

Lithuania's Fertility Challenge: Trends and Policy Options

Occasional Paper Series

No 63 / 2026

Lithuania's Fertility Challenge: Trends and Policy Options^{*}

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^{*} We would like to thank Nerijus Černiauskas, Kotryna Tamoševičienė, Kasparas Vasiliauskas, and the seminar participants at Lietuvos Bankas for their comments and suggestions. Part of the article uses confidential data from the State Social Insurance Fund Board (SoDra) of the Republic of Lithuania, which was accessed in a secure environment at Lietuvos Bankas. The authors acknowledge the use of AI tools solely for language editing, stylistic improvements, and consistency checks within the manuscript. All AI-assisted suggestions were carefully reviewed, and the authors take full responsibility for the paper's content and accuracy. The views expressed in this article are those of the authors and do not necessarily reflect the position of the Lietuvos Bankas or the Eurosystem.

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Gedimino pr. 6, LT-01103 Vilnius

www.lb.lt

The series is managed by the Applied Macroeconomic Research Division of the Economics Department and the Center for Excellence in Finance and Economic Research.

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ABSTRACT

Lithuania has one of the lowest fertility rates among advanced economies. This report combines population-wide administrative microdata, international evidence, and descriptive regressions for European countries to identify the main features of Lithuania's recent fertility decline and the policy areas most relevant to addressing it. The microdata show that younger cohorts have fewer children at the same age and are more likely to remain childless, suggesting lower completed fertility unless substantial catch-up occurs at older ages. The decline is increasingly concentrated at the transition into parenthood, while family size among mothers remains relatively stable. The combined evidence suggests a targeted and coordinated policy mix rather than a single intervention: financial and parental leave support concentrated around the first birth; reliable childcare availability coordinated with paid parental leave and flexible return-to-work arrangements; measures to improve housing affordability; and timely fertility information and equitable access to infertility care.

Executive summary

Lithuania has one of the lowest fertility rates among advanced economies. This report combines population-wide administrative microdata with international evidence and descriptive regressions for European countries to assess whether the recent decline reflects delayed childbearing or a persistent reduction in completed fertility, and to identify the most relevant policy areas.

Younger cohorts have fewer children than older cohorts did at the same age and are more likely to remain childless. Projections suggest that completed fertility will decline further unless substantial catch-up occurs at older ages. The central margin, therefore, appears to be entry into motherhood: fewer women are becoming mothers, while the average number of children among mothers has remained relatively stable. Policy should focus on reducing avoidable constraints among people who want to become parents.

International evidence points to a policy mix rather than a single instrument. Reliable early childcare has the most consistent support, while the relevance of parental leave and financial support depends on policy design and context. The European regressions are consistent with this nuanced picture: paid parental leave and several forms of direct support around childbirth display the most stable positive associations with fertility. Labor-market conditions, housing affordability, economic confidence, and family-formation patterns are also associated with fertility.

Lithuania already provides broad family support. The challenge is to better target, time, and coordinate this support to address the constraints that shape fertility decisions, especially those surrounding the transition into parenthood. Priorities include concentrating direct and income-replacement support around the first birth, aligning benefit generosity over time with effective access to affordable and geographically available childcare, facilitating a gradual return to work by allowing parents to combine part-time employment with proportionally reduced parental benefits, addressing housing accessibility and economic uncertainty with better-targeted support, and improving access to timely fertility information and infertility care.

Fertility policy is unlikely to reverse long-term demographic change on its own, but it can reduce avoidable barriers to family formation and complement broader policies to manage the economic and social consequences of demographic change fairly.

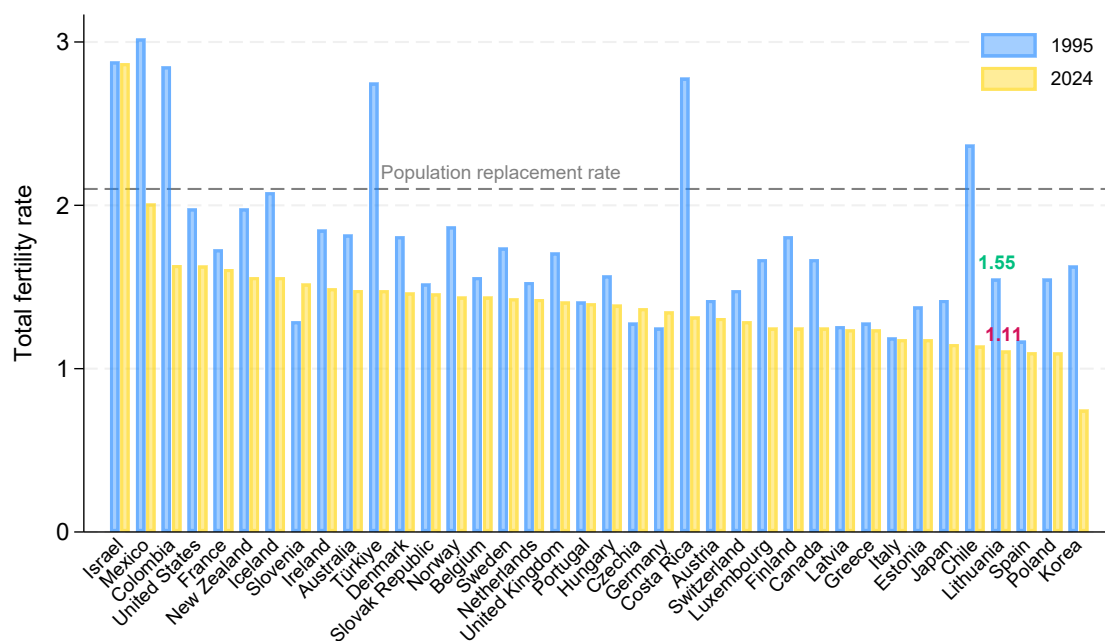
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1 Introduction

Fertility rates have declined markedly in recent decades, with many countries now persistently below replacement levels.¹ This trend is no longer confined to high-income societies (for OECD countries, see Figure 1), but it is observed across the world (Fernández-Villaverde and Norrick, 2026). Importantly, persistently low fertility has first-order macroeconomic implications (e.g., Krueger and Ludwig, 2007; Carvalho et al., 2016; Aksoy et al., 2019; Jones, 2022). As successive cohorts become smaller, the working-age population and potential labor supply eventually decline, while demographic change also affects investment and returns to capital, with consequences for long-run economic growth. Smaller populations may also reduce the pool of potential innovators, slowing technological progress and productivity growth. At the same time, a shrinking workforce relative to the older population increases pressure on public finances and Social Security systems (European Commission, 2024).

Figure 1: Total fertility rates across OECD countries



Source: OECD Family database and own calculations.

Note: Total fertility rates are defined as the average number of children a woman would have over her lifetime, based on current age-specific fertility rates. Countries are ordered by their total fertility rate in 2024, from highest to lowest.

Fertility decisions are increasingly shaped by the broader economic and institu-

¹The replacement fertility rate is the level required for successive generations to replace themselves in the absence of migration, accounting for prevailing mortality rates.

tional environment in which individuals make family formation decisions, including labor market opportunities, economic security, and the compatibility between careers and parenthood (Doepke et al., 2023). Understanding how these factors interact with family policies has therefore become a central policy question, and one we take to the data both within Lithuania and across European countries.

As in many advanced economies, Lithuania has experienced a sustained decline in fertility over the past three decades. The total fertility rate is now well below the replacement level of approximately 2.1 children per woman, falling to 1.11 in 2024 and placing Lithuania among the OECD countries with the lowest fertility rates.² These developments are particularly consequential in Lithuania, where rapid population aging and a predominantly pay-as-you-go pension system will likely amplify the long-run economic consequences of persistently low fertility.³

A central policy question is whether Lithuania's fertility decline reflects the postponement of births to later ages, which younger cohorts may still make up, or a lasting reduction in the number of children women ultimately have. The two carry very different policy implications but are difficult to distinguish using the period fertility measures typically available. Social Security microdata make this possible by allowing us to follow successive birth cohorts throughout their reproductive lives, observe parity progression and the realized family size distribution, measure childlessness directly, and project completed fertility for younger cohorts.

Using population-wide administrative records from Lithuania's social security registry, we distinguish delayed childbearing from a decline in completed fertility. Our analysis indicates that the recent fertility decline cannot be explained by delayed childbearing alone and is likely to translate into lower completed fertility, primarily because of fewer people becoming parents. Consistent with this interpretation, the share of women who remained childless by age 49 increased from less than 9 percent among women born in 1968 to nearly 12 percent among those born in 1975. Our projections suggest that childlessness may increase further among younger cohorts.

We then examine which policies are most relevant to addressing Lithuania's fertility challenge by combining evidence from the international literature with new cross-country evidence for European countries. The literature emphasizes that fertility pol-

²Recent data from [Statistics Lithuania](#) shows that the total fertility rate in Lithuania decreased further between 2024 and 2025 from 1.11 to 1.04. In urban areas, the rate fell from 1.07 to 0.99.

³See [Brenna et al. \(2026\)](#) for a discussion of population aging and the Lithuanian pension system.

icy should be viewed as a combination of complementary instruments rather than a single policy. To translate these findings into Lithuania-specific implications, we place the country in comparative perspective using the same policy and contextual indicators. The comparison shows that Lithuania is relatively generous in some policy dimensions and less so in others, while countries with similar provisions can display very different fertility outcomes. Lithuania’s broader labor-market, economic, educational, and family-formation profile also does not point to a single aggregate explanation for its low fertility. This is consistent with recent evidence that no single conventional mechanism can account for the broader worldwide decline in fertility (Fernández-Villaverde and Norrick, 2026).

The policy question is therefore not how to reverse the decline with a single instrument, but how a targeted and coordinated policy mix can reduce avoidable barriers to family formation and help moderate the decline. In the Lithuanian context, our analysis identifies six policy priorities: reducing economic barriers to first births; redesigning leave and income support around the transition to parenthood; strengthening effective access to early childcare; improving work-family compatibility; addressing housing costs and economic insecurity among young adults; and improving access to fertility information and infertility care.

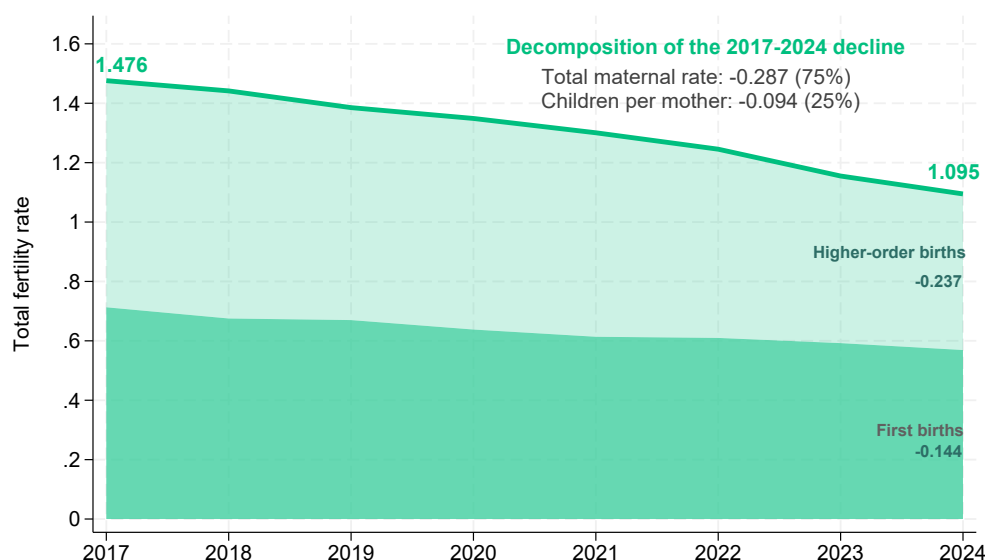
2 The recent fertility decline in Lithuania

To examine the recent fertility decline in Lithuania, we leverage confidential administrative records from the Social Security registry for the period 2017-2024, including all resident women registered with the registry at some point during these years. We focus on this period because it spans the years when fertility rates in Lithuania declined sharply (see Figure A.1 in Appendix A).

In this dataset, we identify births using the start and end dates of statutory maternity leave (*Motinystės atostogos*), which is granted to mothers around the time of delivery and thus serves as a close proxy for birth events. The data also include mothers’ ages, allowing us to compute age-specific and total fertility rates. We also observe the recorded number of children per individual, which we can track over time from 2017 to 2024. This is key as it allows us to characterize parity progression across birth cohorts and, together with completed fertility observed for older cohorts, project future

cohort-level completed fertility for younger cohorts.⁴ In addition, the data include information on registered marriages, which allows us to examine fertility dynamics separately for women who have ever entered a registered marriage and those who have not.⁵

Figure 2: Total fertility rate



Source: Social Security records and own calculations.

Note: The total fertility rate is calculated by summing age-specific fertility rates, defined as the number of births to women of a given age (proxied by childbirth leave) divided by the number of women of that age. The reproductive age range is 18 to 49. The decomposition follows Shaw (2025); percentages report the share of the 2017–2024 TFR decline attributable to the total lower maternal rate and to fewer children per mother.

Figure 2 shows TFR based on the administrative measure of births.⁶ Two main facts emerge. First, the total fertility rate (TFR) derived from the administrative data closely tracks the corresponding measure reported in the OECD Family Database. The administrative TFR declines from 1.48 in 2017 to 1.10 in 2024, compared with a decline from

⁴Official aggregate birth statistics report births by parity and mother's age, but do not include the number of children per woman or allow women to be tracked over time. Thus, they cannot identify individual parity progression or link successive births to the same mother, unlike administrative data.

⁵Never married refers to women who have never been in a registered marriage by the relevant age of observation. In the completed fertility analysis, this status is measured by age 49. The ever-married group includes women who have entered a registered marriage at least once by the relevant age of observation, regardless of whether they are divorced or widowed at the last observation. The never-married category may include women who have been in a partnership or cohabiting but have not entered into a registered marriage.

⁶Figure A.5 in the Appendix shows changes in TFR across Lithuanian municipalities between 2017 and 2024. The decline is broad-based, with most municipalities experiencing a reduction in period fertility.

1.57 to 1.11 in the OECD data over the same period.⁷ The close alignment between the two series indicates that the administrative data closely reproduce the evolution of fertility over time.

Second, the decline reflects reductions in both first and higher-order births. We interpret these changes using the microdemographic decomposition proposed by Shaw (2025), which expresses TFR as the product of the total maternal rate (TMR), or period entry into motherhood, and children per mother (CPM), or fertility conditional on motherhood. This decomposition shows that lower entry into motherhood accounts for about 75 percent of the decline in TFR between 2017 and 2024. The sharper fall in higher-order births should therefore not be read only as a decline in parity progression: it also partly reflects the smaller number of individuals becoming parents in the first place. To better understand the life-cycle patterns underlying this decline, we next examine age-specific birth rates.

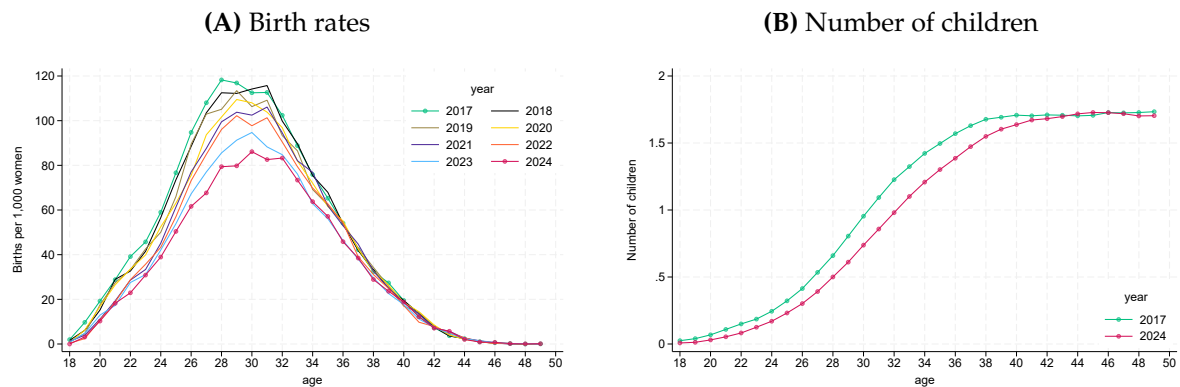
Figure 3 provides an age perspective on recent fertility trends.⁸ Panel A reports age-specific birth rates, defined as the number of births per 1,000 women. Fertility has declined across most age groups between 2017 and 2024, with the largest reductions concentrated at peak childbearing ages. For example, among women aged 30, the birth rate declined by nearly 40 births per 1,000 women (around 33 percent) over this period. Panel B presents cross-sectional parity profiles, plotting the average number of children by age for women observed in 2017 and 2024. The profiles diverge at younger and peak childbearing ages, but the gap narrows at later ages: by age 40 and above, average parity levels are more similar across years. This pattern indicates that women observed in 2024 have accumulated fewer births by a given age than women observed at the same age in 2017. Because these profiles compare different cohorts at a point in time rather than following the same women over their reproductive lives, they cannot distinguish whether the observed fertility shortfall reflects delayed childbearing (a

⁷The administrative measure is slightly lower throughout the period because not all women giving birth are insured through employment-based Social Security contributions. Table A.1 in Appendix A compares the coverage of the administrative data with official aggregate birth statistics from Statistics Lithuania. The coverage of the administrative records increases over time, from 78% of all births in 2017 to 84% in 2024. Because coverage increased during the sample period, the administrative series understates the decline in fertility between 2017 and 2024. A constant-coverage series would have fallen more. Additionally, coverage improves faster for first-order births (79% to 87%) than for higher-order births (78% to 82%), so the decline in first births that we document is a lower bound.

⁸These recent patterns follow three decades of sustained postponement in the transition to parenthood. Between 1995 and 2024, the mean age at first birth in Lithuania increased by about five years, bringing it close to the OECD median (Figure A.2).

tempo effect) or a lasting reduction in completed fertility (a *quantum* effect).

Figure 3: Fertility profiles across age groups in different years



Source: Social Security records and own calculations.

Note: Panel A shows age-specific fertility rates, measured as the number of births per 1,000 women at each age. Panel B shows the average number of children by age.

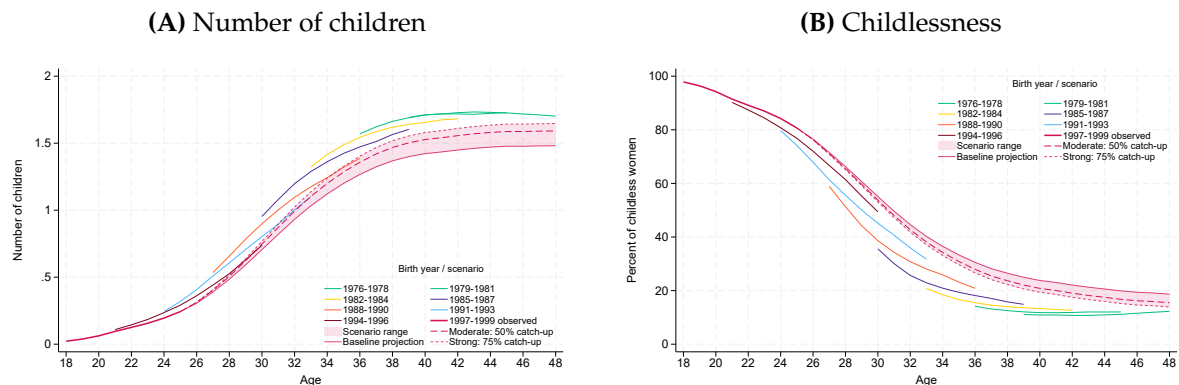
To distinguish between these two margins, we follow adjacent birth cohorts born between 1976 and 1999 over the period 2017–2024 and track their fertility trajectories during the years they are observed in the administrative data. Figure 4 shows that the fertility shortfall persists as cohorts age rather than disappearing through catch-up. Younger cohorts consistently have fewer children than older cohorts of the same age and are more likely to remain childless. For example, at age 25, women born from the 1997–1999 cohort had, on average, 24 percent fewer children than those born in 1991–1993 (0.31 versus 0.41). At the same age, 76 percent of women born in 1997–1999 remained childless, compared with 68 percent among women born in 1991–1993. Although fertility continues to increase at older ages, these cohort differences remain substantial over the observed life cycle.

These longitudinal profiles suggest that delayed childbearing has only partially offset the decline in fertility observed at younger ages. To illustrate the potential long-term implications of these trends, we project completed fertility and childlessness for the youngest observed cohorts, women born between 1997 and 1999.⁹ Because these cohorts are observed only through their mid-to-late twenties, more than half of their eventual fertility must be inferred from assumptions about behavior at later ages. Our baseline projection extrapolates the estimated cohort-age profiles beyond the last observed age and anchors the projected trajectories at the final age for which all three birth years are jointly observed. The projections should therefore be interpreted as

⁹Appendix B describes the projection procedure in detail.

scenario-based rather than predictive.

Figure 4: Life-cycle fertility profiles across cohorts



Source: Social Security records and own calculations.

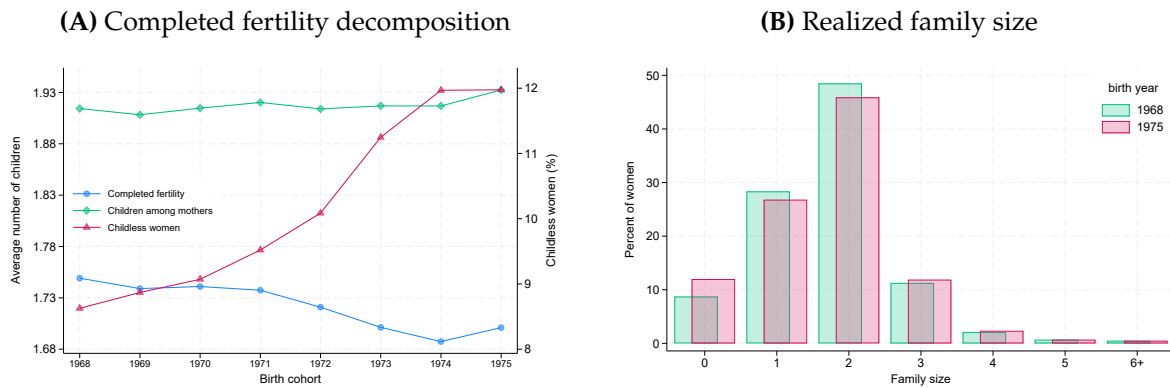
Note: Panel A plots the average cumulative number of children by age, while Panel B plots the share of women remaining childless, separately for each three-year birth cohort. Solid lines denote observed cohort trajectories. For the 1997–1999 cohort, projections begin at the final age for which all three birth years are jointly observed. The solid red line shows the baseline projection obtained from the estimated cohort-age model and anchored at the final observed value. The dashed and short-dashed red lines show scenarios in which the projected age-48 gap relative to the age-48 outcome observed for the 1976–1978 cohort is reduced by 50% and 75%, respectively, while preserving the age profile of fertility accumulation and childlessness implied by the baseline projection. The shaded area spans the range between the baseline and the 75% catch-up scenario and represents behavioral sensitivity rather than statistical uncertainty.

Under the baseline scenario, the average number of children per woman in the 1997–1999 cohorts is projected to reach 1.48 by the end of their reproductive years (about 15% fewer children), while approximately 19% of women are projected to remain childless. To assess the sensitivity of these projections, we also consider two alternative scenarios in which 50% or 75% of the projected gap relative to the age-48 outcome observed for the 1976–1978 cohort is recovered, while preserving the timing of fertility accumulation and the decline in childlessness implied by the baseline projection. Under the moderate and strong catch-up scenarios, completed fertility increases to 1.59 and 1.65 children per woman, respectively, while projected childlessness falls to roughly 15% and 14%, respectively. Even under the strong catch-up scenario, however, completed fertility remains below that observed for the oldest cohorts in the data. These scenarios require considerably stronger fertility recuperation at later ages than has been observed among recent cohorts and should therefore be interpreted as optimistic sensitivity analyses rather than forecasts.

An informative benchmark for our projections is provided by women who have already completed their reproductive lives. Figure 5 reports completed fertility among women aged 49 between 2017 and 2024, reflecting the outcomes for successive co-

horts that have reached the end of their reproductive lives.¹⁰ Completed fertility declined from 1.75 children per woman born in 1968 to 1.70 for those born in 1975, while childlessness increased more markedly, from approximately 8.6 percent to 12 percent.¹¹ Panel A shows that the average number of children among women who become mothers remained broadly stable over this period. This indicates that the decline in completed fertility is driven primarily by fewer parents rather than by smaller families. An accounting decomposition confirms this interpretation: rising childlessness alone would have generated a larger decline in completed fertility than was actually observed (134% of the observed decline), because a slight increase in the average number of children among parents offset part of it (34%).

Figure 5: Completed fertility, childlessness, and family size across birth cohorts



Source: Social Security records and own calculations.

Note: Panel A reports completed fertility (the average number of children by age 49) by birth cohort. It also shows the share of women who remain childless by age 49 (right axis) and the average number of children among women who become mothers (conditional on having at least one child). Panel B reports the distribution of completed family size for the 1968 and 1975 birth cohorts. The decomposition uses the identity $CF = (1 - p_0) \times E[n \mid n > 0]$, where CF denotes completed fertility, p_0 is the share of women remaining childless, and $E[n \mid n > 0]$ is the average number of children among mothers. An exact two-factor Shapley decomposition attributes the decline in completed fertility to changes in childlessness and changes in family size among mothers.

Panel B illustrates the distribution of completed family size for the first and last observed cohorts. The largest change is an increase in the share of women who remain childless, while among mothers, the share with two children declines, and the share with three or more children changes relatively little across cohorts. Together with the

¹⁰Appendix A, Figure A.4 extends this comparison across Lithuanian birth cohorts born between 1955 and 1976, showing that the decline in completed fertility since the late-1950s cohorts coincided with a sharp rise in childlessness.

¹¹Figure A.5 in the Appendix shows the change in completed fertility between the 1968 and 1975 birth cohorts across Lithuanian municipalities. Unlike the broad decline in the period TFR, changes in completed fertility are more limited across municipalities.

stable average number of children among mothers shown in Panel A, these patterns indicate that recent fertility declines primarily reflect lower entry into parenthood rather than substantially smaller families.¹² Comparing these observed outcomes with our projections implies a decline of about 15 percent in completed fertility for younger cohorts, alongside a substantially larger increase in childlessness—from about 12 percent to nearly 20 percent in our baseline projection.

Because marriage rates have declined sharply across cohorts, an important question is whether the rise in childlessness reflects only changes in family formation.¹³ To examine this margin, Figure 6 decomposes changes in completed fertility and childlessness by registered marital status, as recorded in the Social Security data. The marriage-composition contribution captures the part of these changes attributed to shifts in the share of women who are never married by age 49, given the observed differences in fertility and childlessness between never-married and ever-married women. This is an accounting contribution rather than a causal effect of marriage, since marriage and childbearing decisions are jointly determined.

Panel A shows that the increase in the share of women never married by age 49 contributes mechanically to lower completed fertility, accounting for a decline of 0.065 children per woman, which is larger than the observed decline of 0.048. This negative contribution is partly offset by increases in completed family size among mothers, especially among ever-married mothers. At the same time, rising childlessness among ever-married women contributes an additional decline of 0.025 children per woman. Notably, changes in childlessness among never-married women move in the opposite direction.

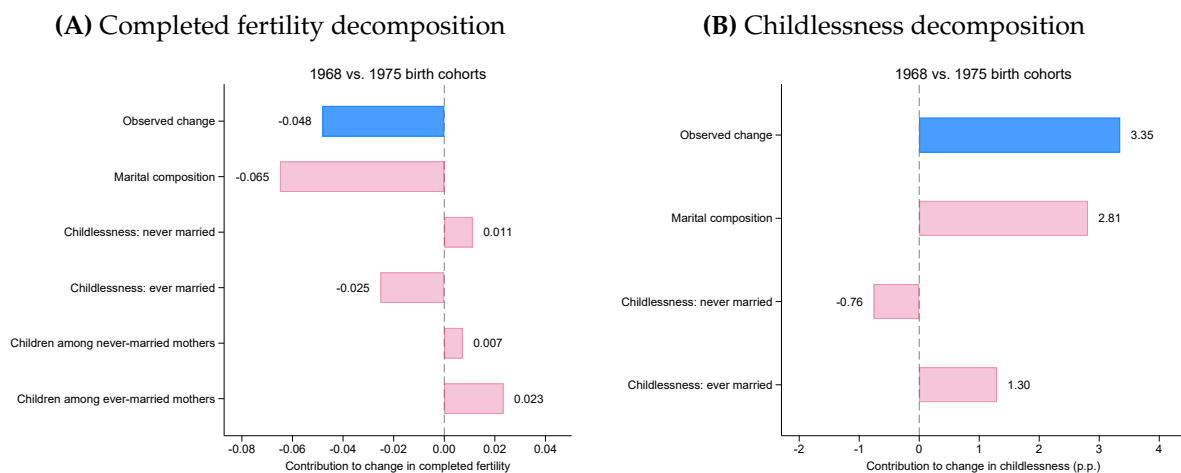
Panel B shows the corresponding decomposition for childlessness. Overall, childlessness increased by 3.35 percentage points between the 1968 and 1975 birth cohorts. The largest contribution comes from the rising share of women who were never married by age 49, which accounts for 2.81 percentage points. Importantly, childlessness increased among ever-married women, contributing a further 1.30 percentage points.

¹²The same pattern is visible in independent cohort data from the Human Fertility Database: for Lithuanian cohorts born between 1955 and 1976, lower completed fertility coincides with a marked increase in childlessness (Figure A.4). More broadly, OECD cohort data show a negative relationship between completed fertility and childlessness across countries and cohorts (Figure A.3). These external benchmarks support the interpretation from the administrative records that entry into parenthood is an important margin of completed fertility decline.

¹³Long-term trends in marriage, divorce, and births outside marriage are reported in Figure A.6 in the Appendix.

This is partly offset by declining childlessness among never-married women, which reduces overall childlessness by 0.76 percentage points. The results show that the rise in childlessness is not only a compositional consequence of the decline in registered marriage, but it also reflects lower entry into parenthood among ever-married women. Thus, while registered marriage remains an important marker of fertility behavior, rising childlessness among ever-married women also contributed substantially to the decline, whereas declining childlessness among never-married women partly offset it.

Figure 6: Completed fertility, childlessness, and marriage composition



Source: Social Security records and own calculations.

Note: Panel A decomposes the change in completed fertility between the 1968 and 1975 birth cohorts into contributions from changes in marital composition (the share of women never married by age 49), childlessness among never-married and ever-married women, and the average number of children among mothers in each marital-status group. Panel B decomposes the change in the share of women who remain childless by age 49 into contributions from changes in marital composition and changes in childlessness among never-married and ever-married women. For Panel A, the decomposition uses the identity $CF = s_N(1 - p_N)\mu_N + (1 - s_N)(1 - p_E)\mu_E$, where s_N denotes the share of women never married by age 49, p_N and p_E denote the shares remaining childless among never-married and ever-married women, respectively, and μ_N and μ_E denote the average number of children among mothers in the two groups. We apply an exact five-factor Shapley decomposition to the change in completed fertility between the 1968 and 1975 birth cohorts, averaging each factor's marginal contribution over all $5! = 120$ possible orderings. For Panel B, we analogously decompose $p = s_N p_N + (1 - s_N) p_E$ using an exact three-factor Shapley decomposition.

Taken together, the evidence indicates that Lithuania's fertility decline is evident in both current age-specific birth rates and completed cohort outcomes. Birth rates have fallen sharply at younger and peak childbearing ages, while completed fertility has declined and childlessness has increased among cohorts that have reached the end of their reproductive lives. The central margin is entry into parenthood: both observed outcomes for older cohorts and projections for younger cohorts point to rising

childlessness rather than a broad shift toward substantially smaller families.¹⁴ The decomposition by registered marital status further shows that the rise in childlessness is not solely a compositional consequence of declining marriage rates. Rising childlessness among ever-married women also contributes to the decline, while changes among never-married women partly offset it.

Although outcomes for younger cohorts remain uncertain, our projections suggest that completed fertility will decline further unless substantial catch-up occurs at older ages. If these cohort patterns persist, fertility is likely to remain persistently low. The policy challenge is therefore not only to raise births in a given year, but to understand and address the barriers to entering parenthood among both married and unmarried individuals.

3 International evidence on the determinants of fertility

The literature identifies various family policy instruments that can influence fertility by reducing the financial costs of childbearing and improving work-family compatibility. However, the effectiveness of these instruments depends on the broader economic and institutional environment in which fertility decisions are made. This section reviews international evidence on these policies and the conditions under which they are more likely to be effective.

3.1 Pro-natalist policies

Childcare policies. By reducing the time cost of raising children and facilitating more continuous labor market attachment, childcare provision weakens the trade-off between career and family and can foster fertility. Across high-income countries, public childcare provision is positively correlated with fertility rates and women's labor supply (Olivetti and Petrongolo, 2017; Fluchtmann et al., 2023).

Evidence from policy reforms and structural studies is generally positive. Expanded childcare availability for children under age three in Germany is associated with higher birth rates, while structural estimates indicate that childcare subsidies can increase fertility (Bauernschuster et al., 2016; Wang, 2026). Evidence from Norway

¹⁴Declining completed fertility has been accompanied by rising childlessness among successive birth cohorts in several OECD economies (see Figure A.3 in the Appendix).

suggests that expanding preschool slots can raise completed fertility (Rindfuss et al., 2010). Shortening the elementary school day in Spain reduced fertility and delayed first births (Muñiz-Fernández, 2026), while reduced access to informal childcare due to later grandparental retirement lowered fertility (Ilciukas, 2023).

Although childcare alone is unlikely to reverse observed trends, its limited distortionary effects and the relatively consistent positive evidence suggest that it is among the more promising instruments for supporting fertility (Doepke and Kindermann, 2019).

Parental leave policies. Leave policies provide income support and job protection around childbirth, helping parents maintain labor market attachment and potentially influencing childbearing decisions. Cross-country evidence indicates that female employment is positively associated with job-protected maternity leave, but the correlation between the latter and fertility is weak (Olivetti and Petrongolo, 2017; Fluchtmann et al., 2023).

Micro evidence from policy reforms is heterogeneous. Earnings-related maternity leave benefits can increase fertility among highly educated women with high opportunity costs of childbearing (Raute, 2019), while expansions in already generous systems may have limited effects (Dahl et al., 2016). Evidence from Nordic countries also suggests that introducing or extending paternity leave has no effect on fertility (Hart et al., 2024). A universal 14-week paid maternity leave increased fertility, with the positive effect concentrated in regions where childcare was widely available (Girsberger et al., 2023), while an Austrian reform increased second births, illustrating that leave policies may affect parity and timing more than completed fertility (Lalive and Zweimüller, 2009).

Overall, the fertility effects of parental leave are highly context-dependent and often operate through specific margins rather than large changes in aggregate fertility.

Financial incentives. Financial incentives, such as tax credits and deductions, child-related cash transfers, or baby bonuses, may affect fertility through income effects but do not directly address the time constraints associated with childcare. Cross-country evidence for OECD countries over 1970–2010 shows little systematic relationship between these instruments and fertility outcomes (Olivetti and Petrongolo, 2017).

Evidence from specific interventions is more nuanced. González and Trommlerová

(2023) find that a very generous universal child benefit in Spain was associated with increases in fertility, while its subsequent cancellation led to a sharp decline.¹⁵ Positive effects have also been documented in Canada, South Korea, Israel, and Switzerland, although responses vary across groups and policy designs (Malak et al., 2019; Kim, 2024; Cohen et al., 2013; Chuard and Chuard-Keller, 2021). Tax- and transfer-based incentives display similar heterogeneity. Milligan (2005) find that a generous pronatalist transfer in Quebec increased fertility, with larger responses among families eligible for higher benefits. Evidence from Poland finds modest fertility increases of around 1.5–6% following the introduction of the Family 500+ program, despite its substantial fiscal scale—around 1.5% of GDP (Bokun, 2024; Gromadzki, 2026).¹⁶ In Germany, child benefits increased fertility by 10–23% among higher-income households but had no significant effect among lower-income households (Riphahn and Wijnck, 2017).

Taken together, financial incentives, including tax-based incentives, can influence fertility, but their effects are highly heterogeneous and depend on policy design, target populations, and the broader institutional environment.

The literature, therefore, provides little support for a single-family policy capable of reversing fertility decline. Early childcare has the most consistent evidence of positive effects, while the effects of parental leave and financial incentives vary considerably across countries and policy designs. This heterogeneity highlights the importance of the broader economic, institutional, and social environment in which fertility decisions are made.

3.2 Environment and policy effectiveness

The effectiveness of fertility policies depends not only on their design but also on the broader environment in which fertility decisions are made. Labor market conditions, economic security, housing affordability, and social norms can directly affect fertility and shape whether family policies reduce the costs of childbearing.

Organization of work. Job structures and working conditions affect individuals' ability to combine employment and family life. Long hours, limited scheduling flexi-

¹⁵The universal child benefit had a nominal value of €2,500, equivalent to roughly 130–150% of average monthly earnings in Spain.

¹⁶There is also some evidence that the program shifted the composition of births toward lower-income families (Gromadzki, 2026).

bility, and long commutes increase the time cost of having children.

A lack of flexibility worsens women's labor market outcomes relative to men's (Goldin, 2014), and growing evidence indicates that it also reduces fertility. Increased flexibility arising from working-from-home arrangements during the first Covid-19 lockdown in Norway raised fertility among women in previously less flexible "greedy jobs" (Bratsberg and Walther, 2025). Evidence from 38 countries also associates working from home with higher planned and realized fertility, especially among highly skilled individuals (Davis et al., 2026). Theoretical and empirical work further suggests that job inflexibility raises the cost of combining work and child-rearing and is negatively associated with fertility (Guner et al., 2025; Basso et al., 2026).

These findings suggest that fertility policies may be more effective where workers can reconcile employment and family responsibilities, although the benefits of flexibility may vary across occupations and socioeconomic groups.¹⁷

Economic security. Uncertainty about income, employment stability, and career prospects can lead individuals to postpone childbearing and, in some cases, reduce completed fertility. Finnish data show larger fertility declines in fields with higher unemployment risk, lower incomes, and less public-sector employment, while fields with more stable conditions experienced more moderate declines (Hellstrand et al., 2024). More broadly, fertility is sensitive to economic uncertainty, particularly for first births, at both the individual and business-cycle levels (Kreyenfeld, 2010; Kreyenfeld and Andersson, 2014; Sobotka et al., 2011; Comolli et al., 2021).

Expectations about the future also matter. Fertility declined in Norway during the 2010s despite strong macroeconomic conditions and generous family policies, pointing to a role for perceived economic insecurity (OECD, 2023). Vignoli et al. (2020) argue that subjective expectations and narratives about the future shape fertility decisions alongside objective economic conditions. Consistent with this view, experimental evidence from Italy, Germany, Argentina, and the United States shows that uncertainty about future economic, political, and environmental conditions reduces fertility intentions (Aassve et al., 2026).

Housing affordability is an important part of this environment. Difficulties access-

¹⁷Workplace policies negotiated between management and gender-balanced worker representatives may help introduce measures that alleviate constraints faced by women in balancing work and family formation (Garcia-Louzao and Perez-Sanz, 2025).

ing affordable housing can delay family formation and affect fertility (Atalay et al., 2021; Fluchtmann et al., 2023), while evidence from Brazilian housing lotteries shows that earlier access to homeownership increases fertility (Van Doornik et al., 2024).

Family policies may therefore be more effective when they provide credible and predictable support. Policies that lower the direct costs of child-rearing but do little to reduce uncertainty about future prospects may have more limited effects.

Social norms and preferences. Norms governing the division of childcare and household responsibilities affect the compatibility of parenthood with education and careers. When care responsibilities fall disproportionately on women, the opportunity costs of childbearing may increase.

Kearney et al. (2022) argue that shifting priorities across recent cohorts, including changes in preferences, life aspirations, and parenting norms, may help explain the decline in US fertility.¹⁸ However, realized fertility in Europe often remains below stated fertility intentions, indicating that outcomes also reflect constraints on family formation (Beaujouan and Berghammer, 2019). For the US, Bradley et al. (2026) find that a change in preferences is behind the decline in births among more recent cohorts (belonging to “Gen Z”), whereas the decline among earlier cohorts mainly stems from increased medical difficulty in having children. McDonald (2000, 2013) argue that expanded educational and career opportunities for women, when combined with insufficiently family-supportive institutions, can lead couples to have fewer children. Goldscheider et al. (2015) suggest that fertility may stabilize or recover as men become more involved in care and institutions adapt to dual-earner households.

Overall, family policies are likely to be most effective when accompanied by broader improvements in economic security, workplace flexibility, housing affordability, and the sharing of caregiving responsibilities. The next section examines whether these domains are systematically associated with fertility outcomes across European countries.

¹⁸For earlier work emphasizing changing values and family formation patterns in advanced economies, see Lesthaeghe (2010).

4 European evidence on factors associated with fertility

We complement the literature reviewed above with descriptive cross-country regressions for European countries.¹⁹ The purpose is not to estimate causal effects, but to examine whether the policy domains, economic conditions, and family-formation patterns emphasized in the literature are systematically associated with period and cohort fertility outcomes across countries.²⁰

The explanatory variables cover three broad domains: family policy, economic conditions, and family formation and education. Family policy measures include statutory leave entitlements and public spending on maternity and parental leave benefits, family allowances, birth grants, and childcare services. Economic indicators capture labor-market conditions, housing affordability, and consumer confidence. Family-formation variables include marriage, divorce, non-marital births, and age at first marriage, while education is measured by mean years of schooling. The cohort analysis draws on harmonized historical datasets with sufficient coverage to measure policy exposure across each cohort's childbearing years. Appendix C.1 describes the variables and data sources.

4.1 Evidence on period fertility and timing

We estimate panel regressions relating total fertility rates and women's mean age at childbirth over 2005–2024 to family policy, economic conditions, and family formation. Our preferred specification includes country and year fixed effects, comparing changes within countries while absorbing common shocks.²¹ We also report a specification with year fixed effects only, comparing countries within the same year, and a specification with country-specific linear trends. The latter identifies associations from deviations around each country's longer-run trajectory and should not be interpreted as a stricter test of policy effectiveness. Because many policies and institutions evolve gradually, country-specific trends may absorb the variation through which they matter; therefore, weaker or statistically insignificant estimates do not necessarily imply

¹⁹Austria, Belgium, Czechia, Germany, Denmark, Estonia, Spain, Finland, France, the United Kingdom, Greece, Hungary, Ireland, Italy, Lithuania, the Netherlands, Norway, Poland, Sweden, Slovenia, and Slovakia.

²⁰"Period" fertility refers here to total fertility rate and mean age at birth, whereas "cohort" fertility includes completed fertility and childlessness rate.

²¹Appendix C.2 describes the econometric models underlying the results presented in this section.

policy irrelevance. By contrast, this specification is particularly informative for cyclical variables such as housing affordability and consumer confidence, whose deviations can be interpreted as short-run fluctuations. Comparing specifications helps distinguish associations arising from cross-country differences, within-country changes, and deviations from national trends. The estimates are reported in Appendix C.4, and we discuss the main patterns below.

Family policy. Family policy variables are associated with TFR, although the pattern differs across instruments and specifications. In the preferred full two-way fixed effects specification, paid parental leave, maternity or childbirth-related spending, parental-leave-related spending, family allowances, birth grants, and in-kind childcare spending are positively associated with TFR. Once country-specific trends are included, positive associations remain for paid parental leave, maternity or childbirth-related spending, parental leave-related spending, and birth grants. Co-parent leave is negatively associated with TFR in the preferred specification but not in the trend-adjusted model, while other leave-duration measures are not consistently associated with TFR. Overall, the results broadly mirror the literature reviewed above: direct support around childbirth and parental leave displays the most stable positive associations, while policy design appears more relevant than leave duration alone.

In-kind childcare spending is positively associated with TFR in the preferred specification but negatively associated with it once country-specific trends are included. We do not interpret this reversal as evidence of a generally negative relationship between childcare and fertility. Availability, affordability, reliability, and coverage typically evolve gradually, so country-specific trends may absorb much of the sustained institutional variation underlying the observed relationship. The trend-adjusted coefficient, therefore, captures short-run deviations in measured spending around national trajectories rather than the broader relationship between childcare provision and fertility. This is consistent with the literature’s treatment of childcare as a sustained family-support infrastructure rather than a short-run policy lever.²²

The timing results are more mixed. In the preferred specification, paid parental

²²Because in-kind childcare spending is measured as a share of GDP, downturns can raise the ratio even if nominal spending is unchanged. If fertility is procyclical, this may generate negative comovement between detrended childcare spending and fertility that does not reflect changes in childcare policy.

leave and family allowances are associated with a higher mean age at childbirth. Once country-specific trends are included, maternity-leave duration, co-parent leave, family allowances, birth grants, and childcare spending are associated with a lower mean age, whereas maternity or childbirth-related spending and parental-leave-related spending are associated with a higher mean age. The results do not indicate a uniform relationship between family policy and birth timing, consistent with the literature showing that different instruments may be associated with different timing and parity margins.

Economic conditions. Female employment is positively associated with TFR in both within-country specifications, consistent with the literature showing that strong female labor-market attachment can coexist with higher fertility when employment and parenthood are compatible. The part-time employment results are less stable. The results for part-time employment are sensitive to specification. Female part-time employment is positively associated with TFR in the preferred specification but is no longer statistically significant once country-specific trends are included, while the coefficient on male part-time employment changes from negative to positive. These patterns do not clearly support a stable association between part-time employment and fertility across specifications.

Housing affordability and confidence are more clearly related to shorter-run movements in fertility. Once country-specific trends are accounted for, a higher house price-to-income ratio is associated with a lower TFR, while stronger consumer confidence is associated with a higher TFR. These findings align with the literature emphasizing housing constraints and expectations about future economic conditions and suggest that fertility is associated with deviations in affordability and confidence from prevailing national trajectories.

Economic conditions are less consistently associated with birth timing. Male employment, male part-time employment, and consumer confidence are associated with a higher mean age at childbirth in the preferred specification, but none remain statistically significant once country-specific trends are included. Female employment, female part-time employment, and housing affordability are not significantly associated with mean age at childbirth in the full within-country models. Economic conditions display clearer associations with fertility levels than with average birth timing.

Family formation and education. Family-formation variables are closely correlated with fertility, although several are themselves part of the family-formation process and should not be interpreted as independent policy levers. The crude marriage rate is the most consistent correlate of TFR: it is positively associated with fertility in the preferred specification and remains so once country-specific trends are included. In the preferred specification, births outside marriage are positively associated with TFR, and the mean age at first marriage is negatively associated with it, but neither relationship remains separately identified after country-specific trends are added. Divorce is not consistently associated with TFR.

The schooling results are also sensitive to specification. Women's and men's schooling are not significantly associated with TFR in the preferred full specification. In the trend-adjusted model, women's schooling is negatively associated with TFR, and men's schooling is positively associated with it. Because educational attainment changes gradually, these coefficients may reflect broader life-course, labor-market, and cohort trajectories rather than independent relationships with fertility.

Some timing relationships are more consistent. The mean age at first marriage is positively associated with the mean age at childbirth in both within-country specifications, whereas the crude marriage rate is associated with a lower mean age at childbirth. Births outside marriage are associated with a lower mean age at childbirth in the preferred specification, but the relationship is no longer statistically significant after country-specific trends are included. Women's schooling is positively associated with mean age at childbirth only in the trend-adjusted model. These patterns are consistent with the literature's emphasis on life-course sequencing and the institutional context of family formation, although they should not be interpreted causally.

Taken together, the results are broadly consistent with international evidence while highlighting important differences across instruments and specifications. Paid parental leave, cash support related to childbirth and parental leave, birth grants, female employment, and marriage display the most consistent positive associations with TFR in the full within-country models. Childcare spending is positively associated with TFR in the preferred specification, but changes sign after country-specific trends are added, while housing affordability and consumer confidence are associated with TFR only in the trend-adjusted model. Associations with mean age at childbirth are less stable. We therefore use these results as descriptive benchmarks for Lithuania

rather than as causal evidence on individual policies.

4.2 Evidence on completed fertility and childlessness

The period analysis captures annual fertility levels and timing, but it does not distinguish postponement from changes in realized family size. We therefore complement it with cohort-level evidence on completed fertility and childlessness. The regressions include country and cohort fixed effects and use a narrower set of variables that can be measured consistently across cohorts' childbearing years.²³

The policy results distinguish between paid parental leave, other leave-duration measures, and family spending. In the full specifications, paid parental leave and in-kind family spending are positively associated with completed fertility. In-kind spending is negatively associated with childlessness in the spending-only specification, but this relationship is no longer statistically significant once the other covariates are included. Cash family spending is not significantly associated with either outcome in the full models. By contrast, longer total maternity leave and job-protected leave for mothers are negatively associated with completed fertility, while job-protected leave is positively associated with childlessness. The mixed patterns caution against treating leave duration alone as sufficient support for fertility and are consistent with the literature's emphasis on policy design, income support, and coordination with childcare.

Family-formation patterns are also associated with the cohort outcomes. Marriage rates are positively associated with completed fertility and negatively associated with childlessness, while divorce rates are negatively associated with completed fertility but not significantly associated with childlessness. Births outside marriage are positively associated with completed fertility and negatively associated with childlessness in the full specifications. Because these variables are closely related to fertility behavior itself, they should be interpreted as contextual correlates rather than independent policy levers.

Taken together, the cohort evidence shows that the broad policy and family-formation domains highlighted in the period analysis are also related to longer-run fertility outcomes, although the direction and precision of the associations differ across measures. These descriptive patterns are particularly relevant for Lithuania,

²³See Appendix C.3 for a detailed description of the empirical model. The estimates are reported in Tables C.7 and C.8 in Appendix C. The completed fertility regressions cover 20 countries and 368 observations, while the childlessness regressions cover 15 countries and 260 observations.

where rising childlessness is a central margin of the recent fertility decline, but they do not identify causal effects of individual policies.

5 Lithuania in comparative perspective

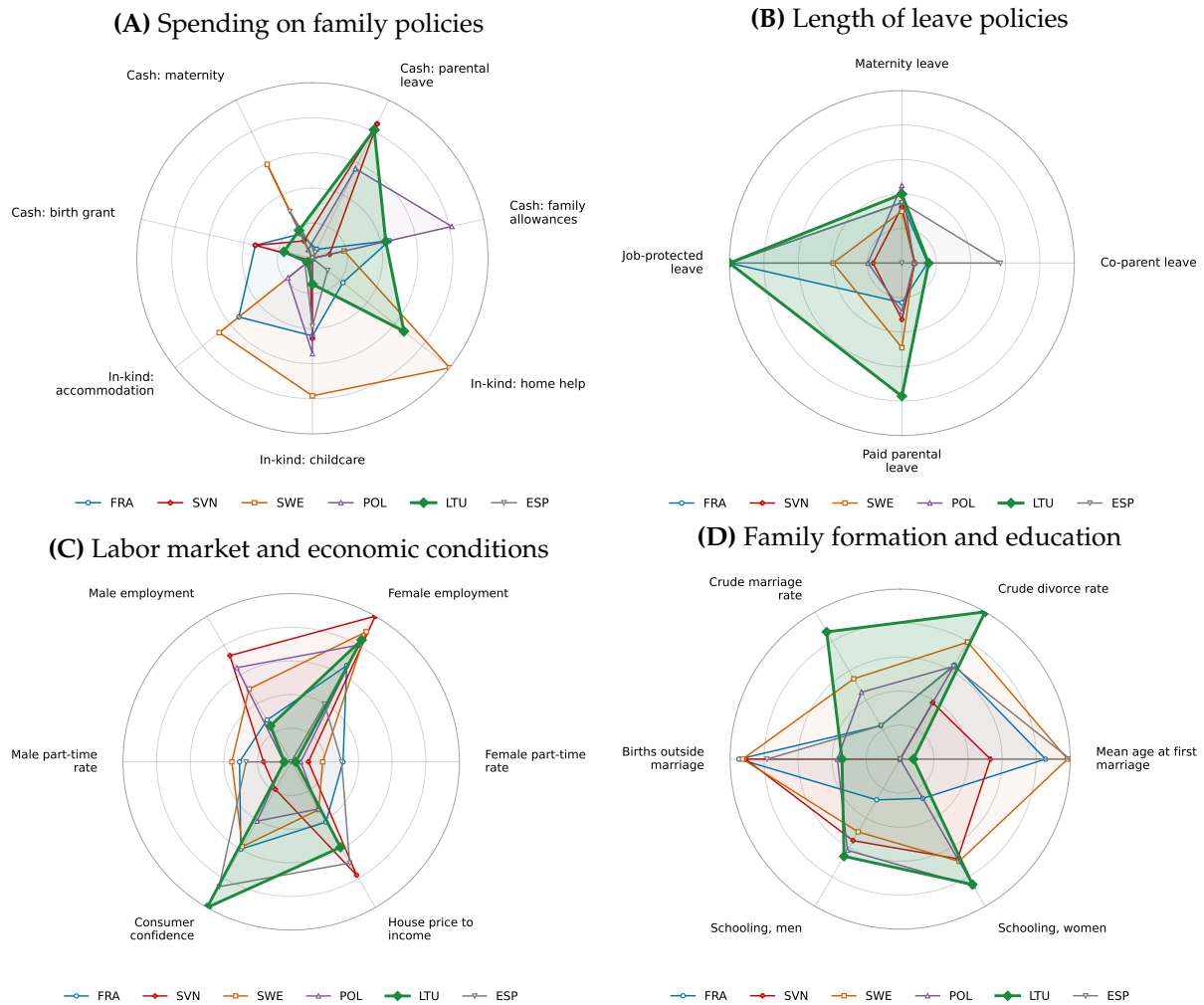
Before discussing the policy implications of our analysis, this section places Lithuania in comparative perspective by comparing its positions on the variables used in the cross-country regressions with those of France, Sweden, Poland, Slovenia, and Spain. These countries provide distinct benchmarks. In 2023, France and Spain represented the upper and lower ends of the fertility distribution in our sample, respectively. Sweden is a reference point for a comprehensive family policy model, and Poland is a regional country with similar institutional arrangements and low fertility. Slovenia provides a contrasting long-run experience, as one of the few countries in our sample where the TFR was higher in 2024 than in 1995.²⁴

Figure 7 compares Lithuania with the selected countries across the indicators used in the cross-country analysis. Each indicator is scaled separately using its distribution across the 21 European countries, so the figure shows each country's relative position on a given indicator rather than differences in absolute levels across indicators.²⁵

²⁴Despite this long-run increase, Slovenia's TFR has declined from its more recent peak around 2010.

²⁵The underlying values and full distributions across the 21 European countries included in the regressions are reported in Figures C.1 to C.5 in Appendix C.1.

Figure 7: Lithuania in the European distribution in 2023



Source: European Parenting Leave Policies dataset ([Spitzer et al., 2025](#)), Eurostat (ESSPROS and demographic statistics), OECD, European Commission (DG ECFIN), UNESCO Institute for Statistics, and own calculations.

Note: Each indicator is scaled independently across the 21 sample countries, with the sample minimum at the center and the sample maximum at the outer edge. The figure, therefore, shows each country's relative position within the sample rather than absolute levels. A position closer to the outer edge indicates a higher indicator value, which is not necessarily a more favorable outcome for fertility.

Panels A and B show that the selected countries vary considerably in how they structure family support, and there is no straightforward relationship between individual policy indicators and fertility outcomes. Lithuania is not characterized by weak family support across the board. It ranks relatively high in job-protected and paid parental leave, surpassing some higher-fertility countries. However, it occupies lower relative positions in birth grants and in-kind childcare spending. France and Spain have similar positions regarding maternity-leave entitlements and in-kind childcare spending, despite being at opposite ends of the fertility distribution. Sweden provides another useful contrast. Despite its comprehensive family policy model and extensive

in-kind support, its fertility rate remains below that of France. Slovenia provides a different contrast: its comparatively favorable long-run fertility performance coexists with a mixed family-policy profile rather than uniformly generous support. Meanwhile, these comparisons underscore the importance of the overall design, targeting, and coordination of the policy mix rather than the generosity of any single instrument.

Lithuania's broader profile, shown in Panels C and D, supports this interpretation. Although female employment and educational attainment are comparatively high, part-time employment remains uncommon. This suggests that substantial female workforce participation largely depends on full-time employment. This may limit the opportunity for a gradual return to work after childbirth, especially when access to childcare is limited. Lithuania's house price-to-income ratio is relatively high, pointing to some pressure on housing affordability, while consumer confidence was comparatively strong in 2023. The country's family-formation profile is more distinctive: a high marriage rate, together with a young age at first marriage, coexists with high divorce rates and a low share of births outside marriage.

Overall, Lithuania's profile does not suggest that a lack of policy support or an unfavorable environment is sufficient to explain its low fertility. This finding aligns with recent studies indicating that traditional explanations only partially capture the decline in fertility and fail to account for the global pattern as a whole (Fernández-Villaverde and Norrick, 2026). Instead, it highlights the multifaceted nature of the issue. Thus, while policy can address specific barriers and mitigate the decline, it is unlikely to reverse the broader trend on its own.

6 Implications for Lithuanian policy

Our analysis provides three key insights for Lithuania's fertility policy. First, the recent fertility decline is increasingly driven by fewer people becoming parents, while the family size has remained relatively stable. This shifts the policy focus from raising births in a given year toward reducing avoidable barriers to entering parenthood. Second, international evidence suggests that no single policy instrument consistently raises fertility on its own. Family policies are more likely to matter when they form part of a broader environment that makes childbearing compatible with employment, economic security, and family formation. Third, Lithuania already provides a broad

range of family support, suggesting that the priority should be to better target and coordinate policy efforts around the barriers most likely to delay or prevent people from becoming parents. Altogether, our findings point to the following key areas in which policy can better support the transition to parenthood and help moderate the fertility decline:

Reduce economic barriers to first births. Rising childlessness is the key factor behind the recent fertility decline, making entry into parenthood a particularly relevant policy margin. Not all childlessness represents a policy problem, as it may reflect personal preferences, partnership dynamics, health constraints, or other factors. Policy should therefore focus on reducing avoidable financial constraints among people who want to become parents. A more targeted approach would concentrate direct financial support around the first birth, when prospective parents face the initial costs of pregnancy, childbirth, infant care, and establishing a household suitable for a child. Instruments such as the birth grant or tax-based child support could be reviewed with this objective in mind, focusing on whether support is sufficiently large and timely to ease the transition into parenthood rather than relying on broad incentives applied uniformly across births.

Redesign leave and income support around the transition to parenthood. Lithuania already provides long parental leave, so the relevant policy margin is less its duration than the generosity of support and how it is distributed over time. One option would be to provide high, potentially full, income replacement around childbirth and during the first months of a child's life, when families face the highest immediate costs and constraints, followed by a gradual decline in replacement rates as the child grows. This decline could intensify once reliable childcare is widely available, strengthening incentives to return to employment while preserving parents' choice over when to do so. Such a declining benefit profile would concentrate public support at a time when families arguably need it most, while better balancing income protection with incentives to return to employment. Its effectiveness would depend critically on ensuring that affordable and reliable childcare is actually available when benefit generosity begins to fall.

Strengthen childcare as family-support infrastructure. The clearest implication from the international literature is the importance of reliable early childcare. Lithuania has substantially expanded early childhood education and care in recent years, including among children under age three.²⁶ The remaining challenge, therefore, appears less related to overall provision and more to effective access. In particular, policy should ensure that families choosing the more generous 18-month paid-benefit option can transition into reliable childcare when the benefit ends. Access should also be strengthened in areas where childcare capacity has not kept pace with demand, including rapidly developing urban areas and regions where ECEC access/participation remains comparatively low.²⁷ This would improve continuity between paid leave and return to work and reduce uncertainty about how prospective parents will combine employment and childcare.

Improve work–family compatibility. Workplace practices such as flexible schedules, predictable hours, and working from home can make employment and parenthood easier to combine, but these arrangements depend largely on employers and the nature of individual jobs. Policy can nevertheless reduce the expected employment and career costs that may discourage childbearing by facilitating a gradual return to work after childbirth, particularly given the relatively low prevalence of part-time employment in Lithuania. One option would be to allow parents to combine part-time employment with a proportionally reduced parental leave benefit, rather than facing a binary choice between remaining on leave and returning to full-time work. Such arrangements should be available to both parents to avoid reinforcing incentives for mothers alone to reduce working hours.²⁸ To support this transition, the exemption from the minimum social insurance contribution base could be extended beyond the child’s third birthday for parents working part-time, allowing contributions to be as-

²⁶Enrollment among children under age three increased from 21% to 35% between 2013 and 2022, while enrollment among two-year-olds rose from 55% to 83% (OECD, 2025; UNESCO, 2025). Universal preschool education has been guaranteed to children from 4 years of age as of 2023, from 3 years of age as of 2024, and from 2 years of age as of 2025, in accordance with the provisions of Article 7, Part 3 of the Law on Education.

²⁷Regional disparities in ECEC participation also exist and persist, particularly in rural areas (European Commission, 2025).

²⁸This could include arrangements such as a four-day working week with reduced hours, as commonly practiced in the Netherlands, where part-time and flexible working arrangements are widespread in both the public and private sectors.

sessed on actual earnings rather than the minimum wage. Additional incentives for employers offering part-time arrangements could also be considered, particularly as they may need to hire additional workers to cover the remaining hours. To avoid discouraging such arrangements, the same earnings-based contribution treatment could apply to employees hired specifically to cover these hours. Together, these measures would facilitate a gradual return to employment while preserving income support and maintaining parents' attachment to the labor market. The net fiscal cost would depend on take-up, employment responses, and the treatment of earnings and benefits.

Address housing and economic uncertainty among young adults. The cross-country evidence suggests that fertility is sensitive to housing affordability and economic confidence, while the broader literature highlights the importance of income security and expectations about future stability for fertility decisions. For Lithuania, this implies that fertility policy should not be separated from broader policies affecting young adults' ability to form stable households. Housing provides one concrete policy margin. Lithuania has introduced more favorable down payment terms for first-time home-buyers, so additional support could be more directly linked to the transition to parenthood. For example, households expecting or having a child could benefit from a further reduction in down payment requirements, enhanced mortgage guarantees, or other forms of financing support, as well as feasible renting alternatives. Such measures should nevertheless be accompanied by policies that facilitate housing supply, as demand-side support may otherwise have limited effects on affordability if housing supply is constrained.

Improve access to fertility information and infertility care. Some of the observed increase in childlessness may be involuntary. As childbearing is delayed, the risk that intended births are not realized increases due to age-related declines in fertility. Policy can help by providing clear and timely information about age-related fertility decline, strengthening early diagnosis and referral, and ensuring affordable access to evidence-based infertility treatment.²⁹ Unlike broad pronatalist incentives, infertility treatment is targeted directly at people who are already trying to have a child; however, it cannot fully offset age-related declines in fertility. Currently, Lithuania reimburses two

²⁹These priorities are highlighted by the World Health Organization in its *Guideline for the Prevention, Diagnosis and Treatment of Infertility* (World Health Organization, 2025).

cycles of assisted reproductive treatment and medications for ovarian stimulation for eligible patients (National Health Insurance Fund under the Lithuanian Ministry of Health, 2025). Building on this support, policy should focus on timely and equitable access across income groups and regions, as well as ensure that formal marital or partnership status is not an eligibility barrier when treatment is clinically indicated.³⁰ The adequacy of the two-cycle limit should also be reviewed, given age-specific prognosis, cumulative success rates, and cost-effectiveness.³¹

7 Concluding remarks

Lithuania's declining fertility rate is not solely the result of women having children later in life or choosing to have smaller families. Our evidence suggests that the decline is increasingly due to more people remaining childless. This indicates that, unless younger cohorts substantially catch up at older ages, completed fertility is likely to decline further.

These findings suggest shifting the policy focus from increasing short-term births to reducing barriers to parenthood. Evidence from international literature and European countries supports a policy mix rather than a single instrument. Reliable early childcare, well-timed support around childbirth, paid parental leave, work-family compatibility, affordable housing, and economic uncertainty all influence the environment in which fertility decisions are made. Therefore, Lithuania should strengthen the institutional and economic conditions surrounding first births and reduce uncertainty for young adults forming families.

More broadly, the worldwide decline in fertility reflects the complex interplay of economic, institutional, and social forces (Sobotka, 2026). Importantly, no single explanation seems to account for the overall pattern, and well-identified studies generally find only modest fertility responses to pronatalist policies (Fernández-Villaverde and Norrick, 2026). Policy should therefore pursue two complementary objectives: reducing avoidable barriers to family formation and adapting to the structural consequences of demographic change for labor markets, public finances, housing, healthcare, and in-

³⁰At the time of writing, access remains limited to those who are married or in a formally registered partnership, pending legislative reform (Ministry of Health of the Republic of Lithuania, 2026).

³¹For comparison, Denmark offers single people and couples up to six publicly funded in vitro fertilization (IVF) attempts for a first child. Since 2026, they have offered up to six attempts for a second child, subject to clinical assessment (Danish Ministry of the Interior and Health, 2024, 2025).

tergenerational fairness, rather than assuming that long-term demographic trends can be fully reversed (European Commission, 2026).

Fertility policy should also complement, rather than substitute for, migration and other demographic policies. Even if successful, higher fertility does not address the economic consequences of population aging in the near future. Additional births initially increase dependency ratios and may temporarily reduce labor force participation, while the resulting cohorts enter the labor force only decades later (Bassanini, 2026). A broader strategy is needed to also promote labor force participation, healthier and longer working lives, productivity growth, and well-managed migration.

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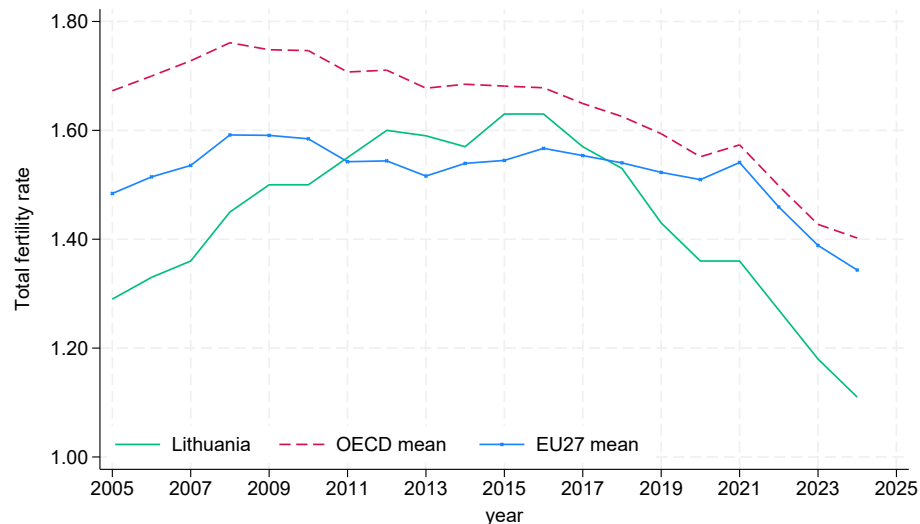
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Appendix

A Supplementary figures and tables

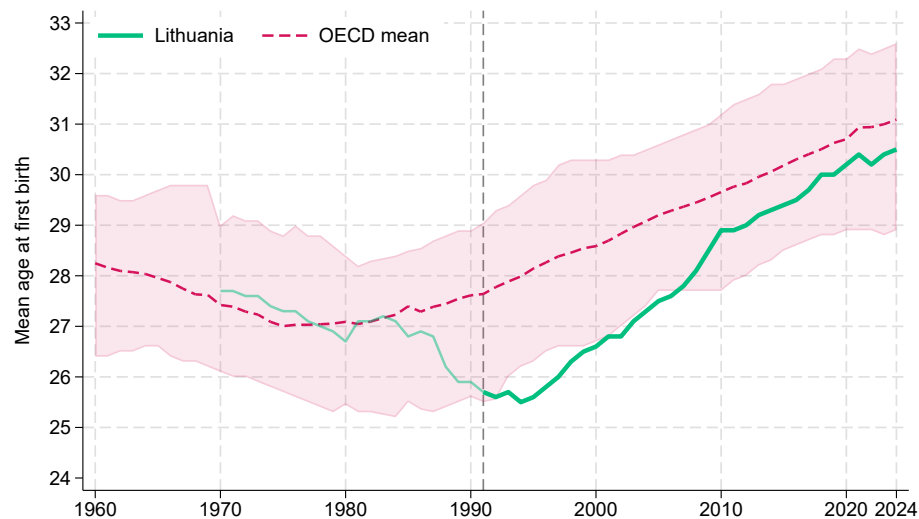
Figure A.1: Total fertility rate between 2005 and 2025: Lithuania, OECD, and EU



Source: [OECD Family database](#) and own calculations.

Note: The figure shows total fertility rates for Lithuania, along with the OECD and EU27 averages.

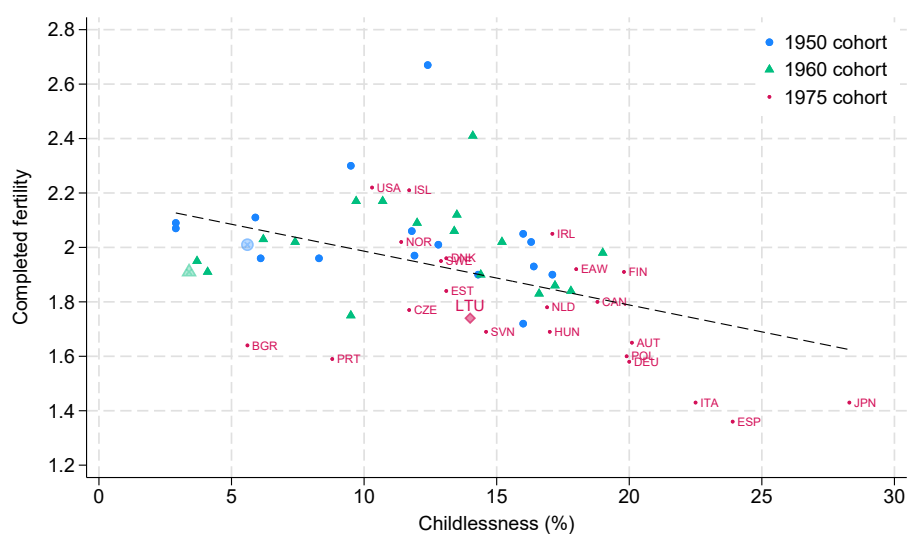
Figure A.2: Age at first birth in Lithuania and the OECD



Source: [OECD Family database](#) and own calculations.

Note: The figure shows the mean age at first birth in Lithuania (solid line) alongside the OECD mean (dashed line). The shaded area represents the 10th-90th percentiles of the distribution across OECD countries.

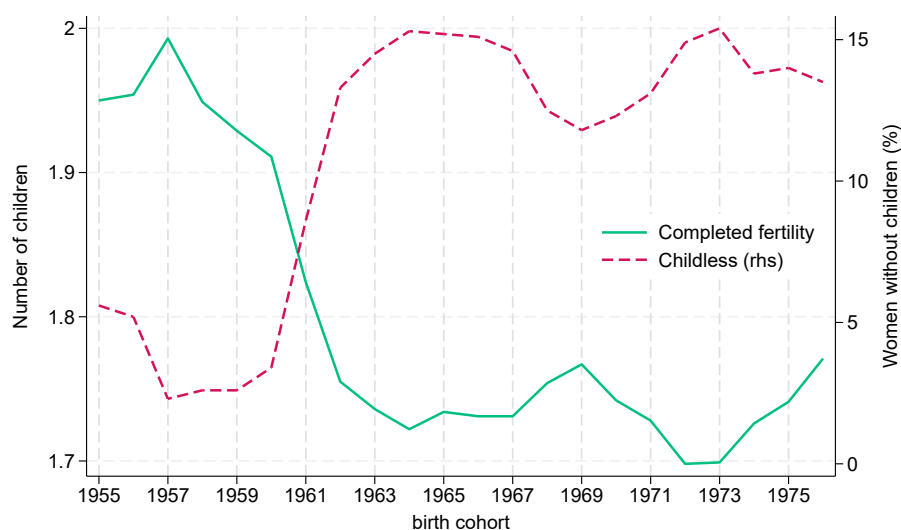
Figure A.3: Completed fertility and childlessness across OECD countries



Source: [OECD Family database](#) and own calculations.

Note: The figure plots completed fertility against the share of women who remain childless at the end of their reproductive lives across OECD countries. Each observation represents a country–birth cohort. The 1950 and 1960 birth cohorts are denoted by circles and triangles, respectively, while countries are labeled for the 1975 birth cohort.

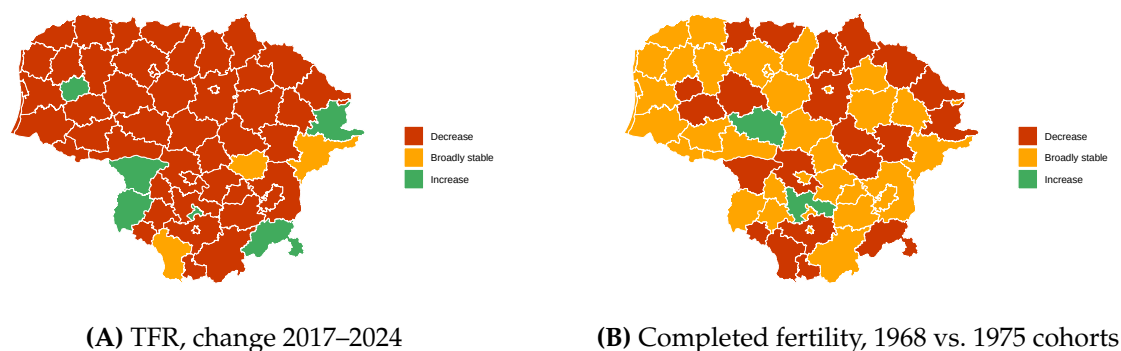
Figure A.4: Completed fertility and childlessness in Lithuania



Source: [Human Fertility Database](#) and own calculations.

Note: The figure plots completed fertility rates and the percentage of childless women by the end of their reproductive years for Lithuanian women born between 1955 and 1976.

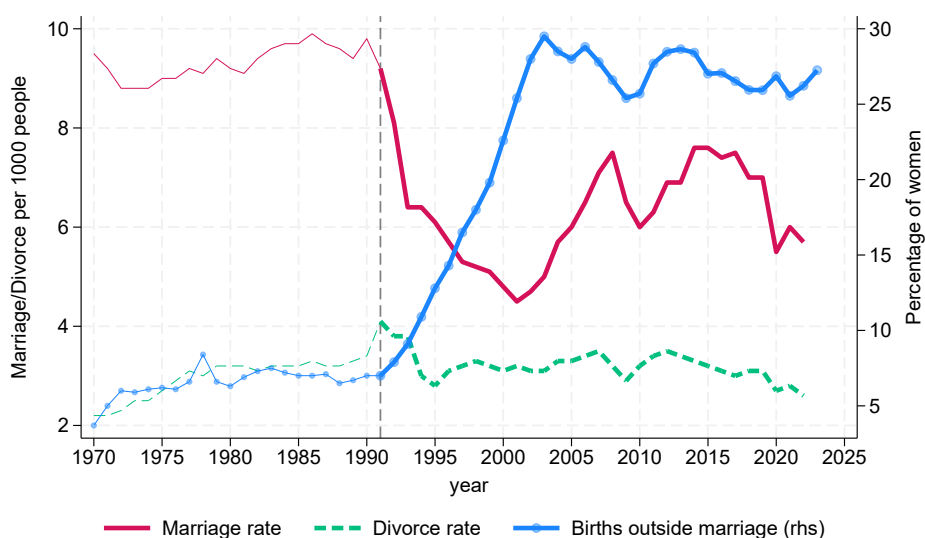
Figure A.5: Total fertility rate and completed fertility by municipality



Source: Social Security records and own calculations.

Note: Panel A shows the change in the total fertility rate between 2017 and 2024; “Decrease” indicates a decline larger than 0.5 percentage points (pp), “Broadly stable” a change between -0.5 and +0.5 pp, and “Increase” an increase larger than 0.5 pp. Panel B shows the change in completed fertility between the 1968 and 1975 birth cohorts; “Decrease” indicates a decline larger than 0.1 children per woman, “Broadly stable” a change between -0.1 and +0.1 children per woman, and “Increase” an increase larger than 0.1 children per woman.

Figure A.6: Family formation dynamics in Lithuania, 1970–2023



Source: [OECD Family database](#) and own calculations.

Note: Births outside marriage refers to the proportion (%) of all live births where the mother’s legal marital status at the time of birth is other than married.

Table A.1: Coverage ratios of Social Security live births relative to official statistics

Year	Total births	First-order births	Higher-order births
2017	78%	79%	78%
2018	79%	80%	78%
2019	82%	83%	80%
2020	85%	87%	83%
2021	83%	85%	82%
2022	85%	87%	84%
2023	84%	87%	81%
2024	84%	87%	82%

Source: [Statistics LT](#), Social Security records, and own calculations.

Note: The table reports the ratio of live births recorded in the Social Security registry (used in the analysis) to the official number of live births reported by Statistics Lithuania. Coverage ratios are shown for total live births, first-order births, and higher-order births. Coverage is below 100% because the administrative data excludes women who are not employed or not eligible for parental benefits and because multiple births are recorded as a single parental leave spell.

B Projection of completed fertility and childlessness

For the youngest cohort in our sample, 1997-1999, we project completed fertility using a cohort-age model estimated from the observed cohort panel. Let K_{ac} denote cumulative children ever born by age a for birth cohort c . The baseline fertility model is

$$K_{ac} = \alpha + \beta a^2 + \sum_j \gamma_j [\mathbb{1}\{a = j\} \times c] + \delta c + \varepsilon_{ac}, \quad (1)$$

where a indexes age and c indexes birth cohort. The specification combines a common quadratic age term with interactions between birth year and age indicators. The quadratic term captures the common curvature of fertility accumulation over the life cycle, while the interaction terms allow the birth-cohort gradient to vary flexibly across ages. Consequently, the fitted age profile is not restricted to a simple quadratic function, and cohort fertility profiles are allowed to converge or diverge over the life cycle rather than remaining parallel.

Because age and birth year are closely related in the observed cohort-age panel, the interaction terms absorb much of the variation that would otherwise be used to identify a separate common linear age effect. In practice, including such a term leads to unstable parameter estimates and implausible out-of-sample projections. We therefore retain the more parsimonious specification, which yields stable projected profiles while preserving flexible cohort-specific age patterns.

The model is estimated using all observed cohort-age cells. Unobserved cohort-age cells are then created for the 1997–1999 cohorts at ages beyond the final common observed age, and fitted values from equation (1) are used to extrapolate cumulative fertility over the remainder of the reproductive life cycle. The projected completed fertility of the cohort c is

$$\hat{K}_{48,c}, \quad (2)$$

and the reported value for the 1997–1999 cohort group is the average across the three cohorts:

$$\hat{K}_{48,1997-1999} = \frac{1}{3} \sum_{c=1997}^{1999} \hat{K}_{48,c}. \quad (3)$$

The baseline regression projects cumulative parity levels directly rather than age-specific fertility rates. For the sensitivity analysis described below, however, the fitted cumulative profile is converted into annual fertility increments. Expressing the

projection in annual increments allows all projected paths to be anchored at the final observed fertility level of the 1997–1999 cohorts, thereby ensuring a smooth transition between the observed and projected portions of the fertility profile.

To assess the sensitivity of the completed fertility projection to alternative assumptions about later-life fertility recuperation, we construct two catch-up scenarios in addition to the baseline projection. Let a^* denote the final age at which all birth years in the 1997–1999 cohort group are observed. All projection paths are anchored at the observed cumulative fertility of the 1997–1999 cohorts at age a^* .

The baseline projection uses the fitted cohort-age model to obtain projected cumulative fertility after age a^* . Rather than using the fitted cumulative profile directly, we calculate the implied annual fertility increments as the change in fitted cumulative fertility between consecutive ages. Negative increments are truncated at zero to ensure that cumulative fertility is non-decreasing. These annual increments are then accumulated from the observed fertility level at age a^* , producing an anchored baseline projection that connects smoothly to the observed data.

To construct alternative catch-up scenarios, we first measure the projected completed-fertility gap between the baseline projection for the 1997–1999 cohorts and the observed completed fertility of the 1976–1978 cohorts at age 48. This gap represents the amount of fertility that would need to be recovered after the final observed age for the youngest cohorts to converge toward the completed fertility achieved by the oldest fully observed cohort.

The moderate catch-up scenario assumes that the 1997–1999 cohorts recover 50% of this projected gap by age 48, while the strong catch-up scenario assumes that they recover 75% of the gap. Rather than altering the timing of fertility, the additional births are distributed proportionally across all remaining reproductive ages according to the baseline model's projected age profile. Consequently, all scenarios share the same age pattern of fertility accumulation after the projection anchor and differ only in the total amount of remaining fertility. This approach avoids generating implausible concentrations of catch-up fertility at older ages while preserving the life-cycle shape implied by the estimated cohort-age model.

The resulting scenario band should therefore be interpreted as a sensitivity analysis with respect to assumptions about the extent of later-life fertility recuperation rather than as a statistical confidence interval.

Childlessness is projected analogously. Let Q_{ac} denote the share of birth cohort c that remains childless by age a . Because childlessness is bounded between zero and one, we estimate the projection in log-odds form:

$$\log \left(\frac{Q_{ac}}{1 - Q_{ac}} \right) = \alpha^Q + \beta^Q a^2 + \sum_a \gamma_a^Q [\mathbb{1}\{A = a\} \times c] + \delta^Q c + u_{ac}. \quad (4)$$

Predicted log-odds are transformed back into probabilities using the inverse logit transformation:

$$\hat{Q}_{ac} = \frac{\exp(\hat{L}_{ac})}{1 + \exp(\hat{L}_{ac})}, \quad (5)$$

where $\hat{L}_{ac}$ is the fitted value from equation (4). The projected completed childlessness rate for the 1997–1999 cohort group is

$$\hat{Q}_{48,1997-1999} = \frac{1}{3} \sum_{c=1997}^{1999} \hat{Q}_{48,c}. \quad (6)$$

These projections are intended to be illustrative rather than predictive. The 1997–1999 cohorts are observed only through their mid-to-late twenties, so projected completed fertility and childlessness necessarily depend on assumptions about fertility after the last observed age. The baseline projection extrapolates historical cohort-age profiles, while the alternative catch-up scenarios illustrate how completed fertility would change if part of the projected fertility shortfall relative to older cohorts were recovered at later ages. Accordingly, the estimates reported in the main text should be interpreted as benchmark scenarios rather than forecasts.

C Cross-country data and econometric models

C.1 Data

Sample. The cross-country analysis covers the 21 European countries of the European Parenting Leave Policies (EPLP) dataset: Austria, Belgium, Czechia, Germany, Denmark, Estonia, Spain, Finland, France, the United Kingdom, Greece, Hungary, Ireland, Italy, Lithuania, the Netherlands, Norway, Poland, Sweden, Slovenia, and Slovakia. The period analysis of Section 4.1 uses an annual panel spanning 2005–2024. The cohort analysis in Section 4.2 uses cohorts and, because the completed-fertility outcomes are drawn from the Human Fertility Database, covers the 20 countries the database reports (Greece is not included). All series are harmonized to a common ISO country coding, and, for the cohort analysis, the annual regressors are re-collected back to 1960 so that they span the calendar years each cohort passed through its childbearing ages.

Fertility outcomes. For the period analysis, the outcomes are the total fertility rate and the mean age of the mother at birth, both from Eurostat. For the cohort analysis, the outcomes are *completed cohort fertility* (the average number of children ever born to women of a birth cohort, measured once childbearing is essentially complete) and *cohort childlessness* (the share of women in a cohort remaining childless), taken from the Human Fertility Database (Jasilioniene et al., 2016). These are genuine cohort measures rather than period snapshots and therefore align naturally with the cohort-exposure design described in Section C.3.

Family leave policies. Leave entitlements come from the EPLP dataset (Spitzer et al., 2025), which reconstructs the statutory parameters of parenting-leave schemes across countries and, crucially for the cohort design, extends back to 1970. We use five leave-duration variables, measured in weeks: total maternity leave before birth, total maternity leave after birth, co-parent or father-earmarked leave, job-protected leave for mothers, and paid parental leave for one parent. Total maternity leave before and after birth is formed as the sum of the mandatory and voluntary components reported in the dataset. The long historical reach of the EPLP series makes leave policy observable across a large portion of the exposure window for older cohorts.

Family leave policies. Leave entitlements come from the EPLP dataset (Spitzer et al., 2025), which reconstructs the statutory parameters of parenting-leave schemes across countries and, crucially for the cohort design, extends back to 1970. We use four leave-duration variables, measured in weeks: total maternity leave, co-parent or father-earmarked leave, job-protected leave for mothers, and paid parental leave for one parent. Total maternity leave is the sum of the mandatory and voluntary components reported in the dataset, before and after birth combined. We initially entered the pre-birth and post-birth durations as separate regressors, but the pre-birth component is constant within every country in our estimation window except Finland, so on its own it is identified off a single reform in a single country and it cannot be estimated at all on any sample that excludes Finland. Since the other three leave variables are measured as total entitlements, combining the two maternity components is also the more natural comparison. The long historical reach of the EPLP series makes leave policy observable across a large portion of the exposure window for older cohorts.

Labor market and economic conditions. Female and male employment rates for the 25–54 age group, part-time incidence by sex, and the house price-to-income ratio are drawn from the OECD via its SDMX interface. The consumer confidence indicator is from the European Commission’s DG ECFIN Business and Consumer Survey. Mean years of schooling for women and men aged 25 and over come from the UNESCO Institute for Statistics.

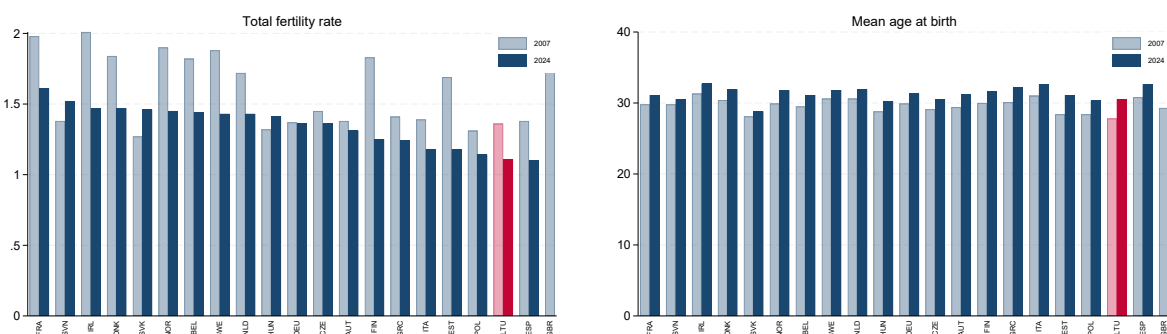
Family-formation norms. The crude marriage rate, crude divorce rate, share of births outside marriage, and mean age at first marriage are from Eurostat.

Data cleaning and transformations. Four deterministic steps precede estimation. First, missing ESSPROS leaf cells that reflect unreported institutional zeros are recovered from the accounting identity that a parent category equals the sum of its children. Second, interior gaps in any series are filled by linear interpolation between a country’s own neighboring observed years, without extrapolating beyond its observed range. Third, in the period panel only, the small number of scattered gaps that remain after interpolation are multiply imputed by chained equations (MICE, twenty imputations combined by Rubin’s rules, (Van Buuren and Groothuis-Oudshoorn, 2011)), without fabricating a series for any country that lacks it entirely. Fourth, for the cohort

analysis, each annual regressor is collapsed to a cohort-exposure mean, as described in Section C.3. In the regressions reported as the main specification, all regressors are standardized to mean zero and unit standard deviation, so coefficients measure the association with a one-standard-deviation increase in the regressor and are comparable across variables measured on different scales.

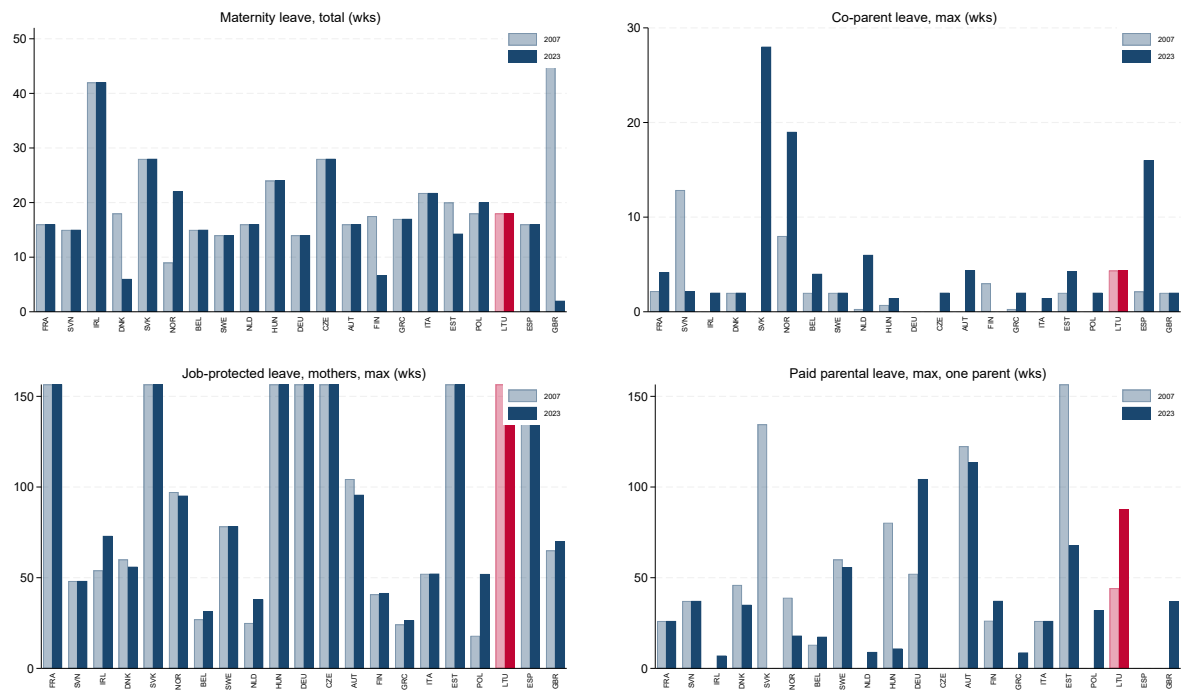
Summary statistics. The figures below plot every variable used in the panel regressions of Section 4.1 across the 21 analyzed countries, comparing each country’s latest reading with an earlier one. For the total fertility rate and mean age at birth, we use 2024 values as the most recent observations; for all other variables, we use 2023 values, which enter the panel regressions with a lag. Countries are ordered from left to right by their 2024 fertility level, following the order in Figure C.1, with Lithuania highlighted. As explained above, several series use interpolation or imputation, indicated by a * next to their names.

Figure C.1: Fertility and mean age at birth



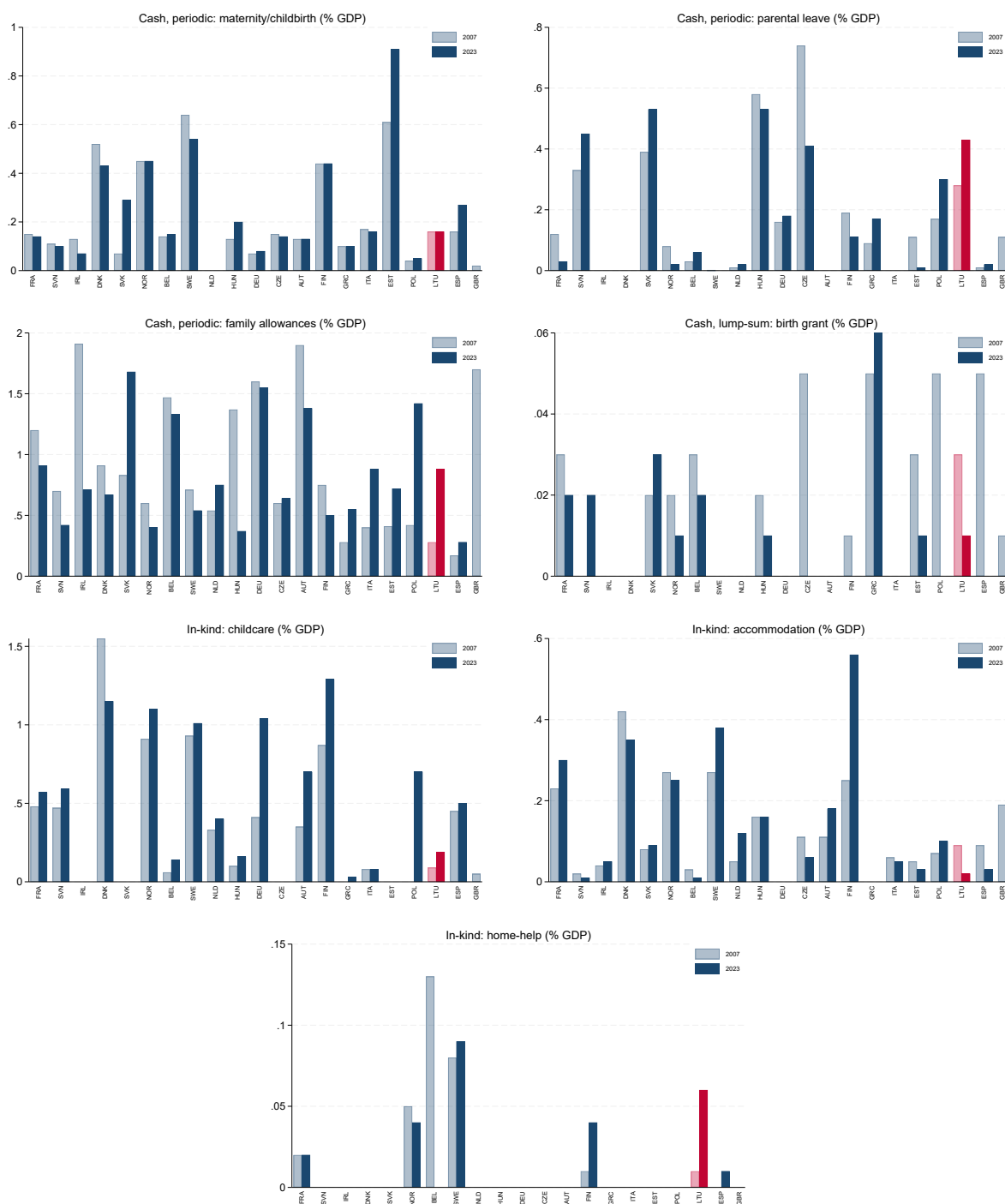
Source: Eurostat and own calculations. Note: Bars compare 2007 with 2024. Lithuania is highlighted in red.

Figure C.2: Leave policies



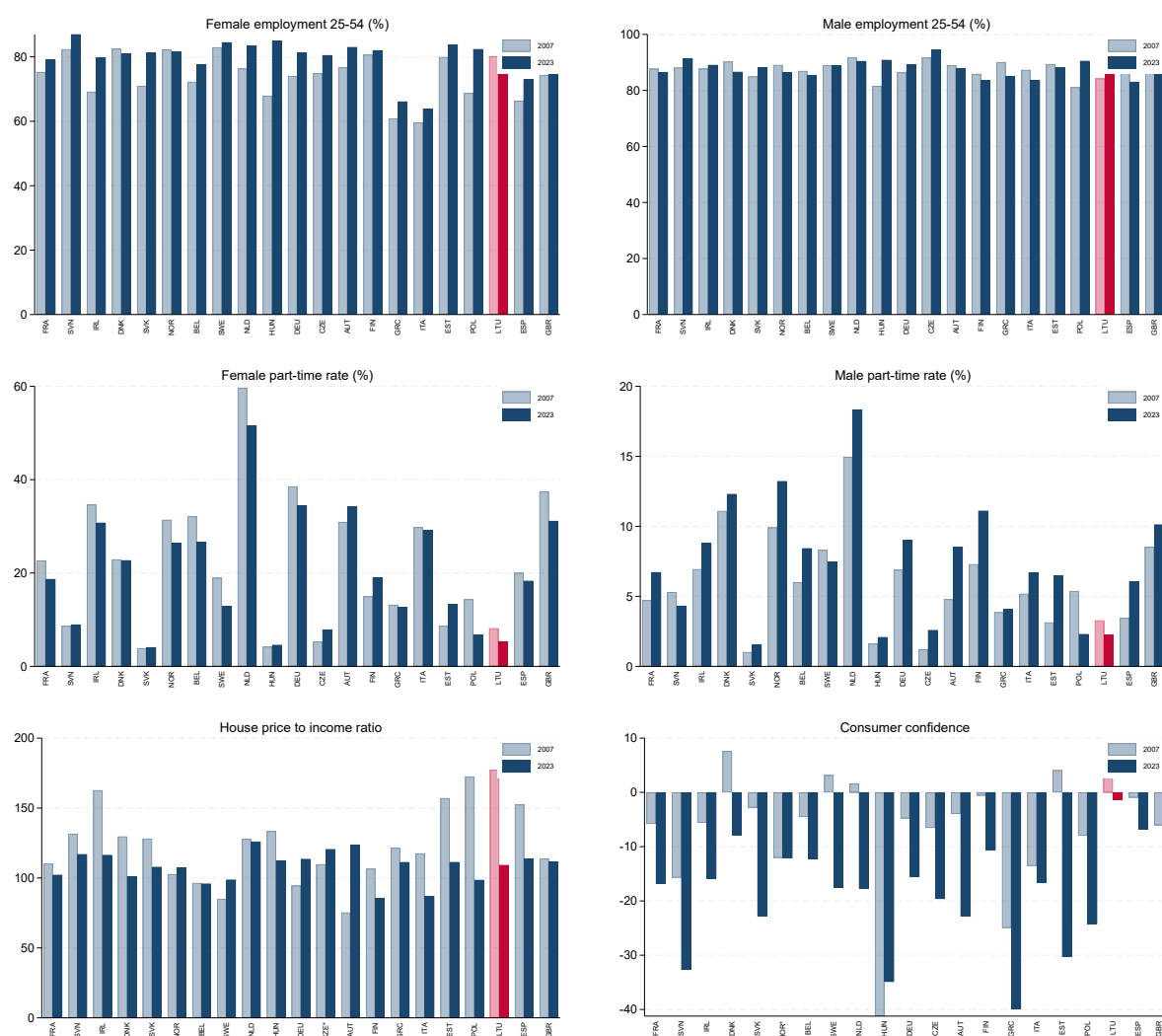
Source: European Parenting Leave Policies dataset and own calculations. *Note:* Bars compare 2007 with 2023. Lithuania is highlighted in red.

Figure C.3: Spending policies



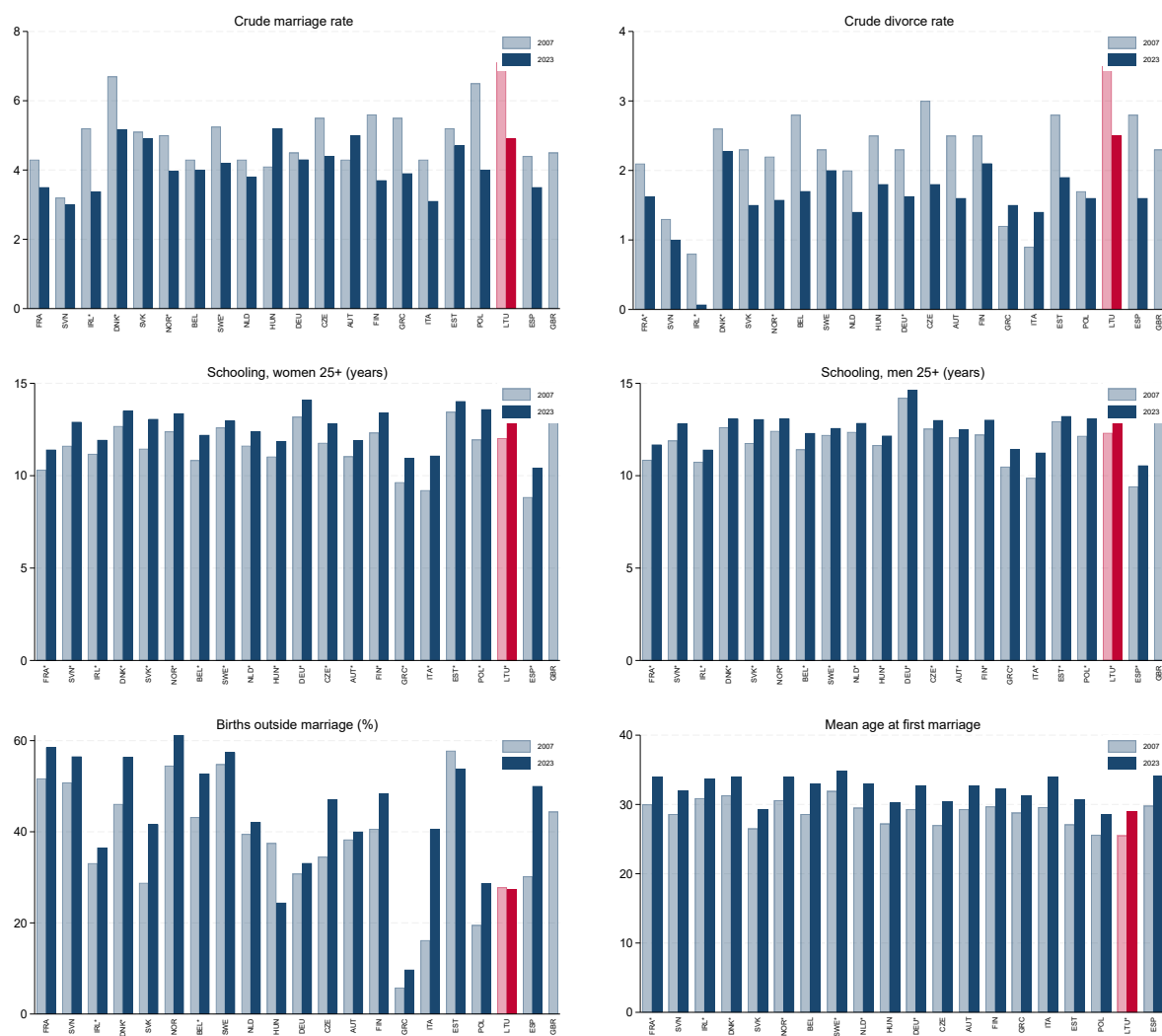
Source. Eurostat ESSPROS and own calculations. Note. Bars compare 2007 with 2023. Lithuania is highlighted in red.

Figure C.4: Economic indicators



Source: OECD, European Commission (DG ECFIN), and own calculations. Note: Bars compare 2007 with 2023. Lithuania is highlighted in red.

Figure C.5: Norms



Source: Eurostat, UNESCO Institute for Statistics, and own calculations.

Note: Bars compare 2007 with 2023. Lithuania is highlighted in red.

C.2 Cross-country panel regressions

The cross-country analysis in Section 4 follows a panel specification in the spirit of Olivetti and Petrongolo (2017) and Fluchtmann et al. (2023). Let i index countries and t calendar years. For each annual outcome y_{it} —either the log of the total fertility rate, $\ln(\text{TFR}_{it})$, or the log of the mean age at birth, $\ln(\text{MAB}_{it})$ —our preferred specification is

$$y_{it} = \alpha_i + \delta_t + X'_{i,t-1}\beta + \varepsilon_{it}, \quad (7)$$

where α_i are country fixed effects, δ_t are year fixed effects, and $X_{i,t-1}$ is a block of regressors entered with a one-year lag. The country fixed effects remove time-invariant cross-country differences, such as persistent institutional, cultural, or demographic characteristics. The year fixed effects absorb shocks common to all countries in a given year, such as common macroeconomic conditions or Europe-wide demographic changes. The coefficient vector β is therefore identified from within-country changes over time, net of common year effects.

We estimate four regressor blocks. Block *A* includes family policy variables, block *B* includes economic indicators, block *C* includes norms and family-formation variables, and block *D* includes all three groups jointly. Estimating the blocks separately allows us to describe the associations within conceptually distinct groups of correlates, while the full specification assesses which associations remain when the policy, economic, and social variables are included together. Each column of a given table is estimated on a common sample, so differences across columns are not driven by changes in sample composition. Across all specifications, the regressors are lagged by one year. This timing treats the covariates as predetermined relative to current fertility, mitigating but not eliminating simultaneity between fertility and the selected potential drivers. Moreover, each regressor is standardized to have a mean of zero and a standard deviation of one, so coefficients can be interpreted as the association between the outcome and a one-standard-deviation increase in the lagged regressor.

The identifying assumption for this specification is

$$\mathbb{E}[\varepsilon_{it} \mid X_{i,t-1}, \alpha_i, \delta_t] = 0,$$

with the analogous conditioning set for the alternative specifications. This is a

conditional-correlation assumption, not a structural or causal assumption. Policies, economic conditions, norms, and fertility are jointly determined, and the specifications cannot rule out omitted time-varying factors correlated with both the regressors and fertility outcomes. We therefore interpret all coefficients as descriptive associations.

Standard errors are computed using the [Driscoll and Kraay \(1998\)](#) estimator, allowing for heteroskedasticity, within-country serial correlation, and contemporaneous cross-country dependence. When the coverage audit identifies scattered residual gaps, estimates are combined across 20 multiply-imputed datasets using Rubin's rules.

To characterize the sensitivity of the results and the source of identifying variation, we report two additional specifications alongside the preferred two-way fixed effects model. The first includes year fixed effects only

$$y_{it} = \delta_t + X'_{i,t-1}\beta + \varepsilon_{it}. \quad (8)$$

This specification compares countries within the same year and therefore uses both cross-country differences and within-country changes over time, after removing shocks common to all countries. It provides a descriptive benchmark for whether countries with higher values of a given policy, economic, or social variable also tend to have different fertility outcomes.

The second augments the preferred model with country-specific linear trends

$$y_{it} = \alpha_i + \delta_t + \gamma_i t + X'_{i,t-1}\beta + \varepsilon_{it}, \quad (9)$$

where $\gamma_i t$ allows each country to follow its own linear trajectory. This is the most demanding specification. It removes smooth country-specific trends and identifies β from deviations around each country's trajectory, net of common year effects. We do not treat this model as uniformly preferred, because it may absorb gradual policy or social changes that are substantively relevant. Instead, we use it as a diagnostic specification. For slow-moving variables such as childcare provision, schooling, or family-formation norms, the trend adjustment may remove much of the variation through which these factors are expected to matter. For more cyclical variables, such as housing affordability or consumer confidence, deviations from country-specific trajectories can be interpreted as short-run fluctuations or shocks around expected conditions.

C.3 Cohort completed fertility regressions

To analyze completed fertility and childlessness, we use a cohort-level specification that parallels the annual panel regressions in Section C.2, but shifts the unit of analysis from country-years to country-cohorts. Rather than relating annual fertility outcomes to lagged annual covariates, we compare completed fertility outcomes across birth cohorts and relate them to the policy, spending, and family-formation environments those cohorts faced during their reproductive years.

Let i index countries and k index birth cohorts, with b_k denoting the cohort's birth year. For each annual country-level series x_{ijt} , where j indexes regressors and t calendar years, we construct a cohort-specific exposure measure by averaging the variable over the ages spanned by an exposure window $[\underline{a}, \bar{a}]$:

$$\bar{x}_{ijk} = \frac{1}{|\mathcal{T}_{ik}|} \sum_{t \in \mathcal{T}_{ik}} x_{ijt}, \quad \mathcal{T}_{ik} = \{t : b_k + \underline{a} \leq t \leq b_k + \bar{a}, x_{ijt} \text{ observed}\}. \quad (10)$$

In the baseline, we set $[\underline{a}, \bar{a}] = [18, 49]$, so that each cohort is characterized by the average conditions observed over its reproductive years. A cohort-country exposure cell is treated as missing unless at least 6 years of observation are available. The sample starts with the 1960 birth cohort to ensure that the exposure window overlaps sufficiently with the years for which family-spending measures are available.

The outcome y_{ik} is the log of either completed cohort fertility or the cohort childlessness rate. We estimate

$$y_{ik} = \alpha_i + \delta_k + \bar{X}_{ik}'\beta + \varepsilon_{ik}, \quad (11)$$

where α_i are country fixed effects, δ_k are cohort fixed effects, and $\bar{X}_{ik}$ denotes a block of cohort-exposure measures. The country fixed effects absorb time-invariant differences across countries, such as persistent institutional, cultural, or demographic characteristics. The cohort fixed effects absorb factors common to all countries for a given birth cohort, including Europe-wide secular changes in fertility and family formation. The coefficient vector β is therefore identified from within-country differences in exposure across successive birth cohorts, net of common cohort effects.

We estimate the same block structure as in the period panel, subject to data availability. The policy block includes leave-duration measures; the spending block includes aggregate family cash and in-kind spending; the norms block includes the

crude marriage rate, the crude divorce rate, and the share of births outside marriage; and the full specification includes all available blocks jointly. Employment variables are not included in the cohort regressions because their historical coverage substantially restricts the cohort sample, and their role has already been examined in the annual panel. As in the period regressions, all regressors are standardized to have a mean of zero and a standard deviation of one before estimation, so coefficients measure the association between the outcome and a one-standard-deviation increase in the corresponding cohort exposure measure.

The identifying assumption is

$$\mathbb{E}[\varepsilon_{ik} \mid \bar{X}_{ik}, \alpha_i, \delta_k] = 0.$$

As in the annual panel, this is a conditional-correlation assumption rather than a structural or causal assumption. Although country fixed effects remove time-invariant country differences and cohort fixed effects remove common cohort-level shifts, time-varying country-specific factors may still be correlated with both cohort exposure and completed fertility outcomes. Moreover, the exposure measures themselves may reflect the same social, economic, and institutional processes that shape fertility. We therefore interpret Equation (11) as describing conditional associations rather than causal effects.

Because adjacent birth cohorts within a country overlap in calendar years, cohort observations are likely to be serially correlated within countries. We therefore compute [Driscoll and Kraay \(1998\)](#) standard errors over the cohort dimension, allowing for heteroskedasticity, within-country serial correlation, and cross-country dependence. Given the moderate number of countries and cohorts, the resulting inference should still be interpreted cautiously. Each column of a given table is estimated on the common sample of the fully saturated specification, so differences across regressor blocks are not driven by changes in sample composition.

The completed-fertility and childlessness regressions are estimated on different samples because the Human Fertility Database reports the two outcomes for different sets of countries and cohorts. In the current estimation sample, the completed-fertility regressions use 20 countries and 368 country-cohort observations, while the childlessness regressions use 15 countries and 260 country-cohort observations. The smaller childlessness sample reflects more limited country coverage, which should be kept in

mind when comparing the two sets of estimates. Within each outcome, the panel is unbalanced: countries with longer historical series contribute earlier cohorts, while countries whose family-spending series begin later enter only for more recent cohorts.

C.4 Cross-country estimates

Table C.1: Total fertility rate: Country and year fixed effects

	(1) (A) Policy	(2) (B) Economic	(3) (C) Norms	(4) (D) All
L.Maternity leave, total (wks)	-0.0164 (0.0109)			0.0107 (0.0066)
L.Co-parent leave, max (wks)	-0.0131 (0.0109)			-0.0134*** (0.0047)
L.Job-protected leave, mothers, max (wks)	-0.0438 (0.0405)			-0.0157 (0.0563)
L.Paid parental leave, max, one parent (wks)	-0.0288*** (0.0111)			0.0167** (0.0067)
L.Cash, periodic: maternity/childbirth (% GDP)	0.0419 (0.0327)			0.0569*** (0.0220)
L.Cash, periodic: parental leave (% GDP)	0.0407* (0.0246)			0.0434*** (0.0123)
L.Cash, periodic: family allowances (% GDP)	-0.0030 (0.0057)			0.0186** (0.0078)
L.Cash, lump-sum: birth grant (% GDP)	0.0054 (0.0050)			0.0075*** (0.0024)
L.In-kind: childcare (% GDP)	0.0953*** (0.0156)			0.0278*** (0.0097)
L.In-kind: accommodation (% GDP)	-0.1005*** (0.0108)			-0.0527*** (0.0094)
L.In-kind: home-help (% GDP)	0.0034 (0.0029)			0.0063** (0.0028)
L.Female employment 25–54 (%)		0.0853*** (0.0130)		0.0673*** (0.0122)
L.Male employment 25–54 (%)		0.0039 (0.0126)		-0.0007 (0.0119)
L.Female part-time rate (%)		0.2154*** (0.0520)		0.1603*** (0.0416)
L.Male part-time rate (%)		-0.0621*** (0.0188)		-0.0277*** (0.0100)
L.House price to income ratio		0.0046 (0.0065)		0.0030 (0.0060)
L.Consumer confidence		0.0041 (0.0081)		0.0106 (0.0087)
L.Crude marriage rate			0.0857*** (0.0077)	0.0694*** (0.0081)
L.Crude divorce rate			0.0028 (0.0056)	-0.0018 (0.0077)
L.Mean years of schooling, women 25+			0.1567*** (0.0417)	0.0121 (0.0406)
L.Mean years of schooling, men 25+			-0.1206*** (0.0337)	-0.0287 (0.0450)
L.Births outside marriage (%)			0.0560*** (0.0185)	0.0604*** (0.0188)
L.Mean age at first marriage			-0.0713*** (0.0203)	-0.0730*** (0.0203)
Observations	383	383	383	383
R-squared	0.534	0.564	0.647	0.795
Countries	21	21	21	21
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country trends	No	No	No	No
Std. errors	DK	DK	DK	DK

Note: Outcome is $\ln(\text{TFR})$. All regressors are lagged by one year and standardized to have a mean of zero and a standard deviation of one (z-scores). Coefficients, therefore, represent the effect of a one-standard-deviation change in the regressor. All columns include year and country fixed effects with Driscoll–Kraay standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.2: Total fertility rate: Country-specific trends

	(1) (A) Policy	(2) (B) Economic	(3) (C) Norms	(4) (D) All
L.Maternity leave, total (wks)	-0.0016 (0.0067)			0.0080* (0.0045)
L.Co-parent leave, max (wks)	-0.0027 (0.0022)			-0.0040 (0.0033)
L.Job-protected leave, mothers, max (wks)	0.0079 (0.0451)			0.0489 (0.0398)
L.Paid parental leave, max, one parent (wks)	0.0306*** (0.0046)			0.0396*** (0.0042)
L.Cash, periodic: maternity/childbirth (% GDP)	0.0085 (0.0104)			0.0283*** (0.0077)
L.Cash, periodic: parental leave (% GDP)	0.0076 (0.0089)			0.0196*** (0.0064)
L.Cash, periodic: family allowances (% GDP)	-0.0115** (0.0047)			0.0048 (0.0049)
L.Cash, lump-sum: birth grant (% GDP)	0.0059 (0.0038)			0.0055** (0.0022)
L.In-kind: childcare (% GDP)	-0.0271** (0.0133)			-0.0219** (0.0087)
L.In-kind: accommodation (% GDP)	-0.0168 (0.0126)			-0.0092 (0.0142)
L.In-kind: home-help (% GDP)	-0.0013 (0.0014)			0.0020 (0.0019)
L.Female employment 25–54 (%)		0.0295** (0.0145)		0.0382*** (0.0106)
L.Male employment 25–54 (%)		0.0098 (0.0084)		0.0049 (0.0053)
L.Female part-time rate (%)		-0.0340 (0.0443)		0.0335 (0.0373)
L.Male part-time rate (%)		0.0454*** (0.0154)		0.0372*** (0.0142)
L.House price to income ratio		-0.0101* (0.0060)		-0.0072** (0.0033)
L.Consumer confidence		0.0112* (0.0059)		0.0159*** (0.0043)
L.Crude marriage rate			0.0471*** (0.0074)	0.0439*** (0.0070)
L.Crude divorce rate			0.0035 (0.0039)	-0.0056 (0.0055)
L.Mean years of schooling, women 25+			-0.0214 (0.0251)	-0.0760*** (0.0254)
L.Mean years of schooling, men 25+			0.0048 (0.0256)	0.0613** (0.0251)
L.Births outside marriage (%)			0.0326*** (0.0121)	0.0103 (0.0121)
L.Mean age at first marriage			0.0140 (0.0166)	-0.0115 (0.0152)
Observations	383	383	383	383
R-squared	0.852	0.855	0.871	0.917
Countries	21	21	21	21
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country trends	Yes	Yes	Yes	Yes
Std. errors	DK	DK	DK	DK

Note: Outcome is $\ln(\text{TFR})$. All regressors are lagged by 1 year and standardized to have a mean of 0 and a standard deviation of 1 (z-scores). Coefficients, therefore, represent the effect of a one-standard-deviation change in the regressor. All columns include year and country fixed effects as well as country trends with Driscoll–Kraay standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.3: Total fertility rate: Year effects

	(1) (A) Policy	(2) (B) Economic	(3) (C) Norms	(4) (D) All
L.Maternity leave, total (wks)	0.0128 (0.0089)			-0.0005 (0.0118)
L.Co-parent leave, max (wks)	-0.0009 (0.0139)			-0.0144** (0.0064)
L.Job-protected leave, mothers, max (wks)	-0.0009 (0.0060)			-0.0113* (0.0061)
L.Paid parental leave, max, one parent (wks)	-0.0378*** (0.0092)			-0.0196*** (0.0032)
L.Cash, periodic: maternity/childbirth (% GDP)	0.0462*** (0.0131)			-0.0006 (0.0123)
L.Cash, periodic: parental leave (% GDP)	0.0002 (0.0074)			0.0305*** (0.0107)
L.Cash, periodic: family allowances (% GDP)	0.0528*** (0.0058)			0.0294*** (0.0049)
L.Cash, lump-sum: birth grant (% GDP)	0.0018 (0.0055)			0.0264** (0.0103)
L.In-kind: childcare (% GDP)	0.0057 (0.0139)			-0.0157** (0.0078)
L.In-kind: accommodation (% GDP)	0.0286*** (0.0106)			0.0093* (0.0053)
L.In-kind: home-help (% GDP)	0.0244*** (0.0061)			0.0091** (0.0045)
L.Female employment 25–54 (%)		0.0296*** (0.0036)		0.0189* (0.0097)
L.Male employment 25–54 (%)		0.0311* (0.0159)		0.0293*** (0.0066)
L.Female part-time rate (%)		-0.0133*** (0.0039)		0.0420* (0.0226)
L.Male part-time rate (%)		0.0471*** (0.0108)		-0.0051 (0.0171)
L.House price to income ratio		-0.0105** (0.0047)		-0.0057 (0.0052)
L.Consumer confidence		0.0087 (0.0067)		-0.0210* (0.0112)
L.Crude marriage rate			0.0749*** (0.0077)	0.0653*** (0.0099)
L.Crude divorce rate			-0.0456*** (0.0052)	-0.0179* (0.0101)
L.Mean years of schooling, women 25+			-0.0060 (0.0106)	0.1016*** (0.0357)
L.Mean years of schooling, men 25+			0.0023 (0.0193)	-0.1138*** (0.0377)
L.Births outside marriage (%)			0.0912*** (0.0079)	0.0724*** (0.0125)
L.Mean age at first marriage			0.0374*** (0.0118)	0.0570*** (0.0127)
Observations	383	383	383	383
R-squared	0.446	0.432	0.599	0.773
Countries	21	21	21	21
Country FE	No	No	No	No
Year FE	Yes	Yes	Yes	Yes
Country trends	No	No	No	No
Std. errors	DK	DK	DK	DK

Note: Outcome is $\ln(\text{TFR})$. All regressors are lagged by 1 year and standardized to have a mean of 0 and a standard deviation of 1 (z-scores). Coefficients, therefore, represent the effect of a one-standard-deviation change in the regressor. All columns include year fixed effects with Driscoll–Kraay standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.4: Mean age at birth: Country and year fixed effects

	(1) (A) Policy	(2) (B) Economic	(3) (C) Norms	(4) (D) All
L.Maternity leave, total (wks)	-0.0002 (0.0005)			-0.0001 (0.0005)
L.Co-parent leave, max (wks)	-0.0000 (0.0013)			0.0007 (0.0011)
L.Job-protected leave, mothers, max (wks)	0.0032 (0.0065)			0.0063 (0.0061)
L.Paid parental leave, max, one parent (wks)	0.0023* (0.0014)			0.0031** (0.0013)
L.Cash, periodic: maternity/childbirth (% GDP)	0.0038 (0.0054)			0.0004 (0.0029)
L.Cash, periodic: parental leave (% GDP)	-0.0002 (0.0019)			0.0009 (0.0015)
L.Cash, periodic: family allowances (% GDP)	0.0012*** (0.0004)			0.0020*** (0.0006)
L.Cash, lump-sum: birth grant (% GDP)	-0.0010*** (0.0004)			-0.0003 (0.0003)
L.In-kind: childcare (% GDP)	-0.0001 (0.0016)			-0.0003 (0.0008)
L.In-kind: accommodation (% GDP)	-0.0037** (0.0015)			-0.0056*** (0.0014)
L.In-kind: home-help (% GDP)	0.0007*** (0.0002)			0.0003 (0.0002)
L.Female employment 25–54 (%)		-0.0014 (0.0015)		-0.0011 (0.0018)
L.Male employment 25–54 (%)		0.0013* (0.0008)		0.0018** (0.0008)
L.Female part-time rate (%)		-0.0031 (0.0028)		0.0061 (0.0038)
L.Male part-time rate (%)		0.0046*** (0.0014)		0.0086*** (0.0019)
L.House price to income ratio		-0.0020*** (0.0006)		-0.0009 (0.0006)
L.Consumer confidence		-0.0010 (0.0010)		0.0011* (0.0006)
L.Crude marriage rate			-0.0038*** (0.0007)	-0.0037*** (0.0007)
L.Crude divorce rate			-0.0010 (0.0010)	-0.0020* (0.0010)
L.Mean years of schooling, women 25+			0.0058 (0.0097)	-0.0020 (0.0083)
L.Mean years of schooling, men 25+			0.0004 (0.0089)	0.0095 (0.0066)
L.Births outside marriage (%)			-0.0115*** (0.0039)	-0.0138*** (0.0040)
L.Mean age at first marriage			0.0111*** (0.0037)	0.0072*** (0.0026)
Observations	383	383	383	383
R-squared	0.893	0.888	0.903	0.921
Countries	21	21	21	21
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country trends	No	No	No	No
Std. errors	DK	DK	DK	DK

Note: Outcome is $\ln(\text{MAB})$. All regressors are lagged by 1 year and standardized to have a mean of 0 and a standard deviation of 1 (z-scores). Coefficients, therefore, represent the effect of a one-standard-deviation change in the regressor. All columns include year and country fixed effects with Driscoll–Kraay standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.5: Mean age at birth: Country-specific trends

	(1) (A) Policy	(2) (B) Economic	(3) (C) Norms	(4) (D) All
L.Maternity leave, total (wks)	-0.0021** (0.0008)			-0.0015*** (0.0005)
L.Co-parent leave, max (wks)	-0.0009 (0.0006)			-0.0009* (0.0005)
L.Job-protected leave, mothers, max (wks)	-0.0015 (0.0031)			-0.0023 (0.0038)
L.Paid parental leave, max, one parent (wks)	0.0002 (0.0010)			0.0002 (0.0010)
L.Cash, periodic: maternity/childbirth (% GDP)	0.0024*** (0.0004)			0.0021*** (0.0005)
L.Cash, periodic: parental leave (% GDP)	0.0028*** (0.0006)			0.0024*** (0.0006)
L.Cash, periodic: family allowances (% GDP)	-0.0023*** (0.0008)			-0.0021*** (0.0008)
L.Cash, lump-sum: birth grant (% GDP)	-0.0001 (0.0002)			-0.0005*** (0.0001)
L.In-kind: childcare (% GDP)	-0.0056*** (0.0020)			-0.0060*** (0.0019)
L.In-kind: accommodation (% GDP)	-0.0015 (0.0010)			-0.0003 (0.0010)
L.In-kind: home-help (% GDP)	0.0000 (0.0001)			-0.0001 (0.0001)
L.Female employment 25–54 (%)		0.0005 (0.0013)		0.0010 (0.0012)
L.Male employment 25–54 (%)		0.0000 (0.0009)		-0.0005 (0.0006)
L.Female part-time rate (%)		-0.0019 (0.0047)		-0.0009 (0.0034)
L.Male part-time rate (%)		0.0002 (0.0016)		-0.0012 (0.0016)
L.House price to income ratio		-0.0009** (0.0004)		-0.0002 (0.0005)
L.Consumer confidence		-0.0006 (0.0004)		0.0001 (0.0005)
L.Crude marriage rate			-0.0006 (0.0006)	-0.0006* (0.0004)
L.Crude divorce rate			-0.0013 (0.0008)	-0.0008 (0.0008)
L.Mean years of schooling, women 25+			0.0061** (0.0026)	0.0042* (0.0022)
L.Mean years of schooling, men 25+			0.0029 (0.0037)	0.0042 (0.0036)
L.Births outside marriage (%)			-0.0001 (0.0011)	-0.0005 (0.0015)
L.Mean age at first marriage			0.0050* (0.0027)	0.0037* (0.0022)
Observations	383	383	383	383
R-squared	0.976	0.970	0.974	0.979
Countries	21	21	21	21
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country trends	Yes	Yes	Yes	Yes
Std. errors	DK	DK	DK	DK

Note: Outcome is $\ln(\text{MAB})$. All regressors are lagged by 1 year and standardized to have a mean of 0 and a standard deviation of 1 (z-scores). Coefficients, therefore, represent the effect of a one-standard-deviation change in the regressor. All columns include year and country fixed effects as well as country trends with Driscoll–Kraay standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.6: Mean age at birth: Year fixed effects

	(1) (A) Policy	(2) (B) Economic	(3) (C) Norms	(4) (D) All
L.Maternity leave, total (wks)	0.0037** (0.0018)			0.0016 (0.0012)
L.Co-parent leave, max (wks)	-0.0010 (0.0015)			-0.0005 (0.0015)
L.Job-protected leave, mothers, max (wks)	0.0003 (0.0018)			0.0006 (0.0007)
L.Paid parental leave, max, one parent (wks)	-0.0066* (0.0035)			-0.0021** (0.0011)
L.Cash, periodic: maternity/childbirth (% GDP)	-0.0010 (0.0028)			0.0046*** (0.0018)
L.Cash, periodic: parental leave (% GDP)	-0.0179*** (0.0038)			0.0030 (0.0025)
L.Cash, periodic: family allowances (% GDP)	-0.0047 (0.0030)			-0.0006 (0.0011)
L.Cash, lump-sum: birth grant (% GDP)	-0.0094*** (0.0022)			-0.0033*** (0.0011)
L.In-kind: childcare (% GDP)	0.0075*** (0.0026)			0.0034* (0.0019)
L.In-kind: accommodation (% GDP)	-0.0083*** (0.0012)			-0.0088*** (0.0017)
L.In-kind: home-help (% GDP)	-0.0000 (0.0002)			-0.0012* (0.0006)
L.Female employment 25–54 (%)		-0.0163*** (0.0021)		0.0009 (0.0013)
L.Male employment 25–54 (%)		0.0012 (0.0034)		0.0020*** (0.0005)
L.Female part-time rate (%)		0.0038* (0.0022)		0.0036 (0.0024)
L.Male part-time rate (%)		0.0148*** (0.0027)		0.0067*** (0.0021)
L.House price to income ratio		-0.0023*** (0.0007)		0.0005 (0.0009)
L.Consumer confidence		0.0061*** (0.0010)		0.0012* (0.0007)
L.Crude marriage rate			-0.0071*** (0.0007)	-0.0071*** (0.0013)
L.Crude divorce rate			-0.0002 (0.0007)	0.0041*** (0.0010)
L.Mean years of schooling, women 25+			0.0130*** (0.0025)	0.0138*** (0.0024)
L.Mean years of schooling, men 25+			-0.0111*** (0.0023)	-0.0181*** (0.0021)
L.Births outside marriage (%)			-0.0148*** (0.0012)	-0.0150*** (0.0010)
L.Mean age at first marriage			0.0323*** (0.0010)	0.0258*** (0.0018)
Observations	383	383	383	383
R-squared	0.753	0.692	0.868	0.933
Countries	21	21	21	21
Country FE	No	No	No	No
Year FE	Yes	Yes	Yes	Yes
Country trends	No	No	No	No
Std. errors	DK	DK	DK	DK

Note. Outcome is $\ln(\text{MAB})$. All regressors are lagged by 1 year and standardized to have a mean of 0 and a standard deviation of 1 (z-scores). Coefficients, therefore, represent the effect of a one-standard-deviation change in the regressor. All columns include year fixed effects with Driscoll–Kraay standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.7: Completed fertility

	(1) (A) Policy	(2) (B) Spending	(3) (C) Norms	(4) (D) All
Maternity leave, total (wks)	-0.0269*** (0.0045)			-0.0402*** (0.0050)
Co-parent leave, max (wks)	0.0106*** (0.0019)			-0.0165* (0.0086)
Job-protected leave, mothers (wks)	-0.1077*** (0.0075)			-0.0553*** (0.0119)
Paid parental leave, one parent (wks)	0.0795*** (0.0109)			0.0932*** (0.0207)
Spending: family cash (% GDP)		-0.0779*** (0.0101)		-0.0295 (0.0216)
Spending: family in-kind (% GDP)		0.0416** (0.0176)		0.0446*** (0.0127)
Crude marriage rate			0.0618*** (0.0156)	0.0769*** (0.0186)
Crude divorce rate			-0.1041*** (0.0076)	-0.1218*** (0.0080)
Births outside marriage (%)			0.0222 (0.0198)	0.0930*** (0.0262)
Observations	368	368	368	368
R-squared	0.926	0.911	0.927	0.956
Countries	20	20	20	20
Country FE	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes

Note: The outcome is the log of completed cohort fertility. Regressors are cohort-exposure means over ages 18–49, standardized to mean zero and unit standard deviation, so each coefficient measures the change in log completed cohort fertility associated with a one-standard-deviation increase in the corresponding regressor. All columns include country and cohort fixed effects and share the common sample of the “All” column. Driscoll–Kraay standard errors (computed over cohorts) in parentheses. Stars: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C.8: Childlessness

	(1) (A) Policy	(2) (B) Spending	(3) (C) Norms	(4) (D) All
Maternity leave, total (wks)	-0.0970* (0.0489)			0.0507 (0.0811)
Co-parent leave, max (wks)	-0.1060** (0.0430)			0.2262* (0.1275)
Job-protected leave, mothers (wks)	0.7353*** (0.0910)			0.9850*** (0.3188)
Paid parental leave, one parent (wks)	-0.0939 (0.2941)			-0.2737 (0.2890)
Spending: family cash (% GDP)		0.7110** (0.2655)		0.0921 (0.1506)
Spending: family in-kind (% GDP)		-0.3383*** (0.0852)		-0.6810 (0.4294)
Crude marriage rate			-0.5651*** (0.1819)	-0.3998** (0.1423)
Crude divorce rate			-0.1279 (0.1265)	-0.4386 (0.2789)
Births outside marriage (%)			-0.3255 (0.2838)	-0.5106** (0.2364)
Observations	260	260	260	260
R-squared	0.673	0.672	0.732	0.789
Countries	15	15	15	15
Country FE	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes

Note: The outcome is the log of cohort childlessness. Regressors are cohort-exposure means over ages 18–49, standardized to mean zero and unit standard deviation, so each coefficient measures the change in log cohort childlessness associated with a one-standard-deviation increase in the corresponding regressor. All columns include country and cohort fixed effects and share the common sample of the “All” column. Driscoll–Kraay standard errors (computed over cohorts) in parentheses. Stars: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.