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Do Men Matter for Fertility Outcomes? Evidence from Spousal Dynamics in the Philippines

Tania Dew S. Perez and Michael R.M. Abrigo

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CONTACT US:

RESEARCH INFORMATION DEPARTMENT
Philippine Institute for Development Studies

18th Floor, Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, Quezon City, Philippines

https://www.pids.gov.ph
publications@pids.gov.ph
(+632) 8877-4000

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Tania Dew S. Perez
Michael R.M. Abrigo

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Abstract

Female fertility patterns and its drivers have been extensively studied around the world, often to the exclusion of male fertility patterns especially in developing country contexts. We address this gap by examining male fertility patterns in the Philippines. Using own-children estimates derived from three decades of National Demographic and Health Surveys, we document a modest mismatch in male and female reproductive age windows and show that male total fertility rates exceed their female counterparts. Treating fertility as a joint spousal outcome, we quantify the contribution of spousal heterogamy in three dimensions, namely, age, educational attainment, and fertility preference, on observed fertility outcomes. We find that converging fertility outcomes coincide with observed homogamous matching. However, fertility gaps remain across wealth quintiles, suggesting systemic barriers that inhibit partners from realizing their fertility goals. By incorporating men into the analysis of fertility behavior, we provide the missing half of the fertility picture in a changing demographic landscape.

Keywords: Fertility rates, Institutions, Family planning, Gender dynamics

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Do men matter in fertility outcomes? Evidence from spousal dynamics in the Philippines

Tania Dew S. Perez[1], Michael R.M. Abrigo[☼]

1. Introduction

The last three decades have seen a continuous decline in total fertility rates in the Philippines, going past the replacement rate of 2.1 births per woman by 2022 (Philippine Statistics Authority & ICF 2022). This phenomenon is not unique to the Philippines, as many other countries are currently experiencing sub-replacement fertility levels, which contributes to population ageing (UN Population Division 2025). This demographic shift warrants serious scrutiny given its far-reaching implications to economies and society at large. As population ages and labor force shrinks, mounting pressures are anticipated on social security systems and government revenues that will threaten countries' fiscal sustainability. These converging demographic and economic challenges necessitate comprehensive policy reforms across multiple domains in the labor market, social protection systems, taxation frameworks, and national security.

This supports the importance of understanding fertility dynamics in shaping future polices. However, studies on fertility patterns are often restricted to those by females, of which its description and drivers have been extensively studied (Bongaarts 1978; Abrigo & Estopace 2023). Male fertility, especially in developing countries such as the Philippines, has yet to be thoroughly characterized. Often, male fertility is relegated outside active consideration due to better quality and availability of data on females (Paget and Timæus 1994; Schoumaker 2017) or because of the implicit assumption that spouses or partners would have similar reproductive behaviors and preferences (Greene & Biddlecom 2000). Age-specific male fertility rates are especially difficult to assess since the age of father is commonly left unreported and male reproductive age boundaries are less clearly defined (Paget and Timæus 1994; Schoumaker 2017). Overall, relying solely on female fertility rates lead to an erroneous assumption that male fertility rates follow the same patterns and trends as female fertility rates.

Male partners are seen as playing a large role in family planning and decision making in the Philippines (Lantiere et al. 2022) despite family planning being predominantly women-centric in the earlier years of reproductive health programs in the 1990s (Lee 1999). In later years, male involvement in such decisions were regarded more positively but in practice remains inadequate. The enactment of the Reproductive Health Law of 2012 was seen as a step forward to empowering women and the youth through universal access to modern contraceptives, but it is still highly focused on women's healthcare and services over male participation (Lantiere et al. 2022).

A comparison of male fertility rates and female fertility rates provides greater understanding of fertility behavior that can aid constructing more nuanced and grounded policies. After all, to obtain

[1] Research Analyst II and Fellow II, respectively, at the Philippine Institute for Development Studies. We are grateful for the thoughtful discussions by Dr. Aniceto Orbeta, Prof. Jong Wha Lee, and other participants of the 2025 PIDS Research Workshop Series and 20th International Convention of the East Asian Economic Association. All remaining errors are our own.
[☼]Corresponding author

a complete picture on fertility behavior for a population, male fertility may be just as necessary as female fertility. What do we know about male fertility? How different are male fertility patterns compared to women's? How does male fertility behavior impact reproductive decisions in the family? Are there characteristics that hold more influence in the final fertility decision among spouses? And for those spouses that do agree on their fertility intentions, can they achieve their fertility goals? There are possibly numerous factors to consider when a spousal unit makes these decisions. This paper contributes to this endeavor by describing male fertility patterns and investigating the association of three spousal attributes with declining fertility rates.

The second section of the paper investigates differences between male and female fertility patterns over the last three decades using seven waves of the Philippine National Demographic and Health Survey (NDHS). We reference available literature on male fertility and detail the results of our male fertility rate calculations using a modified own-children method. We document trends in fertility outcomes against several factors, further elucidating on whether fertility behavior between sexes diverge under familiar conditions. In our calculations, we anticipate finding the male fertility windows to be wider in span than females, and the total fertility rate (TFR) in males being higher, both of which is indeed the case. However, we also found that male and female fertility rates have been converging in the last 30 years, with male TFRs closely mirroring female trends although with a lag, following parallel trajectories across education, wealth, and region.

In the next section, we then consider spouses as a unit making joint fertility decisions. We explored trends in spousal differences across three dimensions, namely in age, educational attainment, and fertility preference. We estimate the contribution of spousal mismatches on the likelihood of having a recent birth and consequently on observed decline in aggregate TFRs. If these differences create power asymmetries, we should observe that mismatched couples (heterogamous) have different fertility outcomes than matched couples (homogamous), and that better-endowed partner's preferences prevail. We test this by estimating how spousal gaps affect birth probabilities and decomposing their contribution to aggregate TFR decline. We find spousal heterogamy contributes minimally to fertility decline. More importantly, 74 percent of couples now share identical fertility preferences, suggesting the real puzzle is not spousal disagreement but shared constraints preventing couples from achieving their goals.

Finally, we focus our attention to homogamous couples and their ability to fulfill their reproductive goals. Since spousal differences contribute minimally to fertility decline, the critical policy question shifts: when couples agree on their desired family size, what prevents them from achieving it? Observing fertility outcomes among homogamous couples across wealth quintiles reveals both progress and persistent challenges. The Philippines has made substantial gains in reducing unwanted births. Fertility gaps among women declined from 0.8 children in 1993 to 0.3 children in 2022. However, unrealized fertility goals persist across most wealth quintiles. Poorer households continue having more children than desired despite improved contraceptive access, while wealthier couples have fewer children than intended despite greater economic resources and lower unmet need for family planning. Understanding these opposing patterns requires examining structural factors beyond traditional family planning metrics, such as differences in employment patterns, household composition, housing conditions, and caregiving constraints across the wealth distribution.

Our findings carry three important implications. First, male and female fertility in the Philippines respond to common demographic forces. Policies designed around female fertility data capture the broader picture. Second, the declining contribution of spousal heterogamy to fertility outcomes means that disagreements between partners are not the primary driver of the country's fertility transition. Third, and most importantly, the persistence of fertility gaps among homogamous couples, particularly the divergence between poor households having excess children and rich households having fewer than desired, points to structural barriers rather than preference misalignment as the binding constraint on reproductive autonomy. Addressing unrealized fertility in a below-replacement Philippines requires policies that enable couples to achieve their stated goals, and not necessarily programs that assume partners need to be brought into agreement.

2. Differences in male and female fertility patterns

Earlier studies on male fertility showed that historically male fertility rates were higher than those for females in settings of gender imbalance such as cases of war, or high male or female migration (Kesternich et al. 2020). In higher fertility locales, male fertility is also significantly greater which is especially notable in prevalent polygynous cultures as in the case of many countries in Sub-Saharan Africa and in some countries in Western Asia (Schoumaker 2019). In contrast, low-fertility contexts exhibit attenuated sex differentials in fertility rates, though male rates continue to exceed female rates even in these settings. Analyses of fertility dynamics across demographic transitions reveal a systematic convergence of male and female fertility rates over time, manifested in declining male-to-female fertility ratios observed across diverse contexts including France, Poland, Taiwan, and multiple European populations. This suggests that male fertility rate decreases faster relatively to female fertility rates but nevertheless is only explicitly observed in developed countries due to limited studies (Schoumaker 2019). Using data from 17 countries, including Philippines in 1980 as a representative medium-fertility population, Paget and Timæus (1994) developed a standard model of male fertility and demonstrated that male age-specific fertility is characterized by a wider age range and a later peak relative to female fertility.

In the Philippines, data on male fertility are similarly limited as fertility research has predominantly focused on women. Schoumaker (2019) analyzed the male total fertility rates across 163 countries and found that it varies widely. Female rates range from one to eight births per female while male fertility was recorded to have rates as low as 1.2 in eastern and southern Europe, Japan, and South Korea, and as high as 10 children per male in Sub-Saharan Africa. The Philippines sits at 1.5 to 2.5 male total fertility rates as of 2011. The age of fatherhood all over the world is just as diverse from 28.5 to 45 years, with males in the Philippines having fathered at around ages 30 to 33. Compared to global male fertility rates, the Philippines lay around the global average. As for female fertility rates in the Philippines in 2011, the female fertility rate is around 3.1 according to the World Bank database. The median age of motherhood and fatherhood from registered births in 2022 are 27 and 30 respectively (Philippine Statistics Authority 2024). Notably, the share of fathers aged 45 and above is at 4 percent compared to Filipino mothers of the same age groups only at 0.3 percent, and fathers in the 15 to 19 age group constitute 3.4 percent as opposed to adolescent mothers at 10.3 percent, following the trend of mismatch in reproductive age.

We use own-children method (Grabill and Cho, 1965; Cho, et al., 1986) to infer male fertility patterns by linking children born in the year preceding the survey to their likely fathers. This

approach has been widely applied in prior studies of male fertility (e.g. Schoumaker, 2017, 2019; Paget and Timæus, 1994). For women, fertility is measured directly using complete birth histories. Throughout the analysis, we use a one-year reference period to minimize recall error and misclassification in parent-child linkages while maintaining sufficient sample size for stable age-specific fertility estimates.

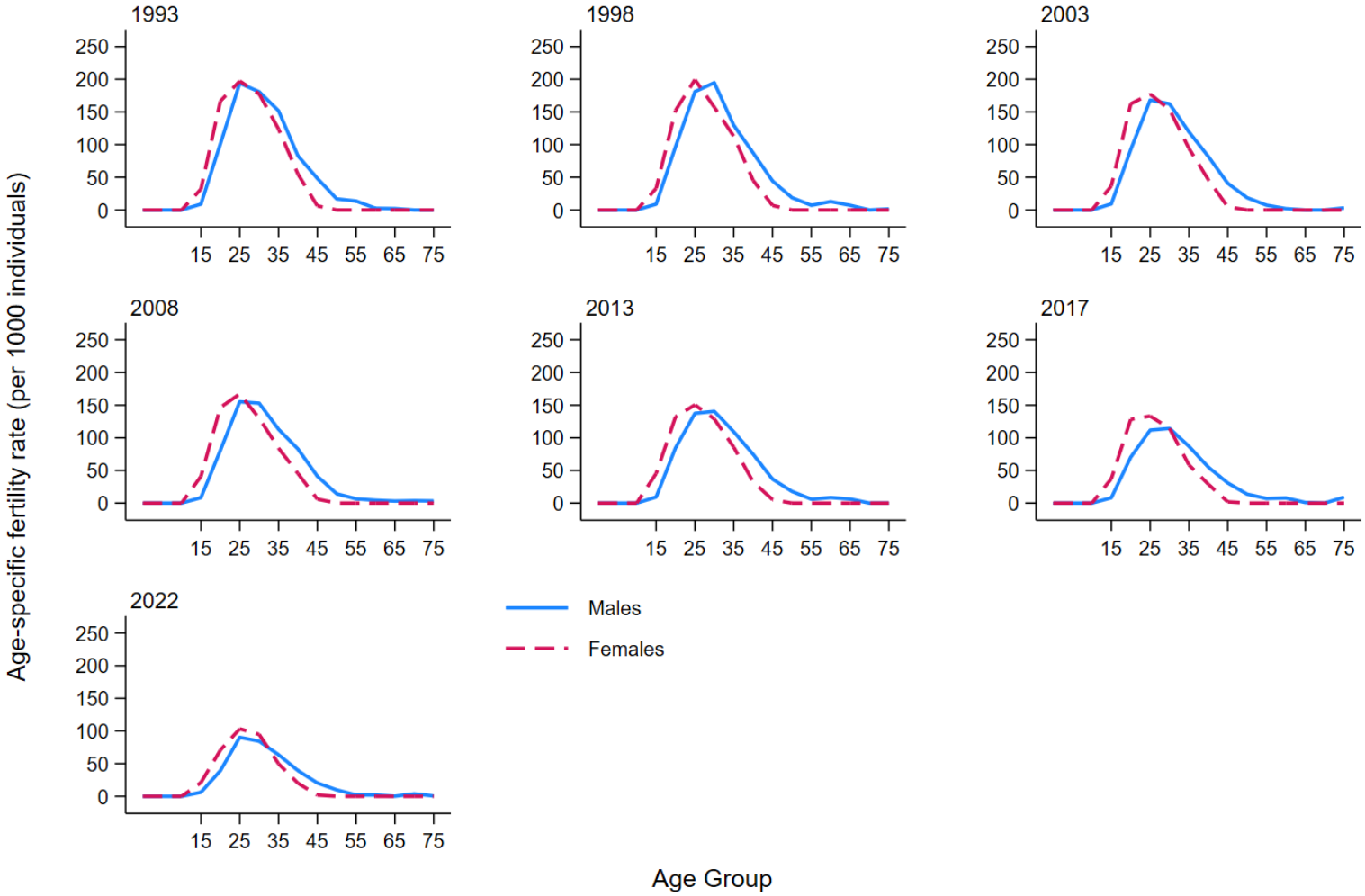
In households where parents co-reside, the NDHS permits the direct linkage of children to both parents through the mother's birth history and the explicit identification of her spouse within the household roster. For births occurring in non-cohabiting partnerships, where a direct father-child linkage is not observed in the household roster, we assign fatherhood probabilistically. Specifically, we randomly match each child to a male drawn from the pool of potential fathers with characteristics similar to those of the reported spouse or partner, as identified by the mother, along observable dimensions such as age and educational attainment. This procedure follows the standard extension of the own-children method when paternal co-residence is absent and preserves the joint distribution of spousal characteristics used in the analysis. This structure allows us to attribute recent births to male partners with minimal imputation error, thereby enabling the estimation of age-specific and total fertility rates for men.

Across all observed years, male fertility shifted toward older ages relative to female fertility with males exhibiting a wider fertility window (See Figure 1). Female ASFRs peak in the late 20s to early 30s whereas male ASFRs peak later and display a more extended right tail into older ages. Over time, fertility levels decline markedly for both sexes. These patterns suggest that relying on female data alone may obscure distinct timing and sustained contribution of male fertility at later ages. However, the results also indicate that male and female fertility patterns in the Philippines are broadly similar in their age profiles and timing trajectories.

Further examination of the fertility trends presented in Table 1 show other notable patterns over the 1993-2022 period. The total fertility rate (TFR) declined substantially for both sexes, falling from 4.04 to 1.84 for males and 3.79 to 1.81 for females, representing reductions of more than 50 percent across multiple years. This fertility transition occurred across all population subgroups, though the pace and magnitude varied considerably. Rural populations consistently showed higher fertility than their urban counterparts throughout the observation period however the differential narrowed considerably by 2022. A pronounced inverse relationship between education and fertility is evident, with those having no education or only preschool maintaining the highest rates while individuals with higher education demonstrated the lowest fertility levels.

TFR patterns across demographic groups reveal significant variations (Table 1), with wealth index displaying the most prominent fertility trend. The poorest quintile maintains above-replacement fertility at 2.5 to 2.9 children, a rate that matched the national average just ten years ago. The wealthiest Filipinos, averaging 1.2 to 1.5 children, have experienced minimal change over the past 30 years. By contrast, the poorest quintile has undergone dramatic transformation, declining from nearly 6 children per woman to less than half that figure within three decades. Although fertility

Figure 1. Male and female age specific fertility rates per thousand births



Source: Author's calculations using Philippines NDHS data. Note: Male ASFR was estimated using the own-children method and female ASFR from complete birth histories, both calculated using a one-year reference period. Due to limited number of samples, males age was restricted to 75.

Table 1. Total fertility rate by sex, selected characteristics and year

	Sex	1993	1998	2003	2008	2013	2017	2022
Total Fertility Rate	M	**4.04**	**3.96**	**3.62**	**3.34**	**3.19**	2.86	1.84
	F	**3.79**	**3.53**	**3.38**	**3.10**	**2.90**	2.51	1.81
Type of residence								
Urban	M	**3.67**	**3.56**	**3.22**	**3.00**	**3.01**	2.64	1.63
	F	**3.25**	**2.90**	**2.89**	**2.64**	**2.61**	2.24	1.59
Rural	M	4.48	**4.43**	**3.98**	3.72	3.35	3.03	2.09
	F	4.51	**4.36**	**4.05**	3.68	3.24	2.77	2.09
Highest Education Level								
No education,	M	4.08	4.87	3.97	4.47	3.40	3.04	2.35
preschool only	F	4.12	4.14	3.89	3.26	2.66	3.35	1.76
Primary	M	**4.73**	4.42	**4.17**	**3.65**	**3.62**	3.47	2.01
	F	**5.24**	4.60	**4.87**	**4.40**	**4.09**	3.64	2.67
Secondary	M	3.87	**4.04**	**3.61**	3.56	**3.42**	3.25	1.97
	F	3.64	**3.54**	**3.34**	3.47	**3.29**	2.82	2.20
Higher	M	**3.25**	**3.63**	**3.44**	**2.76**	**2.62**	1.99	1.62
	F	**2.60**	**2.87**	**2.61**	**2.12**	**2.06**	1.80	1.34
Wealth Index								
Poorest	M	**5.40**	5.98	5.26	4.92	4.73	4.06	**2.53**
	F	**5.87**	6.00	5.44	5.00	4.79	3.81	**2.92**
Poorer	M	5.11	4.50	**4.18**	**3.78**	**3.42**	2.89	1.80
	F	5.02	4.54	**4.48**	**4.03**	**3.67**	3.10	1.87
Middle	M	**4.00**	**3.66**	3.43	**3.08**	2.94	2.20	1.96
	F	**4.09**	**3.35**	3.49	**2.98**	2.94	2.28	1.93
Richer	M	3.23	**3.36**	**2.84**	**2.98**	**2.77**	2.62	1.56
	F	3.12	**2.86**	**2.63**	**2.68**	**2.33**	1.92	1.46
Richest	M	**2.73**	**2.84**	**2.60**	**2.16**	**2.30**	2.35	**1.46**
	F	**1.91**	**2.04**	**1.83**	**1.71**	**1.60**	1.87	**1.19**

Source: Author's calculations using Philippines NDHS. Note: Figures highlighted in bold indicate a significant difference between female and male values in the same group at 5 percent alpha level.

Table 1. Total fertility rate by sex, selected characteristics and year *(continued)*

		1993	1998	2003	2008	2013	2017	2022
Region								
National Capital Region	M	**3.27**	**3.46**	**3.21**	**2.83**	**2.87**	3.16	**1.47**
	F	**2.79**	**2.34**	**2.58**	**2.30**	**2.24**	1.96	**1.05**
CAR	M	4.53	3.33	3.48	2.09	3.07	2.29	**1.73**
	F	4.31	3.64	3.22	2.28	2.79	2.46	**2.16**
I- Ilocos	M	4.12	3.13	**3.30**	**3.57**	**2.14**	2.72	**1.36**
	F	4.16	3.13	**3.47**	**3.39**	**2.65**	2.69	**1.92**
II - Cagayan Valley	M	3.92	2.76	3.76	3.33	3.12	2.38	1.82
	F	3.90	2.83	3.49	3.43	2.89	2.76	1.63
III - Central Luzon	M	**4.00**	**3.79**	**3.30**	2.88	2.95	2.16	1.52
	F	**3.49**	**3.60**	**2.91**	2.79	2.75	2.10	1.58
IVa - Calabarzon	M	3.37	**4.13**	3.02	**3.35**	3.18	3.93	2.11
	F	3.20	**3.42**	2.93	**2.94**	2.61	2.55	1.90
IVb - Mimaropa	M	4.78	5.21	4.95	5.24	3.75	2.73	2.21
	F	5.24	5.37	5.07	4.14	3.67	2.90	2.40
V - Bicol	M	5.04	5.15	4.63	3.71	3.57	2.99	1.76
	F	4.72	5.31	4.70	4.02	3.74	3.20	1.93
VI - Western Visayas	M	4.03	3.09	3.71	3.05	3.73	2.45	**1.65**
	F	3.84	3.36	3.61	2.93	3.54	2.61	**2.01**
VII - Central Visayas	M	3.97	**4.59**	3.52	2.92	2.94	2.26	1.96
	F	3.96	**3.76**	3.43	2.76	3.20	2.37	1.95
VIII - Eastern Visayas	M	4.36	5.43	4.15	3.50	3.28	2.27	1.40
	F	4.74	5.68	4.49	3.73	2.98	2.55	1.45
IX - Zamboanga Peninsula	M	4.65	3.94	3.61	4.09	**3.26**	3.26	2.18
	F	4.99	3.56	3.85	3.97	**2.83**	3.28	2.32
X - Northern Mindanao	M	5.21	5.07	3.64	3.53	**3.07**	2.99	2.15
	F	4.74	5.05	4.05	3.48	**2.86**	3.07	2.01
XI - Davao	M	**4.08**	3.44	3.20	3.42	**3.51**	2.07	1.92
	F	**3.65**	3.16	2.97	3.41	**3.01**	2.26	1.66
XII - Soccsksargen	M	4.95	4.11	4.11	3.01	3.36	2.85	2.08
	F	4.44	3.81	4.11	3.09	3.43	2.95	2.08
XIII - CARAGA	M	4.39	3.72	4.04	**4.34**	**4.25**	2.66	2.00
	F	4.25	3.84	4.37	**4.10**	**3.77**	2.76	2.12
B/ARMM	M	**4.59**	**5.77**	**4.07**	**5.84**	**5.06**	**3.37**	**3.39**
	F	**3.47**	**4.59**	**3.50**	**4.44**	**4.25**	**2.81**	**3.09**

Source: Author's calculations using Philippines NDHS. Note: Figures highlighted in bold indicate a significant difference between female and male values in the same group at 5 percent alpha level.

differences between wealth quintiles are converging, unrealized fertility goals remain prevalent, a matter explored further in Section 3.

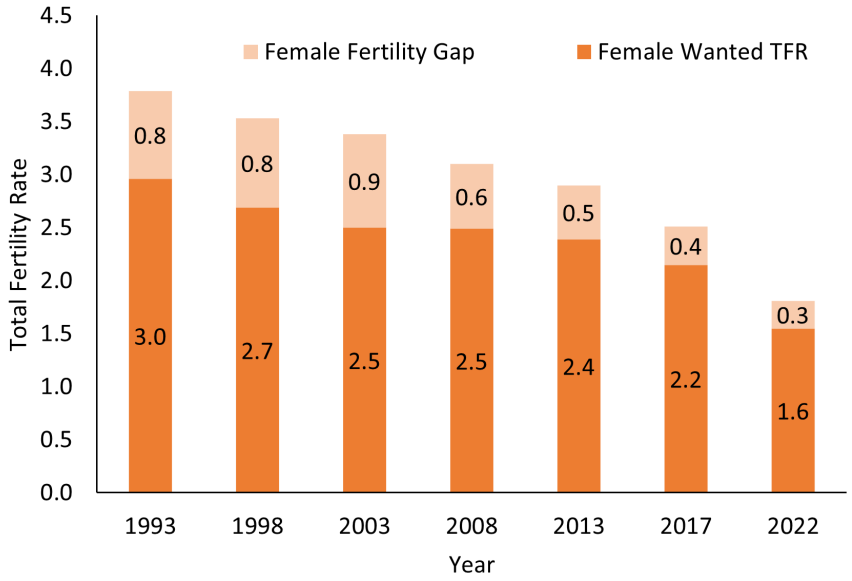
Regional fertility trends reveal substantial heterogeneity in the baseline levels of fertility. The National Capital Region (NCR) exhibited the lowest fertility rates throughout the period, declining from 3.27 to 1.47 for males and 2.79 to 1.05 for females, placing it well below replacement level by 2022. In contrast, the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) consistently maintained the highest fertility rates, though even this region experienced notable declines over the observation period. Most regions converged toward low to moderate fertility levels by 2022, with TFRs clustering between 1.4 and 2.4, though significant outliers remained, particularly in Mindanao regions including SOCCSKSARGEN, CARAGA, and BARMM. The sex differential in reported fertility rates varied considerably across regions and time periods, with statistically significant differences appearing most frequently in regions with higher overall fertility suggesting possible gender-specific reporting biases or differential estimation accuracy in areas with elevated fertility levels.

We also looked into significant trends in wanted fertility and fertility gaps in the Philippines from 1993 to 2022. Using the same database of linked fathers from the own-children method in the previous determination of male ASFR and TFR, Wanted TFR was imputed from wanted births based on the partner's desire for children and ideal versus actual family sizes. Both male and female wanted TFR have declined substantially over this period, with female wanted fertility dropping from 3.0 to 1.6 children and male wanted fertility decreasing from 2.5 to 1.3 children. Notably, men consistently report lower desired fertility than women across all time points, though this gender gap has narrowed over time. The wanted fertility particularly for women experienced a dramatic gap decrease from 0.8 children in 1993 to just 0.3 children in 2022. Men's fertility gap also declined from 1.5 to 0.5 children over the same period. This convergence suggests that Filipinos are increasingly able to achieve their fertility preferences, likely reflecting improved access to family planning services and contraception, a potential aftereffect of the implementation of the Reproductive Health Act in 2012. However, the persistence of any gap indicates that barriers to fully realized reproductive autonomy remain, especially for men who show larger unrealized fertility intentions in the most recent data.

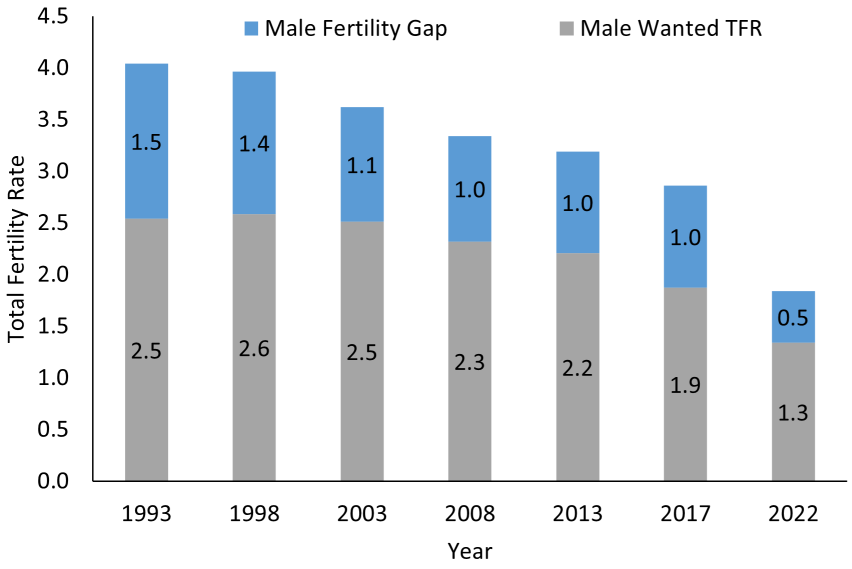
This synchronicity in peak fertility may also be suggestive of assortative mating or homogamy among marital couples, where partners with similar fertility preferences pair together, or alternatively, that couples negotiate and align their reproductive goals over the course of their relationships. To verify whether these aggregate trends reflect genuine couple-level concordance or merely population-wide shifts, we now examine matched couples and their differences in fertility preferences.

Figure 2. Wanted TFR and fertility gaps by sex and year

A. Female



B. Male



Source: Author's calculations using Philippines NDHS. Note: Male wanted TFR is based on imputed wanted births per year using ideal and actual family sizes among mothers and linked fathers (See Appendix).

3. Do spousal differences drive fertility outcomes?

This section investigates whether spousal differences are substantial enough to create imbalances in couple dynamics that could affect fertility outcomes. Specifically, we examine spousal differentials across three key dimensions: age gaps, educational attainment disparities, and differences in fertility desires between partners. By analyzing these differentials, we seek to

understand whether and how mismatches between spouses contribute to reproductive decision-making patterns. To assess the effect of these differences on fertility outcomes, we employ linear probability models that allow us to quantify the relationship between each type of spousal differential and actual fertility behaviors. Finally, we evaluate the degree to which these spousal differentials contribute to baseline fertility outcomes, helping us determine whether couple-level heterogeneity plays a meaningful role in explaining aggregate fertility patterns.

Spousal differential patterns have direct implications for understanding fertility gaps: power imbalances stemming from human capital asymmetries could constrain women's ability to achieve their fertility preferences. As homogamy increases alongside women's educational and economic advancement, we might expect greater concordance in spousal fertility preferences and improved realization of reproductive goals.

There are few cited literature that document influence of spousal age differences on fertility outcomes and reproductive decision-making within marriages. Presser's work (1975) on age differences between spouses reveals that while men have traditionally been older than their female partners, these age gaps have been narrowing over time, reflecting broader shifts toward age homogamy in marriage markets. Dudel and Klüsener (2021) found that across 17 high-income countries, men are on average older than their female partners at childbirth, but this age difference has decreased in recent decades, with exceptions in parts of Eastern Europe where gaps remained stable or increased. Presser attributes historical age gaps to gendered marriage market dynamics and demonstrates that larger spousal age differences are associated with more traditional gender power dynamics. Conversely, trend toward age-similar marriages suggests more egalitarian partnerships where couples may negotiate fertility decisions more collaboratively.

We first examined share of heterogamous couples across different dimensions of spousal characteristics in the Philippines from 1993 to 2022 (Table 2). In terms of age, Filipino marriages exhibit a tendency toward older-husband, younger-wife dynamics, though this pattern has gradually declined from 78 percent in 1993 to 69 percent in 2022. This shift suggests a slow movement toward greater age homogamy. In contrast, educational heterogamy shows no clear directional trend over the three-decade period, with the share of educationally matched couples fluctuating between roughly 23 percent and 33 percent while hypergamy (husband more educated) and hypogamy (wife more educated) remain stable. Most notably, fertility preference alignment between spouses is remarkably high and has increased over time with 74.3 percent of couples reporting equal desired fertility by 2022. This convergence in reproductive goals suggests either strong assortative mating on fertility preferences or effective couple-level negotiation and alignment.

We estimate the association between spousal heterogamy and recent fertility using linear probability models where dependent variable indicates whether a birth occurred in the year preceding the survey. The key explanatory variables are categorical indicators for spousal differences, specifically whether the husband is older or younger than the wife (with same-age couples as reference), whether the husband has more or less education than the wife (with educationally matched couples as reference), and whether the husband desires more or fewer children than the wife (with concordant couples as reference). We control for the wife's age, educational attainment, fertility preference, number of existing children, history of child loss,

sustained contraceptive use (2+ years), household wealth quintile, and region of residence. This specification allows us to isolate the contribution of spousal differentials net of individual characteristics that independently affect fertility. We estimate separate models for each survey year to track how these associations evolve over three decades, then use the coefficients to decompose the contribution of changing spousal heterogamy patterns to aggregate TFR decline, following the modified Kitagawa-Blinder-Oaxaca decomposition in Abrigo and Estopace (2023).

Table 2. Spousal heterogamy in age, education and fertility preference by year

	Share of couples (%)						
	1993	1998	2003	2008	2013	2017	2022
Age							
Husband > Wife	78.1	72.7	71.8	73.0	72.6	71.8	69.1
Husband = Wife	8.2	9.4	9.5	9.0	9.3	10.1	11.2
Husband < Wife	13.7	17.4	18.7	17.8	17.9	18.1	19.6
Education							
Husband > Wife	33.3	31.9	31.7	27.7	29.6	31.7	38.5
Husband = Wife	32.5	33.2	29.8	22.6	32.5	32.4	29.5
Husband < Wife	34.2	34.3	38.3	49.3	37.6	35.9	31.8
Fertility preference							
Husband > Wife	15.6	19.7	22.0	19.6	20.7	20.3	16.7
Husband = Wife	63.8	70.2	67.3	71.3	69.7	69.0	74.3
Husband < Wife	17.7	7.1	6.5	6.1	6.8	7.5	6.1

Source: Author's calculations using Philippines NDHS data. Note: Sample includes ever-married women, covering both legally recognized marriages and marriage-like unions.

The linear probability model on births in past year and spousal heterogamy suggest that age heterogamy, particularly when the husband is older than the wife, reduces the probability of recent childbirth (Table 3). This implies that husband-wife age gaps may dampen fertility as the coefficients ranging from -0.029 to -0.043 suggest, possibly due to biological factors or differing life-course. Conversely, age-hypogamous marriages where wives are older show negligible effects across all periods. Educational heterogamy exhibits weak and largely insignificant associations with recent fertility. Fertility preference heterogamy, however, reveals a notable pattern: when husbands report higher fertility preferences than wives, couples demonstrate significantly elevated probabilities of recent childbirth in most survey years from 1998 onward while the reverse configuration shows no consistent effect. These findings suggest that male fertility preferences may exert disproportionate influence on reproductive decision-making within couples particularly in contexts where gender power asymmetries persist. The results are similar even when wanted births per year is analyzed as in Panel B.

Table 3. Spousal heterogamy and recent childbirth by year

A. Births in past year

	1993	1998	2003	2008	2013	2017	2022
Age							
Husband > Wife	-0.043**	-0.036**	-0.029*	-0.007	-0.040***	0.012	-0.013
	(0.015)	(0.014)	(0.014)	(0.013)	(0.012)	(0.009)	(0.008)
Husband < Wife	0.003	-0.021	-0.005	0.013	-0.025	0.013	0.003
	(0.017)	(0.016)	(0.016)	(0.015)	(0.014)	(0.010)	(0.009)
Education							
Husband > Wife	-0.006	-0.014	-0.008	-0.001	0.000	0.007	0.005
	(0.010)	(0.010)	(0.011)	(0.011)	(0.009)	(0.007)	(0.006)
Husband < Wife	0.013	-0.005	0.002	0.006	-0.004	0.004	0.006
	(0.010)	(0.010)	(0.010)	(0.012)	(0.009)	(0.007)	(0.006)
Fertility preference							
Husband > Wife	-0.001	0.045***	0.019	0.043***	0.041***	0.024***	0.017*
	(0.011)	(0.010)	(0.010)	(0.010)	(0.009)	(0.007)	(0.007)
Husband < Wife	-0.013	0.018	0.004	-0.011	0.014	-0.023*	-0.002
	(0.011)	(0.016)	(0.017)	(0.017)	(0.014)	(0.010)	(0.010)
Control variables							
Wife's age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wife's highest grade completed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wife's fertility preference	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Children count one year ago	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ever experienced child loss (=1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Have been using FP for 2+ years (=1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household wealth quintile	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Residence region	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	9,132	8,559	7,868	7,748	9,016	14,354	14,255
Partial R-sq.	0.003	0.003	0.002	0.003	0.004	0.002	0.001
R-sq.	0.151	0.155	0.134	0.128	0.140	0.143	0.120

Table 3. Spousal heterogamy and recent childbirth by year (continued)

B. Wanted births in past year

	1993	1998	2003	2008	2013	2017	2022
Age							
Husband > Wife	-0.052***	-0.024	-0.031*	-0.010	-0.038***	0.001	-0.014*
	(0.013)	(0.012)	(0.012)	(0.012)	(0.011)	(0.008)	(0.007)
Husband < Wife	-0.006	-0.007	-0.007	0.008	-0.028*	0.014	-0.001
	(0.016)	(0.014)	(0.014)	(0.014)	(0.013)	(0.010)	(0.008)
Education							
Husband > Wife	-0.002	-0.003	-0.009	-0.010	-0.001	0.005	-0.005
	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.007)	(0.006)
Husband < Wife	0.015	0.000	-0.005	0.009	-0.004	0.001	0.000
	(0.009)	(0.009)	(0.009)	(0.011)	(0.008)	(0.006)	(0.006)
Fertility preference							
Husband > Wife	-0.004	0.036***	0.007	0.029**	0.042***	0.019**	0.015*
	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.006)	(0.006)
Husband < Wife	-0.017	0.030*	0.005	-0.024	0.012	-0.027**	-0.010
	(0.010)	(0.014)	(0.015)	(0.016)	(0.013)	(0.010)	(0.010)
Control variables							
Wife's age	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wife's highest grade completed	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wife's fertility preference	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Children count one year ago	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ever experienced child loss (=1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Have been using FP for 2+ years (=1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household wealth quintile	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Residence region	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	9,132	8,559	7,868	7,748	9,016	14,354	14,255
Partial R-sq.	0.004	0.003	0.002	0.003	0.004	0.002	0.001
R-sq.	0.154	0.152	0.131	0.127	0.135	0.146	0.113

Source: Author's calculations using Philippines NDHS data. Note: Estimates are based on linear probability models at the household level and controlled for variables indicated in the table. *, **, *** indicate statistical significance of 1-, 5- , and 10- percent alpha levels, respectively.

Figure 3 presents the decomposition of spousal heterogamy effects on female total fertility rates (Panel A) and wanted total fertility rates (Panel B) across three key dimensions: age, education, and fertility preferences. The contribution of age heterogamy exhibits considerable volatility throughout the observation period, with the direction of effects varying substantially by whether the husband or wife is older. When husbands are older than wives, age heterogamy contributes negatively to TFR in most survey years, with particularly pronounced effects in 1993 and 2013. Conversely, age-hypogamous unions (wife older than husband) show minimal and relatively stable contributions to fertility across the entire period. Educational heterogamy demonstrates remarkably consistent null effects on both total and wanted fertility, with point estimates hovering near zero regardless of which spouse has higher educational attainment. Fertility preference heterogamy similarly shows negligible contributions to TFR differentials, with tightly bounded confidence intervals around zero for both directional patterns of spousal discordance. The contrast between Panel A and Panel B suggests that age heterogamy's influence operates primarily through other constraints than couples' fertility intentions.

When determining the overall contribution against baseline TFR for the last 30 years, spousal differences explain remarkably modest effects across all dimensions of spousal heterogamy examined. Age-hypergamous unions (husband older than wife) contributed 0.06 children or just 1.4 percent of the baseline TFR, with a slightly larger contribution of 2.4 percent to wanted fertility. Educational heterogamy contributed minimally to fertility change regardless of directionality, accounting for less than 1 percent of baseline. Fertility preference heterogamy showed the largest effects -1.8 percent of baseline and -2.5 percent in wanted TFR when the husband is older. However, these contributions remain substantively small when contextualized against other fertility determinants. Abrigo and Estopace (2023) found that their model using female-specific characteristics account for around two-thirds of observed fertility change in the Philippines, dwarfing the 1-2 percent contribution attributable to spousal heterogamy documented here. These small effect sizes imply that spousal pairing patterns alone cannot explain the country's sustained fertility decline. Since the majority of couples now agree on their desired fertility yet gaps between intended and realized fertility persist, the binding constraints then likely lie outside the household, i.e., in structural barriers that prevent couples from achieving their stated reproductive goals.

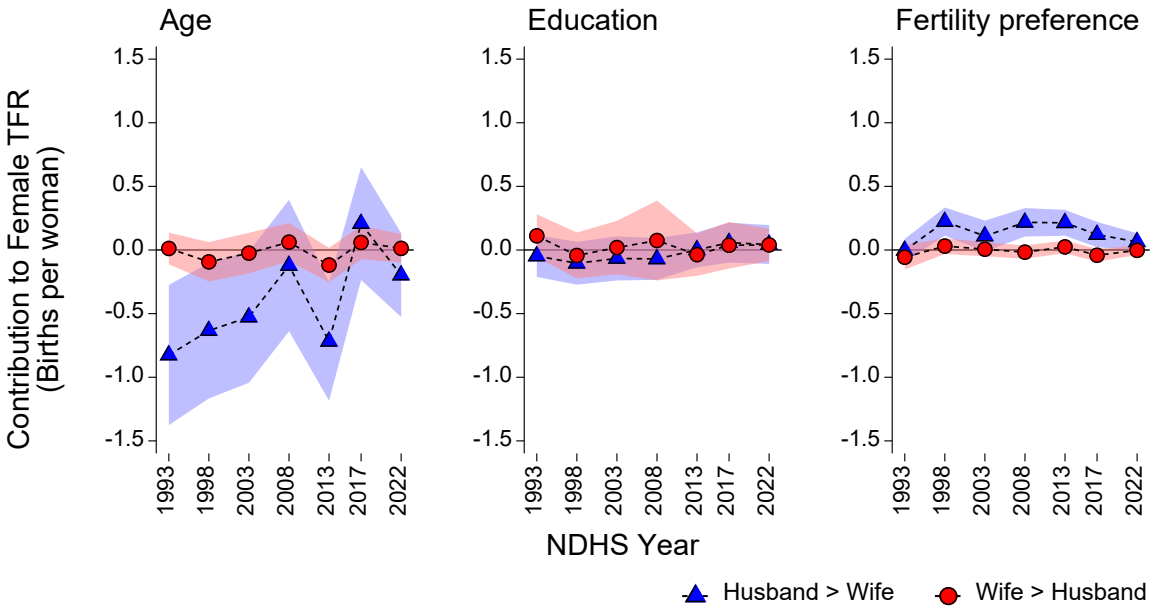
Table 4. Contribution of spousal heterogamy to female TFR change

Spousal heterogamy	Contribution to TFR change, 1993-2022			
	TFR		Wanted TFR	
	Level	As % of baseline	Level	As % of baseline
Husband > Wife (Hypergamy)				
Age	0.057	1.4	0.070	2.4
Education	0.017	0.4	0.013	0.4
Fertility preference	-0.074	-1.8	-0.071	-2.5
Husband < Wife (Hypogamy)				
Age	-0.001	0.0	-0.004	-0.1
Education	-0.018	-0.4	-0.040	-1.4
Fertility preference	0.040	1.0	0.048	1.7

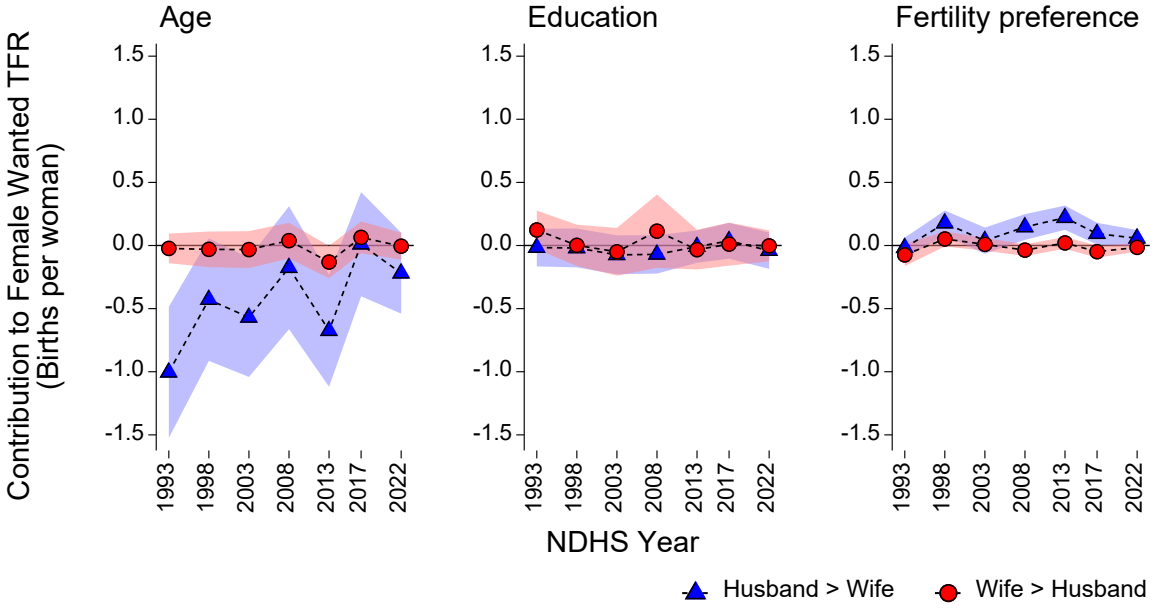
Source: Author's calculations.

Figure 3. Contribution of spousal heterogamy to female period TFR by year

A. Total fertility rate



B. Wanted total fertility rate



Source: Author's calculations.

4. When spouses agree, can they achieve their desired fertility?

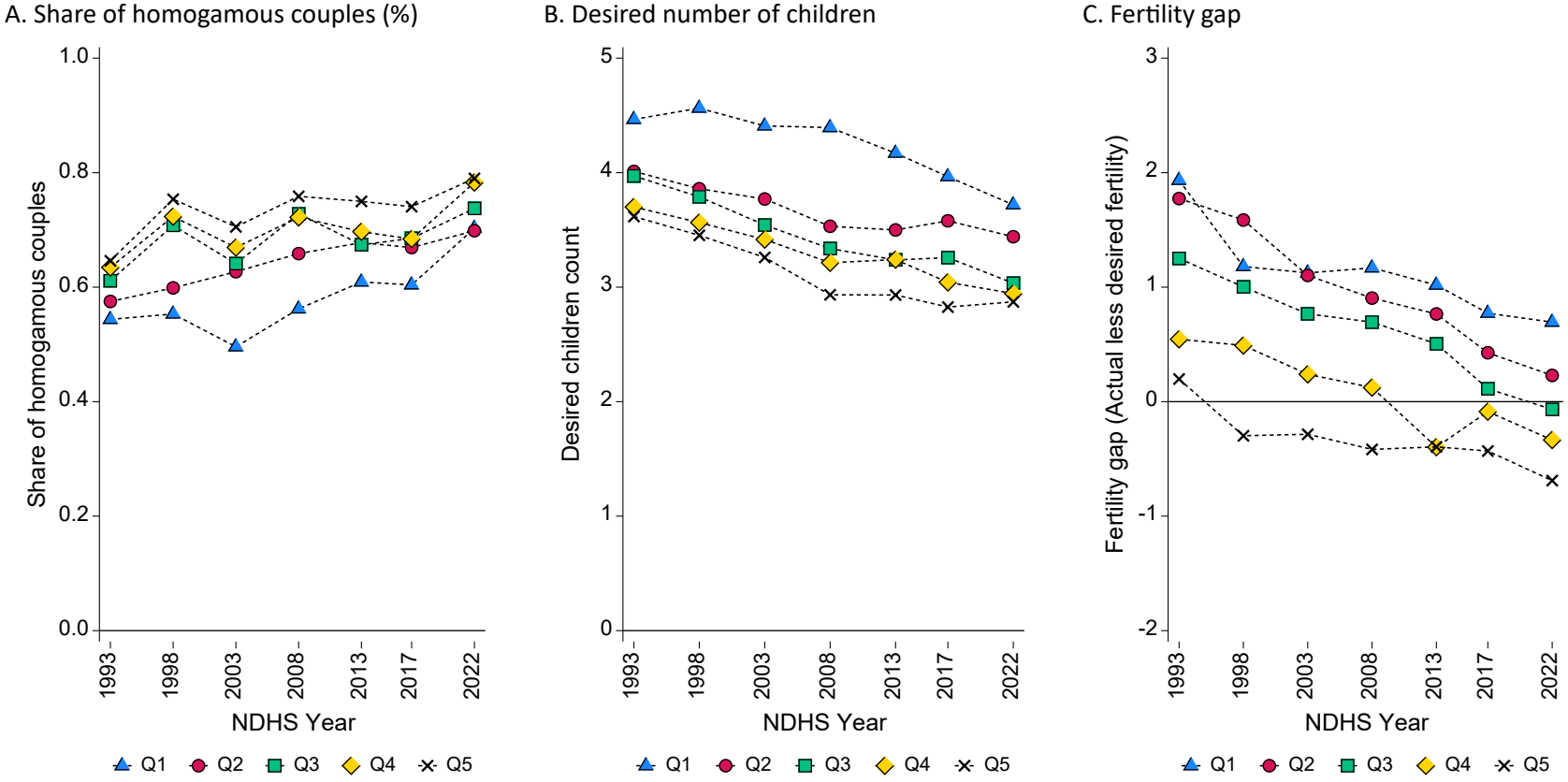
Given that spousal heterogamy offer minimal impact on fertility outcomes, it is important to look at the proportion of couples who do share fertility ideals. Can they achieve their desired fertility or are they possibly inhibited by factors outside the household?

Figure 4 illustrates the evolving patterns of fertility preference homogamy across wealth quintiles and time, and their implications for fertility outcomes. Panel A shows a steady increase in the share of homogamous couples from 1993 to 2022, indicating that partners are becoming more aligned in their fertility intentions, particularly among wealthier households (Q4 and Q5). Panel B reveals a general decline in desired number of children across all wealth groups. However, Panel C shows persistent fertility gaps that are especially pronounced among lower-income households (Q1), where actual fertility remains above desired levels, and among the wealthiest couples (Q5), who fail to realize their intended family size. Together, these findings suggest that while spousal agreement on fertility ideals has improved over time, wealth position shapes whether couples achieve their reproductive goals and in which direction they fall short. Lower-income couples continue having more children than desired, while wealthier couples increasingly have fewer children than intended. These opposing patterns point to different structural constraints operating across the wealth distribution. In the following section, we explore potential barriers, such as employment patterns, household composition, housing conditions, and family planning access, that may explain why homogamous couples across all wealth quintiles struggle to translate shared fertility preferences into realized outcomes.

Economic precarity can greatly impact fertility behavior, particularly among young adults and low-income households (Aderotti et al. 2021; Guner et al. 2019). In one study, employment has been shown to have a significant negative effect on fertility in Europe (Aderotti et al. 2021). Males in temporary contracts and especially unemployed males show negative impact on fertility. Women in fixed-term contracts are also less like to mother children, all these effects compounding are found to be stronger and more prominent through time. Meanwhile, labor market frictions such as dual labor markets (temporary or open-ended contract employment) reduce fertility among college-educated women as shown by Guner, Kaya, & Sánchez Marcos (2019).

In developing-country contexts, accumulation of precarious employment, low earnings and poor social protection may undermine couples' capacity to have the number of children they intend. In the Philippines, women employment has risen over the years, with higher economic groups in the lead for women involvement in the workforce (Table 5 Panel A). Proportion of women employed full-time have also increased in the past 30 years, however, disparities across wealth quintiles continue to persist. Women working to earn are incentivized to remain engaged in their careers to avoid wage penalties. A meta-analysis on the studies involving the association of motherhood to wages show interruptions to a woman's career and loss of working experience as a considerable determinant to wage loss (Cukrowska-Torzewska & Matysiak 2020). Of particular interest are higher-wealth households where female employment is the highest. Despite economic barriers to childbearing being theoretically minimal, unrealized fertility persists, further corroborating that work-family incompatibilities potentially inhibit families from achieving their desired fertility outcomes.

Figure 4. Fertility preference homogamy and fertility outcomes of homogamous couples



Source: Author's calculations.

In addition, affordable housing and accessible childcare services are structural factors mediating the transition to parenthood. Rising housing costs have been linked with delayed fertility or reduced fertility intentions. For instance, Clark (2012) found that in the United States high housing costs delayed first births by 3-4 years. OECD (2024) showed that increasing housing expenditure is negatively correlated with fertility outcomes across OECD countries. Similarly, high childcare costs and lack of liquidity to purchase care constrain women's labor supply and by extension parenthood decisions (Casarico et al, 2023). In the case of Filipino families, Table 9 Panel C shows the trend in Filipino household living arrangements shifting towards an extended family structure. Wealthier families are especially disposed to maintain extended households, possibly to pool resources across generations and enabling greater investment for each child. Despite the presence of extended family support, families in higher quintiles still experience a smaller family size than their ideal. Poorer families are also starting to switch to extended households, but on the other hand end up having more children realized than desired (Figure 4 Panel C), even if this means having to share more housing space with family members (Table 5 Panel D). Nevertheless, modest improvements have been observed over the past three decades, with lower-income households experiencing a reduction of approximately one person per shared sleeping space.

Barriers to fertility regulation and reproductive health services remain a major impediment in many developing countries. In the Philippines, poorer households continue to experience the greatest proportion of unmet need for contraception (Table 5 Panel D), marking a challenge for implementation and targeted intervention measures. Limited method choice, cost, provider bias, misinformation, legal restrictions accessibility and affordability of other medical fertility technologies (Stephenson et al. 2008), may still stand between women and the realistic availability of technologies and information required to decide whether and when to have a child. Without reliable access to contraception, fertility intentions that delay and limit births cannot always be realized. We can however also look at the gains in the past 30 years seen in Figure 4 Panel C. The greatest fertility gap due to unwanted births experienced by the poorest sectors in the economy has been reduced owing to much greater accessibility to contraception.

Despite increasing convergence in spousal fertility preferences over time, substantial fertility gaps persist across all wealth quintiles in the Philippines, though the nature of misalignment varies systematically by economic position. Poorer households continue to experience positive fertility gaps while wealthier households exhibit negative fertility gaps. Rising female labor force participation in higher wealth quintiles, coupled with career interruption penalties and inadequate childcare infrastructure, appears to inhibit the realization of fertility intentions. Meanwhile poorer household still experience unmet need for contraception despite improvements over three decades, with additional stressors of housing pressures and limited resources to constrain fertility regulation. The shift toward extended household structures across all wealth groups, particularly pronounced among the wealthy, may reflect adaptive strategies to reconcile competing demands, yet even multigenerational co-residence fails to close the fertility gap for higher-income couples. These findings underscore that while spousal concordance in fertility preferences has increased, the translation of shared intentions into realized outcomes remains mediated by structural barriers operating at both ends of the socioeconomic spectrum.

Table 5. Selected characteristics of homogamous couples

Wealth Quintile	Women Employment						
	1993	1998	2003	2008	2013	2017	2022
A. Female spouse ever employed in past year							
Poor	0.51	0.45	0.51	0.57	0.58	0.54	0.47
Poorer	0.46	0.52	0.53	0.63	0.61	0.61	0.56
Middle	0.49	0.58	0.52	0.60	0.62	0.58	0.58
Richer	0.57	0.60	0.54	0.62	0.64	0.63	0.63
Richest	0.68	0.69	0.63	0.72	0.71	0.69	0.69
B. Female spouse employed full-time							
Poor	-	0.23	0.27	0.31	0.30	0.27	0.24
Poorer	-	0.31	0.28	0.37	0.34	0.38	0.37
Middle	-	0.40	0.33	0.41	0.42	0.43	0.42
Richer	-	0.49	0.42	0.50	0.51	0.50	0.54
Richest	-	0.61	0.55	0.64	0.63	0.63	0.61
C. Living in nuclear household							
Poor	0.95	0.97	0.96	0.94	0.93	0.95	0.94
Poorer	0.95	0.93	0.94	0.90	0.88	0.93	0.89
Middle	0.91	0.91	0.90	0.87	0.86	0.88	0.87
Richer	0.88	0.89	0.86	0.84	0.83	0.87	0.86
Richest	0.86	0.86	0.83	0.78	0.79	0.88	0.83
D. Average household members per bedroom							
Poor	4.6	4.7	-	4.5	4.4	4.0	3.7
Poorer	4.2	3.8	-	3.8	3.7	3.3	3.2
Middle	3.9	3.5	-	3.5	3.3	3.1	3.1
Richer	3.5	3.1	-	3.0	3.0	2.7	2.7
Richest	2.7	2.4	-	2.4	2.3	2.3	2.0
E. Unmet need for contraceptives							
Poor	0.40	0.38	0.37	0.28	0.20	0.19	0.13
Poorer	0.37	0.35	0.35	0.30	0.20	0.17	0.15
Middle	0.32	0.30	0.30	0.26	0.20	0.18	0.16
Richer	0.28	0.25	0.28	0.20	0.17	0.16	0.12
Richest	0.21	0.23	0.23	0.18	0.14	0.16	0.10

Source: Author's calculations.

5. Implications for policy

This paper provides crucial insights into fertility dynamics in the Philippines by examining the often-overlooked dimension of male fertility alongside female patterns, and by investigating the role of spousal characteristics in reproductive decision-making. Our findings reveal three key conclusions that carry significant policy implications.

First, male and female fertility patterns in the Philippines have converged remarkably over the past three decades. While males historically exhibited slightly wider reproductive age windows and marginally higher total fertility rates than females, both sexes now demonstrate similar fertility trajectories, with TFR declining from approximately 4.0 to 1.8 children between 1993 and 2022, a reduction of more than 50 percent. Parallel decline in wanted fertility for both sexes, coupled with narrowing fertility gaps, suggests that Filipinos are increasingly able to achieve their reproductive preferences.

Second, spousal heterogamy across age, education, and fertility preferences contributes minimally, only 1 to 2 percent to fertility outcomes and the overall decline in TFR. Even age differentials, the most prominent among the three dimensions examined, explain only a small fraction of fertility variation. More significantly, share of homogamous couples, particularly those aligned in fertility preferences, has increased substantially from 1993 to 2022, reaching 74.3 percent by the most recent survey. This growing concordance in reproductive goals indicates that couple-level disagreements are not the primary driver of fertility patterns or unrealized fertility intentions in the Philippines.

Third, despite increasing spousal agreement on fertility preferences and improved capacity to reduce unwanted births by 60 percent over three decades, persistent fertility gaps remain across wealth quintiles. Lower-income households continue to experience fertility outcomes that exceed their stated preferences, while wealthier couples experience constrained reproductive autonomy observed in underrealized fertility. This socioeconomic gradient in fertility realization points decisively toward structural and systemic barriers over preference heterogeneity or lack of spousal consensus as the primary obstacles preventing couples from achieving their desired family size.

These findings necessitate a fundamental reorientation of fertility-related policy interventions. Given that the Philippines has fallen below replacement fertility, policymakers face the dual challenge of supporting couples in realizing their reproductive goals while preparing for demographic aging and potential labor force contraction.

Since spousal agreement on fertility preferences is high but fertility gaps persist regardless of wealth, policy must prioritize economic precarity as a fertility barrier. Labor market interventions should focus on reducing employment instability, particularly for young adults in their prime reproductive years. Expanding social protection coverage for workers in temporary or informal employment arrangements, implementing targeted wage subsidies or tax credits for families with young children, and developing programs that support dual-earner households in balancing work and childrearing responsibilities are essential steps. Additionally, unemployment insurance and job training programs should be strengthened to buffer households against economic shocks that may force them to postpone or forgo having children even when they desire them.

While the Reproductive Health Act of 2012 represented significant progress, persistence of fertility gaps could also indicate incomplete implementation and remaining barriers to reproductive health services. Policy could prioritize universal access to the full range of modern contraceptive methods, eliminating cost barriers through public provision or comprehensive insurance coverage. Critically, reproductive health programs must expand beyond the current women-centric approach to meaningfully engage male partners in family planning decision-making, education, and services. Developing male-targeted reproductive health interventions, training healthcare providers in gender-sensitive counseling that includes both partners, and addressing provider bias and misinformation that may prevent couples from accessing their preferred family planning methods are necessary components.

Structural constraints related to housing and childcare could also be a significant factor. Housing policies should expand affordable options for young families, including subsidized mortgages, rental assistance programs, and development incentives for family-friendly housing in areas with employment opportunities. Simultaneously, the government must invest in accessible, affordable, and quality childcare infrastructure that reduces the financial burden on families. Expanding public childcare facilities, providing childcare subsidies, and supporting community-based childcare cooperatives, particularly in underserved rural and low-income urban areas, will help couples translate their fertility preferences into reality.

The Philippines' chronic transportation crisis is deeply intertwined with housing problems in ways that could also shape couples' fertility decisions. A city which is ranked among the worst globally in the 2022 Urban Mobility Readiness Index conducted by Oliver Wyman Forum & University of California, Berkeley, Metro Manila has severe traffic congestion that forces many workers to endure three-to-four-hour daily commutes. It is a burden that stems largely from the concentration of employment in central business districts while affordable housing pushes families to distant peripheries. This spatial mismatch means couples face an impossible tradeoff: live near work in expensive and cramped quarters unsuitable for raising multiple children, or secure larger, affordable homes in far-flung areas but sacrifice precious family time to exhausting commutes. The resulting time poverty leaves couples with minimal energy or hours for childcare, making larger families impractical even when desired. Beyond individual calculations, this transportation-housing nexus reveals the necessity for holistic fertility policy that moves beyond reproductive health services alone. Effective fertility realization requires urban planning policies that integrate affordable family-sized housing near employment centers, mass transit investments that reduce commute burdens, and workplace flexibility that accommodates parental responsibilities. Without addressing these structural barriers, couples will continue to defer or forgo having children not because they lack access to healthcare, but because the built environment and transportation systems make family life untenable, suggesting that transportation and housing ministries must become active partners in any serious national effort to support couples in achieving their desired family size. The relationship of transportation and housing to fertility outcomes may be an important determinant to consider in future studies.

Given that unwanted fertility are most pronounced among the poorest quintile while the wealthiest quintile experience underrealized fertility, a uniform policy approach is insufficient. Targeted interventions must address the specific barriers faced by lower-income households through mobile

or community-based reproductive health outreach in rural areas and urban informal settlements, financial assistance for family planning services and maternal health care, and coordinated social services that address the interconnected challenges of poverty, limited education, and constrained reproductive autonomy. Conversely, for households that desire more children than they are currently having, policies should ensure that economic and workplace barriers do not prevent them from achieving their goals.

The Philippines stands at a demographic inflection point. With fertility now below replacement level and an aging population on the horizon, the country faces mounting pressures on social security systems, labor markets, and fiscal sustainability. Findings suggest that in the conversation of fertility rates, men also matter. But it is not when husbands and wives disagree that matter. What matters is that when they agree, there are barriers that leaves their fertility desires unrealized. By addressing these systemic constraints through coordinated economic, social, and reproductive health policies, the Philippines can support genuine reproductive autonomy for all couples while preparing for demographic challenges ahead.

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APPENDIX

We estimate ASFRs and TFRs for both male and female using the formulas below:

$$ASFR = \frac{No.of\ births\ at\ age\ group}{No.of\ individuals\ at\ age\ group} * 1000$$

The total fertility rate (TFR) is the total number of births of child, of an age group would have in their lifetime given their current age-specific fertility rate. Thus TFR is calculated as:

$$TFR = 5 * \sum_{i=1}^{n} ASFR_i$$

The multiplier of five represents the five-year age groups and ASFR is the age-specific fertility rate for each group up to the nth number of age groups.

We adopt a one-year reference period and included samples until age 75 to reduce recall bias and minimize potential misclassification in parent-child linkages while ensuring adequate sample size for robust age-specific fertility estimates. This is contrast to the procedure for calculation using Demographic and Health Surveys outlined in the Guide to DHS Statistics that restricts the sample database to ages 15 to 55 and measured within a 3-year period (Rutstein & Rojas, 2006).

Measurement strategies for male and female fertility differ due to data availability. Female fertility is estimated directly from complete birth histories, while male fertility is derived using the own-children method (Grabill and Cho, 1965; Cho et al., 1986), which links children born in the year preceding the survey to their probable fathers residing in the same household. In households where both parents co-reside, the NDHS enables direct parent-child linkages through the maternal birth history and the explicit identification of her spouse or partner in the household roster. For births resulting from non-cohabiting unions, we impute paternity probabilistically. Specifically, each child is matched to a male respondent randomly drawn from the distribution of men whose observed characteristics, that includes age and educational attainment, approximate those of the biological father as reported by the mother. This imputation procedure represents a standard extension of the own-children method under conditions of paternal non-residence and preserves the empirical joint distribution of partner characteristics essential to the analysis. This methodological approach permits the attribution of recent births to male partners with limited measurement error, facilitating the estimation of male age-specific and total fertility rates. Additionally, Schoumaker (2017) demonstrated that incomplete vital registration in developing countries like the Philippines (capturing 90–99 percent of births) produces underestimated male fertility rates from birth histories, thereby making indirect methods such as the own-children method applied to demographic surveys particularly appropriate for such settings

Following the Guide to DHS Statistics (Rutstein & Rojas, 2006), female wanted ASFR is calculated as:

$$Wanted\ ASFR = \frac{No.of\ wanted\ births\ at\ age\ group}{No.of\ women\ at\ age\ group} * 1000$$

Female wanted TFR follows the same method for TFR calculation, but instead uses wanted ASFR. Meanwhile, we estimate male wanted ASFRs as the midpoint between lower- and upper-bound estimates of wanted births within each age group. The lower bound included births in the preceding year to couples in which (1) the husband's desired number of children was equal to or greater than the wife's, and (2) the couple had not yet reached their stated ideal family size. The upper bound comprised all births included in the lower bound, as well as births to couples in which the wife desired additional children, regardless of whether the couple had already attained its ideal family size. Births to respondents with undeclared fertility preferences were also included in the upper-bound estimate. Table A1 summarizes the imputation logic by mapping combinations of spousal fertility preferences and family size status to lower- and upper-bound classifications of wanted births.

Table A1. Matrix for wanted fertility imputation

Husband's desire for children	Wife's Family Size	
	Actual < Ideal	Actual > Ideal
Husband and wife want the same number	X_1	-
Husband wants more	X_2	X_5
Husband wants fewer	X_3	X_6
Unknown	X_4	X_7

Note: X_1–X_6 denote mutually exclusive birth scenarios used to construct lower- and upper-bound estimates of wanted fertility.

$$LL = \{X_1, X_2\}$$

$$UL = \{X_1, X_2, X_3, X_4, X_5, X_6, X_7\}$$

With LL and UL defined as the lower limit and upper limit, respectively. Wanted ASFR is calculated as:

$$Wanted\ ASFR = \frac{Imputed\ wanted\ births\ to\ men\ at\ age\ group}{No.\ of\ men\ at\ age\ group}$$

Wanted male TFRs are calculated by summing wanted ASFRs across reproductive ages, following standard period TFR methodology but restricting the numerator to imputed wanted births.