FAMILY TURBULENCE, CHILD DEVELOPMENT AND POLICY: THEORY AND EVIDENCE

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Motivation

- Many children grow up in unstable family environments, often accompanied by partner abuse, violence and controlling behaviour.
- Household models with children have usually assumed stable families.
  - A Handful of exceptions: Tartari (2015); Gayle, Golan and Soytas (2015).
- Models of domestic violence/abuse do not incorporate children.
  - E.g., Bowlus and Seitz (2006).
- We develop a simple structural model with dynamic strategic interactions between parents, incorporating:
  1. Endogenous transitions between biological, single-parent and step-families.
  2. **Partner abuse** and **coercive control (a key innovation).**

Overview: Methodology

- We extend our earlier work (Chan and Liu 2022), which dealt with selection bias of family structure via two key features:

A. Heterogeneity of families. Parents (and their children) may differ systematically in their **unobserved characteristics** across different types of relationships.

B. **Biological** and **social (step)** parental relationships. Child's skill is influenced by the mother, biological father, and social father over time.

1. Extend their model to a truly forward-looking model.

2. Include abuse and controlling behaviour as mechanisms of family dynamics.

Overview: Data

- Fragile Families and Child Wellbeing Study (FFCWS). It covers the disadvantaged population in the U.S and focuses on children born in less stable families (~5,000).

- FFCWS interviews both biological parents in the hospital at the time of childbirth and follows them even after they separate. (Age 0,1,3,5,..)

- It does a much better job of tracking the **biological father**, relative to other major survey data sets in the U.S.
  - This is crucial for dealing with selection bias of family structure.

- Questions on partner abuse and controlling behaviour. We distinguish:
  - **Physical/emotional abuse:** slapping, kicking, emotional insults, etc.
  - **Controlling work:** “He tries to prevent you from going to work or school”

Overview: Model

- Starts from a focal child's birth. Model both biological parents' behaviour irrespective of subsequent relationship status.
  - Labour supply; time investment in child; welfare use; child support (if separated).

- Externalities. Father can also choose whether to…
  - **Abuse** the partner: inflict a disutility on the partner (gaining utility on himself)
  - **Control** the partner's work: inflict a fixed cost of work on the partner, thereby reducing her work experience (with (dis)utility on himself)

- Mother makes a relationship choice upon father's action.
  - Stay with the father; become single; cohabit with a social(step) father.

- Unlike abuse, controlling behaviour reduces the mother's post-separation opportunities and is more strategic by nature. This has implications for the basic theoretical/empirical content of household models.

Relationships

- Focus on biological parental pair starting from focal child's birth ($t = 0$). Each period t consists of three decision subperiods $\tau = 1,2,3$.
  - Biological father (**B**; "father"). Mother (**M**).
  - Social/step father (**S**). He is endogenously matched with the mother.

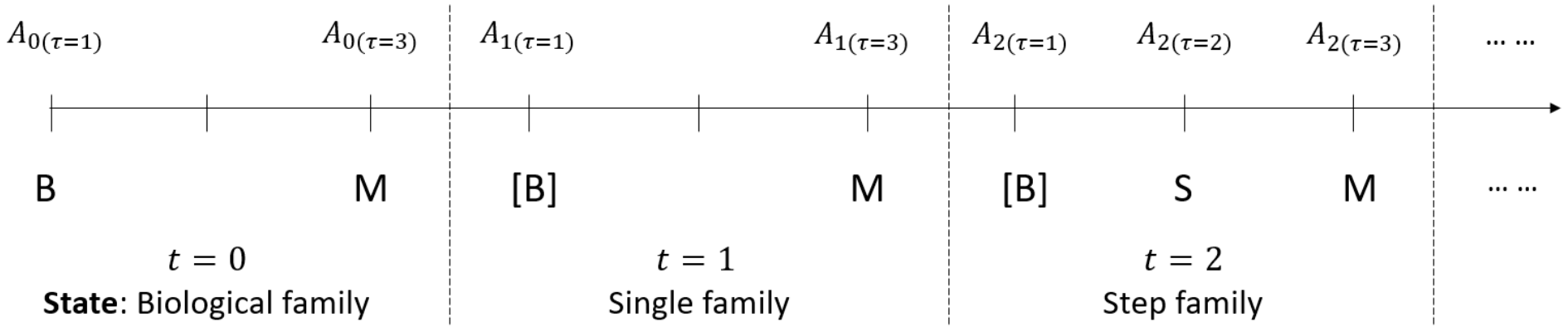
Relationship status	$\tau = 1$	$\tau = 2$	$\tau = 3$
Single	[B]	.	M
Cohabited with the father (M-B)	B	.	M
Cohabited with a social/step father (M-S)	[B]	S	M

- Relationship state variables: B_t, S_t.
  - B_t and S_t remain unchanged in period t.
  - $(B_t, S_t) = (0,0)$ if single. $(B_t, S_t) = (1,0)$ if with B. $(B_t, S_t) = (0,1)$ if with S.

- Relationship choice by the mother: b_t, s_t. Assume $(B_{t+1}, S_{t+1}) = (b_t, s_t)$.

Child ability

- Child ability $A_{t(\tau=1,2,3)}$ evolves following each parent's actions. It is a public good.
- Initial ability endowment is $A_{0(\tau=1)} = \gamma_{c0} + \mu_{cj}$.
- Latent μ_{cj} is naturally interpreted as a weighted function of both biological parents' skill endowments, alongside other factors.
- Subscript j: heterogeneity of biological father-mother type $j = 1, \dots, J$.



Fathers (B, S): $\tau = 1, 2$.

- Father acts at $\tau = 1$ given state variables $\boldsymbol{S}_{t(\tau=1)} \equiv (B_t, S_t, A_{t(\tau=1)}, E_t)$ and realizations of his preference and wage shocks ($\boldsymbol{\epsilon}_{t(\tau=1)}$).
  - **Abuse**=0,1 (if cohabited)
  - **Control_work**=0,1 (if cohabited)
  - Work=0,1
  - Quality time with child={low, high}
  - Pay child support =0,1 (if separated)

$$V_{jt}^{B}(\boldsymbol{S}_{t(\tau=1)}, \boldsymbol{\epsilon}_{t(\tau=1)}) :=$$

$$\max_{k \in \mathcal{C}_{t(\tau=1)}} [u_{jkt}^{B} + \delta^{B} E_{t(\tau=1)} V_{j,t+1}^{B}(\boldsymbol{S}_{k,t+1(\tau=1)}(\boldsymbol{\epsilon}_{t(\tau=2)}, \epsilon_{qt(\tau=3)}, \boldsymbol{\epsilon}_{t(\tau=3)}), \boldsymbol{\epsilon}_{t+1(\tau=1)})]$$

- Forward-looking cohabiting fathers will react to state-level child support rules and enforcement, which are used as exclusion restrictions.

- Social father at $\tau = 2$ makes similar choices based on perceived values of each alternative (essentially static).

Mother (M): $\tau = 3$.

- A matching technology (function of mother's skill endowment and census-tract availability of high-quality men) governs candidate social father's quality Q_t.

- Once Q_t is determined, mother acts given state variables (including fathers' actions) and realization of wage and preference shocks:
  - **Relationship choice** (b_t, s_t)
  - No work, PT work, FT work
  - Quality time with child={low, high}
  - Welfare=0,1 (welfare rules as another exclusion restriction)

$$V_{jt}^{M}(\boldsymbol{S}_{t(\tau=3)}, \boldsymbol{\epsilon}_{t(\tau=3)}) :=$$

$$\max_{k \in \mathcal{C}_{t(\tau=3)}} [u_{jkt}^{M} + \delta^{M} E_{t(\tau=3)} V_{j,t+1}^{M}(\boldsymbol{S}_{k,t+1(\tau=3)}(\boldsymbol{\epsilon}_{t+1(\tau=1)}, \boldsymbol{\epsilon}_{t+1(\tau=2)}, \epsilon_{q,t+1(\tau=3)}), \boldsymbol{\epsilon}_{t+1(\tau=3)})]$$

1. Abuse leads to more separation. (e.g., via state dependence in abusive behaviour)
2. Controlling work reduces women's independence and leads to less separation. However, the effectiveness of control is dampened by local availability of high-quality men, child support enforcement, etc.

Intertemporal optimization and estimation

- Strategic interactions between parents (B, S, M) modelled as a multi-period stochastic game.
- State variables and biological family types are common knowledge to each agent. Shocks are private information.
- Markov strategies. The backward recursion “interweaves" the expected value functions of B, S, and M, yielding the Markov perfect equilibrium.
  - Solve the dynamic programming problem and equilibrium separately for each biological family pair in the sample.
- Estimation by maximum likelihood (~100 parameters), accounting for:
  1. Choices of each parent.
  2. Heterogeneity of biological families.
  3. Heterogeneity and selection of social fathers.
  4. Endogeneity of the initial relationship status.
  5. Selection into work by each parent.

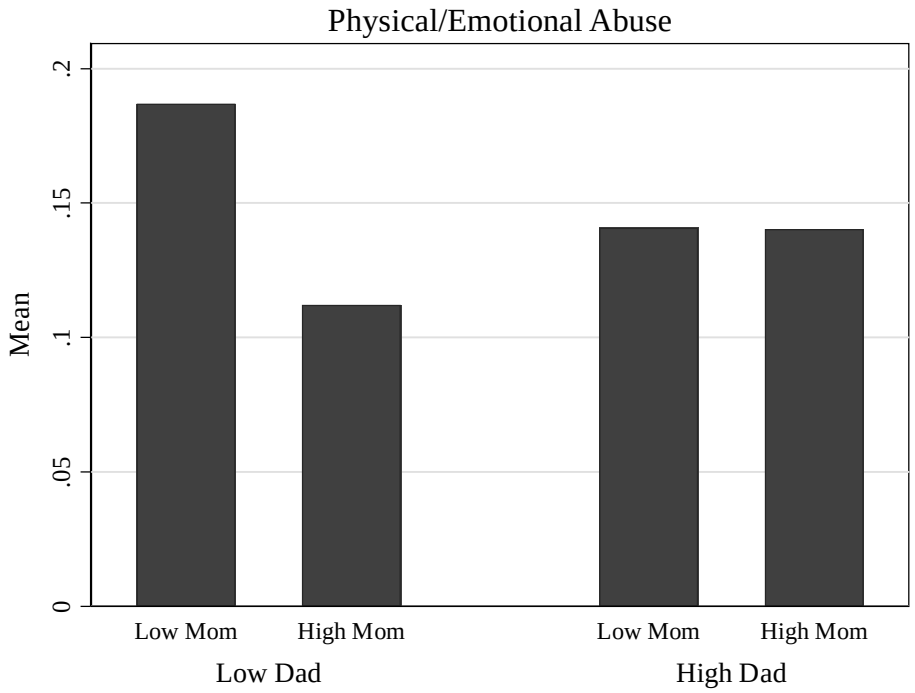
Relationship status by child's age

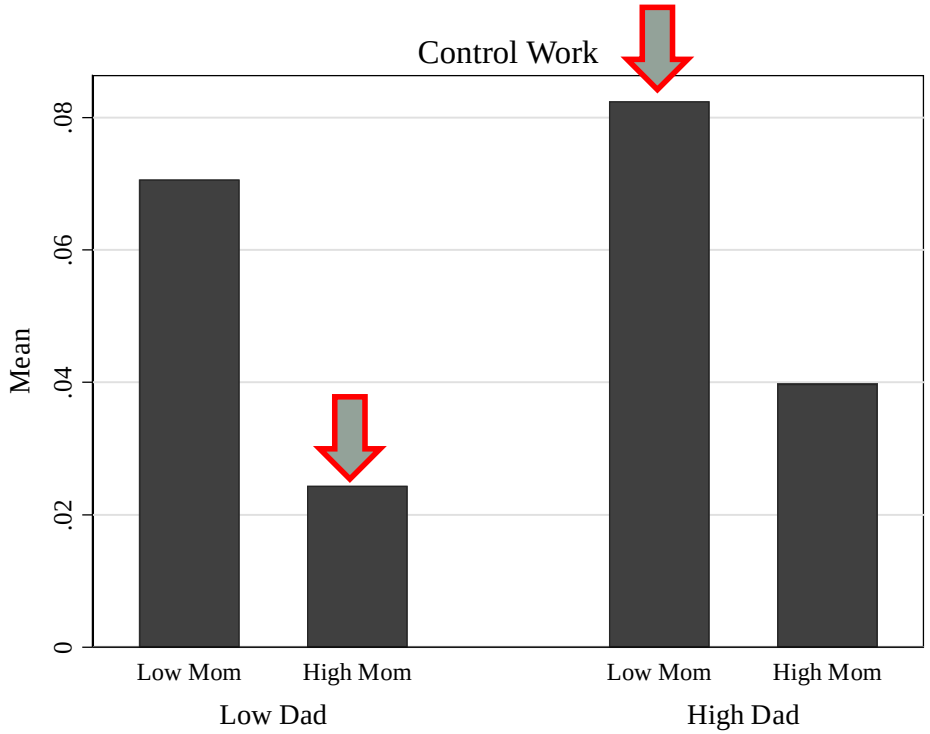
	Relationship Status (%)		
Wave	Single	M-B	M-S
0	52.3	47.7	0.0
1	49.1	45.3	5.7
3	48.6	40.1	11.3
5	48.6	33.0	18.5
Total	49.6	41.5	8.9

- **M-B**: Intact biological families.
- **M-S**: Mother cohabiting with social father.

- Proportion of single mothers remain stable, but masks a lot of transitions (see paper).

Incidence of abusive and controlling behavior by parents' latent skill endowment (among biological families)





- Partition parents' latent skill endowments into *low* and *high* by median.
  - See also Chan and Liu (2022) for the control function approach.

- Controlling behaviour is most common among *highDad-lowMom* pairs. It is least common among *lowDad-highMom* pairs.

Regress separation on abuse/control, conditional on parents' latent skills

Dependent variables	From M-B to Non-M-B	
	(1)	(2)
Physical/ Emotional abuse	0.0561*	0.0682**
	(0.030)	(0.031)
Control work	-0.068	-0.318***
	(0.048)	(0.107)
Control work × local men with bachelor degree		1.159**
		(0.511)
Control work × child support enforcement		10.890
		(7.340)
Local men with bachelor degree		-0.004
		(0.089)
Child support enforcement		6.315***
		(1.633)
Control function:		
Father skill endowment	-0.358***	-0.353***
	(0.051)	(0.051)
Mother skill endowment	0.032	0.041
	(0.067)	(0.067)
Covariates:		
Father college	-0.0524**	-0.0474*
	(0.025)	(0.026)
Mother college	0.032	0.035
	(0.025)	(0.025)
Constant	0.147***	0.0862**
	(0.030)	(0.035)

Note: Biological families. Other covariates not shown.

1. Abuse => more separation.
   - No heterogeneity by local availability of high-quality men (not shown in table).
2. Control work => less separation.
   - Availability of high-quality men dampens this relationship.

Regress mother's work on abuse/control, conditional on parents' latent skills

Dependent variables	Mother work	
	(1)	(2)
Physical/ Emotional abuse	-0.036	
	(0.025)	
Control work		-0.139***
		(0.041)
Control function:		
Father skill endowment	-0.196***	-0.188***
	(0.045)	(0.045)
Mother skill endowment	0.899***	0.882***
	(0.059)	(0.059)
Covariates:		
Father college	0.015	0.015
	(0.022)	(0.022)
Mother college	0.212***	0.211***
	(0.022)	(0.022)
Constant	0.800***	0.798***
	(0.026)	(0.026)

Note: Biological families.
Other covariates not shown.

- No association between Abuse and mother's work.
- Control work => less mother's work.

Conclusions

- We developed a structural model of child development with dynamic strategic interactions between parents, involving partner abuse and controlling work.
- *Controlling work* is a key innovation of the model. It reduces the mother's post-separation opportunities and is arguably strategic by nature.
- This has implications for the basic theoretical/empirical content of household models.
- Standard household models are fitted on standard variables such as labour supply. Does the new information about abusive/controlling behaviour matter?
  - They appear to strongly determine family dynamics.
  - The strategic model is a natural choice, but is it superior?
- Welfare and child support policy counterfactuals will be investigated.

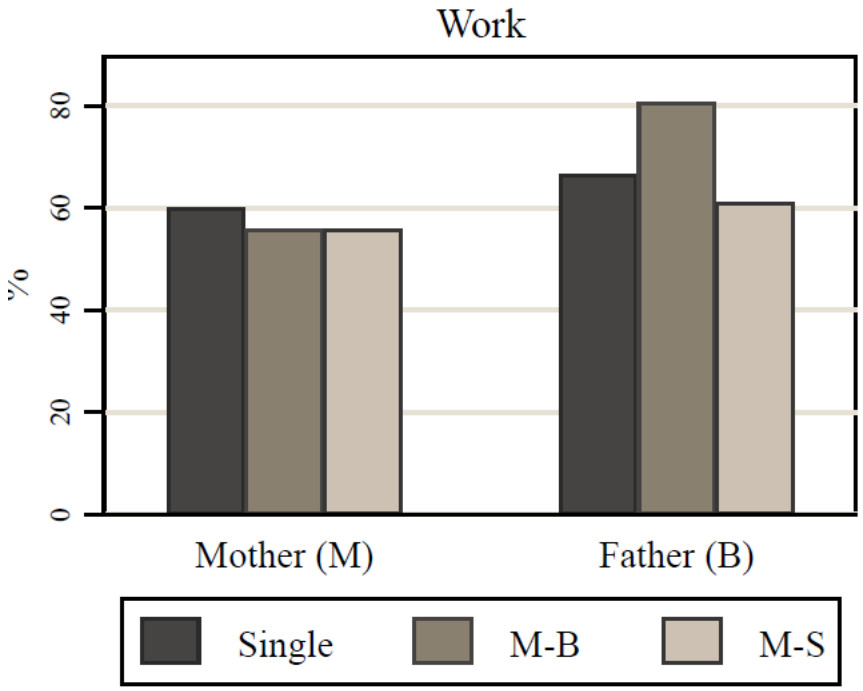
Appendix

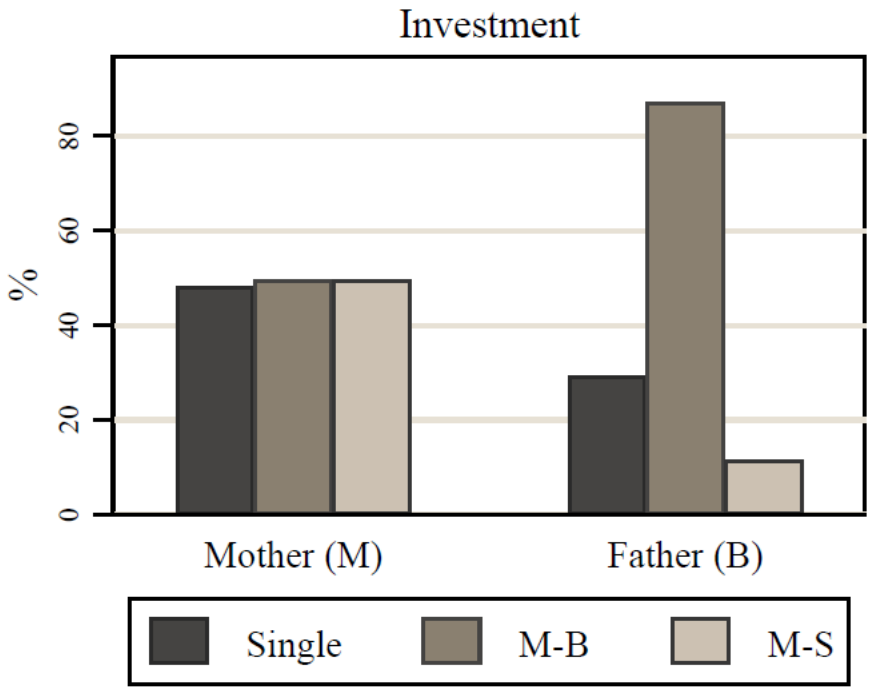
Relationship status: transition rates

		Wave 0 to 1			Wave 1 to 3			Wave 3 to 5		
		To: (%)			*To: (%)*			*To: (%)*		
		Single	M-B	M-S	Single	M-B	M-S	Single	M-B	M-S
From:	Single	68.7	22.8	8.5	71.3	14.9	13.8	71.5	9.1	19.4
	M-B	27.5	69.9	2.6	24.4	71.9	3.8	24.6	70.8	4.7
	M-S	-	-	-	50.4	0.0	49.6	36.4	0.0	63.6

- Singles and M-B (intact biological families): relatively stable. 70% remain in the same status.
- M-S (mothers with social father): least stable. Only 50% remain in the same status.
- Many singles switch to M-B or M-S, and vice versa.

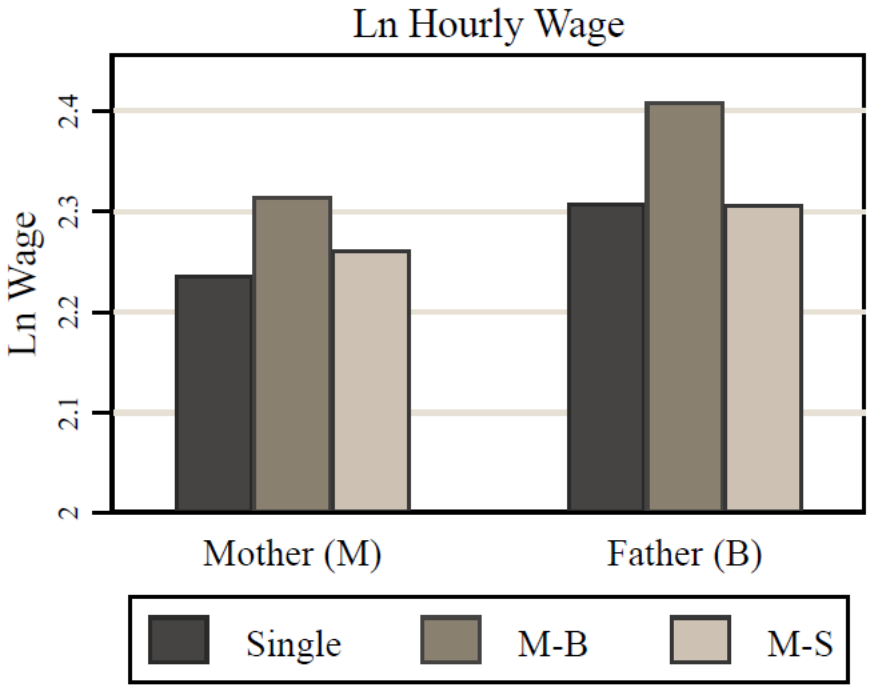
Biological parental choices by relationship status

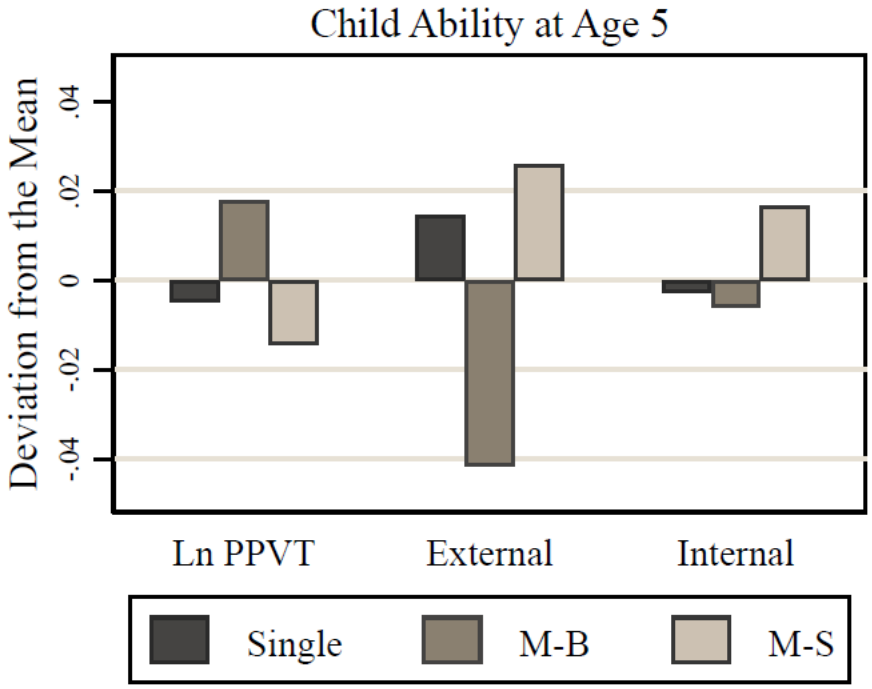




- Mother: invariant across relationship status.
- Father: highest in intact families, lowest when the mother is cohabited with a social father.
- This information is used to obtain the unobserved heterogeneity of biological families.

Wage and child ability by relationship status





- Intact biological families have the best outcomes.
  - E.g., lowest level of externalizing behavior.

Appendix: Exclusion restrictions and covariates (1)

	Father (B)				SF	Initial
	Work	Invest	CS	Wage	Pr(college)	Relation
Father college	x	x	x	x		x
Mother college					x	x
CS policies			x			
Welfare policies						
Years M knows B						x
M lived with parents @age 15						x
B lived with parents @age 15		x				x
Census tract variables:						
% bachelor degree					x	
Median HH income				x		
local unempl. rate	x					
M-B type intercepts				x		x
M's latent ability (linear)					x	