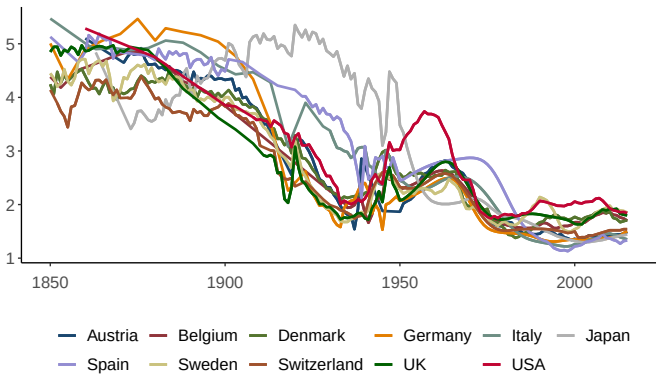
Working Mothers, Social Norms, and Fertility

Matthias Doepke and Fabian Kindermann



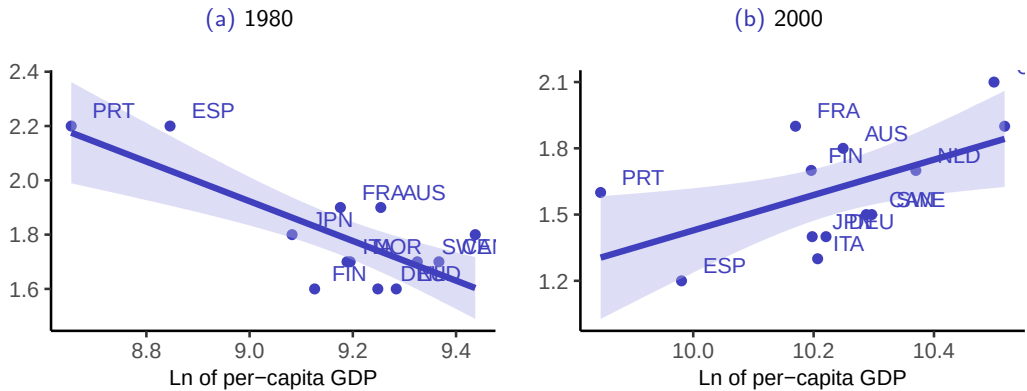
A New Era in the Economics of Fertility

Basic facts of fertility in high-income countries have changed.

New mechanisms are essential to account for the new facts of fertility behavior.

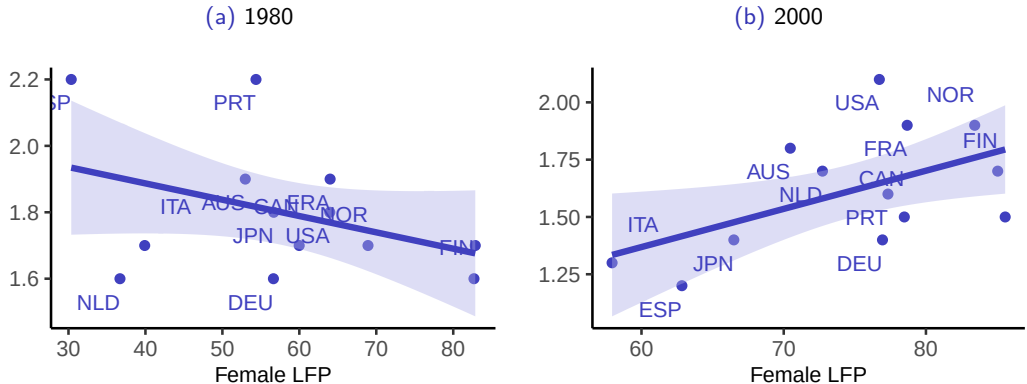
Fertility No Longer Universally Declines in Income

Fertility and GDP per capita across OECD countries



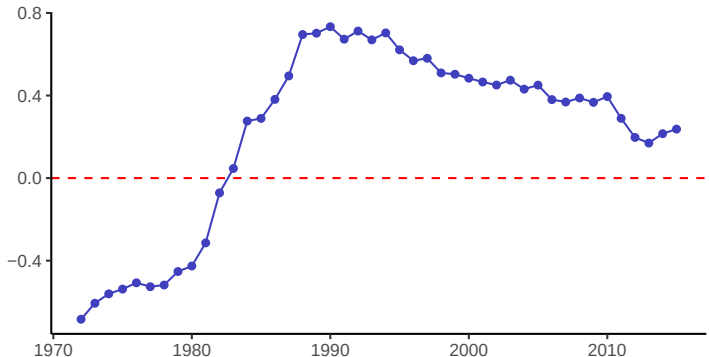
Fertility No Longer Universally Declines in Women's LFP

Fertility and Women's LFP across OECD countries



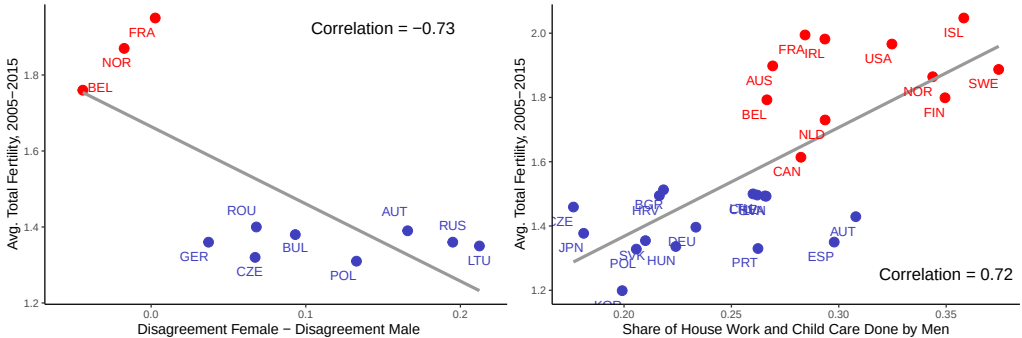
Fertility No Longer Universally Declines in Women's LFP

Cross-Country correlation between TFR and FLFP



Disagreement and Distribution of House Work Matter for Fertility

Fertility by disagreement and men's share of house work



Career versus Family

Main argument in our recent survey:

Ease of combining a career and a family for women has become a key driver of fertility decisions.

Factors that determine how easy it is to combine the two:

- Family policy.
- Labor market frictions.
- Intra-household bargaining.
- Social norms.

Illustrative Bargaining Model

A couple consisting of woman and a man $g \in \{f, m\}$ decide on individual consumption c_g and number of children n.

Preferences given by:

$$u_g(c_g, n) = c_g + \gamma \log(n).$$

He always works for wage w_m; she has wage w_f and can divide time between work and childcare.

Each child comes with a time cost ϕ and a goods cost ψ.

Time cost can be provided by the mother or bought on the market at price $\bar{w}$.

Cost of each child under efficient childcare arrangement:

$$d(w_f, \bar{w}) = \phi \min\{w_f, \bar{w}\} + \psi.$$

Illustrative Bargaining Model

Cooperative (Nash) bargaining in the family subject to outside options.

Timing:

- Bargain over fertility; subject to veto $\Longrightarrow$ fertility is minimum of the partners' desired fertility.
- Bargain over childcare.
- Bargain over consumption allocation.

Commitment Solution

If couple can commit, all decisions are taken simultaneously subject to a joint budget constraint:

$$c_f + c_m = (1+\alpha)\left(w_m + w_f - d(w_f, \bar{w})n\right)$$

α: Returns to joint consumption.

Partners agree on fertility and choose:

$$n = \frac{2\gamma}{(1+\alpha)d(w_f, \bar{w})}.$$

Consumption of spouse g:

$$c_g = \underbrace{w_g}_{\text{Outside Option}} - \underbrace{\frac{d(w_f, \bar{w})n}{2}}_{\text{Share of child cost}} + \underbrace{\frac{\alpha}{2}\left(w_m + w_f - d(w_f, \bar{w})n\right)}_{\text{Share of Surplus}}$$

Bargaining under Lack of Commitment

Consider case where partners cannot commit to share cost of childcare.

Division of consumption is decided after fertility n and childcare arrangement has been decided.

Result: Having and caring for children lowers woman's outside option, lowering her incentive to have children.

Lower fertility preference makes woman pivotal in choosing fertility.

Bargaining under Lack of Commitment

Bargaining over consumption starts from outside option for given number of children.

Woman's consumption:

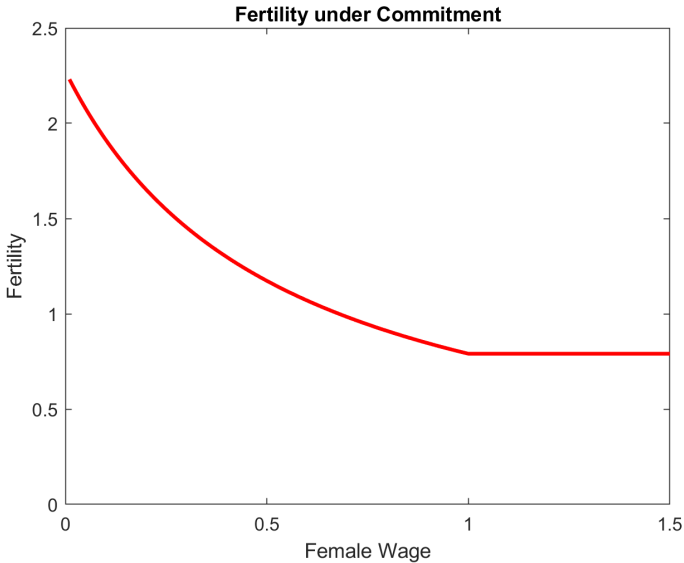
$$c_g = \underbrace{w_f}_{\text{Ex-ante Outside Option}} - \underbrace{I(w_f < \bar{w})\frac{w_f \phi n}{2}}_{\text{Bargaining Loss}} - \underbrace{\frac{d(w_f, \bar{w})n}{2}}_{\text{Share of child cost}} + \underbrace{\frac{\alpha}{2}(w_m + w_f - d(w_f, \bar{w})n)}_{\text{Share of Surplus}}$$

Her preferred fertility (which is pivotal) declines to:

$$n = \frac{2\gamma}{I(w_f < \bar{w})w_f \phi + (1+\alpha)d(w_f, \bar{w})}$$

Note: Bargaining loss is proportional to Motherhood Penalty.

Fertility under Commitment



Fertility under Lack of Commitment

Complementarity of Parental and Market Childcare

Consider setting where parental and market childcare t_f and $\bar{t}$ are not perfectly substitutable:

$$\phi n = F(t_f, \bar{t}).$$

Combination chosen to minimize cost of childcare:

$$\min \{t_f w_f + \bar{t}\bar{w}\}$$

s.t. $\phi n = F(t_f, \bar{t})$.

Consumption and Fertility

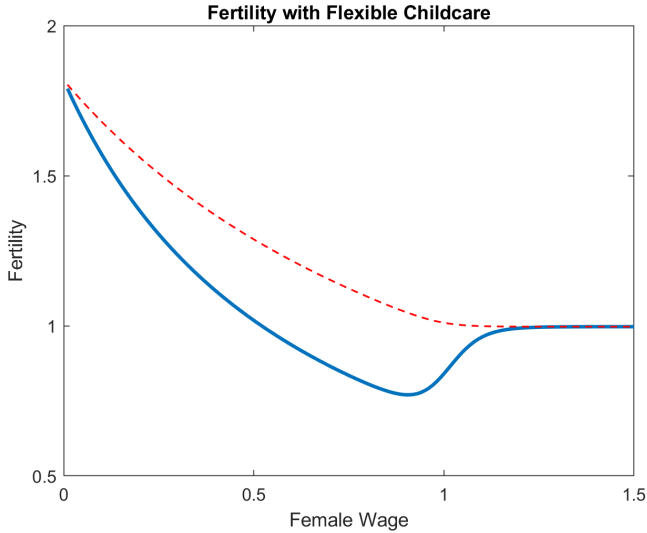
Given optimal choice of childcare time t_f, we have:

$$c_g = \underbrace{w_f}_{\text{Ex-ante Outside Option}} - \underbrace{\frac{t_f w_f \phi n}{2}}_{\text{Bargaining Loss}} - \underbrace{\frac{d(w_f, \bar{w})n}{2}}_{\text{Share of child cost}} + \underbrace{\frac{\alpha}{2}\left(w_m + w_f - d(w_f, \bar{w})n\right)}_{\text{Share of Surplus}}$$

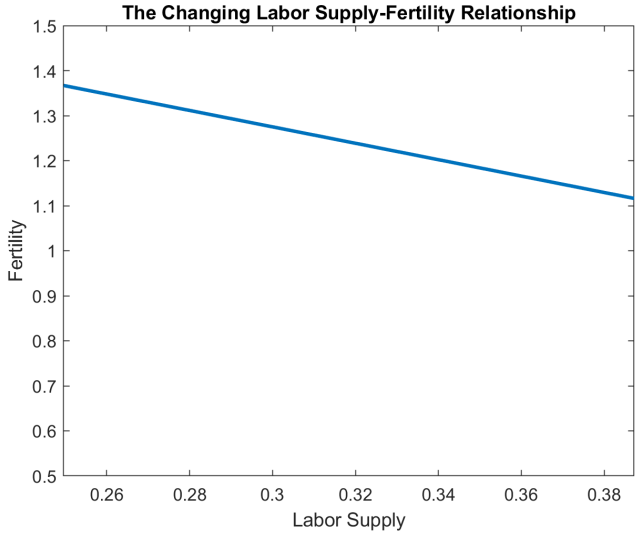
Preferred fertility is now:

$$n = \frac{2\gamma}{t_f w_f \phi + (1+\alpha) d(w_f, \bar{w})}$$

Fertility under Lack of Commitment with Flexible Childcare



The Changing Relationship between Women's Work and Fertility



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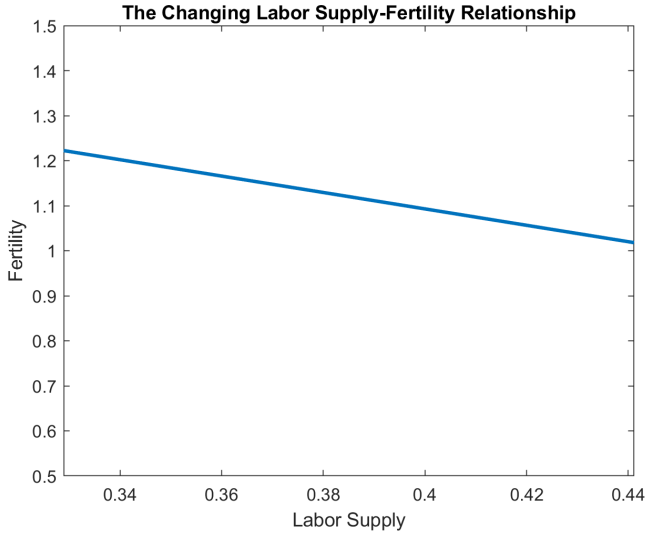

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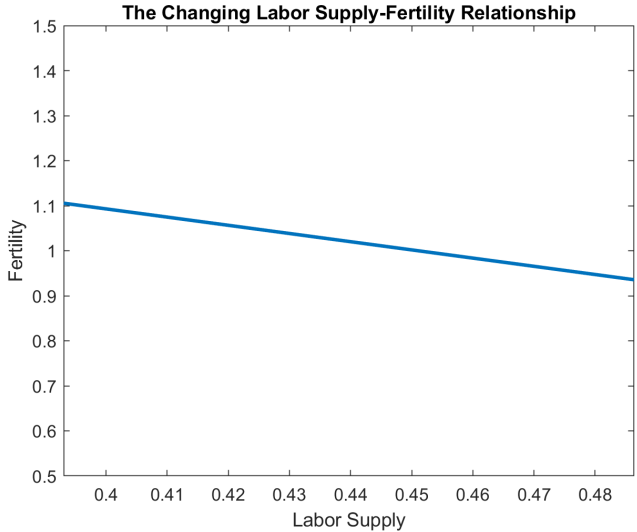

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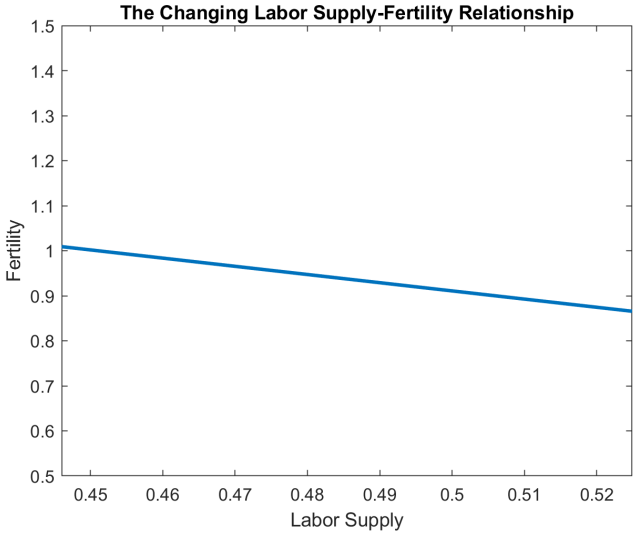

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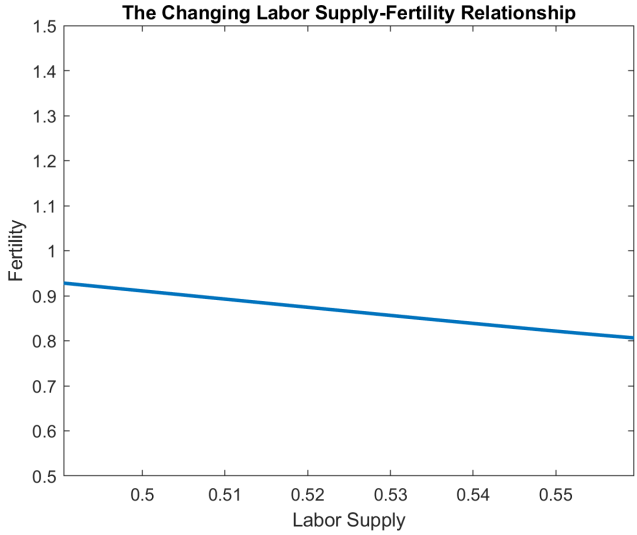

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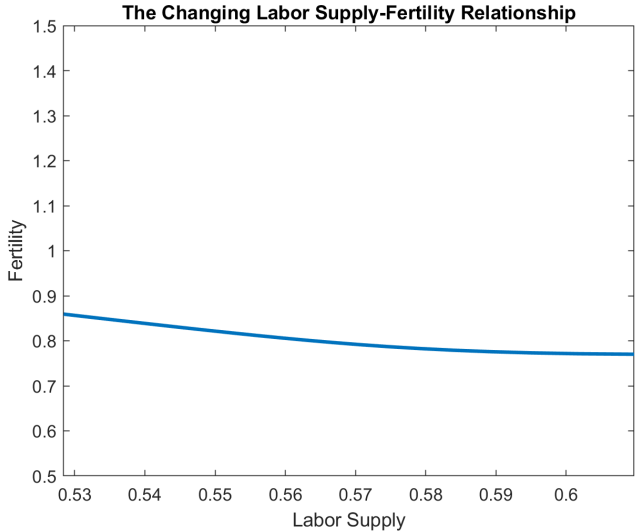

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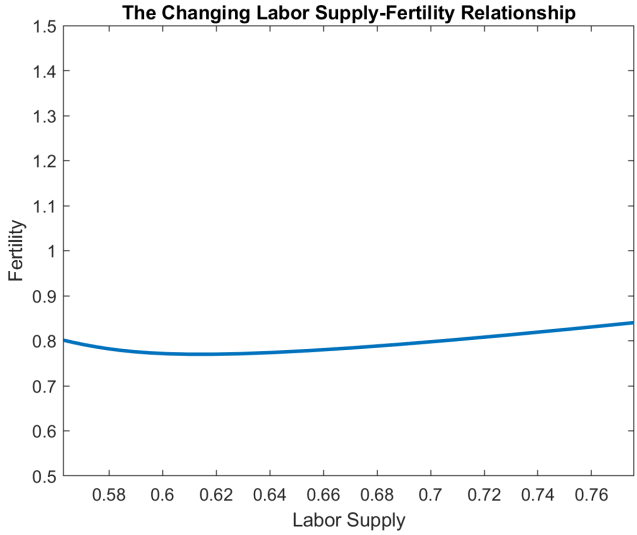

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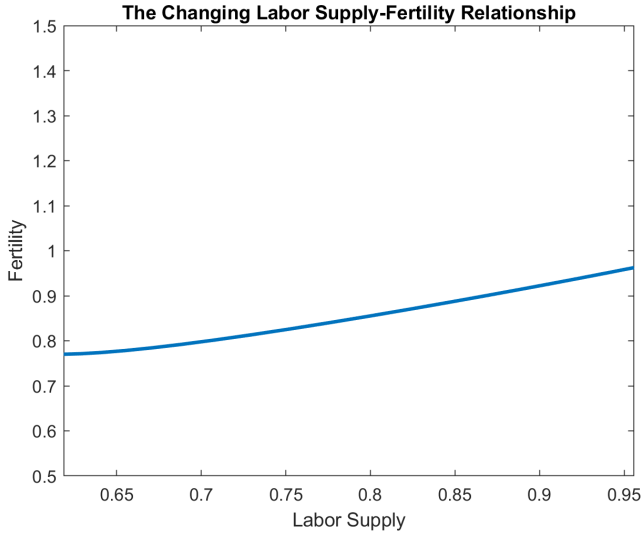

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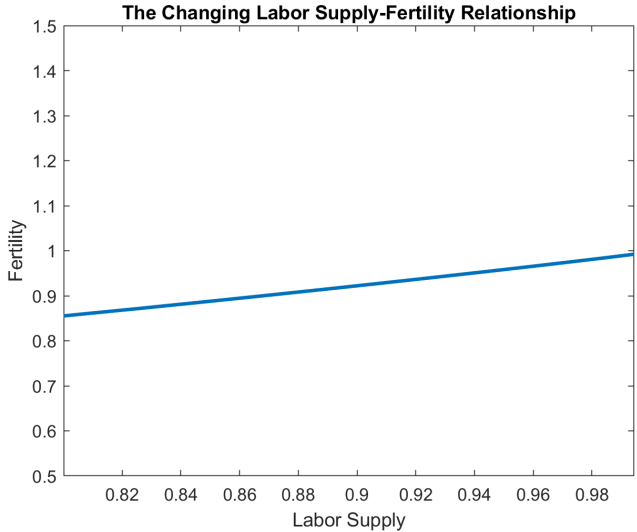

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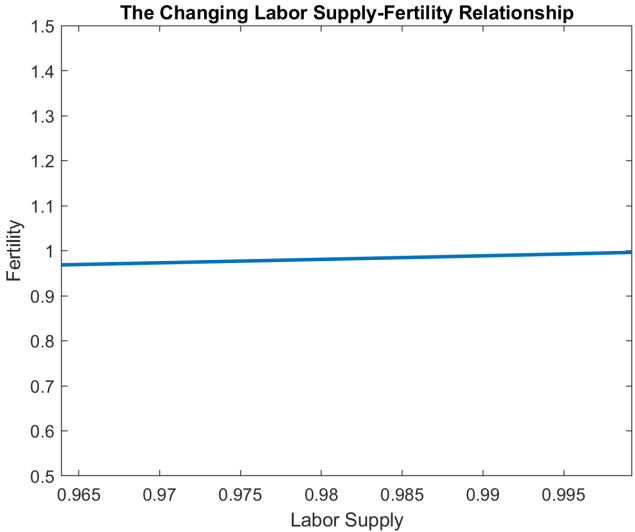

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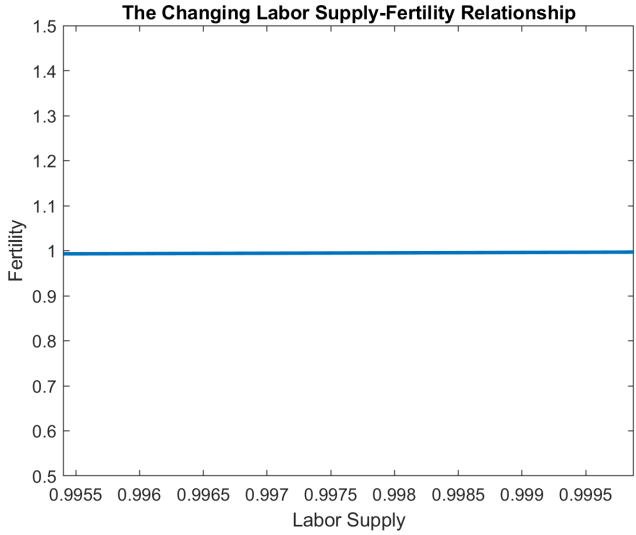


Summary

Disagreement and bargaining frictions can result in low fertility.

Mother's bargaining loss depends on the motherhood penalty:

- Little friction in traditional societies where married women do not work no matter what.
- Little friction in gender-equal society where parents share burden of childcare.
- High friction, and low fertility, where women want to work but the motherhood penalty is high.

Summary

Simple model accounts for:

- **Reversal in the relationship between women's LFP and fertility.**
- **Negative relationship between motherhood penalty and fertility in recent data.**

Aspirations and Social Norms

In reality, bargaining friction depends not just on women's wages:

- **Aspirations:** How important is having a career and having a family?
- **Social Norms:** What are society's expectations for the role of mothers and fathers in raising children?

Aspirations

Women's rising participation may also be triggered by a rising desire to have career:

$$u_f(c_f, t_f, n) = c_f + \gamma \log(n) + A(T - t_f).$$

Her utility from consumption and aspirations is:

$$\underbrace{w_f + AT}_{\text{Ex-ante Outside Option}} - \underbrace{\frac{t_f(w_f + A)\phi n}{2}}_{\text{Bargaining Loss}} - \underbrace{\frac{d(A, w_f, \bar{w})n}{2}}_{\text{Share of child cost}} + \underbrace{\frac{\alpha}{2}(w_m + w_f - d(A, w_f, \bar{w})n)}_{\text{Share of Surplus}}$$

Change in aspirations has same effect as rise in women's wages.

Social Norms

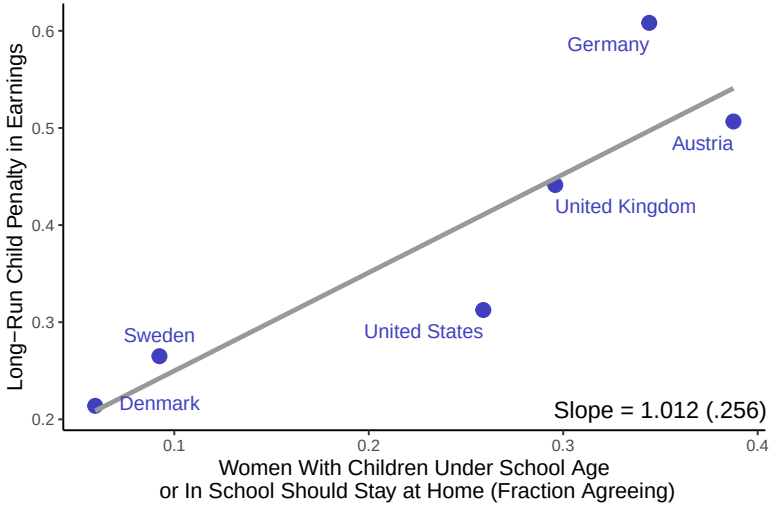
Childcare decision may also be shaped by social norms about how children should be raised:

$$u_g(c_g, t_f, n) = c_g + \gamma \log(n) - S\bar{t}.$$

Again, qualitatively identical results: when social norms imply a large motherhood penalty, fertility will be low.

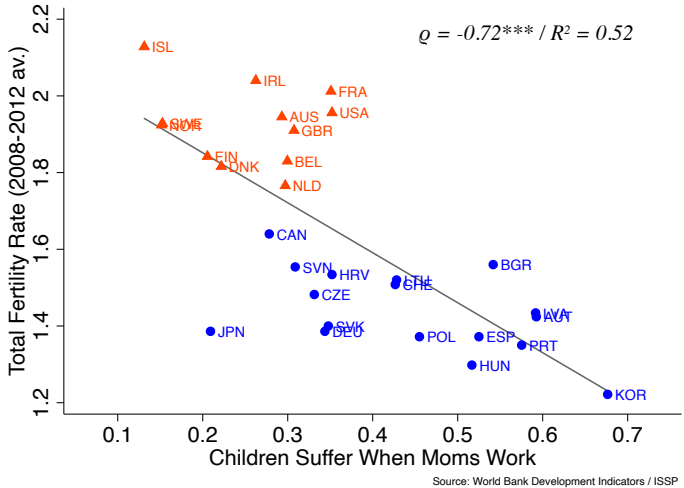
Social Norms

Empirically, social norms are closely linked to motherhood penalties . . .



Social Norms

. . . and to fertility



Source: World Bank Development Indicators / ISSP

Ongoing Work

Include aspirations and social norms in richer model of household bargaining over fertility, childcare, and labor supply.

Use survey data to match evolution of social norms over time.

Assess ability of extended model to account for evidence on fertility in recent decades.

Assess role of policy in shaping social norms and fertility.

Thank You!