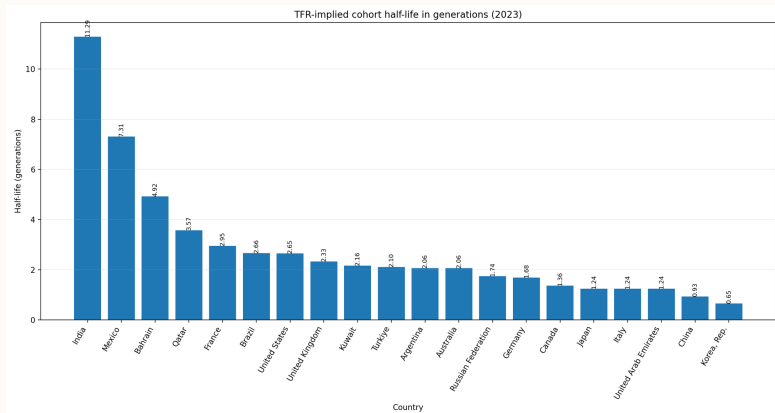


How Prayer Impacts Fertility Across Europe

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How fast do birth cohorts shrink?



Cohort half-life H_i solves $(\text{TFR}/2.1)^{H_i} = 1/2$: the number of generations for a birth cohort to fall to half its size if today's TFR held forever. Korea: $0.721/2.1 = 0.34$ per generation, so it falls **below half within one generation**. Countries at or above replacement have no finite half-life and are omitted.

Source: Author's calculation from 2023 TFR (World Bank); replacement = 2.1. Cohort, not total-population,

half-lives: constant fertility; excludes migration, age structure, momentum.

How economics explains fertility

Economists have long explained fertility transitions through **economic conditions**.

Becker & Lewis — the quantity–quality trade-off

income $\uparrow \Rightarrow$ child investment $\uparrow \Rightarrow$ quantity of children $\downarrow$

Doepke & Tertilt — the new family economics

women have children *if* this is compatible with pursuing a career

Common thread: explain changes in fertility via economic conditions (wages, costs, norms, uncertainty, health, technology, etc.) — **not changes in preferences**.

Source: Becker & Lewis (1973); Doepke, Hannusch, Kindermann & Tertilt (2023).

Fertility shaped by both economic constraints and preferences

Economic conditions

- Housing and childcare costs
- Income risk and job security
- Opportunity costs of time
- Family policy and parental leave

These shape the **feasibility and cost** of parenthood.

The problem with attributing fertility decline to economic conditions is that fertility decline is happening in many places, all at once, including countries with social safety nets, free childcare, job security and those without.

Realized fertility = desired family size filtered through economic constraints.

A distinct hypothesis

**“People have children
because they pray.”**

A falsifiable hypothesis, not a conclusion assumed in advance.

How prayer changes us



Nobel Peace Prize lecture, 1979.

"The fruit of silence is prayer, the fruit of prayer is faith, the fruit of faith is love, the fruit of love is service and the fruit of service is peace."

— Mother Teresa

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Translated into social science: regular prayer transforms
preferences for service and beliefs about uncertainty.

How prayer could affect fertility

In the language of economics, prayer operates through **two channels**:

1. Preference channel

Self-regarding projects

▼ prayer

Service and care for others

Parenthood is one way of serving others; prayer raises the utility attached to it.

"But among you it will be different. Whoever wants to be a leader among you must be your servant, and whoever wants to be first among you must be the slave of everyone else." — Mark 10:43–44

2. Belief channel

Uncertainty about the future

▼ faith

Trust in providence

Faith lowers the subjective weight on catastrophe and raises willingness to bear uncertainty.

"So do not worry, saying, 'What shall we eat?' or 'What shall we drink?' or 'What shall we wear?' For the pagans run after all these things, and your heavenly Father knows that you need them. But seek first his kingdom and his righteousness, and all these things will be given to you as well." — Matthew 6:31–33

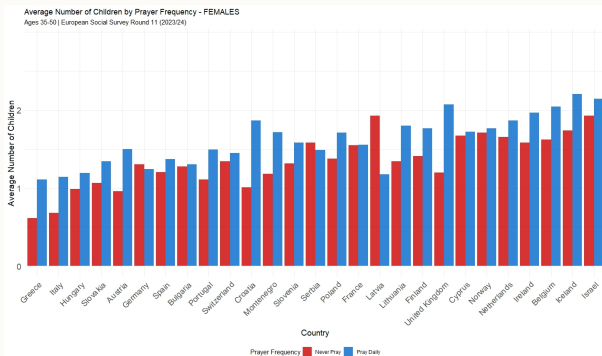
Europe supplies a test case

Object	Measure used in the blog-post analysis
Panel unit	Country $\times$ European Social Survey round, 2002–2024
Religiosity measure	Share of women aged 15–45 who report that they <i>never pray</i>
Fertility outcome	Total fertility rate from the World Bank
Economic control	Log GDP per capita from the World Bank
Econometric design	Country fixed effects and year fixed effects

Three tests: an individual association, paired country trajectories, and a country-panel regression.

Source: European Social Survey, World Bank, and Sandmann, “Other Kingdoms.”

Within countries, daily prayer is associated with more children



≈ 0.2

more children
among women
who pray daily
than never pray.

ESS Round 11
(2023/24), ages
35–50.

Caveat: the outcome is children living in the household, not respondents' completed fertility.

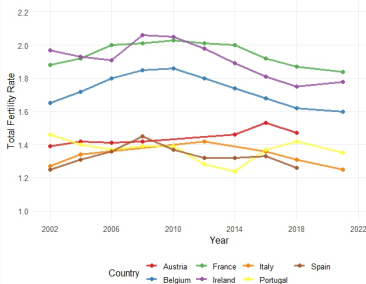
Source: European Social Survey.

Prayerlessness up, fertility down — together

Total fertility rate

Western Catholic Countries: Fertility Trajectories

Total Fertility Rate (TFR) - Children per Woman

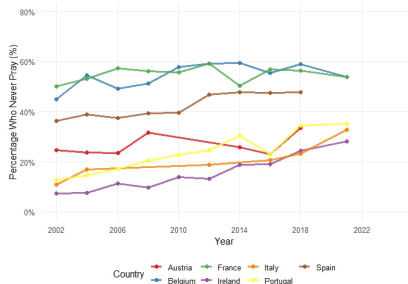


Source: World Bank

% of women 15–45 who never pray

Western Catholic Countries: Prayerlessness Trajectories

Percentage of Women Aged 15-45 Who Never Pray

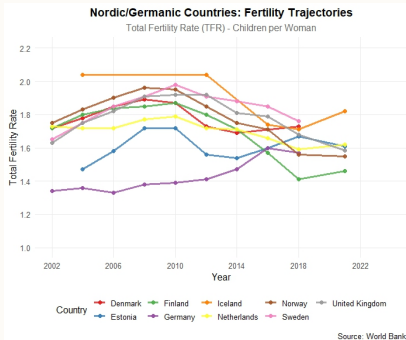


Source: European Social Survey (ESS)

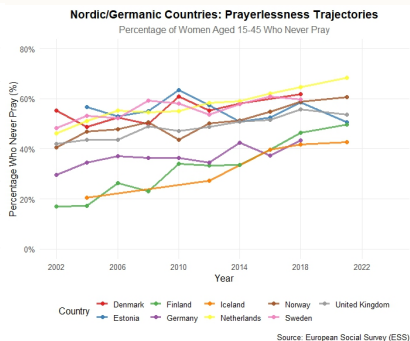
Western Catholic: prayerlessness rises broadly; TFR declines after the early 2010s.

Prayerlessness up, fertility down — together

Total fertility rate



% of women 15–45 who never pray



Nordic/Germanic: common secularisation, but not identical fertility paths.

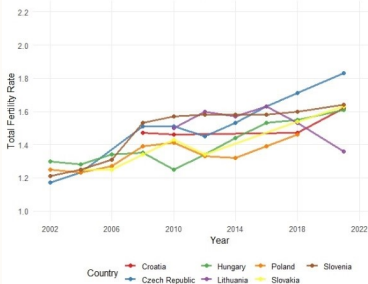
Schubert, Skirbekk & Nisén (2024) also find Scandinavian secularisation driving fertility decline

Prayerlessness up, fertility down — together

Total fertility rate

Eastern Catholic Countries: Fertility Trajectories

Total Fertility Rate (TFR) - Children per Woman

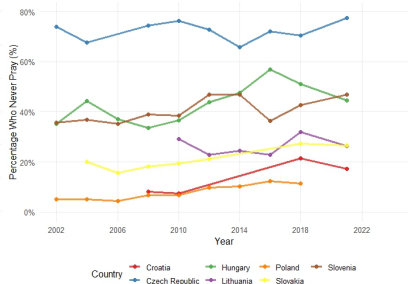


Source: World Bank

% of women 15–45 who never pray

Eastern Catholic Countries: Prayerlessness Trajectories

Percentage of Women Aged 15-45 Who Never Pray



Source: European Social Survey (ESS)

Eastern: TFR recovered despite rising prayerlessness — GDP catch-up, history, common shocks. The panel nets this out.

Within-country increases in prayerlessness track lower fertility

$$TFR_{it} = \beta_1 \text{NeverPray}_{it} + \beta_2 \log(GDP_{it}) + \alpha_i + \gamma_t + \varepsilon_{it}.$$

Women who never pray

$$\hat{\beta}_1 = -0.0072$$

Per pp increase in the never-pray share;
 $p < 0.001$.

Log GDP per capita

$$\hat{\beta}_2 = 0.404$$

Higher income positively associated with
TFR.

Country + year fixed effects; within- $R^2 = 0.205$.

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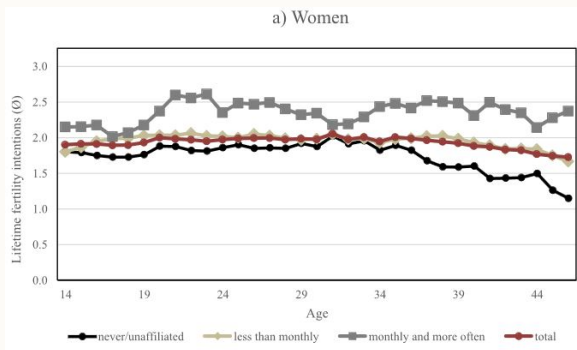
Country + year fixed effects; within- $R^2 = 0.205$.

2% higher GDP per capita $\approx$ 1.1 pp fewer women who never pray

Same fitted TFR change — a coefficient comparison, **not** a causal equivalence.

Source: Sandmann, "Other Kingdoms."

Prayer and attendance are stages, not rivals



Lifetime fertility intentions by *service attendance*, Germany
Bein, Passet-Wittig, Bujard & Gauthier (2023).

A sequence, not a horse race

attendance ↓ ⇒ **prayer** ↓ ⇒ **fertility** ↓

Church attendance also raises the *level* of desired fertility. The ESS attendance coefficient is insignificant, but with few observations this is likely **underpowered**, not proof that attendance is inert.

Suggestive evidence, not a causal verdict

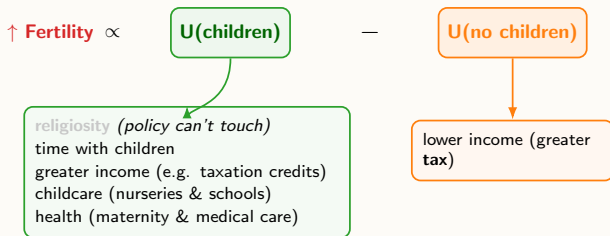
What remains unresolved

- Reverse causality (family $\rightarrow$ prayer)
- Time-varying cultural confounders
- Migration and sample composition
- Small sample: cannot test denomination effects
- Lags: belief, intentions, births
- Household children $\neq$ completed fertility
- Europe is not a global design

Next test: does prayer predict desired fertility and what explains the gap between desired and realized fertility?

Where policy can — and cannot — act

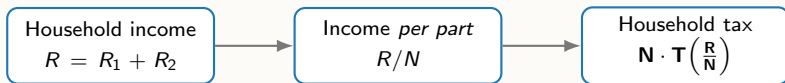
Realized fertility rises with the gap $U(\text{children}) - U(\text{no children})$.
Policy can move several of its terms; it cannot move religiosity.



France is the natural upper bound: its higher fertility within Europe is attributed to Europe's most comprehensive tax-and-childcare apparatus.
But even France has fallen far below replacement (1.61 children per woman in 2024)

French income tax — the quotient familial

The tax unit is the **household**: a married couple is taxed *jointly*, on income **per part**.

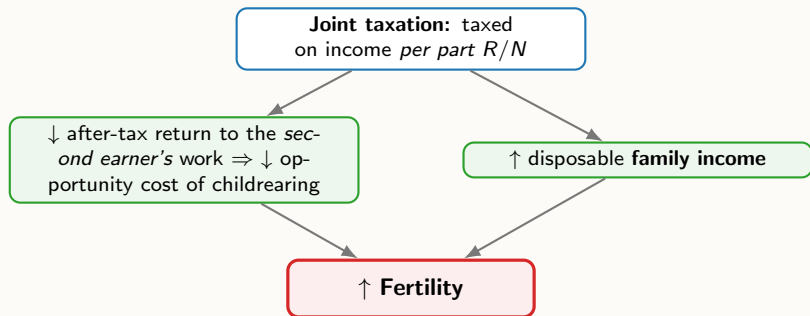


Household member	Parts
Each adult (couple)	1 (2)
1st, 2nd child	$+\frac{1}{2}$ ea.
3rd child onward	$+1$ ea.

Income slice (€, 2024)	Rate
0–11,294	0%
11,294–28,797	11%
28,797–82,341	30%
$> 82,341$	41–45%

► **Cap.** Each *child* half-part is capped (€1,791, 2024; introduced 1981); the *spousal* split is uncapped.

Why the family quotient is pro-natal



Complementarity: Labour supply incentives enhanced by extensive **childcare** that makes compatible work and parenting — crèches, certified childminders, free école maternelle from age 3.

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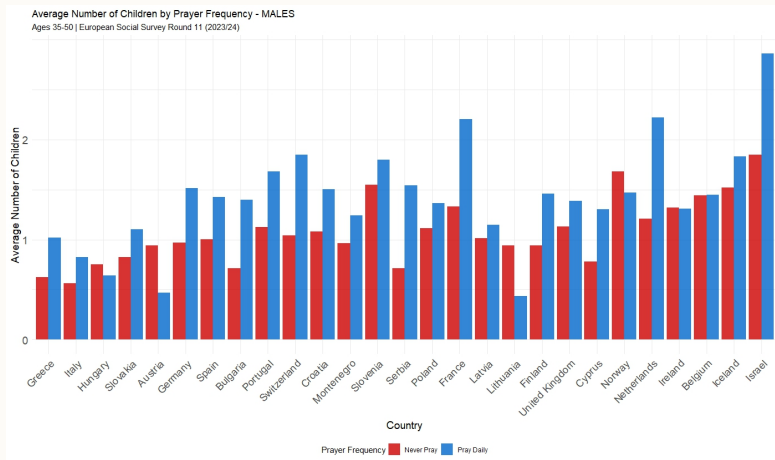
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More at **The Hold-Up Problem** on Substack:
theholdupproblem.substack.com

Backup: male respondents



Source: European Social Survey Round 11 (2023/24); ages 35–50.

Backup: regression details reported in the blog post

$$TFR_{it} = \beta_1 \text{NeverPray}_{it} + \beta_2 \log(GDP_{it}) + \alpha_i + \gamma_t + \varepsilon_{it}.$$

Variable	Reported estimate
Share of women 15–45 who never pray	−0.0072236
Log GDP per capita	0.4043836
Within- R^2	0.205
Never-pray coefficient	$p < 0.001$
Hausman statistic reported in the post	$\chi^2 = 12.89$
Additional statistic reported in the post	$F = 5.18$