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ABSTRACT

Educational Assortative Mating and Harsh Parenting in Sub-Saharan Africa

Leveraging underused information on child discipline methods, this study explores the relationship between parental educational similarity and violent childrearing practices, testing a new potential pathway through which parental educational similarity may relate to child outcomes. The study uses data from Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS) covering 27 sub-Saharan African (SSA) countries. Results suggest that educationally similar couples are less likely to adopt violent childrearing practices relative to educationally dissimilar ones, with differences by age of the child, yet less so by sex and birth order. Homogamous couples where both partners share high levels of education are also less (more) likely to adopt physically violent (non-violent) practices relative to homogamous couples with low levels of education. Relationships are stronger in countries characterized by higher GDP per capita, Human Development Index, and female education, yet also in countries with higher income and gender inequalities. Besides stressing the importance of female education, these findings underscore the key role of status concordance vs discordance in SSA partnerships. Tested micro-level mechanisms and country-level moderators only weakly explain result heterogeneity, calling for more research on the topic.

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1. Introduction

Disciplinary norms differ within and across countries, with some practices including the use of violence. Parenting can be defined as *harsh* when it consists of acts of physical or psychological aggressions as a mean of punishment. In case disciplinary methods result or have the potential to harm the child, then they are considered forms of *child maltreatment*. Compelling evidence from several studies shows that children experiencing even mild forms of maltreatment such as spanking suffer negative consequences which may persist until adulthood (Gershoff & Grogan-Kaylor, 2016; Norman et al., 2012; Pieterse, 2015; Speyer, Hang, Hall, & Murray, 2022). Despite long-lasting adverse effects on child development and wellbeing, violent practices are widespread globally. In low- and middle-income countries (LMICs), nearly three in four children aged 2-4 regularly experience violent discipline by their caregivers (Cuartas et al., 2019). These estimates vary dramatically within and across regions, with areas such as South Asia (SA) and Sub-Saharan Africa (SSA) exhibiting the highest prevalence of aggressive disciplinary practices (Akmatov, 2011). Data from the Demographic and Health Surveys (DHS) reveal that that in countries such as Cameroon and Sierra Leone, the percentage of children aged 2-14 who, according to self-reports by caregivers, experienced violent discipline at home over the previous month is as high as 85 and 82%, respectively.

Variables related to family structure and family composition have been found to affect the risk of harsh parenting. For instance, there is evidence that single-parent families and families with biological mothers and non-biological fathers tend to provide lower-quality childcare which may involve instances of child maltreatment (Berger, 2004). Besides aspects that are purely tied to family composition – which are crucial determinants of child health and wellbeing in intergenerational perspective (Bass & Warehime, 2011; Black, Devereux, & Salvanes, 2005; S. L. Brown, Manning, & Stykes, 2015) – child discipline (CD) may also be related to *joint* socioeconomic characteristics of parents, which have been found to affect decision-making power dynamics within the couple, (dis)agreement on specific parenting practices, as well as material and non-material resources and investments in children (Abufhele, Pesando, & Castro T., 2022; Beck & González-Sancho, 2009; Martin, Ryan, & Brooks-Gunn, 2007; Rauscher, 2020). One such example is parental similarity in terms of human capital, more commonly known as *educational assortative mating*. While extensive research has shown that higher maternal education is associated with better child outcomes (e.g., Chevalier & O'Sullivan, 2007; Currie & Moretti, 2003; Güneş, 2015), as well as higher paternal education is associated with better child outcomes (Chen & Li, 2009; Cochrane, Leslie, & O'Hara, 1982; Rangel & Rauscher, 2021), the social science literature has devoted less attention to understanding whether parents' joint educational characteristics

(controlling for own level of education) bear any relationship with children's outcomes – not to mention with the adoption of specific parenting practices – especially across LMICs. Most research on child discipline concentrates on the United States and reveals that corporal punishment tends to be more prevalent among mothers with lower levels of education (Hines, Kalil, & Ryan, 2022; Ryan, Kalil, Ziol-Guest, & Padilla, 2016; Schneider & Schenck-Fontaine, 2022). Emotional punishment has been overlooked and understudied in poor contexts (with a few exceptions, e.g., Cuartas, 2022).[1]

Building on some recent efforts concerned with better understanding the implications of parental educational similarity for the next generation (Abufhele et al., 2022; Behrman, 2020; Edwards & Roff, 2016; Pesando, 2022a; Rauscher, 2020), this paper aims to contribute to this literature by exploring whether parental educational similarity could be related to the adoption of harsh parenting practices, reflected in instances of child maltreatment, thus providing a pathway through which parental educational similarity may shape child outcomes in early life and across the life course. We are interested in uncovering whether educational assortative mating is associated with the adoption of corporal or emotional violent childrearing practices across multiple LMICs in SSA where child maltreatment is relatively common – a research question which, to the best of our knowledge, has never been investigated. When focusing on specific child outcomes such as birth weight or nutritional indicators (e.g., height-for-age, weight-for-height, etc.), one hypothesis is that partners holding similar levels of education within a couple are likely to experience less stressors within their relationship and higher family stability due to more cooperation and less conflict, which in turn correlate with better outcomes for children in an intergenerational perspective, including health and educational outcomes (Abufhele et al., 2022; Bratsberg, Markussen, Raaum, Røed, & Røgeberg, 2023; Edwards & Roff, 2016). When thinking about harsh parenting, one extension of the above hypothesis might suggest that parents sharing similar levels of education may be more likely to agree that violent childrearing practices are not appropriate and, as such, adopt violent practices less frequently. However, parents with similar education levels may also be more likely to agree that violent disciplinary methods are necessary and thus use them more frequently. Additionally, interesting variation may exist within the group of educationally *homogamous* couples (i.e., couples where both partners have the same level of education), as well as within the group of *heterogamous* ones (i.e., couples where partners have dissimilar levels of education). Similarly, there may be differences across types of punishment, children's characteristics, households, and countries.

This study addresses these questions focusing on 27 SSA countries and leveraging data from Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys focusing

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on a sample of over 125,000 couples with complete information on both partners' education and child-discipline modules. We first explore associations between parental educational similarity and dissimilarity and a range of child discipline outcomes, assessing heterogeneity across punishment types, groups of children, and parental characteristics. In so doing, we further distinguish educationally heterogamous couples between *hypergamous* – husband's education higher than wife's education – and *hypogamous* – wife's education higher than husband's education – couples. We then test potential micro-level mechanisms and leverage country-level variables from the United Nations (UN), the World Bank (WB), the International Labour Organization (ILO), and the DHS/MICS to explore whether the strength and direction of the associations vary by demography-, development-, and gender-related country characteristics.

We believe the comparative focus of this study on LMICs is appropriate for three reasons. First, one mechanism that is discussed in the literature on mating and children's outcomes is parental stress – mostly, mother's stress during pregnancy and following birth. Given that poverty is highly correlated with extreme levels of stress, as individuals living in poverty report on average a greater number of stressful events in their lives than individuals not living in poverty (Aizer, Stroud, & Buka, 2016), the focus of this investigation on LMICs is all the more needed. Second, child maltreatment remains more prevalent in LMICs than in high-income countries (HICs) (Cuartas et al., 2019), with SSA countries being the most severely affected (Akmatov, 2011; Moody, Cannings-John, Hood, Kemp, & Robling, 2018). Third, building on the above literature, we attempt to shed additional light on the micro- and macro-level factors that may underlie the observed heterogeneity – a research endeavor that is only possible by pooling multiple countries.

Our findings reveal that educationally similar couples are less likely to adopt violent childrearing practices relative to educationally dissimilar ones, with results driven primarily by physical – rather than emotional – violence, supporting the idea that children may benefit from consistency in their family environments and more congruent parenting. While differences within the heterogamous group are negligible, i.e., whether the couple is hypergamous or hypogamous does not make a difference, we document variation within the homogamous group whereby couples where both partners share *high* levels of education are less likely to adopt physically violent practices relative to couples with both partners having *low* levels of education, as well as more likely to adopt non-violent CD practices. We also observe stronger associations among higher-educated mothers and fathers, among wealthier households, and for school-aged children. Estimates are widely heterogeneous across countries in the sample, yet demographic, socioeconomic, and gender-related variables at the country level only marginally explain this variability, calling for additional research on the topic.

As one of the main concerns behind parental educational similarity is its potential to widen disparities in the ability of families to invest in their children's development, insights from this study contribute to a better understanding of the inequality debate surrounding the intergenerational transmission of (dis)advantage that may ensue from the adoption of specific parenting practices. Our findings also underscore the importance of female educational expansion, a trend which has resulted in a recent increase in the share of homogamous and hypogamous couples in SSA (Lopus & Frye, 2020; Pesando, 2021) yet, even more, they stress the key role of status consistency and gender symmetry in partnership dynamics in LMICs.

2. Background

2.1   *Existing literature on educational assortative mating and children's outcomes*

While no study has delved into the relationship between parental educational similarity and child discipline, there is now a growing interest in the implications of educational assortative mating for children's outcomes. Focusing on the United States (US), Rauscher (2020) used administrative data on births coupled with Instrumental Variable (IV) techniques to estimate the effects of parental educational similarity on infant health – mainly birth weight, an indicator for low birth weight (LBW), and prenatal visits. Her results suggest that parental educational homogamy is beneficial for infant health, while educational hypergamy is detrimental. In a similar spirit, leveraging birth-register data as well as step-sibling information, Abufhele et al. (2022) used administrative data to look at a related research question in Chile. Their findings also suggest that parents' educational homogamy is associated with a reduced probability of LBW and preterm birth, yet educational hypogamy is detrimental, highlighting the gender-unequal nature of hypogamous couples in Chile, as well as the possible stigma attached to them due to their non-normative nature. Moving towards cognitive, educational and labor market outcomes, using Norwegian register data and counterfactual simulations, Bratsberg et al. (2023) found that mating trends contribute to slight improvements in average education and employment and reduced inequality in the offspring generation. Relatedly, leveraging marital matching models and a combination of US datasets, Edwards and Roff (2016) found that assortative matching on various characteristics including education is significantly associated with a range of indices of child quality measured by cognitive test scores, with associations that are robust to the inclusion of individual parental traits as well as across datasets. Lastly, using rich data from the Fragile Families and Children Wellbeing Study allowing to test for specific mechanisms, Beck and González-Sancho (2009) found a strong and robust positive association between parental educational homogamy and children's school readiness at age five, mostly driven by socio-emotional development outcomes. Underlying these

associations, they identified enhanced levels of parental coordination and similarity of preferences in parenting strategies as key mechanisms, supporting the idea that children may benefit from consistency in their family environments and more congruent parenting. Overall, these studies provide solid single-country evidence with a focus on upper middle- and high- income societies and children's health and educational outcomes across the life course.

Shifting the focus onto LMICs, Pesando (2022) built on these findings to explore the relationship between parental educational similarity and different measures of children's health from birth to adolescence using longitudinal data from the Young Lives (YL) International Study of Childhood Poverty conducted in Ethiopia, India, Peru, and Vietnam. His findings highlight heterogeneity across contexts. In Ethiopia and India, parental educational homogamy is associated with worse health outcomes in infancy and childhood, while associations are positive in Peru and, foremost, Vietnam. In Vietnam, there is also evidence that positive associations persist through adulthood, while in the remaining countries associations tend to fade after age one. He explains this heterogeneity by leveraging a combination of meso- and macro-level variables such as educational expansion, patriarchal norms in the family, dynamics of gender equality within the household and in society, and levels of socio-economic development, finding more positive and robust associations where both gender equality and socio-economic development are higher (i.e., Peru and Vietnam). Nonetheless, the negative associations documented in Ethiopia and Peru are consistent with Behrman (2020), who also found mother's higher relative educational status to be negatively associated with children's height-for-age z-scores in Malawi, contrary to expectations of bargaining theories. These negative findings are also aligned with other work by Behrman (2019) and Weitzman (2014) in India, suggesting higher intimate partner violence (IPV) among women with higher relative education and higher financial independence vis-à-vis their male partners – a finding that is tied to the idea of threatened male domination and challenged patriarchal norms.

Overall, while studies on HICs converge towards the idea that parental educational similarity correlates positively with children's outcomes, scholarship on the topic in LMICs is more heterogeneous, pointing towards an array of scenarios that might have to do with the value that women's education holds in society, the commonality and "normativity" of specific parenting practices and couple configurations, the role that women play within and outside of the family, as well as broader – and, often, uneven – trends tied to industrialization, modernization, and socio-economic development.

2.2   Theoretical perspectives and hypotheses

Key to understanding the intergenerational implications of mating is the sociological interest in family-based social capital and its contribution to the transmission of human capital (Beck & González-Sancho, 2009; Coleman, 1988). Following Furstenberg (2005), we could interpret the implications of parental educational similarity as a form of within-family social capital, whereby educational similarity may translate in a series of parental behaviors and attitudes that enhance the efficacy of parenting practices and investments in children's development by making the flow of information between parents and the coordination of resource-allocation decisions smoother and more friction-less. Considering homogamy as an indicator of homogeneity in preferences and personal monetary and non-monetary resources, we could conceptualize homogamy as a within-couple feature that may positively relate to agreement and coordination within the household, which in turn would increase efficiency in the production of "child quality" and the organization of family life. As such, our first hypothesis is as follows:

> *HP1 ["homogamy-benefit" hypothesis]*: Thinking about harsh parenting, parents sharing similar levels of education may be more likely to agree that violent childrearing practices are not appropriate and, as such, be less likely to adopt them.

On top of the benefits accruing from status consistency – such as concordant preferences and more aligned parenting – we may also expect differences depending on which level of education is shared by both parents. Specifically, it is reasonable to expect different scenarios if both parents share no education vs if both parents share, for instance, a high school degree. This could be the case, for instance, if the mother's and father's educational attainment influence childrearing practices and complementarities exist so that higher paternal schooling increases the effect of maternal schooling on child discipline.[2] As higher socioeconomic status couples hold a higher level of pooled resources (including immaterial resources, such as time and knowledge), we hypothesize that couples' educational similarity may matter differently for people at different places in the educational distribution:

> *HP2 [Homogamy heterogeneity]:* Educational homogamy is more strongly associated with the adoption of less violent or non-violent parenting practices at the higher end of the educational ladder.

As for heterogamous couples, expectations are mixed. On one hand, some US scholarship suggests that we may expect to observe different associations between hypergamous and hypogamous couples, with the latter group exhibiting better child outcomes, reflecting the power of female educational expansion and progressive social norms tied to women's role in advanced societies (Rauscher, 2020). If this is the case, we may expect to observe more beneficial associations

with CD in hypogamous couples (vis-à-vis homogamous and hypergamous). On the other hand, evidence from LMICs cautions against this "rosy" view of hypogamous couples, as hypogamous couples may lead to "new" and "atypical" female roles within the household, including some that may challenge existing conventions (Weitzman, 2014). In theories viewing marriage as an "exchange relationship," cultural expectations put value on different divisions of labor and care roles within the household (Cools & Kotsadam, 2017). Masculinity is conceptualized in relation to femininity, and wives' educational and employment outcomes should be studied in relation to their husbands' (Atkinson, Greenstein, & Lang, 2005; Bertrand, Kamenica, & Pan, 2015; Macmillan & Gartner, 1999). According to *status inconsistency theories*, where new and atypical roles may threaten male dominance (Cools & Kotsadam, 2017; Hornung, McCullough, & Sugimoto, 1981), women having higher education, better occupation, or more resources than men could lead to increased conflict between partners, including more IPV (Ackerson, Kawachi, Barbeau, & Subramanian, 2008; Behrman, 2019; Flake, 2005).[3] One mechanism rests on the idea that expectations about relative status are normative, hence deviations may lead to severe psychological stress (Hornung et al., 1981) and more violence towards children as a result. It could also be that men also use violence towards children, not only towards women, to reinstate their masculinity status within the family. If this is the case, a hypogamy scenario may not be beneficial for children's outcomes and even be characterized by more violent childrearing practices relative to a homogamy one. Considering this debate and given the large and diverse sample of SSA countries included in the study, we refrain from developing a hypothesis and leave this aspect as an empirical investigation.

Children's characteristics are important determinants of the adoption of specific parenting practices. For instance, sex may be relevant as previous scholarship suggests that boys are usually at higher risk of experiencing violent parenting (Cui, Xue, Connolly, & Liu, 2016), albeit not everywhere (Endendijk, Groeneveld, Bakermans-Kranenburg, & Mesman, 2016). As for birth order, parents are often more likely to adopt strict childrearing practices with their first child, followed by a gradual "softening" of parenting practices with later-born children (Hao, Hotz, & Jin, 2008; Lynn Ng, Mofrad, & Uba, 2014). Lastly, distinguishing between preschool and school-age children is sensible to the extent that childrearing practices may be more prevalent among parents with children in school and also represent a response to children's (mis)behavior in schools (Wang, Deng, & Du, 2018). As such, our third hypothesis is as follows:

> *HP3 [Heterogeneity across children]:* Parental educational homogamy is more strongly associated with a reduction in harsh childrearing practices among groups of children that are most affected by violent parenting, namely boys, firstborns, and school-age children.

While the homogamy-benefit hypothesis leads to the expectation that parental educational similarity may be related to a lower likelihood of harsh parenting, this may not be the case in all contexts. As such, it is essential to theorize on country-level factors that may explain cross-country variability, as done by Pesando (2022). Starting from demographic variables, previous research suggests that age differences between partners provide a good proxy for traditional customs and patriarchal norms in LMICs (Carmichael, 2011; Reniers, 2003), as spousal age differences tend to be large in patriarchal societies and societies characterized by patrilineal kinship. These age differences are important drivers of mating patterns and, as such, may affect the relationship of interest (Pesando, 2021). The same holds for marriage-market imbalances in the share of men and women of marriageable ages, as well as imbalances in educational distributions of men and women. Relatedly, measures of socioeconomic development – capturing broader processes of development, modernization, and urbanization – such as GDP per capita, HDI, and schooling levels may positively affect the likelihood of forming homogamous couples. Last, we speculate that gender norms and dynamics – proxied by variables such as women's decision-making in the household, women's participation at work, prevalence of polygyny, etc. – constitute the strongest contextual factor shaping the association of interest (Klevens, Ports, Austin, Ludlow, & Hurd, 2018). For instance, gender inequity has been shown to be positively correlated with violent discipline methods (Klevens & Ports, 2017). In line with Pesando (2022a), we expect that in contexts with rooted gender inequalities within societies and within couples, the potential benefits of parental educational similarity for the adoption of specific parenting practices might be offset and even reversed as male partners feel more threatened by gender-symmetric dynamics. Drawing on the idea that demography, development, and gender-related characteristics at the country level interact with each other to produce an array of different outcomes, our fourth hypothesis is as follows:

> ***HP4*** *[Heterogeneity across countries]:* The relationship between parental educational homogamy and CD outcomes varies across countries. Specifically, we expect educational homogamy to be more strongly associated with a reduction in harsh childrearing practices in contexts characterized by less patriarchal norms and more balanced marriage markets, higher socioeconomic development, and lower gender inequalities.

3. Data and methods

3.1 Sample and variables

This study pools multiple waves from the Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS). MICS are nationally representative household surveys implemented by countries under the UNICEF program developed to provide internationally comparable, statistically rigorous data on the lives of children and women worldwide. These surveys – highly comparable to the DHS in terms of survey structure and sociodemographic variables collected[4] – include a child discipline module (CD) that provides information on the primary caregiver's attitudes and behaviors related to parenting. We consider recent cross-sectional surveys (MICS3, MICS4, MICS5, MICS6, and DHS conducted after 2005) for 27 Sub-Saharan African countries keeping couples with complete information on both parents' education and with a complete CD module. A few restrictions were imposed on the sample to identify the proper analytical focus, namely (i) women between the ages 25-40, as by age 25 most women in SSA have entered their first union and achieved their highest level of education (Esteve, García-Román, & Permanyer, 2012; Pesando, 2021), (ii) women who are currently married or in a union,[5] and (iii) women who have been married only once and are currently in their first and only union – a restriction made to identify the correct information of the latest/most recent husband provided in the data (Casterline, Williams, & McDonald, 1986).[6] These restrictions leave us with a sample of about 125,000 couples with complete information on the main variables of interest, with sample size varying importantly by country.

Table 1 provides information on the analytical sample of countries and survey waves included in the analysis. Countries are further categorized by sub-region, using sub-regional categories provided by the United Nations Statistics Division (UNSD), namely West (14 countries: Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sierra-Leone, and Togo), Central (6 countries: Cameroon, Central African Republic, Chad, Congo, Congo DR, and Sao Tome and Principe), East (5 countries: Burundi, Madagascar, Malawi, Uganda, and Zimbabwe), and South Africa (2 countries: Lesotho and Swaziland). Note that over half of the sample is from West SSA.

[Table 1 about here]

The CD module is adapted from the Conflict Tactics Scale to characterize 11 disciplinary practices in cross-cultural context (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998; UNICEF, 2010).[7] In the MICS3-MICS5 and DHS, the CD module refers to one randomly selected child aged 2-14, while from MICS6 onwards it refers to all children 2-4, plus one randomly selected child aged 5-14. For consistency, in our working sample we keep only one child 2-4 from MICS6 (sampled at random). The main respondent, usually the mother, is asked if she or anyone else in

the household used any of the following punishment methods in the month preceding the interview: (1) "took away privileges," "explained wrong behavior," and "gave something else to do"; (2) "shook him/her," "spanked, hit, slapped on bottom with bare hand," "hit with belt, hairbrush, stick, or other hard object," "hit/slapped on the face, head or ears," "hit/slapped on hand, arm of leg," and "beat up, hit over and over as hard as one could"; and (3) "shouted, yelled, screamed" and "called dumb, lazy, or another name". Items in (1) are categorized as "non-violent discipline," in (2) as "physical abuse" (further categorized as "physical punishment" and "severe physical punishment"), and in (3) as "psychological/emotional abuse" (as in UNICEF, 2010). We then also create a variable for "any violent behavior," pooling 2) and 3) into one unique variable gathering both physical and emotional violence. All CD variables are therefore dichotomous, where the outcome one corresponds to "yes," i.e., experienced over the month preceding the interview.

Focusing on parental education, the MICS and DHS include a categorical and a continuous measure of educational attainment, namely highest level attained and grade attained. The categorical variable is coded as 0 for "no education," 1 for "primary," 2 for "secondary," and 3 for "higher." The continuous variable ranges from 0 to 23. Although the continuous variable offers a more precise measure of schooling achievement, it ignores the importance of academic boundaries, which matter more for determining whether individuals marry "within their group." Most importantly, this latter classification captures similar stages in the educational career, even if these stages represent a different number of years across countries (Frye & Lopus, 2018; Pesando, 2021).[8] As such, we build the couple-level measure of parental educational (dis)similarity – the main predictor of interest – relying on the categorical variables. We define a couple as educationally *homogamous* if both parents share the same level of education and educationally *heterogamous* otherwise. If the husband's level of education is higher than the wife's level of education (H>W), then the couple is coded as educationally *hypergamous*; conversely, if the wife's level of education is higher than the husband's (W>H), the couple is coded as educationally *hypogamous*. Nonetheless, we also include as controls mother's and father's schooling in continuous form. We do this for two related reasons: first, we are interested in the association between joint parental characteristics (mating coefficient) and children's outcomes net of parents' own individual level of education. Second, as the joint predictor is built through the categorical variables, we cannot include as additional controls mother's and father's levels of education in categories as this would result in full collinearity. As such, adding schooling as continuous variables help us circumvent this issue making sure each parent's resources and earning potential are taken into account (Pesando, 2022a; Rauscher, 2020).[9]

The analysis considers a series of individual-, household-, child- and survey-level variables that could potentially explain variability in child discipline outcomes and can be reliably obtained and recoded across both MICS and DHS samples, namely marital status of the woman (currently vs formerly married, as all women in the sample are ever married), age of the woman, age difference between spouses, household location of residence (rural/urban), age and sex of the child, number of household members, number of children below age five in the household, wealth index in quintiles, country dummies and year dummies. Furthermore, albeit on a restricted sample (about a third of the countries), the analysis tests potential micro-level mechanisms including within-household decision-making (DM) power of women, relying on the standard DHS decision-making measure, and dynamics of intimate partner violence (IPV), relying on measures of physical, sexual, and emotional violence over the previous 12 months.[10]

Lastly, to explore cross-country variability in the estimates, we obtain time series of country-level variables that we categorize under the following three labels: demography, socioeconomic development, and gender. Variables in the *demography* group include the male-female difference in mean age at marriage, computed from United Nations Department of Economic and Social Affairs (UN-DESA), husband-wife differences in age, aggregated at the country level from MICS and DHS, the ratio of men 25-29 over women 20-24 from the UN World Population Prospects (WPP), and the ratio of educated men 30-34 over educated women 25-29 from the MICS and DHS. Note that the latter variables were constructed to account for marriage-market potential imbalances in the share of men and women, as well as educated men and women (with "educated" defined as individuals having secondary education or above), which are key drivers of mating dynamics (Eika, Mogstad, & Zafar, 2019; Lewis & Oppenheimer, 2000). Variables in the *socioeconomic development* group include Gross Domestic Product (GDP) per capita, Human Development Index (HDI) among females, Gini coefficient, and mean years of schooling among females, all from the World Bank Development Indicators (WDI). Lastly, variables in the *gender* group include the Gender Inequality Index (GII) from the United Nations Development Programme (UNDP), the female-to-male ratio in labor force participation rates (LFPR) from the WB, the percentage of women in polygynous unions from DHS/MICS, and the percentage of women making decisions alone or jointly with their partners on household purchases from DHS/MICS.[11] Country-level estimates pertain to the same year of the DHS/MICS survey or, if unavailable, to the closest available year.[12] Table A1 in the Appendix provides domain-specific correlations between these country-level variables.[13]

3.2   *Empirical strategy*

We start our analysis by visualizing child discipline outcomes as well as prevalence of educational homogamy, hypergamy, and hypogamy across countries. We then run a series of Linear Probability Models (LPM) predicting child discipline outcomes – CD_{ict} with i standing for child, c country, and t survey year – as a function of educational homogamy, hypogamy, and hypergamy (par_educ_sim), controlling for parents' own schooling ($schoolingW$ and $schoolingH$). Model (1) includes the joint education variable (i.e., the mating variable) as well as husband's and wife's grade attained; model (2) adds individual- and child-level controls such as age of the woman, age difference between spouses, marital status, sex of the randomly selected child, and age of the child; finally, model (3) adds household-level controls such as wealth index, rural/urban location of residence, number of household members, and number of children in the household below age 5 (full specification, *henceforth*, with a vector including all controls labeled *X*). For the sake of conciseness, only full-specification models are reported in the body of the paper and graphs with coefficients of interest (β) are chosen over tables, wherever possible. All models account for DHS/MICS survey weights, estimate cluster-robust standard errors at the Primary Sampling Unit (PSU) level, and control for country (ζ_c) and survey-year (η_t) fixed effects (eq. 1).

$$CD_{ict} = \alpha + \beta par\_educ\_sim_{ict} + \gamma schoolingW_{ict} + \delta schoolingH_{ict} + \vartheta X_{ict} + \zeta_c + \eta_t + u_{ict} \qquad (1)$$

Figures plotting interaction coefficients (ρ) between the mating variables and the moderators – be them individual-, child-, household-, or country-level – are provided to assess whether associations differ by relevant sociodemographic and geographical groups (eq. 2). As far as country-level variables are concerned, we run analyses keeping them both as continuous, as well as dichotomized as above (=1) or below (=0) median.

$$CD_{ict} = \alpha + \beta par\_educ\_sim_{ict} + \rho(par\_educ\_sim_{ict} \cdot moderator_{ict \ (or \ "ct" \ or \ "c")}) + \gamma schoolingW_{ict} + \delta schoolingH_{ict} + \vartheta X_{ict} + \zeta_c + \eta_t + u_{ict} \qquad (2)$$

We acknowledge upfront that none of our analyses can be deemed causal and that selection into partnership and into specific couple configurations is not random. Although reverse causality is less of a concern in this setting, endogeneity due to omitted variable bias and selection on unobservables still is. Controlling for both mother's and father's education partially helps address the concern that some other factors may drive both parental educational similarity and child discipline (Rauscher, 2020). Yet socioeconomic inequalities on the marriage and employment markets and/or maternal preferences for specific characteristics in a spouse or partner could bias the estimates by influencing educational similarity and child discipline simultaneously (Abufhele et al., 2022). We highlight these aspects as fundamental yet also recognize that identifying a source of exogenous variation in this context – even more in a cross-country comparative scenario – is

extremely challenging. As such, we conduct this descriptive analysis relying on a wealth of unique data to cast light on an under-explored topic such as child maltreatment in SSA as well as hoping to spur additional research that may shift this nascent literature in a more causal direction.

4. Descriptive statistics

Table 2 reports descriptive statistics on the CD outcomes of interest, as well as on the country-level moderators. Summary statistics are computed on the overall pooled analytical sample of 27 countries and, for countries with multiple waves, estimates provided are averages across waves. Evidence from Table 2 suggests that violent childrearing practices are widespread across this sample of LMICs. For instance, 72% of caregivers report some sort of physical punishment in response to child behavior, which reduces to 22% when only severe physical punishment is considered. These percentages are driven primarily by spanking, hitting, or slapping children on the bottom with the hand – reported by approximately 47% of caregivers – shaking (36%), and hitting or slapping children on the hand, arm, or leg (34%). Emotional punishment is even higher, as 77% of caregivers report either shouting, yelling, screaming at the child, or treating her/him as an idiot. Therefore, when looking at a combined violence index which considers both physical and emotional violence, estimates are remarkably high, over 85% of the sample reporting some sort of violent childrearing practice, in line with estimates by UNICEF (2010). Across the 27 countries, the average difference in age at first marriage between men and women is 5.5, while spousal differences in age average around 8. When looking at marriage-market imbalances, the ratio of men 25-29 to women 20-24 is less than 1 (0.8), suggesting a favorable market for men in terms of number of women of marriageable ages, while the ratio of educated men 30-34 to educated women 25-29 is higher than 1 (1.6), confirming the predominantly hypergamous nature of couples in SSA. In this sample of countries, the average HDI is 0.4, and mean years of schooling among women equal 3.4. Not least, 29% of women are in a polygynous union, and 35% of women make decisions alone or jointly with their partners on household purchases.

[Table 2 about here]

Figures 1 and 2 provide a more nuanced picture of, respectively, child discipline and educational configurations of couples across countries in the analysis, with estimates limited to the most recent available year for each country.[14] The map reveals that there is little variation in the adoption of non-violent practices, with estimates over 73% across all countries, but highest in Guinea Bissau (94%) and Madagascar (90%). Physical punishment and severe physical punishment tend to be highest in Central and West Africa, with particularly high estimates in the Democratic

Republic of Congo (81% and 37%, respectively). Conversely, emotional violence is less clustered by sub-region, with Guinea Bissau exhibiting lowest estimates (45%) and Benin and Ghana the highest ones (86%). As some families may adopt both non-violent and violent childrearing practices simultaneously, Appendix Figure A1 provides alternative estimates on "exclusive" vs "concurrent" prevalence of different types of CD practices. Estimates reveal that, indeed, in every country over a half of all households adopt a combination of violent and non-violent ones.

[Figure 1 about here]

As for mating patterns, on the pooled sample we observe that 65.3% of couples are educationally homogamous – i.e., homogamy remains the normative couple configuration in SSA – followed by 24.5% that are hypergamous and 10.2% that are hypogamous. Highest prevalence of homogamous couples is observed in West Africa, particularly in Burkina Faso (80%), Niger (79.6%), Mali (74%), and Mauritania (74%). Lowest prevalence is instead observed in Togo (45%), Lesotho (50%), and Liberia (51%). As for educational hypergamy, high prevalence is observed in Togo (49%), Central African Republic (47%), and Liberia (40%). Relatedly, countries with lowest prevalence of hypergamous couples tend to be the ones with highest prevalence of hypogamous ones, primarily in South SSA, namely Lesotho (49%) and Zimbabwe (38%). While hypogamy is on the rise globally due to massive female educational expansion (Esteve et al., 2012, 2016), such phenomenon is occurring more slowly in sub-Saharan Africa than in other LMICs, particularly in Central SSA (Pesando, 2021).

[Figure 2 about here]

5. Results

5.1 *Main associations*

Figure 3 shows estimated coefficients from full specifications across three panels, namely homogamy versus heterogamy (top panel), hypergamy versus remaining couples (middle panel), and hypogamy versus remaining couples (bottom panel). A first glance at the results reveals marked differences between the homogamy panel and both the hypergamy and hypogamy panels, which are rather alike. Specifically, the homogamy panel suggests that couples where partners hold similar levels of education are significantly less likely to adopt violent childrearing practices relative to couples where partners hold different levels of education. This is particularly true for physical punishment, for which the estimated coefficient indicates that couples holding similar levels of education are 0.8 percentage points less likely to engage in physical punishment relative to heterogamous couples (corresponding to about a 1.2% decrease) – an estimate which drives the

coefficient on the combined "any violent punishment" outcome. Except for non-violent practices, where the coefficient is virtually zero, coefficients on the remaining CD outcomes are also negative in sign, yet indistinguishable from zero at the 5% level. Evidence from the hypergamy (middle) and hypogamy (bottom) panels is almost specular – i.e., hypergamy and hypogamy are associated with a higher likelihood of adopting violent childrearing practices – suggesting that what matters for the adoption of specific childrearing practices is status consistency (homogamy) versus inconsistency (heterogamy), regardless of the direction of such inconsistency (H>W or W>H). Coefficients in the hypogamy panel are not statistically different from zero, most likely due to how uncommon this couple configuration still is, relative to the other two.

[Figure 3 about here]

Corresponding estimates on all predictors are reported in Appendix Table A2. Positive predictors of child discipline robust across specifications include wife's education, child being male, age of the child, and number of children below five in the household. While the latter three are in line with UNICEF (2010), mother's education is not. While mother's education is negatively correlated with child discipline in a bivariate scenario, its sign switches once the joint parental educational variable is included, as done in this setting, suggesting that higher female education may threaten conventional norms leading to higher household instability and, ultimately, more violence (Behrman, 2019; Weitzman, 2014). Conversely, household wealth emerges as a strong negative predictor of violent punishment. Despite seemingly low (~1%), the estimated homogamy coefficient is close in magnitude to some of the strongest predictors of child discipline, such as child sex and child age. As the reference category in the middle and bottom panels include all remaining couples, in Figure A2 we run the same specification keeping only homogamy as reference category. Results are virtually unchanged (even stronger), suggesting that homogamy vs heterogamy provides the relevant comparison in this setting – hence our focus in the remainder of the paper.

5.2   Variation within the homogamous group

While differences within the heterogamous group are negligible, i.e., whether the couple is hypergamous or hypogamous makes little difference for explaining CD outcomes, heterogeneity may exist within the group of homogamous couples. Figure 4 presents results from a full specification where only the sample of homogamous couples is kept, and couples where both partners have the same *high* level of education (secondary or above) are compared to couples where both partners have the same *low* level of education (none or primary).[15] Results reveal no real differences between high- and low-homogamy couples in terms of physical and emotional

punishment. Nonetheless, high-homogamy couples are significantly more likely adopt non-violent methods and significantly less likely to adopt severe physical punishment relative to low-homogamy couples. These findings further underscore the importance of female educational expansion provided status consistency within the couple is met.

[Figure 4 about here]

5.3   *Heterogeneity by individual and household characteristics*

We next explore whether there is any heterogeneity in the estimates by individual- and household-level socioeconomic characteristics. To do so, we run full specifications interacting the homogamy dummy with mother's education, father's education, household wealth (in quintiles), and household location of residence, and we then plot the resulting linear combinations. Figure 5 shows that homogamy is more strongly associated with a decrease in physical punishment among high-educated mothers and high-educated fathers, aligning with findings in Figure 4. For fathers, this result also holds for emotional violence.[16] We observe something similar for household wealth: homogamy is more strongly associated with an increase in non-violent practices and a decrease in physical punishment among the wealthiest (Q5). Conversely, variation in estimates is negligible by household location of residence, although the magnitude of the coefficients in urban areas is stronger, i.e., more positive for non-violent practices and more negative for physical and emotional violence, suggesting that the association between homogamy and CD is stronger in urban areas, albeit not statistically significant.

[Figure 5 about here]

5.4   *Heterogeneity by child characteristics*

Understanding whether homogamy is more strongly associated with CD among groups of children that may be more strongly affected by CD itself – namely, boys, firstborns, and school-age children – is crucial. Therefore, in Figure 6 we conduct a similar exercise exploring variation across groups of children, namely by sex, birth order, and age by plotting linear combinations from interactions terms between homogamy and these characteristics. Results are rather similar between boys and girls, with slightly stronger negative associations between homogamy and physical violence for girls. Differences by birth order are also weak and not statistically different across groups, yet the positive association between homogamy and non-violent practices is stronger among firstborns, as well as the negative association between homogamy and physical violence. Heterogeneity by age of the child is more noticeable, with stronger negative associations between homogamy and all types of violence among school-age kids. In other words, couples where partners hold similar

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levels of education are less likely to adopt harsh parenting practices with school-age children relative to partners with different levels of education, while no significant differences are observed for preschool-age children. Related estimates, yet with analyses conducted separately by sub-group, are provided in Figure A3.

[Figure 6 about here]

5.5   Potential micro-level mechanisms

Relying on comprehensive decision-making and IPV modules in the DHS subsample of countries, we assess whether our main finding supporting the homogamy-benefit hypothesis is consistent with more balanced decision-making and power dynamics within the couple – which we measure through DM and IPV outcomes. Contrary to expectations, Figure A4 shows no significant associations between parental educational similarity and DM and IPV outcomes. While this may suggest that, indeed, benefits accruing from homogamy are not driven by higher agreement within the household – lending, potentially, more support to the "stress" mechanisms, which we cannot test with the current data – we believe the weak estimates are also tied to far smaller samples and sample sizes by country.

5.6   Heterogeneity by country

While the above estimates control for country fixed effects, results for specific countries are widely heterogeneous in terms of both sign and magnitude – see, for instance, Appendix Figure A5 reporting country-specific estimates for physical and emotional violence.[17] As such, we attempt to explore whether a series of country-level variables – classified into demography, socioeconomic development, and gender – may help explain this cross-country heterogeneity. We do so in two ways: first, we run full-specification models interacting the homogamy dummy with the continuous country-level variable (Table A3).[18] Second, we categorize each country-level variable as above or below the median (p50) and produce a series of graphs plotting interaction coefficients between homogamy and these medians (Figure 7).[19]

Despite the broad range of variables and domains considered, these country-level moderators explain surprisingly little heterogeneity. Leaving aside considerations of statistical significance,[20] within the demography panel we observe that homogamy is more strongly associated with a reduction in physical and severe physical violence where the male-female difference in age at marriage is smaller; similarly, homogamy is more strongly associated with a reduction in emotional violence where the ratio of educated men to educated women is higher. Within the development panel, homogamy is more strongly associated with a reduction in severe

physical violence where GDP per capita and female HDI are higher. Two of the most robust results, however, pertain to the Gini coefficient and female education. For the former, associations with physical, severe physical, and emotional violence are more beneficial in contexts characterized by higher inequalities. For the latter, female education turns out to play a crucial role for the adoption of non-violent practices. Homogamy is more strongly (and significantly) associated with a higher likelihood of adopting non-violent practices in countries characterized by higher female education. The inequality aspect is further confirmed in the gender panel. Not only income inequality matters, but also gender inequality, as results show that homogamy is more strongly associated with reductions in physical, severe physical, and emotional violence in contexts characterized by higher gender inequalities. Conversely, results on female labor force, polygyny, and decision-making are inconsistent.

[Figure 7 about here]

6. Conclusions and discussion

Leveraging underutilized comparative information on harsh parenting, this study has explored associations between parental educational (dis)similarity and parents' likelihood of adopting specific disciplinary practices with children. We have used data from MICS and DHS covering 27 sub-Saharan countries including information on both parents' education, as well as complete child-discipline modules. Descriptive figures reveal that violent disciplinary practices are extremely common in this sample of LMICs, with about 72% and 85% of caregivers reporting some sort of physical punishment and emotional violence, respectively, in response to child behavior.

Associations between parental educational similarity and CD outcomes partially confirm some of the hypotheses outlined in the Background. In line with the *homogamy-benefit hypothesis*, whereby couples where both partners hold similar education tend to experience less conflict within the couple and higher agreement on decision-making practices, including parenting styles, our results suggest that educationally similar couples are less likely to adopt violent childrearing practices relative to educationally dissimilar ones, with this result being particularly strong for physical punishment [*HP1*]. Conversely, status inconsistency in education, irrespective of which partner holds higher education, is associated with a higher likelihood of adopting violent childrearing practices. This is particularly the case among hypergamous couples, but it is also observed – albeit to a lesser extent, primarily due to the lower prevalence of this couple configuration – among hypogamous couples. In a context of massive female educational expansion and, as a result, an increasing share of homogamous and hypogamous couples being

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formed, this latter finding is concerning, as it suggests that higher relative status among women may not translate into better decision-making power within the household. In line with findings from Behrman (2019), Pesando (2022b), and Weitzman (2014), such outcome may have to do with the non-normativity of hypogamous couples in SSA and, as such, their somewhat stigmatized nature which may challenge rooted patriarchal norms and threaten the idea of male domination. These results are also aligned with *status inconsistency theories* (Hornung et al., 1981), suggesting that relatively more female resources could exacerbate stress induced by status inconsistencies, in turn leading to undesirable outcomes such as, for instance, more within-couple conflict, higher IPV, and more violent childrearing practices (Cools & Kotsadam, 2017). These are novel results as, to the best of our knowledge, no other study has explored the status inconsistency hypothesis in the realm of child maltreatment.

A note on the size of the estimated association: we found that couples holding similar levels of education are 0.84 percentage points less likely to engage in physical punishment relative to heterogamous couples (corresponding to about a 1.2% decrease), and couples holding similar levels of education are 0.96 percentage points less likely to engage in any type of violent punishment (corresponding to about a 1.1% decrease). While a 1% change can be deemed negligible, we stress again that this is pretty much equivalent to estimated associations on some of the strongest predictors of child discipline (UNICEF, 2010), such as child's sex and number of children in the household (Table A2). As such, rather than regarding this finding as negligible, one potential question for further research relates to what else could explain variation in child discipline that scholars have currently not considered.

As a refinement to the homogamy-benefit hypothesis, we further found that, while there is little variation within the heterogamous group (i.e., across hypogamous and hypergamous couples), variation within the homogamous group is substantial, depending on partners' level of education. Couples where both partners share high levels of education are less likely to adopt physically violent practices relative to couples with both partners having low levels of education, as well as more likely to adopt non-violent CD practices [*HP2*]. As such, our main result in this study underscores the key importance of female education provided status consistency within the couple is not transcended. We also believe there is reason to expect findings for hypogamous couples to change for the better in the future, provided that further female educational expansion brings along socio-cultural shifts in gender ideologies and social norms surrounding the role of the male breadwinner (Abufhele et al., 2022).

Looking at heterogeneity by individual-, household-, and child-level characteristics, we found that homogamy is more strongly associated with a reduction in violent childrearing and an increase in non-violent childrearing among higher-educated mothers and fathers, as well as among wealthier households, further corroborating *HP2*. As for child characteristics, our hypotheses were only partially confirmed. While we did find stronger associations among school-age children (vs preschoolers) and, qualitatively speaking, among firstborns (vs later-born), parental educational (dis)similarity is similarly associated with the adoption of harsh parenting practices towards male and female children [*HP3*].

Lastly, despite the broad range of variables chosen, country-level predictors contributed little to explaining cross-country variability in estimated associations [*HP4*]. As such, further analyses are needed to better explore whether associations are stronger where socioeconomic development is higher and gender inequalities are lower, as hypothesized. While we did find some weak evidence that the negative association between parental educational similarity and violent disciplinary practices is stronger where GDP per capita is higher and female education is higher, we also found the same result in contexts characterized by higher Gini coefficients and higher gender inequalities (as measured by GII). As such, findings related to gender are blurred, underscoring how complex and interlinked female educational expansion and changes in gender dynamics within and outside households are, especially in LMICs.

This latter finding showcasing higher benefits of parental educational homogamy for the adoption of specific parenting practices in contexts characterized by higher inequalities is novel in the literature. Albeit puzzling and counter to our hypotheses, it has important implications in that it characterizes status-consistent mating patterns as a potential "compensatory mechanism" to correct existing socioeconomic inequalities by income, wealth, and gender. Overall, thinking about policy implications ensuing from this study, we stress once again that educational expansion is a powerful tool for societal change in SSA, yet it is not enough to bring about sociocultural shifts in rooted social norms surrounding the role of women within households and in society. Policymakers should complement human capital interventions with a much broader range of gender-sensitive policies such as community-, school-, and workplace-based interventions to shift norms around gender equality, equal care roles, and gender-based violence – many of these explicitly targeted to men.

This study has some limitations that lay the ground for subsequent research on the topic. First and foremost is the lack of causal identification. Throughout the manuscript we shied away from using the term "effect," and restate here that we documented associations that may be biased

by endeogeneity. Alternative strategies relying on potential sources of exogenous variation should be considered to minimize this bias, yet these are hard to implement with a research question of this kind, as well as in cross-country comparative scenarios. Country-specific studies might be better suited to address this specific concern. Second is the inability of identifying clear mechanisms, primarily due to the comparative nature of the work and the lack of adequate mediators comparable across all these countries. We made a first attempt to focus on decision-making power within the household and IPV, yet findings are weak, perhaps due to the limited sample sizes. We believe that lower parental stress in homogamous couples may be a plausible mechanism underlying the applicability of the homogamy-benefit hypothesis and highlight this as a promising area for future research. Third is the lack of explanatory power of many country-level moderators, which leaves some of the underlying drivers of cross-country heterogeneity in the estimates unexplained. While this is a finding in and of itself, open questions remain about what could explain such cross-country differences.

Despite the above limitations, this analysis is – to the best of our knowledge – unique in its attempt to bring the study of the intergenerational implications of parental educational assortative mating to a cross-country context, focusing on some of the poorest countries in the world as well as on an oft-neglected global social issue such as harsh parenting, which affects most children in the world. Future research may capitalize on this study and bring the analysis of this relationship to a truly global scale using pooled nationally representative surveys and a much wider array of micro-, meso-, and macro-level variables. In this direction, building on some recent literature examining the effect of religiosity on parenting and suggesting that religious parents usually exhibit a more positive attitude towards corporal punishment (Doepke, Sorrenti, & Zilibotti, 2019; Doepke & Zilibotti, 2019), we believe a focus on religion may provide a promising direction.

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Endnotes

[1] Related works emphasize the positive relationship between economic disadvantage and harsh parenting (D. Brown & De Cao, 2020; Lindo, Schaller, & Hansen, 2018).

[2] Previous research has shown that maternal educational attainment reduces harsh corporal punishment in Uganda (Cuartas, 2022).

[3] All the cited studies refer to IPV and suggest that when masculinity norms are threatened by women's education or labor market participation, men may adopt violent practices to reinstate their status. One hypothesis is that they may also use violence against children to reinstate their status. Nonetheless, we are not aware of any previous work supporting this finding. As such, we prefer to keep cautious and abstain from elaborating a related hypothesis.

[4] Yet MICS have far lower sample sizes, usually.

[5] We make no distinction between marriage and cohabitation and simply rely on the DHS and MICS definition of marital unions as both civil and customary marriages, both of which are prevalent in the African context (Van de Walle & Meekers, 1994). This is standard practice in this literature and in settings in which the definition of unions is ambiguous and the process of union formation is fluid (Casterline et al., 1986; Clark & Brauner-Otto, 2015; Pesando, 2021).

[6] To enhance the probability that both partners contribute to raising and disciplining children, we also further restricted the sample to partners who live together in the same household. As results were unchanged, we dropped this restriction to maximize sample size.

[7] For additional details on this scale and its applicability across different countries and cultural contexts, see UNICEF (2010).

[8] In his study of educational assortative mating across 39 SSA countries, Pesando (2021) makes a comparison between the continuous and categorical variables, showing a high degree of consistency between the two measures.

[9] Note that this is part of a much broader debate focused on how to solve this identification problem, on which there is no consistency in the literature to date. The open methodological question relates to how to deal with the issue of disentangling the homogamy/heterogamy coefficients from the additive coefficients of mother's and father's education. Identifying the former is made difficult by the collinearity between mother's education, father's education, and the difference between the two (Eeckhaut, Van De Putte, Gerris, & Vermulst, 2013), in a spirit similar to the Age-Period-Cohort (APC) dilemma. Social mobility scholars have dealt with similar issues for decades, and there is an ongoing yet unresolved debate as to what method should be preferred, including alternatives such as Duncan's Square Additive Model (SAM) (Duncan, 1966), Sobel's Diagonal Reference Model (DRM) (Eeckhaut et al., 2013; Sobel, 1981, 1983), or more recent and

elaborate options such as the Mobility Contrast Model (MCM) suitable to analyze heterogeneous effects of mobility (Luo, 2022). In line with related research by Pesando (2022a) and Rauscher (2020), in this paper we have opted for a simple model specification. Other "simple" approaches include – on top of the assortative mating coefficient – the average of mother and father's education and its squared term as a way to measure pooled household resources (Abufhele et al., 2022). Previous research suggest that these different model specifications provide very similar results.

[10] Analyses of these mechanisms are only possible on the DHS sample due to data availability. As such, analyses using decision-making outcomes are restricted to nine countries (Benin, Burundi, Chad, Congo, Democratic Republic of Congo, Liberia, Niger, Togo, and Uganda), while analyses using IPV outcomes are restricted to six countries (Benin, Burundi, Democratic Republic of Congo, Liberia, Togo, and Uganda). The reason why IPV analyses are conducted on an even smaller sample is because not all countries include a domestic violence module and, most importantly, the DHS team randomly selects one woman from the eligible women in the household for the optional individual questionnaire for this module. As such, the number of women with information on domestic violence is lower than the number selected for the complete DHS individual interview (Pesando, 2022b). We focus on measures of decision-making power in the following domains: health care, household purchases, visits to family and friends, management of the husband's money, contraception, and ideal number of children. I code each of these as dummy variables that equal one if the woman or the woman jointly with the partner/husband is the main decision maker in each of these domains, and zero otherwise. As for IPV, we build indicator variables for emotional, physical, and sexual violence experienced over the previous 12 months. Therefore, all of these outcomes are binary.

[11] We are aware that the classification of country-level variables by domain may appear discretional. For instance, female years of schooling may pertain to the "development" domain as well as the "gender" one. Nonetheless, we labeled "gender" all those variables that explicitly include a between-partner or between-sex component as well as incorporate some gender-norm element. At any rate, this classification is inconsequential; it is just meant to ease analytical tractability. For full clarity, the HDI is a composite measure of human development encompassing average achievements in three basic aspects of development: health, knowledge, and standards of living. A high HDI value indicates high human development and vice-versa. GII is a composite metric of gender inequality using three dimensions: reproductive health, empowerment, and the labour market. A low GII value indicates low inequality between women and men, and vice-versa.

[12] All datasets – including the time-series country-level file we built ourselves – and codes will be made publicly available in an open-access repository upon manuscript acceptance.

[13] This Table suggests that, despite logical high correlations between some variables (e.g., difference in age between partners and difference in age at marriage in society between men and women), these variables capture different constructs.

[14] Evidence from maps including all available waves for each country, taking the average across waves, is unchanged.

[15] About 70% of the sample of homogamous couples falls into the latter group.

[16] Confidence intervals are wide for these groups (mothers and fathers with higher education), as the share of individuals with higher education is very low.

[17] Results on the remaining outcomes show an analogous level of heterogeneity.

[18] To assess the suitability of these predictors, Appendix Tables A4 and A5 provide raw estimates relating these country-level predictors with educational homogamy, hypergamy, and homogamy (Table A4) and CD outcomes (Table A5). Estimates across panels are as expected. For instance, in Table A4 a higher ratio of educated men over women is negatively associated with likelihood of hypogamy; higher GDP per capita is positively related with homogamy but negatively with hypergamy; a higher HDI among females, a lower GII (i.e., lower inequality), and a higher share of women making decisions in the household are associated with a higher likelihood of hypogamy; higher inequality measured by Gini is associated with a higher likelihood of hypergamy; and a higher share of women in the labor force is associated with lower homogamy and higher hypogamy. In Table A5, a higher ratio of educated men is associated with higher no-violent and severe violent practices; a higher HDI is associated with less use of CD; higher gender inequality is associated with more use of CD, especially severe physical violence; and a higher share of polygynous unions is associated with higher physical punishment.

[19] In Appendix Figures A6 (demography), A7 (development), and A8 (gender) we implement yet another method, perhaps more visually appealing, yet too cumbersome due to the multiplicity of outcomes and figures. Specifically, we extract country-specific estimates on the parental educational homogamy coefficient obtained from full specifications (basically, those reported in Appendix Figure A5) and plot them against the country-level moderators through simple scatterplots. These graphs can be interpreted easily. For instance, focusing on husband-wife difference in age (Figure A6, panel b), for emotional punishment we observe that the association between parental educational homogamy and the adoption of emotional punishment is negative (i.e., more "beneficial") where the spousal difference in age is low, but it becomes more and more positive as the gap in age increases. Similarly, focusing on mean years of schooling for females

(Figure A7, panel d), for non-violent punishment we observe that the association between parental educational homogamy and the adoption of non-violent practices is negative when female schooling is low, but it becomes more and more positive (i.e., more "beneficial") as female schooling increases. Nonetheless, we stress again that these correlations are very weak.

[20] With a couple exceptions, virtually no panel shows statistically significant differences across groups. This could be similarly seen in Appendix Figures A6, A7, and A8, where most fit lines are flat.

Tables

Table 1: Sample of countries and survey waves included in the analysis

Survey/Round	Region	Country	Year	Sample
MICS5-DHS	West Africa	Benin	2014-2017	7,484
MICS3	West Africa	Burkina Faso	2006	1,671
DHS	East Africa	Burundi	2016	4,861
MICS3-MICS5	Central Africa	Cameroon	2006-2014	3,319
MICS3-MICS4-MICS6	Central Africa	Central African Republic	2006-2018-2019	3,354
MICS4-MICS6-DHS	Central Africa	Chad	2010-2019-2014	14,505
MICS5-DHS	Central Africa	Congo	2014-2011	2,857
MICS4-MICS6-DHS	Central Africa	Congo, DR	2010-2018-2013	10,133
MICS5	West Africa	Côte d'Ivoire	2016	2,347
MICS3-MICS4-MICS6	West Africa	Gambia	2006-2010-2018	6,160
MICS3-MICS4-MICS6	West Africa	Ghana	2006-2011-2018	4,687
MICS5	West Africa	Guinea	2016	2,183
MICS3-MICS5-MICS6	West Africa	Guinea-Bissau	2006-2014-2019	3,739
MICS6	South Africa	Lesotho	2018	326
DHS	West Africa	Liberia	2006-2019	2,636
MICS6	East Africa	Madagascar	2018	3,627
MICS5-MICS6	East Africa	Malawi	2014-2020	10,093
MICS5	West Africa	Mali	2015	1,182
MICS4-MICS5	West Africa	Mauritania	2011-2015	1,463
DHS	West Africa	Niger	2012	3,654
MICS4-MICS5	West Africa	Nigeria	2011-2016	12,000
MICS5-MICS6	Central Africa	Sao Tome and Principe	2014-2019	851
MICS3-MICS4-MICS6	West Africa	Sierra Leone	2005-2010-2017	7,744
MICS4-MICS5	South Africa	Swaziland	2010-2014	882
MICS3-MICS4-MICS6-DHS	West Africa	Togo	2006-2010-2017-2013	6,719
DHS	East Africa	Uganda	2016	4,043
MICS5-MICS6	East Africa	Zimbabwe	2014-2019	4,136

Notes: MICS: Multiple Indicator Cluster Surveys; DHS: Demographic and Health Surveys. Regional classifications obtained from the United Nations Statistics Division.

Table 2: Descriptive statistics on child discipline outcomes and country-level moderators, analytical sample

Outcomes	Obs.	Mean	(SD)	Min	Max
Took away privileges *(1a)*	126,583	0.487	(0.500)	0	1
Explained wrong behavior *(1b)*	126,579	0.784	(0.411)	0	1
Gave him something else to do *(1c)*	126,493	0.397	(0.489)	0	1
Non-violent behavior *(1a, 1b, 1c)*	126,661	0.857	(0.350)	0	1
Shook him/her *(2a)*	126,386	0.363	(0.481)	0	1
Spanked, hit, slapped him on bottom with hand *(2b)*	126,514	0.472	(0.499)	0	1
Hit him with belt, stick, or other hard object *(2c)*	126,564	0.305	(0.460)	0	1
Hit/slapped him on the face, head or ears *(2d)*	126,460	0.181	(0.385)	0	1
Hit/slapped him on hand, arm or leg *(2e)*	125,167	0.335	(0.472)	0	1
Beat up, hit him over and over as hard as one could *(2f)*	126,418	0.079	(0.270)	0	1
Physical punishment *(2a, 2b, 2c, 2d, 2e, 2f)*	126,658	0.717	(0.450)	0	1
Severe physical punishment *(2d, 2e, 2f)*	126,647	0.218	(0.413)	0	1
Shouted, yelled, screamed at him/her *(3a)*	126,484	0.719	(0.449)	0	1
Treat him as idiot, lazy, or other names *(3b)*	126,574	0.388	(0.487)	0	1
Emotional punishment *(3a, 3b)*	126,656	0.766	(0.423)	0	1
Any violence *(2a, 2b, 2c, 2d, 2e, 2f, 3a, 3b)*	126,658	0.854	(0.352)	0	1
Country-level variables					
Demography					
M-F difference in age at first marriage (SMAM, UN-DESA)	27	5.545	(1.474)	3.20	8.60
H-W difference in age (DHS/MICS)	27	8.243	(2.335)	3.85	19.7
Ratio men 25-29/women 20-24 (UN, WPP)	27	0.839	(0.058)	0.68	0.97
Ratio educ. men 30-34/educ. women 25-29 (DHS/MICS)	27	1.588	(0.643)	0.64	3.30
Socioeconomic development					
GDP per capita (USD PPP, WB)	27	2,302	(1,442)	617	8,557
Human Development Index, female (WB)	27	0.438	(0.071)	0.30	0.60
Gini coefficient (WB)	27	40.78	(5.362)	30.8	56.2
Mean years of schooling, female (WB)	27	3.439	(1.743)	0.85	8.30
Gender					
Gender Inequality Index (UNDP)	27	0.627	(0.056)	0.51	0.75
Female-to-male ratio of LFPR (%, WB)	27	84.00	(10.37)	44.6	104
% Women in polygynous unions (DHS/MICS)	27	29.04	(11.20)	5.20	48.4
% Joint decision-making on household purchases (DHS/MICS)	27	35.52	(13.96)	7.60	75.2

Notes: Obs.: Number of observations; SD: Standard deviation; SMAM: Singulate Mean Age at Marriage; UN-DESA: United Nations Department of Economic and Social Affairs; MICS: Multiple Indicator Cluster Surveys; DHS: Demographic and Health Surveys; UN WPP: United Nations World Population Prospects; WB: World Bank; UNDP: United Nations Development Programme; M-F: male-female; H-W: husband-wife; LFPR: labor force participation rate. Analytical sample of couples with complete information on both partners' education and child discipline modules. Weighted estimates. For countries with multiple waves, the estimate provided is the average across waves. For country-level variables, the estimate is from the same year of the survey or, if unavailable, the closest available year.
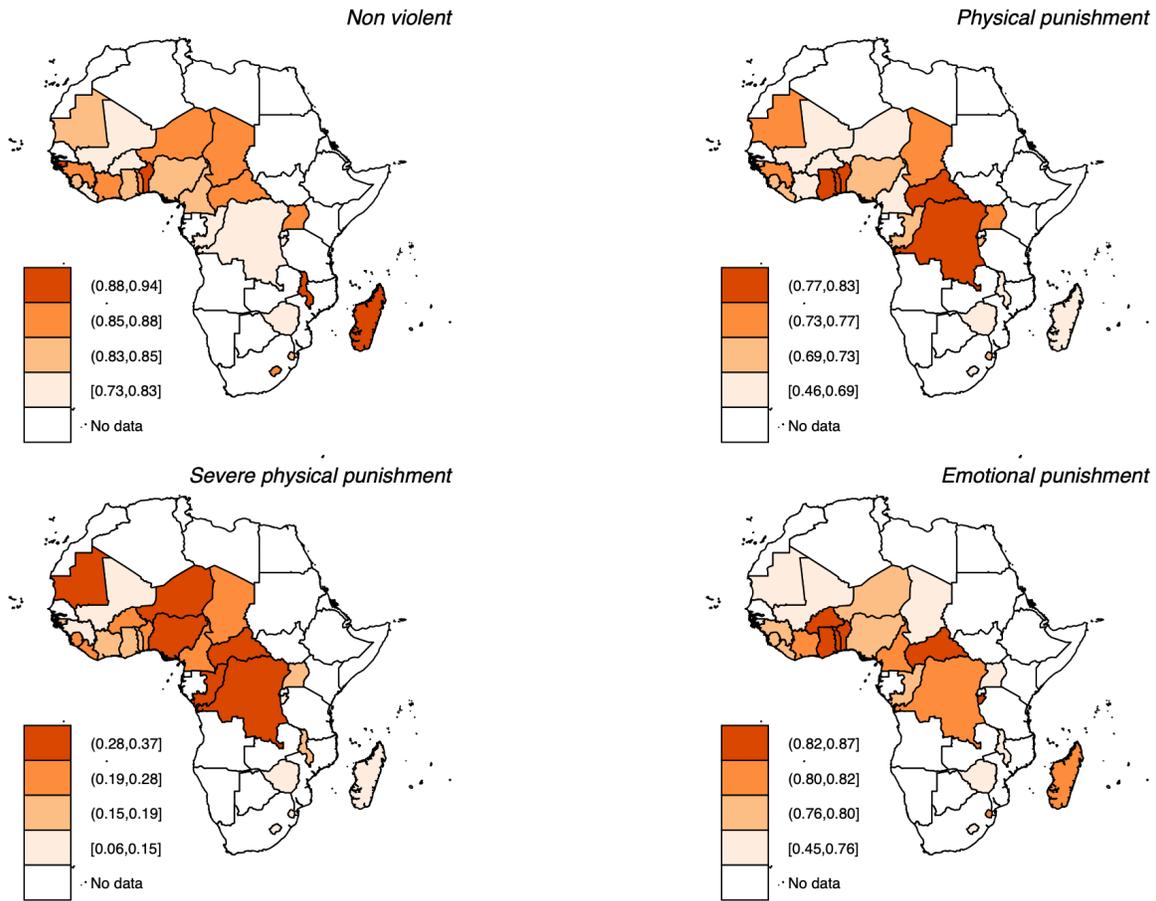
Figures

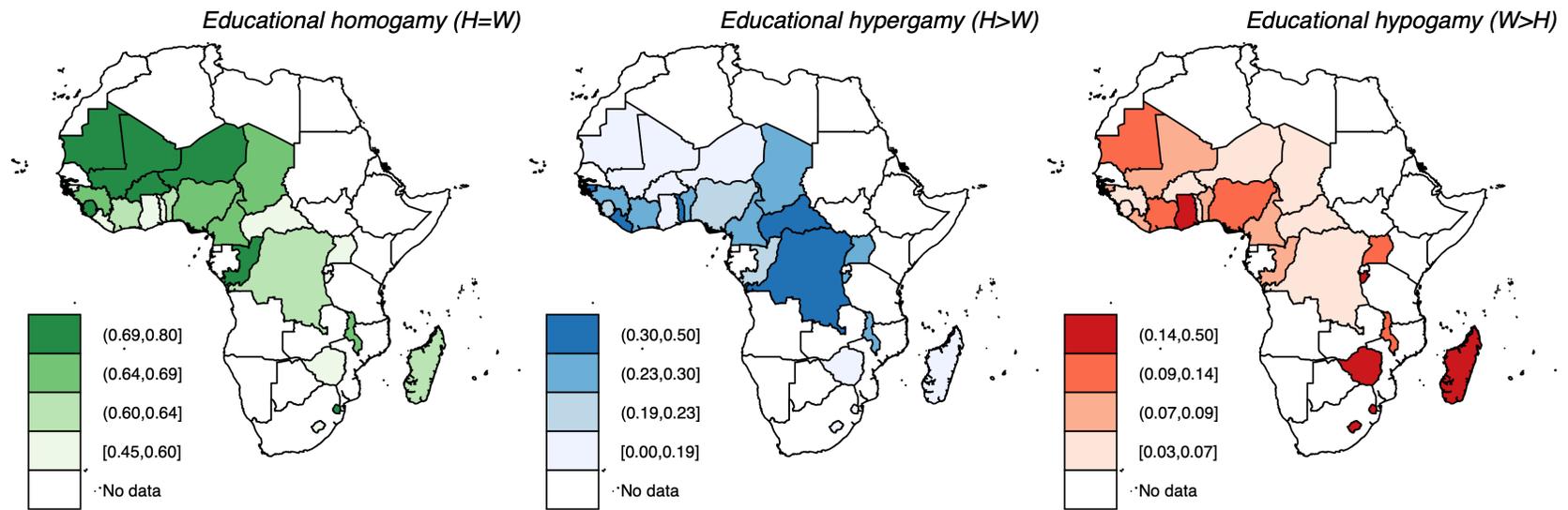**Figure 1:** Prevalence of child discipline, by type of violence and country

Figure 2: Prevalence of specific couple partnership configurations by education
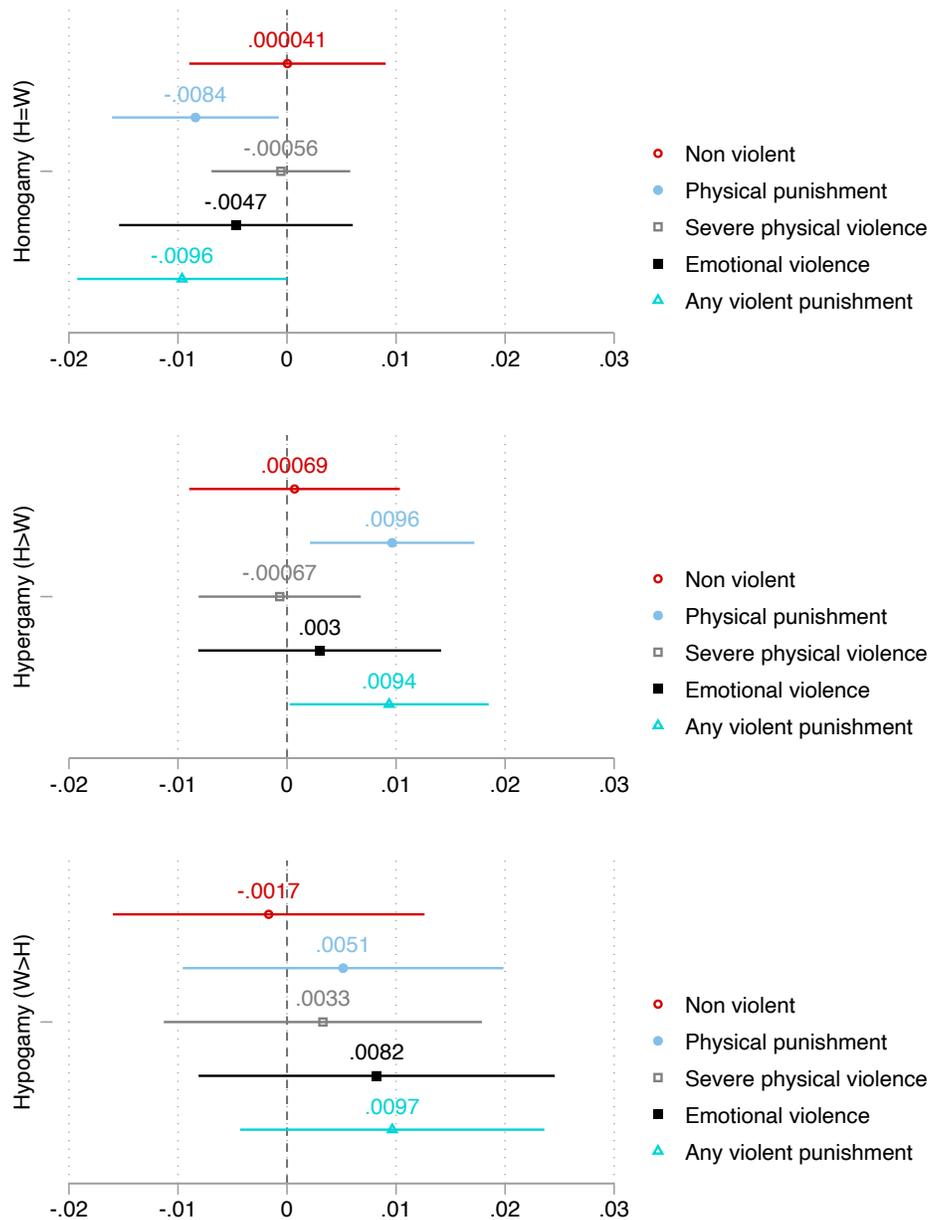
Figure 3: Estimated association between educational homogamy (top)/hypergamy (middle)/hypogamy (bottom) and child discipline outcomes

Notes: Whiskers represent 95% confidence intervals. Reference category for middle and bottom panels include all residual couples – i.e., homogamous and hypogamous for middle panel and homogamous and hypergamous for bottom panel. Sampling weights used. Cluster-robust standard errors at the PSU level.
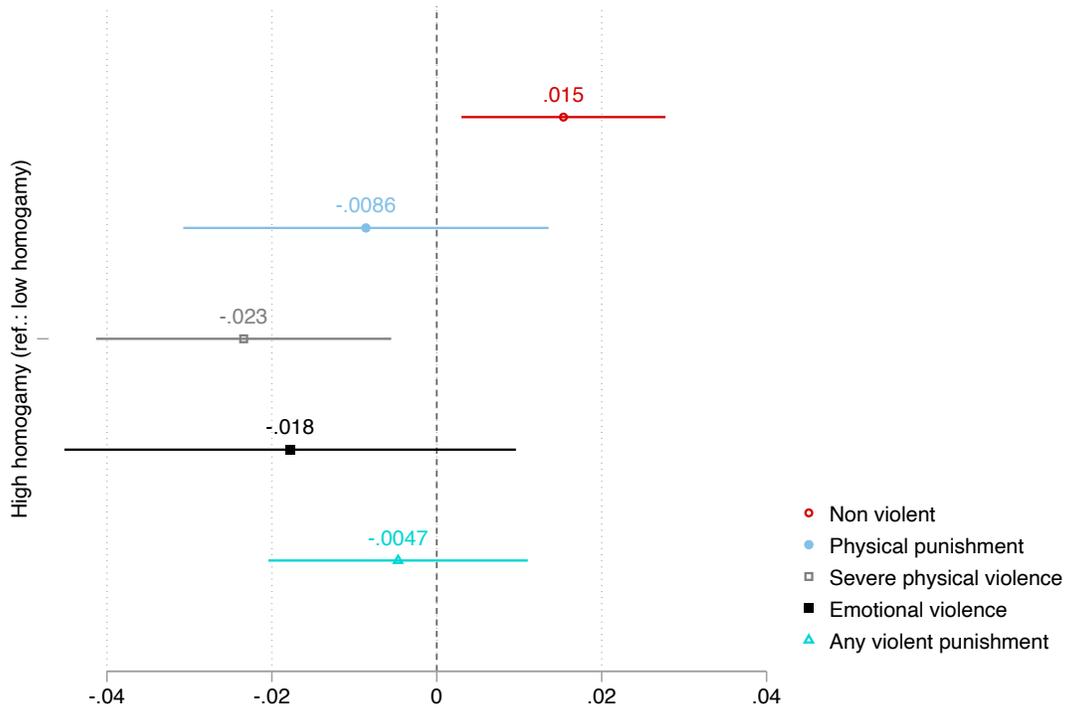
Figure 4: Estimated association between low/high educational homogamy and child discipline outcomes

Notes: Whiskers represent 95% confidence intervals. Reference: couples where both partners have low level of education (none or primary). Sampling weights used. Cluster-robust standard errors at the PSU level.
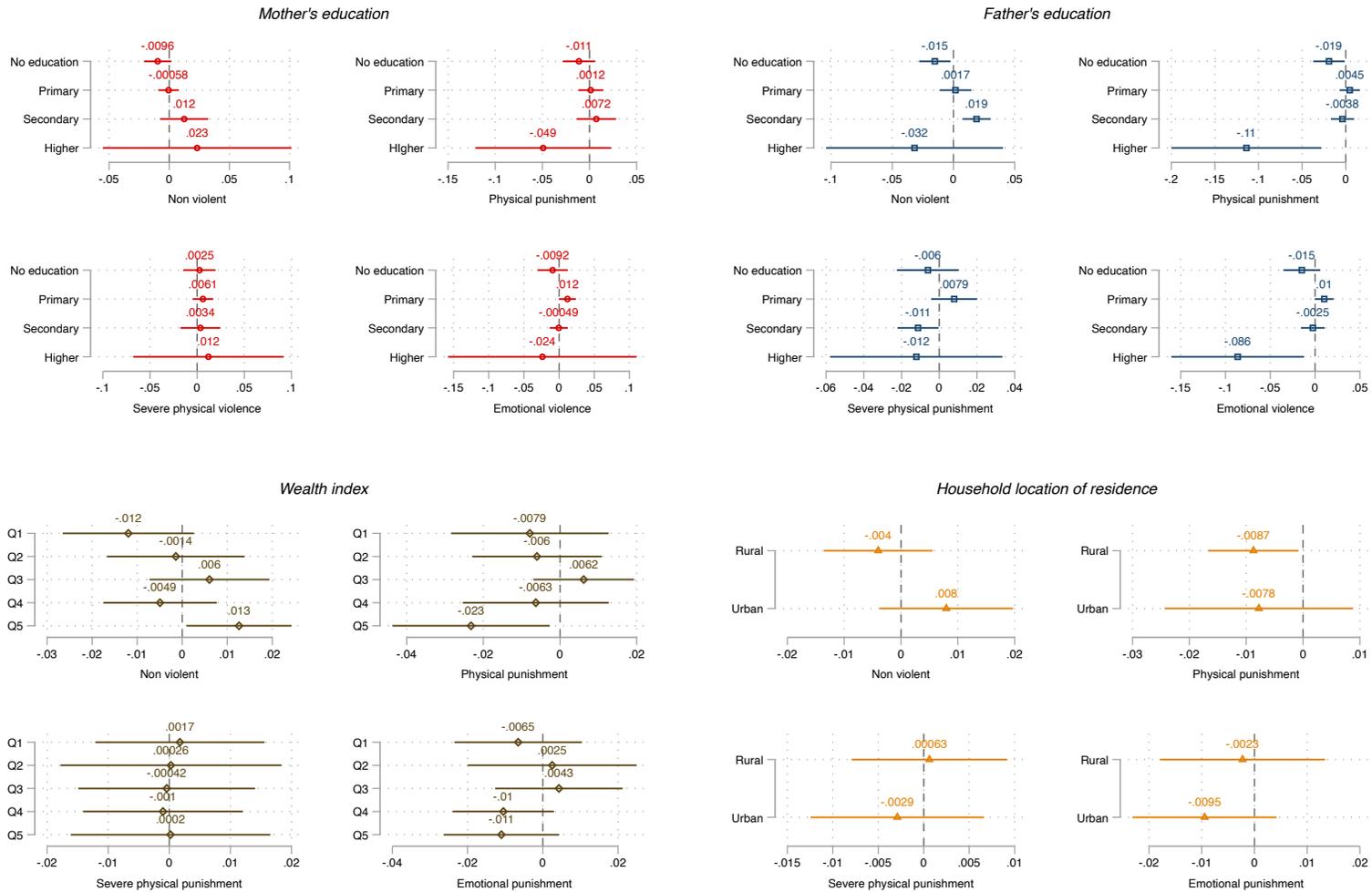
Figure 5: Heterogeneity in the estimates by individual- and household-level characteristics

Notes: Whiskers represent 95% confidence intervals. Estimates obtained from interaction terms between homogamy and each of the variables, linear combinations provided. Sampling weights used. Cluster-robust standard errors at the PSU level.
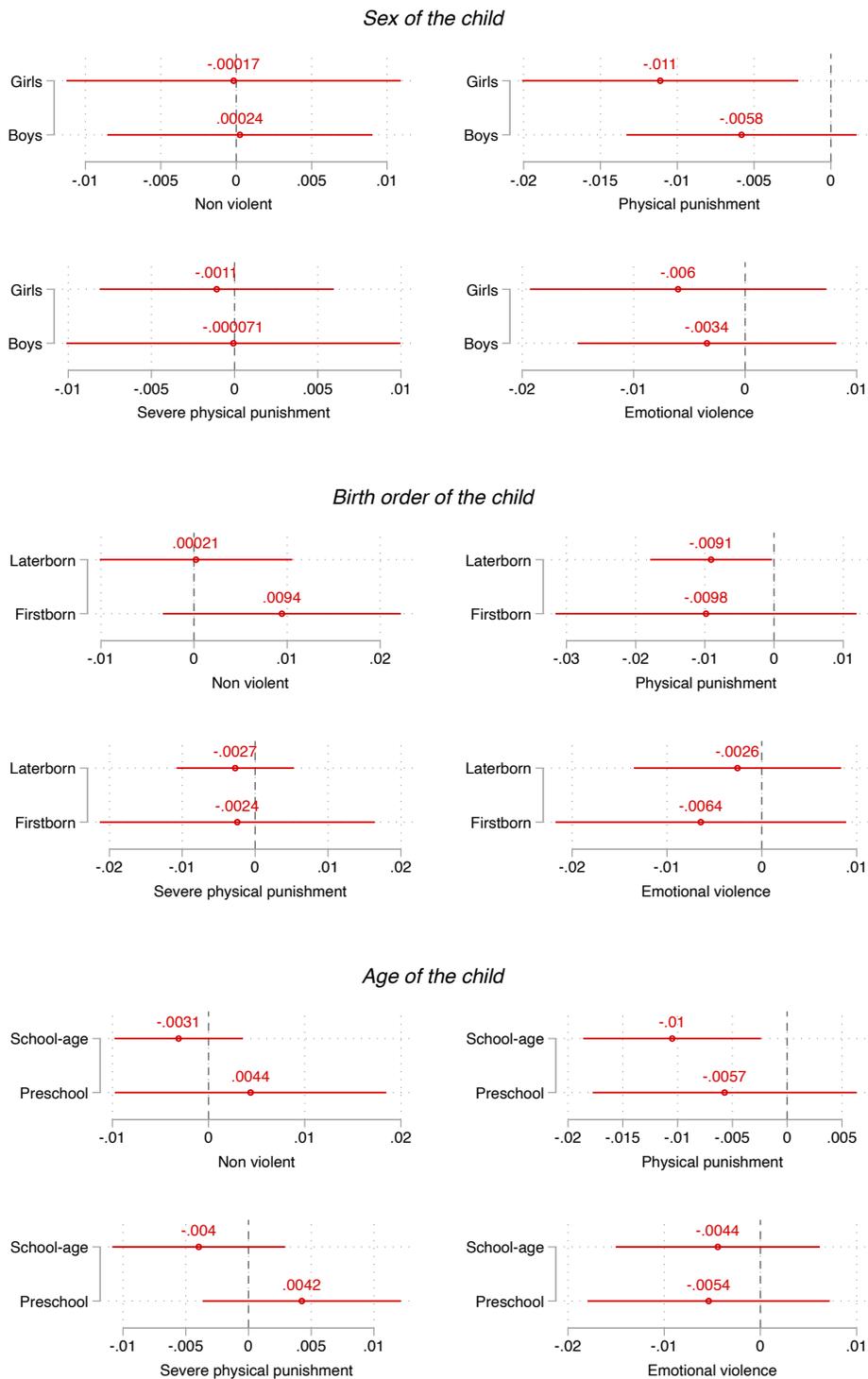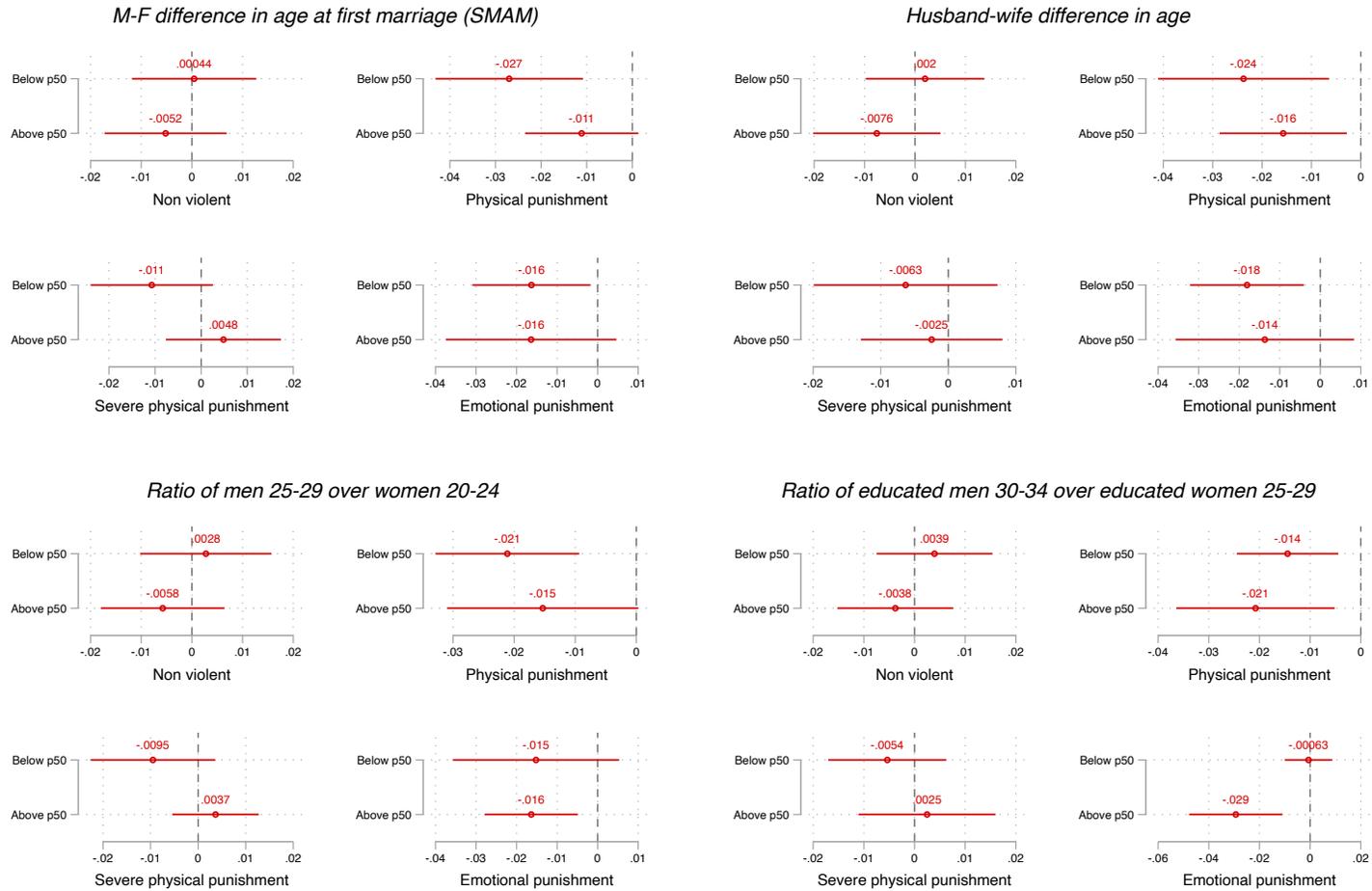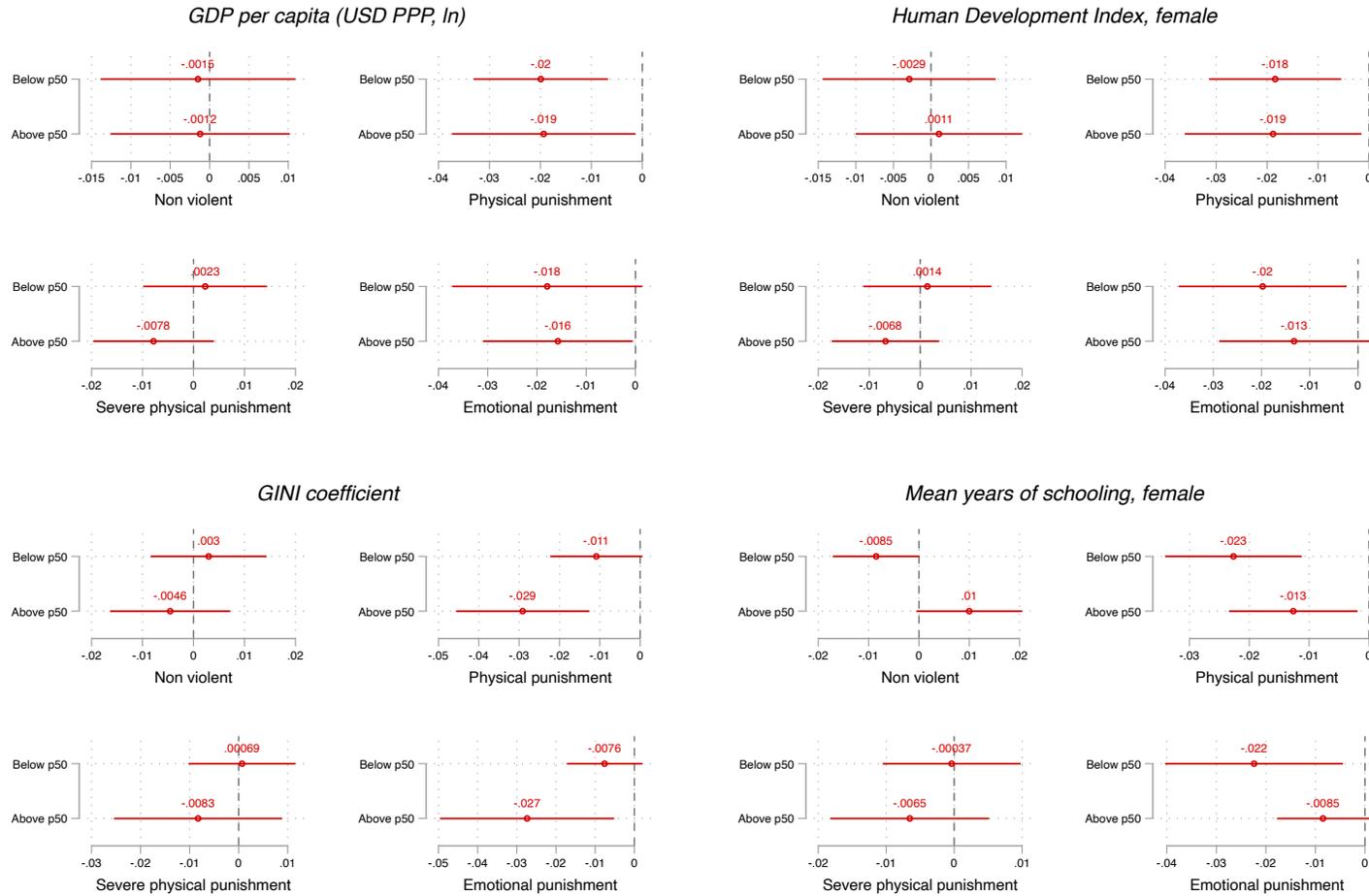
Figure 6: Heterogeneity in the estimates by child-level characteristics

Notes: Whiskers represent 95% confidence intervals. Estimates obtained from interaction terms, linear combinations provided. Sampling weights used. Cluster-robust standard errors at the PSU level.

Panel a: Demography

Panel b: Socioeconomic development

GDP per capita (USD PPP, ln)

Human Development Index, female

GINI coefficient

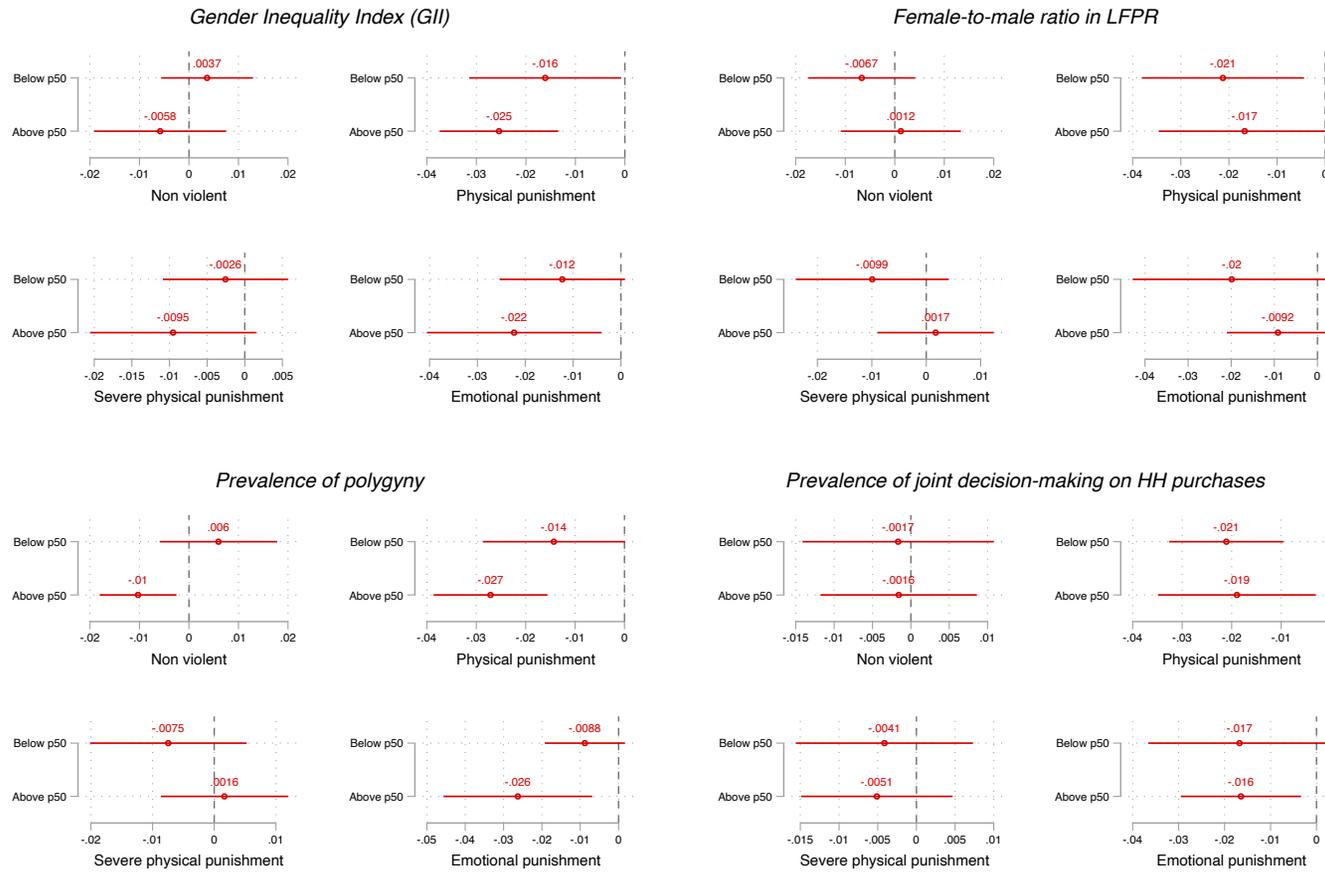*Mean years of schooling, female*

Panel c: Gender

Figure 7: Heterogeneity in the estimates by country-level characteristics, panel a (demography), panel b (socioeconomic development), and panel c (gender)

Notes: Whiskers represent 95% confidence intervals. All country-level variables have been dichotomized as above or below the median (p50). Estimates obtained from interaction terms between homogamy and each of the country-level variables dichotomized as above or below the median (p50), linear combinations provided. Estimates with interactions with the respective continuous variables are reported in Table 3. Sampling weights used. Cluster-robust standard errors at the PSU level.

Appendix

Appendix Tables

Table A1: Correlations between country-level moderators

Demography	M-F difference in age at first marriage	H-W difference in age	Ratio men 25-29/women 20-24	Ratio educ. men 30-34/educ. women 25-29
M-F difference in age at first marriage	1			
H-W difference in age	0.868	1		
Ratio men 25-29/women 20-24	0.041	0.116	1	
Ratio educ. men 30-34/educ. women 25-29	0.199	0.360	-0.109	1
Socioeconomic development	GDP per capita	Human Development Index, female	Gini coefficient	Mean years of schooling, female
GDP per capita	1			
Human Development Index, female	0.540	1		
Gini coefficient	-0.007	0.198	1	
Mean years of schooling, female	0.471	0.830	0.210	1
Gender	Gender Inequality Index	Female-to-male ratio in LFPR	% polygyny	% joint decision-making power
Gender Inequality Index	1			
Female-to-male ratio in LFPR	-0.486	1		
% polygyny	0.645	-0.426	1	
% joint decision-making power	-0.673	0.597	-0.521	1

Notes: M-F: male-female; H-W: husband-wife; LFPR: labor force participation rate. Analytical sample of couples with complete information on both partners' education and child discipline modules.

Table A2: Estimated associations between educational homogamy (top)/hypergamy (middle)/hypogamy (bottom) and child discipline outcomes

	Homogamy (Ref.: All other couples)					Hypergamy (Ref.: All other couples)					Hypogamy (Ref.: All other couples)				
	Non-violent	Physical	Severe physical	Emotional	Any violent	Non-violent	Physical	Severe physical	Emotional	Any violent	Non-violent	Physical	Severe physical	Emotional	Any violent
Educ. homo/hyper/hypo	0.000	-0.008**	-0.001	-0.005	-0.010**	0.001	0.010**	-0.001	0.003	0.009**	-0.002	0.005	0.003	0.008	0.010
	(0.004)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
Wife's years of schooling	0.001***	0.003***	0.001	0.002***	0.002***	0.001***	0.003***	0.001	0.002***	0.002***	0.001***	0.002***	0.001	0.002**	0.001**
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Husband's years of schooling	0.001**	0.000	-0.000	0.001*	0.001	0.001**	-0.000	0.000	0.001*	0.000	0.001*	0.000	0.000	0.001*	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Age difference between spouses	-0.000*	-0.001**	0.000	-0.000	-0.001***	-0.000*	-0.001**	0.000	-0.000	-0.001***	-0.000*	-0.001**	0.000	-0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Currently married (Ref.: Formerly)	-0.078***	-0.046	-0.102*	0.029	-0.010	-0.078***	-0.046	-0.103*	0.029	-0.011	-0.078***	-0.047	-0.102*	0.029	-0.011
	(0.023)	(0.058)	(0.060)	(0.062)	(0.041)	(0.023)	(0.058)	(0.060)	(0.062)	(0.041)	(0.022)	(0.058)	(0.060)	(0.062)	(0.041)
Age of the woman	-0.000	-0.002**	-0.001	-0.000	-0.001*	-0.000	-0.002**	-0.001	-0.000	-0.001*	-0.000	-0.002**	-0.001	-0.000	-0.001
	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Urban (Ref.: Rural)	0.002	0.009	0.002	-0.010*	-0.003	0.002	0.009	0.002	-0.010*	-0.003	0.002	0.009	0.002	-0.010*	-0.003
	(0.005)	(0.008)	(0.009)	(0.006)	(0.005)	(0.005)	(0.008)	(0.009)	(0.006)	(0.005)	(0.005)	(0.008)	(0.009)	(0.006)	(0.005)
Child is male (Ref.: Female)	0.000	0.017***	0.018***	0.009***	0.008***	0.000	0.017***	0.018***	0.009***	0.008***	0.000	0.017***	0.018***	0.009***	0.009***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)
Child's age	0.020***	0.003*	0.010***	0.014***	0.010***	0.020***	0.003*	0.010***	0.014***	0.010***	0.020***	0.003*	0.010***	0.014***	0.010***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Number of household members	-0.001	-0.003**	0.000	-0.002	-0.002	-0.001	-0.003**	0.000	-0.002	-0.002	-0.001	-0.003**	0.000	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Number of children under 5	0.001	0.015***	0.007***	0.013***	0.010***	0.001	0.015***	0.007***	0.013***	0.010***	0.001	0.015***	0.007***	0.013***	0.010***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Wealth index	0.009***	0.001	-0.005**	-0.001	0.001	0.009***	0.001	-0.005**	-0.001	0.001	0.009***	0.001	-0.005**	-0.001	0.001
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Constant	0.794***	0.837***	0.285***	0.748***	0.880***	0.793***	0.830***	0.285***	0.745***	0.872***	0.794***	0.833***	0.285***	0.745***	0.874***
	(0.026)	(0.066)	(0.061)	(0.064)	(0.044)	(0.027)	(0.066)	(0.061)	(0.062)	(0.043)	(0.026)	(0.066)	(0.061)	(0.062)	(0.044)
Country-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	124,706	124,703	124,692	124,701	124,703	124,706	124,703	124,692	124,701	124,703	124,706	124,703	124,692	124,701	124,703
R-squared	0.066	0.052	0.067	0.057	0.047	0.066	0.052	0.067	0.057	0.047	0.066	0.052	0.067	0.057	0.047

Notes: Cluster-robust standard errors at the PSU level in parentheses. Sampling weights used. *** p<0.01, ** p<0.05, * p<0.1.

Table A3: Estimated associations between parental educational homogamy and child discipline outcomes, including interactions with country-level moderators in continuous form. Three panels: a) demography; b) socioeconomic development; c) gender

a. Demography	Non violent				Physical punishment				Severe physical violence				Emotional violence			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Educ. homogamy (Ref.: Heterogamy)	-0.003	0.013	0.053	0.020**	-0.040**	-0.027	-0.144**	-0.010	-0.013	-0.016	-0.149*	-0.011	-0.023	-0.018	-0.027	0.010
	(0.016)	(0.016)	(0.053)	(0.009)	(0.018)	(0.017)	(0.066)	(0.010)	(0.014)	(0.014)	(0.079)	(0.016)	(0.017)	(0.021)	(0.082)	(0.016)
M-F difference in age at first marriage (SMAM)	0.010**				-0.000				0.007				-0.011			
	(0.004)				(0.005)				(0.014)				(0.008)			
Homogamy * (M-F diff. in SMAM)	0.000				0.004				0.002				0.001			
	(0.003)				(0.003)				(0.002)				(0.003)			
H-W difference in age		0.008**				0.006				0.007				-0.003		
		(0.003)				(0.006)				(0.010)				(0.004)		
Homogamy * (H-W diff. in age)		-0.002				0.001				0.001				0.000		
		(0.002)				(0.002)				(0.002)				(0.003)		
Men 25-29/women 20-24			-0.016				0.423				-0.182				0.562**	
			(0.138)				(0.341)				(0.334)				(0.234)	
Homogamy * (men 25-29/women 20-24)			-0.065				0.151*				0.174*				0.015	
			(0.064)				(0.077)				(0.092)				(0.094)	
Educ. men 30-34/educ. women 25-29				0.033***				0.040**				0.067**				0.022
				(0.011)				(0.018)				(0.027)				(0.021)
Homogamy * (educ. men 30-34/educ. women 25-29)				-0.013***				-0.006				0.006				-0.017
				(0.005)				(0.007)				(0.012)				(0.011)
Constant	0.712***	0.713***	0.797***	0.724***	0.764***	0.705***	0.484*	0.680***	0.058	0.043	0.262	-0.034	0.796***	0.748***	0.318*	0.670***
	(0.035)	(0.037)	(0.104)	(0.036)	(0.052)	(0.075)	(0.254)	(0.067)	(0.120)	(0.120)	(0.248)	(0.069)	(0.069)	(0.067)	(0.181)	(0.071)
All other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	124,706	124,706	124,706	124,706	124,703	124,703	124,703	124,703	124,692	124,692	124,692	124,692	124,701	124,701	124,701	124,701
R-squared	0.054	0.054	0.053	0.054	0.025	0.026	0.028	0.027	0.029	0.029	0.028	0.035	0.029	0.028	0.032	0.028

b. Socioeconomic development	Non violent				Physical punishment				Severe physical violence				Emotional violence			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Educ. homogamy (Ref.: Heterogamy)	0.003	-0.047*	0.018	-0.023***	-0.083	-0.059**	0.055	-0.027***	0.017	-0.007	0.073*	0.015	-0.015	-0.065	0.040	-0.032*
	(0.067)	(0.024)	(0.032)	(0.006)	(0.080)	(0.023)	(0.046)	(0.010)	(0.054)	(0.024)	(0.040)	(0.011)	(0.060)	(0.042)	(0.034)	(0.016)
GDP per capita (USD PPP, log)	0.012				-0.001				-0.005				-0.002			
	(0.013)				(0.022)				(0.041)				(0.019)			
Homogamy * GDP per capita	-0.001				0.008				-0.003				-0.000			
	(0.009)				(0.010)				(0.007)				(0.008)			
Human Development Index (HDI), female		-0.227*				-0.514*				-0.737***				-0.229		
		(0.118)				(0.276)				(0.200)				(0.247)		
Homogamy * HDI (female)		0.105*				0.092*				0.012				0.111		
		(0.056)				(0.053)				(0.051)				(0.089)		
Gini coefficient			0.001				0.001				0.001				0.002	
			(0.002)				(0.002)				(0.002)				(0.002)	
Homogamy * Gini			-0.000				-0.002				-0.002*				-0.001	
			(0.001)				(0.001)				(0.001)				(0.001)	
Mean years of schooling (MYS), female				-0.015***				-0.018				-0.005				-0.012
				(0.005)				(0.012)				(0.013)				(0.011)
Homogamy * MYS				0.007***				0.003				-0.005*				0.005
				(0.002)				(0.002)				(0.003)				(0.003)
Constant	0.712***	0.875***	0.770***	0.826***	0.778***	0.943***	0.722***	0.800***	0.149	0.361***	0.059	0.119**	0.725***	0.796***	0.632***	0.738***
	(0.092)	(0.046)	(0.056)	(0.025)	(0.154)	(0.084)	(0.074)	(0.028)	(0.285)	(0.080)	(0.075)	(0.043)	(0.142)	(0.077)	(0.053)	(0.032)
All other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	124,706	124,706	124,706	124,706	124,703	124,703	124,703	124,703	124,692	124,692	124,692	124,692	124,701	124,701	124,701	124,701
R-squared	0.053	0.053	0.053	0.055	0.025	0.028	0.025	0.028	0.028	0.036	0.028	0.029	0.028	0.028	0.028	0.029

c. Gender	Non violent				Physical punishment				Severe physical violence				Emotional violence			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Educ. homogamy (Ref.: Heterogamy)	0.065	-0.020	0.008	-0.010	0.039	-0.016	-0.009	-0.022*	0.035	-0.028	-0.008	-0.003	0.090*	-0.027	-0.004	-0.016
	(0.047)	(0.032)	(0.012)	(0.014)	(0.028)	(0.044)	(0.011)	(0.013)	(0.022)	(0.032)	(0.011)	(0.012)	(0.050)	(0.061)	(0.012)	(0.022)
Gender Inequality Index (GII, UNDP)	0.287**				0.741**				1.402***				0.165			
	(0.126)				(0.284)				(0.125)				(0.285)			
Homogamy * GII	-0.106				-0.095*				-0.065*				-0.171*			
	(0.076)				(0.047)				(0.036)				(0.084)			
Female-to-male (FTM) ratio of LFPR		-0.002***				-0.001*				-0.002				0.002**		
		(0.001)				(0.001)				(0.002)				(0.001)		
Homogamy * FTM ratio of LFPR		0.000				-0.000				0.000				0.000		
		(0.000)				(0.001)				(0.000)				(0.001)		
Women in polygynous unions (%)			0.001*				0.004***				0.003***				0.001	
			(0.001)				(0.001)				(0.001)				(0.001)	
Homogamy * Polygyny			-0.000				-0.000				0.000				-0.000	
			(0.000)				(0.000)				(0.000)				(0.000)	
Joint decision-making on HH purchases				-0.001**				-0.002				-0.003***				-0.001
				(0.001)				(0.002)				(0.001)				(0.001)
Homogamy * Decision-making				0.000				0.000				0.000				-0.000
				(0.000)				(0.000)				(0.000)				(0.000)
Constant	0.605***	0.911***	0.765***	0.821***	0.280	0.859***	0.689***	0.802***	-0.806***	0.267**	0.047	0.182***	0.608***	0.607***	0.695***	0.723***
	(0.082)	(0.047)	(0.027)	(0.027)	(0.204)	(0.064)	(0.048)	(0.047)	(0.085)	(0.112)	(0.039)	(0.049)	(0.209)	(0.054)	(0.053)	(0.041)
All other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	124,706	124,706	124,706	124,706	124,703	124,703	124,703	124,703	124,692	124,692	124,692	124,692	124,701	124,701	124,701	124,701
R-squared	0.054	0.054	0.054	0.054	0.030	0.026	0.030	0.027	0.049	0.030	0.035	0.035	0.028	0.029	0.028	0.028

Notes: SMAM: Singulate Mean Age at Marriage; M-F: male-female; H-W: husband-wife; GDP: gross domestic product; HDI: Human Development Index; MYS: mean years of schooling; GII: Gender Inequality Index; FTM: female-to-male; LFPR: labor force participation rate; HH: household. Cluster-robust standard errors at the PSU level in parentheses. Sampling weights used. *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Crude associations between country-level predictors and educational homogamy/hypergamy/hypogamy

Demography

Demography	Homogamy (H=W) (1)	(2)	(3)	(4)	(5)	Hypergamy (H>W) (1)	(2)	(3)	(4)	(5)	Hypogamy (W>H) (1)	(2)	(3)	(4)	(5)
M-F difference in age at first marriage (SMAM)	0.026***				0.006	-0.022**				0.002	-0.004				-0.008
	(0.007)				(0.022)	(0.009)				(0.022)	(0.005)				(0.005)
H-W difference in age		0.017***			0.016		-0.014**			-0.021		-0.003			0.005
		(0.005)			(0.015)		(0.006)			(0.014)		(0.004)			(0.003)
Men 25-29/women 20-24			-0.198		-0.294			0.074		0.224			0.124		0.070
			(0.249)		(0.263)			(0.273)		(0.270)			(0.102)		(0.073)
Educ. men 30-34/educ. women 25-29				0.009	-0.018				0.022	0.050**				-0.031***	-0.033***
				(0.026)	(0.026)				(0.025)	(0.024)				(0.007)	(0.007)
Constant	0.503***	0.510***	0.812***	0.631***	0.757***	0.390***	0.384***	0.208	0.235***	0.160	0.107***	0.106***	-0.020	0.133***	0.083
	(0.045)	(0.053)	(0.210)	(0.036)	(0.244)	(0.060)	(0.063)	(0.231)	(0.038)	(0.256)	(0.031)	(0.030)	(0.086)	(0.015)	(0.064)
Observations	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534

Socioeconomic development

Socioeconomic development	Homogamy (H=W) (1)	(2)	(3)	(4)	(5)	Hypergamy (H>W) (1)	(2)	(3)	(4)	(5)	Hypogamy (W>H) (1)	(2)	(3)	(4)	(5)
GDP per capita (USD PPP, log)	0.040*				0.062*	-0.056**				-0.060*	0.016				-0.003
	(0.022)				(0.031)	(0.026)				(0.032)	(0.011)				(0.014)
Human Development Index, female		-0.116			-0.547		-0.120			0.153		0.236***			0.394**
		(0.238)			(0.401)		(0.224)			(0.408)		(0.056)			(0.154)
GINI coefficient			-0.006**		-0.005*			0.007**		0.006**			-0.001		-0.001*
			(0.002)		(0.003)			(0.003)		(0.002)			(0.001)		(0.001)
Mean years of schooling, female				-0.002	0.011				-0.004	-0.005				0.006	-0.006
				(0.009)	(0.016)				(0.009)	(0.018)				(0.004)	(0.006)
Constant	0.346*	0.697***	0.891***	0.654***	0.589***	0.694***	0.322***	0.003	0.282***	0.411	-0.040	-0.019	0.106***	0.064***	-0.000
	(0.179)	(0.111)	(0.097)	(0.040)	(0.199)	(0.208)	(0.106)	(0.102)	(0.036)	(0.249)	(0.088)	(0.024)	(0.032)	(0.014)	(0.095)
Observations	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534

Gender

Gender	Homogamy (H=W) (1)	(2)	(3)	(4)	(5)	Hypergamy (H>W) (1)	(2)	(3)	(4)	(5)	Hypogamy (W>H) (1)	(2)	(3)	(4)	(5)
Gender Inequality Index (UNDP)	0.187				-0.118	0.175				0.417	-0.362***				-0.299**
	(0.251)				(0.433)	(0.241)				(0.488)	(0.087)				(0.124)
Female-to-male ratio of LFPR		-0.003***			-0.004**		0.002*			0.004*		0.001*			0.000
		(0.001)			(0.002)		(0.001)			(0.002)		(0.001)			(0.000)
Women in polygynous unions (%)			0.001		0.000			0.000		-0.000			-0.001**		0.000
			(0.001)		(0.002)			(0.001)		(0.002)			(0.001)		(0.001)
Joint decision-making on HH purchases				-0.001	0.000				-0.000	-0.001				0.001***	0.000
				(0.001)	(0.001)				(0.001)	(0.001)				(0.000)	(0.000)
Constant	0.529***	0.931***	0.616***	0.685***	1.034***	0.160	0.087	0.265***	0.273***	-0.276	0.311***	-0.018	0.119***	0.042***	0.242**
	(0.155)	(0.085)	(0.038)	(0.041)	(0.321)	(0.146)	(0.092)	(0.039)	(0.040)	(0.346)	(0.055)	(0.050)	(0.019)	(0.014)	(0.096)
Observations	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534	129,534

Notes: Cluster-robust standard errors at the PSU level in parentheses. Sampling weights used. *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Crude associations between country-level predictors and CD outcomes

| Demography	Non violent					Physical punishment					Severe physical punishment					Emotional violence				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
M-F difference in age at first marriage (SMAM)	0.009**				0.006	0.004				-0.024	0.017				-0.001	-0.009				-0.023
	(0.004)				(0.007)	(0.009)				(0.016)	(0.012)				(0.016)	(0.008)				(0.014)
H-W difference in age		0.006*			0.001		0.009			0.019		0.015			0.008		-0.001			0.011
		(0.003)			(0.006)		(0.008)			(0.012)		(0.009)			(0.012)		(0.006)			(0.010)
Men 25-29/women 20-24			-0.112		-0.099			0.609		0.565*			0.055		0.094			0.694***		0.661***
			(0.143)		(0.120)			(0.370)		(0.295)			(0.407)		(0.306)			(0.209)		(0.191)
Educ. men 30-34/educ. women 25-29				0.024***	0.018*				0.025	0.015				0.073***	0.062***				-0.005	-0.002
				(0.009)	(0.010)				(0.017)	(0.015)				(0.019)	(0.022)				(0.025)	(0.022)
Constant	0.806***	0.807***	0.951***	0.818***	0.869***	0.697***	0.646***	0.207	0.677***	0.199	0.127	0.100	0.172	0.101**	-0.019	0.814***	0.773***	0.185	0.775***	0.258
	(0.028)	(0.031)	(0.121)	(0.020)	(0.115)	(0.065)	(0.081)	(0.322)	(0.044)	(0.287)	(0.075)	(0.079)	(0.344)	(0.043)	(0.286)	(0.050)	(0.060)	(0.180)	(0.045)	(0.167)
Observations	126,661	126,661	126,661	126,661	126,661	126,658	126,658	126,658	126,658	126,658	126,647	126,647	126,647	126,647	126,647	126,656	126,656	126,656	126,656	126,656

Socioeconomic development	Non violent					Physical punishment					Severe physical punishment					Emotional violence				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
GDP per capita (USD PPP, log)	0.006				0.023	0.008				0.041	-0.004				0.066**	0.006				0.010
	(0.011)				(0.014)	(0.027)				(0.033)	(0.044)				(0.031)	(0.020)				(0.031)
Human Development Index, female		-0.144*			-0.102		-0.302			-0.624		-0.642***			-1.771***		-0.021			0.087
		(0.074)			(0.202)		(0.274)			(0.484)		(0.148)			(0.379)		(0.291)			(0.480)
GINI coefficient			-0.001		0.000			-0.002		-0.001			-0.001		0.000			-0.001		-0.000
			(0.001)		(0.001)			(0.003)		(0.003)			(0.003)		(0.002)			(0.002)		(0.002)
Mean years of schooling, female				-0.007**	-0.007				-0.009	0.007				-0.010	0.040*				-0.003	-0.007
				(0.003)	(0.006)					(0.023)				(0.012)	(0.020)				(0.014)	(0.019)
Constant	0.809***	0.920***	0.878***	0.883***	0.745***	0.657***	0.849***	0.818***	0.746***	0.709**	0.249	0.500***	0.276*	0.252***	0.337	0.718***	0.776***	0.790***	0.777***	0.694***
	(0.083)	(0.030)	(0.057)	(0.012)	(0.081)	(0.210)	(0.110)	(0.125)	(0.039)	(0.266)	(0.338)	(0.063)	(0.140)	(0.038)	(0.299)	(0.152)	(0.125)	(0.087)	(0.049)	(0.182)
Observations	126,661	126,661	126,661	126,661	126,661	126,658	126,658	126,658	126,658	126,658	126,647	126,647	126,647	126,647	126,647	126,656	126,656	126,656	126,656	126,656

Gender	Non violent					Physical punishment					Severe physical punishment					Emotional violence				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Gender Inequality Index (UNDP)	0.252**				0.270	0.582*				0.772**	1.297***				1.671***	-0.049				0.114
	(0.105)				(0.164)	(0.329)				(0.325)	(0.129)				(0.268)	(0.337)				(0.251)
Female-to-male ratio of LFPR		-0.001*			-0.001		0.000			0.002		-0.002			0.002		0.003***			0.004*
		(0.001)			(0.001)		(0.001)			(0.002)		(0.001)			(0.001)		(0.001)			(0.002)
Women in polygynous unions (%)			0.001		-0.000			0.003*		0.002			0.004***		-0.001			0.000		0.001
			(0.001)		(0.001)			(0.002)		(0.002)			(0.001)		(0.001)			(0.002)		(0.002)
Joint decision-making on HH purchases				-0.001	0.000				-0.000	0.002				-0.003**	0.001				0.001	-0.000
				(0.000)	(0.001)				(0.002)	(0.003)				(0.001)	(0.001)				(0.001)	(0.002)
Constant	0.699***	0.938***	0.835***	0.881***	0.726***	0.353	0.708***	0.634***	0.729***	-0.041	-0.593***	0.362***	0.114***	0.320***	-0.986***	0.797***	0.529***	0.762***	0.739***	0.350
	(0.069)	(0.043)	(0.024)	(0.015)	(0.147)	(0.216)	(0.047)	(0.062)	(0.062)	(0.323)	(0.076)	(0.115)	(0.041)	(0.047)	(0.244)	(0.216)	(0.080)	(0.052)	(0.051)	(0.234)
Observations	126,661	126,661	126,661	126,661	126,661	126,658	126,658	126,658	126,658	126,658	126,647	126,647	126,647	126,647	126,647	126,656	126,656	126,656	126,656	126,656

Notes: Cluster-robust standard errors at the PSU level in parentheses. Sampling weights used. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix Figures
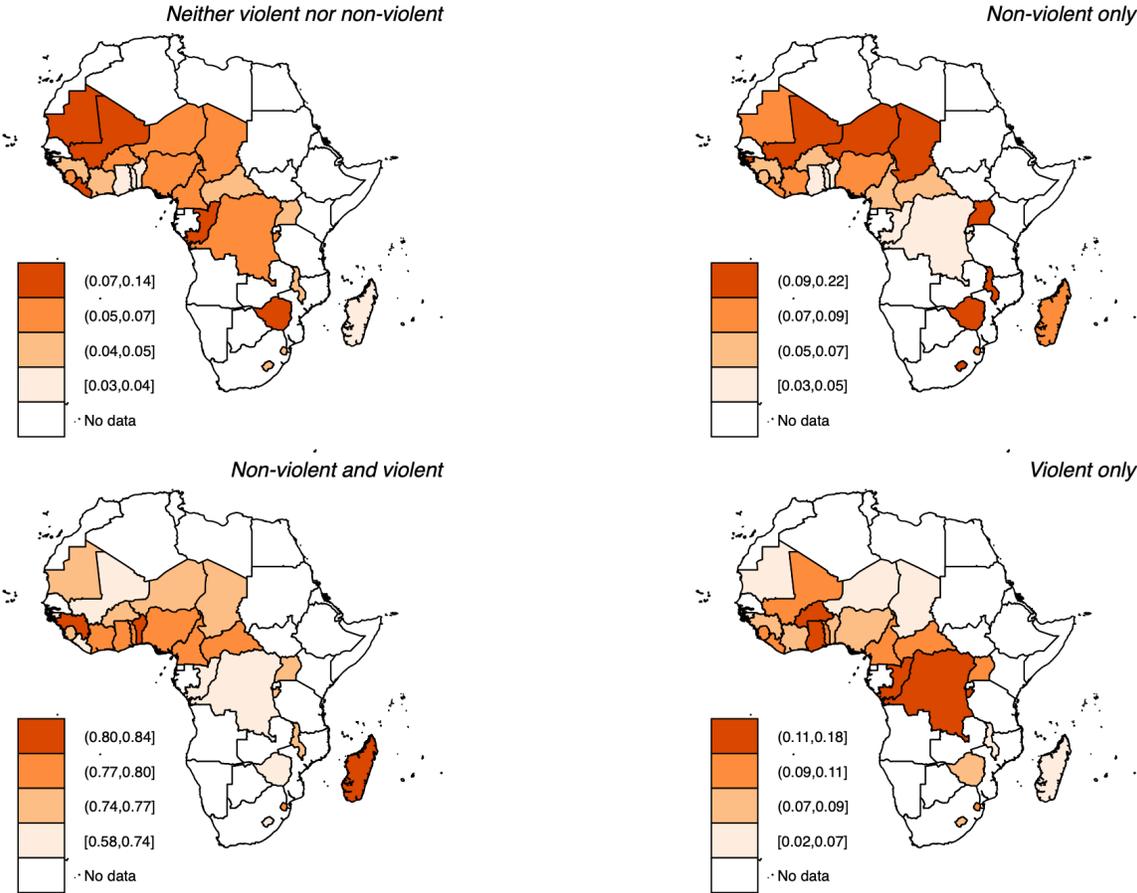
Figure A1: Prevalence of child discipline, by type of violence (concurrent vs exclusive) and country
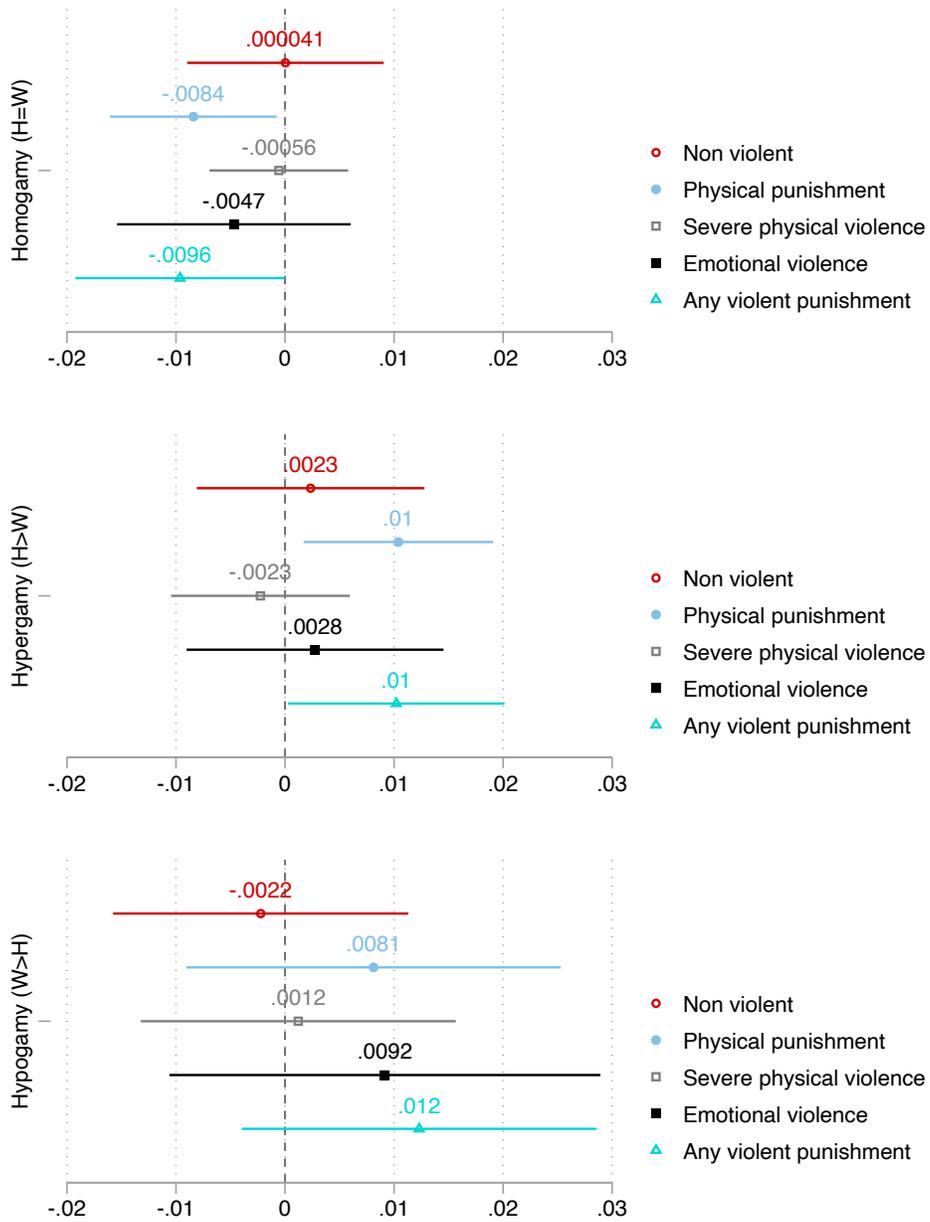
Figure A2: Estimated association between educational homogamy (top)/hypergamy (middle)/hypogamy (bottom) and child discipline outcomes

Notes: Whiskers represent 95% confidence intervals. Reference category for middle and bottom panels include homogamous couples only. Sampling weights used. Cluster-robust standard errors at the PSU level.
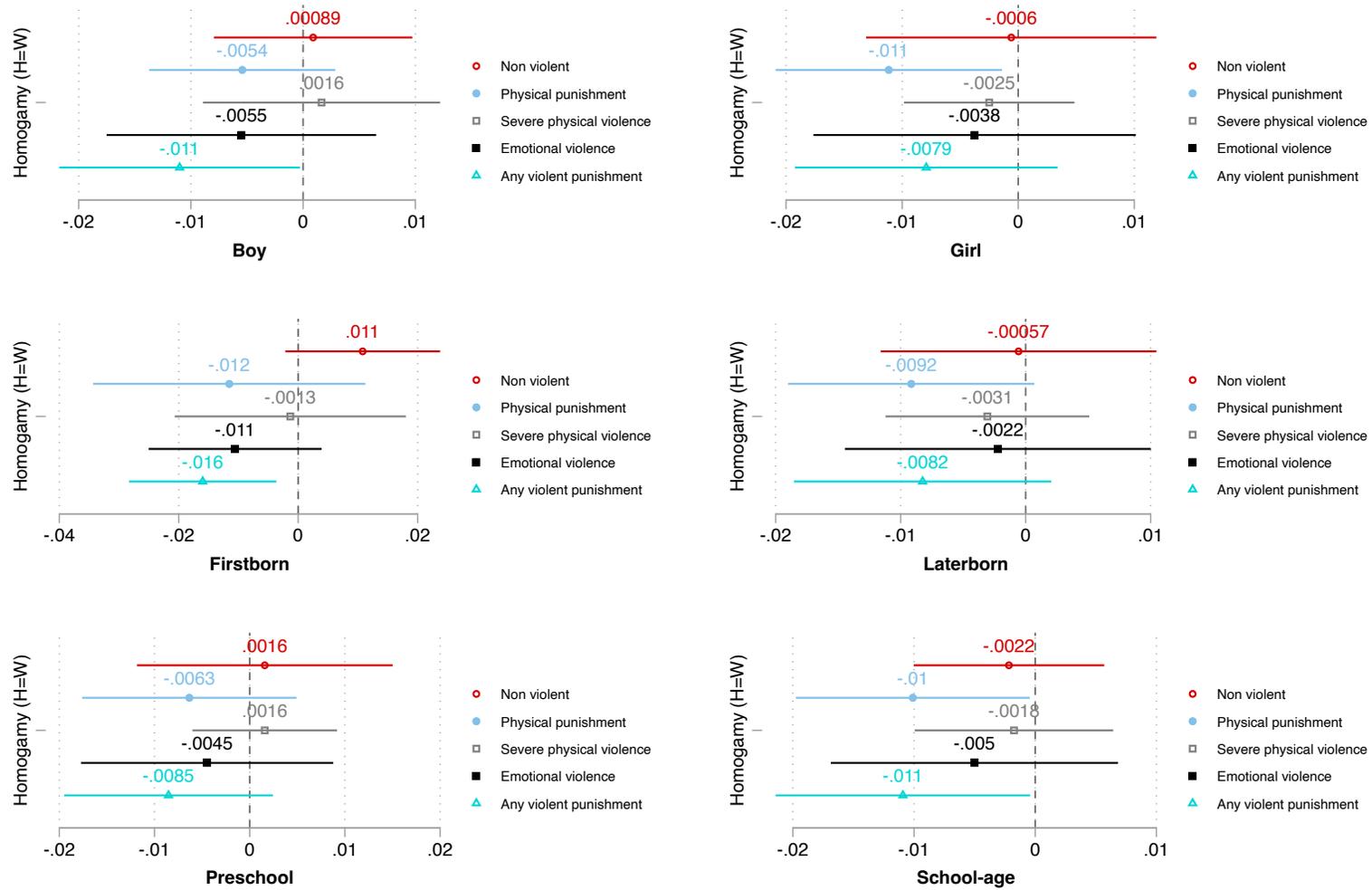
Figure A3: Heterogeneity in the estimates by child-level characteristics

Notes: Whiskers represent 95% confidence intervals. Sampling weights used. Cluster-robust standard errors at the PSU level
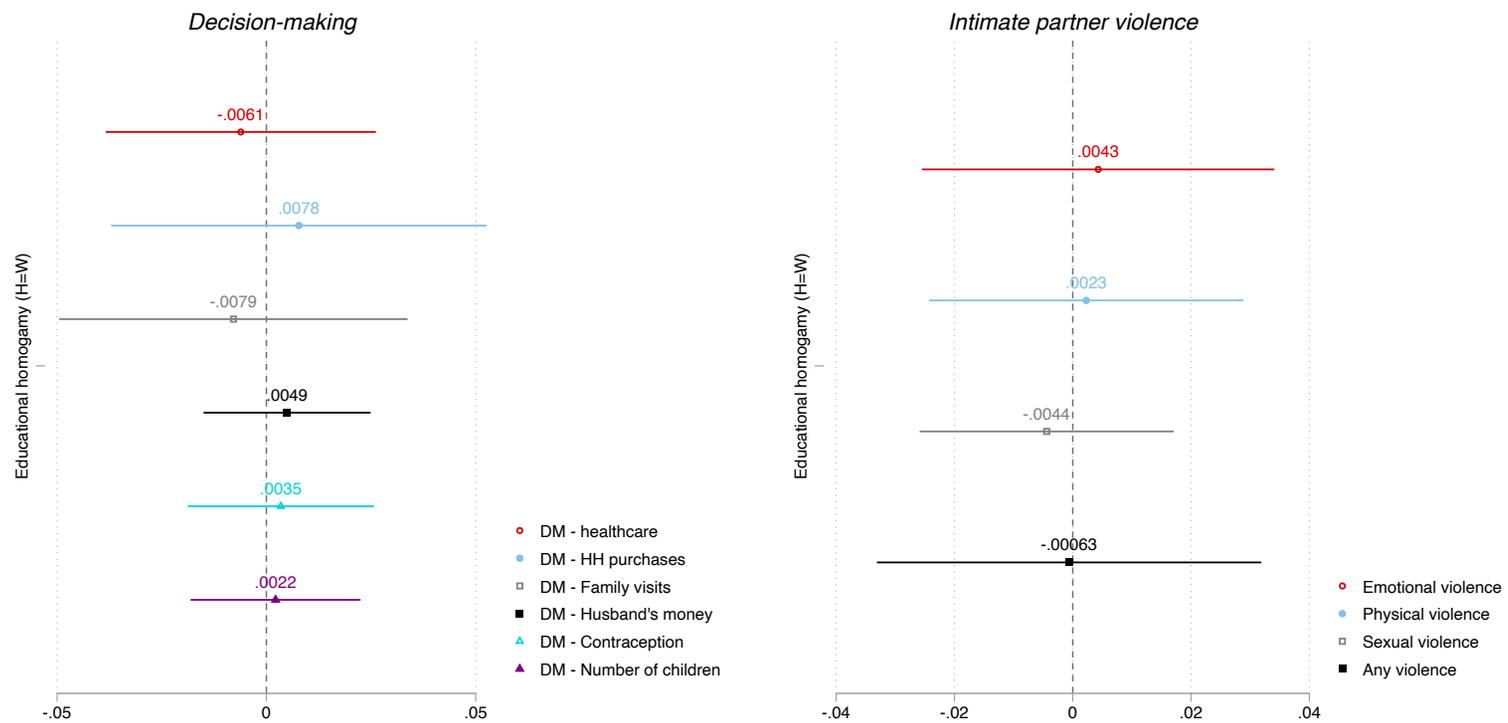
Figure A4: Estimated associations between parental educational homogamy and decision-making (left) and IPV (right) outcomes

Notes: Decision-making analyses conducted on a sample of nine DHS countries. IPV analyses conducted on a further subsample of six DHS countries providing domestic-violence modules. For decision-making, each variable is coded as a dummy that equals one if the woman or the woman jointly with the partner/husband is the main decision maker in each of these domains, and zero otherwise. For IPV, each variable is coded as a dummy that equals one if the woman experienced emotional, physical, sexual, or any violence over the previous 12 months, and zero otherwise. Whiskers represent 95% confidence intervals. Sampling weights used (for IPV analyses, domestic-violence weights used). Cluster-robust standard errors at the PSU level.
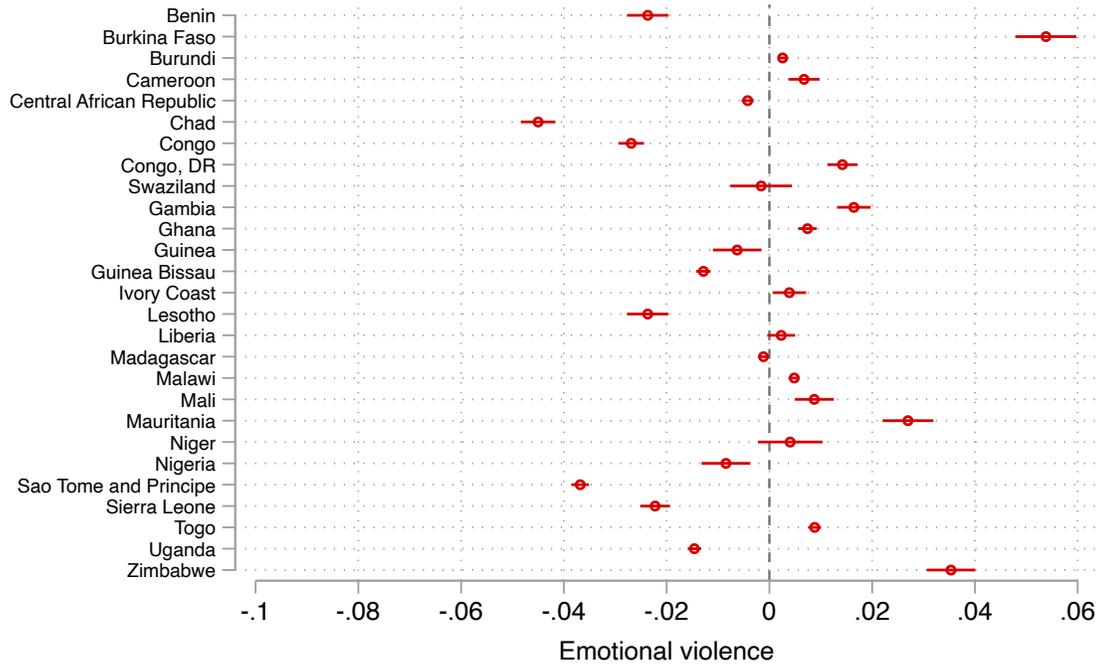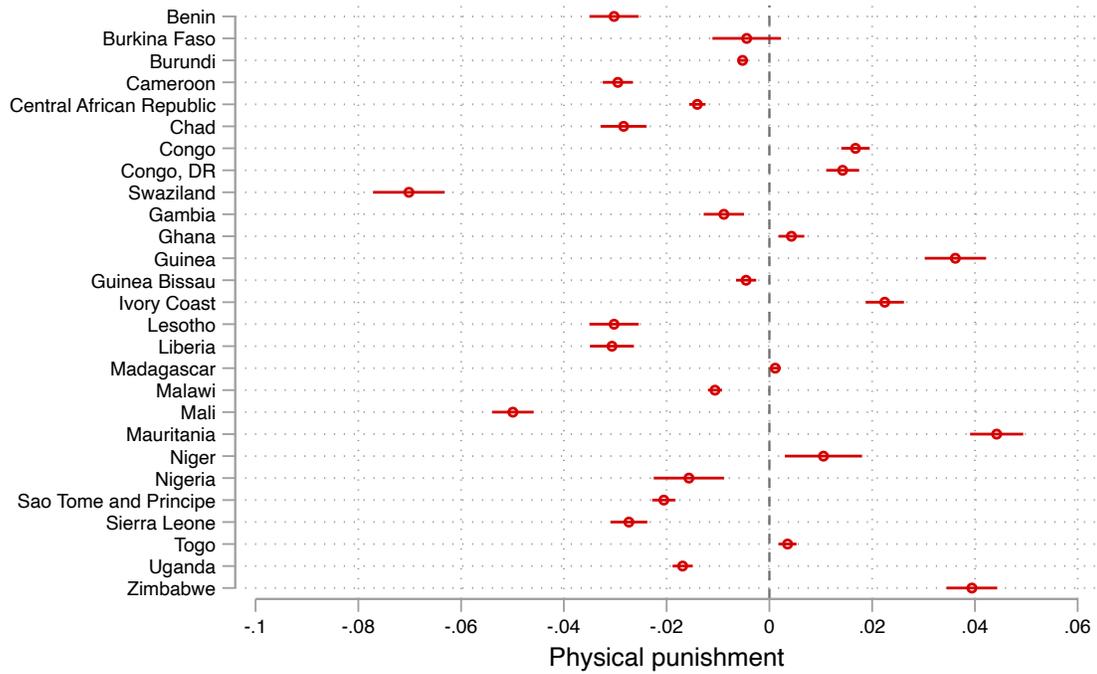
Figure A5: Heterogeneity in the estimates by country

Notes: Whiskers represent 95% confidence intervals. Estimates obtained from interaction terms between homogamy and country dummies, linear combinations provided. Sampling weights used. Cluster-robust standard errors at the PSU level.

M-F difference in age at first marriage (SMAM)
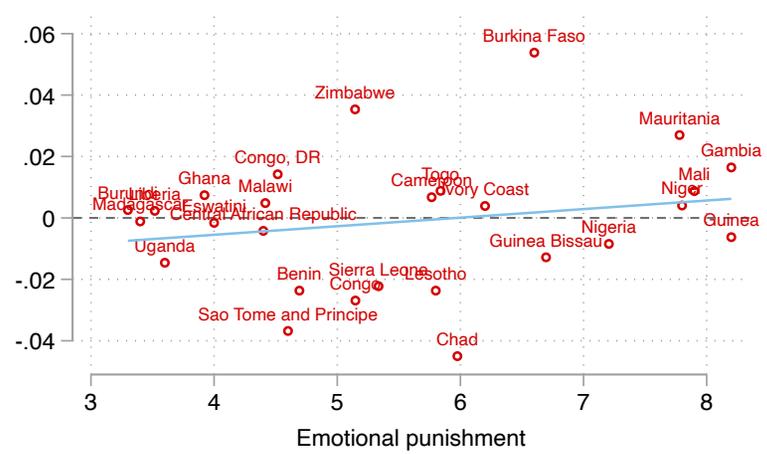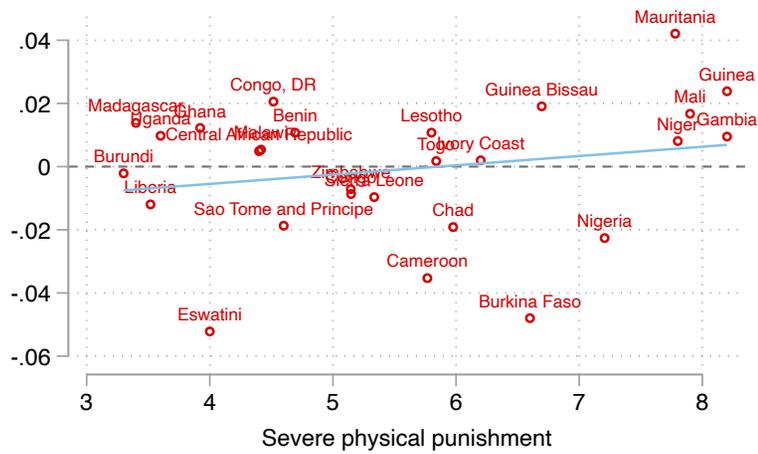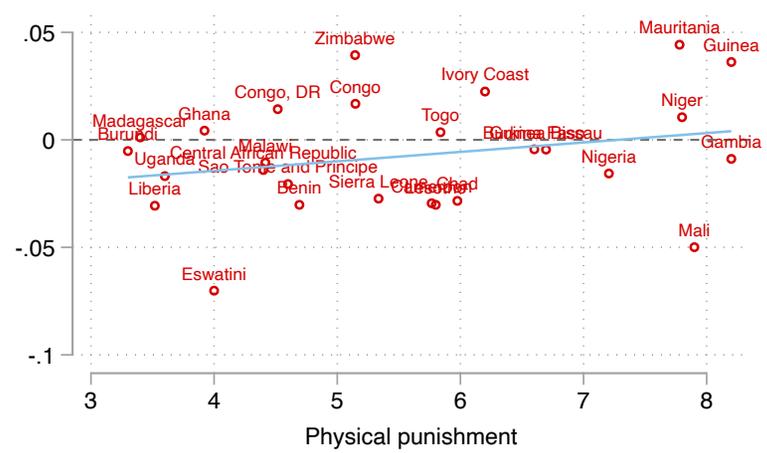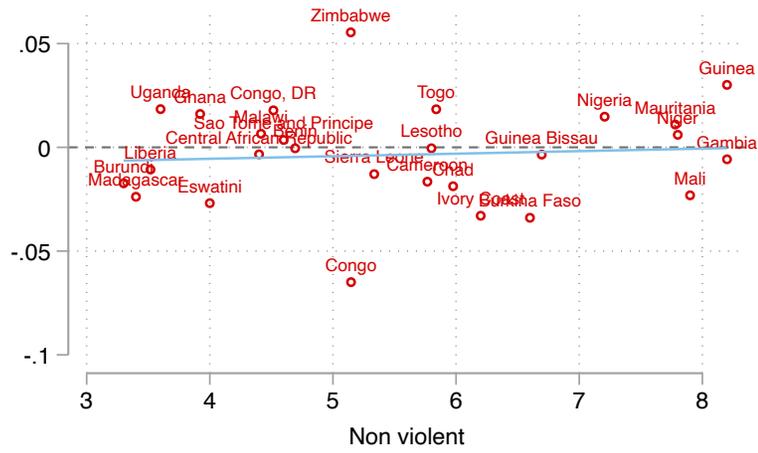
Panel b

Husband-wife difference in age
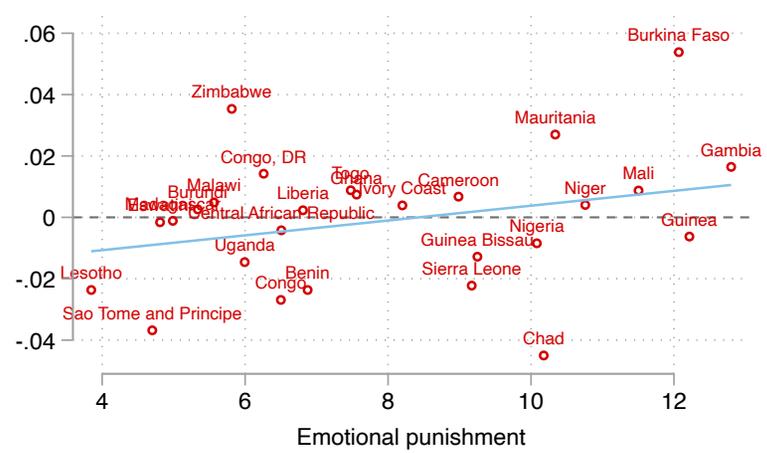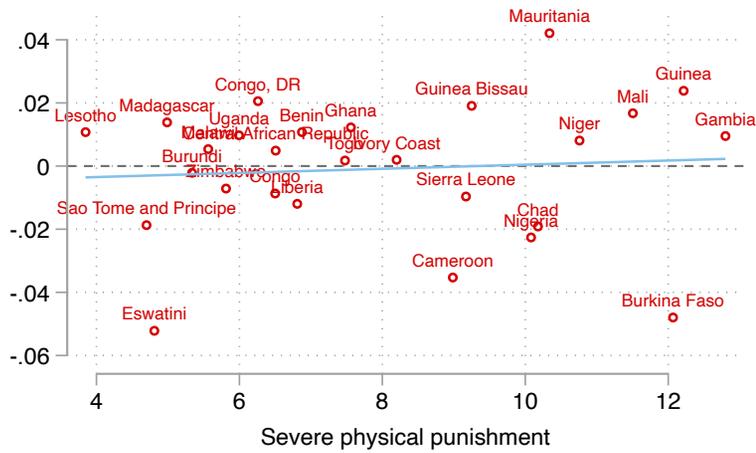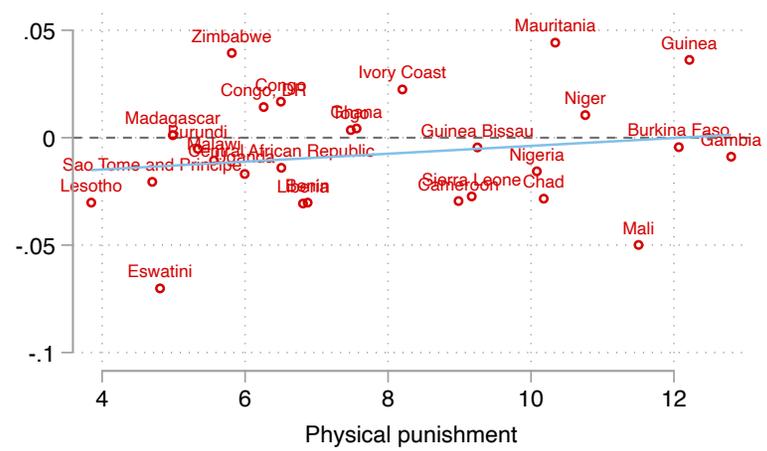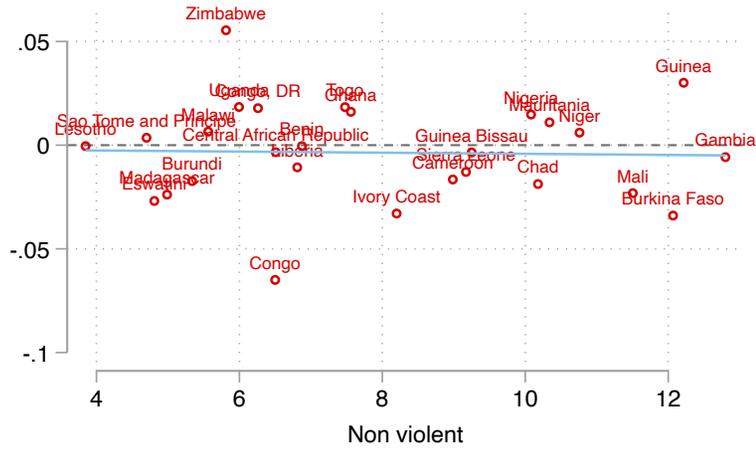
Ratio of men 25-29 over women 20-24

Panel d

Ratio of educated men 30-34 over educated women 25-29
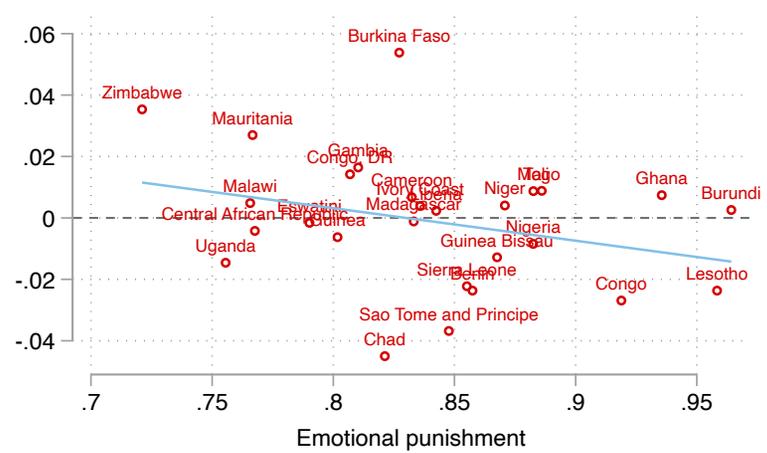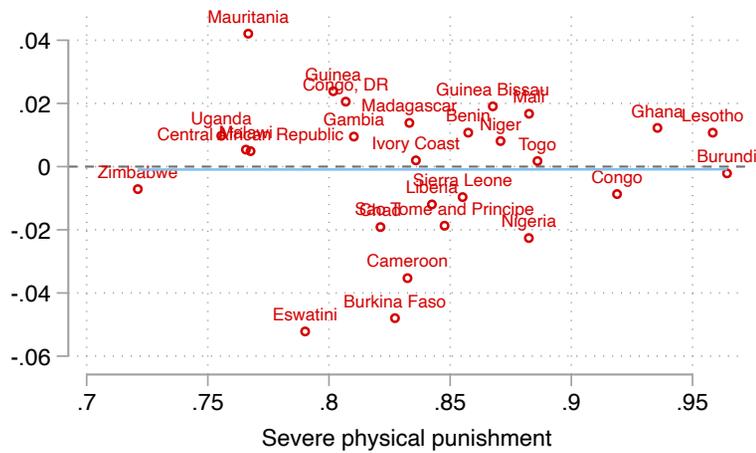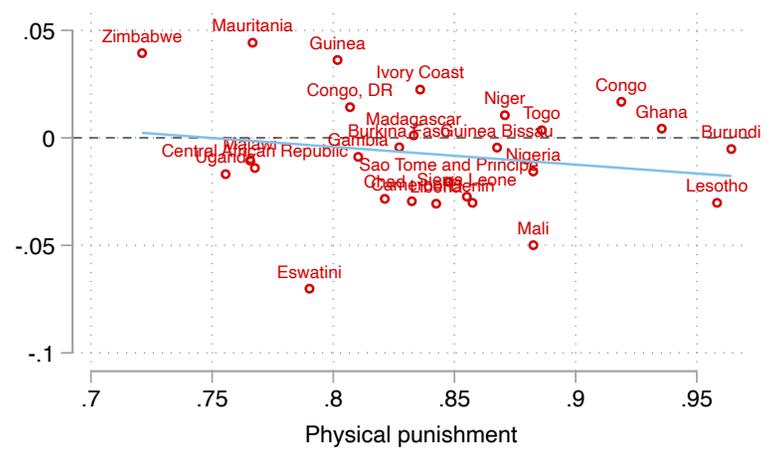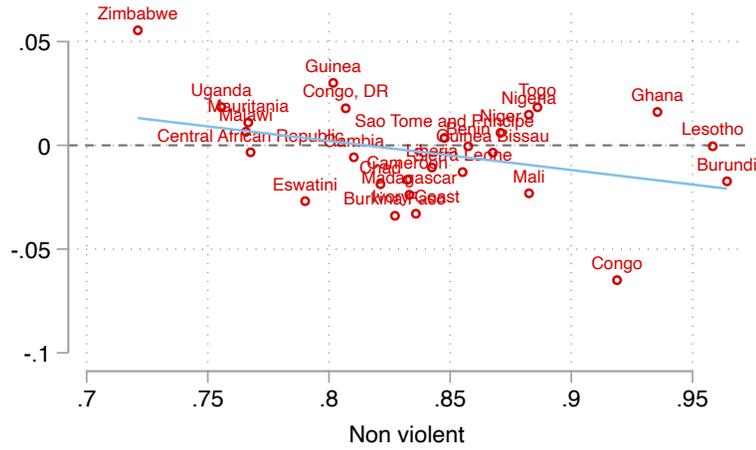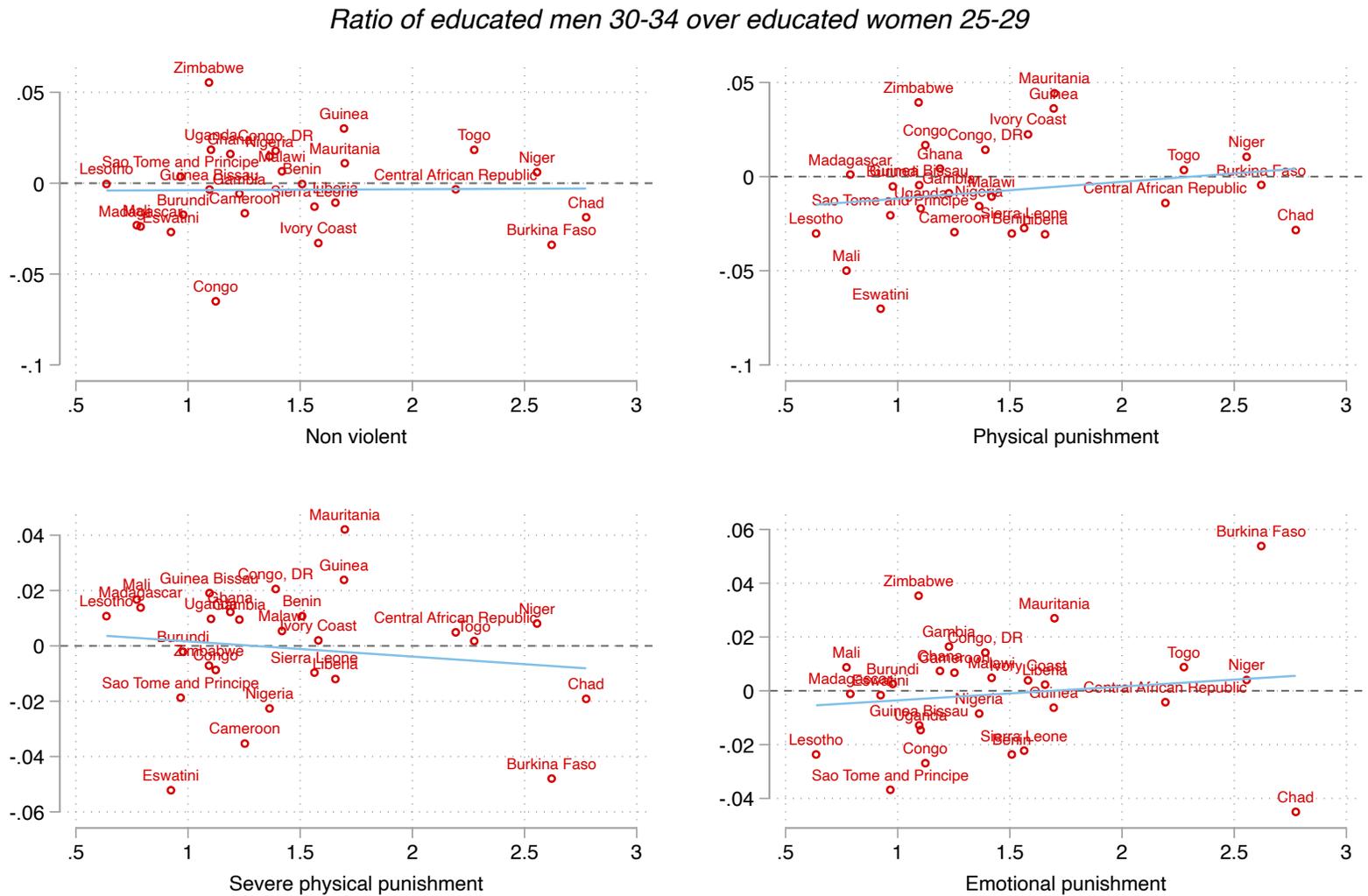
Figure A6: Scatterplot of estimated associations with parental educational homogamy, by demography country-level moderators

GDP per capita (USD PPP, ln)
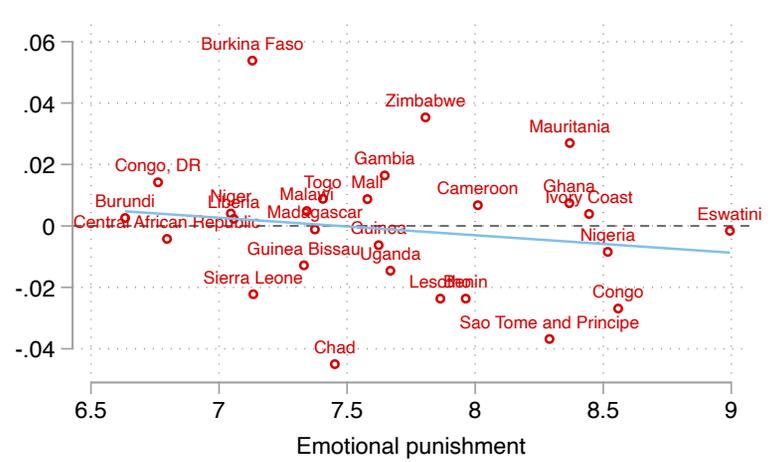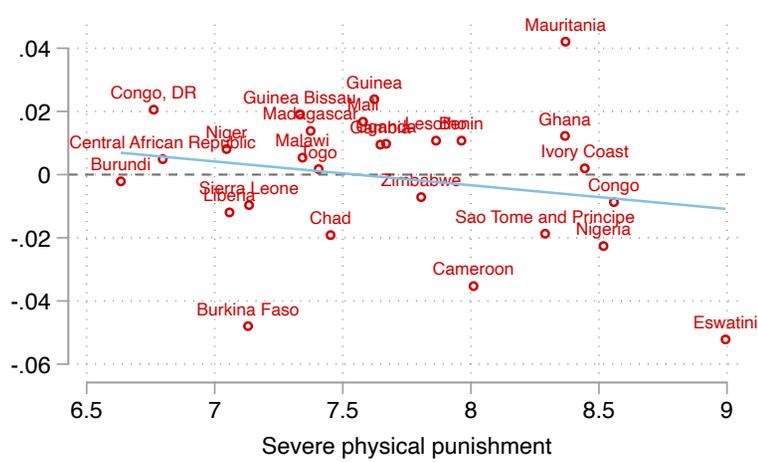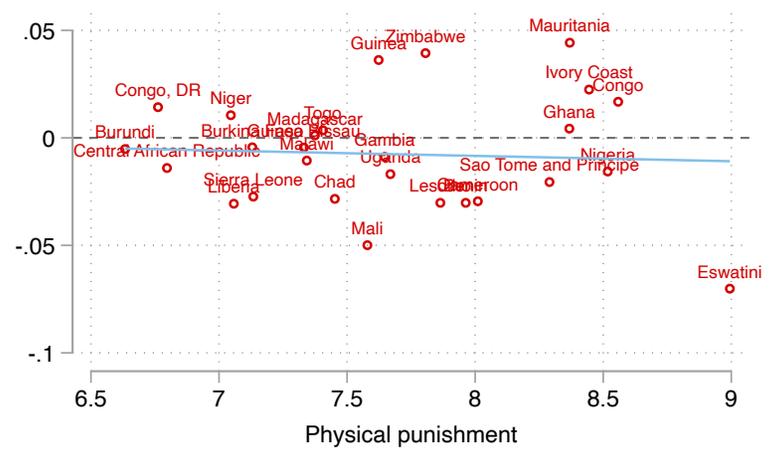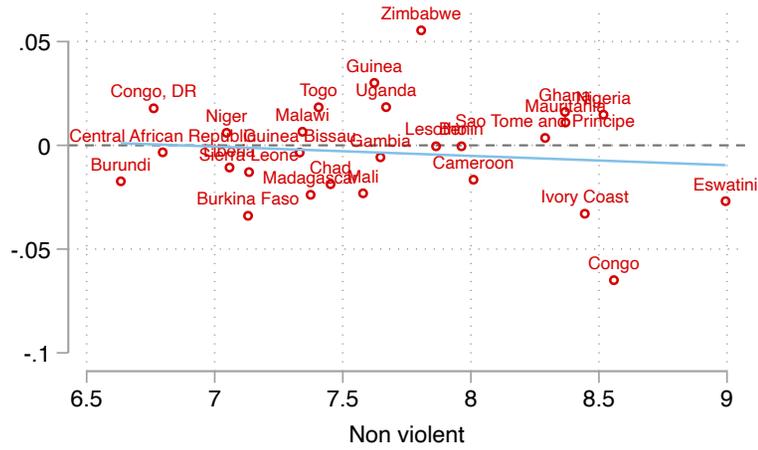
Human Development Index, female
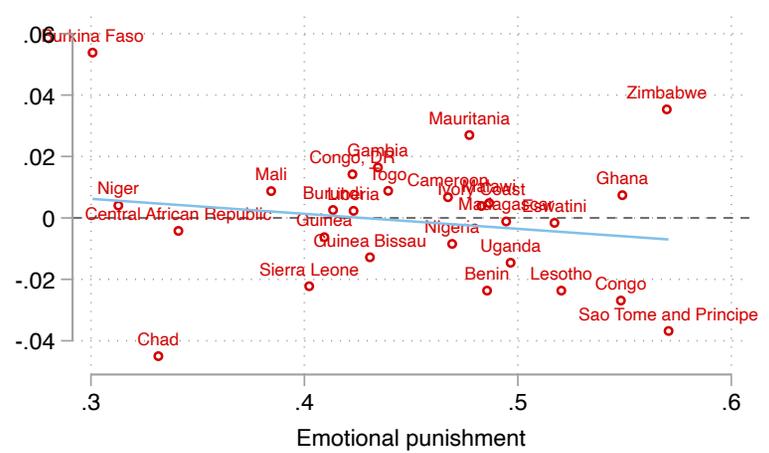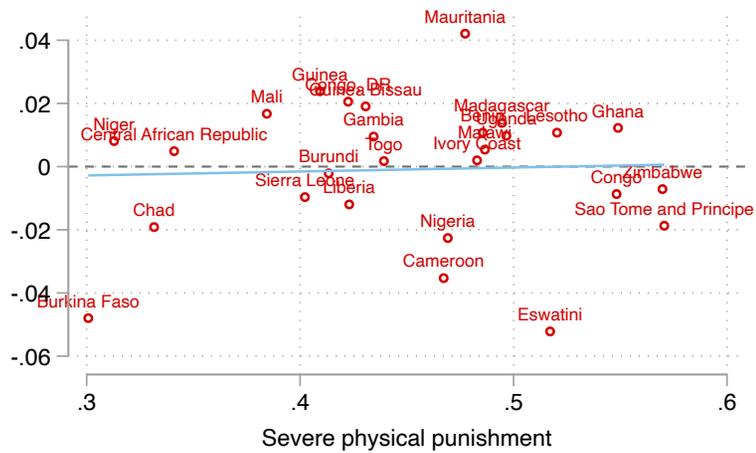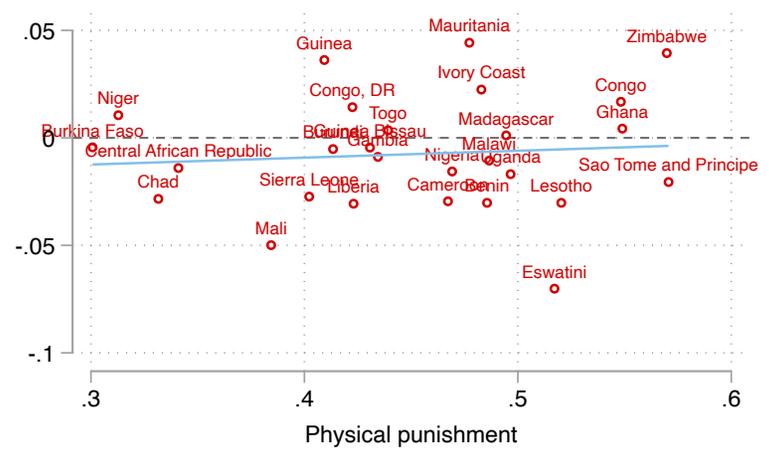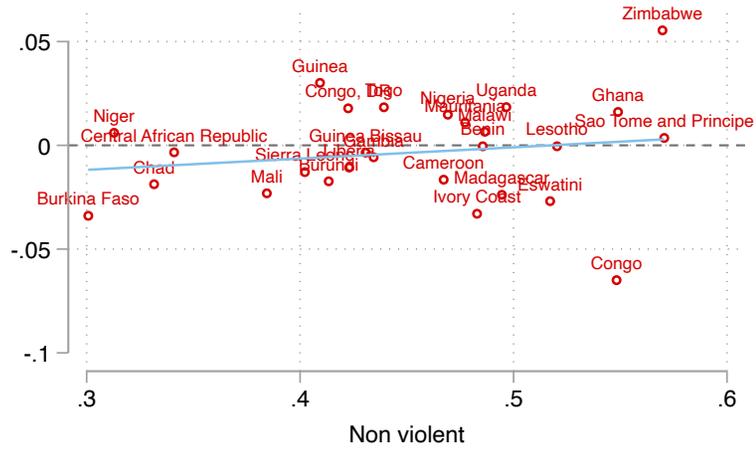
Panel c

GINI coefficient

19
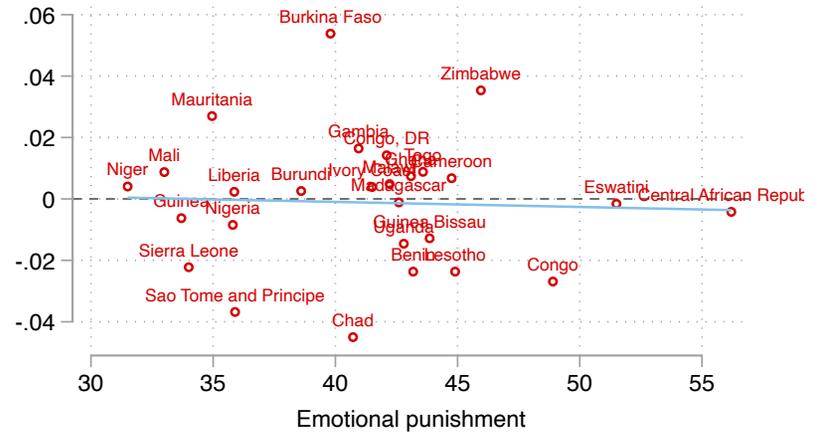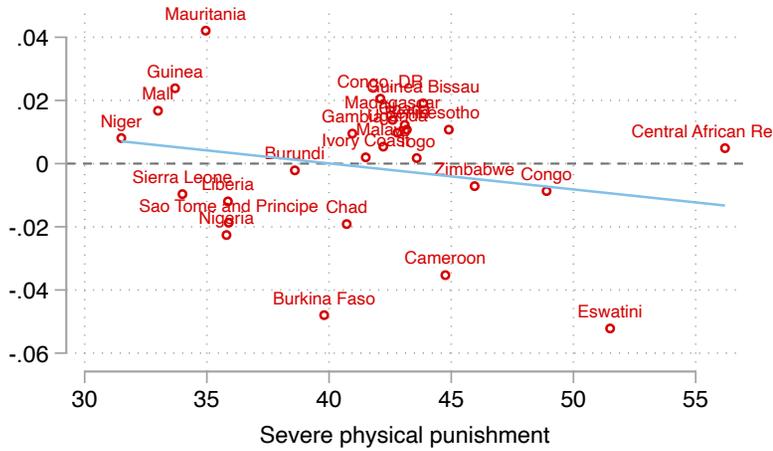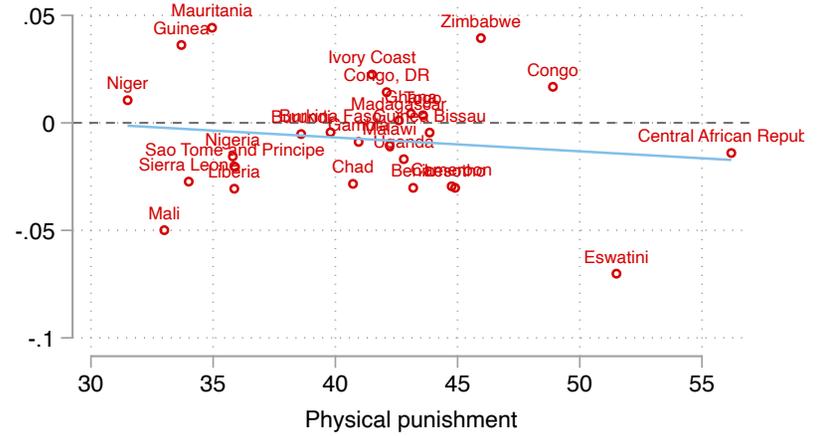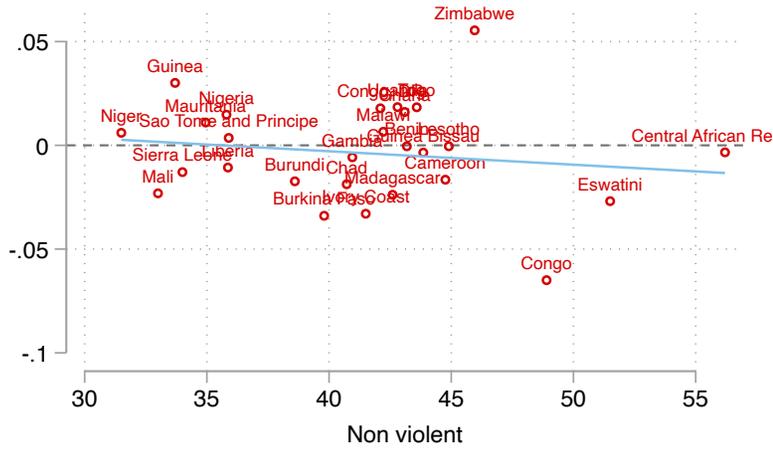
Panel d

Figure A7: Scatterplot of estimated associations with parental educational homogamy, by socioeconomic development country-level moderators

Gender Inequality Index (GII)
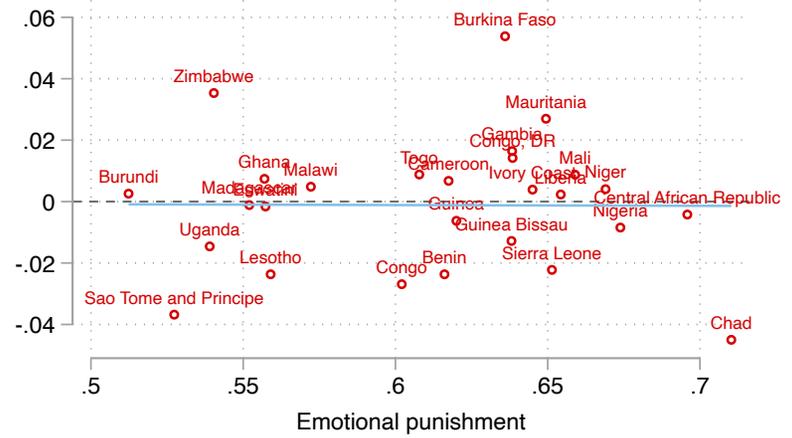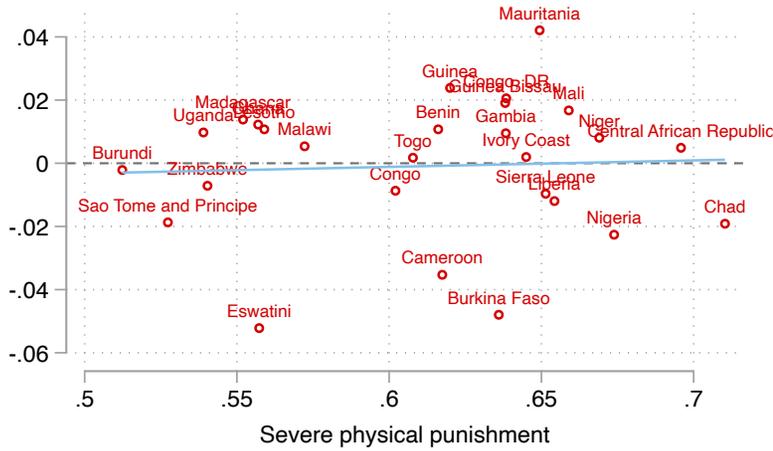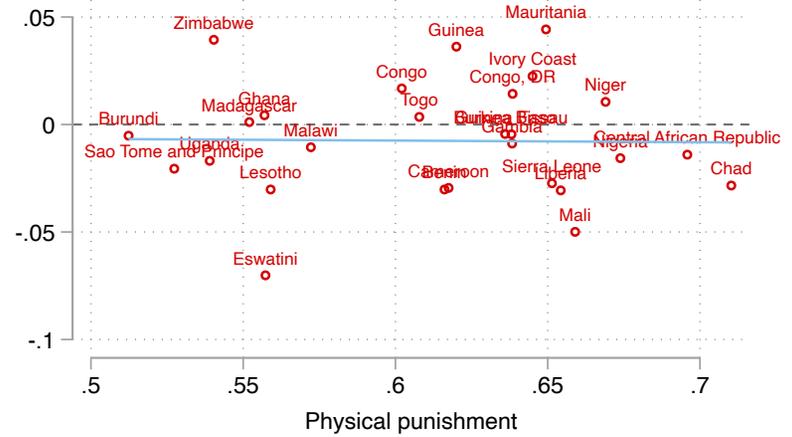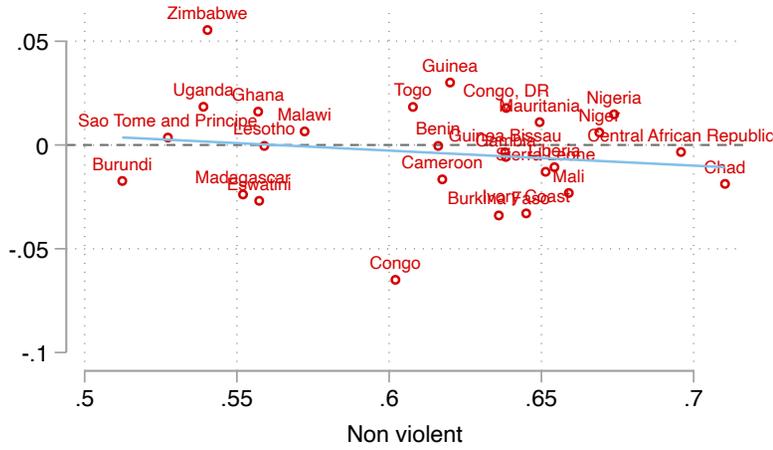
Female-to-male ratio in LFPR
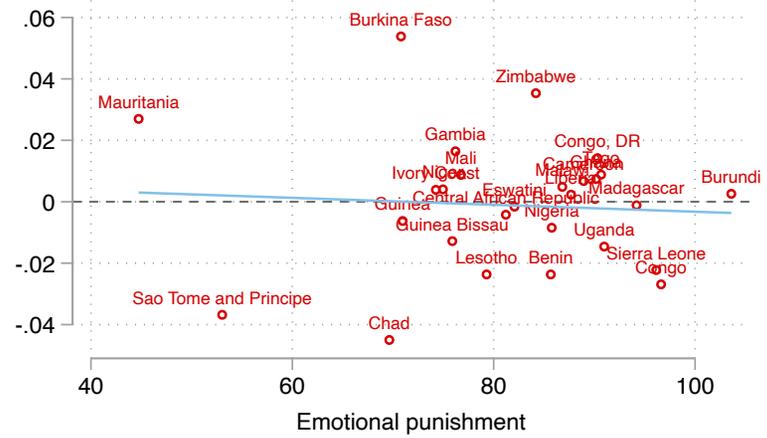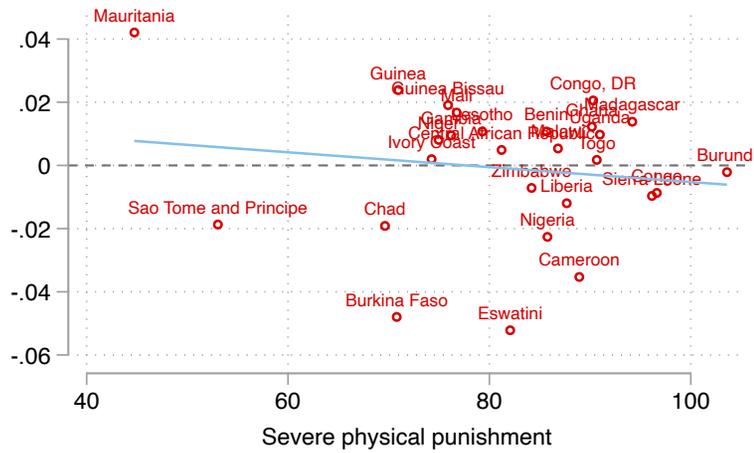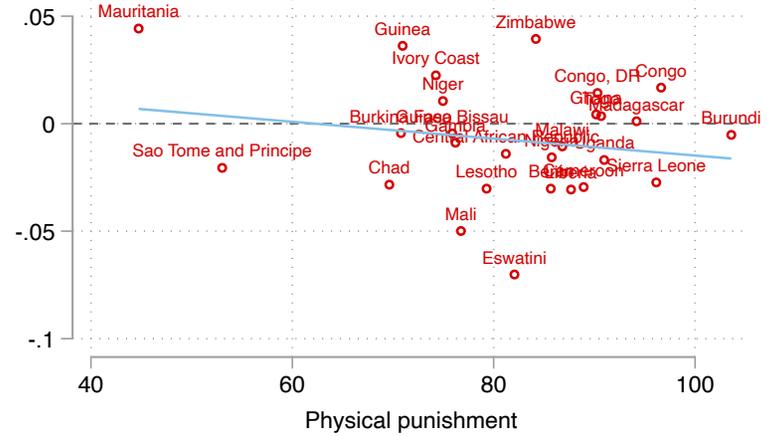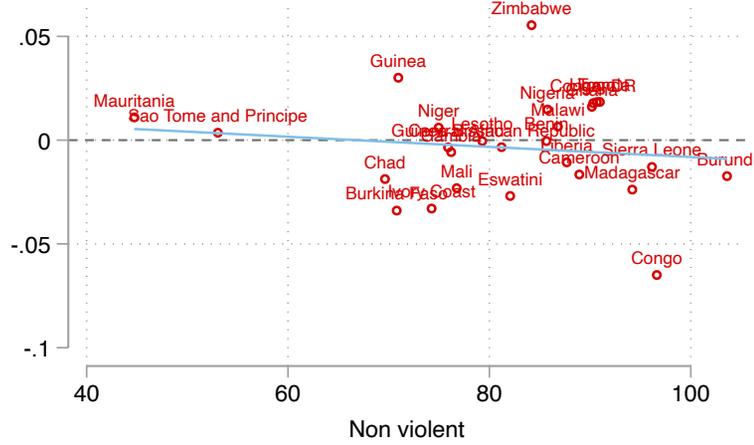
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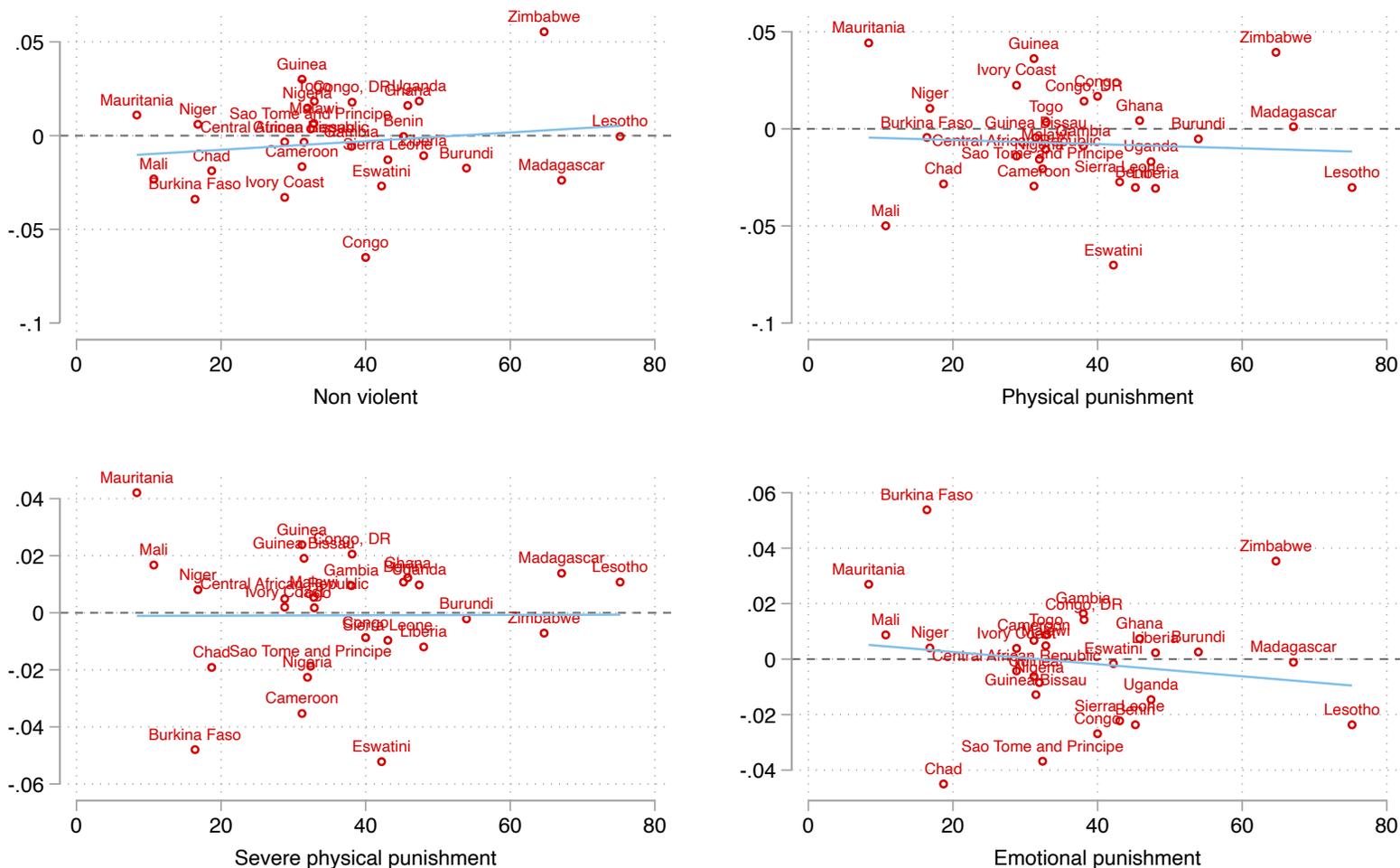
Prevalence of polygyny
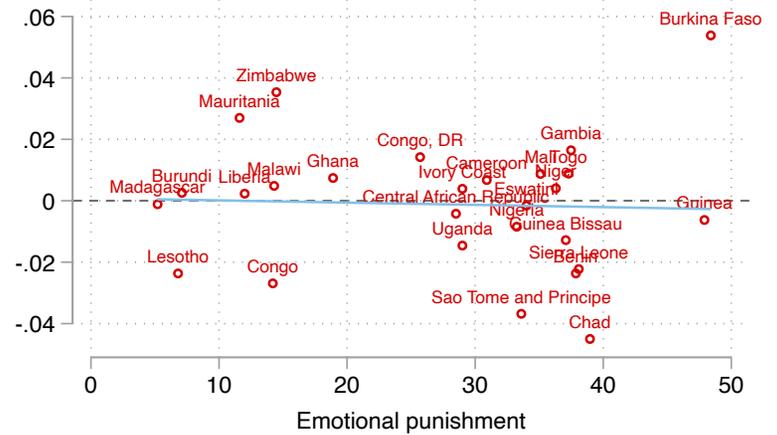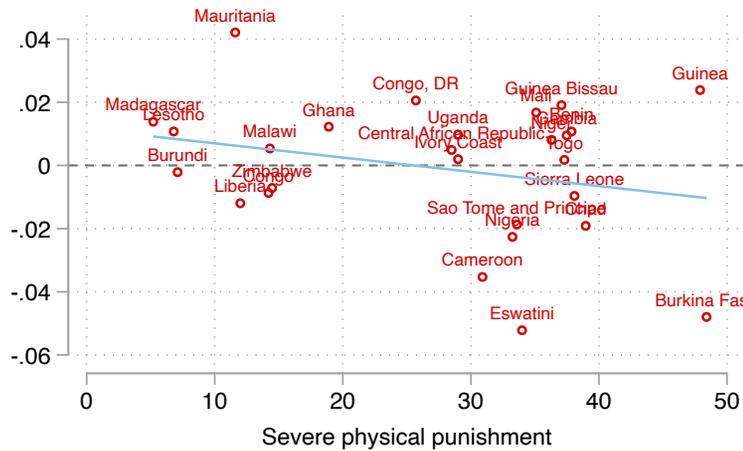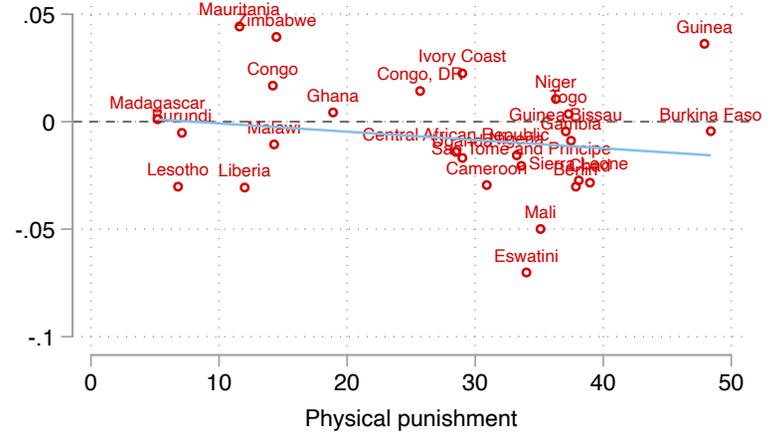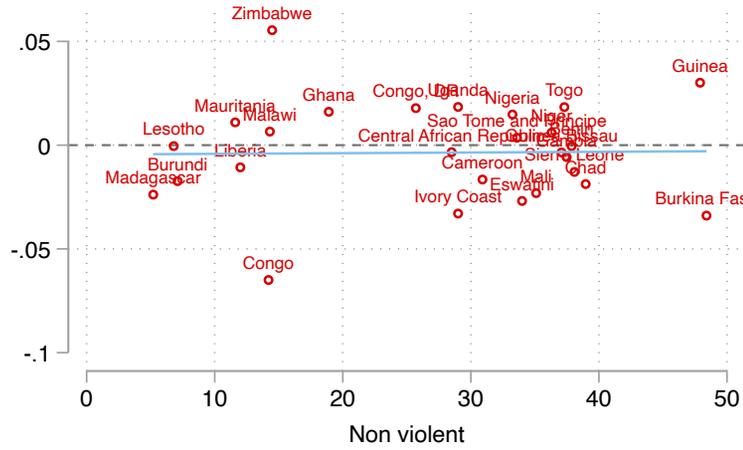
Panel d

Figure A8: Scatterplot of estimated associations with parental educational homogamy, by gender country-level moderators