

EC555: Family Macroeconomics

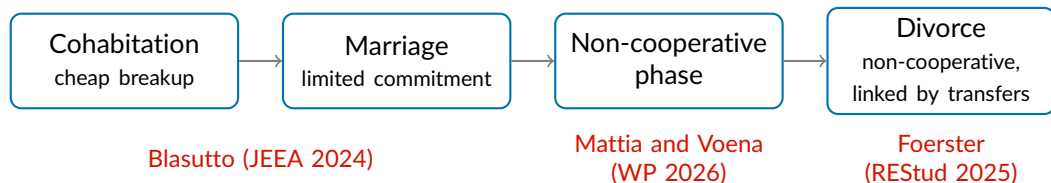
Matthias Doepke (LSE)



Commitment over the Life of a Relationship

How best to model commitment depends on the specific issue research is trying to address.

Recent work uses flexible models of commitment to examine decisions in different phases of a relationship.



Cohabitation vs. Marriage

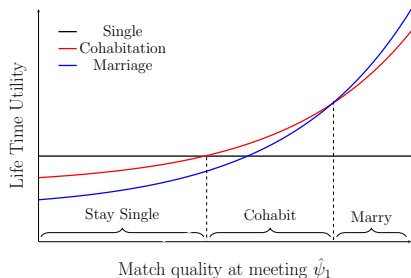
Blasutto (JEEA 2024): US college graduates marry more, cohabit less, and divorce less (NLSY97, cohort born 1980–84).

	College	No college
Ever married by age 35 (%)	71.5	58.0
Ever cohabited by age 35 (%)	63.4	74.9
Marriage ends within 12 years (%)	12.2	28.7
Labor force participation, married women (%)	86.3	73.3
Labor force participation, cohabiting women (%)	94.8	76.6

Model: life-cycle search and matching with learning about match quality; couples make choices under **limited commitment**; divorce has a utility cost, ending cohabitation does not.

Cohabitation vs. Marriage: Mechanism

Lifetime utility by partnership choice



- **Marriage**: Costly divorce $\Rightarrow$ participation constraints less binding: better insurance and more specialization.
- **Cohabitation**: Marriage is costly to exit $\Rightarrow$ marry only when match quality is high; cohabitation as a trial.
- College graduates: larger gender wage gap $\Rightarrow$ larger gains from specialization $\Rightarrow$ marriage.
- Giving graduates the non-graduate wage gap closes 18% of the marriage gap and 16% of the cohabitation gap.

Child Support, Alimony, and Non-Cooperation in Divorce

Foerster (REStud 2025): how should post-marital maintenance (child support, alimony) be designed?

- Dynamic model of labor supply, home production, savings, human capital (learning by doing), and divorce; Danish register and time-use data.
- **Married couples:** cooperative, with limited commitment (love shocks, renegotiation).
- **Divorced ex-spouses:** **non-cooperative** dynamic game, linked by maintenance payments that depend on both incomes.
- No insurance between ex-spouses $\Rightarrow$ married spouses self-insure by working and building human capital $\Rightarrow$ less specialization.
- Maintenance payments provide insurance and enable specialization, but weaken divorcees' work incentives.

Which Friction Matters?

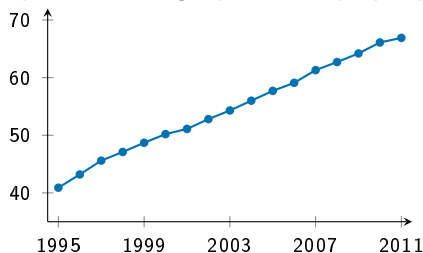
	Status quo	Cooperation in divorce (+ LC)	First best
Work hours, divorced women	27.7	25.3	23.7
Consumption ratio c_f/c_m , divorced	0.72	1.08	1.08
Work hours, married women	30.1	29.8	29.7
Home production hours, married women	18.4	18.7	18.7
% divorced by end of working life	27.3	27.9	18.3

- Removing non-cooperation in divorce gets close to first best: it is the main friction; limited commitment in marriage is secondary.
- Welfare-maximizing reform: more child support, less alimony.

Marital Property Regimes in Italy

Mattia and Voena (WP 2026): Italian couples choose, at no cost, between **community property** (default: equal split of assets acquired during marriage) and **separation of property**.

Newlyweds choosing separation of property (%)



Source: ISTAT marriage records.

- Community property is chosen by specialized couples: working wives more likely to choose separation.
- Wives hold well below half of couples' real estate (about 38%); separation does not replicate equal sharing.

Mattia and Voena: Why Choose Community Property?

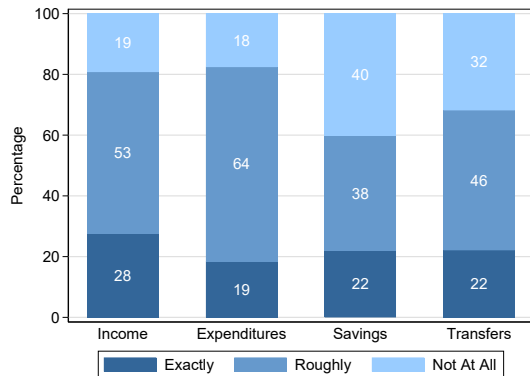
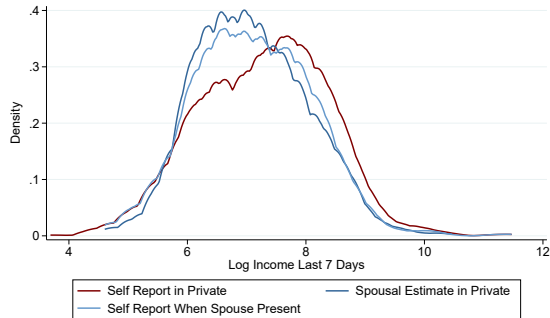
- Model: at marriage, couples choose the property regime and the wife's labor supply; Pareto weight set by Nash bargaining.
- **Dominance result:** if the outside option is divorce only, separation is (weakly) preferred, as it can replicate any community-property allocation. Standard model cannot explain why anyone chooses community property.
- Fix: a **non-cooperative phase** before divorce. No pooling, individual savings, either spouse can trigger divorce, and assets are split according to the regime. Outside option depends on the regime.
- Trade-off: flexibility (separation) vs. protection of the specializing spouse during non-cooperation (community property).
- **Lesson: threat points beyond divorce do matter, such as non-cooperation within marriage.**

Limited Commitment versus Private Information

- Recent literature applying quantitative models to family decision making in high-income countries has focused on limited-commitment frictions.
- In developing countries, a lot of evidence of private information frictions in households, and large effects of those frictions.
- How important are private-information frictions in high-income countries?

Example of Private Information Friction

Zhang (WP 2024): evidence from Western Kenya.

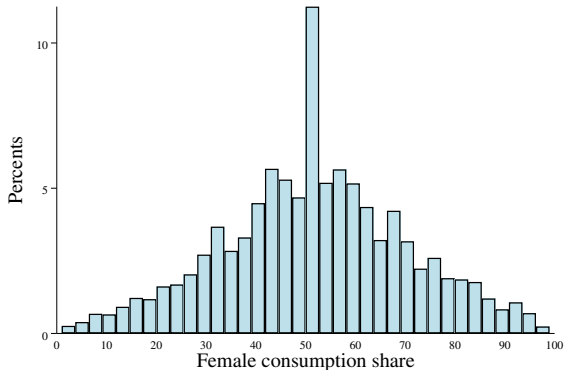


Respondents underreport their income;
spouses underestimate it.

Most respondents know their spouse's finances
only "roughly" or "not at all."

What Friction Drives Lack of Consumption Insurance among Dutch Couples?

Distribution of female consumption share in couples



- Cherchye, Demuynck, De Rock, and Vermeulen (AER 2017): consumption shares are linked to income shares in Dutch data.
- Bellue, Doepke, and Tertilt (WP 2026): examine role of information frictions.

Historical Evidence from High-Income Countries

Humphries and Thomas (2023) on British coalmining towns in the 19th century:

“...wives were often unaware of their husbands’ earned income, and unless the ‘housekeeping’ was adjusted, rising wages boosted men’s share while the family remained stinted.”

Townsend (1917) in a study of a British town in the early 20th century:

“Mr. Perrier said, ‘I don’t think a wife ought to know her husband’s earnings. If she’s got a good living wage for the house she’s got nothing to grumble about.’”

“The wife’s ignorance of the husband’s wage was often equalled by his ignorance of what her children gave her. When one man was asked how much his two daughters paid in board money he said, ‘They give it to Mum. I don’t even know how much they give her.’”

Measuring Private Information in the Family

Survey using Dutch LISS panel; 3,264 respondents

Income

- I know how much my partner earns.
- My partner knows how much I earn.

Expenses

- I am well informed about my partner's expenses for larger discretionary items (such as apparel, accessories, electronics, and entertainment).
- My partner is well informed about my expenses for larger discretionary items (such as apparel, accessories, electronics, and entertainment).

Debt

- I am well informed about my partner's debt.
- My partner is well informed about my debt.

Private Information in Dutch Couples

Some private information			
	Couples		Individuals
Income	40.3	I do not know	21.8
		Partner does not know	20.1
Large expenses	22.8	I do not know	10.9
		Partner do not know	11.2
Debt	21.8	I do not know	11.5
		Partner does not know	11.4

How to Keep Things Secret?

	Couples	Individuals
Couple has at least one separate bank account	50.6	45.8
I do not always inform partner about large expenses	40.9	25.5
We rarely or never talk about financial goals and values	27.0	16.2
I have a secret credit card	2.3	1.2

Financial Disagreement in the Family

	Some financial disagreement	
	Couples	Individuals
My partner spends too much money	9.6	4.9
Finance is the most stressful facet of our relationship	12.7	7.7
My partner is not competent at dealing with money	14.6	7.5
Frequent arguments about money	16.9	11.2

Private Information and Models of Household Decision Making

Fully efficient household decision making implies constant Pareto weights.

With private information, first-best allocation generally not achievable.

Two approaches for incorporating private information:

1. Direct assumptions on how information is revealed and on how public income is divided.
2. Characterize constrained-efficient allocations.

Example of Constrained-Efficient Income Risk Sharing

- Wife earns stochastic private income $y_f \in [\underline{y}_f, \bar{y}_f]$; husband has fixed income y_m .
- Utility functions over individual consumption c_g , and the wife's hidden consumption $\tilde{c}_f$ are:

$$\begin{aligned}u_f(c_f, \tilde{c}_f) &= \log(c_f) + \phi \log(\tilde{c}_f), \\u_m(c_m) &= \log(c_m).\end{aligned}$$

- Parameter ϕ captures hidden consumption opportunities and the ease of hiding income.
- In first-best allocation, c_f , c_m , and $\tilde{c}_f$ are constant fractions of total income $y_f + y_m$.

Constrained-Efficient Income Sharing

- Constrained-efficient allocation solves:

$$\max \{E[\mu \log(c_f(y_f)) + \mu \phi \log(\tilde{c}_f(y_f)) + (1 - \mu) \log(c_m(y_f))]\}$$

subject to:

$$c_f(y_f) + c_m(y_f) + \tilde{c}_f(y_f) = y_f + y_m$$

and subject to truth-telling constraint: it is weakly optimal to tell the truth rather than report any other income $\tilde{y}_f \in [0, y_f]$:

$$\log(c_f(y_f)) + \phi \log(\tilde{c}_f(y_f)) \geq \log(c_f(\tilde{y}_f)) + \phi \log(\tilde{c}_f(\tilde{y}_f) + y_f - \tilde{y}_f).$$

- Sufficient to impose a marginal truth-telling constraint at $\tilde{y}_f = y_f$:

$$\frac{c'_f(y_f)}{c_f(y_f)} \leq \phi \frac{1 - \tilde{c}'_f(y_f)}{\tilde{c}_f(y_f)}.$$

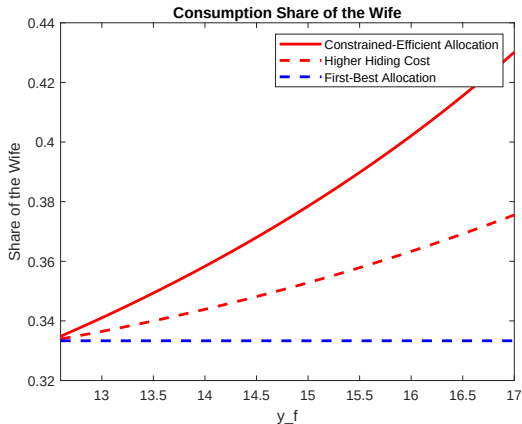
The Constrained-Efficient Outcome

- The ratio of wife's to husband's consumption is:

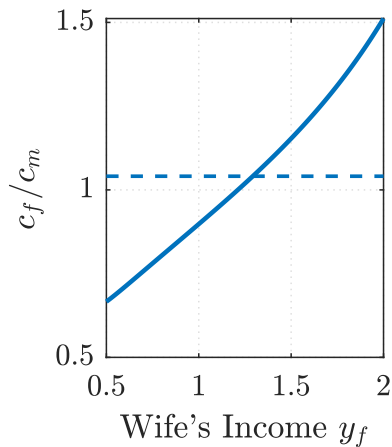
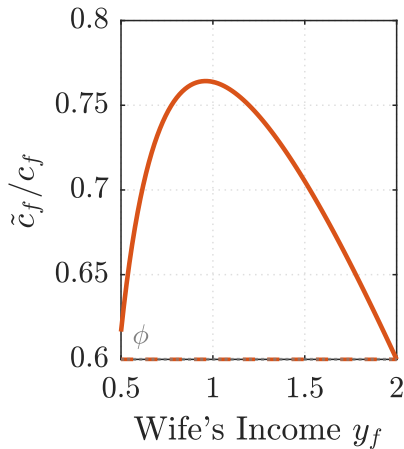
$$\frac{c_f}{c_m} = \frac{\mu + \lambda_2}{1 - \mu},$$

where λ_2 is the Lagrange multiplier on the truth-telling constraint.

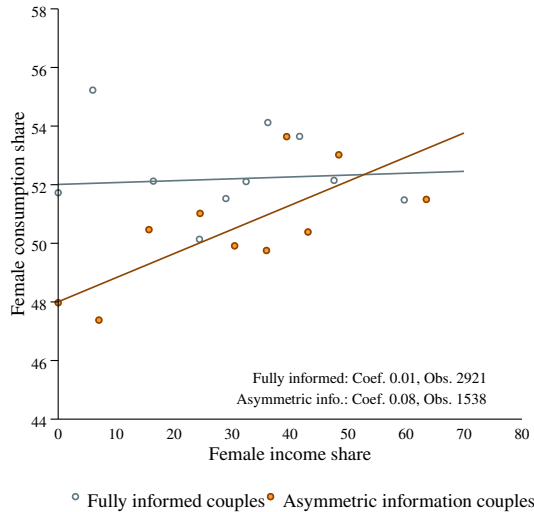
- **Because the temptation to lie (and hence λ_2) increases with y_f , the wife's consumption share increases with her income.**



Consumption Ratios under First Best and Constrained-Efficient Outcome



Does Private Information Matter for Risk Sharing?



Does Private Information Matter for Risk Sharing?

Regression setup:

$$\text{Cshare}_{it}^f = \beta_0 + \beta_1 \text{lshare}_{it}^f + \beta_2 D_i^{\text{info}} + \beta_3 \text{lshare}_{it}^f \times D_i^{\text{info}} + X_{it} + \epsilon_{it}$$

where

- D_i^{info} : dummy whether couple is fully informed.
- X_{it} : year dummies, education dummies, age for each partner
- With and w/o couple FE.

Consumption and Income Shares Correlated only Among Uninformed Couples

	Female consumption share			
	(1)	(2)	(3)	(4)
Female income share	0.05** (0.02)	0.02 (0.02)	0.05 (0.04)	-0.01 (0.04)
Uninformed couples		-0.03** (0.01)		- -
(Female income share).(Imperfectly informed)		0.07* (0.04)		0.20** (0.08)
Couple fixed effect	No	No	Yes	Yes
N couples	847	847	847	847

All regressions include controls.

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Private Information vs. Limited Commitment

Proxy for commitment	Female consumption share					
	Has a child (2019)		# of children (2019)		Married (2019)	
	(1)	(2)	(3)	(4)	(5)	(6)
Female income share	0.118	0.026	0.043	-0.027	0.107	-0.029
	(0.10)	(0.10)	(0.08)	(0.08)	(0.09)	(0.09)
(Female income share)		0.19**		0.20**		0.20**
.(Imperfectly informed)		(0.08)		(0.08)		(0.08)
(Female income share)	-0.09	-0.05	-0.00	0.01	-0.07	0.02
.(Committed couples)	(0.10)	(0.10)	(0.03)	(0.03)	(0.10)	(0.09)
Couple fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
N couples	825	825	825	825	847	847

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Couple fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
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Which Friction to Focus On?

Results suggest that private information does matter; commitment certainly does, too.

What matters more will vary by application.

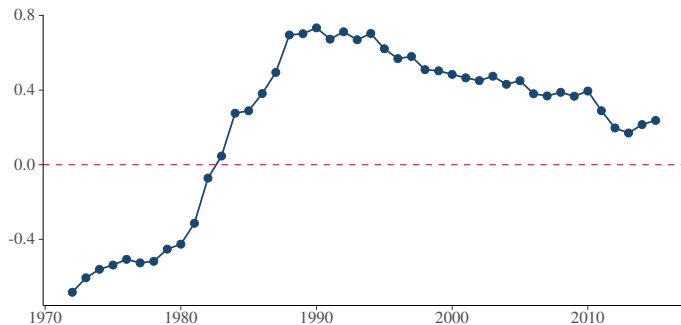
Private information likely most relevant for issues other than risk sharing; e.g., effort choice, domestic violence,

Little work so far on this angle, especially in high-income countries; a lot still to be done.

Bargaining over Fertility

Doepke, Kindermann, and Leitloff (WP 2026): “Negotiating Parenthood: An Account of the Changing Relationship between Women’s Work and Fertility”

Cross-country correlation between fertility and women’s LFP has reverted:



Career versus Family

Main argument in Doepke, Hannusch, Kindermann, and Tertilt (Handbook of the Economics of the Family 2023):

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

Women's and men's aspirations have converged.

In the past, substantial variation within and across countries in women's life plans.

Today, most women in high-income countries aspire to both a family and career—just like most men.

It then matters how easy it is to combine career and family.

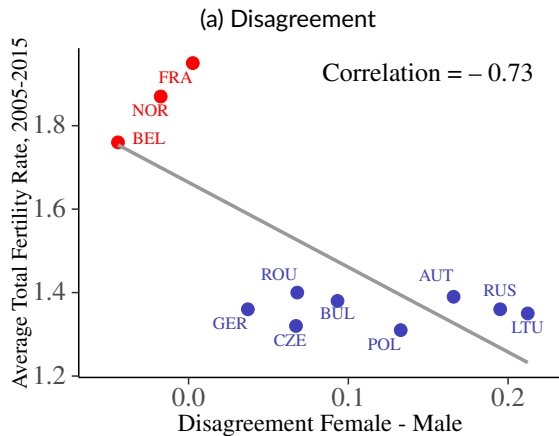
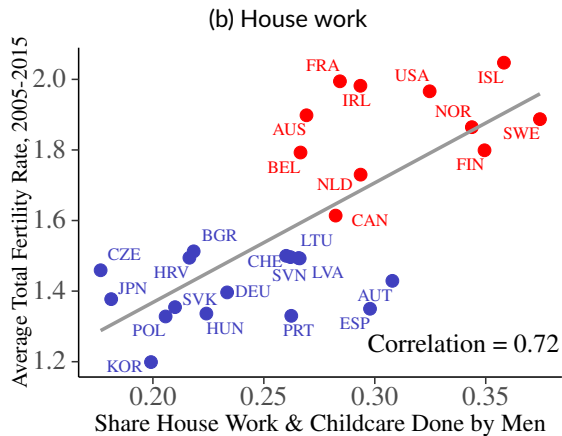
Career versus Family

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

- Family policy.
- Social norms.
- Labor market frictions.
- Fathers' contributions to childcare and intra-household bargaining.

Today: Bargaining frictions can account for reversal of fertility-LFP relationship.

Disagreement and Distribution of House Work Matter for Fertility



Data Suggest Veto Model for Bargaining over Fertility

- Regress birth outcome on constant, SHE YES/HE NO, SHE NO/HE YES, and AGREE
- Result for couples with **no children**:

	Coefficient	Std. Error
SHE YES/HE NO	0.02	(0.04)
SHE NO/HE YES	0.05	(0.03)
AGREE	0.24***	(0.02)

Data Suggest Veto Model for Bargaining over Fertility

- Regress birth outcome on constant, SHE YES/HE NO, SHE NO/HE YES, and AGREE
- Result for couples with **one child**:

	Coefficient	Std. Error
SHE YES/HE NO	0.13***	(0.04)
SHE NO/HE YES	-0.04*	(0.02)
AGREE	0.27***	(0.02)

Data Suggest Veto Model for Bargaining over Fertility

- Regress birth outcome on constant, SHE YES/HE NO, SHE NO/HE YES, and AGREE
- Result for couples with **two children**:

	Coefficient	Std. Error
SHE YES/HE NO	0.06***	(0.02)
SHE NO/HE YES	0.03*	(0.02)
AGREE	0.30***	(0.03)

Model of Couples

- Couples with preferences

$$u(c_g, n) = c_g + v(n) \quad g \in \{f, m\}$$

- Child costs for each partner g :

$$d(w_f, w_m, p, n) = d_f(w_f, w_m, p, n) + d_m(w_f, w_m, p, n)$$

- Household budget constraint:

$$c_f + c_m = (1 + \alpha) [w_m + w_f - d(w_f, w_m, p, n)]$$

Timing and Bargaining Assumptions

- Timing:

1. fertility decision n : veto model
2. allocation of consumption c_f and c_m

- Assumptions:

- **no commitment** to future consumption allocation in stage 1
- Nash bargaining with equal weights in stage 2
- stage 2 outside option is **non-cooperation** (Lundberg and Pollak (JPE 1993))

$$\bar{u}_g(w_f, w_m, p, n) = w_g - d_g(w_f, w_m, p, n) + v(n)$$

The Consumption Allocation

$$C_f = \underbrace{w_f}_{\text{ex-ante outside option}} - \underbrace{\frac{d(w_f, w_m, p, n)}{2}}_{\text{equal share of child cost}} + \underbrace{\frac{\alpha}{2} [w_m + w_f - d(w_f, w_m, p, n)]}_{\text{share of cons. surplus}}$$

$$C_m = \underbrace{w_m}_{\text{ex-ante outside option}} - \underbrace{\frac{d(w_f, w_m, p, n)}{2}}_{\text{equal share of child cost}} + \underbrace{\frac{\alpha}{2} [w_m + w_f - d(w_f, w_m, p, n)]}_{\text{share of cons. surplus}}$$

The Consumption Allocation

$$C_f = \underbrace{w_f}_{\text{ex-ante outside option}} - \underbrace{\frac{I(w_f, w_m, p, n)}{2}}_{\text{bargaining loss}} - \underbrace{\frac{d(w_f, w_m, p, n)}{2}}_{\text{equal share of child cost}} + \underbrace{\frac{\alpha}{2} [w_m + w_f - d(w_f, w_m, p, n)]}_{\text{share of cons. surplus}}$$

$$C_m = \underbrace{w_m}_{\text{ex-ante outside option}} + \underbrace{\frac{I(w_f, w_m, p, n)}{2}}_{\text{bargaining gain}} - \underbrace{\frac{d(w_f, w_m, p, n)}{2}}_{\text{equal share of child cost}} + \underbrace{\frac{\alpha}{2} [w_m + w_f - d(w_f, w_m, p, n)]}_{\text{share of cons. surplus}}$$

- Bargaining loss for mother

$$I(w_f, w_m, p, n) = d_f(w_f, w_m, p, n) - d_m(w_f, w_m, p, n)$$

The Fertility Decision

- $I(w_f, w_m, p, n) \geq 0 \Rightarrow$ mother is pivotal for fertility decision
- Optimum number of children:

$$v'(n^*) = \frac{1}{2} \left[\underbrace{\frac{\partial I(w_f, w_m, p, n^*)}{\partial n}}_{\text{marginal bargaining loss}} + \underbrace{(1 + \alpha) \frac{\partial d(w_f, w_m, p, n^*)}{\partial n}}_{\text{marginal effective child cost}} \right].$$

Linking Bargaining Loss to the Marginal Child Penalty

- Goods costs $\psi(n)$ and time costs $\phi(n) = F(t_f, \tau, n)$
- Time cost can be
 - provided by mothers at price $w_f \rightarrow t_f$
 - bought on the market at price $p \rightarrow \tau$
- All monetary costs are shared equally between partners

The Marginal Child Penalty and Fertility

- Individual cost of children:

$$\begin{aligned}d_f(w_f, w_m, p, n) &= w_f t_f(w_f, w_m, p, n) + 0.5 [p\tau(w_f, w_m, p, n) + \psi(n)] \\d_m(w_f, w_m, p, n) &= 0.5 [p\tau(w_f, w_m, p, n) + \psi(n)]\end{aligned}$$

- Mother's bargaining loss is equal to **child penalty**:

$$l(w_f, w_m, p, n) = w_f t_f(w_f, w_m, p, n)$$

- Equilibrium fertility:

$$v'(n^*) = \frac{1}{2} \left[\underbrace{\frac{\partial w_f t_f(w_f, w_m, p, n)}{\partial n}}_{\text{marginal child penalty}} + (1 + \alpha) \underbrace{\frac{\partial d(w_f, w_m, p, n^*)}{\partial n}}_{\text{marginal effective child cost}} \right].$$

Women's LFP and Fertility

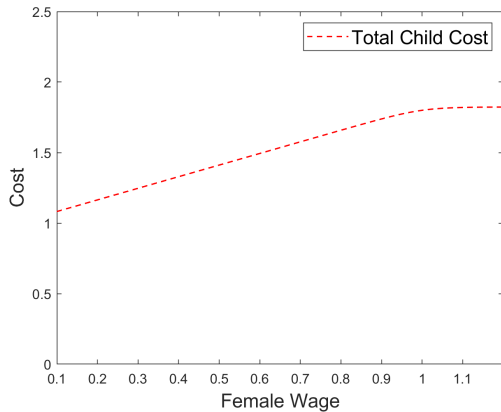
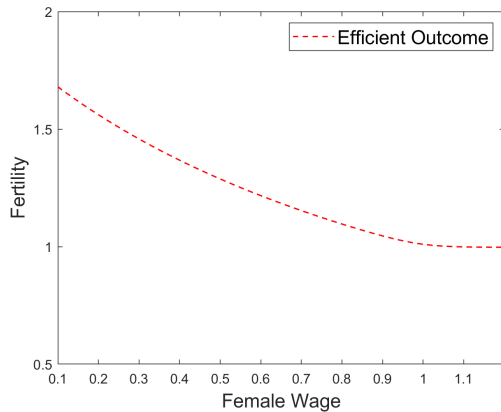
Consider a gradual improvement in women's labor market opportunities, modeled by a rise in w_f .

Two effects on fertility:

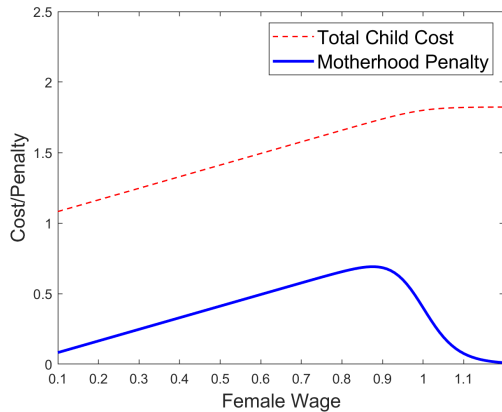
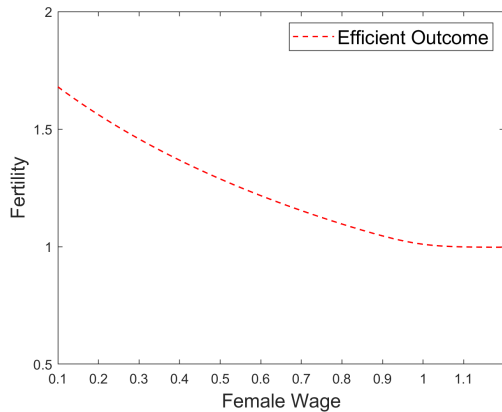
- Total cost of children $d(w_f, w_m, p, n)$ rises: **negative effect on fertility.**
- Motherhood penalty $w_f t_f(w_f, w_m, p, n)$ changes: **nonlinear effect on fertility.**

Result: Combined effects generate reversal in relationship between women's LFP and fertility.

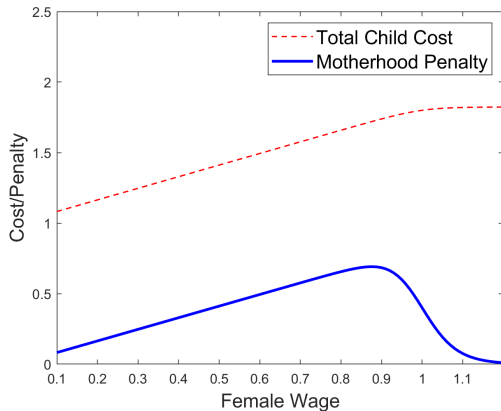
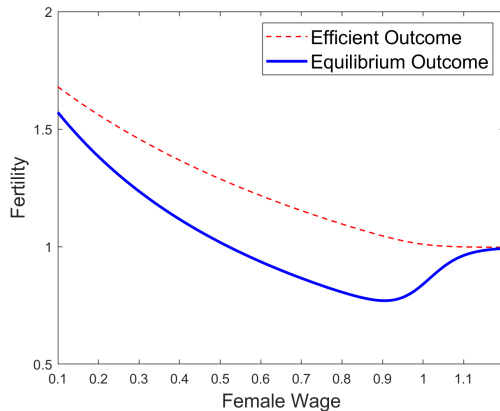
Women's Labor and Fertility



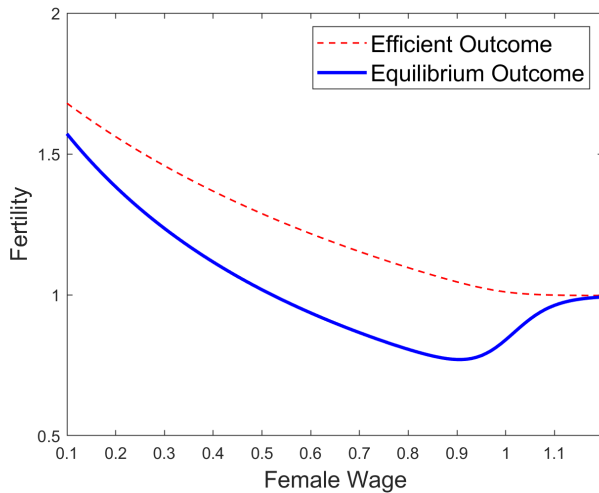
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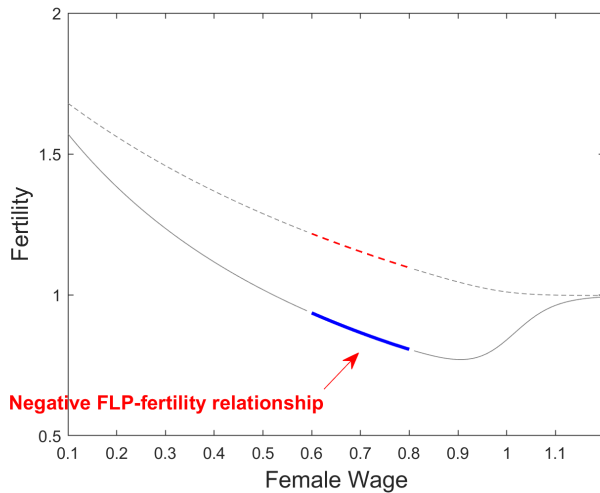
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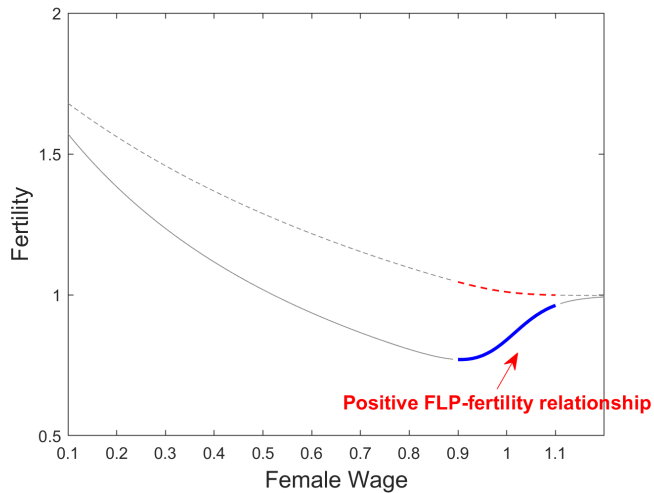
Women's Labor and Fertility



Women's Labor and Fertility



Women's Labor and Fertility



Women's Labor and Fertility

Here, women's LFP and motherhood penalty depend on women's relative wages.

Similar results if LFP and motherhood penalty driven by:

- Family policy.
- Social norms and aspirations.
- Fathers' contributions.

Summary So Far

- Bargaining creates **role for marginal child penalties** in fertility decision
- Model creates **reversal of relationship between fertility and women's LFP**
- Marginal child penalty follows **inverted U-shaped pattern**
 - Little friction in traditional societies
 - Little friction in gender-equal society
 - **High friction, and low fertility, where women want to work but child penalty is high**

Evidence on Child Penalties

- Child penalty concept popularized by Kleven, Landais, and Sørensen (AEJ: Applied 2019)
- Basic idea: event study approach

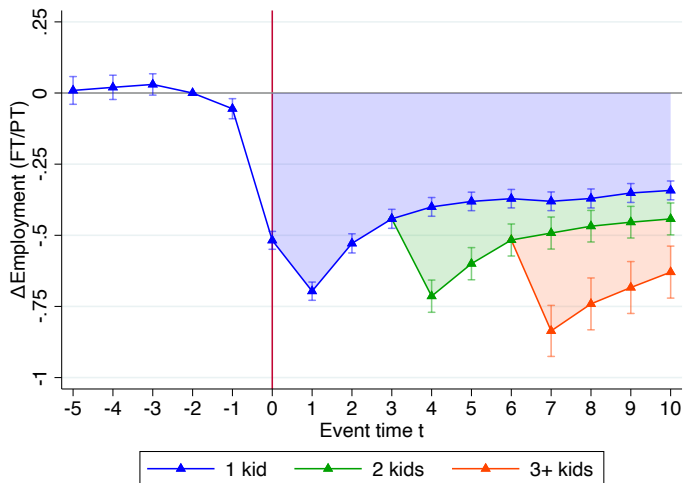
$$Y_{it} = \alpha^g \cdot D_{it}^{Event} + \beta^g \cdot D_{it}^{Age} + \gamma^g \cdot D_{it}^{Year} + \epsilon_{it}$$

- Also quasi-event study estimates computed on cross-sectional data (via matching).

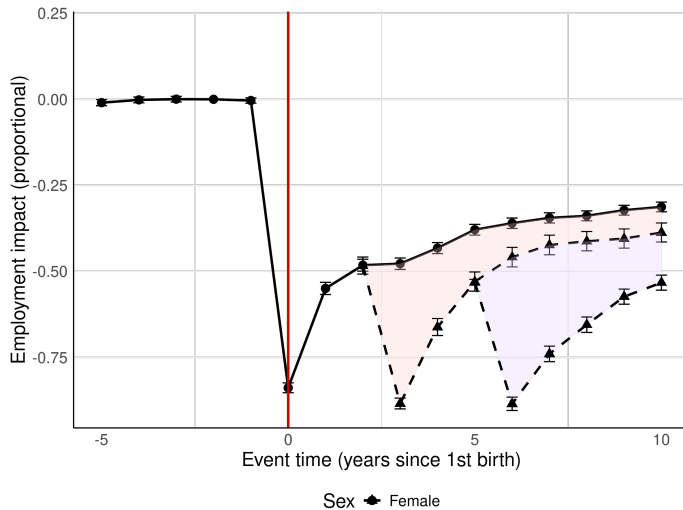
Marginal Child Penalties

- Ongoing work on estimation of marginal child penalties in panel and cross-sectional data.
- SOEP and PSID for Germany and the United States.
- LIS for quasi-event study evidence from many more countries.

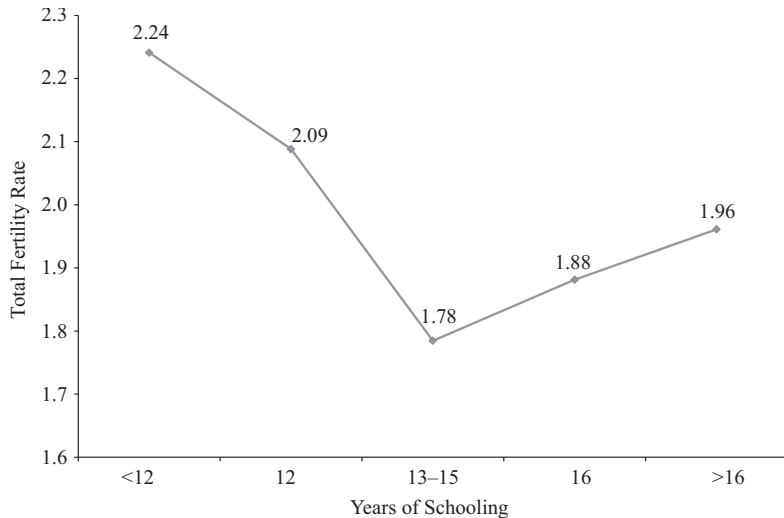
Marginal Child Penalties in Germany (SOEP)



Quasi-Event Study Estimates of Marginal Penalties in Germany (LIS)

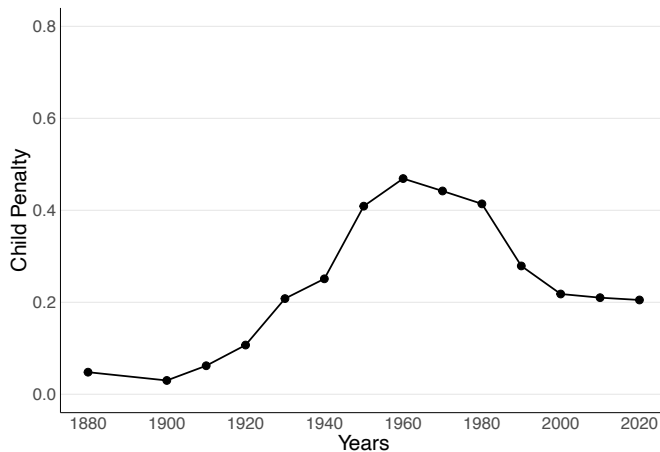


Application to Reversal in Fertility by Education in the US



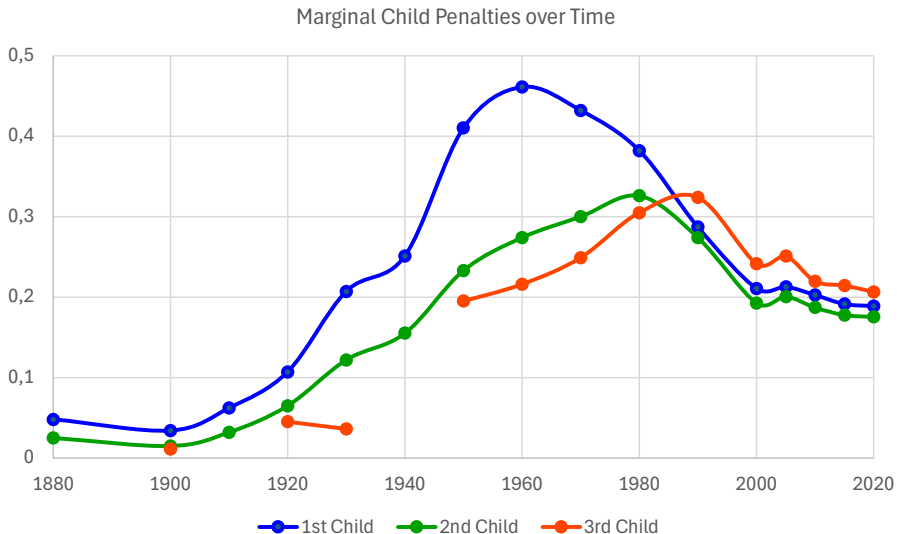
Reversal documented by Hazan and Zoabi (EJ 2015).

First Child Penalty in the US over Time

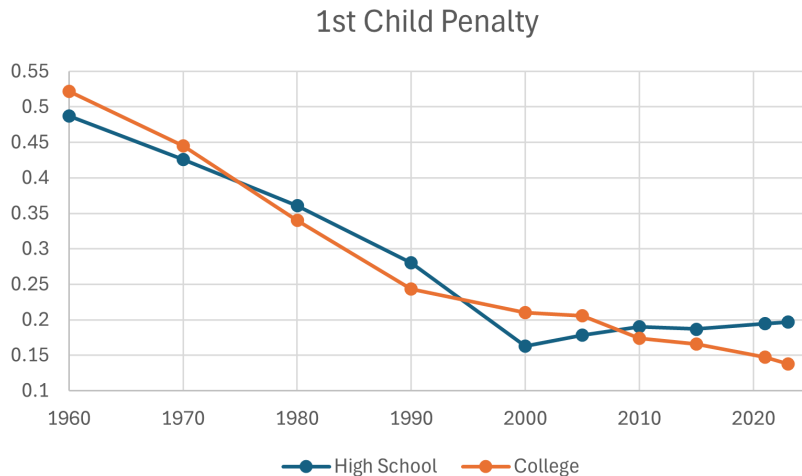


Source: Kleven, Landais, and Leite-Mariante (REStud 2025), "The Child Penalty Atlas."

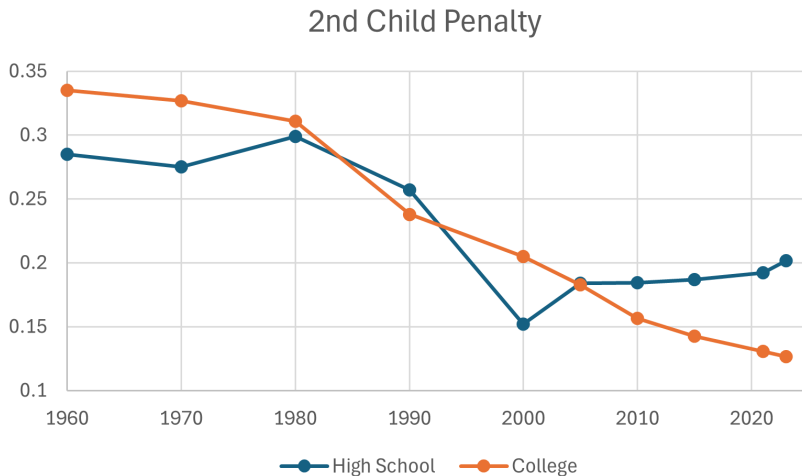
Marginal Child Penalties in the US over Time



First Child Penalty by Education in the US



Second Child Penalty by Education in the US



Summary

- Bargaining creates **role for marginal child penalties** in fertility decision
- Leads to **reversal of relationship between fertility and women's LFP** if women's labor market opportunities gradually improve
- Ongoing research on measuring marginal child penalties over time and across countries
- Ongoing research to apply model to reversal in fertility-education relationship