075)	(0.157)
	Head edu	−0.168***	−0.047	−0.501***	0.078	−0.032	−0.080	−0.034*	−0.015	−0.176***
		(0.061)	(0.035)	(0.192)	(0.055)	(0.044)	(0.072)	(0.021)	(0.022)	(0.048)
	Head empl	−0.056	−0.020	−1.253***	0.017	0.057	0.241*	−0.039	0.000	−0.083
		(0.128)	(0.081)	(0.410)	(0.097)	(0.077)	(0.126)	(0.042)	(0.045)	(0.094)
	Hh comp	0.230***	0.149***	0.254	0.331***	0.270***	0.222**	0.189***	0.142***	0.106*
		(0.080)	(0.054)	(0.234)	(0.073)	(0.059)	(0.092)	(0.030)	(0.032)	(0.058)
	Geo.location	0.006	0.004	0.059	−0.004	0.017	0.004	−0.003	0.009	0.019
		(0.017)	(0.007)	(0.062)	(0.013)	(0.018)	(0.020)	(0.003)	(0.007)	(0.012)
Returns Effects (Unexplained)	Head char	−1.310	−1.453*	2.291	−1.996*	−0.069	−2.377	0.752	1.798***	2.563**
		(1.322)	(0.827)	(3.792)	(1.210)	(0.964)	(1.597)	(0.591)	(0.585)	(1.212)
	Head edu	0.363**	−0.020	1.211**	−0.590***	−0.077	−0.101	−0.171**	−0.176***	0.253*
		(0.178)	(0.109)	(0.476)	(0.134)	(0.107)	(0.179)	(0.073)	(0.068)	(0.139)
	Head empl	0.022	−0.053	1.555***	−0.149	−0.173	−0.354*	0.000	−0.072	0.057
		(0.204)	(0.125)	(0.538)	(0.141)	(0.112)	(0.188)	(0.076)	(0.070)	(0.144)
	Hh comp	0.212	0.553**	2.496**	−0.286	−0.114	1.456***	−0.081	0.199	1.402***
		(0.445)	(0.265)	(1.029)	(0.247)	(0.196)	(0.339)	(0.156)	(0.127)	(0.257)
	Geo.location	−0.216	−0.370***	−0.508	−0.188**	0.072	−0.008	−0.378***	−0.0816*	−0.082
		(0.135)	(0.085)	(0.387)	(0.093)	(0.074)	(0.123)	(0.045)	(0.044)	(0.091)
	Constant	1.201	1.143	−5.964	2.645**	0.195	1.049	−0.266	−1.876***	−4.006***
		(1.419)	(0.884)	(4.014)	(1.274)	(1.015)	(1.682)	(0.624)	(0.620)	(1.284)
	Observations		1,231			3,757			4,317	

Notes: Computed by the authors using PECS 2007, 2010 and 2011 (OAMDI, 2014e, 2014f, 2014g,f,g). Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 8
QUANTILE DECOMPOSITION FOR TUNISIA (2005–2010) BY FEMALE/MALE HOUSEHOLD HEAD

		2005			2010		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.036	0.069***	0.088***	−0.111***	0.001	0.087***
		(0.025)	(0.019)	(0.032)	(0.029)	(0.023)	(0.033)
	Endowment	0.055	0.017	−0.178**	0.194***	−0.029	−0.246***
		(0.059)	(0.044)	(0.076)	(0.074)	(0.058)	(0.085)
	Returns	−0.019	0.053	0.267***	−0.305***	0.030	0.334***
		(0.063)	(0.046)	(0.081)	(0.077)	(0.060)	(0.088)
Endowment Effects (Explained)	Head char	−0.069	−0.099***	−0.249***	0.083	−0.160***	−0.227***
		(0.045)	(0.033)	(0.058)	(0.054)	(0.042)	(0.062)
	Head edu	−0.033**	−0.085***	−0.190***	−0.004	−0.038**	−0.154***
		(0.016)	(0.012)	(0.022)	(0.019)	(0.015)	(0.023)
	Head empl	0.002	0.0522**	0.126***	0.004	0.020	−0.035
		(0.032)	(0.024)	(0.041)	(0.047)	(0.037)	(0.054)
	Hh comp	0.157***	0.149***	0.141***	0.148***	0.175***	0.177***
		(0.017)	(0.013)	(0.020)	(0.020)	(0.016)	(0.022)
	Geo.location	−0.002	0.000	−0.008	−0.037***	−0.027***	−0.007
		(0.006)	(0.005)	(0.006)	(0.008)	(0.007)	(0.009)
Returns Effects (Unexplained)	Head char	0.821**	0.609**	1.176**	0.001	0.567	1.088**
		(0.379)	(0.280)	(0.494)	(0.461)	(0.354)	(0.524)
	Head edu	0.100	0.013	0.016	0.144	0.069	0.479**
		(0.069)	(0.051)	(0.090)	(0.201)	(0.153)	(0.228)
	Head empl	0.026	−0.095**	−0.155**	0.014	0.062	0.119*
		(0.052)	(0.038)	(0.067)	(0.062)	(0.048)	(0.071)
	Hh comp	−0.162	−0.146*	0.384***	−0.325***	−0.338***	0.264**
		(0.107)	(0.078)	(0.140)	(0.118)	(0.090)	(0.134)
	Geo.location	0.001	−0.112**	−0.009	0.019	−0.161***	−0.255***
		(0.069)	(0.051)	(0.089)	(0.076)	(0.059)	(0.087)
	Constant	−0.805**	−0.217	−1.146**	−0.157	−0.169	−1.362**
		(0.401)	(0.296)	(0.523)	(0.516)	(0.394)	(0.586)
	Observations		12,305			11,278	

Notes: Computed by the authors using Tunisian EBCNV 2005 & 2010. Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 9
QUANTILE DECOMPOSITION FOR EGYPT (2008–2010–2012–2015) BY NON-EMPLOYED/EMPLOYED HOUSEHOLD HEAD

		2008			2010			2012			2015		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.034***	0.109***	0.310***	0.048***	0.118***	0.253***	−0.002	0.119***	0.299***	0.033**	0.137***	0.298***
		(0.011)	(0.010)	(0.023)	(0.018)	(0.016)	(0.037)	(0.019)	(0.015)	(0.035)	(0.016)	(0.012)	(0.025)
	Endowment	0.120***	0.160***	0.192***	0.110***	0.163***	0.155***	0.106***	0.100***	0.215***	0.188***	0.172***	0.184***
		(0.018)	(0.015)	(0.037)	(0.027)	(0.022)	(0.054)	(0.029)	(0.022)	(0.055)	(0.023)	(0.017)	(0.036)
	Returns	−0.086***	−0.052***	0.119***	−0.062**	−0.045*	0.098	−0.108***	0.019	0.084	−0.154***	−0.035*	0.114***
		(0.020)	(0.015)	(0.040)	(0.031)	(0.024)	(0.060)	(0.032)	(0.024)	(0.060)	(0.026)	(0.018)	(0.040)
Endowment Effects (Explained)	Head char	0.086***	0.093***	0.115***	0.041	0.090***	0.059	0.008	0.010	0.066	0.110***	0.080***	0.078**
		(0.019)	(0.015)	(0.039)	(0.029)	(0.023)	(0.058)	(0.030)	(0.022)	(0.057)	(0.025)	(0.018)	(0.039)
	Head edu	−0.030***	−0.064***	−0.122***	−0.046***	−0.065***	−0.104***	−0.037***	−0.062***	−0.128***	−0.038***	−0.071***	−0.125***
		(0.005)	(0.004)	(0.012)	(0.009)	(0.008)	(0.019)	(0.009)	(0.007)	(0.019)	(0.007)	(0.006)	(0.014)
	Hhd comp	0.066***	0.105***	0.100***	0.114***	0.121***	0.117***	0.144***	0.151***	0.207***	0.128***	0.171***	0.218***
		(0.010)	(0.009)	(0.021)	(0.017)	(0.014)	(0.033)	(0.019)	(0.015)	(0.036)	(0.017)	(0.013)	(0.026)
	Geo.location	−0.001	0.027***	0.099***	0.002	0.017***	0.083***	−0.010	0.001	0.070***	−0.013**	−0.008**	0.014**
		(0.004)	(0.004)	(0.009)	(0.006)	(0.005)	(0.014)	(0.006)	(0.004)	(0.012)	(0.005)	(0.003)	(0.006)
Returns Effects (Unexplained)	Head char	−0.231	−0.329***	0.166	0.299	0.139	0.500	0.338	−0.222	−0.638	0.040	−0.300*	−0.515
		(0.151)	(0.112)	(0.290)	(0.228)	(0.175)	(0.445)	(0.245)	(0.179)	(0.447)	(0.215)	(0.156)	(0.342)
	Head edu	0.002	0.055***	0.128***	0.029	0.058***	0.128***	0.012	0.056***	0.188***	0.006	0.044***	0.135***
		(0.013)	(0.010)	(0.026)	(0.023)	(0.018)	(0.045)	(0.023)	(0.017)	(0.043)	(0.021)	(0.015)	(0.033)
	Hhd comp	−0.004	−0.115***	0.251***	0.039	0.009	0.558***	−0.121	−0.106*	0.547***	−0.193***	−0.084*	0.386***
		(0.049)	(0.036)	(0.091)	(0.074)	(0.056)	(0.143)	(0.075)	(0.055)	(0.136)	(0.060)	(0.044)	(0.095)
	Geo.location	−0.005	−0.020	0.017	0.005	−0.001	0.116**	0.020	0.077***	0.009	0.032	0.029*	−0.022
		(0.018)	(0.014)	(0.036)	(0.028)	(0.022)	(0.055)	(0.029)	(0.021)	(0.053)	(0.023)	(0.017)	(0.036)
	Constant	0.152	0.356***	−0.443	−0.434*	−0.250	−1.205**	−0.356	0.214	−0.023	−0.040	0.277	0.129
		(0.165)	(0.124)	(0.320)	(0.249)	(0.191)	(0.486)	(0.265)	(0.194)	(0.485)	(0.235)	(0.171)	(0.374)
	Observations	23,428			7,719			7,525			11,988		

Notes: Computed using HIECS 2008/09, 2010/11, 2012/13 and 2015 (OAMDI, 2014a, 2014b, 2014c,2014a, 2014b, 2014c,2014a, 2014b, 2014c, 2017b). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 10
QUANTILE DECOMPOSITION FOR JORDAN (2006–2010–2013) BY NON–EMPLOYED/EMPLOYED HOUSEHOLD HEAD

		Jordan 2006			Jordan 2010			Jordan 2013		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.046	0.094***	0.178***	−0.076***	0.067**	0.155***	−0.115***	0.036*	0.139***
		(0.034)	(0.027)	(0.048)	(0.028)	(0.026)	(0.045)	(0.029)	(0.021)	(0.033)
	Endowment	0.181***	0.192***	0.176***	0.134***	0.186***	0.203***	0.094***	0.223***	0.153***
		(0.043)	(0.033)	(0.059)	(0.033)	(0.034)	(0.049)	(0.034)	(0.023)	(0.032)
	Returns	−0.227***	−0.098***	0.002	−0.210***	−0.119***	−0.048	−0.208***	−0.187***	−0.014
		(0.052)	(0.038)	(0.071)	(0.041)	(0.037)	(0.061)	(0.039)	(0.025)	(0.042)
Endowment Effects (Explained)	Head char	0.128**	0.146***	0.168**	0.073*	0.108***	0.203***	−0.072*	0.069***	0.041
		(0.055)	(0.040)	(0.075)	(0.042)	(0.039)	(0.060)	(0.042)	(0.026)	(0.041)
	Head edu	−0.062***	−0.111***	−0.142***	−0.065***	−0.101***	−0.100***	−0.060***	−0.065***	−0.079***
		(0.018)	(0.015)	(0.026)	(0.012)	(0.013)	(0.018)	(0.013)	(0.009)	(0.014)
	Hh comp	0.120***	0.165***	0.159***	0.124***	0.180***	0.098**	0.223***	0.218***	0.195***
		(0.042)	(0.032)	(0.058)	(0.029)	(0.029)	(0.042)	(0.037)	(0.023)	(0.034)
	Geo.location	−0.005	−0.008**	−0.009	0.001	−0.001	0.002	0.003	0.000	−0.004
		(0.004)	(0.004)	(0.006)	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)
Returns Effects (Unexplained)	Head char	1.738***	0.030	0.675	0.555	0.054	0.982	−0.534	0.369	0.747
		(0.656)	(0.473)	(0.914)	(0.587)	(0.483)	(0.910)	(0.458)	(0.323)	(0.592)
	Head edu	−0.067	0.117*	0.095	−0.088	0.111*	0.021	−0.110	0.072	0.158*
		(0.084)	(0.060)	(0.117)	(0.074)	(0.059)	(0.117)	(0.071)	(0.051)	(0.095)
	Hh comp	0.101	0.088	0.332	0.081	−0.082	1.295***	−0.567***	−0.248**	0.279
		(0.229)	(0.165)	(0.320)	(0.174)	(0.140)	(0.273)	(0.139)	(0.097)	(0.178)
	Geo.location	−0.123	0.057	−0.053	0.060	0.105*	−0.160	0.005	−0.037	−0.051
		(0.085)	(0.062)	(0.117)	(0.069)	(0.057)	(0.106)	(0.065)	(0.044)	(0.078)
	Constant	−1.876***	−0.391	−1.046	−0.818	−0.308	−2.186**	0.997**	−0.342	−1.147*
		(0.693)	(0.501)	(0.964)	(0.604)	(0.506)	(0.929)	(0.487)	(0.338)	(0.615)
	Observations		2,897			2,845			4,850	

Notes: Computed by the authors using Jordanian HEIS 2006, 2010/11 and 2013 (OAMDI, 2014d; ERF and DOS, 2013; OAMDI, 2017a). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 11
QUANTILE DECOMPOSITION FOR PALESTINE (2007–2010–2011) BY NON-EMPLOYED/EMPLOYED HOUSEHOLD HEAD

		2007			2010			2011		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.025	0.113	0.308***	−0.004	0.046	0.174**	0.015	0.009	0.135**
		(0.074)	(0.075)	(0.101)	(0.039)	(0.032)	(0.069)	(0.033)	(0.031)	(0.059)
	Endowment	0.132	0.259***	0.354***	0.115*	0.0932**	0.167	0.153***	0.154***	0.182**
		(0.094)	(0.097)	(0.130)	(0.059)	(0.045)	(0.110)	(0.044)	(0.044)	(0.092)
	Returns	−0.158	−0.146	−0.046	−0.118*	−0.047	0.007	−0.138***	−0.145***	−0.047
		(0.112)	(0.109)	(0.151)	(0.067)	(0.049)	(0.126)	(0.053)	(0.047)	(0.104)
Endowment Effects (Explained)	Head char	0.036	0.142	0.373**	0.092	−0.013	−0.057	−0.025	0.059	0.169
		(0.110)	(0.111)	(0.151)	(0.066)	(0.048)	(0.125)	(0.050)	(0.046)	(0.104)
	Head edu	−0.055	−0.081*	−0.221***	−0.079***	−0.053***	−0.054	−0.048***	−0.098***	−0.126***
		(0.048)	(0.048)	(0.067)	(0.020)	(0.015)	(0.037)	(0.016)	(0.016)	(0.033)
	Hhd comp	0.178**	0.220***	0.162	0.129***	0.194***	0.291***	0.231***	0.206***	0.142*
		(0.077)	(0.078)	(0.104)	(0.048)	(0.036)	(0.090)	(0.040)	(0.038)	(0.081)
	Geo.location	−0.026	−0.022	0.041	−0.027**	−0.035***	−0.012	−0.004	−0.013	−0.003
		(0.021)	(0.026)	(0.037)	(0.012)	(0.010)	(0.022)	(0.005)	(0.009)	(0.013)
Returns Effects (Unexplained)	Head char	−0.085	0.932	0.247	0.370	−0.201	−1.573	−0.536	0.184	1.794*
		(1.095)	(0.972)	(1.405)	(0.639)	(0.478)	(1.148)	(0.570)	(0.459)	(1.008)
	Head edu	−0.051	−0.063	0.423**	−0.077	−0.074	−0.109	−0.218***	0.047	0.150
		(0.162)	(0.143)	(0.207)	(0.087)	(0.065)	(0.155)	(0.075)	(0.057)	(0.124)
	Hhd comp	0.498	0.528	2.128***	−0.071	0.136	0.863**	−0.149	−0.420***	0.570*
		(0.451)	(0.379)	(0.565)	(0.208)	(0.157)	(0.366)	(0.187)	(0.141)	(0.303)
	Geo.location	−0.075	−0.019	−0.141	0.033	−0.018	0.007	−0.207***	0.002	0.023
		(0.115)	(0.107)	(0.151)	(0.052)	(0.039)	(0.095)	(0.045)	(0.037)	(0.082)
	Constant	−0.446	−1.524	−2.702*	−0.374	0.110	0.818	0.972	0.041	−2.584**
		(1.240)	(1.119)	(1.603)	(0.688)	(0.512)	(1.245)	(0.607)	(0.497)	(1.095)
	Observations	1,231			3,757			4,317		

Notes: Computed by the authors using PECS 2007, 2010 and 2011 (OAMDI, Belhaj Hassine, WPS-2014. 2014e,f,g). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 12
QUANTILE DECOMPOSITION FOR TUNISIA (2005–2010) BY NON-EMPLOYED/EMPLOYED HOUSEHOLD HEAD

		2005			2010		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	0.045**	0.057***	0.071***	0.007	0.076***	0.104***
		(0.021)	(0.014)	(0.026)	(0.021)	(0.015)	(0.022)
	Endowment	0.314***	0.151***	0.020	0.320***	0.191***	0.094***
		(0.028)	(0.018)	(0.033)	(0.028)	(0.019)	(0.027)
	Returns	−0.269***	−0.093***	0.051	−0.314***	−0.114***	0.010
		(0.033)	(0.021)	(0.039)	(0.033)	(0.023)	(0.033)
Endowment Effects (Explained)	Head char	0.160***	0.055***	0.088**	0.085***	0.068***	0.045
		(0.030)	(0.020)	(0.036)	(0.032)	(0.022)	(0.032)
	Head edu	−0.045***	−0.068***	−0.182***	−0.006	−0.036***	−0.085***
		(0.009)	(0.007)	(0.014)	(0.007)	(0.005)	(0.009)
	Hh comp	0.191***	0.162***	0.113***	0.214***	0.141***	0.113***
		(0.025)	(0.016)	(0.028)	(0.025)	(0.017)	(0.024)
	Geo.location	0.007	0.001	0.000	0.027***	0.018***	0.021***
		(0.005)	(0.003)	(0.005)	(0.006)	(0.004)	(0.004)
Returns Effects (Unexplained)	Head char	0.673**	0.363	1.203***	0.519	0.966***	0.885**
		(0.337)	(0.232)	(0.429)	(0.396)	(0.272)	(0.405)
	Head edu	0.001	0.008	0.045	−0.435**	0.068	−0.235
		(0.058)	(0.040)	(0.073)	(0.176)	(0.121)	(0.180)
	Hh comp	−0.155	−0.014	0.424***	−0.149	−0.094	0.458***
		(0.105)	(0.072)	(0.134)	(0.104)	(0.071)	(0.107)
	Geo.location	0.041	−0.042	0.013	0.019	−0.128***	0.087
		(0.054)	(0.037)	(0.068)	(0.056)	(0.039)	(0.057)
	Constant	−0.829**	−0.409	−1.633***	−0.266	−0.926***	−1.185**
		(0.367)	(0.251)	(0.464)	(0.456)	(0.314)	(0.466)
	Observations		12,305			11,278	

Notes: Computed by the authors using Tunisian EBCNV 2005 and 2010 (OAMDI, 2014c; OAMDI 2014d). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 13
QUANTILE DECOMPOSITION FOR EGYPT (2008–2010–2012–2015) BY NON-EDUCATED/EDUCATED HOUSEHOLD HEAD

		2008			2010			2012			2015		
		10^{th} pctile	50^{th} pctile	90^{th} pctile	10^{th} pctile	50^{th} pctile	90^{th} pctile	10^{th} pctile	50^{th} pctile	90^{th} pctile	10^{th} pctile	50^{th} pctile	90^{th} pctile
	Overall Gap	−0.246***	−0.277***	−0.519***	−0.195***	−0.231***	−0.444***	−0.196***	−0.197***	−0.349***	−0.181***	−0.208***	−0.351***
		(0.009)	(0.007)	(0.017)	(0.015)	(0.012)	(0.029)	(0.015)	(0.012)	(0.029)	(0.012)	(0.010)	(0.020)
	Endowment	−0.068***	−0.072***	−0.121***	−0.014	−0.037***	−0.088***	−0.031**	−0.039***	−0.064***	−0.044***	0.006	0.060***
		(0.008)	(0.006)	(0.013)	(0.014)	(0.010)	(0.023)	(0.014)	(0.010)	(0.023)	(0.012)	(0.009)	(0.016)
	Returns	−0.178***	−0.205***	−0.398***	−0.181***	−0.193***	−0.357***	−0.166***	−0.158***	−0.285***	−0.137***	−0.213***	−0.411***
		(0.011)	(0.008)	(0.019)	(0.019)	(0.013)	(0.032)	(0.019)	(0.013)	(0.033)	(0.015)	(0.011)	(0.023)
Endowment Effects (Explained)	Head char	0.027***	0.022***	0.012	0.037***	0.012*	0.005	0.014	0.011	0.011	−0.006	0.017***	0.026**
		(0.006)	(0.004)	(0.008)	(0.010)	(0.007)	(0.016)	(0.010)	(0.007)	(0.016)	(0.008)	(0.006)	(0.011)
	Head empl	−0.004	−0.007	0.005	0.000	0.009	0.008	0.008	−0.020**	−0.028	−0.015	−0.024***	−0.020
		(0.007)	(0.005)	(0.010)	(0.011)	(0.008)	(0.017)	(0.012)	(0.008)	(0.019)	(0.009)	(0.007)	(0.013)
	Hhd comp	−0.047***	−0.033***	0.001	−0.014	−0.004	0.033**	−0.010	0.007	0.046***	0.012*	0.027***	0.061***
		(0.005)	(0.004)	(0.008)	(0.009)	(0.007)	(0.014)	(0.009)	(0.007)	(0.015)	(0.007)	(0.006)	(0.011)
	Geo.location	−0.045***	−0.053***	−0.139***	−0.036***	−0.055***	−0.134***	−0.042***	−0.036***	−0.093***	−0.035***	−0.015***	−0.007
		(0.003)	(0.003)	(0.006)	(0.005)	(0.004)	(0.012)	(0.005)	(0.004)	(0.010)	(0.005)	(0.003)	(0.005)
Returns Effects (Unexplained)	Head char	−0.330***	0.052	0.161	−0.349*	−0.241	0.179	−0.009	−0.334**	0.167	−0.472***	0.017	0.567*
		(0.128)	(0.098)	(0.259)	(0.211)	(0.157)	(0.395)	(0.213)	(0.163)	(0.433)	(0.180)	(0.135)	(0.307)
	Head empl	0.016	−0.019	−0.130**	0.111**	−0.029	−0.030	−0.014	0.032	0.048	−0.011	−0.023	−0.160***
		(0.027)	(0.021)	(0.055)	(0.045)	(0.033)	(0.084)	(0.044)	(0.033)	(0.089)	(0.031)	(0.023)	(0.054)
	Hhd comp	0.124***	0.160***	0.157*	0.116	0.228***	−0.036	0.148**	0.080	0.423***	0.101*	0.056	0.109
		(0.044)	(0.033)	(0.087)	(0.071)	(0.053)	(0.134)	(0.068)	(0.052)	(0.140)	(0.053)	(0.040)	(0.094)
	Geo.location	0.019	0.082***	0.159***	0.008	0.066***	0.105**	−0.001	0.070***	0.200***	−0.017	0.054***	0.271***
		(0.014)	(0.010)	(0.025)	(0.023)	(0.017)	(0.042)	(0.023)	(0.017)	(0.045)	(0.018)	(0.013)	(0.029)
	Constant	−0.006	−0.479***	−0.745***	−0.067	−0.218	−0.574	−0.290	−0.006	−1.124**	0.262	−0.318**	−1.198***
		(0.132)	(0.100)	(0.260)	(0.216)	(0.160)	(0.400)	(0.220)	(0.167)	(0.438)	(0.189)	(0.141)	(0.317)
	Observations		23,415			7,713			7,525			11,988	

Notes: Computed using HIECS 2008/09, 2010/11, 2012/13 and 2015 (OAMDI, 2014a, 2014b, 2014c,2014a, 2014b, 2014c,2014a, 2014b, 2014c, 2017b). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 14
QUANTILE DECOMPOSITION FOR JORDAN (2006–2010–2013) BY NON-EDUCATED/EDUCATED HOUSEHOLD HEAD

		Jordan 2006			Jordan 2010			Jordan 2013		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.175***	−0.204***	−0.185***	−0.213***	−0.102***	−0.106**	−0.294***	−0.220***	−0.163***
		(0.032)	(0.031)	(0.070)	(0.044)	(0.031)	(0.051)	(0.029)	(0.026)	(0.044)
	Endowment	0.032	0.119***	0.330***	0.107**	0.165***	0.025	−0.200***	0.136***	0.225***
		(0.037)	(0.038)	(0.091)	(0.048)	(0.032)	(0.051)	(0.033)	(0.029)	(0.051)
	Returns	−0.207***	−0.324***	−0.516***	−0.320***	−0.267***	−0.131**	−0.094**	−0.356***	−0.388***
		(0.046)	(0.045)	(0.107)	(0.058)	(0.039)	(0.066)	(0.038)	(0.032)	(0.060)
Endowment Effects (Explained)	Head char	−0.074	0.060	0.241**	−0.024	0.033	0.027	−0.045	−0.021	0.043
		(0.046)	(0.046)	(0.113)	(0.060)	(0.040)	(0.066)	(0.041)	(0.035)	(0.066)
	Head empl	−0.045	−0.027	0.007	−0.144***	−0.031	−0.117**	−0.161***	0.012	−0.049
		(0.029)	(0.029)	(0.070)	(0.044)	(0.029)	(0.049)	(0.030)	(0.025)	(0.047)
	Hh comp	0.156***	0.097**	0.113	0.273***	0.167***	0.137***	0.012	0.144***	0.227***
		(0.037)	(0.038)	(0.089)	(0.048)	(0.031)	(0.049)	(0.030)	(0.027)	(0.046)
	Geo.location	−0.006	−0.011	−0.031	0.001	−0.004	−0.0221*	−0.006	0.002	0.004
		(0.008)	(0.008)	(0.020)	(0.011)	(0.007)	(0.012)	(0.007)	(0.006)	(0.011)
Returns Effects (Unexplained)	Head char	−1.880***	−0.192	−0.389	−0.408	0.198	−1.127	−0.195	−0.089	0.166
		(0.570)	(0.517)	(1.207)	(0.761)	(0.522)	(0.905)	(0.453)	(0.384)	(0.706)
	Head empl	−0.022	−0.008	−0.118	0.132*	−0.005	0.050	0.149***	−0.084**	0.012
		(0.058)	(0.053)	(0.125)	(0.075)	(0.051)	(0.088)	(0.050)	(0.043)	(0.079)
	Hh comp	0.225	0.172	0.644	−0.313	0.152	0.882***	−0.075	−0.045	−0.537***
		(0.203)	(0.179)	(0.411)	(0.226)	(0.157)	(0.275)	(0.124)	(0.104)	(0.189)
	Geo.location	−0.050	0.054	0.012	0.145	0.146**	0.136	0.015	−0.065	−0.133
		(0.077)	(0.069)	(0.161)	(0.095)	(0.066)	(0.115)	(0.059)	(0.050)	(0.091)
	Constant	1.520**	−0.349	−0.665	0.123	−0.759	−0.072	0.012	−0.073	0.105
		(0.619)	(0.568)	(1.334)	(0.814)	(0.556)	(0.960)	(0.491)	(0.416)	(0.765)
	Observations		2,897			2,845			4,850	

Notes: Computed by the authors using Jordanian HEIS 2006, 2010/11 and 2013 (OAMDI, 2014d; ERF and DOS, 2013; OAMDI, 2017a). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

TABLE 15
QUANTILE DECOMPOSITION FOR PALESTINE (2007–2010–2011) BY NON-EDUCATED/EDUCATED HOUSEHOLD HEAD

		2007			2010			2011		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.057	−0.062	−0.086	−0.234***	−0.159***	−0.194***	−0.191***	−0.187***	−0.125**
		(0.099)	(0.070)	(0.084)	(0.042)	(0.037)	(0.069)	(0.033)	(0.033)	(0.050)
	Endowment	0.073	0.452***	0.159*	0.150***	0.173***	0.204***	−0.008	0.0915**	0.087
		(0.111)	(0.078)	(0.086)	(0.047)	(0.040)	(0.076)	(0.036)	(0.038)	(0.056)
	Returns	−0.130	−0.514***	−0.245**	−0.384***	−0.332***	−0.397***	−0.183***	−0.279***	−0.212***
		(0.139)	(0.086)	(0.111)	(0.055)	(0.047)	(0.093)	(0.046)	(0.043)	(0.070)
Endowment Effects (Explained)	Head char	−0.126	0.153**	−0.102	0.103**	−0.042	−0.063	−0.013	0.016	0.055
		(0.126)	(0.078)	(0.098)	(0.045)	(0.038)	(0.077)	(0.035)	(0.033)	(0.054)
	Head empl	−0.098	0.063	0.055	−0.012	0.053	0.041	−0.031	−0.006	−0.065
		(0.085)	(0.052)	(0.064)	(0.042)	(0.035)	(0.071)	(0.033)	(0.032)	(0.051)
	Hhd comp	0.289***	0.180***	0.159**	0.002	0.109***	0.179***	0.024	0.069**	0.090*
		(0.104)	(0.065)	(0.079)	(0.035)	(0.032)	(0.062)	(0.029)	(0.031)	(0.047)
	Geo.location	0.007	0.055**	0.046*	0.057***	0.052***	0.046***	0.013*	0.012	0.005
		(0.024)	(0.024)	(0.025)	(0.016)	(0.013)	(0.017)	(0.007)	(0.008)	(0.009)
Returns Effects (Unexplained)	Head char	−2.387	1.065	−0.022	−1.456**	−0.432	−0.351	−1.312**	0.137	0.504
		(1.516)	(0.927)	(1.284)	(0.638)	(0.542)	(1.072)	(0.555)	(0.480)	(0.817)
	Head empl	−0.159	−0.209	−0.270	0.169*	−0.270***	−0.410**	−0.111	−0.096	−0.119
		(0.242)	(0.148)	(0.216)	(0.102)	(0.086)	(0.171)	(0.082)	(0.069)	(0.119)
	Hhd comp	0.075	−0.080	1.227**	0.292	−0.022	0.189	0.263	−0.135	0.874***
		(0.620)	(0.379)	(0.551)	(0.212)	(0.180)	(0.355)	(0.194)	(0.166)	(0.284)
	Geo.location	−0.021	−0.064	−0.087	0.260***	0.054	−0.007	−0.143***	−0.040	−0.021
		(0.154)	(0.094)	(0.130)	(0.055)	(0.047)	(0.093)	(0.046)	(0.040)	(0.068)
	Constant	2.362	−1.225	−1.092	0.352	0.338	0.182	1.120*	−0.145	−1.450*
		(1.704)	(1.042)	(1.433)	(0.686)	(0.584)	(1.158)	(0.587)	(0.515)	(0.870)
	Observations	1,231			3,757			4,317		

Notes: Computed by the authors using PECS 2007, 2010 and 2011 (OAMDI, 2014e, 2014f, 2014g). Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 16
QUANTILE DECOMPOSITION FOR TUNISIA (2005–2010) BY NON-EDUCATED/EDUCATED HOUSEHOLD HEAD

		2005			2010		
		10th pctile	50th pctile	90th pctile	10th pctile	50th pctile	90th pctile
	Overall Gap	−0.416***	−0.495***	−0.634***	−0.448***	−0.523***	−0.526***
		(0.026)	(0.020)	(0.027)	(0.023)	(0.018)	(0.026)
	Endowment	−0.105***	−0.063***	−0.047***	−0.128***	−0.085***	−0.086***
		(0.013)	(0.010)	(0.015)	(0.015)	(0.011)	(0.015)
	Returns	−0.311***	−0.432***	−0.587***	−0.319***	−0.438***	−0.441***
		(0.027)	(0.020)	(0.029)	(0.025)	(0.018)	(0.028)
Endowment Effects (Explained)	Head char	−0.005	0.010	0.012	−0.019**	−0.019***	−0.014*
		(0.008)	(0.006)	(0.011)	(0.008)	(0.005)	(0.008)
	Head empl	−0.047***	−0.049***	−0.041***	−0.031***	−0.025***	−0.025**
		(0.010)	(0.008)	(0.012)	(0.011)	(0.007)	(0.012)
	Hh comp	−0.024***	−0.009	−0.007	−0.025***	−0.027***	−0.018*
		(0.008)	(0.007)	(0.009)	(0.009)	(0.007)	(0.010)
	Geo.location	−0.029***	−0.015***	−0.010	−0.054***	−0.014**	−0.030***
		(0.007)	(0.005)	(0.008)	(0.008)	(0.005)	(0.008)
Returns Effects (Unexplained)	Head char	0.136	−0.168	0.209	0.238	0.061	−0.723
		(0.463)	(0.341)	(0.490)	(0.433)	(0.332)	(0.511)
	Head empl	−0.029	−0.052	−0.174**	−0.043	−0.123***	−0.169**
		(0.075)	(0.055)	(0.079)	(0.058)	(0.044)	(0.068)
	Hh comp	0.164	0.403***	0.510***	0.085	0.090	0.128
		(0.143)	(0.105)	(0.151)	(0.112)	(0.085)	(0.131)
	Geo.location	−0.050	0.187***	0.166**	0.014	0.160***	0.193**
		(0.077)	(0.057)	(0.082)	(0.072)	(0.055)	(0.085)
	Constant	−0.531	−0.802**	−1.298***	−0.613	−0.626*	0.130
		(0.468)	(0.345)	(0.497)	(0.444)	(0.339)	(0.523)
	Observations		11,431			11,188	

Notes: Computed by the authors using Tunisian EBCNV 2005 and 2010 (OAMDI, 2014c; OAMDI 2014d). Standard errors computed using the delta method in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1 non-directional t-test.

5.1. *Inter-Group Expenditure Gaps*

Tables 1–4 show the decomposition of the expenditure gap between rural and urban households in the four countries. The rural-urban gap is negative for all expenditure deciles in Egypt, Jordan and Tunisia, and for the highest income decile in Palestine. The negative gap means that expenditure per capita is lower among rural households than among urban households. For the lowest expenditure decile in Palestine (Table 3), the rural/urban gap is positive. This implies that expenditure per capita is higher among the rural poor than among the urban poor.

For the gender gap,[7] the results show that female-headed households tend to have a higher per capita expenditure in Egypt, Jordan and Palestine (Tables 5–7), as well as in Tunisia in 2005 (Table 8, columns 1–3). In Tunisia as of 2010, the gender gap among the lowest expenditure deciles turned negative, while it was still positive among higher deciles. The female/male gap analysis shows that the gender inequality story changes based on which inequality measure is used. Here, using the UQR, female-headed households are better off than their male counterparts, which is not the story told by the Gini index. Such results suggest that looking at a single inequality measure may be misleading. A deeper analysis of the structure and causes of inequality is required in the effort to usher in equality across social groups.

Similarly to the gender gap, the gap between the non-employed/employed was positive and significant in Egypt and Tunisia for all expenditure groups, and increased along the expenditure distribution (Tables 9 and 12). The positive gap reveals that the difference in expenditure between non-employed headed households and employed headed households is in favor of the non-employed. In Jordan and Palestine, this gap was positive and significant only among the highest expenditure decile (Tables 10 and 11). Among the lowest decile in Jordan, on the other hand, the gap was negative and significant, showing that non-employed-headed poor households had lower expenditure per capita than their employed counterparts (Table 10). The positive gap between the non-employed and the employed in most surveys may be driven by measurement issues. Household heads in the richest quintile have a wider range of options for being economically active or inactive, which is not captured in our data. The rich may also misreport their employment status, or may fail to respond to household survey entirely, particularly when they are economically active (Hlasny and Verme, 2017).

Finally, for the gap between the non-educated and educated headed households, Tables 13–16 show that that the gap is negative and highly significant in all countries and expenditure deciles. Hence, the expenditure per capita among households whose head is educated is higher than the expenditure per capita for those with a non-educated head whichever part of the expenditure distribution they are at.

[7]A word of caution is warranted regarding this analysis: i) The proportion of female headed HHs is usually low and there is risk of selection bias, and ii) HH head gender generally has a low explanatory power in relation to economic inequality, due to the heterogeneous characteristics of women who head their own households: they tend to be widowed, or running their own businesses, or benefitting from remittances from husband or other family members living abroad.

5.2. *Endowment and Returns Effects*[8]

Decomposing the expenditure gap into the endowment and returns effects shows that in Egypt, rural/urban inequality can be mainly explained by the endowments of urban households. Similar results were found for Jordan and Tunisia, where the endowments of rural households are lower than the endowments of urban households across all expenditure deciles (Tables 1, 2 and 4). The only exceptions are Egypt 2015 and Jordan 2013, where the rural/urban gap is mainly explained by the returns to endowments, especially among the highest expenditure deciles. In Palestine, the endowment effect dominates the returns effect for the lowest expenditure decile (Table 3).

In Egypt, the positive gender gap in favor of female-headed households is explained mainly by the returns effect (Table 5). The returns to endowments among female-headed households are higher than among male-headed households. In Jordan, the positive gap is explained by the returns effect among the middle and highest decile groups (Table 6). In the three waves of the Palestinian survey, female headed households in the middle expenditure decile have more ample endowments than their male counterparts, which explains the positive gender gap there (Table 7). The same results were found in 2010 in the lowest and highest deciles. In Palestine's highest decile group in 2007 and 2011, the gender gap is explained mainly by the returns effect. In Tunisia, similarly, the positive gender gap in the highest decile is explained mainly by a positive returns effect. Surprisingly, the negative gender gap in the lowest decile in 2010 is explained by a negative returns effect there (Table 8). This suggests that among the poor, male-headed households have higher returns to their endowments than their female counterparts, while among the rich, the opposite is true.

Decomposing the employment gap between the endowment and the returns effects shows that the endowment effect is positive in all countries and all expenditure deciles, highly statistically significant in most cases (Tables 9–12). However, while the non-employed appear to be better endowed with characteristics valued by markets, these endowments appear rewarded more highly among the employed, especially among the lowest deciles. In other words, the positive gap between non-employed and employed household heads, which is particularly high among higher expenditure quantile groups, can be attributed to the dominance of the positive endowment effect over the negative returns effect.

In Egypt and Tunisia, the expenditure gap between non-educated and educated households can be explained by the higher endowments of market-valued characteristics as well as to the higher returns to these endowments among the educated group, especially among the rich. Rich educated household heads are rewarded more for their more ample endowments than the non-educated rich. In Jordan and Palestine, the non-educated group has higher endowments (with the exception of the lowest decile in Jordan 2010) but receives lower returns on these endowments than the educated group. The lower returns received by non-educated households explain the negative education gap across all surveys and expenditure quantiles (Table 13–16).

[8]The decompositions between endowment and returns effects for all expenditure deciles in all countries, along with their confidence intervals, are presented in figures A2 to A12 in the Appendix.

5.3. *The Socio-Economic Determinants of Inter-Group Inequalities*

The inter-group expenditure gaps, and the endowment and returns effects have been linked to households' endowments of characteristics that could be valued by markets, including households' human capital, socio-demographic characteristics and geographic location. Results in Tables 1–16 show that among these endowments, education of household heads and households' geographic location are the most important determinants of expenditure gaps.

This is confirmed for the rural/urban gap in Egypt, Jordan and Tunisia (Tables 1, 2 and 4). Urban households are predicted to be more endowed with various marketable characteristics—particularly education, advantageous household composition and governorate of residence—than rural households, which contributes to the rural/urban gap. In Egypt, education of the household head, governorate of residence, and the returns to these endowments contributed significantly to the pro-urban expenditure gap. Household composition also contributed to the gap, while the return to it helped to attenuate it among lower expenditure quantiles. In Jordan and Tunisia, better education and household composition among urban households contributed to the gap (along with the governorate of residence in Tunisia), but the returns to them did not affect the gap significantly. In Palestine, geographical location and the return to it are the most significant determinants of the pro-rural gap in the lower half of the expenditure distribution (Table 3). Household heads' education weakly attenuates the expenditure gap among poorer quantiles in the Palestinian 2010 and 2011 samples.

Similarly, the gender gap is determined significantly by household heads' education and household composition, as well as by the returns on them (Tables 5–8). In Egypt and in Tunisia 2010, geographic location also plays an important role. Across all four countries, education attenuates the gender gap. Regarding household composition, the higher are the household size, the ratio of those below 14 years and those above 65 years of age in the household, the higher the gap between female and male-headed households becomes. At the same time, the returns to household composition appear to shrink the gap among lower-quantile households.

The returns on education appear to contribute to the pro-female expenditure differential (most coefficients have the same positive sign as the overall gap), implying that female-headed households receive higher returns on education, with the exception of the poorest households in Egypt, Jordan and Palestine. The returns to household composition and geographic location are for the most part higher among male-headed households, and thus work to mitigate the observed overall gap. This effect vanishes or is overturned among the highest decile households.

Next we consider the expenditure gap between households with non-employed and employed heads (Tables 9–12). Across most survey waves and expenditure groups, education differentials mitigate the gap strongly, while the differentials in household composition aggravate it. Household heads' demographics—including gender, age and marital status—have a weaker positive effect on the gap. Differentials in the returns to these endowments also contribute systematically. Return to education has a positive significant impact on the expenditure gap favoring the non-employed, particularly for middle and high-expenditure groups. Return to household composition has a positive effect only at the highest expenditure

decile, and a weak or negative effect at lower deciles. Return to household heads' demographic characteristics has a positive effect on the gap in Jordan and Tunisia, but a mixed effect in Egypt and Palestine.

With respect to the education gap (favoring educated households), households' employment status, composition and geographic location play a significant role across most surveys. The returns to employment, household composition and location are also important. The differential prevalence of employment status between non-educated and educated households exacerbates the expenditure gap between the two groups in Jordan and Tunisia. Household composition mitigates the expenditure gap in Jordan and Palestine, but appears to contribute to it in Egypt and Tunisia. Similarly, households' geographic location adds to the expenditure gap in Egypt and Tunisia, but has a mitigating effect in Palestine. For completeness, households' demographics (age, gender and marital status) appear to attenuate the gap in Egypt and Jordan, while possibly exacerbating it in Tunisia.

The differential in the returns to employment appear to increase the expenditure gap in Palestine and Tunisia, and in the middle of the expenditure distribution in Jordan. The return to household composition increases the gap in Palestine and Tunisia, while the return to geographic location shrinks the gap in Egypt and Tunisia (and raises it at the top of the expenditure distribution in Palestine). The return to household heads' demographic characteristics contribute to the gap in Egypt, Jordan and Palestine, particularly among low-expenditure groups.

5.4. *Evolution of Inter-Group Inequalities*

In Egypt, a country that experienced domestic political instability post-2011, rural/urban gap decreased between 2008 and 2012 but jumped up again by 2015, particularly among the poorest households. We may conclude that the rural poor are the main group affected by the deterioration of the post-Arab spring economic situation (Table 1). The pro-female gender gap was similarly falling before 2012, but increased during 2012–2015, especially at the top of the expenditure distribution (Table 5). The expenditure gap between the employed and the non-employed stagnated during 2008–2012 overall, with a slight increase among the middle-expenditure group and decrease among the high-expenditure group (Table 9). Finally, the education gap has been steadily falling throughout the period for all expenditure groups.

In Jordan, the rural/urban, female/male and non-employed/employed expenditure gaps decreased steadily between 2006 and 2013 (Tables 2, 6 and 10). This was evident across all expenditure groups in the case of the rural/urban and gender gaps. By contrast, the employment gap rose among the poor even as it fell among the middle class and the rich. The expenditure differential between the non-educated and the educated increased during 2006–2013, especially among the poorest households. For the middle and high expenditure deciles, the gap actually markedly fell during 2006–2010, and only partially recovered by 2013. The general trend of the narrowing of the education gap at the top but widening at the bottom is due to a widening in the differential in endowments among the poor and equalization of endowments among the middle-expenditure and rich groups (Table 14).

In Palestine, the rural/urban expenditure gap significantly dropped during 2007–2010 for all expenditure quantile groups, but then increased by 2011, again for all quantile groups, but by different amounts. Overall, between 2007 and 2011, the gap between the rural poor and urban poor increased, but the gap between the rural rich and urban rich decreased over the same period (Table 3). The gender gap decreased for all expenditure groups during 2007–2010, and remained around the new level until 2011 (Table 7). The employment-status gap among the lowest decile was negative in 2007 and 2010, and then became positive in 2011. However, the gap was not significant. Among the highest decile of Palestinian households, the employment-status gap was positive for all three waves but decreased over the years (Table 11). Finally, the education gap became significantly more pronounced during 2007–2010 for all expenditure quantiles, but then improved for groups at the bottom and top of the expenditure distribution, while further deteriorating among the middle class (Table 15).

In Tunisia, the rural/urban gap rose sharply between 2005 and 2010 among the poor, and at a lower rate among the middle class, while it diminished somewhat among the rich (Table 4). Similarly, the gap between the non-educated and the educated also slightly increased overall, by rising modestly among the poor and the middle-expenditure groups, but falling markedly among the rich (Table 16). The gender gap among the poor turned to favor male households in 2010 (from essentially zero gap in 2005), fell from favoring female households to a zero gap among the middle class, and continued favoring female households among the rich at a similar rate between the two years (Table 8). The non-employed/employed expenditure gap fell in magnitude in the bottom of the expenditure distribution, but increased in the middle and the top of the distribution (Table 12).

6. Robustness Checks

The analysis reported in previous sections relied on a number of assumptions about the quality and comparability of data and about variable definitions. One purpose of presenting the analyses of alternative measures of expenditures, using all available survey waves, and discussing results across expenditure quantiles and countries was to put individual estimates in perspective and implicitly evaluate their robustness. The various results showed a large degree of consistency and monotonic evolution among themselves. Tables 1–16 and Figure A2–A12 also show that many of the estimated effects are significant and their confidence intervals are narrow, providing reassurance about data quality and estimation precision. In addition, a number of robustness checks were performed to evaluate sensitivity of our results to variable definitions and model specifications. One, Blinder-Oaxaca decompositions were performed to compare the results of the recently promulgated unconditional quantile regressions to the classical method. This robustness check, evaluated for Jordan 2010, is reported in table A9 in the Appendix. Reassuringly, across all four decomposition analyses—rural/urban, female/male, non-employed/employed, non-educated/educated—the coefficients and standard errors estimated using the standard Blinder-Oaxaca method are very similar to those estimated using the UQR method at the median (refer to

Tables 2, 6, 10 and 14). The two sets of coefficients are for the most part within each other's confidence intervals. Moreover, most of the Blinder-Oaxaca coefficients are between those estimated for the lowest and highest deciles, helping to verify that the effects vary consistently across the expenditure distribution and that it is important to evaluate the effects at various population quantiles. Finally, standard errors on the UQR coefficients are just slightly higher than those in the Blinder-Oaxaca models, and the UQR coefficients retain their statistical significance from the Blinder-Oaxaca regressions in the majority of cases. This suggests that the UQR not only has better consistency properties for informing regarding the decomposition at various population quantiles, but it attains these improvements without sacrificing efficiency.

Our second robustness check pertains to the adult equivalence scale. In the analysis above, expenditure per capita was obtained by dividing household expenditure by the number of household members. This was used in deference to previous literature in the aim to facilitate comparison of Gini coefficients across studies. An alternative approach is to use an OECD adult-equivalence scale with household size computed as $[1 + 0.7\,(N_{adults} - 1) + \alpha\, N_{children} + \alpha\, N_{elderly}]$ where α is taken to be 0.3 to account for a lesser role played by children under the age of 14 and the elderly aged 65+ years (Glewwe and Twum-Baah, 1991, as cited in Haughton and Khandker, 2009:29). This alternative, evaluated for Jordan 2010, yields results reported in Figure A14 in the Appendix. These results are qualitatively analogous to those in Figure A7. While the level of expenditure per capita has changed, measures of inequality remain similar.[9]

Another robustness check concerns classification of household heads as educated vs. non-educated or employed vs. non-employed, and classification of all households as either male-headed or female-headed. In the baseline specification of the analysis of non-educated/educated inequality, only household heads who have not completed any level of schooling are classified as non-educated. In some countries it may be more appropriate to use a higher cutoff. As an alternative specification we have considered distinguishing household heads with up to primary/lower secondary school achievement from those with secondary/post-secondary and post-graduate education. Figure A15, panel (a), reports the results for the Jordanian year-2010 survey, where 1,863 household observations are thus classified as non-educated and 982 as educated. The results for this exercise differ somewhat from those in Figure A7. The endowment effect is now estimated to be just below zero at the low and high expenditure deciles of the population and zero around the median. This compares to a positive endowment effect for all population deciles, also lowest at the bottom and top expenditure deciles, in the original specification. Under the alternative specification, the returns effect is negative, slightly smaller than under the original specification. Interestingly, the returns effect is now estimated to be increasing in strength with the population deciles

[9]Similarly, using of particular currency conversion factors does not drive any results. Using of UNSD (2015) conversion factors to the 2005 PPP international dollars or the quantitatively different World Bank (2015b) estimates yields the same regression results for the endowment and returns effects. Different conversion factors, however, would yield different statistics in tables A1–A3 (available on request).

(compared to decreasing, originally), with the strongest returns effect accruing to the educated among the top expenditure decile.

In the baseline specification of the analysis of non-employed/employed inequality, all household heads with non-missing employment status were used, and unemployed and out-of-labor force household heads were thus grouped together regardless of their intention to seek formal employment. This results in excessive heterogeneity among the group of households classified as non-employed, as well among the employed group. As an alternative specification less sensitive to the uncertainty regarding household-heads' true employment status and occupation, we narrow the analysis down to the group of employed heads, and investigate inequality between employees vs. employer and self-employed workers. We also investigate inequality between public-sector employees vs. employees in other sectors (including employers and the self-employed in the private sector, in joint cooperatives, in the foreign sector or others). Figure A15, panels (b) and (c), report the results of these exercises for the Jordanian year-2010 survey. The endowment effect is near zero for all population quantiles, and only rises above zero in the highest decile (favoring the non-employee and non-public group). Meanwhile, the returns effect is positive for all population quantiles, rising somewhat at higher quantiles. Hence, employers, the self-employed, and private sector employees appear to benefit from higher returns to their endowments, while only the wealthiest among them benefit from higher endowments. These patterns are clearly different from those in figure A14 panel (b), even if the comparison groups and the identity of the disadvantaged/advantaged groups are different here.

The next sensitivity test concerns the adjustment for regional cost differentials across each country. To evaluate whether the correction drives any of the central results identified in section 5, we repeated the analysis without the regional cost adjustments. In Jordan, a small country with trivial cost differentials across its 12 regions, all quantitative results were essentially the same. In Egypt, Palestine and particularly Tunisia, larger cost differentials are responsible for a substantial change in the rural–urban decomposition and the returns effect to urban status, while other decompositions retain their balance of the endowment and returns effects. Figure A16 in the Appendix shows the rural–urban decomposition for Egypt 2015, Jordan 2013, Palestine 2011 and Tunisia 2010 when regional cost differentials are not corrected for.

A final sensitivity test involves estimating robust coefficient standard errors using bootstrap method. In the program calculating the Blinder-Oaxaca decomposition in Stata (Jann, 2008) this requires omitting analytical household weights from the model, so not only standard errors but also coefficients themselves are affected. Results for Tunisia 2005 reveal that the endowment and the returns effects retain their qualitative role. With respect to their magnitude, the returns effect is very robust to the change in regression weights, while the endowment effect changes in magnitude, particularly among households in the two highest expenditure quintiles. Bootstrap standard errors are generally smaller than ordinary standard errors, suggesting that the degrees of confidence reported in our study are for the most

part lower estimates. The true endowment and returns effects are expected to be as significant as or more significant than those reported above.[10]

7. Concluding Remarks and Policy Implications

This study aimed to measure economic inequalities between various demographic groups and across population expenditure strata in four Arab countries: Egypt, Jordan, Palestine and Tunisia. Inequality among different geographic areas and social groups was measured in order to estimate the effect of circumstances that people live in on overall inequality. Differences in households' endowments, such as human capital, socio-demographic characteristics, households' geographic residence, and household composition were evaluated as main determinants of the expenditure differentials across social groups. The study used a rich sample of twelve Household Income and Expenditure surveys. This allowed us to evaluate trends in inequality and its composition over time—in the cases of Egypt and Jordan even before and after the Arab Spring uprisings. We followed Belhaj Hassine (2014) in applying unconditional quantile regressions to decompose expenditure gaps by their source at different points in the population distribution, and we performed this analysis for expenditure gaps between rural versus urban, female versus male, non-employed versus employed, and non-educated versus educated headed households.

We found that Egypt and Tunisia—countries that have faced political instability during the early 2010s—exhibited relatively high expenditure gaps across rural/urban and non-educated/educated groups. On the other hand, the gaps in Jordan and Palestine—countries that have largely managed to avoid domestic political instability—and those across non-employed/employed and female/male headed households are more moderate. Between 2008 and 2015, the rural/urban and education gaps decreased in Egypt, while the household-gender gap increased, and the employment gap increased somewhat for the median expenditure group. In Jordan, between 2006 and 2013, the rural/urban and gender gap decreased across all population quantiles, while the employment gap increased at the lowest quintile. The education gap increased for the poor but decreased for the rich. In Palestine, between 2007 and 2011, the rural/urban gap decreased for the rich while it increased for the poor. The gender and employment gaps decreased for both the poor and the rich. However, the education gap increased. Finally, in Tunisia, between 2005 and 2010, the rural/urban, gender and education gaps increased for the poor but decreased or stagnated for the rich. The employment gap fell to zero among the poor but increased among the median-expenditure households and the rich.

[10]An additional sensitivity issue is that in the baseline specification of the analysis of female/male household inequality, gender of even temporary household heads is considered to classify households. We may worry about households whose provisional head is a woman (or man) but whose permanent head is temporarily absent. The absent spouse or relative may contribute to household finances significantly through financial remittances or through input in financial decision-making. For this reason, an alternative specification was attempted taking only households with permanent heads into consideration. Female-headed households are only those where the head is female, and she is widowed, divorced, never married, or married living in a couple. Unfortunately this analysis failed in some surveys because of an insufficient number of households with permanent female heads.

These results paint a complex picture of the pattern of inequality in the four countries. While overall inequality generally regressed in most of the evaluated countries, this favorable trend did not hold for inter-group inequality evaluated across different pairs of demographic groups, or across all expenditure strata of population. Inter-group inequalities in different countries have different sources, and the degrees to which they can be attributed to "explained" differences in endowments of human capital across demographic groups, and to "unexplained" differences in returns to these endowments differ.

Our robustness analysis reveals that detailed decomposition results for each population decile may not follow through under alternative delineations of comparison groups. Nevertheless, the sign of overall inequality, its decomposition into endowment and returns effects, and their ranking at various population quantiles are estimated consistently under alternative model specifications, showing support for general results. A common thread is thus revealed to run across the 12 surveys and alternative model specifications. Education and the return on it, household composition and to a lesser degree geographic residence play a crucial role in the story of inequality as well as in the drive to reduce expenditure differentials across social groups.

Policy implications of these findings are that public policy should focus mainly on two sets of interventions: those that aim to enhance households' endowments and those that aim to enhance returns to these endowments for disadvantaged groups. Investing in human capital accumulation of disadvantaged groups, advancing effective family composition using better family planning, and facilitating equal access to developmental opportunities across regions can be policy interventions linked to the former task. Indeed, these interventions should be particularly designed and implemented to address forms of inequalities that are highly shaped by endowments effects in the countries we have analyzed—i.e. rural/urban, employed/non-employed, and educated/non-educated inequalities. Policies towards better education services for disadvantaged groups, a more efficient allocation of resources to physical and mental health services, strengthening institutional capacity in disadvantaged areas, and facilitating integration of markets for factors of production nationwide could be return-enhancing policy interventions aimed to reduce inter-group disparities in household characteristics and in the returns to those characteristics. Enforcing labor standards, promoting equal access to employment opportunities and entrepreneurship, and empowering disadvantaged workers to stand up on their feet and contribute to society is a must in mitigating inter-group differentials in returns to endowments, as well as fostering social and intergenerational mobility. Specific category-focused as well as subnational policy interventions related to these overreaching goals should be further explored at the country level.

As a last note, further work in this as yet unexplored field of research is needed. The methodology utilized here is data-intensive and relies heavily on high quality data. Building and harmonizing new expenditure surveys will be a great step in the right direction to expand the decomposition methodology to more countries, and more finely and relevantly defined demographic groups. Over time, the construction of panel datasets will also help address some of the methodological issues and monitor group-based decomposition dynamics over time. This calls for an urgent action among policymakers and academics in the Arab region, and international donors, to produce better quality micro data.

References

Abid, Y., Y. O'Donoghue, and D. Sologon, "Decomposing Welfare Inequality in Egypt and Tunisia: An Oaxaca-Blinder Based Approach," Economic Research Forum, Working Paper 1015, 2016.

Africa Development Bank (AfDB), "Jobs, Justice and the Arab Spring: Inclusive Growth in North Africa," 2012.

AlAzzawi, S., "Endowments or Discrimination? Determinants of Household Poverty in Egypt," Economic Research Forum Working Paper 931, August 2015.

Amara, M. and H. Jemmali, "On the Decomposition of Economic Inequality: A Methodology and an Application to Tunisia," Economic Research Forum, Working Paper 1096, 2017

Azour, J. "Social Justice in the Arab World". E/ESCWA/SDD/2014/Background Paper, 2014.

Bagchi, S. and J. Svejnar, "Does Wealth Inequality Matter for Growth? The Effect of Billionaire Wealth, Income Distribution, and Poverty," IZA Discussion Paper No. 7733. November 2013.

Belhaj Hassine, N. "Economic Inequality in the Arab Region," World Bank Policy Research Working Paper WPS-6911, 2014.

Berg, A. and J. Ostry. "Inequality and Unsustainable Growth: Two Sides of the Same Coin?," *IMF Staff Discussion Note*. Washington, DC: International Monetary Fund, 2011.

Bibi, S. and M. K. Nabli, "Income Inequality in the Arab Region: Data and Measurement, Patterns and Trends," *Middle East Development Journal*, 1, 275–314, 2009.

———, "Equity and Inequality in the Arab Region," Economic Research Forum Policy Research Report 33, February 2010.

Bibi, S. and A. El-Lahga, "Decomposing Income Inequality in the Arab Region," Economic Research Forum Working Paper 557, 2010.

Biltagy, M., "Estimation of Gender Wage Differentials in Egypt Using Oaxaca Decomposition Technique," *Topics in Middle Eastern and African Economies*, 16(1), 17–42, 2014.

Boutayeb, A. and U. Helmer, "Social Inequalities, Regional Disparities and Health Inequity in North African Countries," *International Journal for Equity in Health*, 10, 23, 2011.

Central Agency for Public Mobilization and Statistics (CAPMAS)*, Indicators of Poverty According to Data from the Income and Consumption Survey (Arabic)*. Cairo, Egypt, 2013.

Chambers, D. and A. Krause, "Is the Relationship between Inequality and Growth Affected by Physical and Human Capital Accumulation?" *Journal of Economic Inequality*, 8, 153–72, 2010.

Deaton, A. and S. Zaidi, *Guidelines for Constructing Consumption Aggregates for Welfare Analysis*, Living Standards Measurement Study Paper 135. Washington, DC: World Bank, 2002.

Department of Statistics, Jordan, "Poverty in Jordan," UN Economic Commission for Europe—Conference of European Statisticians, Geneva, April 9, 2015, Working Paper 11, 2015.

Durante, F., S. T. Fiske, N. Kervyn, A. J. C. Cuddy, A. Akande, B. E. Adetoun, M. F. Adewuyi, M. M. Tserere, M. M. A. Al Ramiah, K. M. Mastor, F. K. Barlow, B. Bonn, R. W. Tafarodi, J. Bosak, E. Cairns, C. Doherty, D. Capozza, A. Chandran, X. Chryssochoou, T. Iatridis, J. M. Contreras, R. Costa-Lopes, R. Gonzalez, J. I. Lewis, G. Tushabe, J. P. Leyens, R. Mayorga, N. Rouhana, V. S. Castro, R. Perez, R. Rodrıguez-Bailon, M. Moya, E. M. Marente, M. V. Galvez, C.G. Sibley, F. Asbrock, and C. Storari, "Nations' Income Inequality Predicts Ambivalence in Stereotype Content: How Societies Mind the Gap," *British Journal of Social Psychology*, 52(4), 726–46, 2013.

ECA, ILO, UNCTAD, UNDESA, and UNICEF, "Social Protection: A Development Priority on the Post 2015 UN Development Agenda," UN System task team on the post 2015 UN Development agenda, 2012.

El-Laithy, H., M. Lokshin, and A. Banerji, "Poverty and Economic Growth in Egypt: 1995–2000," World Bank Policy Research Working Paper 3068, 2003.

Fields, G. S. *Decomposing LDC Inequality*. Cornell University, ILR Collection, 1979.

Firpo, S., N. M. Fortin, and T. Lemieux, "Decomposing Wage Distributions Using Recentered Influence Function Regressions," unpublished manuscript, June 2007, www.researchgate.net/publication/265425568_Decomposing_Wage_Distributions_Using_Recentered_Influence_Function_Regressions.

———. "Unconditional Quantile Regressions," *Econometrica*, 77, 953–73, 2009.

———, "Decomposition Methods in Economics," National Bureau of Economic Research Working Paper 16045, 2010.

Fournier, J.-M. and I. Koske, "The Determinants of Earnings Inequality: Evidence from Quantile Regressions," *OECD Journal: Economic Studies*2012/1.

Gatward, I., "Economic Opportunity and Inequality as Contributing Factors to the Arab Spring: The Cases of Tunisia and Egypt," Boston College Electronic Thesis or Dissertation, 2015.

Glewwe, P. and K. A. Twum-Baah, "The Distribution of Welfare in Ghana, 1987–88," Living Standards Measurement Study Paper 75, World Bank, Washington, DC, 1991.
Government of Jordan, UNICEF and UNDP, "Socio Economic Inequality in Jordan," 2015.
Hashemi, A. and V. Intini, "Inequality of Opportunity in Education in the Arab Region," UN-ESCWA Working Paper, 2015.
Haughton, J. and S. R. Khandker, *Handbook on Poverty and Inequality*. World Bank, Washington, DC, 2009.
Heshmati, A. "A Review of Decomposition of Income Inequality," IZA Discussion Paper No. 1221, 2004.
Hlasny, V., "Evolution of Opportunities for Early Childhood Development in Arab Countries," *International Journal of Human Rights in Healthcare*, 10, 256–76, 2017.
Hlasny, V. and V. Intini, "Opportunities for Early Childhood Development in Arab Countries: Profile of Inequality," Its Sources, and Evolution, UN-ESCWA Working Paper, 2015a.
———, "Representativeness of Top Expenditures in Arab Region Household Surveys," UN-ESCWA/EDID Working Paper 11, 2015b.
Hlasny, V. and P. Verme., "Top Incomes and the Measurement of Inequality in Egypt,"*World Bank Economic Review*, Forthcoming 2017.
Institute of National Planning, Egypt, Human Development Report 2010, "Youth in Egypt: Building Our Future."*Cairo*, 2010.
Iqbal, Z., "The Economic Determinants of Arab Democratization," *Middle East Institute*, 2012. www.mei.edu/content/economic-determinants-arab-democratization.
Jann, B., "The Blinder-Oaxaca Decomposition for Linear Regression Models: *Oaxaca*," *Stata Journal*, 8, 453–79, 2008.
Jemmali, J., "Inequality of Opportunities Among Tunisian Children over Time and Space," Economic Research Forum, Working Paper 1048, 2016.
Kabeer, N., "Can the MDGs Provide a Pathway to Social Justice? The Challenges of Intersecting Inequalities". New York: UN MDG Achievement Fund: Brighton: IDS, 2010.
Kanbur, R., "Economic Inequality and Economic Development: Lessons and Implications of Global experiences for the Arab world," Cornell University Working Paper, 2013.
Krafft, C., R. Assaad, H. Nazier, R. Ramadan, A. Vahidmanesh, and S. Zouari, "Estimating Poverty and Inequality in the Absence of Consumption Data: An Application to the Middle East and North Africa," Economic Research Forum Working Paper 1100, 2017.
National Institute of Statistics, Tunisia, "Measuring Poverty, Inequalities and Polarization in Tunisia 2000–2010," Tunis, Tunisia: National Institute of Statistics, 2012.
Ncube, M. and J. C. Anyanwu, "Inequality and Arab Spring Revolutions in North Africa and the Middle East," *African Development Bank: Africa Economic Brief*, 3, 1–23, 2012.
Ndoye, A. J.,*"Unconditional Quantile Regression-Based Decomposition Method: Evidence from Rural-Urban Inequality in Senegal*," Laboratoire d'Economie d'Orleans, CNRS (UMR 7322), University of Orleans, France, 2015.
Ostry, J. D., A. Berg, and C. G. Tsangarides, "Redistribution, Inequality, and Growth," IMF Staff Discussion Note 14/02, 2014.
Page, J., "Boom, Bust, and the Poor: Poverty dynamics in the Middle East and North Africa, 1970–1999," *Quarterly Review of Economics and Finance*, 46, 832–51, 2007.
Palestinian Central Bureau of Statistics (PCBS), "Poverty in the Palestinian Territory 2009–2010," Press Release, 2017a.
———. Annual Statistics (Base Year 2004=100), Monthly Consumer Price Index Numbers by Major Groups for various years (Base Year 2004 =100), 2017b. www.pcbs.gov.ps/site/lang__en/695/default.aspx.
Peragine, V., R. Lagravinese, F. Palmisano, and V. Intini, "Inequality of Opportunity for Educational Achievement in Arab Region: Evidence from PISA 2006–2009–2012," UN-ESCWA Working Paper, 2015.
Piketty, T., *Capital in the Twenty-First Century*. Belknap Press, Cambridge, MA, 2014.
Sabry, S., "Poverty Lines in Greater Cairo: Underestimating and Misrepresenting Poverty," International Institute for Environment and Development Working Paper in 'Poverty Reduction in Urban Areas Series' 21, May 2009.
Said, M., "The Fall and Rise in Earnings and Inequality in Egypt: New Evidence from the ELMPS 2006," Economic Research Forum Working Paper 0708, 2007.
Said, M. and F. El-Hamidi, "Wage Inequality by Education and Sector: Contrasting the Egyptian and Moroccan Experiences in the 1990s," Twelfth Annual Conference of Economic Research Forum, Cairo December 19–21, 2005.

Salehi-Isfahani, D., N. Belhaj Hassine, and R. Assaad, "Equality of Opportunity in Educational Achievement in the Middle East and North Africa," Economic Research Forum Working Paper 689, 2012.
Shahateet, M. I., "How Serious Regional Economic Inequality in Jordan? Evidence from Two National Household Surveys," *American Journal of Applied Sciences*, 3(2), 1735–44, 2006.
Son, H. H. and N. Kakwani, "Economic Growth and Poverty Reduction: Initial Conditions Matter," International Poverty Center-Working Paper 2, 2004.
Stewart, F. and A. Langer, "Horizontal Inequalities: Explaining Persistence and Change". Centre for Research on Inequality, Human Security and Ethnicity. Working Paper 39. University of Oxford, Oxford, 2007.
Tessler, M., A. Jamal, and M. Robbins, "New Findings on Arabs and Democracy," *Journal of Democracy*, 23(4), 89–103, 2012.
United Nations Development Programme (UNDP), "Humanity Divided: Confronting Inequality in Developing Countries," United Nations Development Programme, 2013.
United Nations Economic and Social Commission for Western Asia (UN-ESCWA), "Economic Growth, Inequality and Poverty in the Arab Region, Regional Coordination Mechanism," Issues Brief for the Arab Sustainable Development Report, 2015.
United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), "Poverty in the Occupied Palestinian Territory 2007," Briefing Paper, May 2009.
United Nations Statistics Division (UNSD), "Millennium Development Goals Indicators: Purchasing power parities (PPP) conversion factor, local currency unit to international dollar, 1990–2012," updated 6-July 2015.
Verme, P., "Facts and Perceptions of Inequality" in P. Verme, B. Milanovic, S.Al-Shawarby, S. El Tawila, M. Gadallah, and A. El-Majeed (eds), *Inside Inequality in the Arab Republic of Egypt: Facts and Perceptions across People, Time, and Space*. World Bank, 2014.
Verme, P., B. Milanovic, S. Al-Shawarby, S. El Tawila, M. Gadallah, and A. El-Majeed, "Inside Inequality in the Arab Republic of Egypt: Facts and Perceptions across People, Time, and Space," World Bank, 2014.
Weide, R. V. and B. Milanovic, "Inequality Is Bad for Growth of the Poor (But Not for That of the. Rich)," World Bank Policy Research Working Paper 6963, 2014.
World Bank, "Hashemite Kingdom of Jordan-Poverty Update," Report 47951-JO, Volume II: Appendices, November 2009.
———. "Inequality, Uprisings, and Conflict in the Arab World," World Bank Middle East And North Africa Region. MENA Economic Monitor, 2015a.
———. "PPP conversion factor, GDP (LCU per international $), International Comparison Program database, World Development Indicators catalog," 2015b. https://data.worldbank.org/indicator/PA.NUS.PPP.
World Bank Institute, "Introduction to Poverty Analysis," 2005. worldbank.org/PGLP/Resources/PovertyManual.pdf.

Data sources

The following datasets were accessed in the Harmonized Household Income and Expenditure Surveys (HHIES) database at Egypt-based Economic Research Forum's (ERF) portal, www.erf.org.eg/cms.php?id=erfdataportal.

Open Access Micro Data Initiative (OAMDI), Version 2.0 of Licensed Data Files; HIECS 2008/2009—Central Agency for Public Mobilization and Statistics (CAPMAS), 2014a.
OAMDI, Version 2.0 of Licensed Data Files; HIECS 2010/2011—Central Agency for Public Mobilization and Statistics (CAPMAS), 2014b.
———. HIECS 2012/2013—Central Agency for Public Mobilization and Statistics (CAPMAS), 2014c.
Economic Research Forum and the Department of Statistics of Hashemite Kingdom of Jordan (ERF & DOS), Household Expenditure and Income Survey 2010/2011 (HEIS 2010/2011), Version 1.0 of the Licensed data files, March 2013, DOS, Hashemite Kingdom of Jordan, 2013.

OAMDI, Version 2.0 of Licensed Data Files; HEIS 2006—DOS, Hashemite Kingdom of Jordan, 2014d.
———. Version 2.0 of Licensed Data Files; PECS 2007—Palestinian Central Bureau of Statistics (PCBS), 2014e.
———. Version 2.0 of Licensed Data Files; PECS 2010—Palestinian Central Bureau of Statistics (PCBS), 2014f.
———. Version 2.0 of Licensed Data Files; PECS 2011—Palestinian Central Bureau of Statistics (PCBS), 2014g.
———. Version 2.0 of Licensed Data Files; NBHS 2009—Central Bureau of Statistics, Sudan, 2014h.
———. Version 2.0 of Licensed Data Files; EBCNV 2005—National Institute of Statistics, Tunisia, 2014i.
———. Version 2.0 of Licensed Data Files; EBCNV 2010—National Institute of Statistics, Tunisia, 2014j.
———. Version 2.0 of Licensed Data Files; HEIS 2013—Department of Statistics (DOS), The Hashemite Kingdom of Jordan. Egypt: Economic Research Forum (ERF), 2017a.
———. *Version 2.0 of Licensed Data Files; HIECS 2015—Central Agency for Public Mobilization and Statistics (CAPMAS)*, Economic Research Forum (ERF), Egypt, 2017b.

Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Appendix

Table A1: Data sources and summary statistics

Table A2: Total expenditure, total disposable income and food expenditure (Intl. dollars PPP)

Table A3: Average households expenditure per capita and share of aggregate expenditure, by quintile (Intl. dollars PPP)

Table A4: Share of aggregate expenditure, by decile (%)

Table A5: Distribution of households by quintiles and characteristics of household heads

Table A6: Distribution of households by expenditure deciles and characteristics of household heads

Table A7: Gini index of inequality

Table A8: Theil index, GE(1), of inequality of total expenditure per capita and its decomposition (between and within inequality)

Table A9: Poverty Rates at National Poverty Line (%)

Table A10: Blinder-Oaxaca decompositions at the mean for Jordan (2010)

Table A11: Quantile decomposition for Sudan (2009; 7,774 observations)

Figure A1: GDP per capita in 2000 and 2013, and growth rate (Intl. dollars PPP)

Figure A2: Decomposition into endowment and returns effects, Egypt 2008