HHS Public Access
Author manuscript
Popul Space Place. Author manuscript; available in PMC 2024 June 21.

Published in final edited form as:
Popul Space Place. 2022 May ; 28(4): . doi:10.1002/psp.2531.

Family change and variation through the lens of *family configurations* in low- and middle-income countries

Andrés Felipe Castro Torres[1], **Luca Maria Pesando**[2], **Hans-Peter Kohler**[3], **Frank Furstenberg**[3]

[1]Max Planck Institute for Demographic Research, Rostock, Germany

[2]Department of Sociology and Centre on Population Dynamics, McGill University, Montreal, Quebec, Canada

[3]Department of Sociology, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Abstract

Using 254 Demographic and Health Surveys from 75 low- and middle-income countries, this study shows how the joint examination of family characteristics across rural and urban areas provides new insights for understanding global family change. We operationalise this approach by building *family configurations*: a set of interrelated features that describe different patterns of family formation and structure. These features include partnership (marriage/unions) regimes and their stability, gender relations, household composition and reproduction. Factorial and clustering techniques allow us to summarise these family features into three factorial axes and six discrete *family configurations*. We provide an in-depth description of these configurations, their spatial distribution and their changes over time. Global family change is uneven because it emerges from complex interplays between the relative steadiness of longstanding arrangements for forming families and organising gender relations, and the rapidly changing dynamics observed in the realms of fertility, contraception, and timing of family formation.

1 | INTRODUCTION

Cross-national studies about family dynamics in low- and middle-income countries (LMICs) typically focus on a single family feature at a time, for example, the prevalence of marriage/cohabitation, women's empowerment, fertility or household composition (Bongaarts, 2001; Bongaarts et al., 2017; Pesando & GFC-team, 2019). There is a paucity of studies looking at how family characteristics relate to one another and how correlations among them generate *family configurations* of interrelated family features.[1]

Correspondence: Andrés Felipe Castro Torres, Max Planck Institute for Demographic Research, Konrad-Zuse-Straße 1, 18057 Rostock, Germany, castro@demogr.mpg.de.

[1]We use the terms 'family feature', 'family characteristic' and (less often) 'family measure' to refer to measures of different aspects of the family and its functioning, aggregated at the country-area level (urban or rural). These measures include, for example, the total fertility rate, the prevalence of marriage and cohabitation, and the percentage of nuclear households.

In this paper, we define a *family configuration* as a patterned collection of family characteristics aimed at capturing interrelated patterns of change across time and space. We found that a data-driven analysis of four family dimensions—partnership regimes, gender relations, household composition, and fertility and contraception—across 75 LMICs yields distinct *family configurations*. As seen schematically in Figure 1, these configurations vary along three main axes: (i) a longstanding arrangement for forming families, organising gender relations, and accepting either multinuclear or single-mother households; (ii) varying levels of reproduction, timing of childbearing, and access to modern contraception; and (iii) household composition in terms of nuclear versus three-generation households. The spatial distribution of these configurations complements broad geographical categories and highlights the importance of separating rural and urban areas for understanding family variation and change. Moreover, under this configurational approach, family change appears to be uneven and multidirectional, as illustrated by the arrows and further outlined in the remainder of the paper.

Although population scientists are aware that family patterns widely differ within geographical regions and countries, broad geographical categories and country-level analyses continue to be generally used to examine worldwide patterns of family change (notable exceptions for high-income countries exist, e.g., Caltabiano et al., 2019 and Fox et al., 2019). For example, the combination of relatively low fertility, stable and low mean ages at first birth and high (historical) prevalence of cohabitation is a recognised feature of Latin American and Caribbean (LACar) countries (Esteve & Lesthaeghe, 2016; Guzmán et al., 2006; Laplante et al., 2018). However, LACar countries with high shares of indigenous populations such as Bolivia, Paraguay and Peru do not fit into this description because fertility is slightly higher in these settings. Likewise, the high prevalence of marriage in countries like Chile and Mexico contrasts with the high levels of cohabitation in Central American nations (Guzmán et al., 2006). Sub-Saharan African (SSA) countries are similar to LACar ones in terms of their mean ages at first birth, yet their fertility levels are higher, except in countries such as South Africa. The organisation of couples and households in these two regions is different too, especially if one considers the sustained prevalence of polygyny in Central and West Africa (Bongaarts, 2017; Whitehouse, 2018). Several Asian countries have equally low fertility levels compared with South America (one important exception being Afghanistan), yet postponement of first births and high prevalence of marriage make this *family configuration* different from the one that would emerge in South America (United Nations, 2015).

Our contribution in this paper is to show that empirically identified *family configurations* may provide a more nuanced understanding of the dynamics of stability and change in families across a large sample of urban and rural areas in LMICs from 1990 to the present. Our study is among the first to provide an empirical assessment of these connections among four family dimensions that are broadly recognised in the literature as central to the functioning of the family and societal wellbeing: first, *partnership regimes*, such as the prevalence of marriages and unions and their stability—or lack thereof—of these units over time; second, *gender relations* within the family, or the type of inequalities that women experience within the family—both at the micro and macro levels—vis-à-vis men; third, *household composition* according to generation and kinship; and fourth, characteristics of generational replacement via *reproduction*, including aspects of access to contraception and quantum and timing of childbearing. We measure five family characteristics in each dimension—hence 20 family characteristics—in order to capture as comprehensively as possible interrelated features of families' organisation across time and space and implement a systemic approach to examining family change.

This selection of family dimensions and characteristics is not exhaustive. Although we follow an inductive approach for the data analysis, our concept of *family configurations* is limited by the availability of measures of important dimensions of family structures and processes—most of which are computed taking women's perspective—in the Demographic and Health Surveys (DHS), the data set that we rely on in this analysis (additional details below). The validity of the ensuing *family configurations* is thus confined to previous understandings of these four family dimensions through DHS data.

1.1 | Interdependence and flexibility in a configurational approach

A configurational approach is useful for examining family patterns because distinctive family patterns emerge from a confluence of interrelated circumstances that unfold jointly. We therefore here claim that a configurational approach provides a valuable and novel addition to the study of global family change as (i) it accounts for the interrelations among family dimensions and (ii) it is more flexible than approaches focused on single family features.

First, although one can analytically separate the multiple dimensions of the family, they are necessarily interrelated. From a behavioural standpoint, individuals do not make decisions about partnership formation, gender relations, reproduction, or household living arrangements, and potentially other family dimensions, separately. From a macro perspective, the social structures influencing family dimensions (e.g., socio-economic development, marriage laws and regulations, gender ideologies, age structures, and coresidential rules for couples) are hardly conceivable as independent. For example, previous research has shown that the age structure of the population (i.e., the result of fertility, mortality and migration patterns) influences the prevalence of three-generation households (Ruggles, 2012), which in turn limits potential changes in household composition at the aggregate level. Likewise, cross-national differences in economic development and family policies play an important role in explaining countries' discrepancies in specific household configurations such as women living alone (Requena et al., 2019). Some authors refer to this confluence of circumstances as 'conjunctures', defined as '[…] short-term, specific configurations of structures in which action can occur' (Johnson-Hanks et al., 2011, p. 78). Analysing family dimensions separately may be beneficial for the sake of clarity, but it provides a partial picture only. Conversely, combining multiple family dimensions allows us to examine the variety of forms that families take (e.g., frequent combinations of family features) or do not take (e.g., unlikely/rare combinations of family features).

Second, when adopting a global comparative perspective, a configurational approach provides flexibility as it assumes that a particular feature of the family may be coupled or related to other features *differently* in different regions of the world. Because some specific family characteristics are more likely to respond to socio-economic changes than others, a configurational approach allows for different underlying yet interrelated drivers. For example, the quantum and timing of fertility are very likely to respond to socio-economic development, whereas the reverse is true for partnership regimes, which tend to be tied to meso- and macro-level elements of the social structure that are more resistant to change such as religious beliefs, marriage-related laws/prohibitions, patriarchal structures and inheritance rights (Coontz, 2014; Pesando & GFC-team, 2019; Therborn, 2004). Similarly, the flexibility of a configurational approach helps reveal the conjunctures associated with ‘stalled’ gender revolutions, that is, the combination of family features that hinder gender equity, as described by family and gender scholarship (England, 2010; Sullivan et al., 2018; Weitzman, 2014).

Although these interdependencies and the context-specific variations in family features have been acknowledged by family scholars, there has been little direct empirical assessment of whether or not the correlation among family dimensions is strong enough to warrant the notion of distinctive *family configurations*, clusters of distinct characteristics that identify patterns of change more comprehensively than do discrete features examined one at a time. The dearth of this type of analysis often translates into describing the lack of change as ‘stalled transitions’ (Bongaarts, 2017; Casterline, 2017), ‘regional exceptionalism’ (Caldwell et al., 1992) or ‘paradoxical trends’ (Esteve & Florez-Paredes, 2018). More generally, the mismatch between predictions of modernization theories regarding the convergence of families towards small, intact, nuclear units (Cherlin, 2012, 2016) and the diversification of family arrangements might also be a consequence of neglecting *family configurations*, as defined here.

2 | PREVIOUS COMPARATIVE STUDIES ON FAMILIES IN LMICs

Our review of this literature concentrates on three related ideas. First, substantial variability exists between and within countries in the family dimensions we focus on. Second, the correlation across these family dimensions is complex, and it has rarely been explored jointly. Third, their combined examination provides a realistic and novel framework for understanding individual- and context-level conditions that influence systemic family variation and change in LMICs.

2.1 | First dimension: Family formation and stability (*partnership regimes*)

Over the past several decades, the socially recognised ways of forming family units have diversified across LMICs as new forms have emerged, such as cohabitation, and longstanding ones have declined, such as universal, early, formal and arranged marriage (Koski et al., 2017). Likewise, unions are less stable today than they were three decades ago (Clark & Brauner-Otto, 2015; Esteve & Liu, 2017; Jackson, 2015). These two trends have occurred because, since the mid-1990s, alternative ways to form families have been legally recognised alongside the possibility to dissolve marriages through a divorce (García & de Oliveira, 2011). However, longstanding forms are still modal (and possibly normative) across most of the societies we study (Fussell & Palloni, 2004; Raymo et al., 2015). Some regional nuances deserve attention. The most obvious one is polygyny, a union arrangement documented mainly in SSA (Whitehouse, 2018), and a few other Central American, South-East, and Middle-East countries.[2] Formal marriages are more prevalent and stable in some parts of Asia compared with LACar and Africa. Moreover, arranged marriages are much more prevalent in the former region compared with the two latter (Pesando & Abufhele, 2019), and marriage is more of a process than a milestone event in Africa, compared with LACar (Legrand & Barbieri, 2002). Finally, whereas cohabitation is increasing in some parts of Africa and, to a much lesser degree, among Asian countries, it has strong and longstanding historical roots in LACar societies (Lesthaeghe, 2020).

As for the timing of union formation, child marriage is still a significant presence in some regions of Africa and Asia (Koski et al., 2017). In some Asian societies, family formation entails stringent norms of co-residence: patrilocality or matrilocality. This association further shapes the position of women within the household sphere (Esteve & Liu, 2017; Jackson, 2015). Less standardised and more diverse patterns of transition to adulthood correlate with unstable economic conditions such as structural unemployment, poverty and lack of access to formal education, all of which are widespread issues across LMICs (Bozon et al., 2009; Grant & Furstenberg, 2007; Juarez & Gayet, 2014).

2.2 | Second dimension: Gender relations and the role of women in family units (*gender relations*)

Despite improvements in women's educational opportunities and increasing societal recognition of the contribution of care work in economic welfare, gender relations are far from being egalitarian (Herrera, 2013; Mason, 2001; Sullivan et al., 2018). Substantial gender discrimination exists in the labour market, access to education and the division of care work (García & de Oliveira, 2011; Weitzman, 2014). In LMICs, most of the care-work and emotional support for family members is carried out by women, and male-breadwinner models are still dominant in many countries (Chant & Mcllwaine, 2009, Chapter 8). These trends are exacerbated in areas where state policies to prevent child poverty have overly relied on the assumption of female altruism towards children. The assumption of women's altruism for policymaking continues to reinforce conceptions about the role of women in families and societies (Jackson, 2015; Liu et al., 2017). It is still too early to assess fully the implications for gender egalitarianism of rising female labour force participation and emerging female hypogamy (Blossfeld, 2009; Esteve et al., 2016).

2.3 | Third dimension: Household composition according to generation and kinship (*household composition*)

Households organise in a myriad of ways across LMICs (Bongaarts, 2001). Improving mortality conditions has opened the possibility for the co-residence of multiple generations in Asian countries. Also, in these societies, people hold strong expectations about care and support from younger to older generations (Esteve & Liu, 2017; Requena et al., 2019). Meanwhile, the HIV/AIDS epidemic in sub-Saharan Africa had profound mortality impacts on the adult population, opening space for increasing household complexity as men or

[2]According to the DHS data, besides African countries, there are women in polygynous unions in Afghanistan, Cambodia, Guyana, Haiti, India, Myanmar, Timor-Leste and Yemen. The prevalence of polygynous unions ranges from 0.2% in the urban area of Guyana in 2009 to 16% and 36% in the rural areas of Haiti in 2000 and Senegal in 2018, respectively.

women change households after a partner's death (Heuveline, 2004). In LACar, household complexity comes from colonial rules and prohibitions regarding intermarriage practices (De Vos, 1995; Esteve et al., 2012). In more recent times, LACar countries have reached high levels of single motherhood and the feminization of household headship due to union dissolution and increasing divorce (Liu et al., 2017). By contrast, this pattern is virtually absent in Asian and Eastern European societies.

2.4 | Fourth dimension: Levels and relative control over biological reproduction (*reproduction*)

Fertility decline is one of the most significant demographic transformations of the 20th century in LMICs (Caldwell, 2004; Lee, 2003; van de Kaa, 1996). Despite its widespread character, regional differences across LMICs and within them between urban and rural areas remain (Lerch, 2017, 2019), as well as country-level differences within broad geographical regions (Clark, 2015; Dorius, 2008; McNicoll, 1992).

A key aspect of changes in fertility levels is couples' ability to use effective birth control, in particular through modern contraceptive methods, which is shaped by a multitude of individual-, couple/household- and societal-level factors. Although the assessment of the relative importance of demand- and supply-side factors for fertility decline is still ongoing (Bongaarts & Sinding, 2009; Bongaarts & Sinding, 2011), the transformative aspect of modern contraception for fertility is undeniable. Research has shown that the demand for modern contraception is rising, especially among adolescents women in LACar and SSA countries (Sánchez-Páez & Ortega, 2018). This growing demand reflects a significant cultural shift among new generations. Overall, there is less demand for children, and modern contraception improves women's capacity to exert control over their reproductive lives, yet differences in access to these methods are pervasive both across and within countries (Bronfman et al., 1986; Sedgh et al., 2016).

The timing of fertility is a crucial aspect of the family context because individuals' responsibilities and roles change substantially after childbirth. Increasing diversity in mean ages at first birth across socio-economic status and educational groups (Bongaarts et al., 2017; Grant & Furstenberg, 2007) coexist with the relative stability of family formation schedules at the country-level in Asian and LACar countries (Esteve & Florez-Paredes, 2018; Raymo et al., 2015). This paradox arises from socio-economic inequality, which has been associated with bimodal patterns in the mean age at first birth (Lima et al., 2018; Nathan et al., 2016).

The overall picture arising from the extant literature for each of the four dimensions is one of increasing heterogeneity and lack of convergence both across countries and, within them, by socioeconomic groups and geography (Montgomery et al., 2003). Therefore, analysing these contexts requires a flexible approach, and statistical methods designed for highlighting heterogeneity and multiple correlations among variables.

3 | DATA AND MEASURES

Our data are drawn from 254 DHS covering 75 LMICs from 1990 to 2018. These surveys are nationally representative of women of reproductive ages (15 to 49). Figure 2 displays the countries in the analysis. Darker colours indicate countries with at least two DHS (59 countries). All the surveys are used in the factorial and cluster analyses, whereas only countries with at least two surveys are represented in the examination of changes over time.

DHS data are particularly valuable as they allow obtaining nationally representative measures for urban and rural areas, separately. In addition, as shown in Figure 2, DHS cover countries from different regions of the world. These countries span a wide range of the human and gender development spectrum. The HDI ranges from 0.21 (Rwanda, 1992) to 0.79 (Albania, 2017) with quartiles at 0.44, 0.51 and 0.63. The Gender Development Index (only available for 58 countries) ranges from 0.22 (Niger, 2012) to 1.01 (Lesotho, 2014) with quartiles at 0.85, 0.9 and 0.94.

Using this information, we selected 20 family characteristics, five per family dimension. Having the same number of family features per dimension a priori allows for equal importance of each of them in the analysis. The resulting loading of family characteristics onto the factorial axes is therefore driven by the multiple associations among the family features and by the relative importance of these associations. In the same spirit and to examine non-linear relationships, we recode each of these measures into five categories (lowest, low, medium, high and highest) using the Jenks natural breaks as cuff-off points (Jenks, 1967).[3] These cut-off points are adequate because they preserve the main characteristics of the distribution of the numeric variables (Le Roux & Rouanet, 2004).

Table 1 displays the four family dimensions and the 20 characteristics. All these measures, except two, refer to period conditions and are standardised by age. The measures of ‘Childlessness’, and ‘Age at last birth’ are calculated for the last age groups, otherwise the mean age at last birth will be downwardly biassed, and the proportion childless upwardly biassed. This is because if we were to focus on younger women, potential childbearing might not be fully realised yet.

3.1 | Partnership regimes

These characteristics are related to the timing of transition to marriage/union formation, the prevalence of formal marriage and cohabitation, the relative stability of these two types of unions (combined) and the prevalence of second- and higher-order marriages. To avoid mechanical correlation between these measures, we compute the proportion of women in cohabiting unions only among nonmarried women.

We do not include the prevalence of polygyny in the identification of *family configurations* because its skewed distribution at the country-area-level biases the results of the factorial analysis. However, we examine the prevalence of polygyny across *family configurations*,

[3]Jenks’ natural breaks, also known as the Jenks optimization method, serve to determine the best arrangement of a numerical variable into classes. The method minimises the within-class deviations and maximises the between-class deviations with respect to the class means.

and we conclude that patterns are consistent with our interpretation. As one of our subsequent analyses show, there is one *family configuration* where polygynous arrangements are very prevalent. Among the other *family configurations*, the percentage of women in a polygynous arrangement is negligible.

3.2 | Gender relations

Measures for gender relations conflate both individual- and societal-level aspects of the relationship between men and women and of women's role within society. We see this as a strength of these measures, as the literature suggests that gender inequality emerges from the interplay of micro-level behaviours—for example, individual desire to form a couple—and macro-level/institutional conditions that limit individual choices and behaviours, for example, arranged marriage for young women (Fox & Murry, 2000). Hence, we use four well-known measures of women's empowerment, and one less common measure for sex preferences. The four classic measures are as follows: the average age difference between partners (man's–woman's age), the proportion of couples where the woman has higher educational attainment than her partner (educational hypogamy, herein), the proportion of women who are currently working and receive payment in cash and the proportion of women who are head of the household. As stated in Table 1, we compute these proportions for women in couples with children, in order to assess the role of the family unit in preventing or enhancing gender egalitarianism. Narrow age difference between partners, female household headship, female participation in income-generating activities and female educational hypogamy are associated with higher gender egalitarianism (DHS program., 2012).[4]

As a measure of sex preference at birth, we use the ratio of women who have not had a daughter (*daughterless*) to women who have not had a son (*sonless*). This ratio measures the relative importance of male to female births. If there is no sex preference, the number of sonless women should roughly be similar to the number of *daughterless* women, and therefore, the ratio should be close to one. A value above one indicates a preference for sons. This approach is preferable to standard measures of sex preferences (e.g., the sex ratio at birth) because it is not affected by differences in fertility and it does capture the fact that what matters the most is having at least one male birth (preferably the first) rather than a specific offspring sex composition (Héritier, 19960; Zhao & Hayes, 2018, Chapter 9).

We validate these as measures of gender relations by correlating them with measures of women's participation in decision-making within the household vis-à-vis their male partners, only available for a subset of DHS. Bivariate correlations and multivariate models that include dummy variables for regions (as displayed in Figure 2) and the total fertility rate (TFR) yield consistent and significant correlations between decision-making outcomes and our selection of gender relations measures. The association between decision-making measures and the sex ratio at birth is not significant once the two control variables (region and TFR) are included (refer to Figure A1).

[4]The DHS Interviewer's Manual states: 'The person who is identified as the head of the household has to be someone who usually lives in the household. This person may be acknowledged as the head on the basis of age (older), sex (generally, but not necessarily, male), economic status (main provider), or some other reason. It is up to the respondent to define who heads the household.'

3.3 | Household composition

This dimension refers to the proportion of women living in one of four household forms. Importantly, these measures are constructed from the women's perspectives, reflecting the main features of the DHS sampling strategy.[5] First, when a woman lives exclusively with her partner with or without children, she is classified as living in a *nuclear* household—no additional relatives are part of the household.[6] Second, if a woman lives with children and without a partner, she is classified as living as a single mother regardless of the presence of other relatives. These two contexts serve as a basis to identify more complex arrangements.

Women in the nuclear and single-mother categories are classified as living in a *three-generation* context (three-g) when a least one member of the household reports a relationship with the household head that indicates the co-residence of three generations. A fourth household type occurs when two distinct couples share the same household (*multinuclear*). Note that only the first category (nuclear) is exclusive, that is, nuclear contexts are pure nuclear units due to the absence of any member besides a unique couple and their children (see details in Appendix B).

To complement these kinship-based household measures, we include the average number of household members that are not related to the household head. This number reflects yet another dimension of household complexity by including people who are not necessarily related to the nuclear family through kinship.

3.4 | Reproduction

This dimension comprises several measures of reproduction (quantum, span and timing) and access to modern contraception: the mean ages at first (singulate mean age at first birth) and last birth, the net reproduction rate (NRR), the prevalence of childlessness and the reciprocal of the proportion of women with unmet need for contraception (these measures are described in Bongaarts & Bruce, 1995; Preston et al., 2001).[7]

4 | METHODS

We perform a multiple correspondence analysis (MCA) to our table of 508 units (country-area-year combinations) and 20 categorically coded family characteristics. MCA is designed for summarising categorical variables into hierarchically ordered orthogonal axes that account for the joint (not necessarily linear) associations among variables (Le Roux & Rouanet, 2004). Hence, these axes serve to measure and display dissimilarity across units of analysis and correlations among variables. In a scatter plot of factorial axes (MCA-axes), proximity means a positive correlation (between variables) and resemblance (among units), whereas distance implies negative correlation and discrepancy. MCA-axes are hierarchically ordered. The first axis summarises the largest amount of variance, comprising

[5]As such, these indicators are not intended to measure decision to coreside across members of different generations or kinship relations. Rather, they aim to characterise the context in which women reproductive ages live.

[6]The proportion of households composed uniquely by a couple without children is very small (approx. 3% overall unweighted) for which the category of nuclear households corresponds mostly to couples with at least one child.

[7]As recommended by the DHS programme, the NRR is based on births that occurred during the previous 36 months with respect to the date of the survey.

the main associations among all family characteristics. The percentage of explained variance decreases among the remaining axes, and the sum of all equals 100%. If few axes summarise a large proportion of the variance, say three or four, one can focus on them to construct *family configurations* via cluster analysis.

We use MCA-axes to cluster units (country-area-year) following two steps. First, we use the Ward method to find groups of units with similar values along the first three MCA-axes (see the justification for this below). The Ward method minimises the within-cluster variance by grouping units with similar values in the MCA-axes. This method identifies nested cluster solutions with 2, 3, 4, up to 508 groups. In the second stage, we implement the *K*-means algorithm to consolidate the cluster solutions (Kaufman & Rousseeuw, 1990). We compare 19 cluster solutions ranging from two to 20 clusters using nine goodness-of-fit indicators, and we focus on a six-category partition (Studer, 2013).[8]

We assess the external validity of our selected partition by correlating the clusters (*family configurations*) with measures of women's participation in intrahousehold decision making (available for about 40% of the DHS samples), women's labour force participation, human development (HDI, the index and its three components) and gender development (GDI, the index) taken from the United Nations Development Indicators database. This validation suggests that our clustering of family characteristics captures relevant aspects of the family because the correlation between these country-level measures and the family configurations are strong, consistent and in the expected direction.

We measure change over time by taking the difference between the MCA coordinates of the earliest and most recent survey among countries with at least two DHS. To account for different intersurvey intervals, we standardise change over time to represent change per decade. We calculate these differences for the three MCA-axes, and we combine these changes in an overall measure of change: the squared root of the sum of squared changes in each axis (*hypotenuse* or arrows' length, as represented in Figure 1). Further, we measure units' direction of change using the angle between change in the first and second axis.

5 | RESULTS

Our analysis yields four important findings. Table 2 shows the relative contribution of each family characteristics to the MCA-axes, that is, the main axes of variation and evolution of families across LMICs (*Finding 1*). We use these axes to cluster units of analysis and present in Figure 3 nine goodness-of-fit indicators for 19 clustering solutions. Table 3 assesses the external validity of our preferred six-cluster solution (*Finding 2*). Figures 4 and 5 display the relations among *family configurations* and their geographical distribution, respectively (*Finding 3*). Table 4 examines changes over time across the MCA-axes (*Finding 4*).

[8]In all the analyses, we weigh each country-area-year by the product between the inverse of the number of waves per country and the within-country proportion of women living in the area (rural vs. urban). This weighting strategy gives equal weights to each country and higher weight to areas with a more significant proportion of women. The number of samples varies from 1 (16 countries, weight = 1) to 12 (Peru, weight = 1/12). The percent of women living in urban areas varies from 6.2% (Rwanda, 1992) to 88.6% (Gabon, 2012).

5.1 | Finding 1: Correlation and complexity among family dimensions

The country-area-year level correlation across family characteristics is very strong; consequently, a large proportion of the total variance is accounted for by the first two factorial axes as shown in Table 2 (41% and 29%). The third axis accounts for 8% of the total variance, whereas the remaining axes account for less than 5%. This hierarchical structure allows us to focus on the first three MCA-axes to provide a parsimonious description of family diversity (78% of the total variance). This percentage of explained variance is very high compared to typical R^2 values in country-level regression analyses, especially considering that it ensues from multiple correlations between 20 variables.

As summarised by the MCA-axes, relationships across family dimensions are complex. This is demonstrated by the contributions of family characteristics to the first three MCA-axes (column Contr. in Table 2). Out of the 20 family characteristics, eight display contributions above the mean (>5%) to the first MCA-axis (bold values). These eight features account for 68.2% of the variance of the first axis and pertain to all four family dimensions, meaning that at least one feature in each of them is relevant for the main distinctions of *family configurations*. Likewise, 8 out of the 20 individual variables display aboveaverage contributions to the second MCA-axis, accounting for by 75.5% of its variance. None of the variables of the Household composition dimension contributes significantly to the variance of the second axis. To the contrary, all family features of the Household composition dimension display contributions above the mean to the third MCA-axis, accounting for 68.6% of its total variance.

The understanding of the contributions of individual variables to the MCA-axes is confirmed by the magnitude and significance of the bivariate correlations between family features and MCA-axes, also displayed in Table 2 (column Corr.). All individual variables with above-average contributions to a given MCA-axis display strong and significant correlations with it (Corr. > 0.4, p value < 0.05); this is indeed true for the first two axes, whereas there are some weaker correlations for the third (‘paid work’, ‘single-mother household’ and ‘NRR’).[9]

Based on Table 2, the first axis separates country-areas with opposing regimes in terms of three interrelated aspects: first, how and when families are formed (early childbearing and union formation, and universal and stable marriages, indicating the maintenance of longstanding practices or what some call ‘traditional’ family); second, in terms of gender roles (less egalitarian vs. more egalitarian); and third, in terms of the prevalence of two household types: singlemother households and multinuclear households. These two household measures display correlations with the first axis that are opposite in sign (0.77 and −0.57, respectively), meaning that their alignment with partnership regimes and

[9]The signs of the correlations indicate how MCA-axes can be interpreted. For example, the positive correlation between ‘Cohabitation’ and the first MCA-axis (0.57) implies that positive values in this direction are associated with above-average prevalence of cohabiting unions. The reverse is true for the second axis because its correlation with cohabitation is negative (−0.42). Thus, the country-year-areas in the bottom-right area of the plane spanned by the first and second axes are those with the highest prevalence of cohabitation. A graphical representation of these contributions and correlations is displayed in Figures A2 and A3. These figures are useful because, despite the overall consistency of the correlations, they may hide non-linear patterns (U-shaped, and J-shaped distributions of categories) that are well displayed in the graphical representation of variables and categories in the factorial axes. Readers that are familiar with MCA-scatter plots could find these graphs easier to interpret than information provided in Table 2.

gender norms diverge. Multinuclear households go hand in hand with longstanding family practices and less egalitarian gender relationships, whereas single-mother households are more prevalent in country-areas where these longstanding partnership regimes have been eroding.

The second axis opposes country-areas in terms of their level of fertility, the degree of unmet need for contraception and middle to high ages of transition to union formation. The third axis comprises differences across areas in the proportion of women living in nuclear household versus three-generation households and households with relatively large numbers of nonrelated members (significant negative correlations with the third MCA-axis).

5.2 | Finding 2: Interpreting family configurations

These three factorial axes combined allow us to identify *family configurations*, that is, the confluence of family traits and the country-areas (world regions) that display them. Figure 3 provides nine goodness-of-fit indicators for cluster solutions ranging from 2 to 20 clusters (Studer, 2013). Higher values indicate better fit. Some of these indicators are monotonic, meaning that higher cluster solutions necessarily yield better fit, whereas others are not. According to these indicators, a six-category typology is a good compromise between the best solution according to monotonic and nonmonotonic indicators. Higher cluster solutions display worse and smaller marginal increases in the nonmonotonical and monotonical goodness-of-fit indicators, respectively. The apparent large decrease in the CH and CH-sq indicators between a five- and a six-cluster solution is not problematic because it does not modify the significance of a six-cluster partition, that is, the CH and CHsq for the five- and six-cluster solutions are statistically significant (CH: 15.3 vs. 14.1 CH-sq: 42.2 vs. 39.4).

This six-category typology accounts for 76.2% of the total variance of the first three MCA-axes. This percentage of explained variance means that accounting for the MCA (78% of the variance) and the cluster analysis (76.2% of the variance) jointly, this six-cluster solution explains 77% * 76.2% = 59.4% of the total variation of the 20 family characteristics.

As shown in Table 3, differences across *family configurations* (clusters of units) in the MCA-axes mean coordinates and 12 country-level measures of women's empowerment and countries' socio-economic development are substantial. For example, whereas, on average, 81% of women participate in decisions about their own health care in settings that pertain to the first *family configuration* (Q1), only 32% of women do so in countries grouped in Q3. This pattern is consistent across all six decision-making measures. These results confirm that the MCA-axes and *family configurations* are capturing important features of family contexts across our sample of countries. Because the decision making and United Nations indicators are not used for the clustering analysis themselves, the strength and consistency of their associations with the *family configurations* point to the validity of the latter.

We focus now on describing the most salient characteristics of each *family configuration*, that is, the features that make each distinctive. We accompany this description with a scatter plot of the MCA-axes (Figure 4). This figure displays the location of the six *family configurations* along the first three MCA-axes. The left panel uses the first and the second axes, and the right panel combines the first and the third. We label *family configurations* trying to capture the key feature of each of them as Q1 (*modern-changing*), Q2-1 (*highly-traditional-rigid*), Q2-2 (*highly-traditional-mobile*), Q3 (*traditional-moderately-mobile*), Q4-1 (*non-traditional-lagged*) and Q4-2 (*slightly-vanguard-mobile*). We add an 85% confidence ellipse to depict the relative variability of each cluster (as for the stylized representation in Figure 1). Overlapping areas among ellipses indicate similarity, and the lack of intersection indicates sharp distinctions among *family configurations*.

The most distinct and internally homogenous *family configuration* is Q2-2 (*highly-traditional-mobile*). Its strong negative coordinate in the first factorial axis implies that partnership regimes and gender relations assume an enduring form that does not admit Western influence in recent decades, that is high prevalence of formal marriage and low prevalence of cohabitation, divorce, separation, and remarriage. Turning to gender relations, the Q2-2 configuration also reveals the highest level of daughterless to sonless women ratio, and the lowest levels of female headship, and paid work. Consistently, this configuration also displays the lowest country-level female labour force participation (30.6% in Table 3), and the second lowest percentages of women's participation in all decision-making measures, only higher than those observed for Q3. However, some features of partnership regimes and gender relations display unexpected patterns in this configuration: The prevalence of early marriage and the age difference between spouses are not high, and the prevalence of educational hypogamy is not the lowest.

The positive coordinate of Q2-2 in the second MCA-axis implies that fertility, the mean age at last birth and unmet need for contraception are lower and that the prevalence of childlessness is higher compared with *family configurations* on the bottom of the plot. However, Q2-2 displays among the lowest age at first birth, which is unexpected given the negative correlation between age at first birth and fertility. Over time, units in Q2-2 tend to 'move' towards the top of the plot; therefore, we label them as mobile.

The second distinct *family configuration* is Q3 (*traditional-moderately-mobile*). This configuration displays similar characteristics to Q2-2 in terms of enduring partnership regimes and gender relations: The prevalence of marriage is high, and cohabitation, divorce, separation and remarriage are infrequent. However, the fertility level, unmet need for contraception, age difference between spouses and prevalence of early marriage are considerably higher compared with the other *family configurations*. Also, Q3 groups countries with the highest prevalence of polygyny (result not shown), and the lowest level of women's participation in all decision-making measures reported in Table 3. Partnership regimes and gender relations are changing among settings in Q3, so the word 'mobile' in this label refers to changes in the first MCA-axis.

There are two overlapping *family configurations* in the fourth quadrant of the left panel: Q4-1 (*non-traditional-lagged*) and Q4-2 (*slightly-vanguard-mobile*). Partnership regimes are varied, and gender roles are flexible in these countries meaning that, compared with average levels, marriage is less prevalent and cohabitation, divorce, and remarriage are more prevalent. Also, women living in these country-areas are more likely to be in educationally hypogamous couples and are also more likely to work for pay. Fertility is higher than average and transition to family formation occurs earlier compared with mean levels. Although these two configurations appear close to one another in the left panel, they are separated from each other in the right panel, meaning that household arrangements are different across them. Complex households are more prevalent in Q4-2 than Q4-1, and the reverse is true for the prevalence of women living in nuclear arrangements. In terms of the measures reported in Table 3, these two configurations look very similar. Differences in the pace of change over time between these two *family configurations* justify their contrasting labels, that is, lagged versus vanguard-mobile (see results below).

The Q1 (*modern-changing) family configuration* reports positive coordinates in the first two MCA-axes, indicating that this *family configuration* has more varied partnership regimes (higher prevalence of cohabitation, divorce, separation and remarriage) and that fertility levels (and all other correlates such as unmet need) are lower compared with *family configurations* on the bottom of Figure 4. Referring again to Table 3, this configuration displays the largest percentages of women's participation in all six decision-making measures, as well as the highest values of development (the human development index and its three components), and gender equity. However, female labour force participation is not the highest, which points to the complexity of the gender dimension of families in this configuration. Hence, the label 'modern-change' should be understood in relative terms, that is, as referring to rapid changes in fertility (timing and quantum), and stalled gender revolutions. This latter point would be reinforced if we were to consider gender-based violence against women, which is generally high in some of these 'modern' settings, for example, in Latin America.

Finally, the Q2-1 (*highly-traditional-rigid*) configuration displays characteristics that are in between those of Q2-2 and Q1. The most apparent characteristic of this cluster is that, despite the high level of women's participation in all decision-making measures (>65%), labour force participation of women is below average (48.5% vs. 52.6%), pointing at the combination of modern and traditional family norms. The lack of significant change over time among units in this *family configuration* justifies their labelling as 'rigid'. A five-cluster solution merges the Q2-1 and Q2-2 configurations, which is consistent with their spatial distribution (see Figure 5). Hence, the added value of this last configuration is that it separates some urban and rural areas in south Asia (e.g., India), Eastern Europe (e.g., Armenia) and the Middle East (i.e., Azerbaijan). The disparities in family patterns across these urban and rural areas may not be as large as those observed in other regions, but they are still worth noting given the lack of change in family patterns of the Q2-1 family configuration.

5.3 | Finding 3: Spatial distribution of family configurations

The spatial distribution of the *family configuration* confirms, to a certain extent, the importance of world regions for partnership regimes, as shown in Figure 5. However, this figure also highlights how, for some regions, urban and rural *family configurations* differ. Although *family configurations* typically cluster within world regions, when looking at differences between rural and urban areas, we notice that this further level of heterogeneity transcends cross-regional borders.

The most striking pattern in Figure 5 is that in almost all countries in Africa and LACar, rural and urban areas are associated with different *family configurations*. The contrary is true for countries in Asia and the Middle East. In most of these countries, rural and urban areas are grouped together in Q2-1 (*highly-traditional-rigid*) or Q2-2 (*highly-traditional-mobile*). There are, however, exceptions (e.g., urban areas in India and the Philippines), which make the overall colour patterning in urban areas much more varied than in rural ones. For example, the Q1 (*modern-changing) family configuration* appears all over the globe in the urban map, from Nicaragua to the Philippines passing by Ghana, Kenya, Kyrgyzstan, and Cambodia, and from Ukraine to South Africa. There is also a clear divide between west and east urban areas. There is no urban area to the south west of Morocco classified in Q2-1 and Q2-2. In other words, the urban versus rural comparison suggests that configurations vary within nations (and regions) as much—if not more—as they do between nations and regions.

5.4 | Finding 4: Change over time across family configurations

Results of changes over time across the 59 countries (118 country-areas) with at least two DHS waves demonstrate that, despite the overall common direction of family change in our sample of countries, each *family configuration* displays a specific pattern in terms of speed and direction of change. Table 4 displays standardised changes in the first three MCA-axes between the oldest and the most recent DHS waves for each *family configuration* and for the overall sample. To favour interpretability, this table also displays the percentage of units that are urban and the number of units in each *family configuration* for the oldest and the most recent DHS waves.

First, we consider changes over time for the pooled sample (50% units are urban). The most rapid changes are occurring in the second axis at a pace of 0.63 standard deviations (SD) per decade, followed by changes in the first dimension (0.5 SD). The slowest change occurs in the third dimension (0.27 SD). These differential changes produce an overall pace of change of 1.53 SD per decade in an angle of 41.2° (towards the top-right area on the left panel in Figure 4). These figures indicate that global family change occurs unequally across MCA-axes, being fast for reproduction and timing of family formation (Axis 2), and considerably more moderate for the axes summarising partnership regimes and gender norms (Axis 1) and household composition (Axis 3).

Furthermore, Table 4 underlines that substantial differences in the pace and direction of change across *family configurations* characterise global family change. Some *family configurations* do not change significantly in any of the three MCA-axes (e.g., Q2-1, *highly-traditional-rigid*). Others only display a significant change in some of the axes (e.g., Q1, *modern-changing*), and some others are very fluid, meaning that they display significant changes in all three MCA-axes (e.g., Q4-2, *slightly-vanguard-mobile*).

The most rigid configuration is Q2-1, as none of the changes across MCA-axes is significant. However, these results should be taken with care given the small number of country-areas in this group. On the contrary, the Q4-2 (*slightly-vanguard-mobile*) *family configuration* is very fluid as it is ‘moving’ towards less enduring partnership regimes and gender roles (0.65 SD change in Axis 1), lower fertility, delayed transition to family formation (0.71 SD in Axis 2) and higher household complexity (0.45 SD in Axis 3). The relatively balanced composition between urban and rural units of this cluster is tied to the fact that it comprises several urban areas in Africa (West and SSA) and some rural areas from LACar.

The two predominantly rural *family configurations* (Q3 and Q4-1, percentage of urban units below 20%) display distinct patterns of change in the first two MCA-axes. Whereas Q3 units move, on average, 0.69 SD in the first axis, the average pace of change among units in Q4-1 is 0.46 (marginally significant). The contrary is true for changes in the second axis, where Q4-1 units are moving, on average, faster than Q3 units (0.51 vs. 0.34 SD, respectively). Because these two configurations account for most rural units in Africa, these differential changes are consistent with the lack of convergence in partnership regimes and fertility decline that previous studies on SSA have reported. The neat subcontinental pattern in Africa's rural area demonstrates that there is no unique *family configuration* across countries but several of them. Taken as a whole, Africa emerges as the only continent that includes countries across all *family configurations,* and SSA is only missing two of them (Q2-1 and Q2-2). In addition, as countries in this region also display the lowest levels of urbanisation (albeit this is rising), the rural–urban gaps in *family configurations* may also be part of the factors underpinning the lack of convergence in partnership regimes and fertility decline.

The remaining two *family configurations* (Q1, *modern-changing*, and Q2-2, *highly-traditional-mobile*) display the fastest changes in the second MCA-axis (1.07 and 0.77 SD, respectively), meaning that reproduction-related features are changing rapidly among units in these two *family configurations*. The percentage of urban units and the changes in the first and third dimension, however, differ between these two clusters. Among Q1 units (88% of which are urban), rapid fertility decline is accompanied with increasing household complexity, whereas among units in Q2-2 (45% urban), it goes along with transformations towards diverse partnership regimes and changing gender roles. Note that, on average, Q1 units are less traditional and less normative than Q2-2 units, meaning that both urban and rural areas in Q2-2 (mostly MENA countries), although distinct, are converging towards the family configuration of Latin American, Caribbean and South African urban areas.

6 | CONCLUSIONS AND DISCUSSION

Based on a factorial approach, our analyses identify six distinctive *family configurations* ranging from traditional and rigid, to modern and changing family settings. These configurations cluster global family variation and change in meaningful ways. Global family variation and change emerge from complex interplays between the relative steadiness of a longstanding arrangement for forming families and organising gender relations and the rapidly changing dynamics observed in the realms of fertility, contraception and timing of family formation.

Our approach demonstrates the usefulness of subnational estimates (urban vs. rural) for jointly analysing multiple aspects of families internationally. Factorial dimensions and *family configurations* provide concrete tools to measure and describe the well-recognised —but less well measured and understood—strength and complexity of associations across family features. They also shed light on why family change is unequal. Most population scientists understand that families across the globe are complex, but few have provided a quantitative assessment of this complexity, alongside a qualitative description of the connectedness among family dimensions. From a methodological perspective, therefore, the key implication of our analyses, the factorial dimensions and *family configurations*, is to suggest that future empirical analysis as well as theories of family change should consider multiple family characteristics, as grouped by the factorial axes, at the same time. This implies a change in perspective from the examination of family features themselves, to a focus on the interrelations among them.

The key substantive finding emerging from our analysis is the notion that the change and evolution of the family can be effectively understood and measured using a small set of dimensions that capture essential aspects of family structures and family functions. The fact that all these dimensions matter for the main family differences across our sample of countries suggests that analysing separate family characteristics may limit scholars' ability to understand the diversity and evolution of families around the globe. According to our analysis, this is particularly the case for features of partnership regimes, gender relations, and multinuclear household arrangements, and single motherhood, and it is consistent with historical accounts of the evolution of the family that have pointed to the role of the family in the development and reproduction of patriarchy (Coontz, 2014; England & Budig, 1998; Goldin & Katz, 2002; Héritier, 2002).

A concrete implication of this results is that instead of selecting features of the family based on areas of study (e.g., fertility, gender or household dynamics), future analyses could benefit from the joint examination of family characteristics that are tied, as shown by the factorial dimensions. This practice has been already adopted by fertility researchers, who have pointed out the links between the quantum and tempo of fertility (Bongaarts & Feeney, 1998). Yet it is less common for research on partnership regimes, gender relations and household arrangements. For example, the varying paces of change (across *family configurations*) in longstanding family practices regarding the forms and timing of family formation cannot be fully understood without reference to both the prevalence of patriarchal gender norms and the social acceptance of multinuclear and single-mother households. Despite pertaining to different areas of study, these three family dimensions appear closely tied in our analysis and should be studied as such.

Second, despite the arbitrariness in the selection of family characteristics, these two constructs (axes and configurations) help uncover crucial characteristics of the demographic outlook of family contexts. Some of these key characteristics are documented elsewhere, but some others are new discoveries. Some new discoveries include the widespread occurrence of one *family configuration* (Q1, *modern-changing*) across urban areas in different areas of the world, the complexity, and sometimes contradictory associations among measures of gender relations (e.g., sex preferences and age difference between partners), the neat subcontinental clustering of *family configurations* in rural Africa, and the subordinate position of household composition heterogeneity with respect to other family dimensions. These are all discoveries that owe very much to the partially inductive approach of our analysis. In so doing, our interest is not to claim that elaborate theoretical hypotheses pose threats to research on global family change, but to open more space to rigorous quantitative inductive analyses.

Third, the relatively strong correlation between *family configurations* and world regions for urban areas, and the lack of this correlation for rural areas, indicates that global family change has been an uneven process even within more or less uniform institutional contexts such as countries or within geographical regions with shared history, similar developmental status and common colonial legacies. Moreover, the fact that *family configurations* display differential change suggests that global family change might continue to be uneven. These results challenge the use of broad geographical categories as well as national borders to understand family dynamics. The consequence of challenging these categories is that country-level family trends should be understood in terms of variation within durable structures.

This type of understanding of family variation highlights, on the one hand, structural conditions that limit the universe of possible family arrangements (e.g., significant development gaps between urban and rural areas, and vast economic inequality levels that are both specific to LACar and Africa). On the other, it also shows how this universe of possibilities is shifting. In other words, this conceptualization recognises that *family configurations* are the by-product of a long history of cultural development, and therefore, there is some momentum favouring their stability (Livi Bacci, 1992). Meanwhile, *family configurations* vary but in a limited set of aspects and within the boundaries of the structural conditions, potentially as a consequence of economic and demographic development (rising HDI and life expectancy, for example). In short, a *family-configuration* approach refines the interpretation of family change across LMICs in terms of 'convergence towards diversity' (Pesando & GFC-team, 2019) to 'family change within durable structures' (Lundh & Kurosu, 2014).

Within this framework, there is less room to think about unexpected demographic trends in terms of 'paradoxes', 'stalled transitions' or 'exceptionalisms'. Dual family regimes and slower pace of change (or no change at all) are consistent with the large heterogeneity and scattered distribution of *family configurations* across LMICs. Subregional and subnational analyses of family change have much to add to the understanding of the patchy pattern of *family configurations* for growing urban areas and the relatively neat clustering of *family configurations* in declining rural contexts.

ACKNOWLEDGEMENTS

We gratefully acknowledge the support of the University of Pennsylvania and the Global Family Change Project (GFC-project, https://web.sas.upenn.edu/gfc/). Funding for the GFC Project is provided through the National Science Foundation (Grant 1729185, PIs: Kohler & Furstenberg). This work was additionally supported by the Eunice Shriver Kennedy National Institute of Child Health and Human Development Population Research Infrastructure Program (NIH P2C HD044964. PI: Parrado) & the National Institute on Aging (NIH P30 AG012836, PIs: Kohler & Coe). We are thankful to the Population Association of America for allowing us to present a previous version of this work during the 2018 annual meeting. [Correction added on November 10, 2021, after first online publication: 'Acknowledgements' section has been corrected in this version]

FUNDING INFORMATION

Funding for the GFC Project is provided through the National Science Foundation (Grant 1729185, PIs: Kohler & Furstenberg).

DATA AVAILABILITY STATEMENT

The survey data used in this paper are available upon registration through the Demographic and Health Survey programme (https://dhsprogram.com/). The country-level data are available upon request from the corresponding author.

APPENDIX A

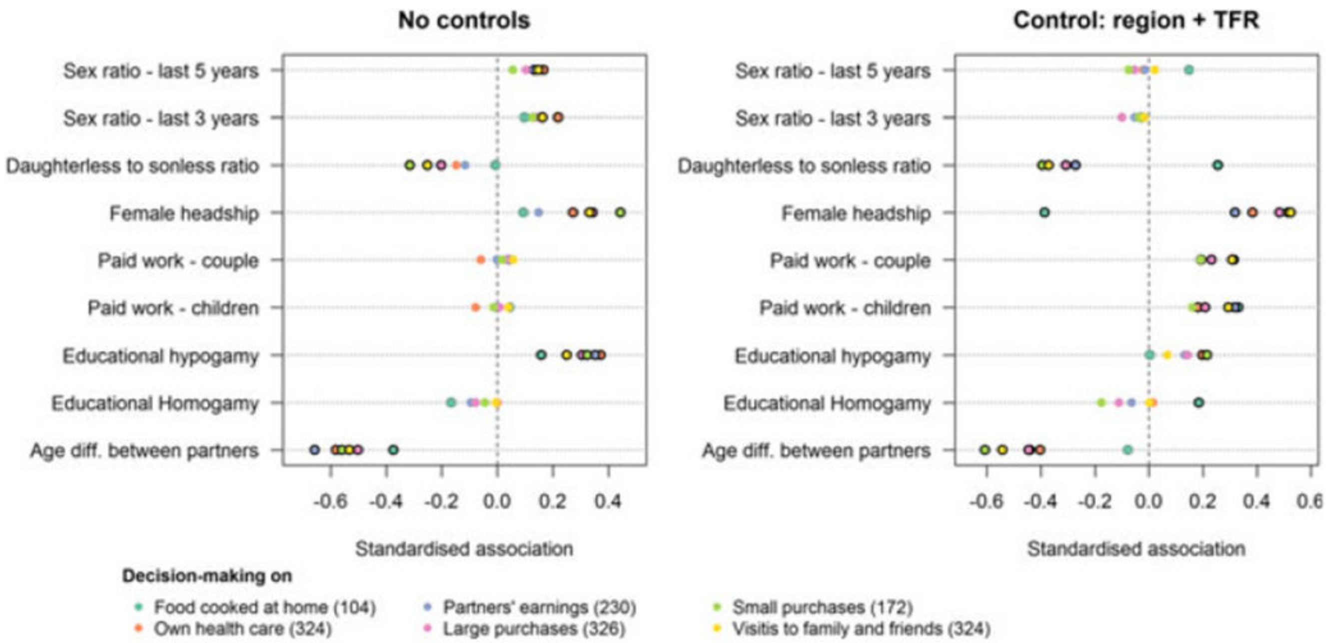

FIGURE A1.

Standardised association between gender relations indicators and women's participation in six types of decisions. *Note:* Decision-making indicators are coded such that positive values indicate higher proportion of women participating in decision making. The left panels reports bivariate correlations. The right panel reports correlations controlling for the Total fertility rate (TFR) and world region as in Figure 2. Numbers in parenthesis indicate the number of country-area-years with information on each decision-making indicator. Bolded circles indicate statistically significant associations (p value < 0.05)

Interpretation:

Figure A1 indicates that our selection of gender relations indicators is appropriate to measure women's conditions within the family context. These indicators depict consistent and, in most cases, statistically significant associations with widely used indicators of women empowerment based on their participation in six types of decisions. We present results also for the sex ratio at birth and educational homogamy in order to support our choice of alternative indicators, that is, daughterless to sonless ratio and educational hypogamy. The most commonly used indicator for unequal gender relations is the age difference between partners. This indicator displays consistent, strong, and negative associations with decision-making indicators (std. assoc. < -0.4), except for decisions regarding the food cooked at home. Likewise, the proportion of women in couples who are head of the household displays positive, strong and consistent association with all decision-making indicators (cor. >0.4), except for decisions regarding the food cooked at home. These two indicators provide a baseline to assess the other indicators of the gender dimension. The daughterless to sonless ratio displays negative associations with decision-making indicators. These negative correlation suggests this that indicator is a good measure of women's conditions. Moreover, these correlations are robust to controlling for the TFR and dummy variables for geographical regions. This is not the case for the two indicators of sex ratio at birth. In the same spirit, educational hypogamy and paid work (couple and children) display positive associations with decision-making indicators. These associations are attenuated for educational hypogamy once control variables are included. However, the associations with decisions on small purchases and women's health care are still significant. In the case of paid work, the association are stronger when controlling for TFR and region, and only the one related to small purchases is not significant.

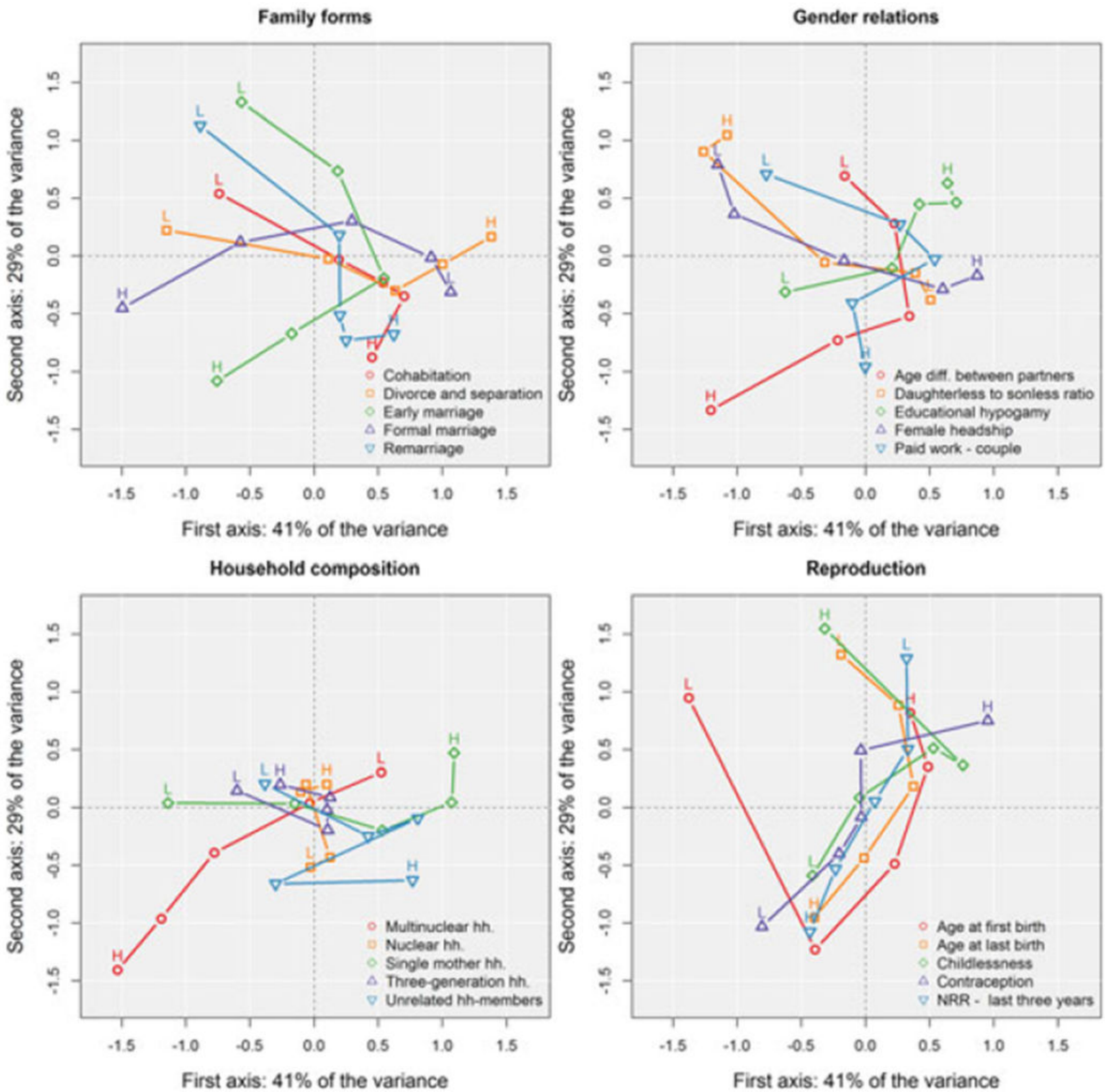

FIGURE A2.

Categories' distribution along the first two factorial axes. *Note*: Only extreme categories are labelled (L: lowest, H: highest). All graphs within panels have the same scale, and they can be interpreted jointly (superposed) with Figure 3

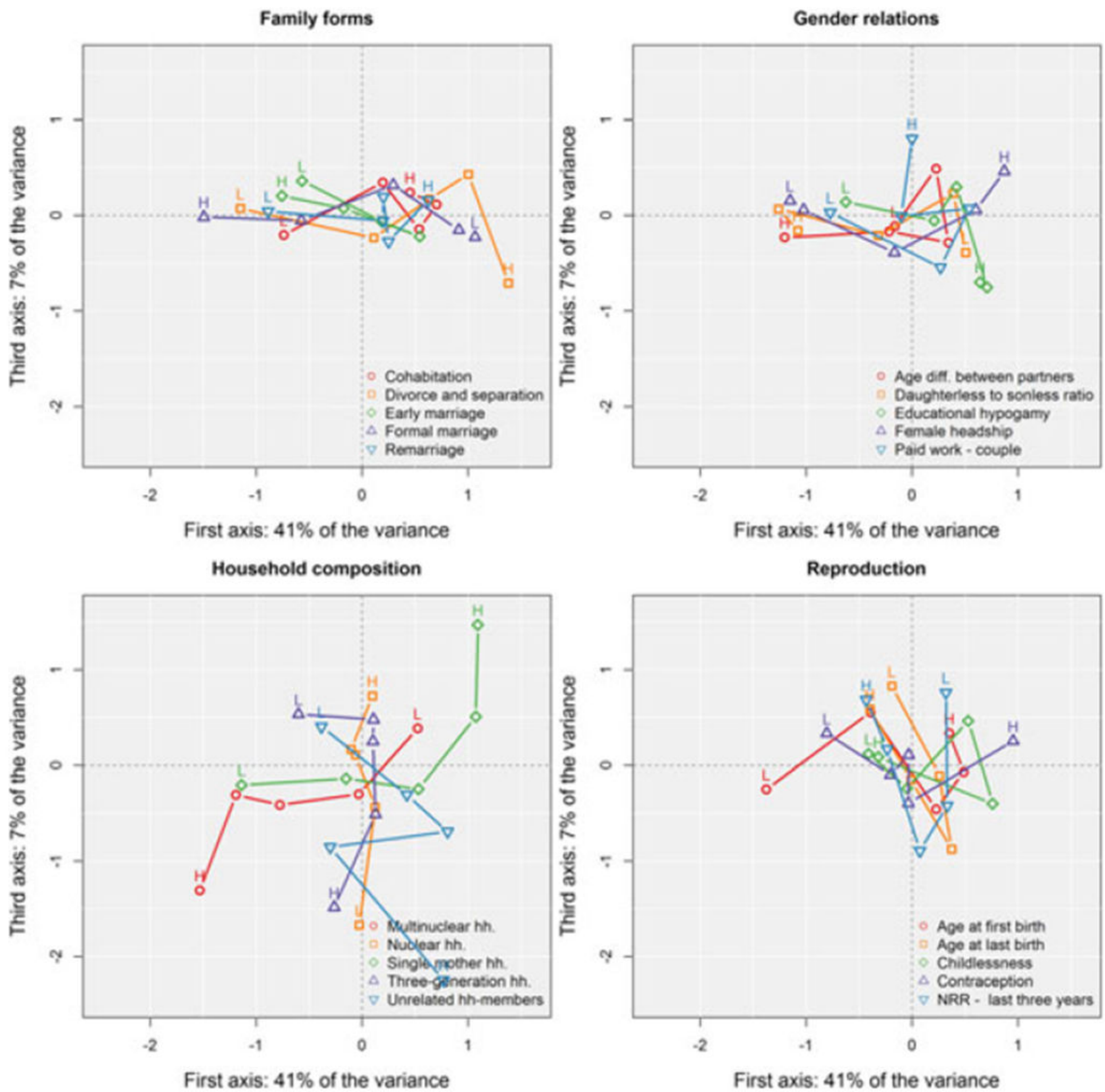

FIGURE A3.

Categories' distribution along the first and third factorial axes. *Note*: Only extreme categories are labelled (L: lowest, H: highest). All graphs within panels have the same scale, and they can be interpreted jointly (superposed) with Figure 3

TABLE A1

Family configurations' characteristics

	Family configurations						
	Q1	Q2-1	Q2-2	Q3	Q4-1	Q4-2	Overall mean
Family forms							
Cohabitation	0.29^{+}	0.07***	0.00***	0.19	0.35***	0.26	0.21
Divorce and separation	0.16***	0.05***	0.02***	0.04***	0.10**	0.10**	0.08
Early marriage	0.51**	0.47***	0.48	0.77***	0.64**	0.58	0.58
Formal marriage	0.36***	0.62***	0.72***	0.75***	0.49^{+}	0.47**	0.55
Remarriage	0.16	0.04***	0.04***	0.17*	0.19**	0.16^{+}	0.14
Gender relations							
Age diff. between partners	5.4***	5.2***	5.1*	10.1***	6.8	6.8	6.4
Educational hypogamy	0.11**	0.09*	0.07	0.05***	0.07*	0.09	0.08
Paid work–couple	0.51	0.35***	0.25***	0.62**	0.68***	0.51	0.49
Female headship	0.61***	0.40***	0.31***	0.44**	0.62***	0.55**	0.51
Daughterless/sonless ratio	1.04***	1.14	1.23***	1.09	1.06***	1.06***	1.10
Household composition							
Multinuclear hh.	0.06***	0.10***	0.16	0.37***	0.09***	0.14	0.15
Nuclear hh.	0.41	0.48**	0.45*	0.34^{+}	0.48***	0.36*	0.41
Unrelated hh-members	0.17**	0.07*	0.03***	0.17*	0.10	0.22***	0.11
Single mother hh.	0.08***	0.03***	0.02***	0.02***	0.06**	0.04	0.04
Three-generation hh.	0.20*	0.25	0.18^{+}	0.21	0.19***	0.24	0.23
Reproduction							
Age at last birth	32.0***	31.7*	32.1***	36.7***	36.4***	34.6**	34.0
Childlessness	0.05**	0.07***	0.03***	0.03***	0.03***	0.04	0.04
Contraception	0.76***	0.64**	0.56	0.26***	0.43***	0.57	0.52
NRR	1.17***	1.18***	1.54^{+}	2.33***	2.27***	1.68	1.73
Age at first birth	23.0***	23.7***	17.2***	20.0***	20.5	21.9**	21.0
Number of units	86	42	97	70	78	135	508

Note: Significance test were run under H_0: $\mu_i = \mu$, where μ stands for the overall mean, and i indexes *family configurations*. Significance levels are represented as:

$^{+}$0.1,

*0.05,

**0.01 and

***0.001.

Standard errors are clustered at the country-level.

APPENDIX B

B.1 | Identifying household structures of women in reproductive ages

The classification of women, according to the structure of the household they live, involves four steps. The first step uses the information of women and classifies them into four categories (nuclear, couple, single mother and single). The second step uses information from household members to create three types of households: pure nuclear, three-generation and complex. The third step combines these two previous results at the household-level. The fourth and final step brings these combined categories to the women's level. Theoretically and data-driven criteria inform each of these steps, as explained below.

First step: identifying living arrangements among women in reproductive ages

For each woman in reproductive age, we create two dummy variables indicating: (1) the presence of a husband or partner and (2) the presence of their own children in the household. The four possible combinations of these two dummies identify four types of family context from women's perspective.

- Nuclear: women with both partner and children(code '1–1')
- Couple: women with a partner but no children(code '1–0')
- Single mother: women with children but without a partner(code '0–1')
- Single: women with neither children nor partner (code '0–0')

Because two or more women can reside in the same household, two or more categories can apply to the same household, producing combinations such as 'Nuclear + Couple' and 'Nuclear + Single mother'. All combinations are coded at the household-level into five categories: 'Nuclear, pure', 'Lone mother, pure', 'Lone mother, complex', 'Complex, adults only' and 'Complex, multinuclear'.

Second step: identification of household context using the information of household members

Household members were classified using their relationship with the household head based (variable H101) on two criteria. (1) The vertical generation where grandparents' generation is generation zero (G0), parents' generations is generation one (G1), children are generation two (G2), and grandchildren are generation four (G4). (2) Collateral kinship, that is, when household members are siblings, nephews, nieces or other relatives of the household head.

We generate two dummy variables at the household-level: one for the presence of G0, G1 and G4 members (three-generation households) and another for collateral members (complex households). We concatenate these two dummy variables to created four possible types as follows:

- 0-0: no three-generation members and no collateral members, that is, non-complex family

- 1-0: the presence of a third-generation member (grandchild, grandfather, etc.), that is, three-generation household
- 1-1: the presence of both, three generations and collateral, that is, three-generation family
- 0-1: the presence of collateral members, that is, complex (fragmented) family

Third step: the combination of women's and household members' perspective

We merge the household-level classifications produced in steps one and two. This merged data set produces twenty family types: five family types from the women's perspective times four family contexts based on other members, as seen in Table B1.

Most of the households do not include collateral members and three-generation members (68%). Among the remaining 32% of the households, 16% includes only collateral members, 14% three-g members and 3% both. We use these 20 combinations to create six dummy variables, as follows:

1. Nuclear: 1 if the household is purely nuclear, that is, if there is one couple and their children, 0 otherwise.
2. Single mother: 1 if there is only one single mother in the household.
3. Lone mother, complex: 1 if there is at least one single mother in the household and another nuclear unit, 0 otherwise.
4. Multinuclear—children: 1 if there are at least two nuclear units both with children, 0 otherwise
5. Multinuclear—only adults: 1 if there are at least two nuclear units without children, 0 otherwise
6. Three generations: 1 if there is at least one member of the generations zero, three, or four, 0 otherwise

TABLE B1

Cross-tabulation of household classification according to women's and household members' perspectives

		Other member				
Women's perspective	**No other members**	**Collateral member**	**Three-g member**	**Both**	**Total**	**%**
Nuclear, pure	1,629,295	219,034	226,352	25,852	2,100,533	69%
	78%	10%	11%	1%	100%	
Lone mother, pure	127,305	59,065	35,099	11,412	232,881	8%
	55%	25%	15%	5%	100%	
Lone mother, complex	12,915	40,278	26,093	11,994	91,280	3%
	14%	44%	29%	13%	100%	

Women's perspective	No other members	Other member: Collateral member	Three-g member	Both	Total	%
Complex adults only	222,170	46,110	62,563	7916	338,759	11%
	66%	14%	18%	2%	100%	
Complex, multinuclear	68,887	109,611	64,207	23,722	266,427	9%
	26%	41%	24%	9%	100%	
Total	2,060,574	474,099	414,315	80,896	3,029,884	100%
	68%	16%	14%	3%	100%	

TABLE B2

Women's distribution according to household type by geographical region

World region	Household context for women: Nuclear	Lone mother	Lone mother, complex	Multinuclear–children	Multinuclear–only adults	Three generations	Total
Africa central	54,984	6498	26,147	26,083	12,736	34,215	160,663
	34%	4%	16%	16%	8%	21%	100%
Africa east	253,629	36,118	82,278	38,110	65,936	106,576	582,647
	44%	6%	14%	7%	11%	18%	100%
Africa north	80,446	4211	5246	21,652	9915	21,956	143,426
	56%	3%	4%	15%	7%	15%	100%
Africa south	16,354	4646	23,345	4688	9643	24,695	83,371
	20%	6%	28%	6%	12%	30%	100%
Africa west	202,350	12,797	50,231	187,839	52,286	123,043	628,546
	32%	2%	8%	30%	8%	20%	100%
Americas central	105,639	14,171	38,271	23,486	29,635	63,173	274,375
	39%	5%	14%	9%	11%	23%	100%
Americas south	213,478	30,730	66,910	26,714	58,075	97,237	493,144
	43%	6%	14%	5%	12%	20%	100%
Asia central	19,285	1856	2645	9039	4345	16,543	53,713
	36%	3%	5%	17%	8%	31%	100%
Asia south	577,634	27,766	43,018	274,000	100,528	339,036	1,361,982
	42%	2%	3%	20%	7%	25%	100%

World region	Household context for women: Nuclear	Lone mother	Lone mother, complex	Multinuclear–children	Multinuclear–only adults	Three generations	Total
Asia southeast	246,497	12,454	23,324	47,952	50,688	85,266	466,181
	53%	3%	5%	10%	11%	18%	100%
Asia west	93,758	3927	4599	17,774	13,864	27,761	161,683
	58%	2%	3%	11%	9%	17%	100%
Eastern Europe	17,861	1569	1252	1690	4992	7120	34,484
	52%	5%	4%	5%	14%	21%	100%
Total	1,881,920	156,743	367,267	679,028	412,644	946,623	4,444,226
	42%	4%	8%	15%	9%	21%	100%

Note that only the first two dummies refer to pure configurations, that is, the first two dummies are mutually exclusive. On the contrary, the other four dummies are not mutually exclusive. This exclusiveness is beneficial because it reduces mechanical correlation among country-level indicators of the prevalence of these household types.

Fourth step: merging back results with the woman-level file

We merge the file obtained in step three with the women's file. Table B2 presents women's distribution according to the household type they live in for 12 geographical regions. This table does not account for sample weights.

In the main analysis, we combine multinuclear households and lone mother households into two country-level-area indicators: multinuclear and lone mother household, respectively. To complement this dimension, we included an indicator for the average number of household member who are not related to the household head.

REFERENCES

Blossfeld H-P (2009). Educational assortative marriage in comparative perspective. Annual Review of Sociology, 35(1), 513–530. 10.1146/annurev-soc-070308-115913

Bongaarts J. (2001). Household size and composition in the developing world in the 1990s. Population Studies, 55(3), 263–279. 10.1080/00324720127697

Bongaarts J. (2017). Africa's unique fertility transition. Population and Development Review, 43, 39–58. 10.1111/j.1728-4457.2016.00164.x

Bongaarts J, & Bruce J (1995). The causes of unmet need for contraception and the social content of services. Studies in Family Planning, 26(2), 57–75. 10.2307/2137932 [PubMed: 7618196]

Bongaarts J, & Feeney G (1998). On the quantum and tempo of fertility. Population and Development Review, 24(2), 271. 10.2307/2807974

Bongaarts J, Mensch BS, & Blanc AK (2017). Trends in the age at reproductive transitions in the developing world: The role of education. Population Studies, 71(2), 139–154. 10.1080/00324728.2017.1291986 [PubMed: 28397543]

Bongaarts J, & Sinding S (2011). Population policy in transition in the developing world. Science, 333(6042), 574–576. 10.1126/science.1207558 [PubMed: 21798937]

Bongaarts J, & Sinding SW (2009). A response to critics of family planning programs. International Perspectives on Sexual and Reproductive Health, 39(1), 39–44. 10.1363/3503909

Bozon M, Gayet C, & Barrientos J (2009). A life course approach to patterns and trends in modern Latin American sexual behavior. JAIDS Journal of Acquired Immune Deficiency Syndromes, 51, S4–S12. 10.1097/QAI.0b013e3181a2652f [PubMed: 19384100]

Bronfman M, López E, & Tuirán R (1986). Práctica anticonceptiva y clases sociales en México: La experiencia reciente. Estudios Demográficos Y Urbanos, 2(2), 165–203. 10.24201/edu.v1i2.586

Caldwell JC (2004). Demographic theory: A long view. Population and Development Review, 30(2), 297–316. 10.1111/jM728-4457.2004.014_1.x

Caldwell JC, Orubuloye IO, & Caldwell P (1992). Fertility decline in Africa: A new type of transition? Population and Development Review, 18(2), 211. 10.2307/1973678

Caltabiano M, Dreassi E, Rocco E, & Vignoli D (2019). A subregional analysis of family change: The spatial diffusion of one-parent families across Italian municipalities, 1991–2011. Population, Space and Place, 25(4), e2237. 10.1002/psp.2237 [PubMed: 31244559]

Casterline JB (2017). Prospects for fertility decline in Africa. Population and Development Review, 43, 3–18. 10.1111/padr.12055

Chant S, & Mcllwaine C (2009). Geographies of development in the 21st century. Edward Elgar Publishing Limited.

Cherlin AJ (2012). Goode's world revolution and family patterns: A reconsideration at fifty years. Population and Development Review, 38(4), 577–607. 10.1111/j.1728-4457.2012.00528.x

Cherlin AJ (2016). A happy ending to a half-century of family change? Population and Development Review, 42(1), 121–129. 10.1111/j.1728-4457.2016.00111.x

Clark S, & Brauner-Otto S (2015). Divorce in sub-Saharan Africa: Are unions becoming less stable? Population and Development Review, 41(4), 583–605. 10.1111/j.1728-4457.2015.00086.x

Clark SJ (2015). A singular value decomposition-based factorization and parsimonious component model of demographic quantities correlated by age: Predicting complete demographic age schedules with few parameters.

Coontz S. (2014). Marriage, a history: How love conquered marriage (1st ed.). Penguin Books.

De Vos S. (1995). Household composition in Latin America (1st ed.). Plenum Press. 10.1007/978-1-4615-1841-9

DHS program. (2012). Interviewer's manual. Demographic and health surveys methodology. ICF International.

Dorius SF (2008). Global demographic convergence? A reconsideration of changing intercountry inequality in fertility. Population and Development Review, 34(3), 519–537. 10.1111/jM728-4457.2008.00235.x

England P. (2010). The gender revolution: Uneven and stalled. Gender & Society, 24(2), 149–166. 10.1177/0891243210361475

England P, & Budig MJ (1998). Gary Becker on the family: His genius, impact, and blind spots. In Clawson D (Ed.), Required reading: Sociology's most influential books (pp. 95–111). University of Massachusetts Press.

Esteve A, & Florez-Paredes E (2018). The stability paradox: Why expansion of women's education has not delayed early union formation or childbearing in Latin America. Studies in Family Planning, 49(2), 127–142. 10.1111/sifp.12055 [PubMed: 29749632]

Esteve A, Lesthaeghe R, & López-Gay A (2012). The Latin American cohabitation boom, 1970-2007. Population and Development Review, 38(1), 55–81. 10.1111/j.1728-4457.2012.00472.x [PubMed: 22833864]

Esteve A, & Lesthaeghe RJ (2016). In Esteve A & Lesthaeghe RJ (Eds.), Cohabitation and marriage in the Americas: Geo-historical legacies and new trends. Springer International Publishing. 10.1007/978-3-319-31442-6

Esteve A, & Liu C (2017). Family and household composition in Asia. In Routledge handbook of Asian demography (pp. 370–393). Routledge. 10.4324/9781315148458-20

Esteve A, Schwartz CR, van Bavel J, Permanyer I, Klesment M, & García-Román J (2016). The end of hypergamy: Global trends and implications. Population and Development Review, 42(4), 615–625. 10.1111/padr.12012 [PubMed: 28490820]

Fox GL, & Murry VM (2000). Gender and families: Feminist perspectives and family research. Journal of Marriage and Family, 62(4), 1160–1172. 10.1111/j.1741-3737.2000.01160.x

Fox J, Klüsener S, & Myrskylä M (2019). Is a positive relationship between fertility and economic development emerging at the subnational regional level? Theoretical considerations and evidence from Europe. European Journal of Population, 35(3), 487–518. 10.1007/s10680-018-9485-1 [PubMed: 31372102]

Fussell E, & Palloni A (2004). Persistent marriage regimes in changing times. Journal of Marriage and Family, 66(5), 1201–1213. 10.1111/j.0022-2445.2004.00087.x

García B, & de Oliveira O (2011). Family changes and public policies in Latin America. Annual Review of Sociology, 37(1), 593–611. 10.1146/annurev-soc-081309-150205

Goldin C, & Katz LF (2002). The power of the pill: Oral contraceptives and women's career and marriage decisions. Journal of Political Economy, 110(4), 730–770. 10.1086/340778

Grant MJ, & Furstenberg FF (2007). Changes in the transition to adulthood in less developed countries. European Journal of Population, 23(3–4), 415–428. 10.1007/s10680-007-9131-9

Guzmán J, Rodríguez J, Martínez J, Contreras J, & González D (2006). The demography of Latin America and the Caribbean since 1950. Population-E, 61(5–6), 519–576. 10.3917/pope.605.0519

Héritier F. (1996). Masculin/feminin I. La pensée de la difference.

Héritier F. (2002). Masculin/feminin II. Dissoudre la hiérarchie.

Herrera G. (2013). Gender and international migration: Contributions and cross-fertilizations. Annual Review of Sociology, 39(1), 471–489. 10.1146/annurev-soc-071811-145446

Heuveline P. (2004). Impact of the HIV epidemic on population and household structure: The dynamics and evidence to date. AIDS, 18(Supplement 2), S45–S53. 10.1097/01.aids.0000131304.78075.b7

Jackson C. (2015). Modernity and Matrifocality: The feminization of kinship? Development and Change, 46(1), 1–24. 10.1111/dech.12141

Jenks G. (1967). The data model concept in statistical mapping. International Yearbook of Cartography, 7, 186–190.

Johnson-Hanks J, Bachrach CA, Morgan P, & Kohler H-P (2011). Understanding family change and variation: Toward a theory of conjunctural action (1st ed.). Springer. 10.1007/978-94-007-1945-3

Juarez F, & Gayet C (2014). Transitions to adulthood in developing countries. Annual Review of Sociology, 40, 521–538. 10.1146/annurev-soc-052914-085540

Kaufman L, & Rousseeuw PJ (1990). Finding groups in data: An introduction to cluster analysis. Wiley.

Koski A, Clark S, & Nandi A (2017). Has child marriage declined in sub-Saharan Africa? An analysis of trends in 31 countries. Population and Development Review, 43, 7–29. 10.1111/padr.12035

Laplante B, Castro-Martín T, & Cortina C (2018). Change and continuity in the fertility of unpartnered women in Latin America, 1980–2010. Demographic Research, 38(1), 1577–1604. 10.4054/DemRes.2018.38.51

Le Roux B, & Rouanet H (2004). Geometric data analysis: From correspondence analysis to structured data analysis. Springer.

Lee R. (2003). The demographic transition: Three centuries of fundamental change. Journal of Economic Perspectives, 17(4), 167–190. 10.1257/089533003772034943

Legrand TK, & Barbieri M (2002). The possible effects of child survival on women's ages at first union and childbirth in sub-Saharan Africa. European Journal of Population/Revue européenne de Démographie, 18(4), 361–386.

Lerch M. (2017). Urban and rural fertility transitions in the developing world:A cohort perspective. Max Planck Inst itute for Demographic Research.

Lerch M. (2019). Regional variations in the rural-urban fertility gradient in the global south. PLoS ONE, 14(7), e0219624. 10.1371/journal.pone.0219624 [PubMed: 31323039]

Lesthaeghe R. (2020). The second demographic transition, 1986–2020: Sub-replacement fertility and rising cohabitation—A global update. Genus, 76(1), 10. 10.1186/s41118-020-00077-4

Lima EEC, Zeman K, Sobotka T, Nathan M, & Castro R (2018). The emergence of bimodal fertility profiles in Latin America. Population and Development Review, 0(0), 1–21. 10.1111/padr.12157

Liu C, Esteve A, & Trevino R (2017). Female-headed households and living conditions in Latin America. World Development, 90(637768), 311–328. 10.1016/j.worlddev.2016.10.008

Livi Bacci M. (1992). A concise history of world population (3rd ed.). Wiley-Blackwell.

Lundh C, & Kurosu S (2014). Similarity in difference: Marriage in Europe and Asia, 1700–1900. The MIT Press. 10.7551/mitpress/9780262027946.001.0001

Mason K. (2001). Gender and family systems in the fertility transition. Population and Development Review, 27(Supplement), 160–176.

McNicoll G. (1992). Changing fertility patterns and policies in the third world. Annual Review of Sociology, 18, 85–108. 10.1146/annurev.so.18.080192.000505

Montgomery M, Stren R, Cohen B, & Reed H (2003). Cities transformed. National Academies Press. 10.17226/10693

Nathan M, Pardo I, & Cabella W (2016). Diverging patterns of fertility decline in Uruguay. Demographic Research, 34(1), 563–586. 10.4054/DemRes.2016.34.20

Pesando LM, & Abufhele A (2019). Household determinants of teen marriage: Sister effects across four low- and middle-income countries. Studies in Family Planning, 50(2), 113–136. 10.1111/sifp.12089 [PubMed: 30942909]

Pesando LM, & GFC-team. (2019). Global family change: Persistent diversity with development. Population and Development Review, 45(1), 133–168. 10.1111/padr.12209 [PubMed: 34305197]

Preston S, Guillot M, & Heuveline P (2001). Demography: Measuring and modeling population processes. Wiley-Blackwell.

Raymo JM, Park H, Xie Y, & Yeung WJ (2015). Marriage and family in East Asia: Continuity and change. Annual Review of Sociology, 41(1), 471–492. 10.1146/annurev-soc-073014-112428

Requena M, Reher D, Padyab M, & Sandström G (2019). Women living alone in later life: A multicountry comparative analysis. Population, Space and Place, 25(7), 1–16. 10.1002/psp.2269

Ruggles S. (2012). The future of historical family demography. Annual Review of Sociology, 38(1), 423–441. 10.1146/annurev-soc-071811-145533

Sánchez-Páez DA, & Ortega JA (2018). Adolescent contraceptive use and its effects on fertility. Demographic Research, 38(April), 1359–1388. 10.4054/DemRes.2018.38.45

Sedgh G, Ashford LS, & Hussain R (2016). Unmet need for contraception in developing countries: Examining women's reasons for not using a method. Guttmacher Institute, June, 2–48.

Studer M. (2013). WeightedCluster library manual: A practical guide to creating typologies of trajectories in the social sciences with R. LIVES Working Papers, 24, 1–34. 10.12682/lives.2296-1658

Sullivan O, Gershuny J, & Robinson JP (2018). Stalled or uneven gender revolution? A long-term processual framework for understanding why change is slow. Journal of Family Theory and Review, 10(1), 263–279. 10.1111/jftr.12248

Therborn G. (2004). Between sex and power: Family in the world 1900–2000. Routledge. 10.4324/9780203643297

United Nations. (2015). World fertility patterns 2015. In Data Booklet (ST/ESA/SER.A/370).

van de Kaa DJ (1996). Anchored narratives: The story and findings of half a century of research into the determinants of fertility. Population Studies, 50(3), 389–432. 10.1080/0032472031000149546 [PubMed: 11618375]

Weitzman A. (2014). Women's and men's relative status and intimate partner violence in India. Population and Development Review, 40(1), 55–75. 10.1111/j.1728-4457.2014.00650.x

Whitehouse B. (2018). The exaggerated demise of polygyny: Transformations in marriage and gender relations in West Africa. In International handbook on gender and demographic processes (pp. 299–313). Springer. 10.1007/978-94-024-1290-1_20

Zhao Z, & Hayes A (2018). In Zhongwei Z & Hayes AC (Eds.), Routledge handbook of Asian demography (1st ed.). Routledge.

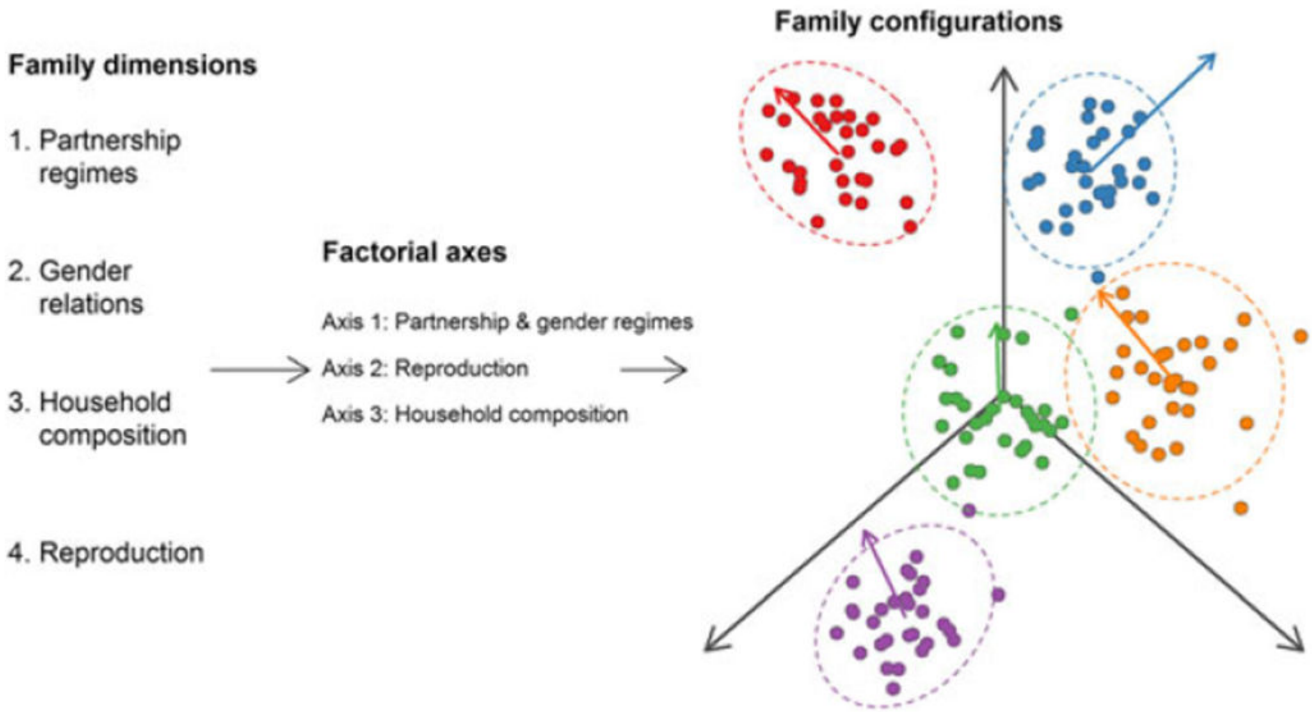

FIGURE 1.
Stylized summary of the analytical approach. *Note:* Points represent urban and rural areas of specific countries. Clusters of closely located points are termed *family configurations*. Arrows represent mean change over time, and confidence ellipses show the relative distinctiveness of *family configurations*. Distance means difference, and proximity means similarity in family characteristics. This figure does not represent real data. The number of significant factorial dimensions, the distribution of units of analysis and their clustering (i.e., the five groups) were chosen randomly

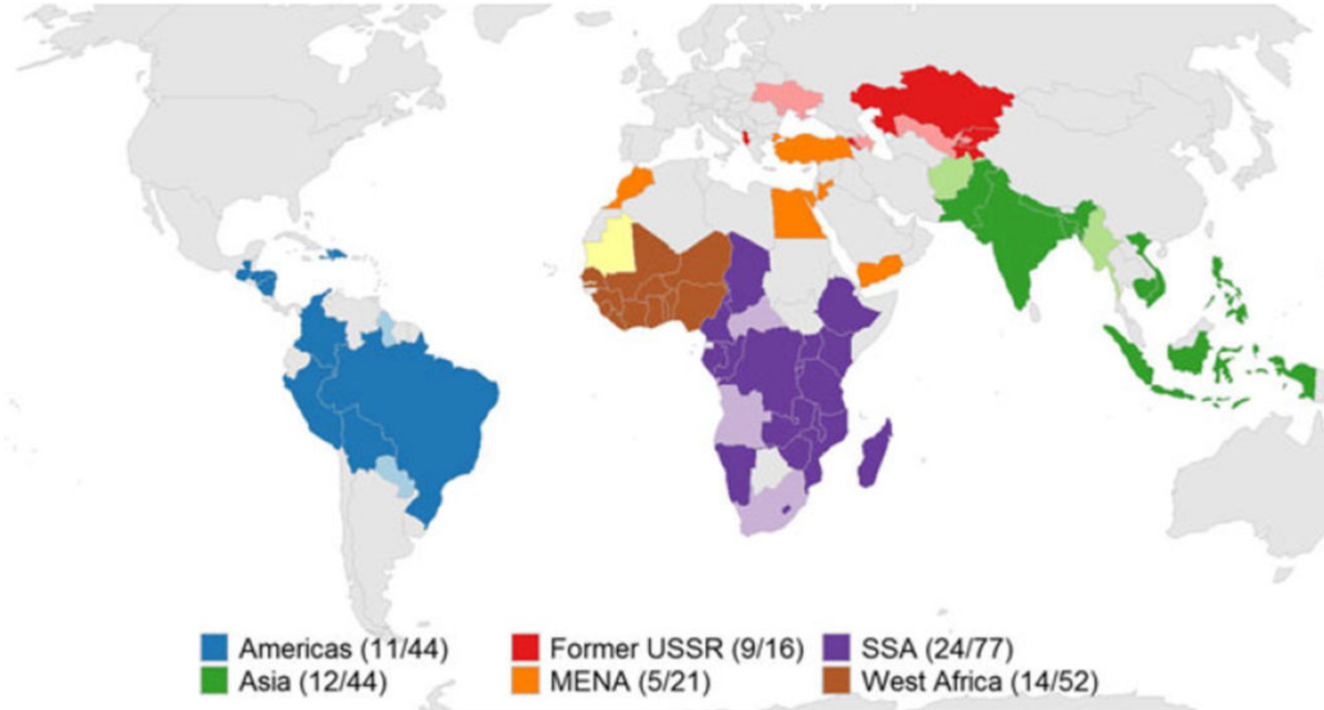

FIGURE 2.

Geographical coverage of the Demographic and Health Surveys, 1990–2017. *Note:* In parentheses number of countries (total 75)/number of waves (total 254). Dark colours correspond to countries with at least two DHS waves (59). Light colours correspond to countries with only one DHS wave. Countries with only one DHS wave are Afghanistan, Angola, Azerbaijan, Central African Republic, Gambia, Guyana, Maldives, Mauritania, Myanmar, Paraguay, Republic of Moldova, Sao Tome and Principe, South Africa, Swaziland, Ukraine and Uzbekistan

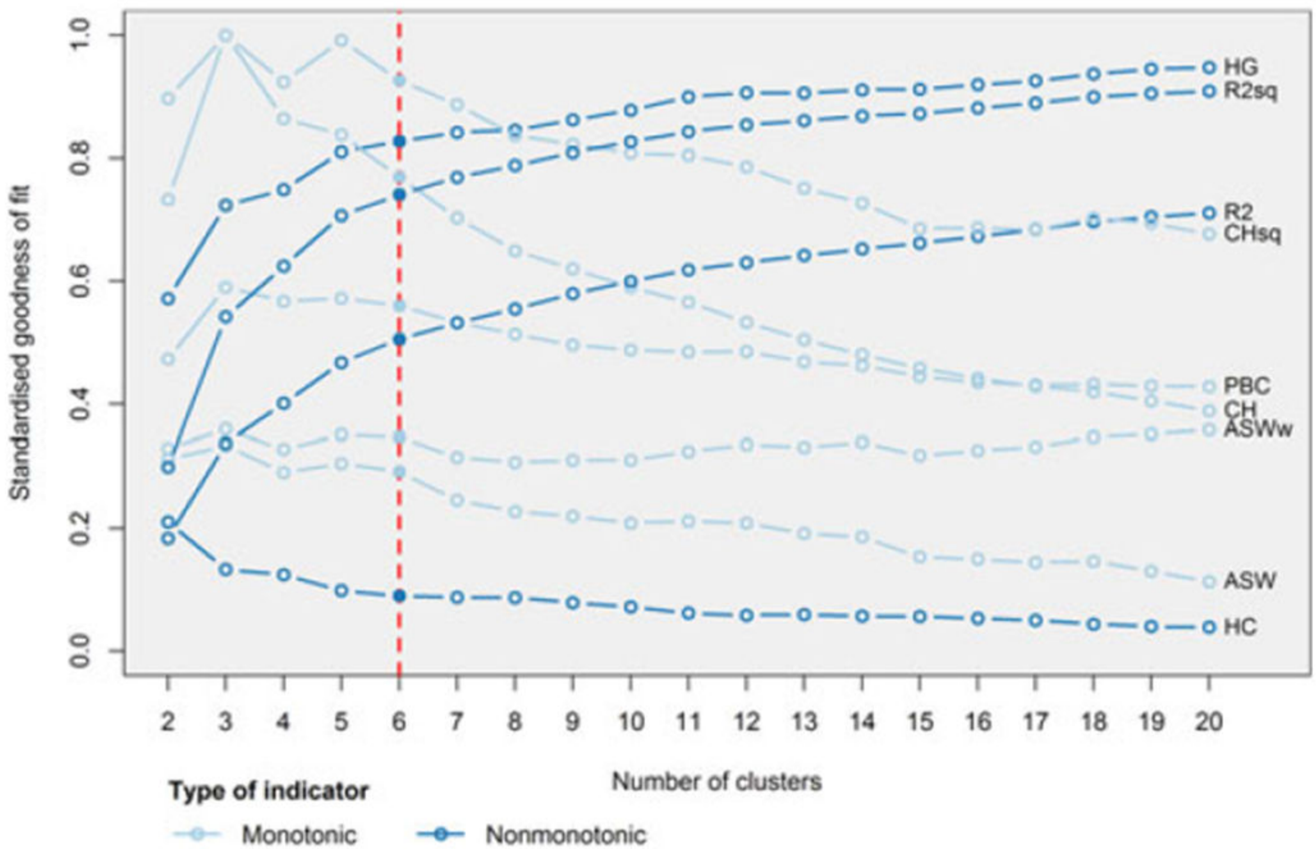

FIGURE 3.

Goodness-of-fit indicators for 19 possible partitions from 2 to 20 clusters. *Note:* HG: Huber's Gamma, R2sq: Pseudo R2 (squared distances), R2: Pseudo R2, CHsq: Calinski–Harabasz index (squared distances), PBC: Point Biserial Correlation, CH: Calinski–Harabasz index, ASW: Average Silhouette Width (weighted), HC: Huber's C, ASW: Average Silhouette Width (unweighted). The CH and CHsq measures are divided by their maximum value across the 19 cluster solutions, 18.3 and 42.6, respectively (three-cluster solution)

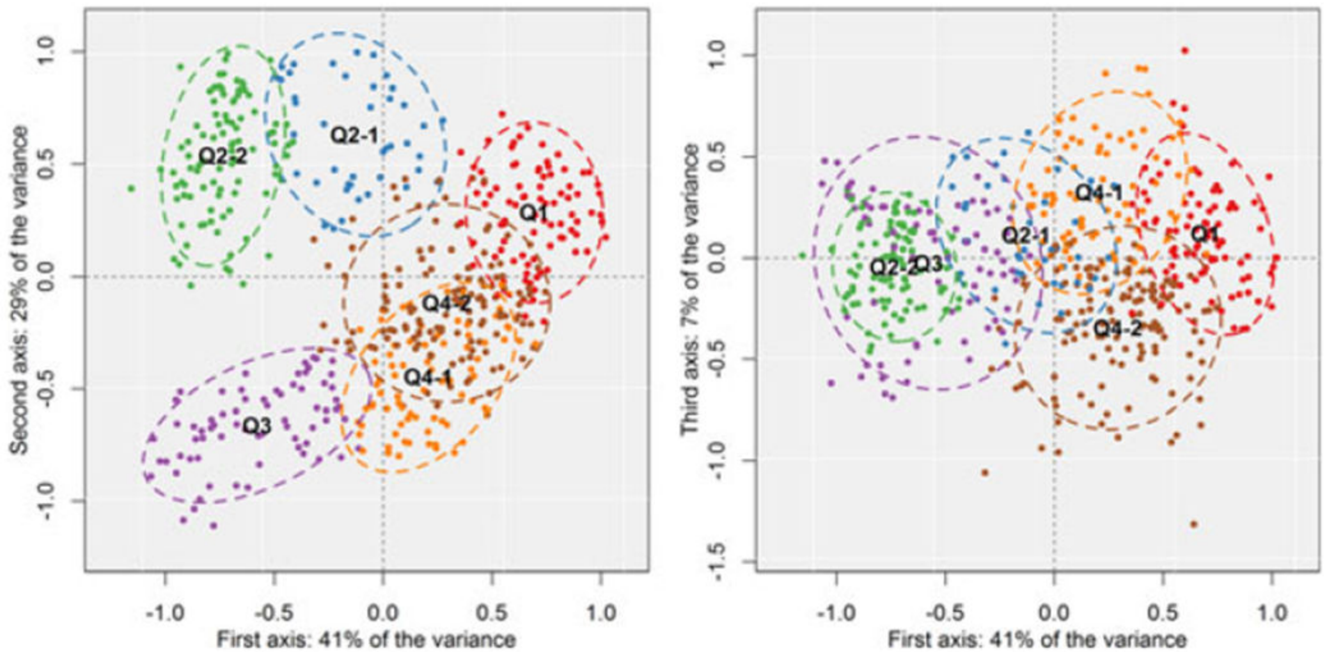

FIGURE 4.

Country-year areas' distribution across factorial axes and 85% confidence ellipses for *family configurations* in the first two factorial planes. Family configurations: Q1, modern-changing; Q2-1, highly-traditional-rigid; Q2-2, highly-traditional-mobile; Q3, traditional-moderately-mobile; Q4-1, non-traditional-lagged; and Q4-2, slightly-vanguard-mobile. *Note*: The centre of each panel ({0, 0} coordinate) corresponds to a theoretical average unit. Negative values in the horizontal dimension correspond to more enduring partnership regimes and gender roles, and positive values correspond to the opposite. From bottom to top, country-year areas are organised according to fertility levels (high to low), intermediate to delayed transitions to family formation, and from a low to a high prevalence of contraception. The vertical axis in the right panel corresponds to the third MCA-axis and separates country-areas where the prevalence of nuclear households is low (top) from countries where this prevalence is high (bottom). Confidence ellipses are drawn based on the within-cluster covariance of the factorial dimensions. All ellipses include 85% of the country-areas in the cluster

Author Manuscript
Author Manuscript
Author Manuscript

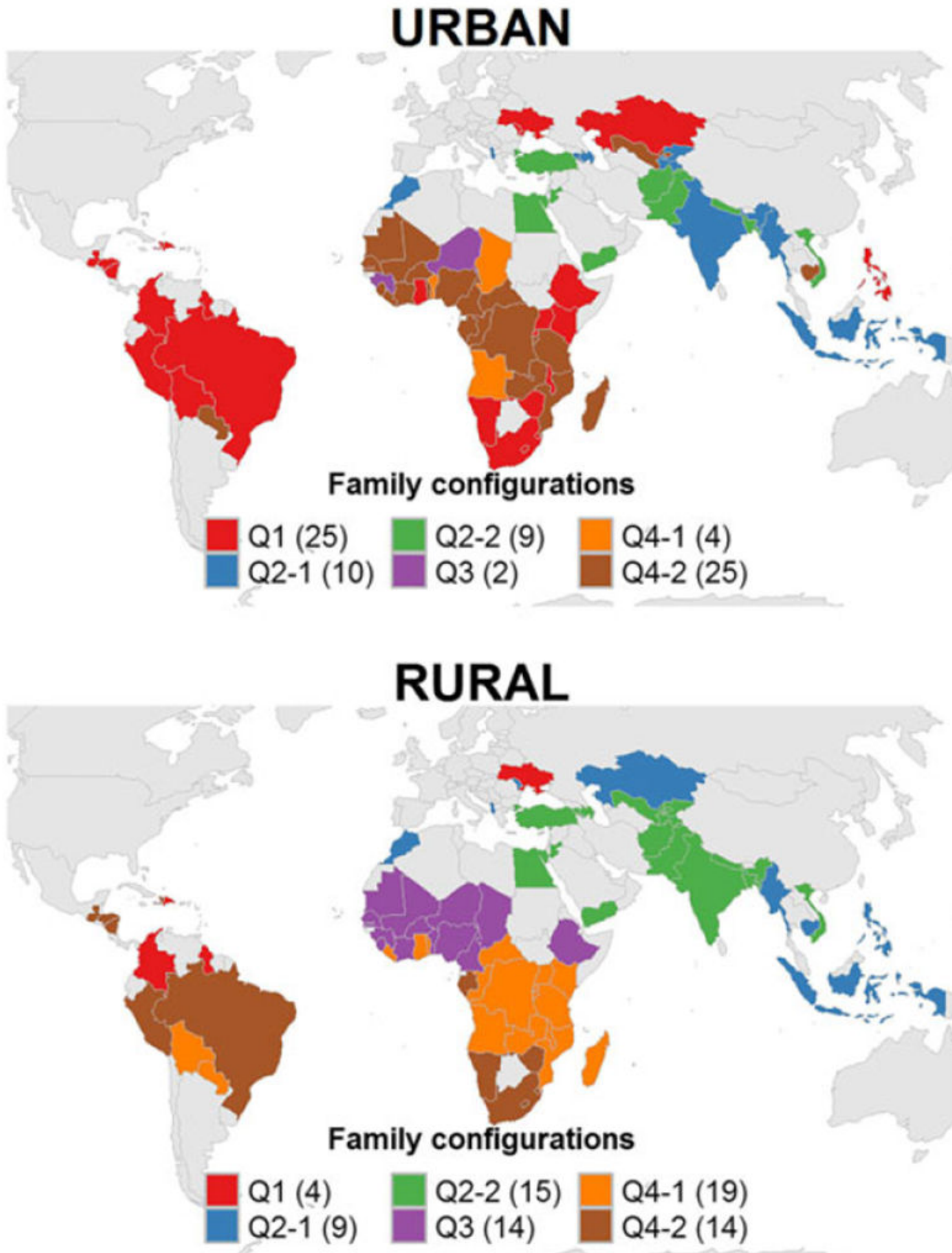

FIGURE 5.

Geographical distribution of *family configurations* by area (urban vs. rural) for the most recent DHS

TABLE 1

Family dimensions and family indicators

Dimension	Characteristic	Short label
Partnership regimes	Proportion of women in cohabitation among never married	Cohabitation
	Proportion of divorced or separated women	Divorce and separation
	Proportion of women married or in union before age 18	Early marriage
	Proportion of women married	Formal marriage
	Proportion of women declaring more than one marriage/union	Remarriage
Gender relations	Average difference between indexed women and their partners	Age diff. between partners
	Proportion couples where women are more educated	Educational hypogamy
	Proportion women working for paid among women in couples	Paid work—couple
	Proportion of women in a couple who are head of their household	Female headship
	Ratio of women without daughters to women without sons	Daughterless/sonless ratio
Household composition	Proportion of multinuclear households	Multinuclear hh.
	Proportion of women living only with couple and children	Nuclear hh.
	Average number of nonrelated household members	Unrelated hh-members
	Proportion of women living only with children	Single mother hh.
	Proportion of women living in three-generation households	Three-generation hh.
Reproduction	Average age at last birth women age 40 to 49	Age at last birth
	Proportion of women age 45 to 49 without children	Childlessness
	Proportion of women with met need for contraception	Contraception
	Net reproduction ratio	NRR
	Singulate mean age at first birth	Age at first birth

Note: Short labels are used in graphs. The NRR and the singulate mean age at first birth (SMAB) are defined as in Preston et al. (2001).

TABLE 2

Percentage contribution of variables to the variance of factorial axes and linear correlations between variables and factorial axes

		First axis			Second axis			Third axis		
Dimension	**Characteristic**	**Contr.**	**Corr.**	**Sig.**	**Contr.**	**Corr.**	**Sig.**	**Contr.**	**Corr.**	**Sig.**
Partnership regimes	Cohabitation	**6.1**	0.57	***	4.6	−0.42		1.5	0.10	
	Divorce and separation	**12.3**	0.85	***	0.7	−0.13		2.4	0.03	
	Early marriage	3.0	−0.13		**11.1**	−0.74	***	0.9	−0.01	
	Formal marriage	**11.9**	−0.83	***	1.3	0.00		1.2	0.02	
	Remarriage	4.2	0.44		**9.6**	−0.62	***	0.8	−0.02	
Gender relations	Age diff. between partners	2.3	−0.18		**7.6**	−0.61	***	3.0	−0.12	
	Educational hypogamy	4.2	0.41		2.1	0.31		3.0	−0.15	
	Paid work–couple	3.4	0.31		**5.6**	−0.59	***	**5.6**	0.18	***
	Female headship	**8.5**	0.67	***	1.7	−0.31		2.9	0.14	
	Daughterless/sonless ratio	**5.9**	−0.52	***	3.1	0.34		1.9	0.01	
Household composition	Multinuclear hh.	**6.1**	−0.57	***	3.1	−0.43		4.9	−0.38	
	Nuclear hh.	0.1	0.00		1.6	0.28		**13.1**	0.60	***
	Unrelated hh-members	3.5	0.30		1.2	−0.27		**8.3**	−0.46	***
	Single mother hh.	**11.2**	0.77	***	0.4	0.01		**5.7**	0.36	***
	Three-generation hh.	0.9	0.07		0.3	−0.09		**11.7**	−0.51	***
Reproduction	Age at last birth	1.5	−0.06		**12.0**	−0.77	***	**11.3**	0.01	
	Childlessness	2.6	0.29		4.4	0.37		2.5	−0.10	
	Contraception	4.6	0.47		**6.9**	0.58	***	2.2	−0.04	
	NRR	1.4	−0.27		**11.4**	−0.73	***	**12.8**	0.12	**
	Age at first birth	**6.1**	0.61	***	**11.3**	0.02		4.2	−0.04	
Sum of contr. above 5%		**68.2**			**75.5**			**68.6**		
Total		100.0			100.0			100.0		
Percentage of the total variance		41%			29%			8%		

+ *Note*: In bold, we report contributions above 5.0% (mean relative contribution). Significance tests were only ran for variables with bolded contributions. Significance levels are represented as +0.1,

* 0.05,

** 0.01 and

*** 0.001.

TABLE 3

Comparison of factorial coordinates, women's decision-making participation and country-level development indicators across *family configurations*

	Family configurations							
	Q1	**Q2-1**	**Q2-2**	**Q3**	**Q4-1**	**Q4-2**	**Overall mean**	**Units (*n*)**
Factorial coordinates								
First axis	0.70^{***}	-0.13^{**}	-0.74^{***}	-0.58^{***}	0.21^{***}	0.29^{***}	0.00	508
Second axis	0.28^{***}	0.63^{***}	0.54^{***}	-0.66^{***}	-0.45^{***}	-0.12^{***}	0.00	508
Third axis	0.12^{**}	0.11^{*}	−0.05	−0.03	0.32^{***}	-0.35^{***}	0.00	508
Decision-making indicators (%)								
Woman's health care	80.9^{***}	81.2^{***}	54.7^{***}	31.7^{***}	59.9	60.3	63.8	324
Large purchases	69.8^{***}	71.0^{**}	47.5^{***}	30.7^{***}	52.4^{+}	54.4	57.4	326
Small purchases	75.4^{**}	66.4	55.4^{**}	40.4^{***}	61.6	67.6	67.2	172
Visits to family and friends	80.9^{***}	80.2^{***}	55.0^{***}	41.8^{***}	66.2	65.9	67.6	324
Food cooked at home	72.7^{+}	70.1^{*}	70.1	57.5^{*}	70.1	72.1	68.2	104
Use of money	73.9^{***}	78.9^{***}	48.7^{*}	23.2^{***}	52.5	58.8	57.1	230
United Nations indicators								
Human development index	0.60^{**}	0.64^{***}	0.57^{+}	0.39^{***}	0.46^{**}	0.51	0.53	486
Gender development index	0.94^{***}	0.94^{***}	0.82^{*}	0.78^{*}	0.89	0.90^{*}	0.88	254
Life expectancy index	0.69^{+}	0.76^{***}	0.73^{***}	0.52^{***}	0.56^{***}	0.61	0.64	502
Income index	0.57^{*}	0.61^{***}	0.57	0.42^{***}	0.43^{***}	0.50	0.52	502
Education index	0.54^{***}	0.57^{***}	0.47	0.27^{***}	0.42^{+}	0.44	0.45	486
Female labour force participation	58.7^{+}	48.5	30.6^{**}	55.7	69.7^{***}	58.9^{*}	52.6	306

$^{+}$*Note*: Significance test were ran under H_O: $\mu_i = \mu$, where μ stands for the overall mean, and i indexes *family configurations*. Significance levels are represented as follows: +0.1,

*0.05,

**0.01 and

***0.001.

Standard errors are clustered at the country-level.

TABLE 4

Percent of urban units by family configuration and changes over time in country-areas coordinates for countries with at least two Demographic and Health Surveys (DHS) waves

	Family configurations						
	Q1	**Q2-1**	**Q2-2**	**Q3**	**Q4-1**	**Q4-2**	**Overall**
Percent urban units	88.4***	54.8***	45.4***	18.6***	17.9***	62.2***	50.0***
Change in MCA-axes							
First axis	−0.09	0.44	0.47*	0.69**	0.46+	0.65***	0.50*
Second axis	1.07***	0.25	0.77***	0.34	0.51*	0.71***	0.63*
Third axis	0.61*	−0.24	0.12	0.25	0.20	0.45**	0.27*
Overall	1.62***	1.36***	1.31***	1.21***	1.35***	1.94***	1.53*
Angle (degrees)	74.6***	3.2	62.8***	13.4	47.9**	39.6***	41.2***
Number of units							
Oldest waves	12	10	22	20	18	36	118
Most recent	22	15	20	14	17	30	118

Note: Significance for the test for H_0: $\mu_i = 0$, where i indexes *family configurations*.

Abbreviation: MCA, multiple correspondence analysis.