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Female Headship and Poverty in the Arab Region: Analysis of Trends and Dynamics Based on a New Taxonomy

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Abstract
Various challenges are thought to render female-headed households (FHHs) in the Arab region vulnerable to poverty. Yet, previous studies show mixed results regarding the extent of FHH poverty and the absence of household-panel-survey data hinders analysis of poverty dynamics. We address these challenges by proposing a novel classification of FHHs and analyze synthetic panels constructed from 20 rounds of repeated-cross-sectional surveys from Egypt, Iraq, Jordan, Mauritania, the West Bank and Gaza, and Tunisia spanning the past two decades. We find that the definition of FHHs matters for measuring poverty levels and dynamics. Most types of FHHs are less poor than non–FHHs on average, but FHHs with females as a majority of adults are generally poorer. FHHs are more likely to escape poverty than households on average, but FHHs without children are the most likely to do so. While more children are generally associated with more poverty for FHHs, there is heterogeneity across countries in addition to heterogeneity across definitions of FHHs. The findings provide useful inputs for the design and targeting of social-protection programs aimed at reducing gender inequalities and poverty in the Arab region.

Keywords Poverty · Feminization · Female-headedness classification · Synthetic panels · Arab region · Household surveys

JEL Classification I3 · J16 · N35 · O1

1 Introduction

Are female-headed households (FHHs) in the Arab region more likely to be poor, and increasingly so? The concept of 'female headship' typically refers to households where a woman is the primary economic provider and decision-maker, frequently in the absence of a male partner. Social and cultural barriers often hinder women's economic participation in the region, and several recent studies find that women are at an increasing disadvantage compared to men in labor markets (Alazzawi & Hlasny, 2022; Amara & Jemmali, 2018). The COVID-19 pandemic further deepened gender inequality in many countries (Alon et al., 2022; Dang & Nguyen, 2021). Yet, few studies have investigated the topic of poverty

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feminization in the region. The presumption that female-headed households are inherently more vulnerable to poverty has shaped the prevailing discourse and informed numerous policy interventions. Social-protection programs in many countries in the region specifically target FHHs based on the premise that they are more vulnerable to poverty, or are at heightened risk for falling into poverty, particularly during times of shocks.[1] However, the relationship between FHHs and poverty is complex and potentially context-dependent, especially in the Arab region that is home to countries of different income levels with diverse socioeconomic circumstances.

That poverty is more prevalent among women than men is widely assumed, and various explanations are offered for it. These include lower school enrollment rates and less work experience (Grant & Behrman, 2010), limited access to income-generating assets such as land and other agricultural inputs (Deere & Leon, 2003; Quisumbing et al., 2014), credit and other financial services (Demirguc-Kunt et al., 2013), physical and social capital, and technology (Klasen et al., 2015; World Bank, 2011), and market discrimination (Buvinic & Gupta, 1997).

There is, however, far less agreement on the existence of "feminization of poverty" affecting FHHs (Chant, 2010; Duflo, 2012; Klasen et al., 2015; Bradshaw et al., 2017). Buvinic and Gupta (1997) observe that of 65 studies covering Africa, Asia, Latin America and the Caribbean, 38 studies find that FHHs were overrepresented among the poor, 15 others found that poverty was associated with certain FHH types (definitions), and the remaining eight studies show no such relationship. While Quisumbing et al. (2001) and Medeiros and Costa (2008) find FHHs to be consistently poorer in only a few of the 8–10 evaluated developing countries in Africa, Asia and Latin America, Chant (2003) fails to obtain a similar finding in studies for the three continents. More recently, Milazzo and Van de Walle (2017) even find that despite a growing population share of FHHs in Africa, FHHs saw faster poverty reduction than male-headed households (MHHs). Furthermore, one particular challenge in understanding the current literature on poverty feminization is variations in how FHHs are defined (see Appendix 1, Table 3; we return to this discussion in the next section).

Several authors investigated the gender dimension of poverty in the Arab region before the onset of the Arab Spring uprisings in 2011 (Datt et al., 2001; El-Laithy, 2001). More recent post Arab-Spring studies examined poverty dynamics for the whole population and different population groups (e.g., Dang & Ianchovichina, 2018). Yet, these studies did not investigate the gender prism; a few studies explicitly examined poverty feminization related to FHHs but only on a single-country basis (AbdelLatif et al., 2019; AlAzzawi, 2018; Amara & Jemmali, 2018). Furthermore, these few studies stopped short of examining poverty dynamics for FHHs due to the lack of panel data.[2] These knowledge gaps prevent efficient and cost-effective policy interventions, since policies that target the wrong

[1] These include Egypt's largest poverty-targeting cash transfer program, Takaful, and other subsidy programs in Jordan, Lebanon, and Tunisia (ESCWA, 2021; NAF, 2020; Nasri, 2020; World Bank, 2022). In this study, we attempt to identify different types of FHHs from the household survey data. Our available data do not allow us to distinguish whether, and to what extent, a female member is the main decision maker in different types of FHHs.

[2] Mixed results exist regarding static poverty across countries. For example, comparison between MHHs and FHHs by self-reported headship revealed that for the Arab Republic of Egypt, FHHs are less likely to be poor (AbdelLatif et al., 2019; AlAzzawi, 2018) while the opposite result holds for Tunisia (Amara and Jemmali, 2018).

types of households are likely to succeed poorly in addressing poverty and policies that address chronic poverty could be quite different from those that tackle transient poverty.[3]

To our knowledge, we offer the first multi-country study that investigates two key questions that have much policy relevance. First, to what extent does FHH poverty exist across a number of countries in the Arab region? Second, are FHHs, according to a variety of household definitions, more likely to enter or escape poverty over time? In investigating these questions, our study makes several specific contributions to the literature.

First, we propose and evaluate a novel taxonomy (classification) of FHHs consisting of four main types and several sub-types, which are based on self-reported responses, demographic characteristics, and socio-economic characteristics. This approach allows us to employ more-nuanced headship definitions that reach beyond the traditional identification solely based on the household head's gender to better include other aspects of household female composition. Our proposed classification also calls for more attention to the important role of children for a better understanding of FHHs' poverty outcomes (AlAzzawi, 2018; Liu et al., 2017; Munoz Boudet et al., 2021), particularly poverty dynamics (Abanokova et al., 2022). Notably, the latter topic has received little attention in contexts where actual panel data are unavailable.

Second, we study the trends in the FHH poverty–gender nexus and poverty dynamics, for six countries across the Arab region—namely Egypt, Iraq, Jordan, Mauritania, the West Bank and Gaza (Palestine), and Tunisia—for which little knowledge exists regarding poverty, and especially poverty dynamics, by FHH status. Third, because of the absence of actual panel data, we construct synthetic panels that allow us to examine FHH poverty dynamics for these countries. Synthetic panels have been widely adopted to address data challenges, particularly for poorer countries, under certain data conditions. By conducting analyses on both poverty incidence and dynamics, using recent survey data, we contribute to a better understanding of the dynamic economic well-being of FHHs over time. In this process, we also make a new data contribution by carefully assembling and harmonizing relevant, up-to-date surveys from multiple sources in a region that is well recognized for limited data access.

We find that the shares of FHHs in poverty widely vary, ranging from 10 percent to more than 40 percent depending on the countries and definitions. Compared with non-FHHs, most definitions of FHHs (including self-reported, potential, and most-educated-female-adult FHHs) are 1 percent to 4 percent *less* likely to be poor while majority-female-adults FHHs are 3 percent to 5 percent *more* likely to be poor.

We also find considerable mobility in and out of poverty over the past decade, with the average poor FHH having between 21 and 54 percent chance of escaping poverty, depending on the country. Iraq, Jordan, and Mauritania have upward mobility (i.e., escaping poverty) rates of between 41 and 54 percent, and Egypt, the West Bank and Gaza and Tunisia have upward mobility rates between 21 and 31 percent. More children are generally associated with more poverty and lower chances of escaping poverty for FHHs. The upward mobility rates out of poverty for FHHs without children, FHHs with children, and non-FHHs across all countries are respectively 42 percent, 37 percent, and 36 percent. The corresponding figures for downward movement into poverty for these FHH definitions are

[3] For example, while social safety-net programs better address transient poverty (e.g., as they help prevent the non-poor but vulnerable households from falling into poverty), longer-term investments in human capital and infrastructure can tackle chronic poverty. See, e.g., Barrett (2005) and Ravallion (2016) for further discussion on different policy interventions regarding chronic poverty versus transitory poverty.

respectively 14 percent, 17 percent, and 19 percent. Our results on mobility are robust to different definitions of FHHs, alternative estimation models, and sample sizes.

The rest of the paper is organized as follows. Section 2 discusses the various definitions of female headship in the existing literature before proposing our new classification of female-headed households (Section 2.1) and introduces the analytical framework, including the synthetic-panel method that allows us to assess FHH poverty feminization dynamically without actual panel data (Section 2.2). Section 3 reviews the available data (Section 3.1) and presents descriptive statistics (Section 3.2). Section 4 reports the main results for cross-sectional poverty (Section 4.1) and poverty dynamics (Section 4.2), and Section 5 concludes with key findings and policy implications. Appendixes 1 and 2 present additional estimation results and descriptive statistics, Appendix 3 further discusses results using the synthetic-panel method, and Appendix 4 provides further discussion on welfare aggregates and standardization measures and analyses with adult equivalence scales.

2 Analytical Framework

2.1 Classification of Female-Headed Households: *de facto* vs. *de jure* Female Heads

The term "head" is a loaded term carrying strong connotations about household decision-making power that has traditionally been given to the oldest-male member (regardless of who is the primary economic provider or decision-maker). This is certainly an issue in the Arab region, where the traditional patriarchal system may preclude designating a female as "head" in the presence of a disabled adult male or a son (regardless of age), even if the woman is the main income-earner and decision-maker (AlAzzawi, 2018). Relying only on self-reported sex of the household head (*de jure*) to designate FHH and non-FHH may thus be misleading, potentially misclassifying true female-breadwinner households as male-headed and erroneously attributing their economic status to male-headed households.

Moreover, households vary in their composition and socioeconomic characteristics. In the countries in our sample, the majority of households are comprised of a married couple with one or two income earners, with or without children. Single-head households vary broadly: from widowed retirees who may have already worked for many years and are now living with older children who might be supporting them, to middle-aged mothers who were divorced or lost their husbands and are struggling to meet ends by joining the labor market for the first time. Among this group, the presence of another adult male, whether an earner or not, as well as the presence of children, are additional confounding factors. We therefore consider alternative proxies to define FHH based on specific economic contributions and household compositions, such as the proportion of female earners and the highest educational attainment among adult household members.

The heterogeneous nature of FHHs and the need to separately study different FHH definitions have been discussed extensively in the literature on poverty feminization (e.g. Kabeer, 1997; Quisumbing et al., 2001; Klasen et al., 2015; Beegle et al., 2016; Munoz Boudet et al., 2018). The variety of household-headship designations in existing studies could have led to mixed results regarding poverty feminization and dynamic patterns. Our reading of some selected studies in the past two decades suggests that while FHHs are not observed to be poorer than non-FHHs in many cases, FHHs can be poorer or have lower consumption depending on the specific type and country context (Appendix 1, Table 3). Advancing an FHH classification can thus be critical for clarifying the apparent

inconsistencies and for re-classifying households with what may be considered "*de facto* female heads" (based on demographic or socioeconomic characteristics), as opposed to "*de jure* female heads" (based on official status or self-reported information). This also has important implications for poverty reduction efforts targeted at vulnerable population groups.

The classification of FHHs expounded in this study thus starts with the *de jure* versus *de facto* distinction and unpacks it into several layers, as motivated by both our review of the literature and our empirical analysis for each type of FHHs in the Arab region. Figure 1 presents the proposed classification. For the first layer, existing studies can be broadly grouped under two categories: "*de jure* FHH" and "*de facto* FHH" (second row). For the second layer, we consider three approaches under these two groups: the self-reported approach (under "*de jure* FHH"), and the demographic approach and the socioeconomic approach (under "*de facto* FHH") (third row). For the third layer, we consider four main definitions of FHHs under these three approaches: i) Type 1: self-reported FHHs, ii) Type 2: FHHs defined using the majority share of females among adults in the household (i.e., majority-female-adults FHHs where the *proportion of females among (working-age) adults exceeds 0.5*), iii) Type 3: potential FHHs (i.e., those households where there are no working-age males present), and iv) Type 4: FHHs defined as those where the most-educated adult member is female and no working-age employed male is present (i.e., most-educated-female-adult FHHs) (fourth row).[4] Furthermore, under these four main definitions, we also consider five alternative sub-types, which include *de jure* and married FHHs (under self-reported FHHs), FHHs defined using the majority share of employed females in the household (under majority-female-adults FHHs), and asset and core FHHs (under potential FHHs) (fifth row).[5] Finally, all these definitions of FHHs should be considered separately with or without any children (last row), since the presence of children plays a crucial role in FHHs' poverty classification as discussed below.

Figure 1 briefly refers to some illustrative studies that employ these approaches and we elaborate below on this new classification.

2.1.1 "*De jure*" FHHs: Self-Reported Approach

A natural departure point to analyzing FHHs is to adopt the self-reported identification of the head by the survey respondent (our first type, self-reported FHHs), which falls under the *de jure* FHHs group. Marital status is a key characteristic in this respect. A large share of FHHs are formed as the result of a major marital shock such as divorce or widowhood. If, prior to the shock, the husband was the primary income-earner, the newly-formed FHH may be more likely to fall into poverty (Brown & Van de Walle, 2021). FHHs formed through widowhood, especially at a young age with children present, can exhibit both more poverty and higher persistence of poverty (Appleton, 1996; Dreze & Srinivasan, 1997; Horrell & Krishnan, 2007; Van de Walle, 2013; Munoz Boudet et al., 2018; Brown & Van de Walle, 2021) than FHHs formed largely "by choice", through divorce or migration of the male spouse (Quisumbing, et al., 2001; Klasen et al., 2015; Beegle et al., 2016; Bradshaw et al., 2017).

[4] We define working-age as those who are between 18 and 64 years old or those who are household heads.

[5] While we propose these three approaches and types for classification purposes, they are not mutually exclusive and existing studies have combined one or more in defining female headship.

Females who never marry or who seek divorce might have chosen this status because they have strong prospects for supporting their newly formed households on their own, such as higher personal incomes or enabling family-support systems. Ignoring such considerations could mask differences between self-reported FHHs that are financially secure and those that are economically vulnerable (Kabeer, 1997; Van de Walle, 2013; Milazzo & Van de Walle, 2017). Consequently, it may also be useful to consider alternative definitions of households based on their marital status—never married, married, divorced or separated, and widowed.

In our samples, most self-reported MHHs are married, and this group is the largest in the sample. By contrast, from 69 to 77 percent of self-reported FHHs in all six countries are widowed, except for Mauritania and the West Bank and Gaza, where 35 and 53 percent, respectively, of self-reported FHHs are widowed households when considering all years together (Appendix 2, Tables 22, 23, 24, 25, 26, 27 and 28). The second-largest group of self-reported FHHs have married heads, but this share typically remains about 20 percent or below in all countries and years, except for Mauritania where it rose rapidly to almost 40 percent after 2008.[6]

2.1.2 "*De facto*" FHHs: Demographic and Socioeconomic Approaches

A *de facto* FHH can be defined as one where the male head is temporarily or regularly absent, or (if co-resident) is not the main breadwinner (Buvinic et al., 1978; Buvinic et al., 1983; Klasen et al., 2015). *De facto* headship accounts for the demographic composition of the household, as well as the socioeconomic circumstances determining the respective members' relative contributions to household resources (Rosenhouse, 1989; Handa, 1996; Rogers, 1995; Varley, 1996; Buvinic & Gupta, 1997; Fuwa, 2000; Posel, 2001; Budlender, 2008; Grown & Valodia, 2010; Chant, 2010; Rogan, 2013; Klasen et al., 2015).

A *de facto* FHH may be more vulnerable to poverty than the average household for several reasons. In many societies, the absence of male connections to local economic and social institutions can be debilitating. *De facto* FHHs residing with the female heads' fathers or older sons may still be better off than FHHs who do not have support of working-age males; for example, agricultural production may become more challenging due to fewer working-age household members working on the farm (Rogan, 2013; Brown & Van de Walle, 2021). These FHHs may also have less access to productive assets such as livestock or extension services. Moreover, women in Arab labor markets have far fewer job opportunities compared to men. Their labor-force participation rates

[6] One complication in classifying married self-reported FHHs arises where one spouse works overseas and sends home remittances, which is common in the region. If the overseas spouse is the husband, the stay-behind spouse might or might not designate herself as the household head in his absence. This can underestimate poverty among "true" FHHs, where the female head does not rely on others for support, since some of the self-declared female heads or main income-earners are in fact temporary designees while the main income-contributing spouses are overseas. In the surveys for all years, remittances are major sources of income for self-reported FHHs, consisting for example of 68% of the consumption per capita in Egypt, and 37% of the consumption per capita in Jordan (Appendix 2, Tables 23 and 25, all years columns). However, the surveys lump together domestic and overseas remittances and do not allow any further breakdown or provide information on the amount of overseas remittances. The surveys do not identify the relations between the remitters and the households, which complicates matters as such remittances might be alimony or in-kind support. We provide the summary statistics the different FHH types by country in Appendix 2, Tables 29, 30, 31 and 32.

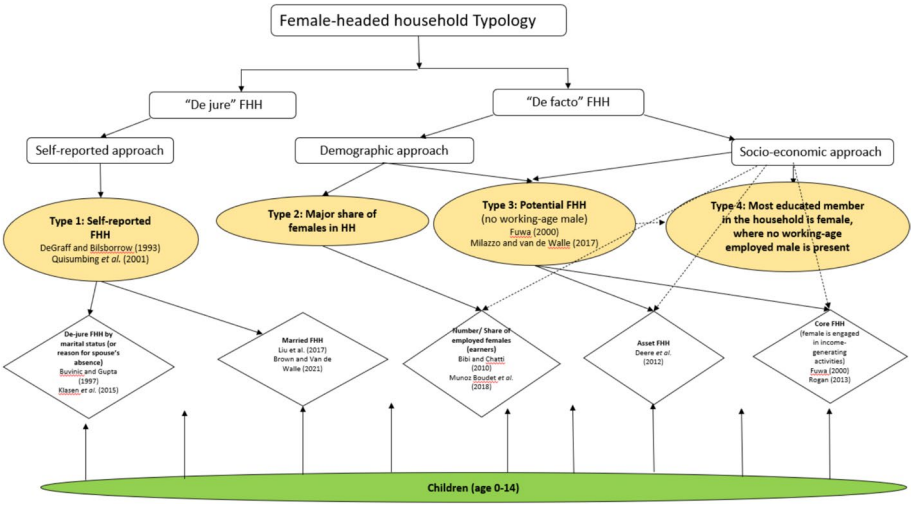

Fig. 1 Diagram of FHH Types. Note: Solid line and dashed line respectively indicate direct and indirect relationship. Some studies are shown for illustrative purposes and do not represent an exhaustive list. Of these definitions, type 2 (majority-female-adults FHHs) is explicitly and formally defined for better analysis for the first time and type 4 (most-educated-female-adult FHHs) is a completely new definition. See Section 2.1 for more detailed discussion

are currently among the lowest in the world; their unemployment rates are also four times the world average (UNDP, 2022). When they do work, they tend to face wage and occupational discrimination (El-Hamidi & Said, 2008) or are overrepresented in the informal sector with low pay and no social insurance. Residing in a majority-female-adults household, or in one where the majority of earners are female, affects the propensity of being poor (Munoz Boudet et al., 2018; Rogan, 2013).

Ideally, an objective criterion would be used to assign headship to the family member whose income or decision-making contributes most to maintaining the family. For instance, Gammage (1998) found that using the *maintenance* criteria to define FHHs in El Salvador and Costa Rica results in a markedly higher percentage of such female-maintained households (FMHs) compared to the *de jure* FHH group, and higher poverty incidence. Unfortunately, household surveys in the Arab region do not provide information about individual incomes or total earnings, only aggregates for the household. In the absence of such information, based on our review of the literature (Table 3 in Appendix 1), we propose several alternative definitions of *de facto* FHHs using demographic and socioeconomic criteria, which are shown in Fig. 1 and discussed in detail above.

A couple of remarks are in order. First, these main definitions of FHHs can also include subcategories. For example, under the second-type majority-female-adults FHHs, we can consider those where the *proportion of employed females exceeds that of employed males (majority-employed-female-adults FHHs).* Similarly, under the third-type potential FHH, we can consider a subcategory called *core FHH* that encompasses only the potential FHHs with employed females, and another subcategory called *asset FHH* encompassing only households with females who have ownership rights over the dwellings they reside in.

Second, the different definitions of FHHs we propose can capture different aspects (or practical operations) of FHHs. Figures 7 and 8 in Appendix 1 depict the overlap between different definitions of FHHs. We return to more discussion in Section 4.

2.1.3 Key Confounding Factors: Presence of Children

To account for critical additional household circumstances interacting with household poverty status, we distinguish FHHs *with and without children*.[7] Access to childcare affects women's labor force participation (LFP) in many countries around the world, rich and poor alike (Akgunduz & Plantega, 2018; Clark et al., 2019). In European countries, childless women (with or without partners) and single mothers have higher personal earnings than women whose family trajectories combined parenthood and partnership (Muller et al., 2020). In Egypt, childcare similarly presents a considerable barrier to women's employment (Caria et al., 2022). Yet, only a handful of previous studies have examined how poverty differs with and without children, but mostly for self-reported FHHs (AlAzzawi, 2018; Liu et al., 2017; Medeiros & Costa, 2008). Exceptions include Munoz Boudet et al. (2018) and Munoz Boudet et al. (2021), who look at household gender composition with and without children. Importantly, the common finding in these few studies is that FHHs with children are typically poorer than FHHs without children.

Furthermore, a related economics literature on adult equivalence scales suggests that scale adjustments (for different numbers of adults and children) could have substantial effects on poverty and profiles of the poor for various countries at different income levels (Abanokova et al., 2022; Lanjouw & Ravallion, 1995; Newhouse et al., 2017). This is especially relevant for FHHs; for example, FHHs tend to have lower numbers of household members, but higher child dependency ratios (Klasen et al., 2015; World Bank, 2011). In our sample (Appendix 2, Table 28), across all years and countries, the average size of FHHs is 5.7, while that of MHHs is 7.4.[8]

For widowed FHHs, their offspring are typically already-grown, independent adults who might be contributing to household expenses from their own earnings. The current welfare of these female heads is likely a function of their accumulated earnings, or more likely those of their deceased or living spouses and adult children, and thus are not strictly comparable to (male or female) heads with young children who rely on current labor market earnings to support themselves and their families. This distinction is especially pertinent to dynamic analysis. If the full sample of female or male heads were treated as a single group, this would unduly bias the results in favor of the elderly, widowed female heads without children, and against the much younger working male heads with children. Consequently, it is important to examine poverty incidence and dynamics among FHHs with or without children.

In summary, our new classification consists of four main types of FHHs and their associated five sub-types (variants). Of these, to our knowledge, we provide explicit and formal operational definition for one type for the first time (second type, majority-female-adults FHHs) and we introduce a completely new type (fourth type, most-educated-female-adult

[7] We define children as individuals falling in the age range 0–14.

[8] The average age of female heads is much higher than that of male heads (56 for FHHs vs. 48 for MHHs). Female heads are also mostly widowed (70.7%, compared to 1.3% for male heads).

FHHs).[9] We also investigate poverty trends and dynamics of these four types of FHHs for households with and without children, further differentiating between those with different numbers of children.

2.2 Empirical Framework

2.2.1 Static Cross-Sectional Analysis

We provide both static and dynamic analyses of FHH (headcount) poverty in the Arab region. For static analysis, we examine the differences in poverty between different definitions of FHHs and non-FHHs. Specifically, for easier interpretation we estimate the following linear probability model

$$p_{ijch} = \gamma_h FHH_{ijch} + \theta_h FHH_{ijch} * Children_{ijch} + \beta_h' Z_{ijch} + \mu_c + \tau_j + \varepsilon_{ijch} \quad (1)$$

where p_{ijch} is a binary variable representing the poverty status (i.e., equals 1 if poor and 0 otherwise) for household i, $i=1,\ldots, n$ in survey round j, $j=1$ or 2, country c, $c=1,\ldots, 6$, for FHH type h (FHH_{ijch}).[10] $Children_{ijch}$ is the number of young children age 0–14 in the household (who are generally not old enough to enter the labor force). Z_{ijch} is a vector of control variables, including household employment and demographic characteristics and residence area (i.e., urban/rural residence). μ_c and τ_j are respectively the country and survey round (year) fixed effects that control for unobserved macro factors that can affect the whole country or outcomes in specific years, and ε_{ijch} is the error term.

In Eq. (1), γ_h and θ_h are the coefficients of interest. Compared to non-FHHs, γ_h presents the association between poverty and different definitions of FHHs without any children, $\gamma_h + \theta_h$ presents this association for FHHs with exactly one child, and so on. For easier interpretation, we can also fix the number of children at the mean ($\overline{Children_{ijch}}$) and consider the association between poverty and different definitions of FHHs with the average number of children as $\gamma_h + \theta_h \overline{Children_{ijch}}$.

It is useful to estimate and compare two different versions of Eq. (1), one without the control variables Z_{ijch} and one with these control variables. If the estimates for γ_h considerably change (or weaken) if the control variables are added, this indicates that the specified FHH type's exposure to poverty is sensitive to these control variables. Put differently, this presents a test whether the specified FHH type can capture a relationship with poverty that is not explained by the control variables (i.e., how good the definition of the specified FHH type is). The findings based on our review of the literature suggest that FHHs' exposure to poverty (γ_h and to some extent θ_h) are likely sensitive to household composition and employment characteristics (e.g., number of children or working members).

[9] Further adding to our discussion above, while many studies have highlighted the role of gender composition in female poverty (Fuwa, 2000; Munoz Boudet et al., 2018) and some has shown that households with higher shares of adult females are disproportionately represented among the poor (Haddad, 1991; Visaria, 1980), they have not provided an explicit operational definition based on adult female majority as we do in this paper.

[10] Estimates using logit models in Appendix 1 are qualitatively similar.

2.2.2 Dynamic Analysis

For the dynamic analysis, we use synthetic-panel methods based on Dang et al. (2014) and Dang and Lanjouw (2023a). Recent validations and applications of the synthetic-panel methods for different country contexts ranging from Africa to Asia, Latin America, the Middle East, and Europe have been encouraging in terms of accurate projections of economic status (Ferreira et al., 2012; Beegle et al., 2016; UNDP, 2016; OECD, 2018; Dang et al., 2019; Salvuci & Tarp, 2021; Ghomi, 2022; Colgan, 2023; Gafa et al., 2024). Recent reviews of this method are provided by Dang et al. (2019), Dang (2021), Garcés-Urzainqui et al. (2021), Colgan (2023), Dang and Lanjouw (2023b), and D'Alberto et al. (2025).

To make notation less cluttered, we suppress the notation for household type in the following discussion. Let x_{ij} be a vector of household characteristics observed in survey round j (j = 1 or 2) that are also observed in the other survey round for household i, i = 1,…, N.[11] These household characteristics can include such time-invariant variables as ethnicity, religion, language, place of birth, parental education, and other time-varying household characteristics if retrospective questions about the round-1 values of such characteristics are asked in the second round survey. A data prerequisite is that the two survey rounds provide comparable data over time.

To reduce spurious changes due to changes in household composition over time, we usually restrict the estimation samples to household heads in a certain age range, say 25 to 55, in the first cross section and adjust this age range accordingly in the second cross section. This restriction also helps ensure certain variables such as heads' educational attainment remains relatively stable over time (assuming most heads are finished with their schooling).[12] This 25–55 age range is usually used in traditional pseudo-panel analysis but can vary depending on the cultural and economic factors in each specific setting. Population weights are then employed to provide estimates that represent the whole population.

Then let y_{ij} represent household consumption or income in survey round j, j = 1 or 2. The linear projection of household consumption (or income) on household characteristics for each survey round is given by

$$y_{ij} = \beta_j' x_{ij} + \varepsilon_{ij} \tag{2}$$

Let z_j be the poverty line in period j. We are interested in knowing the unconditional measures of poverty mobility such as

$$P\left(y_{i1} < z_1 and y_{i2} > z_2\right) \tag{3}$$

which represents the percentage of households that are poor in the first survey round (year) but nonpoor in the second survey round, or the conditional measures such as

$$P\left(y_{i2} > z_2 | y_{i1} < z_1\right) \tag{4}$$

which represents the percentage of poor households in the first round that escape poverty in the second round.

[11] We suppress the index for countries and FHH types to make notation less cluttered in this appendix.

[12] While household heads may still increase their educational achievement in theory, this rarely happens in practice.

If true panel data were available, we could straightforwardly estimate the quantities in (3) and (4); but in the absence of such data, we can use synthetic panels to study mobility. To operationalize the framework, we make two standard assumptions. First, we assume that the underlying population being sampled in survey rounds 1 and 2 are identical such that their time-invariant characteristics remain the same over time. More specifically, coupled with Eq. (2), this implies the conditional distribution of expenditure in a given period is identical whether it is conditional on the given household characteristics in period 1 or period 2 (i.e., $x_{i1} = x_{i2}$ implies $y_{i1}|x_{i1}$ and $y_{i1}|x_{i2}$ have identical distributions) (Assumption 1). Second, we assume that ε_{i1} and ε_{i2} have a bivariate normal distribution with positive correlation coefficient ρ and standard deviations σ_{ε_1} and σ_{ε_2} respectively (Assumption 2). Quantity (3) can be estimated by

$$P\left(y_{i1} < z_1 and y_{i2} > z_2\right) = \Phi_2\left(\frac{z_1 - \beta_1 \prime x_{i2}}{\sigma_{\varepsilon_1}}, -\frac{z_2 - \beta_2 \prime x_{i2}}{\sigma_{\varepsilon_2}}, -\rho\right) \tag{5}$$

where $\Phi_2(.)$ stands for the bivariate normal cumulative distribution function (cdf), and $\phi_2(.)$ stands for the bivariate normal probability density function (pdf). Note that in Eq. (5), the estimated parameters obtained from data in both survey rounds are applied to data from the second survey round (x_2) (or the base year) for prediction, but we can use data from the first survey round as the base year as well. It is then straightforward to estimate quantity (4) by dividing quantity (5) by $\Phi\left(\frac{z_1 - \beta_1 \prime x_{i2}}{\sigma_{\varepsilon_1}}\right)$, where $\Phi(.)$ stands for the univariate normal cumulative distribution function (cdf).

In Eq. (5), the parameters β_j and σ_{ε_j} are estimated from Eq. (2), and ρ can be estimated using an approximation of the correlation of the cohort-aggregated household consumption between the two surveys ($\rho_{y_{c1}y_{c2}}$). In particular, given an approximation of $\rho_{y_{c1}y_{c2}}$, where c indexes the cohorts constructed from the household survey data, the partial correlation coefficient ρ can be estimated by

$$\rho = \frac{\rho_{y_{i1}y_{i2}}\sqrt{var\left(y_{i1}\right)var\left(y_{i2}\right)} - \beta_1 \prime var\left(x_i\right)\beta_2}{\sigma_{\varepsilon_1}\sigma_{\varepsilon_2}} \tag{6}$$

An alternative way to estimate ρ is to further assume that there is a cohort fixed effect in the error terms and aggregate all the time-invariant variables to the cohort level and use the following equation

$$y_{cj} = \beta_j \prime x_{cj} + \varepsilon_{cj} \tag{7}$$

where the error term ε_{cj} includes a cohort fixed effect τ_c and the error ν_{cj}.

In this study, we define cohorts as household heads' ages interacted with household heads' educational levels (including no education, primary/lower secondary, upper secondary, and tertiary levels). We note that extra caution should be taken, together with country-specific knowledge, when defining cohorts. Recent studies using synthetic panels find that estimation results could be sensitive to cohort definitions, particularly in richer country contexts such as Australia, European Union countries, Thailand, and the United Kingdom

(Herault & Jenkins, 2019; Garcés-Urzainqui et al., 2021; Colgan, 2023; D'Alberto et al., 2025). Furthermore, it should be emphasized that while it is useful to employ an approximate value for $\rho_{y_{c1}y_{c2}}$ when constructing the synthetic panels in most practical contexts, this parameter may be inconsistent even in large samples (D'Alberto et al., 2025; Moreno et al., 2021). It can be useful to compare different estimates for ρ, using Eqs. (6) and (7). Similar estimation values using the two different approaches can provide supportive evidence.[13]

Some additional remarks are in order. First, there is not necessarily a correlation between upward mobility and downward mobility, as well as between these mobility movements and the headcount poverty rate (Dang & Dabalen, 2019; Dang et al., 2024). Consequently, analyzing (synthetic) panel data can reveal dynamic patterns that are masked by cross sectional data. Second, the standard errors of estimates based on the synthetic panels can in fact be even smaller than that of the true (or design-based) rate if there is a good model fit (or the sample size in the target survey is significantly larger than that in the base survey; see Dang and Lanjouw (2023a) for more discussion). Third, our synthetic panels are constructed using the latest two survey rounds for each country. Consequently, the survey years under consideration depend on data availability and vary across countries. Finally, for synthetic-panel analysis, we make the assumption that FHH status remains fixed across the two survey rounds. More detailed estimates regarding the synthetic panels are provided in Appendix 3.

3 Data and Descriptive Statistics

3.1 Data

We analyze 20 survey rounds from six countries: Egypt, Iraq, Jordan, Mauritania, the West Bank and Gaza, and Tunisia. For Egypt, we use the Household Income, Expenditure and Consumption Surveys (HIECs) for 2012–2013, 2015, 2017–2018, and 2019–2020; for Iraq, the Household Socio-Economic Survey (IHSESs) for 2007 and 2012; for Jordan the Household Expenditure and Income Surveys (HIESs) for 2010–2011 and 2013–2014; for Mauritania, the Permanent Survey of Living Conditions of Households (EPCVs) for 2004, 2008, 2014, and 2019; for the West Bank and Gaza, the Expenditure and Consumption Survey (PECSs) for 2007, 2009, 2011, and 2016–2017; and for Tunisia, the National Survey on Household Budget, Consumption and Standard of Living (NSHBCs) for 2005, 2010, 2015, and 2021. These surveys provide rich information on household expenditures and various household and individual characteristics for the different household definitions.

Several of these surveys were harmonized by the Economic Research Forum (Egypt's 2012–2013, 2015, 2017–2018 HIECSs; Iraq's 2007 and 2012 IHSESs; Jordan's 2010–2011, and 2013–2014 HIESs; the West Bank and Gaza's 2009 and 2011 PECSs; and Tunisia's 2005 and 2010 NSHBCs. The most recent surveys for Egypt (2019–2020), the

[13] D'Alberto et al. (2025) provide the analytical bias for this parameter. Yet, simulation results by Dang and Lanjouw (2023a) suggest that estimates on poverty dynamics remain robust even when there is considerable bias (of up to ± 30%) for, which is an intermediate input in the estimation of poverty mobility. We provide estimates for ρ using both approaches in Appendix 3, Table 45.

West Bank and Gaza (2016–2017), Tunisia (2015 and 2021), and the Mauritanian EPCVs were obtained from national statistical agencies CAPMAS, PCBS, INS and ONS, respectively. We implemented careful harmonization of these surveys with the previous survey years and translated the variables from Arabic or French to English.

We present the poverty lines for the six countries in Table 4 (Appendix 1), compiling them from official sources and World Bank publications. We used region-specific poverty lines within each country to account for spatial differences in consumption (expenditure) patterns and price levels.[14] Since our focus is on poverty analysis, we used consumption values and national poverty lines in local currency units and in survey-year prices to sidestep conversion issues (e.g., with the PPP or market exchange rates) and adjustment for inflation. We further show results using the Adult Equivalent Expenditure (AEE) (or income) for each household in Appendix 4. The relationship between household size and poverty dynamics reveals varying scenarios for FHHs, with FHHs generally having a higher likelihood of escaping poverty than non-FHHs when assessing consumption on a per capita basis.[15]

3.2 Descriptive Statistics

Table 1 presents some key sample statistics on the prevalence of FHHs defined according to our proposed classification (Section 2.1) across the six Arab countries and different (survey) years. The four main types of FHHs are shown in bold while the alternative sub-types are shown in regular font. The shares of self-reported FHHs remain relatively stable over time in most countries, except for Mauritania. In recent years, this share hovers from around 10 percent (Iraq, the West Bank and Gaza) to 13 percent (Jordan) and 18 percent (Egypt, Tunisia).[16] Mauritania has the largest share of self-reported FHHs, which has almost doubled from 18.9 percent in 2004 to 36.6 percent in 2019. The shares of majority-female-adults FHHs are significantly higher in all countries, ranging from 21 percent (Egypt) to 44 percent (Mauritania) in the most recent years. Potential FHHs are as prevalent as those identified by self-reporting in all the countries except Iraq, where they are half as prevalent. Finally, most-educated-female-adult FHHs have relatively low prevalence rates, ranging from around 6 percent in Iraq to 25 percent in Mauritania. There is a weak-to-medium correlation among the four FHH definitions (i.e., ranging from 0.27 to 0.51; Appendix 1, Table 5), suggesting that each of the proposed FHH definitions captures similar but also distinct information about female headship.

[14] We were able to do this for all countries in our sample except for Jordan. According to DOS reports, Jordan's Department of Statistics (DOS) did not publish region-specific poverty lines and used a single poverty line for all of Jordan in 2010 and 2013. Jordan's DOS does not publish region-specific Consumer Price Indices so we were unable to take spatial price differences into consideration.

[15] These results are consistent with Abanokova et al.'s (2022) finding regarding the sensitivity of income dynamics to scale parameters, showing persistent upward mobility when income is evaluated on a per capita basis for the Russian Federation.

[16] These shares are lower than the corresponding figure of 26 percent for African households observed in Milanzo and Van de Walle (2017).

Table 1 Share of Female-Headed Households in Six Arab Countries (percentages)

	Egypt, Arab Rep				Iraq		Jordan		Mauritania	
	2012	2015	2017	2020	2007	2012	2010	2013	2004	2008
Type 1. Self-reported FHH	**17.80**	**17.86**	**18.43**	**17.59**	**11.30**	**9.63**	**13.88**	**13.24**	**18.92**	**31.30**
	1,346	*2,104*	*2,265*	*1,967*	*1,906*	*2,531*	*402*	*669*	*1,860*	*4,273*
Official FHH	13.98	14.96	15.92	14.03	10.43	8.22	11.29	11.05	16.89	18.90
	1,058	*1,741*	*1,956*	*1,599*	*1,721*	*2,152*	*335*	*592*	*1,674*	*2,688*
Never married	0.48	0.37	0.48	0.59	0.46	0.20	0.89	0.89	0.44	0.45
	35	*43*	*57*	*67*	*78*	*101*	*17*	*43*	*44*	*67*
Divorced/separated	0.95	1.33	1.55	1.80	0.78	0.62	0.51	0.66	6.15	6.98
	74	*153*	*194*	*210*	*120*	*175*	*19*	*33*	*602*	*974*
Widow only	12.56	13.26	13.89	11.64	9.19	7.40	9.90	9.50	10.29	11.47
	949	*1,545*	*1,705*	*1,322*	*1,523*	*1,876*	*299*	*516*	*1,028*	*1,647*
Married FHH	3.80	2.89	2.52	3.53	0.87	1.41	2.58	2.19	1.92	12.20
	287	*363*	*309*	*365*	*185*	*379*	*67*	*77*	*176*	*1,558*
Type 2. Share of female adults > 0.5	**22.96**	**22.29**	**22.46**	**20.87**	**24.02**	**28.92**	**25.80**	**22.80**	**31.50**	**40.40**
	1,712	2,659	2,797	2,352	4,547	6,525	728	1,105	*3,075*	*5,606*
Share of employed females > share of employed males	**5.42**	**6.22**	**6.12**	**6.02**	**4.81**	**3.81**	**6.02**	**7.56**	**11.40**	**12.90**
	406	*733*	*757*	*660*	*916*	*1,070*	*178*	*291*	*1,056*	*1,888*
Type 3. Potential FHH	**16.68**	**16.49**	**19.37**	**18.86**	**5.73**	**3.59**	**13.25**	**12.78**	**17.01**	**27.09**
	1,244	*1,935*	*2,344*	*2,087*	*1,007*	*1,621*	*359*	*576*	*1,643*	*3,694*
Core FHH	3.06	3.17	3.49	3.75	1.65	0.86	2.52	3.52	7.07	8.07
	229	*364*	*419*	*407*	*283*	*388*	*77*	*129*	*635*	*1,160*
Asset FHH	11.77	11.70	14.05	13.10	4.00	2.61	12.02	10.90	14.85	24.30
	881	*1,459*	*1,765*	*1,489*	*783*	*1,258*	*321*	*510*	*1,417*	*3,287*

Table 1 (continued)

	Egypt, Arab Rep				Iraq		Jordan		Mauritania	
	2012	2015	2017	2020	2007	2012	2010	2013	2004	2008
Type 4. Most educated adult member is female & no employed males	**12.92**	**13.88**	**14.30**	**13.98**	**8.54**	**5.87**	**18.49**	**18.48**	**8.76**	**16.47**
	951	*1,610*	*1,749*	*1,554*	*1,485*	*1,990*	*499*	*932*	*969*	*2,384*
	Mauritania		Palestine				Tunisia			
	2014	2019	2007	2009	2011	2017	2005	2010	2015	2021
Type 1. Self-reported FHH	**30.19**	**36.58**	**9.12**	**10.00**	**11.07**	**10.05**	**17.01**	**14.85**	**16.24**	**18.52**
	3,033	*3,654*	*108*	*388*	*505*	*397*	*2,128*	*1,704*	*4,088*	*3,153*
Official FHH	17.23	16.98	8.26	8.79	9.93	8.04	13.73	11.95	14.12	16.62
	1,839	*1,834*	*97*	*341*	*447*	*308*	*1,671*	*1,347*	*3,462*	*2,788*
Never married	0.50	0.60	0.59	1.07	1.09	0	1.01	0.56	1.29	1.51
	48	*72*	*7*	*45*	*56*	*0*	*113*	*65*	*282*	*261*
Divorced/separated	6.22	6.64	0.99	0.65	1.14	0.82	1.28	1.18	1.53	1.90
	660	*690*	*11*	*25*	*43*	*29*	*156*	*131*	*360*	*291*
Widow only	10.52	9.74	6.68	7.07	7.70	7.22	11.44	10.21	11.29	13.21
	1,131	*1,072*	*79*	*271*	*348*	*279*	*1,402*	*1,151*	*2,820*	*2,236*
Married FHH	12.96	18.45	0.87	1.22	1.14	2.01	3.28	2.90	2.12	1.91
	1,194	*1,714*	*11*	*47*	*58*	*89*	*457*	*357*	*624*	*365*
Type 2. Share of female adults > 0.5	**39.98**	**43.96**	**21.52**	**19.53**	**20.97**	**24.28**	**29.20**	**28.98**	**26.17**	**27.21**
	3,897	*4,393*	265	751	919	955	3,710	3,363	*6,907*	*4,740*

Table 1 (continued)

	Mauritania		Palestine				Tunisia			
	2014	2019	2007	2009	2011	2017	2005	2010	2015	2021
Share of employed females > share of employed males	**14.30**	**14.68**	**7.65**	**6.72**	**6.54**	**4.59**	**10.94**	**9.01**	**10.17**	**11.04**
	1,422	*1,454*	*88*	*269*	*300*	*176*	*1,313*	*987*	*2,382*	*1,854*
Type 3. Potential FHH	**25.02**	**27.88**	**11.09**	**10.35**	**10.55**	**9.88**	**18.30**	**17.54**	**18.13**	**26.75**
	2,345	*2,824*	*127*	*398*	*482*	*397*	*2,280*	*1,974*	*4,609*	*4,618*
Core FHH	9.68	9.12	3.04	2.34	2.84	1.82	5.07	4.11	4.27	5.67
	939	*912*	*34*	*97*	*130*	*74*	*620*	*457*	*1,022*	*947*
Asset FHH	22.63	24.67	9.24	8.76	8.52	N.A	15.56	15.55	15.22	N.A
	2,095	*2,523*	*106*	*338*	*402*	*N.A*	*1,967*	*1,769*	*4,037*	*N.A*
Type 4. Most educated adult member is female & no employed males	**13.83**	**24.67**	**16.87**	**15.25**	**14.82**	**11.52**	**15.42**	**17.75**	**17.84**	**20.11**
	1,378	*2,490*	*201*	*595*	*643*	*419*	*1,936*	*2,024*	*4,479*	*3,520*

The main definitions of female-headed households are in bold, and the variant definitions are in regular font. The numbers in bold refer to the percent of the cross-sectional sample for each period. Household sampling weights are applied. The numbers in *italics* refer to the sample size of each group. Type 1 *self-reported FHHs* are obtained from self-reporting information in the survey questionnaires. Type 2 *majority-female-adults FHHs* are defined as households where the proportion of females among (working age) adults exceeds 0.5. Type 3 *potential FHHs* are those households where there are no working-age males present. Type 4 *most-educated-female-adult FHHs* consist of households with no employed males, whose most educated adult member is female. Under Type 1 FHHs, the different sub-types are defined as in the survey questionnaires. Under Type 3 FHHs, sub-type 3 *core FHH* encompasses only the potential FHHs with employed females, and sub-type 3 *asset FHH* encompasses only households with females who have ownership rights over the dwellings they reside in. Section 2.1 provides more detailed discussion on the different definitions.

Compared with the four main definitions, the alternative subtypes all provide lower-to-almost-negligible prevalence of FHHs. For example, under the self-reported FHH type, while *de jure* FHHs account for between 8 and 17 percent of households for all countries and years, the corresponding figures for married FHHs are between 1 and 4 percent for all the countries, except for Mauritania in 2008 and later years. Under the majority-female-adults FHH type, the sub-type majority-employed-female-adults FHHs, however, yields a much smaller group of FHHs (ranging from around one-half to two-thirds as small). This is expected given the very low female LFP rates in the region, especially in such countries as Iraq and Jordan where they are among the lowest globally.

Figure 2 illustrates the trends in headcount poverty ratios by country for the four main definitions of FHHs against those of the whole population for each country. This figure shows that different FHH definitions display clear differences regarding poverty levels and trends. Specifically, while potential FHHs (purple line) show faster poverty decreases in Iraq, Jordan, the West Bank and Gaza, and Tunisia, most-educated-female-adult FHHs (pink line) show slightly opposite trends from those of the whole population for Iraq. This contrasts with self-reported FHHs (green lines) and potential FHHs, which predominantly have less poverty than the whole population for almost all the country-year observations.[17]

For each country, Figs. 3 and 4 present the poverty differences between FHHs and non-FHHs for the four main FHH definitions respectively by year and by the number of children (age 0–14). Figure 3 indicates that the self-reported and potential FHH definitions typically have lower poverty ratios than non-FHH households across most years and countries. However, majority-female-adults FHHs tend to be poorer than the respective non-FHHs in most years and countries, except in Egypt 2017–2020. Most-educated-female-adult households have systematically more poverty prevalence than the corresponding non-FHHs in Iraq, Jordan, the West Bank and Gaza and Tunisia, but less poverty prevalence in Egypt and Mauritania.[18] Figure 4 shows that the presence of children is positively associated with poverty prevalence among FHHs for most of the countries, except for Egypt and Mauritania.

4 Estimation Results

4.1 Cross-sectional or Static Poverty

Table 2 provides the estimates for the associations between the four main FHH definitions and poverty (γ_h in Eq. (1)) for all the six countries, without and with the household

[17] Pooling data for all years and countries, we further show the FHH–non-FHH poverty differences for all FHH types and by the number of children in households in Figs. 10 and 11 (Appendix 1). These figures indicate that the self-reported and potential FHH types tend to have less poverty than non-FHH households across most years and countries, but the relationships between the number of children and poverty vary across countries.

[18] Table 11 (Appendix 1) provides cross-sectional poverty rates for different household types over time in the six countries. Panels B and C additionally report these poverty rates for rural and urban subgroups, and Panels D and E report the poverty rates for households with children under 14 and without children under 14. Poverty rates are typically higher in rural areas than in urban areas, except for the West Bank and Gaza, and higher for households with children 14 and younger. Given the consistently high poverty rates among FHHs defined by the share of women among adults, we also assess the poverty rates among self-reported MHHs according to the number of female adults present in Fig. 9 (Appendix 1). Poverty almost always increases with the number of females in all six countries, validating the central finding from Fig. 3.

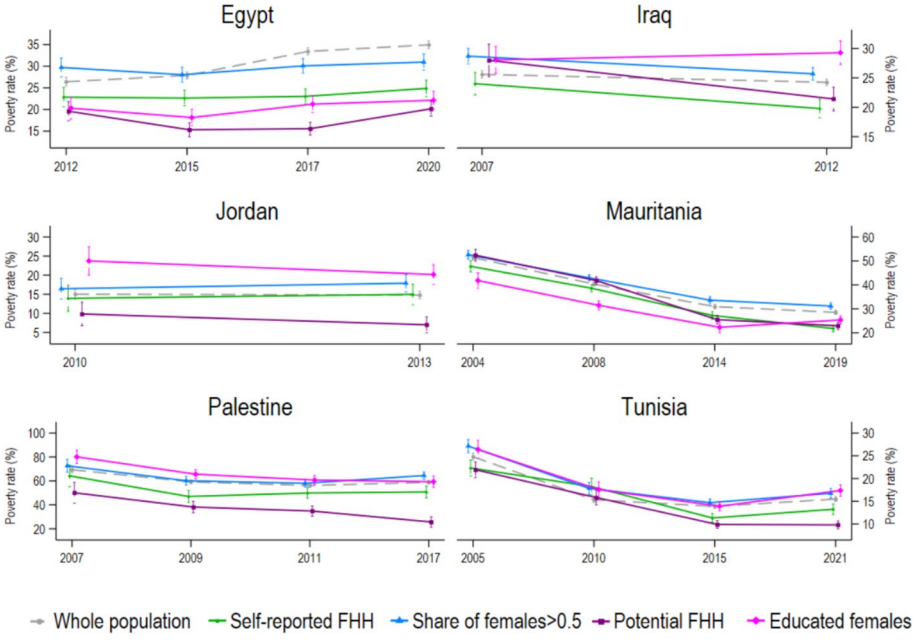

Fig. 2 Cross-sectional Headcount Poverty Rate (percentage), by Household Type, Regional Poverty Lines. Note: Estimates with their 95% confidence intervals (CIs) are shown for each year in each country. Population sampling weights are applied. For better presentation, we show the different FHH types around the same survey year, rather than at exactly the same survey year, to avoid overlaps of the 95% CIs

employment, demographic characteristics and residence-area variables shown respectively in the first four columns and the second four columns (Appendix 1, Table 7 offers the full results). Country-specific estimates are further provided in Table 12 (summary results) and Tables 13, 14, 15, 16, 17, 18, 19 and 20 (Appendix 1).[19] Several interesting results stand out from these tables.

First, for the six countries as a whole, the estimated $\widehat{\gamma}_h$ is generally negative and strongly statistically significant for three FHH definitions: self-reported, potential, and most-educated-female-adult FHHs, suggesting that these three FHH definitions are associated with less poverty prevalence. Majority-female-adult FHHs, in contrast, are associated with more poverty. This is generally consistent with our earlier discussion for Fig. 3. But country heterogeneity exists: potential and most-educated-female-adult FHHs are more likely to be poorer in Egypt and Tunisia, and majority-female-adult FHHs are neither poorer nor richer in Jordan and Mauritania.

Second, for all the countries, the absolute magnitude of $\widehat{\gamma}_h$ increases for self-reported and most-educated-female-adult FHHs but decreases for majority-female-adults and potential FHHs when the control variables are added. The t-tests for these changes are statistically significant. This suggests that, consistent with our earlier discussions of the literature (Sections 2.1 and 2.2), FHHs' exposure to poverty is also affected by the control variables,

[19] We show estimation results using the mixed-effects (multi-level) model as an alternative in Tables 19 and 20. The significance levels of the estimates are largely consistent under the multi-level model.

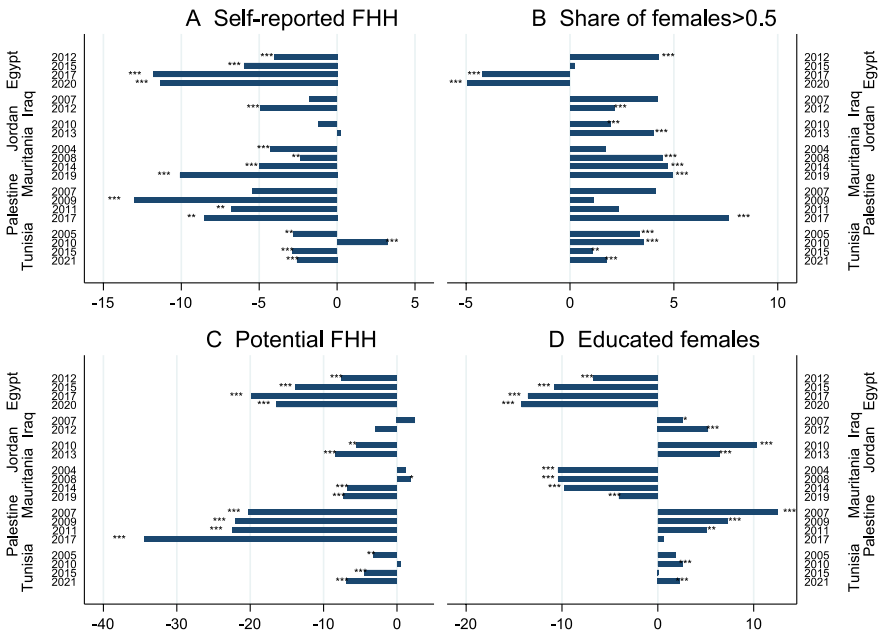

Fig. 3 FHH–non-FHH Differences in Headcount Poverty Rate (percentage points). Note: Headcount poverty rates are estimated using per capita household expenditures. Population sampling weights are applied. Stars indicate significantly higher headcount poverty ratio between FHHs and non-FHHs in each category. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Negative difference means FHHs are less likely to be poor

including household employment, demographic characteristics, and residence-area variables. Indeed, prior research for various countries suggests that FHHs are not systematically poorer or more vulnerable (Fuwa, 2000; Klasen et al., 2015; Munoz Boudet et al., 2018; Brown & Van de Walle, 2021). Liu et al. (2017) find that in eight of 14 Latin American countries, FHHs more likely live in poorer conditions, but these gaps either disappear or reverse when controlling for other household and demographic characteristics.

Specifically, Table 2 shows that self-reported FHHs are about 1 percentage point (without control variables) to 4 percentage points (with control variables) less likely to be poor than non-FHHs if there are no children in the household. The corresponding changes are about 3 percentage points (without control variables) to 2 percentage points (with control variables) for potential FHHs, and 1 percentage points (with control variables) for most-educated-female-adult FHHs. However, majority-female-adults FHHs are 5 percentage points (without control variables) to 3 percentage points (with control variables) more likely to be poor than non-FHHs if there are no children. Overall, including control variables makes a difference to the results but these differences do not appear to be remarkably large. The country-specific results generally remain similar and slightly vary in some cases. For example, majority-female-adults FHHs are 7 percentage points more likely to be poorer in Mauritania (with control variables) (Table 12).

Finally, the estimated interaction term between FHH definitions and the number of children ($\widehat{\theta}_l$) is positive for three of the four FHH definitions (self-reported, potential, and most-educated-female-adult FHHs), but negative for majority-female-adults FHHs. While

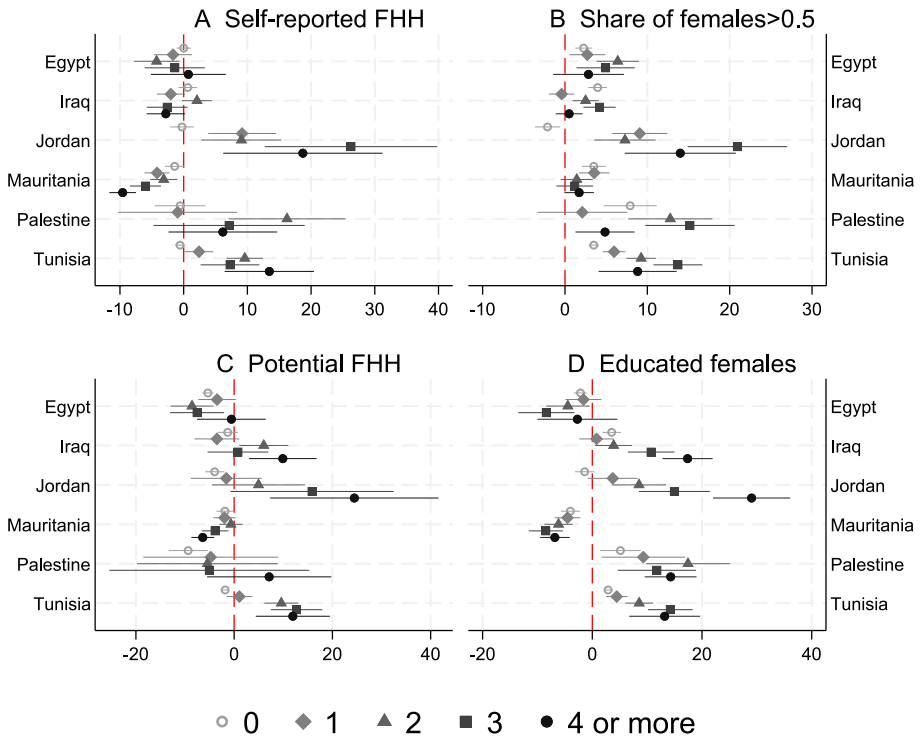

Fig. 4 Differences in Headcount Poverty Rate for FHHs vs. non-FHHs by Number of Children under 14 (percentage points). Note: Authors' calculation based on pooled cross section. Headcount poverty rates are estimated using per capita household expenditures. Population sampling weights are applied. The number of children are shown for 0, 1, 2, 3, and 4 or more children. The headcount poverty rates are shown on the x-axis, with positive numbers indicating more poverty for FHHs. The error bars are the 95% CIs

the absolute magnitudes of $\widehat{\theta}_h$ are small, around 1 percentage points (i.e., one more child is associated with a 1-percentage-point change in the probability of the household being poor), it is strongly statistically significant. Furthermore, when we fix the number of children at the mean of the estimation sample (i.e., 1.81 children), self-reported FHHs become 1 percentage point more likely to be poor (without control variables) and 3 percentage points less likely to be poor (with control variables). The corresponding probabilities, without and with control variables, become 2.5–2.8 percentage points more likely to be poor for most-educated-female-adult FHHs and 4–0.7 percentage points more likely to be poor for majority-female-adults FHHs. However, potential FHHs are 0.2 percentage points (without control variables) less likely to be poor and are 0.3 percentage points (with control variables) more likely to be poor. Again, some country-specific heterogeneity exists; for example, $\widehat{\theta}_l$ is positive for Jordan.

In addition, having more children (or larger household sizes) is associated with greater poverty risks (Appendix 1, Table 7). This result concurs with the finding by Munoz Boudet et al. (2018) and Munoz Boudet et al. (2021) that adult couple households with children are the largest and overrepresented group among poor households. This provides supportive evidence for our proposed classification that considers children when defining FHH definitions. But we also note that while households with more adult females are poorer than

those with fewer adult females, they appear less poor when they also have more children. One possible reason is that majority-female-adult households with children may benefit from social protection programs targeted at children. We return to more discussion on this in the Conclusion section.

The five remaining FHH subtypes offer similar results, showing that most FHH definitions are associated with less poverty, except for majority-employed-female-adult FHHs where the opposite result holds (Appendix 1, Table 8). This table also shows the interaction terms between FHH definitions and the number of children, which are mostly statistically significant. The results using the alternative logit model are qualitatively similar, albeit somewhat weaker for the most-educated-female-adult FHHs (Appendix 1, Tables 9 and 10).[20] We further consider the overlaps of three main FHH definitions (self-reported, potential, and most-educated-female-adult FHHs) and all four main FHH definitions and show the estimation results in Appendix 1, Table 11, which remain similar.

4.2 FHH Poverty Dynamics Based on Synthetic Panels

We now discuss the results on poverty dynamics based on synthetic panels. For each country, Fig. 5 reports the conditional upward mobility rates in the second survey year for the four main FHH definitions (Eq. (4)), considered separately with and without any children. Figure 5 shows considerable (conditional) upward mobility at the national average level (dashed line) for some countries. In particular, the upward mobility rate is 45 percent in Iraq during 2007–2012 (i.e., 45 percent of the initial poor in the first survey year escape poverty in the last (second) survey year), 54 percent in Jordan during 2010–2013, and 41 percent in Mauritania during 2014–2019. Still, a significant degree of immobility exists in Egypt, the West Bank and Gaza, and Tunisia, where most of the population remained poor in both years and only about one-third (or less) of the poor escaped poverty in the most recent year: 29 percent for Egypt during 2017–2020, 31 percent in the West Bank and Gaza during 2011–2017, and 21 percent in Tunisia during 2015–2021.

The lengths between surveys generally differ for the six countries so the estimated mobility rates may not be comparable across countries or to those in other studies. For a rough reference, Dang and Ianchovichina (2018) obtain a regional-upward-mobility rate around 53 percent, analyzing surveys from six countries during 1997–2010. Alternatively, if we assume a similar annual rate of change for mobility across the years for all countries, we can obtain the average mobility rate per year for each country. Ranking countries by their upward mobility rate, Table 21 (Appendix 1) shows that Jordan (17.8%) is the best performer, to be followed by Egypt (9.7%), Iraq (9.0%), Mauritania (8.1%), West Bank and Gaza (5.1%), and Tunisia (3.5%). Notably, there is not necessarily a correlation between upward mobility and downward mobility for the same country, as discussed earlier.

Unsurprisingly, non-FHHs have upward mobility rates that are almost the same as the national averages, given their large shares in the population (Table 1). But interestingly, FHHs without children are most likely to experience upward mobility. Out of 24 FHH definitions across six countries, the probabilities of FHHs without any children escaping poverty are higher than the national averages in 22 cases. The exceptions are self-reported and potential

[20] The estimated marginal effects for the interaction terms with children are qualitatively similar (using the Stata command "ginteff" (Radean, 2023)).

Table 2 Probabilities of Being Poor

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH	−0.007***				−0.044***			
	(0.00)				(0.00)			
Self-reported FHH # Number of children	0.008***				0.006***			
	(0.00)				(0.00)			
Share of female adults > 0.5		0.052***				0.032***		
		(0.00)				(0.00)		
Share of female adults > 0.5# Number of children		−0.007***				−0.014***		
		(0.00)				(0.00)		
Potential FHH			−0.027***				−0.017***	
			(0.00)				(0.00)	
Potential FHH# Number of children			0.014***				0.011***	
			(0.00)				(0.00)	
Educated females				0.002				−0.006**
				(0.00)				(0.00)
Educated females# Number of children				0.013***				0.013***
				(0.00)				(0.00)
Household head`s characteristics	N	N	N	N	Y	Y	Y	Y
Household characteristics	N	N	N	N	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Survey year FE	Y	Y	Y	Y	Y	Y	Y	Y
N	214931	214931	214931	214931	211069	211069	211069	211069

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Robust standard errors are in parentheses. The full regression results using the linear probability model are provided in Appendix 1, Table 7

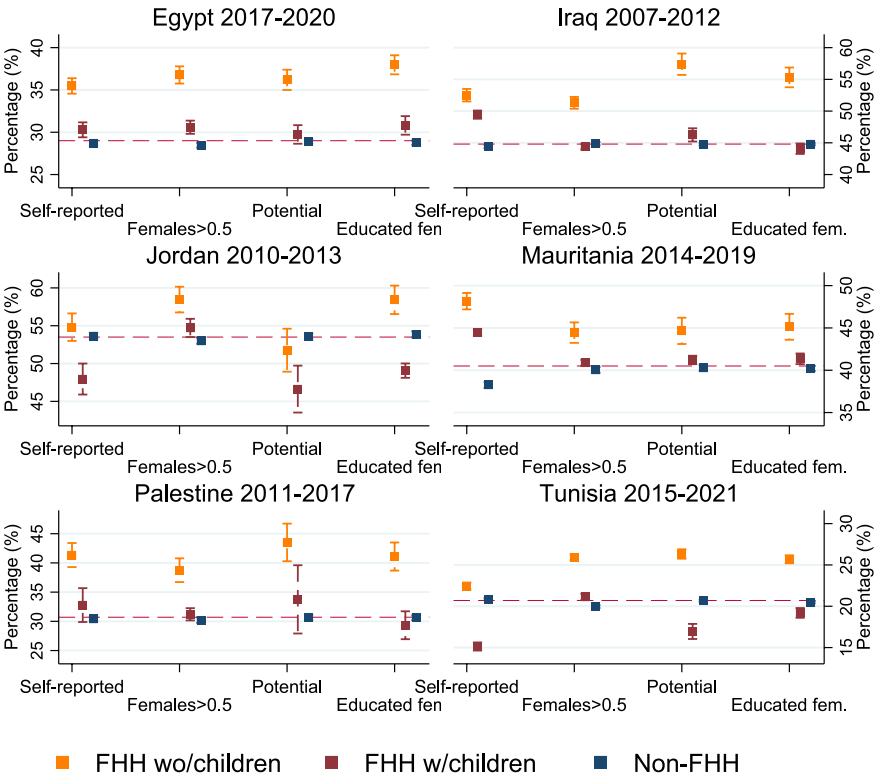

Fig. 5 Probabilities of Female-Headed Households Escaping Poverty in Last Year Conditional on Being Poor in First Year (percentage). Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads' ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

FHHs in Jordan during 2010–2013, which have similar upward mobility rates as the national average. However, FHHs with children have upward mobility rates that are clearly higher than the national averages in five cases (self-reported, majority-female-adults, and most-educated-female-adult FHHs in Egypt during 2017–2020, and self-reported FHHs in Iraq during 2007–2012 and in Mauritania during 2014–2019) and clearly lower than the national averages in six cases (self-reported, majority-female-adults, and most-educated-female-adult FHHs in Jordan 2010–2013 and Tunisia 2015–2021). FHHs with children have similar upward mobility as the national averages for the remaining cases. Overall, across all countries and four main FHH definitions, the upward mobility rates for FHHs without children, FHHs with children, and non-FHHs are respectively 42 percent, 37 percent, and 36 percent.

Figure 6 plots the conditional downward mobility (i.e., falling into poverty in the second survey year when being initially non-poor in the first survey year). The results are consistent with those shown in Fig. 5, with FHHs without children experiencing the least downward mobility, followed by FHHs with children and non-FHHs. Overall, the downward

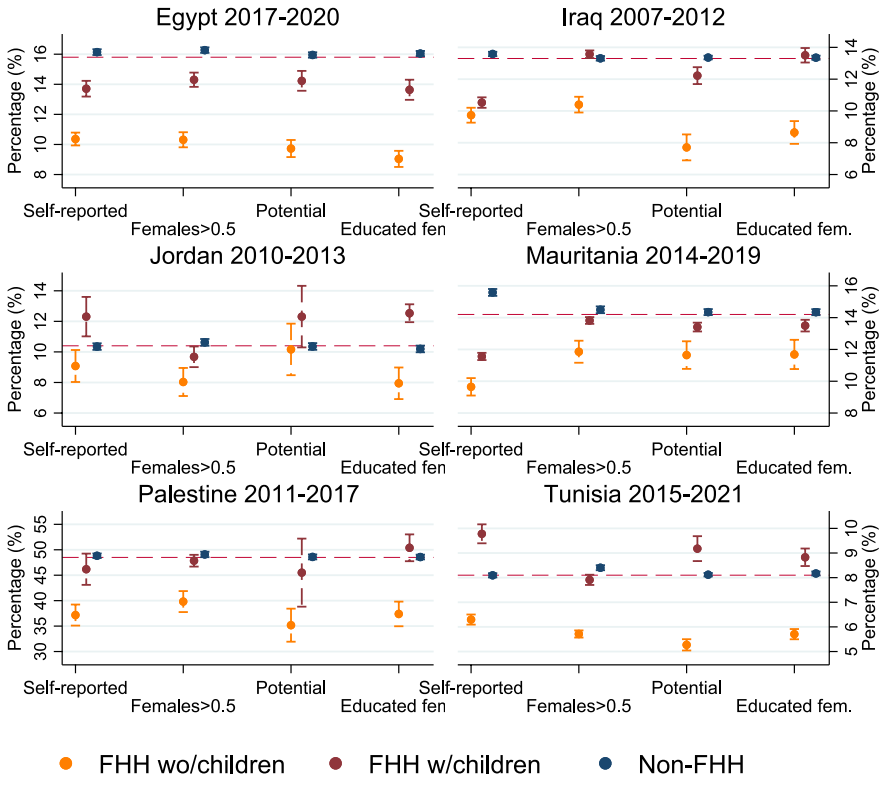

Fig. 6 Probabilities of Female-Headed Households Falling in Poverty in Last Year Conditional on Being Non-poor in First Year (percentage). Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure show the percentage of the population that enters poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

mobility rates for FHHs without children, FHHs with children, and non-FHHs are respectively 14 percent, 17 percent, and 19 percent.

As an alternative to Fig. 5, we plot the results of locally weighted regressions of upward mobility on the number of children (Appendix 1, Fig. 11). This figure also shows that the number of children is negatively associated with upward mobility for most countries and FHH definitions. The results for other sub-types of FHHs are similar, with FHHs without children having the most upward mobility (Appendix 1, Fig. 12). The results for preceding years are, however, somewhat mixed. FHHs without children had the strongest upward mobility for Egypt and Tunisia, but had similar upward mobility as FHHs with children for Mauritania and the West Bank and Gaza (Appendix 1, Figs. 13, 14, 15 and 16). We further plot the results for upward and downward mobility for FHH definitions, with and without children considered together, in Figs. 17 and 18 (Appendix 1). These figures show that FHHs have higher upward mobility and lower downward mobility than MHHs across all FHH definitions and countries, except for

Jordan. Finally, dynamics patterns using the alternative way to estimate ρ remain qualitatively similar (Appendix 3, Figs. 19 and 20).[21]

5 Conclusions and Policy Implications

The dramatic events of the Arab Spring and the following decade of structural reforms and sectoral developments *inter alia*, as well as increasing international concern about gender as reflected for example in some of the SDGs, have brought to the fore the importance of better understanding gender inequalities. We offer new analysis on the feminization of poverty as related to FHHs, using 20 survey rounds spanning the past two decades for six countries across the Arab region—namely Egypt, Iraq, Jordan, Mauritania, the West Bank and Gaza, and Tunisia—an understudied set of countries. We propose and evaluate a new classification of FHHs consisting of four main definitions (and several sub-types) of FHHs with a new focus on the presence of children, which offers policy-relevant insights regarding the trends and dynamics of poverty feminization. We assemble and harmonize the up-to-date available cross-sectional data and construct synthetic panels to address the lack of actual panels affecting most countries in the region.

We find that different FHH definitions display clear differences regarding poverty levels and trends. In particular, self-reported FHHs, potential FHHs, and most-educated-female-adult FHHs are less likely to be poor than non-FHHs for the six countries, while the opposite holds for majority-female-adults FHHs. Yet, more children are associated with more poverty for the former three definitions of FHHs and less poverty for the last type of FHHs. But country heterogeneity exists: potential and most-educated-female-adult FHHs are more likely to be poorer in Egypt and Tunisia, and majority-female-adult FHHs are neither poorer nor richer in Jordan and Mauritania. Majority-female-adults FHHs are most likely to be poorer in Mauritania, while the estimated interaction term between FHH definitions and the number of children is positive for Jordan.

We also find considerable (conditional) upward mobility, ranging between 21 and 54 percent of the initially poor in a country, using surveys for the six countries covering the period 2007–2021. But country heterogeneity exists, with Iraq, Jordan, and Mauritania having relatively more upward mobility, while Egypt, the West Bank and Gaza, and Tunisia have relatively less upward mobility. While most definitions of FHHs more likely experience upward mobility out of poverty (or less likely fall into poverty), FHHs without children have the strongest upward mobility (or the least downward mobility), followed by FHHs with children, and non-FHHs.

Our proposed classification responds to recent calls to go beyond identifying headship based on the gender of the head alone. For example, Beegle and Van de Walle (2019) argue that since many women live in MHHs, especially in Sub-Saharan Africa, if resources are unequally shared among household members, simply comparing FHHs and MHHs based on heads' gender can provide biased results. Summarizing opinions from experts on gender issues and survey design on the topic, Buvinic and Van de Walle (2019) similarly call for other definitions based on other household characteristics including demographic and gender composition. Other concerns were also raised about practical survey challenges with headship (e.g., when the male head temporarily lives away from the household).[22]

[21] While Milazzo and Van de Walle (2017) find self-reported FHHs to be generally poorer, they also find these households to contribute more to the overall decline in poverty in Africa.

[22] It was suggested that FHHs potentially report their expenditures more accurately than MHHs because of women's hands-on role in earnings and purchases, and typically lower household size to cater for in FHH households (AlAzzawi, 2018). Using alternative definitions of FHHs can thus serve to assess the robustness of poverty gaps between genders, as some definitions are less susceptible to such misreporting bias.

These discussions do not just serve to increase knowledge but have practical policy implications. Governments in the region strive to identify various vulnerable FHHs for effective social-protection interventions aimed at targeting vulnerable groups and reducing gender inequalities. For example, Egypt's largest poverty-targeting cash-transfer program, Takaful, uses proxy-means testing to target households and the criteria include a much lower threshold for FHHs. In 2017, the poverty threshold used to determine eligibility was raised considerably for MHHs while it was kept constant for FHHs (ESCWA, 2021), resulting in the share of beneficiaries who were FHHs almost doubling from 48 to 92%. In Jordan, the National Aid Fund targets several categories of "vulnerable" FHHs such as widows with children, those without "support", and divorced female heads, not just poor FHHs, while its poverty-reduction program directly targets poor FHHs (ESCWA, 2021; NAF, 2020; World Bank, 2022). In Lebanon, and Tunisia, FHHs, especially widows, are also prioritized (ESCWA, 2021; Nasri, 2020). How household headship is defined is thus critical for eligibility determination, and—in the presence of any ambiguity over household role or membership status of marginally attached members (e.g., migrant spouses)—affects welfare programs' susceptibility to inclusion and exclusion errors.

Against this background, our findings offer highly relevant policy inputs and run against the conventional wisdom that FHHs are typically poorer than non-FHHs, which appears to be the implicit assumption underlying many targeting programs in the region and elsewhere. In contrast, we find majority-female-adults households or households with more children more vulnerable to (remaining in) poverty. While these results suggest that female headship definition using gender composition can offer an alternative approach—and potentially help identify a more vulnerable group—for poverty targeting, they also highlight the need for a more nuanced understanding of how female headship can be defined, especially in the presence of children.

Furthermore, we offer original findings on mobility using synthetic panels, which point to considerable upward mobility in the region. But given the country heterogeneity and varying mobility patterns for different definitions of FHHs, we also need to better understand the extent to which the different definitions of FHHs' exposure to poverty can change, depending on various other factors such as whether we examine households' static or dynamic poverty status, whether other household demographic and employment characteristics are considered, and last but not least, the country-specific contexts.

Finally, our analysis addresses the lack of actual-panel data with synthetic-panel data constructed from more-available repeated-cross-sectional data. These synthetic-panel methods are practically valuable for analyzing poverty dynamics where true panel data are unavailable. While the synthetic-panel approach we used has certain limitations, particularly concerning sensitivity to cohort definitions, the method does not prescribe a single cohort definition. It offers a flexible framework where different cohort definitions guided by country-specific knowledge can be employed. In our context, we defined cohorts as age interacted with education levels, which are empirically aligned with economic stratification in the region. But we suggest that robustness checks should always be conducted as much as possible when constructing synthetic panels.

Appendix 1 Additional Tables and Figures

Table 3 Overview of selected previous studies

	Studies	Country	FHH definition	Reference group	Conclusions
1	DeGraff and Bilsborrow (1993)	Ecuador	Self-reported FHH	Self-reported MHH	FHHs have lower income, land ownership, and average level of education than MHHs and are less likely to be employed (with fewer hours if employed). Children of FHHs are significantly less likely to be enrolled in school than children of MHHs
			Self-reported widowed FHH	Self-reported MHH, other self-reported FHH	Widowed or divorced FHHs have higher income and amount of land owned than MHHs but lower children's school enrollment and are less likely to be in school than are children of MHHs and children of other FHHs
			Self-reported married FHH	Self-reported MHH, other self-reported FHH	Married FHHs have lower income and amount of land owned than MHHs and enrollment rate similar to MHH, but children of married FHHs are significantly less likely to be enrolled in school than are children of MHHs but more likely than widowed FHHs
2	Buvinic and Gupta (1997)	65 studies on developing countries	Self-reported FHH, *de facto*, *de jure* FHH	Self-reported MHH	Thirty-eight studies—FHHs are poorer than MHHs when poverty is measured by (total/per capita/per equivalent) household income and consumption expenditures, access to services, and ownership of land and assets. Fifteen studies—certain types of FHHs are more vulnerable to poverty than others. Eight studies – poverty in FHHs is not higher than in MHH
3	Fuwa (2000)	Panama	Self-reported FHH	Self-reported MHH	FHHs are similar to MHHs when poverty is measured by per capita expenditure. The difference between FHHs versus non-FHHs does not change if using different poverty indicators
			Self-reported de jure, *de facto* FHH	Non-FHH	Widows/divorced/separated FHHs have significantly higher headcount poverty in indigenous areas when poverty is measured by per capita expenditure. FHHs have lower education than non-FHHs

Table 3 (continued)

	Studies	Country	FHH definition	Reference group	Conclusions
			Self-reported married FHH, FHH with unmarried partners	Non-FHH	FHHs with unmarried partners have higher headcount poverty ratios in urban and indigenous areas when poverty is measured by per capita expenditure. The result is robust to applying an equivalence scale using alternative poverty measures and poverty lines
			Potential FHH	Non-FHH	FHHs are not poorer than non-FHHs when poverty is measured by per capita expenditure
			"Working" FHHs	Non-FHH	FHHs are similar to non-FHHs when poverty is measured by per capita expenditure. FHHs have higher education endowments than non-FHHs, except in indigenous areas
			core FHH	Non-FHH	FHHs are less poor than non-FHHs when poverty is measured by per capita expenditure
4	Quisumbing et al. (2001)	10 developing countries	Self-reported FHH, females	Self-reported MHH, males	FHHs and individual females contribute disproportionately to overall poverty in 25–50% of the dataset when headcount poverty is measured by (total/per capita/per equivalent) household income and consumption expenditures and are insensitive to the poverty line. FHHs and individual females are similar to MHHs or males when using stochastic dominance criteria, but they are constantly worse off in Ghana and Bangladesh
5	Horrell and Krishnan (2007)	Zimbabwe	Self-reported widowed FHH	Self-reported MHH	The income per capita/adult equivalent is lower in widowed FHHs than in the MHHs
			Self-reported de-facto FHH		The income per capita/adult equivalent is higher in the *de facto* FHHs than in the MHHs

Table 3 (continued)

	Studies	Country	FHH definition	Reference group	Conclusions
6	Medeiros and Costa (2008)	8 Latin American countries	FHH, females	MHH, males	Poverty is higher among FHHs, but there is no clear evidence of a recent and widespread feminization of poverty in Latin America. Differences in poverty among FHHs and MHHs increased in Argentina and Mexico, showing specific types of feminization of poverty. The results are robust to different values of poverty lines, the use of equivalence scales, and the distribution of household income
			Self-reported FHH w/o children	Couple HH w/o children	The insignificant increase in poverty indices when comparing FHHs without children to couple-headed HH without children in Bolivia. The rise in poverty indices is significant at 5% when comparing FHHs with children to MHHs with children in Costa Rica
7	Deere et al. (2012)	Latin American countries	HHs where women have ownership rights	Self-reported FHHs who have ownership rights	The gender of the household head is a poor substitute for a gendered analysis of asset ownership within and among households since an analysis based on headship tends to underestimate women's ownership of assets

Table 3 (continued)

	Studies	Country	FHH definition	Reference group	Conclusions
8	Van de Walle (2013)	Mali	Self-reported widowed FHH	Self-reported married FHH	Widowed FHHs have significantly lower consumption per capita than married FHHs, while MHHs do not have any significant differences in per capita consumption between widowed MHHs and married MHHs
			Self-reported widowed MHH	Self-reported married MHH	
			Self-reported widowed FHH rural	Self-reported widowed FHH urban	Widowed FHH living in rural areas have lower per capita consumption than all other households living in rural areas. The gap between widowed FHHs and other HHs is lower for HHs residing in urban areas
			Self-reported widowed FHH rural	Self-reported non-widowed FHH rural	Per capita consumption of widowed FHHs is around 12% lower than that of all rural households. The results are robust to using an equivalence scale in measuring consumption
			Self-reported widowed FHH urban	Self-reported non-widowed FHH urban	Per capita consumption of widowed FHHs is around 6% lower than that of all other urban households. The results are robust to using an equivalence scale in measuring consumption
9	Rogan (2013)	South Africa	Self-reported *de jure* FHH, *de facto* FHH, co-resident FHH	Self-reported MHH	Poverty rates are higher in FHHs than in MHHs, irrespective of how headship is defined
			Self-reported *de jure* FHH, *de facto* FHH	co-resident FHH	Co-resident FHHs are less poor than other types of FHHs
			core FHH	non-FHH	FHH has the lowest risk of poverty

Table 3 (continued)

	Studies	Country	FHH definition	Reference group	Conclusions
10	Klasen et al. (2015)	Thailand, Viet Nam	Self-reported FHH	Self-reported MHH	No significant differences between FHHs and MHHs were found regarding consumption, the probability of shock exposure, or vulnerability to poverty in Thailand or Viet Nam
			Self-reported de-jure FHH	Self-reported MHH	*De jure* FHHs have lower consumption than MHHs in Viet Nam. There are no significant differences between de-jure FHHs and MHHs regarding the probability of shock exposure or vulnerability to poverty in Thailand or Viet Nam
			Self-reported de-facto FHH	Self-reported MHH	*De facto* FHHs have higher consumption than MHHs in Thailand. There are no significant differences between de-facto FHHs and MHHs regarding the probability of shock exposure or vulnerability to poverty in Thailand or Viet Nam
			Self-reported single, widowed FHH	Self-reported MHH	FHHs with an absent spouse have higher consumption levels than MHHs in Thailand. Single FHH has a lower consumption level than Viet Nam. There are no significant differences between FHHs and MHHs regarding the probability of any shock exposure in Thailand or Viet Nam. Single FHHs are less vulnerable to poverty in Thailand but more vulnerable to poverty in Viet Nam
11	Liu et al. (2017)	14 Latin American countries	Self-reported married w/o spouse, single, separated, widowed FHH	Self-reported married FHH with spouse	In eight of the 14 countries, FHHs are more likely to live in poor conditions. However, MHHs are in more impoverished conditions than FHHs when married status, urban or rural setting, ownership, and the presence of children are controlled in the regression. Generally, married FHHs with the spouse present are better off than any other category. The worst living conditions are associated with single, separated, divorced, or widowed FHHs

Table 3 (continued)

	Studies	Country	FHH definition	Reference group	Conclusions
12	Milazzo and van de Walle (2017)	20 countries in Sub-Saharan Africa	Self-reported FHH	Self-reported MHH	While the share of FHHs in the population is growing during 1990–2012, poverty has been falling faster among FHHs. FHHs contributed more to the overall decline in poverty despite their smaller overall population share
			Self-reported FHH w/o a resident adult male	Self-reported MHH	The poverty trends of the various types of FHHs followed different paths across countries and periods, with no one type consistently outperforming the others
13	Alazzawi (2018)	Egypt, Arab Rep	Self-reported urban FHH with children	Self-reported urban MHH with children	FHHs have a higher predicted poverty rate than MHHs in urban areas. The factors contributing to the poverty differential between FHH and MHH households are education, employment status, occupation, sector, and region of residence
			Self-reported rural FHH with children	Self-reported rural MHH with children	FHHs have a higher predicted poverty rate than MHHs in rural areas. Education, employment status, occupation, number of rooms per capita, and region of residence are factors that contribute to the poverty differential between FHHs and MHHs

Table 3 (continued)

	Studies	Country	FHH definition	Reference group	Conclusions
14	Munoz Boudet et al. (2018)	71 developing countries	couple/single females w/o children	other HH	Adult couple households with children, children, and other adults (extended family) are the most frequent among poor households. Poor and non-poor women concentrate in the adult couple household with children. One adult female household with children is more prevalent among the poor in Latin America, the Caribbean, and Sub-Saharan Africa
			Male/female earner with and w/o children		Poor women live in households with children and with children and earner dependents, where the earner is a single male or a head couple. Single female-earner households comprise the largest percentage of poor households in Latin America, the Caribbean, and Sub-Saharan Africa
15	Brown and Van de Walle (2021)	43 African countries	Self-reported FHH	Self-reported MHH	FHHs have lower poverty rates than MHHs when using per capita welfare measures. FHHs are significantly worse than MHH when poverty is measured using consumption adjusted for economies of scale
			Self-reported married FHH		MHHs are poorer than married FHHs

Table 4 Poverty lines

Panel A: Egypt	**2012/2013**	**2015**	**2017/2018**	**2019/2020**
Urban governorates	4320	6141	9280.1	11285
Urban lower Egypt	3840	5631	8536.9	9755
Rural lower Egypt	3852	5675	8673	10108
Urban upper Egypt	3972	5823	8728.5	10225
Rural upper Egypt	3756	5694	8865.6	10068
Urban frontier	3996	6247	8568.7	10409
Rural frontier	3984	5788	8979.3	10788
Panel B: Iraq	**2007**	**2012**		
Kurdistan	1212	1709		
Baghdad	987	1391		
Rest of Iraq	865	1220		
Panel C: Jordan	**2010**	**2013**		
All country	814	929		
Panel D: Mauritania	**2004**	**2008**	**2014**	**2019**
All country	94650	129000	169445	191000
Panel E: Palestine	**2009**	**2011**	**2017**	
Gaza	712	714	710	
West Bank	765	792	889	
Panel F: Tunisia	**2005**	**2010**	**2015**	**2021**
Cities (metropolitan)	1038	1277	1878	2683
Small & medium towns (urban)	941	1158	1703	2683
Noncommunal (rural)	669	820	1501	2224

Poverty line values are expressed in LCU, per capita annual consumption in survey year prices

Sources:

Panel A: Compiled from various CAPMAS Household, Income and Expenditure Survey Key Indicators and Poverty Assessment Updates. https://www.capmas.gov.eg/Admin/News/PressRelease/20151110143133_955_e.pdf; https://www.capmas.gov.eg/Pages/IndicatorsPage.aspx?page_id=6154&ind_id=1124; https://www.capmas.gov.eg/Pages/Publications.aspx?page_id=5109&YearID=23629;

Panel B: World Bank "Poverty Estimates and Trends in Iraq" https://microdata.worldbank.org/index.php/catalog/2334/download/34771

Panel C: Jordan Department of Statistics: DOS https://jorinfo.dos.gov.jo/Databank/pxweb/en/Poverty/Poverty__Poverty-Indicators/

Panel D: IMF (2011) Table 1.1.

Panel E: Compiled from various PCBS poverty reports. Spatial deflator provided by PCBS was used to calculate regional poverty lines for Gaza and the West Bank relative to the national poverty line available from PCBS publications (Palestinian Central Bureau of Statistics (PCBS) and World Bank (2018))".

Panel F: 2005 and 2010 poverty lines are from World Bank (2016). "Tunisia Poverty Assessment 2015". Table 15. https://openknowledge.worldbank.org/entities/publication/53c52176-31a6-566d-ae6a-39441688fa83. 2015 poverty lines are from World Bank (2021) "Poverty & Equity Brief, Middle East and North Africa: Tunisia" (https://databankfiles.worldbank.org/public/ddpext_download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/AM2020/Global_POVEQ_TUN.pdf). 2021 poverty lines are from World Bank (2024) "Poverty & Equity Brief, Middle East and North Africa: Tunisia" (https://thedocs.worldbank.org/en/doc/2af35122e991d93dc3690753c93181bb-0050122024/related/Global-POVEQ-TUN.PDF) which only provided poverty lines for "urban" and "rural" regions. No separate poverty lines were published for "small & medium towns (urban)", and we therefore used the poverty line for urban regions.

Table 5 Correlation between main types of female-headed households

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
FHH Type 1	1.000	0.265***	0.415***	0.298***
		(0.000)	(0.000)	(0.000)
FHH Type 2		1.000	0.319***	0.304***
			(0.000)	(0.000)
FHH Type 3			1.000	0.510***
				(0.000)
FHH Type 4				1.000

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels

Table 6 Headcount Poverty Rates of Female and Non-female Headed Households by Headship Definition (percent)

	Egypt, Arab Rep. (2012–2020)		Iraq (2007–2012)		Jordan (2010–2013)		Mauritania (2004–2019)		West Bank and Gaza (2007–2017)		Tunisia (2005–2021)	
	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH
Panel A: All												
Self-Reported FHH	23.32	32.01*	20.22	24.79*	14.46	14.94	29.52	38.03*	50.63	59.70*	16.04	17.34*
Reported *de jure* FHH	21.51	31.92*	19.24	24.80*	16.08	14.80	29.66	36.80*	48.17	59.73*	13.46	17.57*
Reported married FHH	29.15	31.01	25.96	24.36	7.76	15.03*	28.35	36.73*	62.71	59.10	26.55*	16.96
Potential FHH	17.41	32.41*	22.28	24.43	8.42	15.35*	31.43	36.80*	35.30	60.18*	13.46	17.69*
Core FHH	19.53	31.25*	15.41	24.43*	4.16	15.11*	30.47	36.17*	34.38	59.47*	13.41	17.32*
Asset FHH	16.33	32.05*	21.76	24.42	8.38	15.30*	32.88	36.37*	39.06	59.69*	15.78	17.28*
Share of female adults > 0.5	29.62	31.32*	25.94*	23.64	17.15*	14.19	37.36*	34.61	62.04*	58.33	19.10*	16.42
Share of employed females > employed males	22.3	31.44*	22.11	24.48*	7.48	15.37*	33.11	36.18*	54.89	59.38*	16.68	17.24
Most educated member is female adult & no employed males	20.43	32.11*	29.12*	24.17	21.87	13.61	27.55	37.22*	64.52*	58.46	18.15*	17.01
Panel B: Rural												
Self-Reported FHH	28.16	37.9*	36.29	35.34	13.20	17.70	32.42	44.98*	45.81	56.02*	23.95	25.50
Reported *de jure* FHH	25.89	37.69*	34.15	35.45	13.55	17.61	33.94	43.01*	42.56	56.07*	18.79	25.85*
Reported married FHH	32.87	36.92*	43.82*	35.28	11.18	17.39	30.16	43.30*	61.12	55.38	33.52*	24.98
Potential FHH	22.05	38.24*	38.52	35.33	15.50	17.41	33.14	44.18*	37.66	56.25*	22.28	25.77*
Core FHH	25.67	37.00*	28.11	35.42	1.93	17.50*	34.21	42.46*	37.72	55.73*	22.96	25.41
Asset FHH	20.52	38.07*	38.85	35.34	12.51	17.54	33.88	43.83*	40.33	55.89*	24.28	25.42
Share of female adults > 0.5	36.19	36.9	38.08*	33.89	21.37*	16.00	42.93*	40.94	60.23*	54.05	27.51*	24.34
Share of employed females > employed males	27.46	37.17*	34.11	35.46	13.03	17.51	39.58	42.13*	59.83	55.11	25.30	25.32
Most educated member is female adult & no employed males	24.25	37.90*	51.45*	34.76	23.55*	16.19	33.68	43.27*	60.50	54.97	28.20*	24.82

Table 6 (continued)

	Egypt, Arab Rep. (2012–2020)		Iraq (2007–2012)		Jordan (2010–2013)		Mauritania (2004–2019)		West Bank and Gaza (2007–2017)		Tunisia (2005–2021)	
	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH
Panel C: Urban												
Self-Reported FHH	16.96	23.08*	15.19	18.52*	14.70	14.36	26.68	30.24*	50.17	58.89*	12.29	13.27*
Reported *de jure* FHH	16.96	22.97*	15.08	18.48*	16.61	14.21	25.75	29.90*	47.92	58.92*	11.59	13.33*
Reported married FHH	16.81	22.39*	15.97	18.20	7.29	14.53*	26.42	29.62*	61.23	58.33	17.25*	13.09
Potential FHH	11.5	23.56*	14.49	18.25*	7.33	14.91*	29.05	29.28	32.54	59.48*	8.69	13.75*
Core FHH	13.47	22.58*	9.54	18.21*	4.43	14.60*	25.24	29.51*	31.97	58.70*	8.68	13.32*
Asset FHH	9.11	23.18*	12.56	18.25*	7.72	14.82*	31.32*	28.90	36.09	58.94*	9.64	13.37*
Share of female adults > 0.5	21.27	22.61	17.92	18.28	16.24*	13.81	31.12*	27.94	60.55*	57.77	14.40*	12.68
Share of employed females > employed males	17.58	22.65*	11.31	18.40*	6.65	14.91*	26.20	29.73*	52.13	58.69*	12.50	13.23
Most educated member is female adult & no employed males	16.40	23.10*	18.57	18.15	21.52	13.06	20.58	30.74*	63.05*	57.76	13.38	13.11
Panel D: Have children under 14												
Self-Reported FHH	35.2	39.33*	22.15	25.99*	29.00*	18.18	31.91	40.75*	67.33	64.40	28.70*	22.48
Reported *de jure* FHH	37.62	39.05	21.27	26.01*	34.42*	18.11	33.39	39.21*	65.85	64.47	25.84*	22.81
Reported married FHH	31.51	39.24*	26.85	25.66	13.71	18.82	29.33	39.71*	72.35	64.45	33.15*	22.64
Potential FHH	32.83	39.34*	27.84	25.64	25.95*	18.55	33.94	39.50*	59.40	64.60	29.98*	22.55
Core FHH	30.60	39.13*	23.68	25.68	21.68	18.73	32.23	38.93*	48.35	64.63*	25.61	22.89
Asset FHH	32.24	39.24*	28.13	25.65	27.28*	18.55	35.51	39.04*	64.80	64.51	33.36*	22.60
Share of female adults > 0.5	40.1	38.72	27.32	24.90	26.82*	16.80	39.83*	37.41	70.08*	63.15	27.90*	21.48
Share of employed females > employed males	35.69	39.1*	25.57	25.68	17.43	18.79	35.55	38.89*	67.74	64.38	26.60*	22.68
Most educated member is female adult & no employed males	32.09	39.48*	33.62*	25.37	34.47*	16.46	30.61	39.74*	77.00*	63.23	29.63*	22.22

Table 6 (continued)

	Egypt, Arab Rep. (2012–2020)		Iraq (2007–2012)		Jordan (2010–2013)		Mauritania (2004–2019)		West Bank and Gaza (2007–2017)		Tunisia (2005–2021)	
	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH	FHH	non-FHH
Panel E: No children under 14												
Self-Reported FHH	10.53	10.52	6.79	6.15	3.88	4.13	12.21	13.63	30.83	31.39	8.71	9.28
Reported de jure FHH	10.39	10.55	6.26	6.26	4.54	3.98	12.76	13.34	30.16	31.50	8.69	9.28
Reported married FHH	12.7	10.49	13.20*	6.17	0.00	4.20	9.25	13.42*	36.90	31.19	8.97	9.18
Potential FHH	6.24	11.58*	5.05	6.36	0.81	4.77*	11.70	13.58*	23.57	32.92*	7.74	9.57*
Core FHH	7.59	10.65*	1.33	6.39*	0.00	4.33*	11.32	13.31	23.75	31.66*	7.38	9.29*
Asset FHH	6.14	11.29*	4.76	6.36	0.68	4.72*	12.19	13.42	25.22	32.03*	8.97	9.21
Share of female adults > 0.5	12.16*	9.89	8.69*	4.83	2.74	4.86*	15.30*	11.80	33.93*	29.72	11.40*	7.91
Share of employed females > employed males	8.79	10.7*	3.09	6.57*	0.47	4.64*	10.29	13.61*	31.32	31.29	10.27*	8.99
Most educated member is female adult & no employed males	8.74	10.90*	9.36*	5.84	3.02	4.41	10.04	14.05*	35.36*	30.23	11.40	8.51

The data are pooled across all available years for each country. Headcount poverty rates are estimated using per capita household expenditures. Population sampling weights are applied. Stars indicate statistically significant difference in headcount poverty between FHHs and non-FHHs in each category at the 5% or lower level. Population sampling weights are applied

Table 7 Probabilities of being poor, linear probability models (Main FHH Types)

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH	-0.007***				-0.044***			
	(0.00)				(0.00)			
Self-reported FHH # Number of children age 0–14	0.008***				0.006***			
	(0.00)				(0.00)			
Share of female adults > 0.5		0.052***				0.032***		
		(0.00)				(0.00)		
Share of female adults > 0.5# Number of children age 0–14		-0.007***				-0.014***		
		(0.00)				(0.00)		
Potential FHH			-0.027***				-0.017***	
			(0.00)				(0.00)	
Potential FHH# Number of children age 0–14			0.014***				0.011***	
			(0.00)				(0.00)	
Educated females				0.002				-0.006**
				(0.00)				(0.00)
Educated females# Number of children age 0–14				0.013***				0.013***
				(0.00)				(0.00)
Household head`s characteristics								
Head`s age					-0.001***	-0.001***	-0.001***	-0.001***
					(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary					-0.066***	-0.064***	-0.064***	-0.065***
					(0.00)	(0.00)	(0.00)	(0.00)

Table 7 (continued)

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Highest education level is secondary					-0.123***	-0.121***	-0.121***	-0.121***
					(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is tertiary					-0.178***	-0.176***	-0.176***	-0.176***
					(0.00)	(0.00)	(0.00)	(0.00)
Head is married					-0.020***	0.007***	0.005**	0.006***
					(0.00)	(0.00)	(0.00)	(0.00)
Head is employed					-0.037***	-0.032***	-0.031***	-0.027***
					(0.00)	(0.00)	(0.00)	(0.00)
Household characteristics								
Household size					0.022***	0.024***	0.023***	0.023***
					(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.077***	0.081***	0.076***	0.077***	0.050***	0.054***	0.049***	0.049***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24					-0.008***	-0.008***	-0.008***	-0.009***
					(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older					-0.022***	-0.019***	-0.017***	-0.020***
					(0.00)	(0.00)	(0.00)	(0.00)
Urban					-0.084***	-0.084***	-0.084***	-0.084***
					(0.00)	(0.00)	(0.00)	(0.00)
Iraq	-0.149***	-0.152***	-0.149***	-0.148***	-0.181***	-0.182***	-0.179***	-0.180***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 7 (continued)

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Jordan	-0.144***	-0.147***	-0.144***	-0.146***	-0.092***	-0.094***	-0.090***	-0.092***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mauritania	-0.155***	-0.160***	-0.156***	-0.158***	-0.207***	-0.208***	-0.213***	-0.212***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
West Bank and Gaza	0.181***	0.178***	0.181***	0.180***	0.185***	0.183***	0.186***	0.185***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Tunisia	-0.060***	-0.063***	-0.060***	-0.061***	-0.054***	-0.055***	-0.054***	-0.054***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
_cons	0.127***	0.112***	0.133***	0.126***	0.312***	0.261***	0.270***	0.267***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
r2_a	0.16	0.17	0.16	0.16	0.21	0.21	0.21	0.21
N	214,931	214,931	214,931	214,931	211,069	211,069	211,069	211,069

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Robust standard errors are in parentheses. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years. The reference country is Egypt

Table 8 Probabilities of being poor for other FHH Types, linear probability models

	Specification 1					Specification 2				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
De-jure FHH	-0.003					-0.027***				
	(0.00)					(0.00)				
De-jure FHH # Number of children age 0–14	0.013***					0.009***				
	(0.00)					(0.00)				
Married FHH		-0.031***					-0.058***			
		(0.01)					(0.01)			
Married FHH # Number of children age 0–14		0.005**					0.006**			
		(0.00)					(0.00)			
Employed FHH			0.009**					0.008**		
			(0.00)					(0.00)		
Employed FHH # Number of children age 0–14			-0.001					-0.004*		
			(0.00)					(0.00)		
Asset FHH				-0.019***					-0.018***	
				(0.00)					(0.00)	
Asset FHH # Number of children age 0–14				0.014***					0.011***	
				(0.00)					(0.00)	
Core FHH					-0.023***					-0.010**
					(0.00)					(0.00)
Core FHH # Number of children age 0–14					0.006**					0.007***
					(0.00)					(0.00)
Household head`s characteristics										
Head`s age						-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary						-0.065***	-0.065***	-0.064***	-0.064***	-0.064***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Table 8 (continued)

	Specification 1					Specification 2				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Highest education level is secondary						-0.122***	-0.122***	-0.121***	-0.121***	-0.121***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is tertiary						-0.177***	-0.177***	-0.176***	-0.177***	-0.176***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head is married						-0.008**	0.011***	0.006***	0.006**	0.006***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head is employed						-0.033***	-0.038***	-0.032***	-0.031***	-0.032***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Household characteristics										
Household size						0.023***	0.023***	0.023***	0.023***	0.023***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.077***	0.078***	0.078***	0.077***	0.078***	0.050***	0.050***	0.050***	0.049***	0.050***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24						-0.009***	-0.008***	-0.009***	-0.009***	-0.009***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older						-0.021***	-0.021***	-0.021***	-0.018***	-0.021***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban						-0.084***	-0.084***	-0.084***	-0.084***	-0.084***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Iraq	-0.149***	-0.150***	-0.149***	-0.149***	-0.149***	-0.181***	-0.182***	-0.181***	-0.180***	-0.181***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Jordan	-0.145***	-0.145***	-0.145***	-0.144***	-0.145***	-0.091***	-0.093***	-0.093***	-0.090***	-0.092***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mauritania	0.122***	0.123***	0.123***	0.125***	0.124***	0.058***	0.059***	0.059***	0.061***	0.059***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

Table 8 (continued)

	Specification 1					Specification 2				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West Bank and Gaza	0.181***	0.180***	0.180***	0.180***	0.180***	0.185***	0.184***	0.184***	0.184***	0.184***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Tunisia	-0.060***	-0.061***	-0.061***	-0.060***	-0.060***	-0.054***	-0.054***	-0.054***	-0.054***	-0.054***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
_cons	0.126***	0.126***	0.125***	0.126***	0.127***	0.289***	0.284***	0.272***	0.268***	0.273***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Adjuster R2	0.16	0.16	0.16	0.16	0.16	0.21	0.21	0.21	0.21	0.21
Number of observations	214,931	214,931	214,931	214,931	214,931	211,069	211,069	211,069	211,069	211,069

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Robust standard errors are in parentheses. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years. The reference country is Egypt

Table 9 Probabilities of Being Poor, Logit Models

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH	-0.110***				-0.290***			
	(0.02)				(0.03)			
Self-reported FHH # Number of children age 0–14	0.057***				0.036***			
	(0.01)				(0.01)			
Share of female adults > 0.5		0.415***				0.323***		
		(0.02)				(0.02)		
Share of female adults > 0.5# Number of children age 0–14		-0.072***				-0.116***		
		(0.01)				(0.01)		
Potential FHH			-0.339***				-0.165***	
			(0.02)				(0.03)	
Potential FHH# Number of children age 0–14			0.124***				0.075***	
			(0.01)				(0.01)	
Educated females				-0.037				-0.040
				(0.02)				(0.03)
Educated females# Number of children age 0–14				0.086***				0.074***
				(0.01)				(0.01)
Household head`s characteristics								
Head`s age					-0.009***	-0.009***	-0.007***	-0.008***
					(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary					-0.451***	-0.443***	-0.443***	-0.448***
					(0.02)	(0.02)	(0.02)	(0.02)

Table 9 (continued)

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Highest education level is secondary					-0.911***	-0.903***	-0.900***	-0.903***
					(0.02)	(0.02)	(0.02)	(0.02)
Highest education level is tertiary					-1.572***	-1.568***	-1.563***	-1.562***
					(0.03)	(0.03)	(0.03)	(0.03)
Head is married					-0.097***	0.083***	0.059***	0.068***
					(0.03)	(0.02)	(0.02)	(0.02)
Head is employed					-0.256***	-0.213***	-0.212***	-0.178***
					(0.02)	(0.02)	(0.02)	(0.02)
Household characteristics								
Household size					0.160***	0.167***	0.160***	0.165***
					(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.468***	0.508***	0.456***	0.470***	0.301***	0.338***	0.298***	0.293***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Share of household members age 15–24					-0.092***	-0.095***	-0.095***	-0.100***
					(0.01)	(0.01)	(0.01)	(0.01)
Share of household members age 60 and older					-0.325***	-0.316***	-0.286***	-0.315***
					(0.02)	(0.02)	(0.02)	(0.02)
Urban					-0.614***	-0.610***	-0.611***	-0.611***
					(0.01)	(0.01)	(0.01)	(0.01)
Iraq	-1.072***	-1.106***	-1.065***	-1.070***	-1.441***	-1.457***	-1.422***	-1.429***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)

Table 9 (continued)

	Specification 1				Specification 2			
	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Jordan	-1.184***	-1.203***	-1.180***	-1.204***	-0.886***	-0.903***	-0.863***	-0.880***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)
Mauritania	-1.117***	-1.152***	-1.125***	-1.137***	-1.622***	-1.628***	-1.665***	-1.664***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
West Bank and Gaza	0.796***	0.784***	0.797***	0.795***	0.887***	0.880***	0.896***	0.892***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Tunisia	-0.468***	-0.481***	-0.466***	-0.473***	-0.438***	-0.445***	-0.433***	-0.434***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
_cons	-1.917***	-2.062***	-1.861***	-1.932***	-0.606***	-0.975***	-0.877***	-0.915***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.06)	(0.06)	(0.06)	(0.06)
N	214931	214931	214931	214931	211069	211069	211069	211069

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Robust standard errors are in parentheses. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years. The reference country is Egypt

Table 10 Probabilities of Being Poor for Other FHH Types, Logit Models

	Specification 1					Specification 2				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
De-jure FHH	-0.098***					-0.098**				
	(0.02)					(0.05)				
De-jure FHH # Number of children age 0–14	0.094***					0.059***				
	(0.01)					(0.01)				
Married FHH		-0.182***					-0.392***			
		(0.05)					(0.06)			
Married FHH # Number of children age 0–14		0.024					0.029*			
		(0.02)					(0.02)			
Employed FHH			0.036					-0.135***		
			(0.03)					(0.05)		
Employed FHH # Number of children age 0–14			-0.002					0.058***		
			(0.01)					(0.02)		
Asset FHH				-0.235***					-0.103***	
				(0.03)					(0.03)	
Asset FHH # Number of children age 0–14				0.106***					0.056***	
				(0.01)					(0.01)	
Core FHH					-0.259***					0.028
					(0.04)					(0.03)
Core FHH # Number of children age 0–14					0.060***					-0.016
					(0.02)					(0.01)
Household head`s characteristics										
Head`s age						-0.008***	-0.009***	-0.008***	-0.008***	-0.008***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary						-0.443***	-0.449***	-0.442***	-0.442***	-0.442***
						(0.02)	(0.02)	(0.02)	(0.02)	(0.02)

Table 10 (continued)

	Specification 1					Specification 2				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Highest education level is secondary						-0.902***	-0.909***	-0.900***	-0.900***	-0.901***
						(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Highest education level is tertiary						-1.563***	-1.570***	-1.562***	-1.562***	-1.564***
						(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Head is married						0.061	0.104***	0.065***	0.065***	0.066***
						(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
Head is employed						-0.216***	-0.267***	-0.216***	-0.210***	-0.216***
						(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Household characteristics										
Household size						0.162***	0.161***	0.163***	0.162***	0.163***
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.470***	0.477***	0.478***	0.465***	0.474***	0.298***	0.303***	0.300***	0.298***	0.303***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Share of household members age 15–24						-0.096***	-0.092***	-0.100***	-0.099***	-0.100***
						(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Share of household members age 60 and older						-0.316***	-0.326***	-0.323***	-0.304***	-0.324***
						(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Urban						-0.613***	-0.616***	-0.611***	-0.610***	-0.612***
						(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Iraq	-1.077***	-1.081***	-1.079***	-1.071***	-1.076***	-1.434***	-1.446***	-1.436***	-1.432***	-1.441***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Jordan	-1.188***	-1.194***	-1.191***	-1.183***	-1.189***	-0.876***	-0.895***	-0.881***	-0.872***	-0.885***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Mauritania	-1.115***	-1.080***	-1.097***	-1.098***	-1.091***	-1.649***	-1.597***	-1.647***	-1.649***	-1.636***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)

Table 10 (continued)

	Specification 1					Specification 2				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West Bank and Gaza	0.795***	0.794***	0.794***	0.786***	0.795***	0.889***	0.883***	0.889***	0.887***	0.887***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Tunisia	-0.468***	-0.469***	-0.469***	-0.465***	-0.467***	-0.434***	-0.436***	-0.434***	-0.433***	-0.435***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
_cons	-1.923***	-1.935***	-1.943***	-1.926***	-1.927***	-0.849***	-0.781***	-0.866***	-0.888***	-0.871***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)
N	214,931	214,931	214,931	214,931	214,931	211,069	211,069	211,069	211,069	211,069

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Robust standard errors are in parentheses. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years. The reference country is Egypt

Table 11 Probabilities of being poor for combination of main female-headed household types, linear probability models

	Specification 1		Specification 2	
	(1)	(2)	(3)	(4)
Overlap of self-reported FHHs, potential FHHs, and most-educated-female-adult FHHs	-0.037***		-0.033***	
	(0.00)		(0.00)	
Overlap of self-reported FHHs, potential FHHs, and most-educated-female-adult FHHs # Number of children age 0–14	0.005**		0.007***	
	(0.00)		(0.00)	
Overlap of self-reported FHHs, potential FHHs, majority of females and most-educated-female-adult FHHs		-0.037***		-0.033***
		(0.00)		(0.00)
Overlap of self-reported FHHs, potential FHHs, majority of females and most-educated-female-adult FHHs # Number of children age 0–14		0.005**		0.007***
		(0.00)		(0.00)
Household head`s characteristics				
Head`s age			-0.001***	-0.001***
			(0.00)	(0.00)
Highest education level is primary			-0.064***	-0.064***
			(0.00)	(0.00)
Highest education level is secondary			-0.121***	-0.121***
			(0.00)	(0.00)
Highest education level is tertiary			-0.176***	-0.176***
			(0.00)	(0.00)
Head is married			0.001	0.001
			(0.00)	(0.00)
Head is employed			-0.033***	-0.033***
			(0.00)	(0.00)
Household characteristics				
Household size			0.023***	0.023***
			(0.00)	(0.00)

Table 11 (continued)

	Specification 1		Specification 2	
	(1)	(2)	(3)	(4)
Number of children age 0–14	0.078***	0.078***	0.050***	0.050***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24			-0.009***	-0.009***
			(0.00)	(0.00)
Share of household members age 60 and older			-0.021***	-0.021***
			(0.00)	(0.00)
Urban			-0.084***	-0.084***
			(0.00)	(0.00)
Iraq	-0.150***	-0.150***	-0.181***	-0.181***
	(0.00)	(0.00)	(0.00)	(0.00)
Jordan	-0.145***	-0.145***	-0.093***	-0.093***
	(0.01)	(0.01)	(0.01)	(0.01)
Mauritania	-0.150***	-0.150***	-0.209***	-0.209***
	(0.01)	(0.01)	(0.01)	(0.01)
West Bank and Gaza	0.180***	0.180***	0.184***	0.184***
	(0.01)	(0.01)	(0.01)	(0.01)
Tunisia	-0.061***	-0.061***	-0.054***	-0.054***
	(0.00)	(0.00)	(0.00)	(0.00)
_cons	0.129***	0.129***	0.283***	0.283***
	(0.00)	(0.00)	(0.01)	(0.01)
Adjuster R2	0.16	0.16	0.21	0.21
Number of observations	214931	214931	211069	211069

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Robust standard errors are in parentheses

Table 12 Summary results for probabilities of being poor, by Country

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Panel A: Egypt 2012–2020				
Self-reported FHH	-0.040***			
	(0.01)			
Self-reported FHH # Number of children	-0.016***			
	(0.00)			
Share of female adults > 0.5		0.022***		
		(0.00)		
Share of female adults > 0.5# Number of children		-0.020***		
		(0.00)		
Potential FHH			0.025***	
			(0.01)	
Potential FHH# Number of children			-0.020***	
			(0.00)	
Educated females				0.015***
				(0.00)
Educated females# Number of children				-0.015***
				(0.00)
N	211069	211069	211069	211069
Panel B: Iraq 2007–2013				
Self-reported FHH	-0.052***			
	(0.01)			
Self-reported FHH # Number of children	0.010***			
	(0.00)			
Share of female adults > 0.5		0.045***		
		(0.01)		
Share of female adults > 0.5# Number of children		-0.009***		
		(0.00)		
Potential FHH			-0.006	
			(0.01)	
Potential FHH# Number of children			0.023***	
			(0.01)	
Educated females				-0.011
				(0.01)
Educated females# Number of children				0.033***
				(0.00)
N	42682	42682	42682	42682
Panel C: Jordan 2010–2013				
Self-reported FHH	-0.043***			
	(0.02)			
Self-reported FHH # Number of children	0.025**			
	(0.01)			

Table 12 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Share of female adults > 0.5		0.013		
		(0.01)		
Share of female adults > 0.5# Number of children		0.020***		
		(0.01)		
Potential FHH			-0.004	
			(0.01)	
Potential FHH# Number of children			0.037***	
			(0.01)	
Educated females				0.005
				(0.01)
Educated females# Number of children				0.016**
				(0.01)
N	7695	7695	7695	7695
Panel D: Mauritania 2004–2019				
Self-reported FHH	-0.028***			
	(0.01)			
Self-reported FHH # Number of children	0.003			
	(0.00)			
Share of female adults > 0.5		0.005		
		(0.01)		
Share of female adults > 0.5# Number of children		-0.008***		
		(0.00)		
Potential FHH			-0.029***	
			(0.01)	
Potential FHH# Number of children			0.005*	
			(0.00)	
Educated females				-0.056***
				(0.01)
Educated females# Number of children				0.004
				(0.00)
N	40550	40550	40550	40550
Panel E: Palestine 2007–2017				
Self-reported FHH	0.019			
	(0.02)			
Self-reported FHH # Number of children	0.006			
	(0.01)			
Share of female adults > 0.5		0.071***		
		(0.01)		
Share of female adults > 0.5# Number of children		-0.022***		
		(0.00)		
Potential FHH			0.018	
			(0.02)	

Table 12 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Potential FHH# Number of children			0.025***	
			(0.01)	
Educated females				0.051***
				(0.02)
Educated females# Number of children				0.000
				(0.01)
N	13135	13135	13135	13135
Panel F: Tunisia 2005–2021				
Self-reported FHH	-0.033***			
	(0.01)			
Self-reported FHH # Number of children	0.013***			
	(0.00)			
Share of female adults > 0.5		0.021***		
		(0.00)		
Share of female adults > 0.5# Number of children		0.000		
		(0.00)		
Potential FHH			0.024***	
			(0.00)	
Potential FHH# Number of children			0.016***	
			(0.00)	
Educated females				0.025***
				(0.00)
Educated females# Number of children				0.016***
				(0.00)
N	64384	64384	64384	64384
Control variables for all the regressions				
Household characteristics	Y	Y	Y	Y
Survey year FE	Y	Y	Y	Y

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. The full regression results using the linear probability model are provided in Appendix 2, Tables 22, 23, 24, 25, 26, and 27

Table 13 Probabilities of Being Poor, Egypt 2012-2020

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	-0.002***	-0.002***	-0.002***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.069***	-0.066***	-0.066***	-0.066***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is secondary	-0.137***	-0.135***	-0.134***	-0.134***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is tertiary	-0.227***	-0.226***	-0.225***	-0.225***
	(0.00)	(0.00)	(0.00)	(0.00)
Head is married	-0.047***	-0.017***	-0.014***	-0.016***
	(0.01)	(0.00)	(0.00)	(0.00)
Head is employed	-0.048***	-0.033***	-0.033***	-0.032***
	(0.01)	(0.00)	(0.00)	(0.01)
Household characteristics				
Household size	0.062***	0.064***	0.064***	0.063***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.079***	0.080***	0.077***	0.078***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	0.006**	0.005**	0.004*	0.005**
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older	0.020***	0.024***	0.017***	0.022***
	(0.00)	(0.00)	(0.00)	(0.00)
Urban	-0.039***	-0.038***	-0.037***	-0.038***
	(0.00)	(0.00)	(0.00)	(0.00)

Table 13 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH	-0.040***			
	(0.01)			
Self-reported FHH # Number of children age 0–14	-0.016***			
	(0.00)			
Share of female adults > 0.5		0.022***		
		(0.00)		
Share of female adults > 0.5# Number of children age 0–14		-0.020***		
		(0.00)		
Potential FHH			0.025***	
			(0.01)	
Potential FHH# Number of children age 0–14			-0.020***	
			(0.00)	
Educated females				0.015***
				(0.00)
Educated females# Number of children age 0–14				-0.015***
				(0.00)
_cons	0.093***	0.029**	0.038***	0.034**
	(0.01)	(0.01)	(0.01)	(0.01)
r2_a	0.26	0.26	0.26	0.26
N	42623	42623	42623	42623

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 14 Probabilities of Being Poor, Iraq 2007–2013

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	-0.000**	-0.001***	-0.000**	-0.000*
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.049***	-0.047***	-0.047***	-0.047***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is secondary	-0.095***	-0.093***	-0.093***	-0.092***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is tertiary	-0.112***	-0.111***	-0.111***	-0.110***
	(0.00)	(0.00)	(0.00)	(0.00)
Head is married	-0.008	0.024***	0.022***	0.016***
	(0.01)	(0.01)	(0.01)	(0.01)
Head is employed	-0.064***	-0.061***	-0.057***	-0.043***
	(0.01)	(0.01)	(0.01)	(0.01)
Household characteristics				
Household size	0.003**	0.003**	0.004***	0.005***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.047***	0.051***	0.046***	0.044***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	0.113***	0.110***	0.107***	0.105***
	(0.01)	(0.01)	(0.01)	(0.01)
Share of household members age 60 and older	-0.008	-0.011	-0.002	0.003
	(0.01)	(0.01)	(0.01)	(0.01)
Urban	-0.099***	-0.099***	-0.099***	-0.099***
	(0.00)	(0.00)	(0.00)	(0.00)

Table 14 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH	-0.052***			
	(0.01)			
Self-reported FHH # Number of children age 0–14	0.010***			
	(0.00)			
Share of female adults > 0.5		0.045***		
		(0.01)		
Share of female adults > 0.5# Number of children age 0–14		-0.009***		
		(0.00)		
Potential FHH			-0.006	
			(0.01)	
Potential FHH# Number of children age 0–14			0.023***	
			(0.01)	
Educated females				-0.011
				(0.01)
Educated females# Number of children age 0–14				0.033***
				(0.00)
_cons	0.225***	0.178***	0.184***	0.169***
	(0.01)	(0.01)	(0.01)	(0.01)
r2_a	0.13	0.13	0.13	0.13
N	42682	42682	42682	42682

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 15 Probabilities of Being Poor, Jordan 2010–2013

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	-0.001***	-0.001***	-0.002***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.096***	-0.093***	-0.095***	-0.097***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is secondary	-0.148***	-0.146***	-0.147***	-0.147***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is tertiary	-0.173***	-0.173***	-0.172***	-0.171***
	(0.01)	(0.01)	(0.01)	(0.01)
Head is married	-0.029**	0.001	-0.005	-0.011
	(0.01)	(0.01)	(0.01)	(0.01)
Head is employed	-0.074***	-0.070***	-0.070***	-0.055***
	(0.01)	(0.01)	(0.01)	(0.01)
Household characteristics				
Household size	0.030***	0.029***	0.033***	0.032***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.053***	0.051***	0.050***	0.049***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	0.011	0.006	0.005	0.008
	(0.02)	(0.02)	(0.02)	(0.02)
Share of household members age 60 and older	0.045***	0.042**	0.056***	0.052***
	(0.02)	(0.02)	(0.02)	(0.02)
Urban	0.002	0.002	0.002	0.002
	(0.01)	(0.01)	(0.01)	(0.01)
Self-reported FHH	-0.043***			

Table 15 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
	(0.02)			
Self-reported FHH # Number of children age 0–14	0.025**			
	(0.01)			
Share of female adults > 0.5		0.013		
		(0.01)		
Share of female adults > 0.5# Number of children age 0–14		0.020***		
		(0.01)		
Potential FHH			-0.004	
			(0.01)	
Potential FHH# Number of children age 0–14			0.037***	
			(0.01)	
Educated females				0.005
				(0.01)
Educated females# Number of children age 0–14				0.016**
				(0.01)
_cons	0.084***	0.063***	0.056**	0.045*
	(0.03)	(0.02)	(0.02)	(0.02)
r2_a	0.20	0.21	0.21	0.21
N	7695	7695	7695	7695

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 16 Probabilities of Being Poor, Mauritania 2004–2019

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	0.000***	0.001***	0.001***	0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.056***	-0.055***	-0.056***	-0.053***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is secondary	-0.116***	-0.114***	-0.114***	-0.112***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is tertiary	-0.149***	-0.147***	-0.147***	-0.149***
	(0.01)	(0.01)	(0.01)	(0.01)
Head is married	-0.046***	-0.036***	-0.036***	-0.037***
	(0.01)	(0.00)	(0.00)	(0.00)
Head is employed	-0.002	0.001	0.001	-0.005
	(0.01)	(0.00)	(0.00)	(0.00)
Household characteristics				
Household size	0.031***	0.032***	0.030***	0.031***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.041***	0.044***	0.041***	0.040***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	-0.007***	-0.007**	-0.007***	-0.007***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older	-0.003	-0.001	0.001	-0.003
	(0.01)	(0.01)	(0.01)	(0.01)
Urban	-0.207***	-0.207***	-0.207***	-0.206***
	(0.00)	(0.00)	(0.00)	(0.00)
Self-reported FHH	-0.028***			

Table 16 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
	(0.01)			
Self-reported FHH # Number of children age 0–14	0.003			
	(0.00)			
Share of female adults > 0.5		0.005		
		(0.01)		
Share of female adults > 0.5# Number of children age 0–14		-0.008***		
		(0.00)		
Potential FHH			-0.029***	
			(0.01)	
Potential FHH# Number of children age 0–14			0.005*	
			(0.00)	
Educated females				-0.056***
				(0.01)
Educated females# Number of children age 0–14				0.004
				(0.00)
_cons	0.310***	0.281***	0.291***	0.299***
	(0.01)	(0.01)	(0.01)	(0.01)
r2_a	0.26	0.26	0.26	0.26
N	40550	40550	40550	40550

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 17 Probabilities of Being Poor, Palestine 2007–2017

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	-0.004***	-0.004***	-0.004***	-0.004***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.081***	-0.081***	-0.081***	-0.081***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is secondary	-0.118***	-0.119***	-0.118***	-0.117***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is tertiary	-0.241***	-0.241***	-0.241***	-0.239***
	(0.01)	(0.01)	(0.01)	(0.01)
Head is married	0.040*	0.030**	0.029**	0.026*
	(0.02)	(0.01)	(0.01)	(0.01)
Head is employed	-0.128***	-0.127***	-0.128***	-0.109***
	(0.01)	(0.01)	(0.01)	(0.01)
Household characteristics				
Household size	0.052***	0.053***	0.053***	0.053***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.051***	0.056***	0.050***	0.050***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	-0.007	-0.005	-0.007	-0.006
	(0.01)	(0.01)	(0.01)	(0.01)
Share of household members age 60 and older	0.010	0.012	0.008	0.012
	(0.01)	(0.01)	(0.01)	(0.01)
Urban	-0.030***	-0.030***	-0.030***	-0.030***
	(0.01)	(0.01)	(0.01)	(0.01)
Self-reported FHH	0.019			

Table 17 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
	(0.02)			
Self-reported FHH # Number of children age 0–14	0.006			
	(0.01)			
Share of female adults > 0.5		0.071***		
		(0.01)		
Share of female adults > 0.5# Number of children age 0–14		-0.022***		
		(0.00)		
Potential FHH			0.018	
			(0.02)	
Potential FHH# Number of children age 0–14			0.025***	
			(0.01)	
Educated females				0.051***
				(0.02)
Educated females# Number of children age 0–14				0.000
				(0.01)
_cons	0.478***	0.476***	0.490***	0.461***
	(0.04)	(0.03)	(0.03)	(0.03)
r2_a	0.23	0.23	0.23	0.23
N	13135	13135	13135	13135

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 18 Probabilities of Being Poor, Tunisia 2005–2021

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	-0.001***	-0.001***	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.065***	-0.063***	-0.062***	-0.065***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is secondary	-0.139***	-0.137***	-0.136***	-0.137***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is tertiary	-0.184***	-0.181***	-0.180***	-0.182***
	(0.00)	(0.00)	(0.00)	(0.00)
Head is married	-0.019***	0.003	0.003	0.002
	(0.01)	(0.00)	(0.00)	(0.00)
Head is employed	-0.043***	-0.039***	-0.036***	-0.027***
	(0.00)	(0.00)	(0.00)	(0.00)
Household characteristics				
Household size	0.031***	0.030***	0.034***	0.032***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.060***	0.062***	0.057***	0.059***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	0.004***	0.004**	0.003*	0.004***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older	0.006***	0.007***	0.005**	0.008***
	(0.00)	(0.00)	(0.00)	(0.00)
Urban	-0.040***	-0.040***	-0.039***	-0.040***
	(0.00)	(0.00)	(0.00)	(0.00)
Self-reported FHH	-0.033***			

Table 18 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
	(0.01)			
Self-reported FHH # Number of children age 0–14	0.013***			
	(0.00)			
Share of female adults > 0.5		0.021***		
		(0.00)		
Share of female adults > 0.5# Number of children age 0–14		0.000		
		(0.00)		
Potential FHH			0.024***	
			(0.00)	
Potential FHH# Number of children age 0–14			0.016***	
			(0.00)	
Educated females				0.025***
				(0.00)
Educated females# Number of children age 0–14				0.016***
				(0.00)
_cons	0.159***	0.126***	0.122***	0.105***
	(0.01)	(0.01)	(0.01)	(0.01)
r2_a	0.14	0.14	0.14	0.14
N	64384	64384	64384	64384

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 19 Probabilities of Being Poor, Mixed-Effect Model (Main FHH Types)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH	-0.044***			
	(0.00)			
Self-reported FHH # Number of children age 0–14	0.006***			
	(0.00)			
Share of female adults > 0.5		0.032***		
		(0.00)		
Share of female adults > 0.5# Number of children age 0–14		-0.014***		
		(0.00)		
Potential FHH			-0.017***	
			(0.00)	
Potential FHH# Number of children age 0–14			0.011***	
			(0.00)	
Educated females				-0.006**
				(0.00)
Educated females# Number of children age 0–14				0.013***
				(0.00)
Household head`s characteristics				
Head`s age	-0.001***	-0.001***	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.066***	-0.064***	-0.064***	-0.065***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is secondary	-0.123***	-0.121***	-0.121***	-0.121***
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is tertiary	-0.178***	-0.176***	-0.176***	-0.176***

Table 19 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
	(0.00)	(0.00)	(0.00)	(0.00)
Head is married	-0.020***	0.007***	0.005**	0.006**
	(0.00)	(0.00)	(0.00)	(0.00)
Head is employed	-0.037***	-0.032***	-0.031***	-0.027***
	(0.00)	(0.00)	(0.00)	(0.00)
Household characteristics				
Household size	0.022***	0.024***	0.023***	0.023***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.050***	0.054***	0.049***	0.049***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	-0.008***	-0.008***	-0.008***	-0.009***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older	-0.021***	-0.019***	-0.017***	-0.020***
	(0.00)	(0.00)	(0.00)	(0.00)
Urban	-0.084***	-0.084***	-0.084***	-0.084***
	(0.00)	(0.00)	(0.00)	(0.00)
_cons	0.370***	0.318***	0.328***	0.325***
	(0.11)	(0.11)	(0.11)	(0.11)
$ln\sigma_c$	-2.198***	-2.200***	-2.201***	-2.202***
	(0.29)	(0.29)	(0.29)	(0.29)
$ln\sigma_{jh}$	-0.995***	-0.995***	-0.995***	-0.995***
	(0.00)	(0.00)	(0.00)	(0.00)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. The random effects is at the country level. The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 20 Probabilities of Being Poor, Mixed-Effect Model, Mauritania 2004–2019

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Head`s age	0.000	0.000**	0.000***	0.000**
	(0.00)	(0.00)	(0.00)	(0.00)
Highest education level is primary	-0.057***	-0.057***	-0.057***	-0.054***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is secondary	-0.111***	-0.109***	-0.109***	-0.107***
	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is tertiary	-0.140***	-0.137***	-0.138***	-0.139***
	(0.01)	(0.01)	(0.01)	(0.01)
Head is married	-0.047***	-0.035***	-0.035***	-0.035***
	(0.01)	(0.01)	(0.01)	(0.00)
Head is employed	-0.000	0.003	0.003	-0.002
	(0.00)	(0.00)	(0.00)	(0.00)
Household characteristics				
Household size	0.031***	0.032***	0.030***	0.031***
	(0.00)	(0.00)	(0.00)	(0.00)
Number of children age 0–14	0.038***	0.041***	0.039***	0.037***
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 15–24	-0.008**	-0.007**	-0.007**	-0.008**
	(0.00)	(0.00)	(0.00)	(0.00)
Share of household members age 60 and older	-0.004	-0.003	0.000	-0.004
	(0.01)	(0.01)	(0.01)	(0.01)
Urban	-0.173***	-0.173***	-0.173***	-0.171***
	(0.01)	(0.01)	(0.01)	(0.01)
Self-reported FHH	-0.032***			
	(0.01)			

Table 20 (continued)

	FHH Type 1 Self-reported	FHH Type 2 Majority-female-adult	FHH Type 3 Potential	FHH Type 4 Most-educated-female-adult
Self-reported FHH # Number of children age 0–14	0.002			
	(0.00)			
Share of female adults > 0.5		-0.002		
		(0.01)		
Share of female adults > 0.5# Number of children age 0–14		-0.007***		
		(0.00)		
Potential FHH			-0.032***	
			(0.01)	
Potential FHH# Number of children age 0–14			0.004*	
			(0.00)	
Educated females				-0.057***
				(0.01)
Educated females# Number of children age 0–14				0.004
				(0.00)
_cons	0.325***	0.294***	0.303***	0.308***
	(0.02)	(0.02)	(0.02)	(0.02)
$ln\sigma_r$	-2.677***	-2.677***	-2.675***	-2.685***
	(0.13)	(0.13)	(0.13)	(0.13)
$ln\sigma_{jh}$	-0.950***	-0.950***	-0.950***	-0.950***
	(0.00)	(0.00)	(0.00)	(0.00)
N	40550	40550	40550	40550

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. All regressions control for survey rounds fixed effects. We add the random effects at the regional level, defined as the intersection of subdivisions ("moughataa") and provinces ("wilaya"). The reference groups for head`s education without formal education. The reference group for share of household members is share of members aged between 25 and 59 years

Table 21 Average mobility per year between the survey rounds

	Upward mobility (%)	Downward mobility (%)
Jordan (2010–2013)	17.8	3.5
Egypt, Arab Rep. (2017–2020)	9.7	5.3
Iraq (2007–2012)	9.0	2.7
Mauritania (2014–2019)	8.1	2.8
West Bank and Gaza (2011–2017)	5.1	8.1
Tunisia (2015–2021)	3.5	1.3

Countries are ranked in a decreasing order of upward mobility. We assume a similar rate of change for mobility across the years for all countries to obtain the average mobility per year for each country

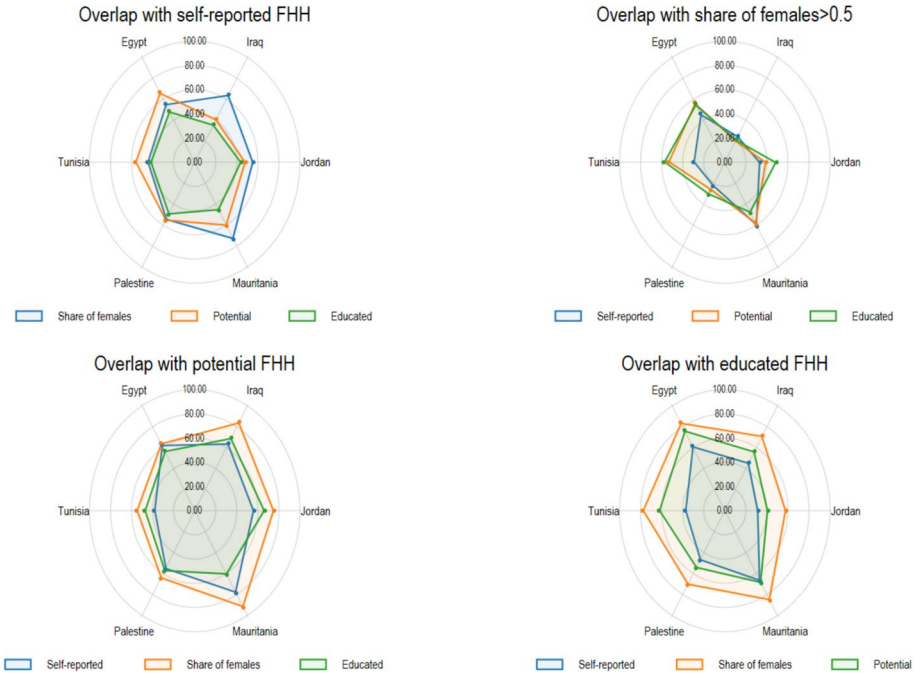

Fig. 7 Overlap of FHH Types (percentage). Note: this figure shows the overlap between different types of FHHs for each country. For example, self-reported FHHs constitute about 20% of majority-female-adult FHHs in Palestine and Iraq

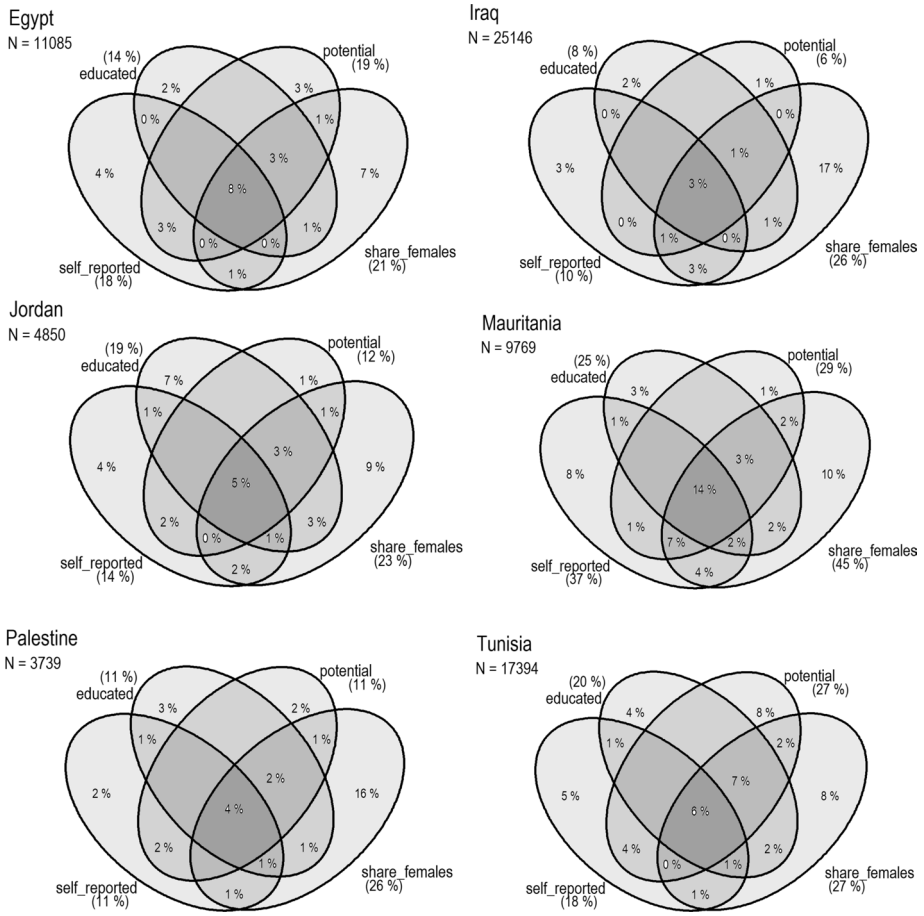

Fig. 8 Venn Diagram of FHH Types (percent of total). Note: The percentages displayed inside each diagram represent the share of the total population falling into each intersection or exclusive category of female-headed household definitions. Darker areas represent more intersection of female headship definitions. All shares are expressed as proportions of the total population. The share next to each FHH type (in parentheses) is the share of this FHH type in the total population. The empty cells represent less than 1%. For example, in Egypt, 21% of all households are majority-female-adult FHHs, and 8% of all households simultaneously meet the definitions of all FHH types. Data for each diagram and country corresponds to the latest available survey year

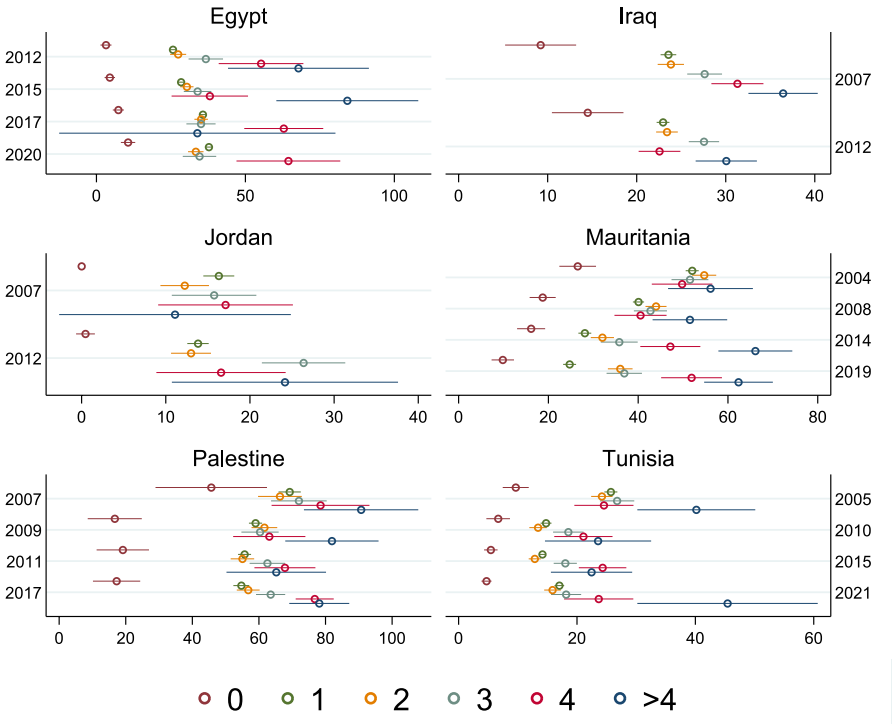

Fig. 9 Headcount Poverty Rates in Self-Reported Male-Headed Households (%), by Number of Female Adults. Note: Headcount poverty rates are estimated using per capita household expenditures. Population sampling weights are applied. The numbers of female adults are shown for 0, 1, 2, 3, 4, and more than 4 adults. The years are shown on the y-axis and the poverty rates are shown on the x-axis

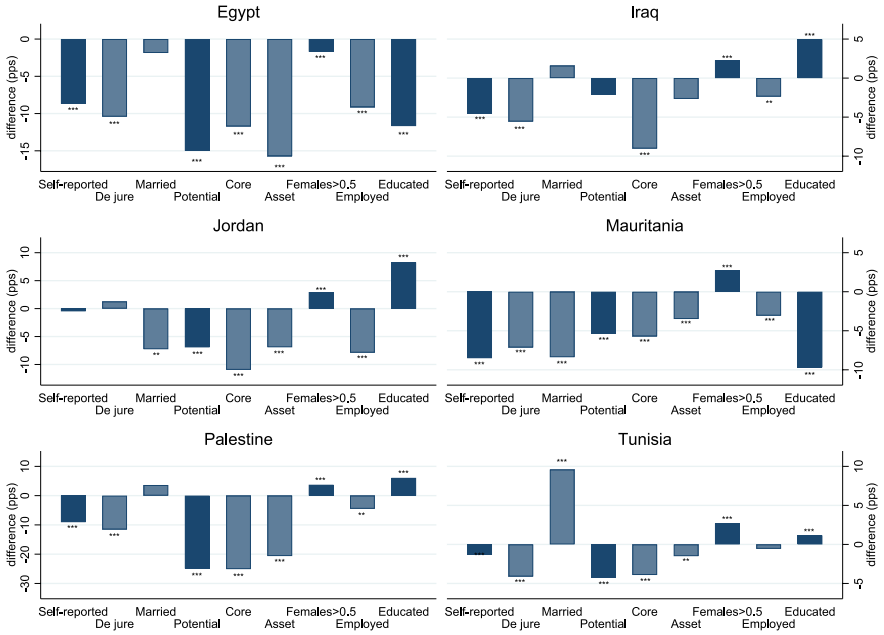

Fig. 10 FHH–non-FHH Differences in Headcount Poverty Rates in MENA, Pooled Cross Sections (percentage points). Note: Authors' calculation based on pooled cross sections. Population sampling weights are applied. The four main types of FHHs are shown in darker color, the five sub-types of FHHs are shown in lighter color. The headcount poverty rate is applied to per capita household expenditures, of FHHs versus the rest of the households. Stars indicate statistically significantly higher headcount poverty ratio between FHHs and non-FHHs in each category. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels respectively

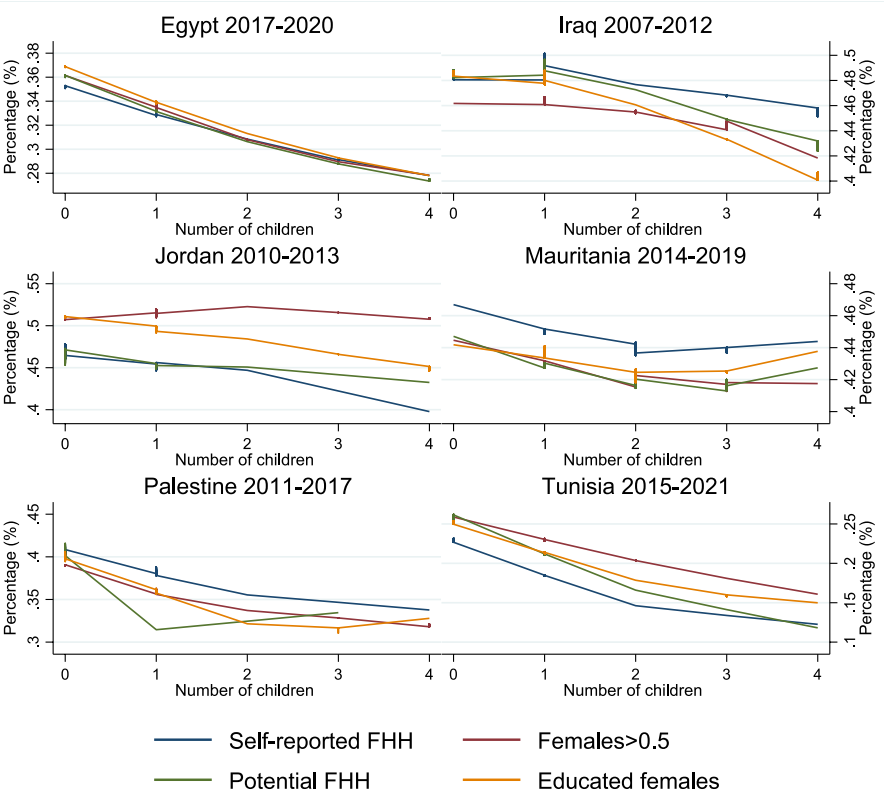

Fig. 11 Correlations Between Probabilities of Female-Headed Households Escaping Poverty in Last Year and Number of Children (percentage). **Note**: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round

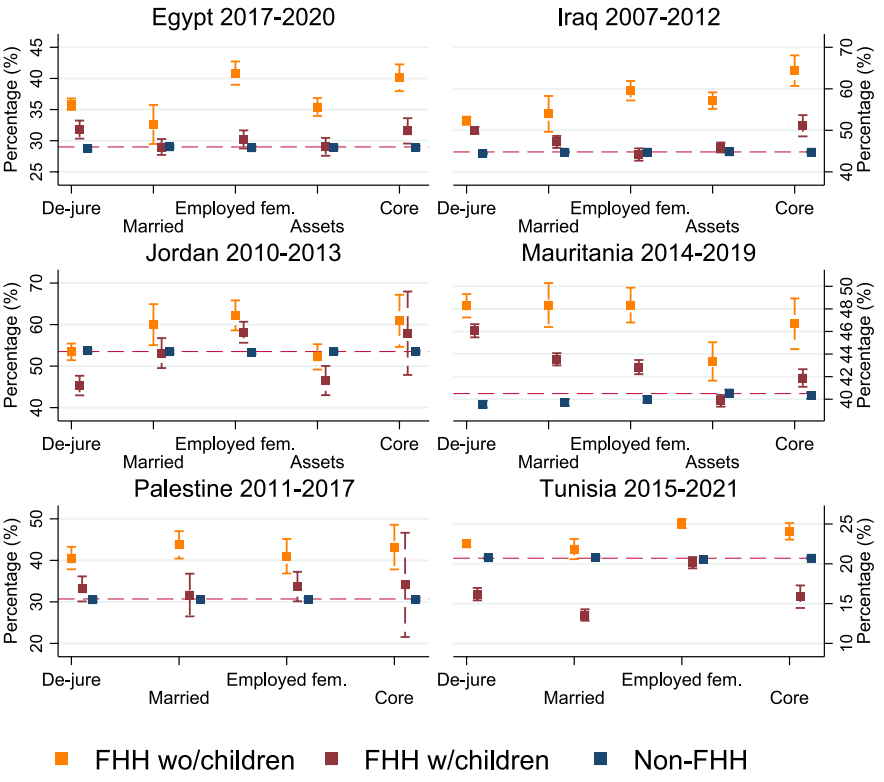

Fig. 12 Probabilities of Other FHH Types Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage). **Note**: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads' ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

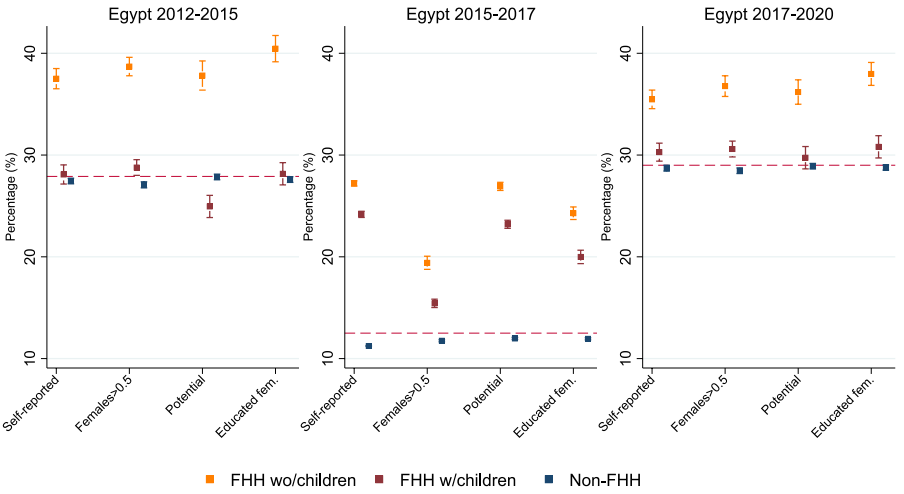

Fig. 13 Probabilities of Female-Headed Households Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage), Egypt. Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

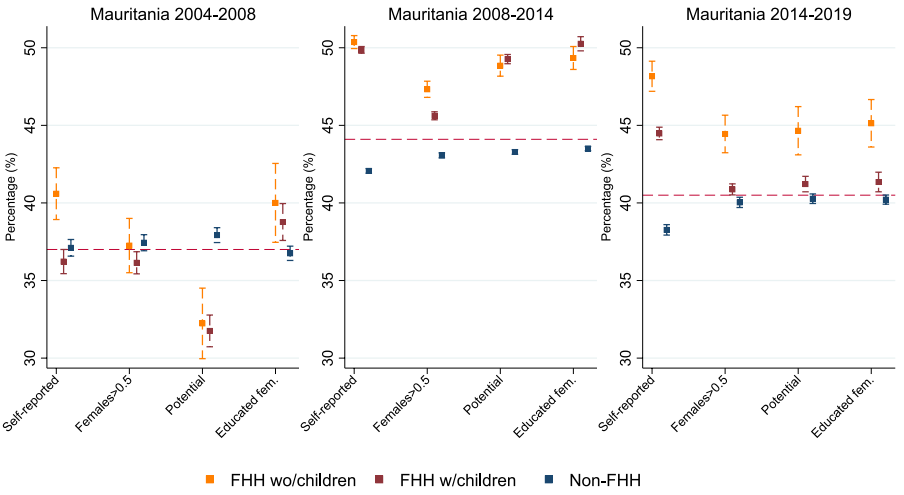

Fig. 14 Probabilities of Female-Headed Households Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage), Mauritania. Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second survey year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

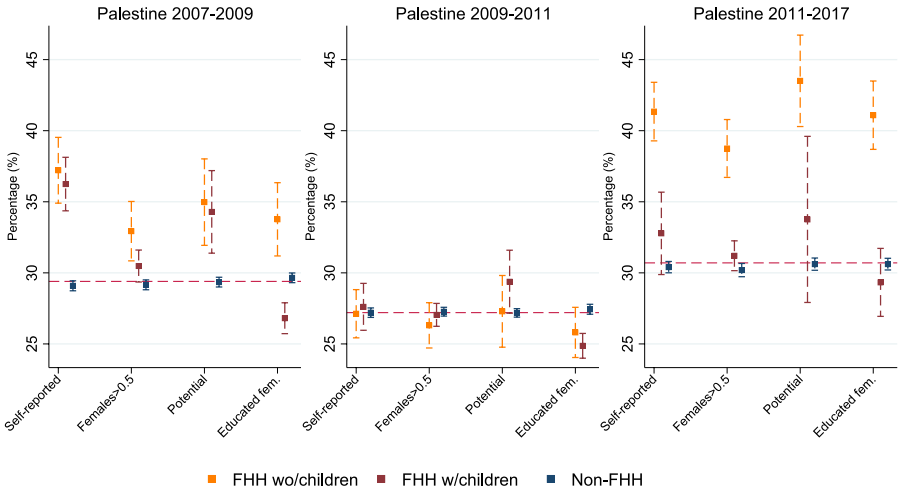

Fig. 15 Probabilities of Female-Headed Households Escaping Poverty in Last Survy Year Conditional on Being Poor in First Survey Year (percentage), West Bank and Gaza. Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

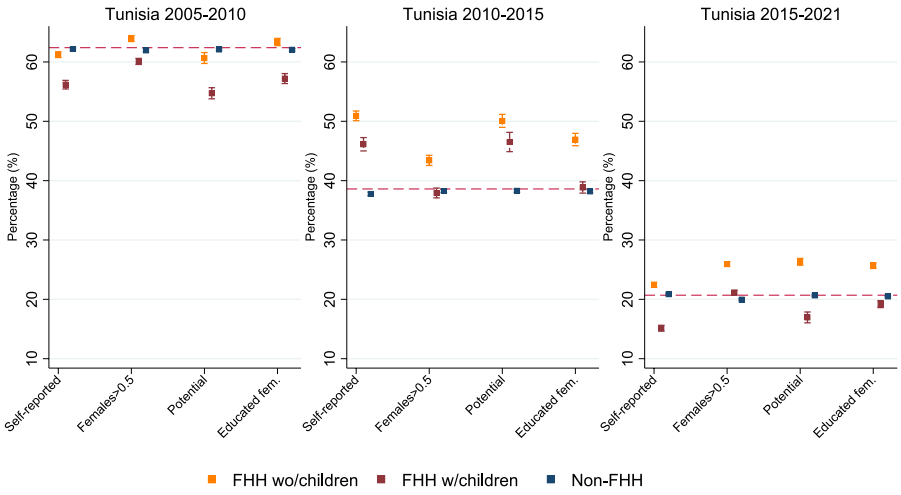

Fig. 16 Probabilities of Female-Headed Households Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage), Tunisia. Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

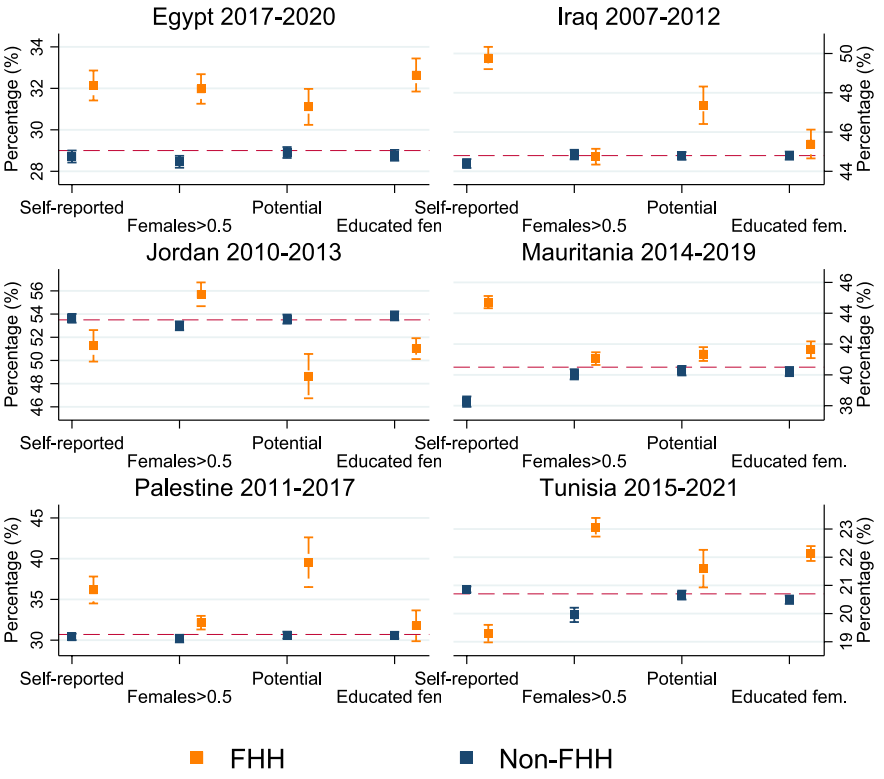

Fig. 17 Probabilities of Female-Headed Households Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage). Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

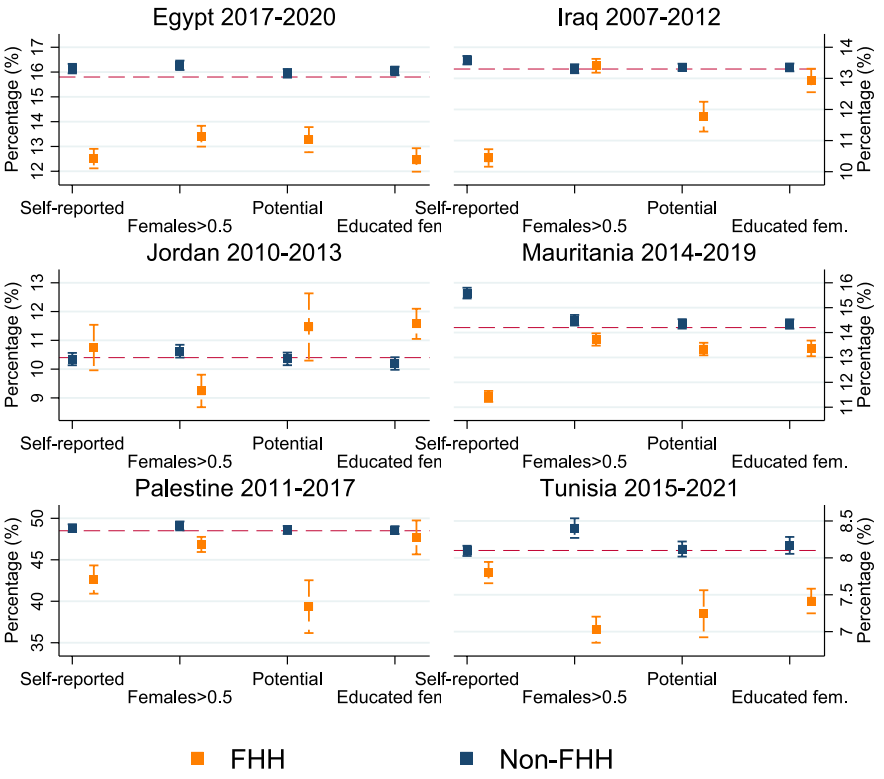

Fig. 18 Probabilities of Female-Headed Households Falling in Poverty in Last Survey Year Conditional on Being Non-poor in First Survey Year (percentage). Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that enters poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps

Appendix 2 Additional Descriptive Statistics for Self-Reported FHHs and MHHs.

Table 22 Descriptive Statistics, Egypt 2012–2020

	Egypt, Arab Rep									
	2012		2017		2017		2020		Pooled 2012–2020	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Heads age	47.17	54.11	48.71	56.05	49.99	57.19	47.01	55.49	48.37	55.91
	(13.44)	(15.13)	(13.13)	(14.43)	(12.87)	(14.01)	(13.79)	(16.04)	(13.34)	(14.89)
Head did not complete primary school	0.40	0.69	0.36	0.63	0.34	0.63	0.31	0.58	0.35	0.63
	(0.49)	(0.46)	(0.48)	(0.48)	(0.47)	(0.48)	(0.46)	(0.49)	(0.48)	(0.48)
Head's highest education level is primary	0.13	0.09	0.15	0.12	0.15	0.11	0.14	0.11	0.15	0.11
	(0.33)	(0.29)	(0.36)	(0.32)	(0.36)	(0.31)	(0.35)	(0.31)	(0.35)	(0.31)
Head's highest education level is secondary	0.28	0.14	0.29	0.16	0.30	0.15	0.33	0.19	0.30	0.16
	(0.45)	(0.35)	(0.45)	(0.36)	(0.46)	(0.36)	(0.47)	(0.39)	(0.46)	(0.37)
Head's highest education level is tertiary	0.19	0.08	0.20	0.09	0.20	0.10	0.22	0.12	0.20	0.10
	(0.40)	(0.27)	(0.40)	(0.29)	(0.40)	(0.30)	(0.41)	(0.33)	(0.40)	(0.30)
Head is never married	0.02	0.03	0.01	0.02	0.01	0.03	0.01	0.03	0.01	0.03
	(0.13)	(0.16)	(0.12)	(0.14)	(0.11)	(0.16)	(0.12)	(0.18)	(0.12)	(0.16)
Head is mono married	0.95	0.21	0.93	0.16	0.95	0.14	0.95	0.20	0.95	0.17
	(0.22)	(0.41)	(0.25)	(0.37)	(0.22)	(0.34)	(0.21)	(0.40)	(0.23)	(0.38)
Head is poly married	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00
	(0.07)	(0.00)	(0.12)	(0.00)	(0.06)	(0.00)	(0.00)	(0.00)	(0.08)	(0.00)
Head is divorced/separated	0.01	0.05	0.01	0.07	0.01	0.08	0.01	0.10	0.01	0.08
	(0.08)	(0.22)	(0.09)	(0.26)	(0.09)	(0.28)	(0.09)	(0.30)	(0.09)	(0.27)
Head is widowed	0.02	0.71	0.03	0.74	0.03	0.75	0.02	0.66	0.03	0.72
	(0.15)	(0.46)	(0.17)	(0.44)	(0.16)	(0.43)	(0.15)	(0.47)	(0.16)	(0.45)
Head is employed	0.86	0.19	0.83	0.20	0.81	0.19	0.85	0.21	0.84	0.20
	(0.34)	(0.40)	(0.37)	(0.40)	(0.39)	(0.39)	(0.36)	(0.41)	(0.37)	(0.40)

Table 22 (continued)

	Egypt, Arab Rep									
	2012		2017		2017		2020		Pooled 2012–2020	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Head is unemployed	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.02	0.01	0.01
	(0.09)	(0.05)	(0.07)	(0.06)	(0.08)	(0.08)	(0.08)	(0.13)	(0.08)	(0.08)
Head is homemaker/housewife	0.00	0.20	0.00	0.48	0.00	0.51	0.00	0.49	0.00	0.44
	(0.00)	(0.40)	(0.00)	(0.50)	(0.00)	(0.50)	(0.00)	(0.50)	(0.00)	(0.50)
Head is student	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
	(0.05)	(0.00)	(0.04)	(0.04)	(0.01)	(0.04)	(0.03)	(0.07)	(0.03)	(0.05)
Head is pensioner/retired/disabled	0.11	0.51	0.15	0.31	0.18	0.29	0.14	0.27	0.15	0.33
	(0.31)	(0.50)	(0.36)	(0.46)	(0.38)	(0.46)	(0.35)	(0.45)	(0.36)	(0.47)
Head is other activities	0.02	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02
	(0.13)	(0.29)	(0.08)	(0.06)	(0.07)	(0.02)	(0.06)	(0.03)	(0.08)	(0.13)
Per capita consumption	6,718.96	8,409.76	10,221.28	13,114.56	14,350.90	19,356.74	16,744.03	21,530.11	12,483.20	16,279.27
	(5,294)	(6,273)	(10,335)	(12,830)	(11,865)	(13,604)	(18,062)	(16,090)	(13,131)	(14,000)
Per capita transfers	1,201.68	5,234.46	2,281.21	8,402.00	3,864.17	12,784.78	4,060.60	15,846.50	3,007.98	11,034.81
	(3,334)	(5,406)	(5,429)	(9,957)	(8,474)	(11,940)	(8,253)	(15,900)	(7,046)	(12,376)
Household size	4.63	2.97	4.54	3.00	4.49	2.72	4.35	2.63	4.50	2.82
	(1.81)	(1.85)	(1.71)	(1.92)	(1.71)	(1.73)	(1.60)	(1.67)	(1.70)	(1.80)
Number of children age 0–14	1.47	0.72	1.43	0.72	1.39	0.56	1.53	0.69	1.45	0.67
	(1.35)	(1.14)	(1.39)	(1.21)	(1.40)	(1.04)	(1.38)	(1.18)	(1.38)	(1.15)
Number of seniors	0.20	0.31	0.21	0.32	0.25	0.36	0.21	0.36	0.22	0.34
	(0.49)	(0.47)	(0.50)	(0.47)	(0.55)	(0.49)	(0.51)	(0.49)	(0.51)	(0.48)
1–2 adults, no child	0.12	0.42	0.13	0.42	0.15	0.49	0.14	0.50	0.14	0.46
	(0.32)	(0.49)	(0.34)	(0.49)	(0.36)	(0.50)	(0.35)	(0.50)	(0.34)	(0.50)

Table 22 (continued)

	Egypt, Arab Rep									
	2012		2017		2017		2020		Pooled 2012–2020	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
1–2 adults, 1–2 children	0.23	0.18	0.19	0.16	0.16	0.15	0.25	0.18	0.20	0.16
	(0.42)	(0.38)	(0.39)	(0.37)	(0.36)	(0.35)	(0.43)	(0.38)	(0.40)	(0.37)
1–2 adult, 3 or more children	0.23	0.11	0.25	0.10	0.26	0.09	0.25	0.11	0.25	0.10
	(0.42)	(0.31)	(0.43)	(0.30)	(0.44)	(0.29)	(0.43)	(0.31)	(0.43)	(0.30)
3 adults or more, 0–1 child	0.23	0.20	0.25	0.21	0.26	0.20	0.21	0.16	0.24	0.19
	(0.42)	(0.40)	(0.43)	(0.41)	(0.44)	(0.40)	(0.41)	(0.36)	(0.43)	(0.40)
3 adults or more, 2–3 children	0.14	0.07	0.14	0.08	0.14	0.05	0.12	0.04	0.14	0.06
	(0.35)	(0.25)	(0.34)	(0.28)	(0.35)	(0.23)	(0.33)	(0.21)	(0.34)	(0.24)
3 adults or more, 4 children or more	0.05	0.02	0.04	0.02	0.03	0.01	0.03	0.01	0.04	0.02
	(0.21)	(0.14)	(0.19)	(0.15)	(0.18)	(0.12)	(0.17)	(0.11)	(0.19)	(0.13)
Rural area	0.56	0.55	0.55	0.52	0.55	0.49	0.57	0.54	0.56	0.52
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Urban area	0.44	0.45	0.45	0.48	0.45	0.51	0.43	0.46	0.44	0.48
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported

Table 23 Descriptive Statistics, West Bank and Gaza, 2007–2017

	West Bank and Gaza									
	2007		2009		2011		2017		Pooled 2007–2017	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Heads age	44.45	57.75	43.99	57.96	45.06	58.27	45.37	59.97	44.77	58.61
	(13.29)	(16.31)	(13.21)	(15.03)	(12.95)	(13.61)	(12.96)	(13.16)	(13.08)	(14.16)
Head did not complete primary school	0.15	0.52	0.14	0.53	0.12	0.50	0.12	0.43	0.13	0.49
	(0.35)	(0.50)	(0.35)	(0.50)	(0.33)	(0.50)	(0.32)	(0.50)	(0.34)	(0.50)
Head's highest education level is primary	0.52	0.24	0.48	0.28	0.49	0.31	0.49	0.37	0.49	0.31
	(0.50)	(0.43)	(0.50)	(0.45)	(0.50)	(0.46)	(0.50)	(0.48)	(0.50)	(0.46)
Head's highest education level is secondary	0.16	0.12	0.17	0.11	0.18	0.10	0.16	0.08	0.17	0.10
	(0.36)	(0.32)	(0.38)	(0.31)	(0.38)	(0.30)	(0.37)	(0.28)	(0.38)	(0.30)
Head's highest education level is tertiary	0.17	0.11	0.21	0.08	0.21	0.09	0.23	0.11	0.21	0.10
	(0.38)	(0.32)	(0.41)	(0.28)	(0.41)	(0.29)	(0.42)	(0.31)	(0.41)	(0.30)
Head is never married	0.01	0.06	0.01	0.11	0.01	0.10	0.00	0.00	0.01	0.07
	(0.10)	(0.25)	(0.09)	(0.31)	(0.08)	(0.30)	(0.00)	(0.00)	(0.08)	(0.26)
Head is mono married	0.96	0.09	0.97	0.12	0.97	0.10	0.99	0.20	0.97	0.13
	(0.19)	(0.29)	(0.18)	(0.33)	(0.17)	(0.30)	(0.10)	(0.40)	(0.16)	(0.34)
Head is poly married	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00
	(0.12)	(0.00)	(0.11)	(0.00)	(0.10)	(0.00)	(0.00)	(0.00)	(0.09)	(0.00)
Head is divorced/separated	0.00	0.11	0.00	0.06	0.00	0.10	0.01	0.72	0.00	0.26
	(0.00)	(0.31)	(0.05)	(0.25)	(0.06)	(0.30)	(0.09)	(0.45)	(0.06)	(0.44)
Head is widowed	0.01	0.73	0.01	0.71	0.01	0.70	0.00	0.08	0.01	0.53
	(0.11)	(0.44)	(0.10)	(0.46)	(0.10)	(0.46)	(0.05)	(0.27)	(0.09)	(0.50)
Head is employed	0.76	0.21	0.76	0.23	0.78	0.24			0.77	0.23
	(0.43)	(0.41)	(0.43)	(0.42)	(0.42)	(0.43)			(0.42)	(0.42)

Table 23 (continued)

	West Bank and Gaza									
	2007		2009		2011		2017		Pooled 2007–2017	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Head is unemployed	0.12	0.02	0.08	0.01	0.08	0.02			0.08	0.02
	(0.32)	(0.14)	(0.27)	(0.11)	(0.27)	(0.15)			(0.28)	(0.13)
Head is homemaker/housewife	0.00	0.56	0.00	0.47	0.14	0.08			0.06	0.29
	(0.05)	(0.50)	(0.05)	(0.50)	(0.34)	(0.28)			(0.24)	(0.45)
Head is student	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00
	(0.06)	(0.00)	(0.03)	(0.06)	(0.04)	(0.04)			(0.04)	(0.04)
Head is pensioner/retired/disabled	0.08	0.18	0.10	0.27	0.00	0.00			0.05	0.13
	(0.27)	(0.39)	(0.30)	(0.44)	(0.00)	(0.00)			(0.22)	(0.33)
Head is other activities	0.04	0.03	0.06	0.02	0.01	0.66			0.03	0.33
	(0.20)	(0.18)	(0.24)	(0.13)	(0.10)	(0.48)			(0.18)	(0.47)
Per capita consumption	9,147.45	14,179.85	11,758.84	15,823.72	13,164.33	16,983.40	12,202.69	16,567.52	12,095.51	16,304.18
	(9,668)	(13,757)	(10,971)	(12,594)	(12,794)	(13,025)	(9,668)	(13,757)	(11,135)	(12,622)
Household size	6.62	3.84	6.31	3.44	6.27	3.63	5.76	3.34	6.17	3.51
	(2.75)	(2.86)	(2.67)	(2.34)	(2.54)	(2.86)	(2.31)	(2.51)	(2.55)	(2.62)
Number of children age 0–14	2.69	0.99	2.42	0.71	2.38	0.81	2.31	0.70	2.40	0.77
	(1.95)	(1.60)	(1.93)	(1.41)	(1.85)	(1.52)	(1.86)	(1.32)	(1.89)	(1.44)
Number of seniors	0.22	0.40	0.19	0.42	0.19	0.42	0.17	0.41	0.19	0.42
	(0.51)	(0.50)	(0.50)	(0.51)	(0.49)	(0.53)	(0.46)	(0.50)	(0.49)	(0.51)
1–2 adults, no child	0.07	0.37	0.07	0.42	0.07	0.44			0.07	0.43
	(0.25)	(0.49)	(0.25)	(0.49)	(0.25)	(0.50)			(0.25)	(0.49)
1–2 adults, 1–2 children	0.09	0.15	0.13	0.08	0.10	0.08			0.11	0.09
	(0.29)	(0.36)	(0.34)	(0.28)	(0.31)	(0.27)			(0.32)	(0.28)

Table 23 (continued)

	West Bank and Gaza									
	2007		2009		2011		2017		Pooled 2007–2017	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
1–2 adult, 3 or more children	0.37	0.12	0.33	0.11	0.34	0.09			0.34	0.10
	(0.48)	(0.32)	(0.47)	(0.32)	(0.47)	(0.29)			(0.47)	(0.31)
3 adults or more, 0–1 child	0.13	0.22	0.14	0.26	0.17	0.22			0.15	0.23
	(0.33)	(0.42)	(0.35)	(0.44)	(0.37)	(0.42)			(0.36)	(0.42)
3 adults or more, 2–3 children	0.15	0.07	0.15	0.08	0.14	0.09			0.15	0.09
	(0.36)	(0.25)	(0.36)	(0.28)	(0.35)	(0.29)			(0.35)	(0.28)
3 adults or more, 4 children or more	0.20	0.08	0.18	0.04	0.18	0.07			0.18	0.06
	(0.40)	(0.27)	(0.38)	(0.20)	(0.38)	(0.26)			(0.38)	(0.24)
Rural area	0.29	0.26	0.17	0.22	0.17	0.18	0.18	0.17	0.18	0.20
	(0.45)	(0.44)	(0.37)	(0.42)	(0.38)	(0.39)	(0.38)	(0.37)	(0.39)	(0.40)
Urban area	0.57	0.60	0.74	0.68	0.74	0.72	0.73	0.72	0.72	0.70
	(0.50)	(0.49)	(0.44)	(0.47)	(0.44)	(0.45)	(0.44)	(0.45)	(0.45)	(0.46)

Table 24 Descriptive Statistics, Tunisia 2005–2021

	Tunisia									
	2005		2010		2015		2021		Pooled 2005–2021	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Heads age	52.12	57.74	53.44	59.52	53.38	60.99	55.40	61.95	53.72	60.31
	(14.07)	(15.18)	(13.74)	(15.60)	(13.65)	(14.86)	(13.53)	(14.47)	(13.78)	(15.04)
Head did not complete primary school	0.75	0.92	0.77	0.93	0.19	0.57	0.13	0.48	0.42	0.68
	(0.43)	(0.27)	(0.42)	(0.26)	(0.39)	(0.50)	(0.34)	(0.50)	(0.49)	(0.47)
Head's highest education level is primary	0.04	0.01	0.03	0.02	0.39	0.25	0.42	0.30	0.25	0.17
	(0.20)	(0.12)	(0.18)	(0.12)	(0.49)	(0.43)	(0.49)	(0.46)	(0.43)	(0.38)
Head's highest education level is secondary	0.12	0.05	0.11	0.04	0.29	0.13	0.32	0.16	0.22	0.10
	(0.32)	(0.21)	(0.31)	(0.20)	(0.46)	(0.34)	(0.47)	(0.36)	(0.42)	(0.31)
Head's highest education level is tertiary	0.09	0.02	0.09	0.02	0.13	0.05	0.13	0.06	0.11	0.04
	(0.28)	(0.14)	(0.29)	(0.14)	(0.33)	(0.22)	(0.33)	(0.23)	(0.31)	(0.20)
Head is never married	0.02	0.06	0.01	0.04	0.03	0.08	0.03	0.08	0.02	0.07
	(0.13)	(0.24)	(0.11)	(0.19)	(0.17)	(0.27)	(0.17)	(0.27)	(0.15)	(0.25)
Head is mono married	0.96	0.19	0.97	0.20	0.95	0.13	0.95	0.10	0.95	0.15
	(0.20)	(0.39)	(0.18)	(0.40)	(0.22)	(0.34)	(0.22)	(0.30)	(0.21)	(0.35)
Head is divorced/separated	0.01	0.08	0.00	0.08	0.01	0.09	0.01	0.10	0.00	0.09
	(0.07)	(0.26)	(0.06)	(0.27)	(0.07)	(0.29)	(0.07)	(0.30)	(0.07)	(0.29)
Head is widowed	0.02	0.67	0.02	0.69	0.02	0.70	0.02	0.71	0.02	0.69
	(0.14)	(0.47)	(0.14)	(0.46)	(0.13)	(0.46)	(0.13)	(0.45)	(0.13)	(0.46)
Head is employed	0.74	0.24	0.71	0.17					0.72	0.21
	(0.44)	(0.43)	(0.46)	(0.38)					(0.45)	(0.40)
Head is unemployed	0.02	0.01	0.02	0.01					0.02	0.01
	(0.15)	(0.10)	(0.15)	(0.07)					(0.15)	(0.09)

Table 24 (continued)

	Tunisia									
	2005		2010		2015		2021		Pooled 2005–2021	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Head is homemaker/housewife	0.00	0.41	0.01	0.49					0.00	0.45
	(0.05)	(0.49)	(0.07)	(0.50)					(0.06)	(0.50)
Head is student	0.00	0.01	0.00	0.00					0.00	0.00
	(0.04)	(0.09)	(0.02)	(0.02)					(0.03)	(0.06)
Head is pensioner/retired/disabled	0.22	0.32	0.26	0.33					0.24	0.32
	(0.42)	(0.46)	(0.44)	(0.47)					(0.43)	(0.47)
Head is other activities	0.00	0.02	0.00	0.01					0.00	0.01
	(0.07)	(0.15)	(0.05)	(0.08)					(0.06)	(0.12)
Per capita consumption	2,027.76	2,252.64	2,823.94	3,156.40	4,310.95	4,892.92	5,999.25	6,886.89	3,976.12	4,634.09
	(2,206.66)	(2,473.81)	(2,604.83)	(2,640.10)	(4,590.12)	(4,002.85)	(7,378.56)	(6,515.51)	(5,136.62)	(4,910.49)
Household size	4.77	3.25	4.55	3.11	4.26	2.79	3.97	2.61	4.35	2.89
	(1.88)	(1.96)	(1.73)	(1.75)	(1.60)	(1.60)	(1.45)	(1.39)	(1.68)	(1.67)
Number of children age 0–14	1.21	0.57	1.01	0.50	1.08	0.40	0.95	0.36	1.05	0.44
	(1.26)	(1.07)	(1.19)	(0.99)	(1.23)	(0.86)	(1.18)	(0.83)	(1.21)	(0.93)
Number of seniors	0.38	0.43	0.38	0.46	0.35	0.47			0.37	0.45
	(0.66)	(0.52)	(0.66)	(0.54)	(0.66)	(0.53)			(0.66)	(0.53)
1–2 adults, no child	0.10	0.38	0.11	0.40			0.19	0.52	0.14	0.45
	(0.31)	(0.49)	(0.32)	(0.49)			(0.39)	(0.50)	(0.35)	(0.50)
1–2 adults, 1–2 children	0.20	0.12	0.20	0.13			0.18	0.09	0.19	0.11
	(0.40)	(0.32)	(0.40)	(0.33)			(0.38)	(0.29)	(0.39)	(0.31)
1–2 adult, 3 or more children	0.17	0.08	0.14	0.08			0.10	0.03	0.13	0.06
	(0.37)	(0.28)	(0.35)	(0.27)			(0.30)	(0.17)	(0.34)	(0.23)

Table 24 (continued)

	Tunisia									
	2005		2010		2015		2021		Pooled 2005–2021	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
3 adults or more, 0–1 child	0.32	0.32	0.39	0.33			0.44	0.32	0.39	0.32
	(0.47)	(0.47)	(0.49)	(0.47)			(0.50)	(0.47)	(0.49)	(0.47)
3 adults or more, 2–3 children	0.16	0.08	0.14	0.06			0.09	0.04	0.13	0.06
	(0.37)	(0.27)	(0.35)	(0.24)			(0.28)	(0.19)	(0.33)	(0.23)
3 adults or more, 4 children or more	0.04	0.02	0.02	0.01			0.01	0.00	0.02	0.01
	(0.20)	(0.14)	(0.15)	(0.08)			(0.07)	(0.04)	(0.14)	(0.09)
Rural area	0.32	0.33	0.32	0.34	0.30	0.26	0.31	0.27	0.31	0.29
	(0.46)	(0.47)	(0.47)	(0.47)	(0.46)	(0.44)	(0.46)	(0.44)	(0.46)	(0.45)
Urban area	0.68	0.67	0.68	0.66	0.70	0.74	0.69	0.73	0.69	0.71
	(0.46)	(0.47)	(0.47)	(0.47)	(0.46)	(0.44)	(0.46)	(0.44)	(0.46)	(0.45)

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported

Table 25 Descriptive Statistics, Jordan 2010–2013

	Jordan					
	2010		2013		Pooled 2010–2013	
	MHH	FHH	MHH	FHH	MHH	FHH
Heads age	47.62	58.63	47.49	58.96	47.55	58.80
	(14.13)	(13.68)	(14.04)	(13.24)	(14.08)	(13.45)
Head did not complete primary school	0.15	0.53	0.12	0.49	0.13	0.51
	(0.36)	(0.50)	(0.32)	(0.50)	(0.34)	(0.50)
Head's highest education level is primary	0.47	0.27	0.47	0.30	0.47	0.28
	(0.50)	(0.44)	(0.50)	(0.46)	(0.50)	(0.45)
Head's highest education level is secondary	0.15	0.08	0.14	0.09	0.15	0.09
	(0.36)	(0.28)	(0.34)	(0.28)	(0.35)	(0.28)
Head's highest education level is tertiary	0.22	0.12	0.28	0.12	0.25	0.12
	(0.42)	(0.33)	(0.45)	(0.33)	(0.44)	(0.33)
Head is never married	0.02	0.06	0.02	0.07	0.02	0.07
	(0.13)	(0.25)	(0.14)	(0.25)	(0.14)	(0.25)
Head is mono married	0.97	0.19	0.96	0.17	0.97	0.18
	(0.17)	(0.39)	(0.20)	(0.37)	(0.18)	(0.38)
Head is poly married	0.00	0.00	0.00	0.00	0.00	0.00
	(0.06)	(0.00)	(0.06)	(0.00)	(0.06)	(0.00)
Head is divorced/separated	0.00	0.04	0.00	0.05	0.00	0.04
	(0.03)	(0.19)	(0.06)	(0.22)	(0.05)	(0.20)
Head is widowed	0.01	0.71	0.01	0.72	0.01	0.72
	(0.08)	(0.45)	(0.11)	(0.45)	(0.10)	(0.45)
Head is employed	0.66	0.04	0.67	0.05	0.66	0.05
	(0.47)	(0.20)	(0.47)	(0.22)	(0.47)	(0.21)
Head is unemployed	0.04	0.01	0.07	0.04	0.06	0.02
	(0.20)	(0.09)	(0.26)	(0.19)	(0.24)	(0.15)
Head is homemaker/housewife	0.00	0.79	0.00	0.75	0.00	0.77
	(0.02)	(0.41)	(0.00)	(0.43)	(0.01)	(0.42)
Head is student	0.00	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.00)	(0.05)	(0.04)	(0.04)	(0.03)
Head is pensioner/retired/disabled	0.12	0.15	0.14	0.14	0.13	0.14
	(0.33)	(0.35)	(0.35)	(0.34)	(0.34)	(0.35)
Head is other activities	0.17	0.02	0.12	0.02	0.14	0.02
	(0.38)	(0.13)	(0.32)	(0.15)	(0.35)	(0.14)
Per capita consumption	2,063.45	2,916.21	2,238.36	3,100.82	2,155.59	3,010.97
	(3,263.14)	(2,417.35)	(1,578.64)	(2,442.96)	(2,521.48)	(2,431.02)
Per capita transfers	377.77	1,107.40	469.79	1,114.52	426.24	1,111.05
	(703.55)	(1,489.48)	(839.28)	(1,364.42)	(779.30)	(1,425.88)
Household size	5.66	3.64	5.36	3.49	5.50	3.56
	(2.18)	(2.28)	(2.12)	(2.51)	(2.15)	(2.40)
Number of children age 0–14	1.93	0.59	1.80	0.57	1.86	0.58
	(1.70)	(1.14)	(1.66)	(1.42)	(1.68)	(1.29)
Number of seniors	0.26	0.38	0.23	0.41	0.24	0.40
	(0.57)	(0.49)	(0.54)	(0.51)	(0.55)	(0.50)

Table 25 (continued)

	Jordan					
	2010		2013		Pooled 2010–2013	
	MHH	FHH	MHH	FHH	MHH	FHH
1–2 adults, no child	0.07	0.36	0.09	0.39	0.08	0.37
	(0.26)	(0.48)	(0.28)	(0.49)	(0.27)	(0.48)
1–2 adults, 1–2 children	0.13	0.14	0.15	0.10	0.14	0.12
	(0.34)	(0.35)	(0.35)	(0.30)	(0.35)	(0.32)
1–2 adult, 3 or more children	0.30	0.06	0.29	0.06	0.29	0.06
	(0.46)	(0.25)	(0.45)	(0.23)	(0.46)	(0.24)
3 adults or more, 0–1 child	0.23	0.29	0.25	0.34	0.24	0.32
	(0.42)	(0.46)	(0.43)	(0.47)	(0.43)	(0.47)
3 adults or more, 2–3 children	0.15	0.10	0.13	0.08	0.14	0.09
	(0.36)	(0.30)	(0.34)	(0.27)	(0.35)	(0.29)
3 adults or more, 4 children or more	0.11	0.05	0.09	0.04	0.10	0.04
	(0.31)	(0.22)	(0.29)	(0.18)	(0.30)	(0.20)
Rural area	0.16	0.13	0.17	0.19	0.17	0.16
	(0.37)	(0.34)	(0.37)	(0.39)	(0.37)	(0.37)
Urban area	0.84	0.87	0.83	0.81	0.83	0.84
	(0.37)	(0.34)	(0.37)	(0.39)	(0.37)	(0.37)

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported

Table 26 Descriptive Statistics, Iraq 2007–2013

	Iraq					
	2007		2012		Pooled 2007–2013	
	MHH	FHH	MHH	FHH	MHH	FHH
Heads age	45.15	54.29	46.93	54.28	46.73	54.28
	(13.71)	(13.04)	(13.06)	(12.51)	(13.14)	(12.58)
Head did not complete primary school	0.31	0.75	0.34	0.72	0.34	0.72
	(0.46)	(0.43)	(0.47)	(0.45)	(0.47)	(0.45)
Head's highest education level is primary	0.41	0.17	0.41	0.20	0.41	0.20
	(0.49)	(0.38)	(0.49)	(0.40)	(0.49)	(0.40)
Head's highest education level is secondary	0.11	0.02	0.09	0.03	0.09	0.03
	(0.31)	(0.14)	(0.28)	(0.17)	(0.28)	(0.17)
Head's highest education level is tertiary	0.17	0.06	0.16	0.05	0.16	0.05
	(0.38)	(0.23)	(0.36)	(0.22)	(0.37)	(0.22)
Head is never married	0.02	0.04	0.01	0.02	0.01	0.02
	(0.13)	(0.20)	(0.09)	(0.14)	(0.10)	(0.15)
Head is mono married	0.95	0.08	0.95	0.15	0.95	0.14
	(0.21)	(0.27)	(0.22)	(0.35)	(0.22)	(0.34)
Head is poly married	0.01	0.00	0.03	0.00	0.03	0.00
	(0.11)	(0.00)	(0.17)	(0.00)	(0.16)	(0.00)
Head is divorced/separated	0.00	0.07	0.00	0.06	0.00	0.06
	(0.04)	(0.25)	(0.04)	(0.25)	(0.04)	(0.25)
Head is widowed	0.01	0.81	0.01	0.77	0.01	0.77
	(0.12)	(0.39)	(0.10)	(0.42)	(0.11)	(0.42)
Head is employed	0.79	0.19	0.78	0.15	0.78	0.16
	(0.41)	(0.40)	(0.42)	(0.36)	(0.42)	(0.36)

Table 26 (continued)

	Iraq					
	2007		2012		Pooled 2007–2013	
	MHH	FHH	MHH	FHH	MHH	FHH
Head is unemployed	0.03	0.02	0.02	0.01	0.02	0.01
	(0.18)	(0.13)	(0.15)	(0.08)	(0.15)	(0.09)
Head is homemaker/housewife	0.00	0.69	0.00	0.53	0.00	0.55
	(0.02)	(0.46)	(0.03)	(0.50)	(0.03)	(0.50)
Head is student	0.00	0.00	0.00	0.00	0.00	0.00
	(0.04)	(0.00)	(0.04)	(0.02)	(0.04)	(0.02)
Head is pensioner/retired/disabled	0.14	0.08	0.18	0.30	0.18	0.27
	(0.35)	(0.27)	(0.39)	(0.46)	(0.38)	(0.45)
Head is other activities	0.03	0.03	0.02	0.01	0.02	0.01
	(0.17)	(0.16)	(0.12)	(0.08)	(0.13)	(0.10)
Per capita consumption	1,878,839.75	2,011,498.91	2,855,613.71	3,072,404.17	2,746,443.13	2,933,690.42
	(1,662,430)	(1,562,966)	(2,612,256)	(2,728,793)	(2,542,574)	(2,630,373)
Per capita transfers	166.71	409.56	249.20	647.95	239.98	616.79
	(415.53)	(941.59)	(902.11)	(1,940.46)	(861.86)	(1,842.51)
Household size	7.00	5.76	8.49	7.64	8.33	7.39
	(3.43)	(3.46)	(4.21)	(4.22)	(4.16)	(4.18)
Number of children age 0–14	2.69	1.64	3.46	2.75	3.37	2.61
	(2.12)	(2.00)	(2.55)	(2.68)	(2.51)	(2.63)
Number of seniors	0.22	0.27	0.24	0.24	0.24	0.25
	(0.51)	(0.49)	(0.52)	(0.46)	(0.52)	(0.46)
1–2 adults, no child	0.04	0.14	0.01	0.04	0.01	0.05
	(0.20)	(0.35)	(0.11)	(0.19)	(0.12)	(0.22)

Table 26 (continued)

	Iraq					
	2007		2012		Pooled 2007–2013	
	MHH	FHH	MHH	FHH	MHH	FHH
1–2 adults, 1–2 children	0.14	0.08	0.06	0.05	0.07	0.06
	(0.34)	(0.28)	(0.25)	(0.23)	(0.26)	(0.23)
1–2 adult, 3 or more children	0.29	0.13	0.27	0.15	0.27	0.15
	(0.45)	(0.34)	(0.44)	(0.35)	(0.44)	(0.35)
3 adults or more, 0–1 child	0.15	0.30	0.11	0.21	0.11	0.22
	(0.35)	(0.46)	(0.31)	(0.41)	(0.32)	(0.42)
3 adults or more, 2–3 children	0.16	0.18	0.18	0.26	0.18	0.25
	(0.37)	(0.38)	(0.39)	(0.44)	(0.39)	(0.43)
3 adults or more, 4 children or more	0.22	0.16	0.36	0.29	0.35	0.27
	(0.42)	(0.37)	(0.48)	(0.45)	(0.48)	(0.45)
Rural area	0.27	0.20	0.33	0.22	0.32	0.22
	(0.44)	(0.40)	(0.47)	(0.42)	(0.47)	(0.41)
Urban area	0.73	0.80	0.67	0.78	0.68	0.78
	(0.44)	(0.40)	(0.47)	(0.42)	(0.47)	(0.41)

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported

Table 27 Descriptive Statistics, Mauritania 2004–2019

	Mauritania									
	2004		2008		2014		2019		Pooled 2004–2019	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Heads age	48.10	53.29	48.22	47.33	49.11	48.05	49.63	46.83	48.83	48.01
	(13.60)	(14.09)	(14.06)	(15.24)	(14.49)	(15.80)	(14.29)	(15.25)	(14.16)	(15.40)
Head did not complete primary school	0.77	0.93	0.72	0.85	0.70	0.81	0.48	0.50	0.66	0.72
	(0.42)	(0.25)	(0.45)	(0.35)	(0.46)	(0.39)	(0.50)	(0.50)	(0.47)	(0.45)
Head's highest education level is primary	0.08	0.03	0.11	0.09	0.11	0.11	0.26	0.33	0.15	0.18
	(0.28)	(0.17)	(0.31)	(0.29)	(0.32)	(0.32)	(0.44)	(0.47)	(0.35)	(0.38)
Head's highest education level is secondary	0.11	0.03	0.12	0.05	0.13	0.07	0.18	0.16	0.14	0.09
	(0.31)	(0.18)	(0.33)	(0.21)	(0.34)	(0.25)	(0.38)	(0.36)	(0.34)	(0.29)
Head's highest education level is tertiary	0.04	0.01	0.05	0.01	0.06	0.01	0.08	0.01	0.06	0.01
	(0.19)	(0.08)	(0.22)	(0.08)	(0.24)	(0.08)	(0.27)	(0.10)	(0.23)	(0.09)
Head is never married	0.03	0.02	0.02	0.01	0.03	0.02	0.03	0.02	0.03	0.02
	(0.17)	(0.15)	(0.16)	(0.12)	(0.17)	(0.13)	(0.17)	(0.13)	(0.16)	(0.13)
Head is mono married	0.94	0.10	0.95	0.39	0.94	0.43	0.88	0.50	0.93	0.41
	(0.24)	(0.30)	(0.22)	(0.49)	(0.23)	(0.50)	(0.32)	(0.50)	(0.26)	(0.49)
Head is poly married	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.02	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.23)	(0.17)	(0.12)	(0.11)
Head is divorced/separated	0.02	0.33	0.01	0.22	0.02	0.21	0.02	0.18	0.02	0.21
	(0.14)	(0.47)	(0.12)	(0.42)	(0.13)	(0.40)	(0.13)	(0.39)	(0.13)	(0.41)
Head is widowed	0.01	0.55	0.01	0.37	0.01	0.35	0.01	0.27	0.01	0.35
	(0.11)	(0.50)	(0.11)	(0.48)	(0.11)	(0.48)	(0.12)	(0.44)	(0.11)	(0.48)
Head is employed	0.86	0.54	0.78	0.40	0.87	0.40	0.81	0.37	0.83	0.41
	(0.35)	(0.50)	(0.41)	(0.49)	(0.33)	(0.49)	(0.39)	(0.48)	(0.37)	(0.49)

Table 27 (continued)

	Mauritania									
	2004		2008		2014		2019		Pooled 2004–2019	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
Head is unemployed	0.02	0.02	0.04	0.02	0.01	0.02	0.01	0.01	0.02	0.02
	(0.15)	(0.12)	(0.19)	(0.13)	(0.08)	(0.13)	(0.11)	(0.11)	(0.14)	(0.12)
Head is not searched and not work	0.12	0.45	0.18	0.59	0.12	0.58	0.18	0.61	0.15	0.58
	(0.32)	(0.50)	(0.38)	(0.49)	(0.32)	(0.49)	(0.38)	(0.49)	(0.36)	(0.49)
Per capita consumption	184,984.25	147,570.28	240,551.50	219,258.68	341,658.92	350,431.69	373,240.01	403,696.14	294,662.55	315,850.25
	(2587509)	(205663)	(234972)	(168764)	(299510)	(247036)	(264805)	(268529)	(1,189,714)	(252,048)
Household size	5.94	4.40	5.87	4.68	6.05	5.03	6.46	5.59	6.10	5.08
	(2.77)	(2.44)	(2.88)	(2.47)	(3.44)	(2.61)	(3.59)	(2.98)	(3.24)	(2.73)
Number of children age 0–14	2.56	1.63	2.53	2.12	2.68	2.33	2.86	2.66	2.67	2.32
	(2.01)	(1.73)	(2.03)	(1.84)	(2.29)	(1.98)	(2.41)	(2.01)	(2.21)	(1.96)
Number of seniors	0.19	0.27	0.21	0.20	0.25	0.23	0.27	0.23	0.23	0.23
	(0.44)	(0.46)	(0.47)	(0.41)	(0.51)	(0.44)	(0.56)	(0.46)	(0.50)	(0.44)
1–2 adults, no child	0.08	0.19	0.10	0.13	0.10	0.11	0.09	0.07	0.09	0.11
	(0.28)	(0.39)	(0.29)	(0.33)	(0.29)	(0.31)	(0.28)	(0.25)	(0.29)	(0.31)
1–2 adults, 1–2 children	0.16	0.21	0.16	0.22	0.14	0.19	0.12	0.19	0.14	0.20
	(0.37)	(0.40)	(0.36)	(0.41)	(0.35)	(0.40)	(0.33)	(0.39)	(0.35)	(0.40)
1–2 adult, 3 or more children	0.20	0.14	0.20	0.24	0.23	0.26	0.20	0.26	0.21	0.24
	(0.40)	(0.35)	(0.40)	(0.43)	(0.42)	(0.44)	(0.40)	(0.44)	(0.41)	(0.43)
3 adults or more, 0–1 child	0.19	0.26	0.19	0.20	0.18	0.20	0.18	0.17	0.18	0.19
	(0.39)	(0.44)	(0.39)	(0.40)	(0.38)	(0.40)	(0.38)	(0.37)	(0.39)	(0.40)
3 adults or more, 2–3 children	0.17	0.13	0.18	0.13	0.17	0.14	0.19	0.17	0.18	0.15
	(0.38)	(0.34)	(0.38)	(0.34)	(0.38)	(0.34)	(0.39)	(0.37)	(0.38)	(0.35)

Table 27 (continued)

	Mauritania									
	2004		2008		2014		2019		Pooled 2004–2019	
	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH	MHH	FHH
3 adults or more, 4 children or more	0.19	0.07	0.18	0.09	0.18	0.11	0.23	0.15	0.20	0.12
	(0.39)	(0.25)	(0.38)	(0.28)	(0.39)	(0.31)	(0.42)	(0.36)	(0.40)	(0.32)
Rural area	0.62	0.57	0.54	0.64	0.49	0.56	0.52	0.57	0.54	0.58
	(0.49)	(0.49)	(0.50)	(0.48)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.49)
Urban area	0.38	0.43	0.46	0.36	0.51	0.44	0.48	0.43	0.46	0.42
	(0.49)	(0.49)	(0.50)	(0.48)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.49)

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported

Table 28 Descriptive Statistics, all countries—years

	MHH	FHH
Heads age	48.14	55.52
	(13.61)	(14.10)
Head did not complete primary school	0.36	0.70
	(0.48)	(0.46)
Head's highest education level is primary	0.38	0.19
	(0.48)	(0.40)
Head's highest education level is secondary	0.12	0.06
	(0.32)	(0.23)
Head's highest education level is tertiary	0.15	0.05
	(0.36)	(0.21)
Head is never married	0.01	0.04
	(0.11)	(0.19)
Head is mono married	0.95	0.17
	(0.22)	(0.37)
Head is poly married	0.02	0.03
	(0.15)	(0.16)
Head is divorced/separated	0.01	0.25
	(0.07)	(0.43)
Head is widowed	0.01	0.71
	(0.11)	(0.45)
Head is employed	0.77	0.19
	(0.42)	(0.39)
Head is unemployed	0.03	0.01
	(0.16)	(0.10)
Head is homemaker/housewife	0.01	0.55
	(0.08)	(0.50)
Head is student	0.00	0.00
	(0.04)	(0.03)
Head is pensioner/retired/disabled	0.18	0.27
	(0.39)	(0.45)
Head is other activities	0.02	0.01
	(0.15)	(0.11)
Per capita consumption	2,034,242.98	1,731,419.27
	(2,496,523)	(2,451,185)
Per capita transfers	204.12	471.50
	(805.10)	(1,655.70)
Household size	7.39	5.75
	(4.05)	(3.99)
Number of children	2.85	1.89
	(2.46)	(2.38)
Number of seniors	0.26	0.29
	(0.54)	(0.48)
1–2 adults, no child	0.04	0.16
	(0.19)	(0.37)

Table 28 (continued)

	MHH	FHH
1–2 adults, 1–2 children	0.10	0.09
	(0.29)	(0.28)
1–2 adult, 3 or more children	0.25	0.13
	(0.43)	(0.34)
3 adults or more, 0–1 child	0.16	0.25
	(0.37)	(0.43)
3 adults or more, 2–3 children	0.17	0.19
	(0.38)	(0.39)
3 adults or more, 4 children or more	0.28	0.19
	(0.45)	(0.39)
Rural area	0.32	0.27
	(0.47)	(0.45)
Urban area	0.68	0.73
	(0.47)	(0.45)

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported

Table 29 Descriptive Statistics of Self-reported FHH, Pooled Sample

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Heads age	55.91	54.28	58.80	48.01	58.61	60.31
	(14.89)	(12.58)	(13.45)	(15.40)	(14.16)	(15.04)
Head does not complete primary school	0.63	0.72	0.51	0.72	0.49	0.68
	(0.48)	(0.45)	(0.50)	(0.45)	(0.50)	(0.47)
Head's highest education level is primary	0.11	0.20	0.28	0.18	0.31	0.17
	(0.31)	(0.40)	(0.45)	(0.38)	(0.46)	(0.38)
Head's highest education level is secondary	0.16	0.03	0.09	0.09	0.10	0.10
	(0.37)	(0.17)	(0.28)	(0.29)	(0.30)	(0.31)
Head's highest education level is tertiary	0.10	0.05	0.12	0.01	0.10	0.04
	(0.30)	(0.22)	(0.33)	(0.09)	(0.30)	(0.20)
Head is never married	0.03	0.02	0.07	0.02	0.07	0.07
	(0.16)	(0.15)	(0.25)	(0.13)	(0.26)	(0.25)
Head is mono married	0.17	0.14	0.18	0.41	0.13	0.15
	(0.38)	(0.34)	(0.38)	(0.49)	(0.34)	(0.35)
Head is poly married	0.00	0.00	0.00	0.01	0.00	0.09
	(0.00)	(0.00)	(0.00)	(0.11)	(0.00)	(0.29)
Head is divorced/separated	0.08	0.06	0.04	0.21	0.26	0.69
	(0.27)	(0.25)	(0.20)	(0.41)	(0.44)	(0.46)
Head is widowed	0.72	0.77	0.72	0.35	0.53	
	(0.45)	(0.42)	(0.45)	(0.48)	(0.50)	
Head is employed	0.20	0.16	0.05	0.41	0.23	0.21
	(0.40)	(0.36)	(0.21)	(0.49)	(0.42)	(0.40)
Head is unemployed	0.01	0.01	0.02	0.02	0.02	0.01
	(0.08)	(0.09)	(0.15)	(0.12)	(0.13)	(0.09)
Head is homemaker/housewife	0.44	0.55	0.77	0.58	0.29	0.45
	(0.50)	(0.50)	(0.42)	(0.49)	(0.45)	(0.50)

Table 29 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Head is student	0.00	0.00	0.00		0.00	0.00
	(0.05)	(0.02)	(0.03)		(0.04)	(0.06)
Head is pensioner/retired/disabled	0.33	0.27	0.14		0.13	0.32
	(0.47)	(0.45)	(0.35)		(0.33)	(0.47)
Head is other activities	0.02	0.01	0.02		0.33	0.01
	(0.13)	(0.10)	(0.14)		(0.47)	(0.12)
The value of per capita consumption	16,279.27	2,933,690.42	3,010.97	315,850.25	16,304.18	4,634.09
	(13,999.61)	(2,630,373.09)	(2,431.02)	(252,048.03)	(12,622.25)	(4,910.49)
The value of per capita transfers	11,034.81	616.79	1,111.05			
	(12,375.70)	(1,842.51)	(1,425.88)			
Household size	2.82	7.39	3.56	5.08	3.51	2.89
	(1.80)	(4.18)	(2.40)	(2.73)	(2.62)	(1.67)
Number of children	0.67	2.61	0.58	2.32	0.77	0.44
	(1.15)	(2.63)	(1.29)	(1.96)	(1.44)	(0.93)
Number of seniors	0.34	0.25	0.40	0.23	0.42	0.45
	(0.48)	(0.46)	(0.50)	(0.44)	(0.51)	(0.53)
1–2 adults, no child	0.46	0.05	0.37	0.11	0.43	0.45
	(0.50)	(0.22)	(0.48)	(0.31)	(0.49)	(0.50)
1–2 adults, 1–2 children	0.16	0.06	0.12	0.20	0.09	0.11
	(0.37)	(0.23)	(0.32)	(0.40)	(0.28)	(0.31)
1–2 adult, 3 or more children	0.10	0.15	0.06	0.24	0.10	0.06
	(0.30)	(0.35)	(0.24)	(0.43)	(0.31)	(0.23)
3 adults or more, 0–1 child	0.19	0.22	0.32	0.19	0.23	0.32
	(0.40)	(0.42)	(0.47)	(0.40)	(0.42)	(0.47)
3 adults or more, 2–3 children	0.06	0.25	0.09	0.15	0.09	0.06
	(0.24)	(0.43)	(0.29)	(0.35)	(0.28)	(0.23)

Table 29 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
3 adults or more, 4 children or more	0.02	0.27	0.04	0.12	0.06	0.01
	(0.13)	(0.45)	(0.20)	(0.32)	(0.24)	(0.09)
Rural area	0.52	0.22	0.16	0.58	0.20	0.29
	(0.50)	(0.41)	(0.37)	(0.49)	(0.40)	(0.45)
Urban area	0.48	0.78	0.84	0.42	0.70	0.71
	(0.50)	(0.41)	(0.37)	(0.49)	(0.46)	(0.45)
Number of observations	**7,682**	**4,437**	**1,071**	**12,820**	**1,398**	**11,073**

Household sampling weights are applied. Standard deviations are in parentheses

Table 30 Descriptive Statistics of Share of female adults > 0.5, Pooled Sample

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Heads age	54.04	51.56	57.63	51.23	53.90	59.08
	(13.87)	(14.24)	(13.63)	(15.73)	(13.94)	(13.43)
Head does not complete primary school	0.48	0.47	0.29	0.73	0.26	0.54
	(0.50)	(0.50)	(0.46)	(0.45)	(0.44)	(0.50)
Head's highest education level is primary	0.13	0.34	0.33	0.16	0.42	0.22
	(0.34)	(0.47)	(0.47)	(0.36)	(0.49)	(0.42)
Head's highest education level is secondary	0.22	0.07	0.12	0.09	0.14	0.16
	(0.42)	(0.26)	(0.32)	(0.29)	(0.35)	(0.37)
Head's highest education level is tertiary	0.17	0.13	0.26	0.02	0.18	0.08
	(0.38)	(0.33)	(0.44)	(0.15)	(0.38)	(0.26)
Head is never married	0.02	0.01	0.05	0.02	0.03	0.04
	(0.14)	(0.12)	(0.21)	(0.13)	(0.17)	(0.19)
Head is mono married	0.65	0.73	0.71	0.65	0.73	0.73
	(0.48)	(0.44)	(0.46)	(0.48)	(0.45)	(0.44)
Head is poly married	0.01	0.07	0.01	0.02	0.03	0.04
	(0.10)	(0.25)	(0.10)	(0.14)	(0.16)	(0.19)
Head is divorced/separated	0.04	0.02	0.02	0.13	0.07	0.19
	(0.20)	(0.13)	(0.13)	(0.34)	(0.26)	(0.40)
Head is widowed	0.28	0.17	0.22	0.18	0.14	
	(0.45)	(0.38)	(0.41)	(0.39)	(0.35)	
Head is employed	0.49	0.58	0.32	0.54	0.52	0.49
	(0.50)	(0.49)	(0.46)	(0.50)	(0.50)	(0.50)
Head is unemployed	0.01	0.02	0.04	0.02	0.06	0.01
	(0.09)	(0.13)	(0.20)	(0.12)	(0.23)	(0.12)
Head is homemaker/housewife	0.24	0.12	0.24	0.44	0.17	0.15
	(0.42)	(0.32)	(0.42)	(0.50)	(0.38)	(0.36)

Table 30 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Head is student	0.00	0.00	0.00		0.00	0.00
	(0.04)	(0.05)	(0.02)		(0.05)	(0.04)
Head is pensioner/retired/disabled	0.25	0.27	0.22		0.12	0.34
	(0.43)	(0.44)	(0.42)		(0.32)	(0.47)
Head is other activities	0.01	0.01	0.18		0.14	0.01
	(0.11)	(0.12)	(0.39)		(0.34)	(0.08)
The value of per capita consumption	14,062.79	2,607,158.62	2,720.88	282,606.68	12,751.99	3,924.70
	(13,051.62)	(2,316,752.39)	(4,259.67)	(233,663.11)	(11,599.76)	(4,466.89)
The value of per capita transfers	7,085.27	380.16	858.87			
	(9,313.02)	(1,237.03)	(1,210.77)			
Household size	3.97	9.44	5.18	6.08	5.96	4.21
	(2.07)	(5.06)	(2.73)	(3.44)	(3.15)	(1.95)
Number of children	0.95	3.52	1.06	2.69	1.73	0.63
	(1.27)	(3.26)	(1.60)	(2.29)	(1.97)	(1.03)
Number of seniors	0.32	0.36	0.46	0.32	0.39	0.50
	(0.53)	(0.58)	(0.64)	(0.53)	(0.60)	(0.65)
1–2 adults, no child	0.24	0.02	0.16	0.06	0.16	0.18
	(0.43)	(0.13)	(0.37)	(0.24)	(0.37)	(0.39)
1–2 adults, 1–2 children	0.12	0.02	0.06	0.14	0.05	0.07
	(0.32)	(0.14)	(0.23)	(0.34)	(0.21)	(0.25)
1–2 adult, 3 or more children	0.08	0.05	0.04	0.18	0.05	0.04
	(0.27)	(0.22)	(0.20)	(0.38)	(0.21)	(0.18)
3 adults or more, 0–1 child	0.31	0.18	0.41	0.22	0.28	0.52
	(0.46)	(0.38)	(0.49)	(0.41)	(0.45)	(0.50)
3 adults or more, 2–3 children	0.19	0.24	0.17	0.20	0.19	0.16
	(0.39)	(0.43)	(0.38)	(0.40)	(0.39)	(0.37)

Table 30 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
3 adults or more, 4 children or more	0.06	0.49	0.16	0.21	0.28	0.03
	(0.24)	(0.50)	(0.37)	(0.40)	(0.45)	(0.17)
Rural area	0.52	0.33	0.16	0.60	0.19	0.33
	(0.50)	(0.47)	(0.37)	(0.49)	(0.39)	(0.47)
Urban area	0.48	0.67	0.84	0.40	0.70	0.67
	(0.50)	(0.47)	(0.37)	(0.49)	(0.46)	(0.47)
Number of observations	**9,520**	**11,072**	**1,833**	**16,971**	**2,890**	**18,721**

Household sampling weights are applied. Standard deviations are in parentheses

Table 31 Descriptive Statistics of Potential FHHs, Pooled Sample

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Heads age	61.74	55.13	66.83	52.11	67.00	66.97
	(16.03)	(17.66)	(13.99)	(18.28)	(14.28)	(14.43)
Head does not complete primary school	0.60	0.61	0.48	0.77	0.52	0.60
	(0.49)	(0.49)	(0.50)	(0.42)	(0.50)	(0.49)
Head's highest education level is primary	0.12	0.26	0.26	0.16	0.28	0.20
	(0.32)	(0.44)	(0.44)	(0.36)	(0.45)	(0.40)
Head's highest education level is secondary	0.15	0.04	0.09	0.06	0.08	0.14
	(0.36)	(0.19)	(0.29)	(0.24)	(0.28)	(0.34)
Head's highest education level is tertiary	0.13	0.09	0.17	0.01	0.11	0.07
	(0.34)	(0.29)	(0.38)	(0.08)	(0.31)	(0.25)
Head is never married	0.02	0.04	0.06	0.02	0.07	0.05
	(0.16)	(0.19)	(0.24)	(0.12)	(0.26)	(0.23)
Head is mono married	0.45	0.46	0.51	0.55	0.43	0.58
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.49)
Head is poly married	0.00	0.01	0.00	0.01	0.01	0.05
	(0.04)	(0.08)	(0.01)	(0.12)	(0.08)	(0.22)
Head is divorced/separated	0.05	0.07	0.03	0.17	0.15	0.32
	(0.23)	(0.25)	(0.16)	(0.37)	(0.36)	(0.47)
Head is widowed	0.47	0.43	0.40	0.25	0.35	
	(0.50)	(0.49)	(0.49)	(0.43)	(0.48)	
Head is employed	0.23	0.23	0.08	0.42	0.22	0.23
	(0.42)	(0.42)	(0.28)	(0.49)	(0.42)	(0.42)
Head is unemployed	0.01	0.01	0.02	0.01	0.01	0.01
	(0.08)	(0.12)	(0.13)	(0.12)	(0.12)	(0.08)
Head is homemaker/housewife	0.27	0.40	0.37	0.57	0.24	0.20
	(0.44)	(0.49)	(0.48)	(0.50)	(0.43)	(0.40)

Table 31 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Head is student	0.00	0.00	0.00		0.00	0.00
	(0.04)	(0.03)	(0.03)		(0.04)	(0.05)
Head is pensioner/retired/disabled	0.48	0.34	0.37		0.25	0.54
	(0.50)	(0.47)	(0.48)		(0.43)	(0.50)
Head is other activities	0.01	0.02	0.15		0.27	0.01
	(0.11)	(0.14)	(0.36)		(0.44)	(0.11)
The value of per capita consumption	18,884.59	3,440,996.59	3,819.20	319,036.58	19,265.52	5,230.75
	(19,104.16)	(3,449,621.92)	(5,674.75)	(269,922.78)	(15,298.49)	(7,112.86)
The value of per capita transfers	13,772.53	1,153.01	1,475.97			
	(14,488.63)	(2,795.27)	(1,540.92)			
Household size	2.25	4.41	2.63	4.48	2.39	2.42
	(1.36)	(2.23)	(1.45)	(2.31)	(1.55)	(1.23)
Number of children	0.50	1.80	0.39	2.30	0.39	0.29
	(1.04)	(1.96)	(1.04)	(1.93)	(1.09)	(0.80)
Number of seniors	0.77	0.61	0.97	0.44	0.95	1.00
	(0.70)	(0.72)	(0.70)	(0.60)	(0.69)	(0.73)
1–2 adults, no child	0.64	0.20	0.55	0.15	0.63	0.61
	(0.48)	(0.40)	(0.50)	(0.36)	(0.48)	(0.49)
1–2 adults, 1–2 children	0.15	0.15	0.11	0.24	0.09	0.10
	(0.36)	(0.36)	(0.32)	(0.43)	(0.29)	(0.30)
1–2 adult, 3 or more children	0.10	0.38	0.08	0.29	0.09	0.05
	(0.30)	(0.48)	(0.27)	(0.45)	(0.29)	(0.21)
3 adults or more, 0–1 child	0.09	0.17	0.24	0.13	0.16	0.23
	(0.29)	(0.38)	(0.43)	(0.34)	(0.37)	(0.42)
3 adults or more, 2–3 children	0.01	0.06	0.02	0.10	0.01	0.02
	(0.12)	(0.24)	(0.13)	(0.30)	(0.12)	(0.13)

Table 31 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
3 adults or more, 4 children or more	0.00	0.04	0.00	0.09	0.01	0.00
	(0.07)	(0.20)	(0.04)	(0.28)	(0.11)	(0.05)
Rural area	0.52	0.27	0.13	0.70	0.20	0.32
	(0.50)	(0.45)	(0.34)	(0.46)	(0.40)	(0.47)
Urban area	0.48	0.73	0.87	0.30	0.70	0.68
	(0.50)	(0.45)	(0.34)	(0.46)	(0.46)	(0.47)
Number of observations	**7,610**	**2,628**	**935**	**10,506**	**1,404**	**13,482**

Household sampling weights are applied. Standard deviations are in parentheses

Table 32 Descriptive Statistics of Educated females FHHs, Pooled Sample

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Heads age	55.05	51.03	55.69	50.80	52.95	59.75
	(15.10)	(15.38)	(14.90)	(17.05)	(16.41)	(14.47)
Head does not complete primary school	0.49	0.53	0.32	0.64	0.33	0.52
	(0.50)	(0.50)	(0.47)	(0.48)	(0.47)	(0.50)
Head's highest education level is primary	0.12	0.34	0.40	0.22	0.48	0.24
	(0.33)	(0.47)	(0.49)	(0.41)	(0.50)	(0.43)
Head's highest education level is secondary	0.23	0.05	0.11	0.13	0.11	0.17
	(0.42)	(0.23)	(0.31)	(0.33)	(0.32)	(0.37)
Head's highest education level is tertiary	0.16	0.07	0.18	0.01	0.08	0.07
	(0.37)	(0.26)	(0.38)	(0.12)	(0.27)	(0.25)
Head is never married	0.03	0.03	0.05	0.02	0.04	0.05
	(0.16)	(0.17)	(0.21)	(0.13)	(0.20)	(0.22)
Head is mono married	0.55	0.63	0.70	0.59	0.67	0.67
	(0.50)	(0.48)	(0.46)	(0.49)	(0.47)	(0.47)
Head is poly married	0.00	0.02	0.00	0.02	0.01	0.05
	(0.04)	(0.13)	(0.06)	(0.15)	(0.09)	(0.22)
Head is divorced/separated	0.06	0.05	0.02	0.17	0.10	0.23
	(0.24)	(0.21)	(0.14)	(0.37)	(0.29)	(0.42)
Head is widowed	0.36	0.28	0.23	0.20	0.18	
	(0.48)	(0.45)	(0.42)	(0.40)	(0.39)	
Head is employed	0.23	0.15	0.05	0.38	0.13	0.21
	(0.42)	(0.36)	(0.21)	(0.49)	(0.33)	(0.41)
Head is unemployed	0.03	0.13	0.17	0.03	0.28	0.07
	(0.17)	(0.34)	(0.38)	(0.18)	(0.45)	(0.25)
Head is homemaker/housewife	0.31	0.25	0.25	0.59	0.24	0.20
	(0.46)	(0.43)	(0.44)	(0.49)	(0.43)	(0.40)

Table 32 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
Head is student	0.00	0.01	0.00		0.01	0.00
	(0.07)	(0.12)	(0.05)		(0.10)	(0.06)
Head is pensioner/retired/disabled	0.40	0.38	0.29		0.16	0.51
	(0.49)	(0.49)	(0.45)		(0.36)	(0.50)
Head is other activities	0.02	0.07	0.24		0.19	0.01
	(0.15)	(0.25)	(0.43)		(0.39)	(0.11)
The value of per capita consumption	16,042.95	2,837,073.97	2,717.23	344,315.57	13,440.02	4,245.48
	(12,786.50)	(2,834,985.11)	(4,748.10)	(270,400.86)	(13,819.33)	(4,250.46)
The value of per capita transfers	10,321.47	805.05	1,020.65			
	(10,375.41)	(1,323.86)	(1,248.64)			
Household size	2.97	5.68	4.43	5.17	4.65	3.49
	(1.51)	(2.72)	(2.42)	(2.71)	(2.67)	(1.53)
Number of children	0.71	2.18	1.21	2.18	1.55	0.53
	(1.14)	(2.06)	(1.73)	(1.96)	(1.92)	(0.99)
Number of seniors	0.35	0.34	0.42	0.36	0.39	0.55
	(0.56)	(0.57)	(0.62)	(0.55)	(0.61)	(0.67)
1–2 adults, no child	0.41	0.08	0.22	0.11	0.22	0.28
	(0.49)	(0.28)	(0.42)	(0.31)	(0.42)	(0.45)
1–2 adults, 1–2 children	0.19	0.11	0.12	0.18	0.11	0.12
	(0.39)	(0.31)	(0.33)	(0.38)	(0.32)	(0.32)
1–2 adult, 3 or more children	0.12	0.31	0.20	0.19	0.24	0.05
	(0.33)	(0.46)	(0.40)	(0.39)	(0.43)	(0.22)
3 adults or more, 0–1 child	0.23	0.22	0.32	0.24	0.22	0.49
	(0.42)	(0.41)	(0.46)	(0.43)	(0.42)	(0.50)
3 adults or more, 2–3 children	0.04	0.14	0.08	0.16	0.09	0.05
	(0.21)	(0.35)	(0.27)	(0.36)	(0.28)	(0.22)

Table 32 (continued)

	Egypt	Iraq	Jordan	Mauritania	Palestine	Tunisia
3 adults or more, 4 children or more	0.01	0.14	0.07	0.13	0.11	0.01
	(0.09)	(0.34)	(0.25)	(0.34)	(0.31)	(0.07)
Rural area	0.49	0.28	0.15	0.58	0.15	0.30
	(0.50)	(0.45)	(0.36)	(0.49)	(0.36)	(0.46)
Urban area	0.51	0.72	0.85	0.42	0.73	0.70
	(0.50)	(0.45)	(0.36)	(0.49)	(0.45)	(0.46)
Number observations	**5,864**	**3,475**	**1,431**	**7,221**	**1,858**	**11,960**

Household sampling weights are applied. Standard deviations are in parentheses

Household sampling weights are applied. Standard deviations are in parentheses. FHHs and MHHs are self-reported.

Appendix 3 Synthetic Panel Method

Tables 33, 34, 35, 36, 37 and 38 present the estimation results using Equation (2) for all the countries and survey rounds. Tables 39, 40, 41, 42, 43, and 44 present the descriptive statistics of the estimation sample. These tables show that while most of the time-invariant characteristics show similar distributions across survey rounds (and satisfy Assumption 1), some do not. For example, these include the shares of household heads achieving primary education or secondary education in Egypt during 2012–2015 (Table 39). But the differences are practically very close to 0. Table 45 presents the estimates for ρ using Equations (6) and (7), where ρ are estimated using Equation (6) for all countries with cohorts being defined by age interacted with household heads' education levels (including no education, primary/lower secondary, upper secondary, and tertiary levels). The number of cohorts hovers around 120 for all the countries, with the cohort sizes ranging from 16 (Palestine) to 126 (Iran).

We also provide alternative estimates for ρ using Equation (7). Using these estimates, Figs. 19 and 20 offer qualitatively similar results to Figs. 5 and 6.

Table 33 Estimates of household consumption model, Egypt

	2012–2015		2015–2017		2017–2020	
	2012	2015	2015	2017	2017	2020
Head`s age	0.006***	0.012***	0.010***	0.011***	0.009***	0.012***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head is female	0.141***	0.141***	0.136***	0.234***	0.226***	0.198***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Highest education level is primary	0.142***	0.126***	0.123***	0.097***	0.099***	0.091***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Highest education level is secondary	0.199***	0.215***	0.209***	0.179***	0.173***	0.194***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Highest education level is tertiary	0.461***	0.482***	0.481***	0.395***	0.394***	0.486***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Urban	0.241***	0.210***	0.215***	0.126***	0.126***	0.162***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
_cons	7.995***	8.091***	8.196***	8.555***	8.604***	8.632***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
adjusted R2	0.23	0.25	0.24	0.17	0.16	0.21
N	5102	8338	7836	8301	7799	7286

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. Regression is estimated using Weighted Ordinary Least Squares. Household heads' ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second round. The reference groups are household with no primary education and living in rural areas. The results are obtained using Equation (2)

Table 34 Estimates of household consumption model, Iraq

	2007–2012	
	2007	2012
Head`s age	-0.001**	0.005***
	(0.00)	(0.00)
Head is female	0.012	0.114***
	(0.02)	(0.02)
Highest education level is primary	-0.015	0.069***
	(0.01)	(0.01)
Highest education level is secondary	0.059***	0.305***
	(0.02)	(0.02)
Highest education level is tertiary	0.183***	0.441***
	(0.02)	(0.01)
Urban	0.326***	0.317***
	(0.01)	(0.01)
_cons	13.917***	13.966***
	(0.03)	(0.03)
adjusted R2	0.08	0.13
N	12895	18552

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. Regression is estimated using Weighted Ordinary Least Squares. Household heads' ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second round. The reference groups are household with no primary education and living in rural areas. The results are obtained using Equation (2)

Table 35 Estimates of household consumption model, Jordan

	2010–2013	
	2010	2013
Head`s age	-0.002	0.004***
	(0.00)	(0.00)
Head is female	0.213***	0.107***
	(0.05)	(0.03)
Highest education level is primary	0.171***	0.280***
	(0.04)	(0.03)
Highest education level is secondary	0.320***	0.449***
	(0.05)	(0.04)
Highest education level is tertiary	0.666***	0.729***
	(0.05)	(0.03)
Urban	0.022	0.037*
	(0.03)	(0.02)
_cons	6.976***	6.718***
	(0.08)	(0.06)
adjusted R2	0.16	0.18
N	1873	3437

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. Regression is estimated using Weighted Ordinary Least Squares. Household heads' ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second round. The reference groups are household with no primary education and living in rural areas. The results are obtained using Equation (2)

Table 36 Estimates of household consumption model, Mauritania

	2004–2008		2008–2014		2014–2019	
	2004	2008	2008	2014	2014	2019
Head`s age	-0.007***	-0.003***	-0.006***	-0.004***	-0.007***	-0.004***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head is female	0.022	0.075***	0.065***	0.128***	0.103***	0.130***
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Highest education level is primary	0.187***	0.143***	0.146***	0.073***	0.079***	-0.014
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Highest education level is secondary	0.384***	0.383***	0.382***	0.223***	0.245***	0.145***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Highest education level is tertiary	0.708***	0.609***	0.621***	0.382***	0.408***	0.382***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Urban	0.342***	0.605***	0.596***	0.353***	0.380***	0.368***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
_cons	11.532***	11.710***	11.819***	12.279***	12.356***	12.421***
	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
adjusted R2	0.18	0.32	0.32	0.16	0.18	0.18
N	6065	9269	9088	6672	6219	6425

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. Regression is estimated using Weighted Ordinary Least Squares. Household heads' ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second round. The reference groups are household with no primary education and living in rural areas. The results are obtained using Equation (2)

Table 37 Estimates of household consumption model, West Bank and Gaza

	2007–2009		2009–2011		2011–2017	
	2007	2009	2009	2011	2011	2017
Head`s age	0.005	0.006***	0.005***	0.002	-0.000	0.012***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head is female	0.226**	0.206***	0.226***	0.133***	0.141***	0.160***
	(0.11)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)
Highest education level is primary	0.177**	0.220***	0.214***	0.218***	0.210***	0.260***
	(0.07)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Highest education level is secondary	0.276***	0.344***	0.346***	0.339***	0.341***	0.373***
	(0.09)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
Highest education level is tertiary	0.585***	0.607***	0.606***	0.602***	0.606***	0.518***
	(0.08)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Urban	-0.034	0.014	0.012	-0.064**	-0.070**	-0.240***
	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Refugee	-0.327***	-0.039	-0.034	-0.314***	-0.314***	-0.538***
	(0.07)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)
_cons	8.288***	8.388***	8.457***	8.718***	8.828***	8.381***
	(0.15)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)
adjusted R2	0.08	0.09	0.09	0.09	0.09	0.11
N	962	2944	2938	3288	3229	2815

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. Regression is estimated using Weighted Ordinary Least Squares. Household heads' ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second round. The reference groups are household with no primary education and living in rural areas. The results are obtained using Equation (2)

Table 38 Estimates of household consumption model, Tunisia

	2005–2010		2010–2015		2015–2021	
	2005	2010	2010	2015	2015	2021
Head`s age	0.004***	0.008***	0.005***	0.008***	0.006***	0.014***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head is female	0.143***	0.053**	0.006	0.197***	0.184***	0.113***
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Highest education level is primary	0.312***	0.305***	0.300***	0.210***	0.227***	0.142***
	(0.04)	(0.04)	(0.04)	(0.01)	(0.02)	(0.02)
Highest education level is secondary	0.386***	0.293***	0.266***	0.443***	0.460***	0.354***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Highest education level is tertiary	0.945***	0.764***	0.754***	0.904***	0.911***	0.704***
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Urban	0.495***	0.497***	0.499***	0.355***	0.370***	0.287***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
_cons	6.547***	6.747***	6.881***	7.006***	7.084***	7.183***
	(0.05)	(0.04)	(0.05)	(0.03)	(0.03)	(0.04)
adjusted R2	0.30	0.29	0.29	0.29	0.29	0.21
N	6769	7507	6425	16456	13635	10520

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. Regression is estimated using Weighted Ordinary Least Squares. Household heads' ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second round. The reference groups are household with no primary education and living in rural areas. The results are obtained using Equation (2)

Table 39 Descriptive statistics of estimation sample, Egypt

Variables	2012–2015			2015–2017			2017–2020		
	2012	2015	diff	2015	2017	diff	2017	2020	diff
Log of per capita consumption	8.58	8.97	0.39***	8.95	9.32	0.37***	9.30	9.48	0.18***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Head`s age	41.32	43.97	2.65***	42.23	44.20	1.96***	43.14	42.89	-0.25*
	(0.12)	(0.09)	(0.15)	(0.09)	(0.09)	(0.13)	(0.09)	(0.10)	(0.13)
Head is female	0.13	0.13	0.00	0.12	0.13	0.01	0.12	0.13	0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Head's highest education level is primary	0.13	0.15	0.02***	0.15	0.15	0.00	0.15	0.14	-0.02***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Head's highest education level is secondary	0.31	0.34	-0.01	0.35	0.36	0.01	0.37	0.37	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Head's highest education level is tertiary	0.20	0.19	-0.01	0.19	0.18	-0.00	0.18	0.21	0.03***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Urban area	0.42	0.42	0.39***	0.41	0.42	0.01	0.41	0.43	0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. The data are unweighted. Household heads'ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second survey round. The reference groups are household with no primary education and living in rural areas

Table 40 Descriptive statistics of estimation sample, Iraq

	2007–2012		
	2007	2012	diff
Log of per capita consumption	14.22	14.67	0.46***
	(0.01)	(0.01)	(0.01)
Head`s age	40.46	44.28	3.83***
	(0.07)	(0.06)	(0.10)
Head is female	0.09	0.09	0.01**
	(0.00)	(0.00)	(0.00)
Head's highest education level is primary	0.41	0.40	-0.01
	(0.00)	(0.00)	(0.01)
Head's highest education level is secondary	0.12	0.08	-0.03***
	(0.00)	(0.00)	(0.00)
Head's highest education level is tertiary	0.19	0.15	-0.04***
	(0.00)	(0.00)	(0.00)
Urban area	0.68	0.60	-0.09***
	(0.00)	(0.00)	(0.01)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. The data are unweighted. Household heads'ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second survey round. The reference groups are household with no primary education and living in rural areas

Table 41 Descriptive statistics of estimation sample, Jordan

	2010–2013		
	2010	2013	diff
Log of per capita consumption	7.29	7.35	0.07***
	(0.01)	(0.01)	(0.02)
Head`s age	41.00	42.72	1.72***
	(0.18)	(0.14)	(0.23)
Head is female	0.09	0.09	0.01
	(0.01)	(0.00)	(0.01)
Head's highest education level is primary	0.51	0.55	0.04***
	(0.01)	(0.01)	(0.01)
Head's highest education level is secondary	0.16	0.15	-0.01
	(0.01)	(0.01)	(0.01)
Head's highest education level is tertiary	0.23	0.19	-0.03***
	(0.01)	(0.01)	(0.01)
Urban area	0.74	0.63	-0.11***
	(0.01)	(0.01)	(0.01)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. The data are unweighted. Household heads'ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second survey round. The reference groups are household with no primary education and living in rural areas

Table 42 Descriptive statistics of estimation sample, Mauritania

	2004–2008			2008–2014			2014–2019		
	2004	2008	diff	2008	2014	diff	2014	2019	diff
Log of per capita consumption	11.66	12.09	0.43***	12.10	12.54	0.43***	12.56	12.68	0.13***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Head`s age	42.41	43.90	1.49***	41.90	46.40	4.50***	42.42	45.49	3.07***
	(0.10)	(0.08)	(0.13)	(0.08)	(0.10)	(0.13)	(0.10)	(0.11)	(0.15)
Head is female	0.16	0.29	0.13***	0.30	0.30	0.01	0.31	0.37	0.06***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Head's highest education level is primary	0.10	0.11	0.01	0.12	0.12	-0.01	0.14	0.29	0.15***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)
Head's highest education level is secondary	0.13	0.13	-0.01	0.13	0.13	0.00	0.15	0.19	0.04***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Head's highest education level is tertiary	0.05	0.05	0.00	0.05	0.05	0.01**	0.05	0.06	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban area	0.51	0.48	-0.03***	0.47	0.59	0.12***	0.59	0.50	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. The data are unweighted. Household heads'ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second survey round. The reference groups are household with no primary education and living in rural areas

Table 43 Descriptive statistics of estimation sample, West Bank and Gaza

	2007–2009			2009–2011			2011–2017		
	2007	2009	difference	2009	2011	difference	2011	2017	difference
Log of per capita consumption	8.78	9.06	0.28***	9.06	9.13	0.08***	9.13	9.23	0.09***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)
Head`s age	40.03	40.72	0.69**	39.80	41.65	1.85***	40.71	44.94	4.23***
	(0.25)	(0.15)	(0.30)	(0.15)	(0.14)	(0.20)	(0.14)	(0.16)	(0.21)
Head is female	0.06	0.06	0.01	0.06	0.07	0.01*	0.07	0.08	0.01
	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Head's highest education level is primary	0.55	0.50	-0.05***	0.50	0.51	0.01	0.51	0.51	-0.00
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Head's highest education level is secondary	0.18	0.17	-0.01	0.17	0.18	0.00	0.18	0.16	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Head's highest education level is tertiary	0.17	0.22	0.04***	0.21	0.22	0.00	0.22	0.23	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Urban area	0.54	0.70	0.16***	0.70	0.53	-0.17***	0.53	0.56	0.03***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Refugee area	0.18	0.12	-0.06***	0.12	0.21	0.09***	0.21	0.12	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. The data are unweighted. Household heads'ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second survey round. The reference groups are household with no primary education and living in rural areas

Table 44 Descriptive statistics of estimation sample, Tunisia

	2005–2010			2010–2015			2015–2021		
	2005	2010	diff	2010	2015	diff	2015	2021	diff
Log of per capita consumption	7.23	7.58	0.35***	7.55	7.98	0.44***	7.96	8.36	0.40***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Head`s age	43.55	46.72	3.17***	44.24	47.23	3.00***	44.32	48.40	4.08***
	(0.09)	(0.09)	(0.13)	(0.09)	(0.06)	(0.11)	(0.06)	(0.08)	(0.10)
Head is female	0.12	0.11	-0.01*	0.11	0.11	0.01	0.10	0.12	0.02***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Head's highest education level is primary	0.04	0.03	-0.01***	0.03	0.46	0.43***	0.44	0.44	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Head's highest education level is secondary	0.14	0.11	-0.02***	0.12	0.30	0.18***	0.32	0.32	0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Head's highest education level is tertiary	0.08	0.09	0.00	0.09	0.11	0.02***	0.12	0.12	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban area	0.65	0.66	0.01	0.65	0.62	-0.04***	0.61	0.62	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)

***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels. Standard errors are in parentheses. The data are unweighted. Household heads'ages are restricted to between 25 and 55 for the first survey round and adjusted accordingly for the second survey round. The reference groups are household with no primary education and living in rural areas

Table 45 Estimated rho (ρ) from cross-sectional data

Country	Period	ρ	Alternative ρ
Egypt, Arab Rep	2012–2015	0.84	0.52
	2015–2017	0.89	0.46
	2017–2020	0.79	0.61
West Bank and Gaza	2007–2009	0.54	0.56
	2009–2011	0.62	0.66
	2011–2017	0.34	0.59
Tunisia	2005–2010	0.57	0.67
	2010–2015	0.73	0.65
	2015–2021	0.89	0.61
Mauritania	2004–2008	0.77	0.57
	2008–2014	0.63	0.56
	2014–2019	0.70	0.61
Iraq	2007–2012	0.68	0.37
Jordan	2010–2013	0.63	0.63

ρ are estimated using Equation (6) for all countries with cohorts being defined by age interacted with household heads' education levels (including no education, primary/lower secondary, upper secondary, and tertiary levels). In Egypt, the number of cohorts is 124 and the mean size of cohorts varies from 54 to 61 households depending on the period. In Jordan, the number of cohorts is 123 and the size is 22 households. In Tunisia, the number of cohorts varies from 119 to 124 and the size of cohorts varies from 59 to 97. In Palestine, the number of cohorts varies from 120 to 124 and the mean size of cohorts varies from 16 to 25. In Mauritania, the number of cohorts is 124 and the mean size of cohorts varies from 51 to 64. In Iran, the number of cohorts is 120 and the means size of cohorts is 126. Alternative ρ's are estimated using Equation (7).

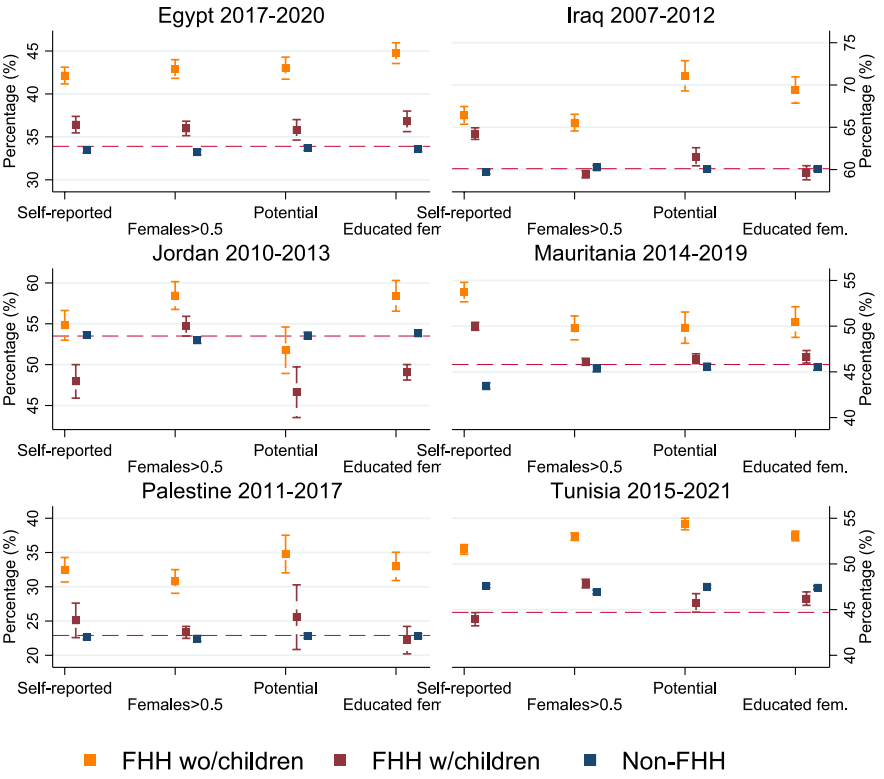

Fig. 19 Probabilities of Female-Headed Households Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage). Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that moves out of poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads' ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps. ρ's are estimated using Equation (7)

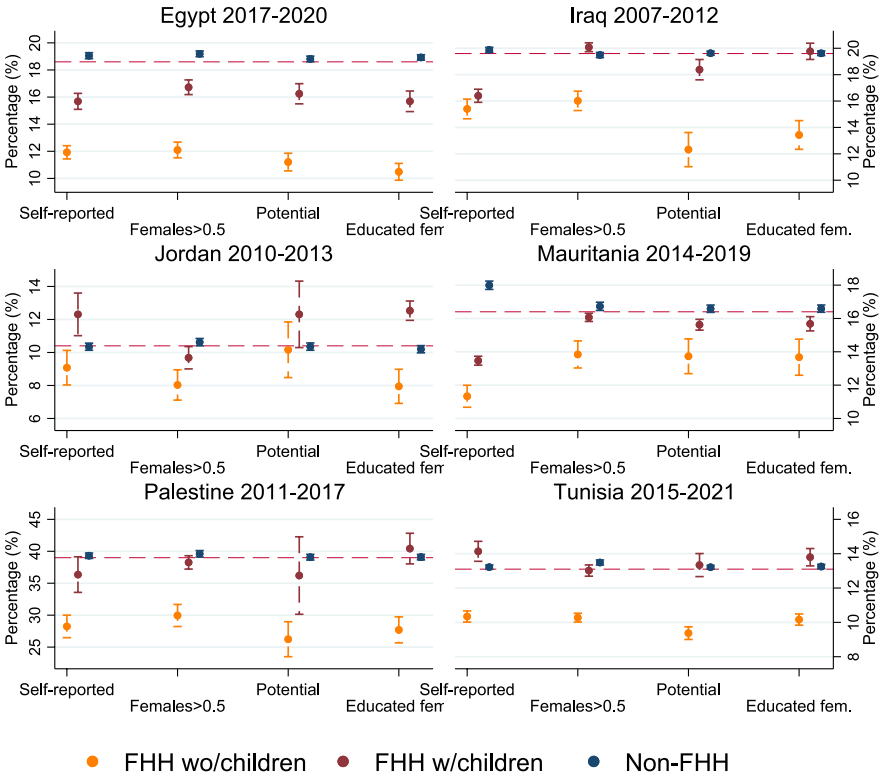

Fig. 20 Probabilities of Female-Headed Households Falling in Poverty in Last Survey Year Conditional on Being Non-poor in First Survey Year (percentage). Note: Estimates are obtained with synthetic panel data and weighted with population weights where the second survey round is used as the base year. The figure shows the percentage of the population that enters poverty in the second year. FHH characteristics are measured in second period. Dashed red lines represent the national average for each period. Household heads'ages are restricted to 25–55 for the first survey round and adjusted accordingly for the second survey round. Standard errors are estimated with 1,000 bootstraps. ρ's are estimated using Equation (7)

Appendix 4 Further Note on Living-standards Indicator and Adult Equivalence Scales Living-standards indicator

Expenditure is widely regarded as a better indicator of permanent income than current annual income when households, particularly in poorer countries, exercise consumption smoothing and use savings or asset sales to augment unstable incomes due to seasonal or informal employment or unexpected shocks (Deaton, 1997; Deaton & Zaidi, 2002; Mancini & Vecchi, 2022). Consistent with previous studies for the Middle East (Marotta et al., 2011; CAPMAS, 2014; AlAzzawi, 2018; Dang & Ianchovichina, 2018), we use household consumption expenditures per capita as the welfare measure underlying poverty analysis. This includes all monetary expenditures on consumer goods and non-monetary consumption, such as imputed rents, use-value of durables, own production and in-kind transfers (i.e., gifts) received by households. Food consumption includes food that the household has purchased, grown and received from other sources. Non-food consumption is the sum of expenditure on all non-food items, including expenditure on fuel, clothing, schooling, health and miscellaneous items, and in-kind transfers. The national poverty lines used in this study are derived using the cost of basic needs approaches as the absolute levels of expenditure that allow the households to just meet their caloric and basic nonfood needs. We further confirm that households'poverty status according to those national poverty lines align with official poverty statistics in the case of Egypt, Mauritania, Palestine and Tunisia.

It can be useful to ensure comparability of household expenditures across different contexts to account for potential differences in households' age and size compositions, as well as economies of scale in consumption. Studies have examined individual-level, rather than household-level, consumption to better disaggregate expenditures by gender (De Vreyer & Lambert, 2021; Dunbar et al., 2013). Unfortunately, the available surveys provide data on household consumption aggregates rather than individual-level consumption; therefore this approach cannot be applied to the available data.

Adult Equivalence Scales

Given our consistent observation of self-reported FHHs having an advantage in terms of greater mobility, the question arises as to whether this conclusion remains valid if we extend to selecting a measure of household members'welfare that goes beyond household expenditure per capita.

Another approach is to calculate the Adult Equivalent Expenditure (AEE) (or income) for each household, which gives smaller weight to children than adults and takes economies of scale into consideration. For example, Deaton and Paxson (1998) suggest using a parametric form of an equivalence scale, where a child is assumed to require a fraction α of what an adult needs, and where the elasticity of needs with respect to adjusted household size is a constant δ. This gives rise to the following formula

$$y_{ij}^{*} = \left(\frac{y_{ij}}{(a_{ij} + \alpha k_{ij})^{\delta}} \right) \tag{8}$$

where y_{ij}^{*} is the AEE for household i in survey j, which is an adjusted version of household expenditure conditional on the number of adults a_{ij} and children k_{ij} (we suppress the country and FHH type indexes for less cluttered notation). The smaller α is, the smaller the relative weight of children; the higher is δ, the smaller the degree of economies of scale assumed.[23] We construct several different AEE levels for each household based on this method, using different values for the weight of children (α) and degree of economies of scale (δ) and show the results in Figs. 21 and 22 below.

We redraw Fig. 2 and employ the OECD-recommended (modified) equivalence scale that assigns a value of 0.3 to each child aged 0–13 and show the results in Fig. 21. The headcount poverty rates change as expected, but the results with the different types of FHHs remain similar.

Within the context of poverty dynamics, we show two scenarios for self-reported FHHs as an example: one in which FHHs have a greater probability to escape poverty compared to non-FHHs (denoted by the orange-shaded region in Fig. 22), and another where FHHs are less likely to escape poverty than non-FHHs (represented by the blue-shaded area in Fig. 22). Importantly, the selection of specific scale parameters can significantly alter the conclusions drawn regarding poverty dynamics among FHHs.

In particular, when assessing consumption on a per capita basis (i.e., when $\beta=1$ and $\theta=1$), self-reported FHHs consistently exhibit a higher probability of escaping poverty than non-FHHs and it holds true across all countries. Intriguingly, these findings align with those in Abanokova et al. (2022), which demonstrated a persistent upward mobility when income is evaluated on a per capita basis.

The conclusions regarding poverty dynamics shift when adopting OECD-recommended (modified) equivalence scales, which assign a value of 0.3 to each child aged 0–13 (indicated by the green dashed line) and/or the"square root scale"set at 0.5 (represented by the red dashed line). Under the"square root scale,"self-reported FHHs become less likely to escape poverty than non-FHHs in Jordan, the West Bank and Gaza, and Tunisia, regardless of the child parameter value. The use of a lower scale parameter than the “square root scale” alters the conclusion in Egypt, but the sensitivity to the child parameter is also observed. Significant sensitivity to the child parameter is found in the West Bank and Gaza. When the child parameter is set to 0.4 or lower, there is a shift in the scenario from FHHs experiencing upward mobility to FHHs facing downward mobility. However, varying the parameters of economies of scale and child parameters from 0 to 1 does not alter the conclusions regarding poverty dynamics for Mauritania, Iraq and Jordan.

The absolute difference in the percentage of the population transitioning out of poverty between FHHs and non-FHHs is also influenced by the scale parameters. In the case of Mauritania, where self-reported FHHs are more likely to escape poverty than non-FHHs, fluctuations in scale parameters can result in significant changes in the percentage of self-reported FHHs escaping poverty. These variations can yield a discrepancy of up to 6.8 percentage points, depending on the scale parameters applied.

The overarching finding is that the parameter dictating the economies of scale and the private–public nature of household consumption contributes non-trivially to the poverty ranking between FHHs and non-FHHs across most countries and FHH definitions, while

[23] When $\delta = 1$ and $\alpha = 1$, we have per capita expenditure, which assumes no economies of scale and an equal weight for children and adults in the household.

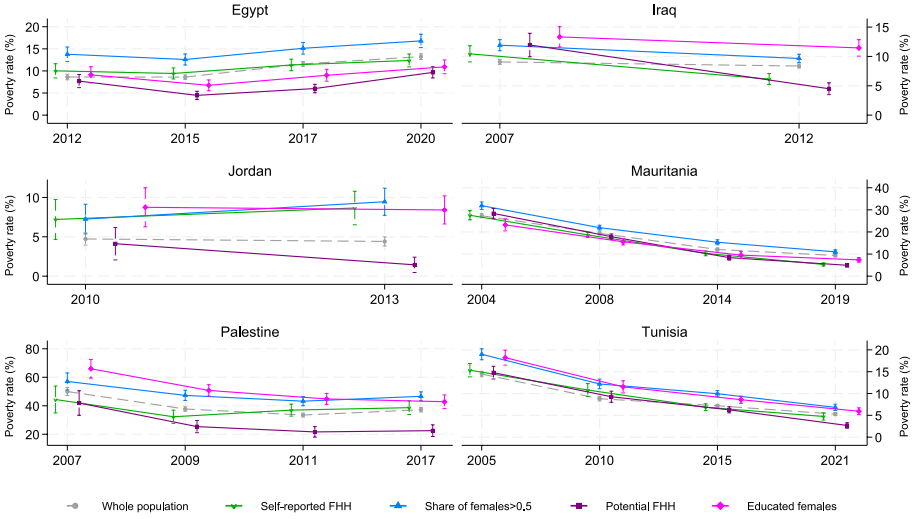

Fig. 21 Cross-sectional Headcount Poverty Rate (percentage), by Household Type, Regional Poverty Lines. Note: Population sampling weights are applied. We use OECD recommended (modified) equivalence scale that assigns a value of 0.3 to each child aged 0–13 to adjust household consumption for equivalence scale. For better presentation, we show the different FHH types around the same survey year, rather than at exactly the same survey year, to avoid overlaps of the 95% CIs

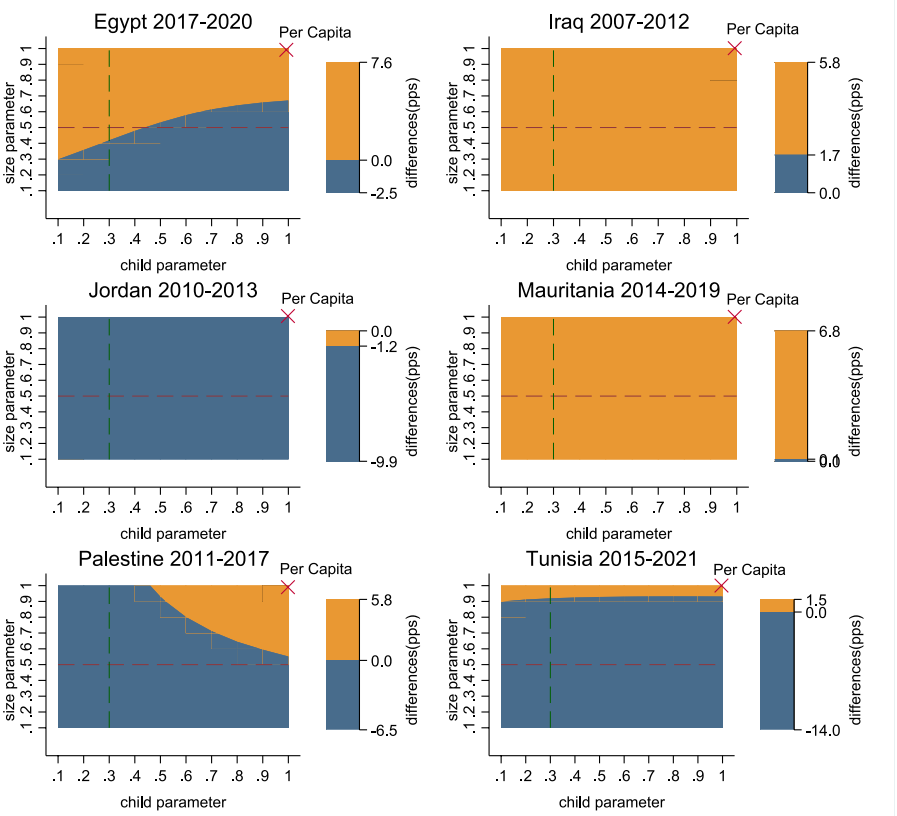

Fig. 22 Self-reported FHHs– non-FHHs Differences in Probabilities of Escaping Poverty in Last Survey Year Conditional on Being Poor in First Survey Year (percentage points), by Scale Parameters. Note: Each figure shows 2-parameter equivalence scale that adjusts household consumption: $\left(a_{ij} + \alpha k_{ij}\right)^{\delta}$ where a– number of adults in the household, k – number of children in the household, α is "child parameter" that accounts for the needs of children aged 0–13 and δ is "size parameter" that measures the degree of economies of scale in household consumption. Both parameters are varying between 0 and 1. The blue zone indicates lower probabilities of escaping poverty among FHHs compared to non-FHHs. The orange zone indicates higher probabilities of escaping poverty among FHHs compared to non-FHHs. Each bar shows the difference in the percentage of the population that moves out of poverty among FHHs compared to non-FHHs in the second year (expressed in percentage points). Population sampling weights are applied. We use OECD recommended (modified) equivalence scale that assigns a value of 0.3 to each child aged 0–13 (green dashed line) and "square root scale" that equals to 0.5 (red dashed line). The top right corner of the box (marked ×) illustrates the case when $\delta = 1$ and $\alpha = 1$, which represents per capita expenditure ("Per Capita")

the child parameter having a comparatively smaller impact compared to household size. These results mirror our earlier observation in Abanokova et al. (2022) regarding the sensitivity of income dynamics to scale parameters.

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Declarations

Conflicts of interest The authors declare no conflicts of interest.

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