

Natural Born Delinquents:

Evidence from the Universe of Personal Loans in Denmark

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Question

- Why do some people end up in financial trouble while others do not?

Because of short term shocks?

- E.g. job loss

Because of persistent differences in financial behavior?

- Risk attitude, impatience, impulsivity (“type”)

- Has implications for bankruptcy arrangements:

- Fresh start: discharge debt - insurance against shocks (“bad luck”)
- No-fresh start: adverse selection - discourage loans to types unlikely to repay

Question

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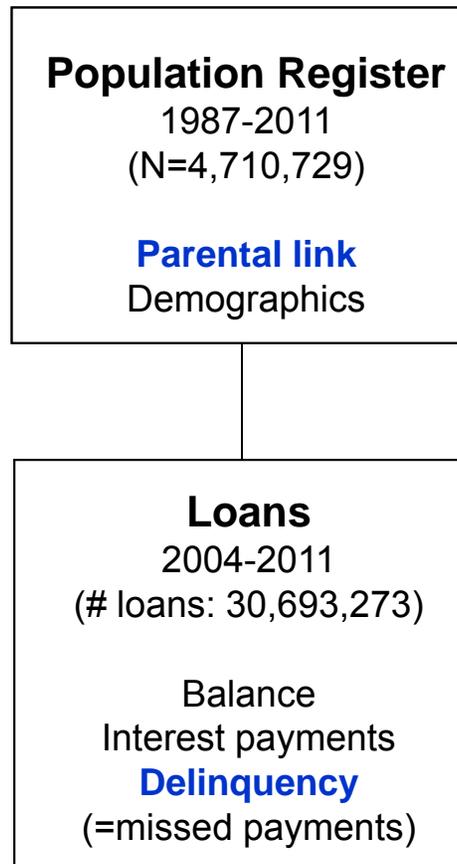
- Fresh start: discharge debt - insurance against shocks (“bad luck”)
- No-fresh start: adverse selection - discourage loans to types unlikely to repay

- Extreme persistence: **Children born to be same type as parents?**

Test this by measuring the intergenerational correlation of delinquency

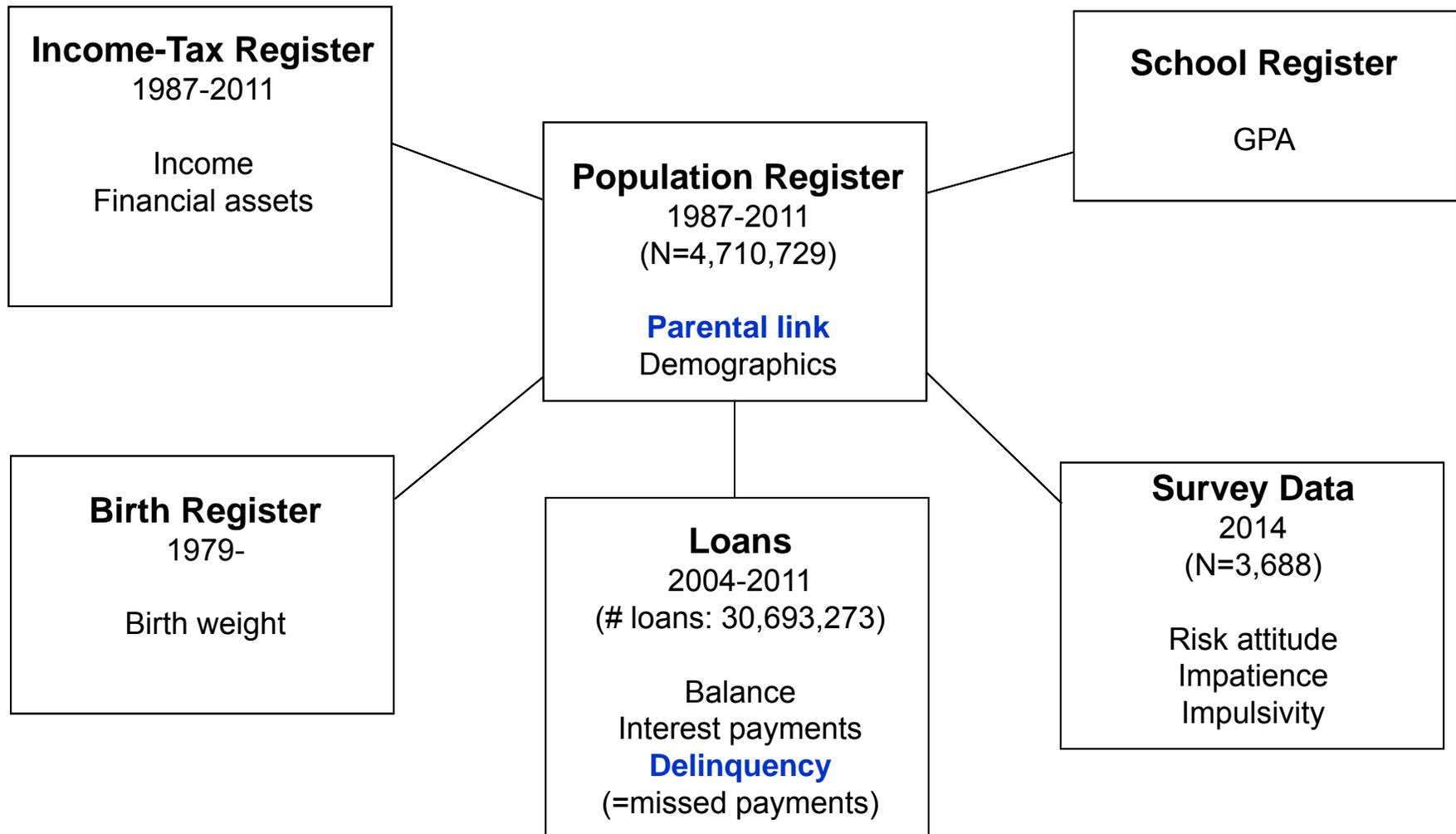
Data

Danish Administrative Register and Survey Data

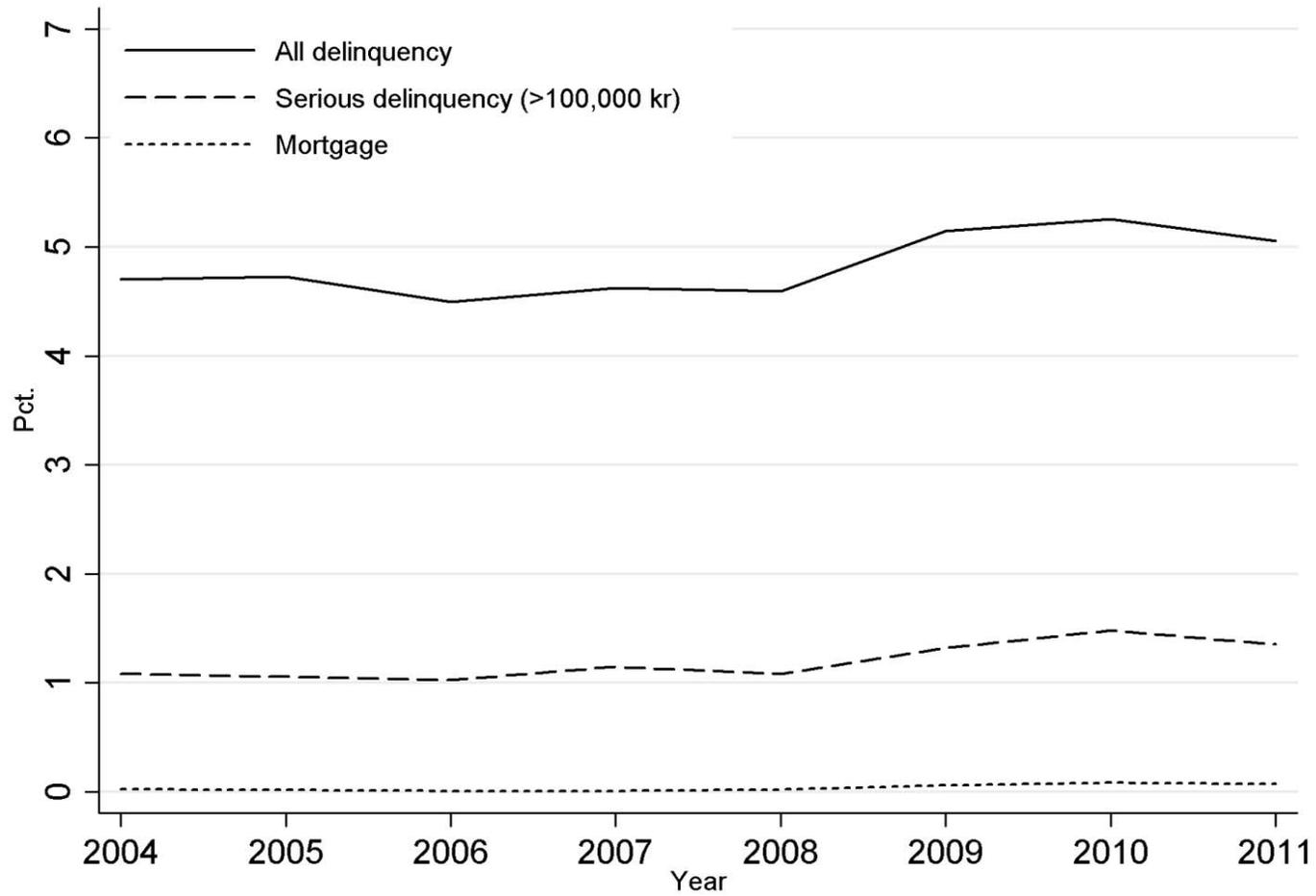


Data

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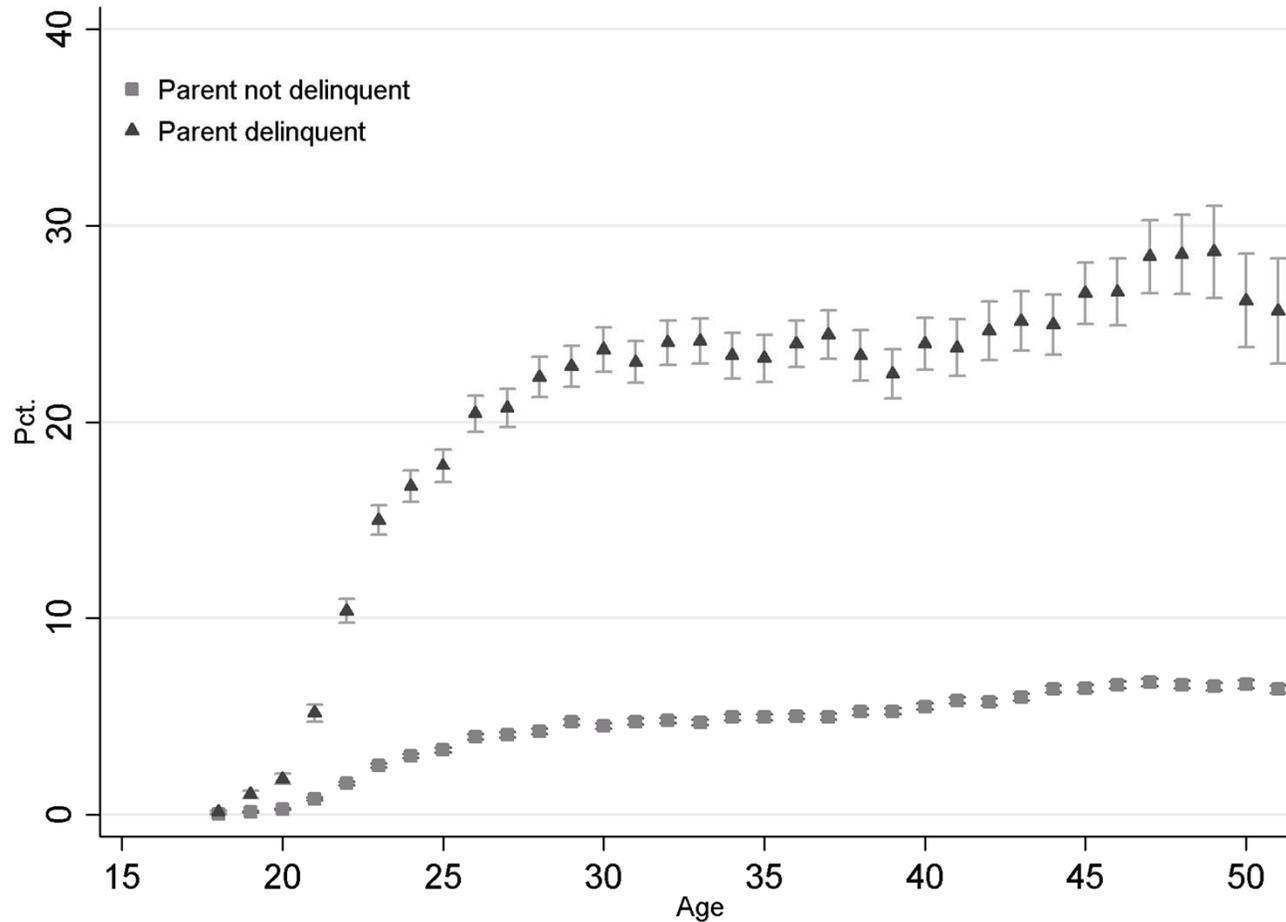


Aggregate Delinquency



The intergenerational correlation

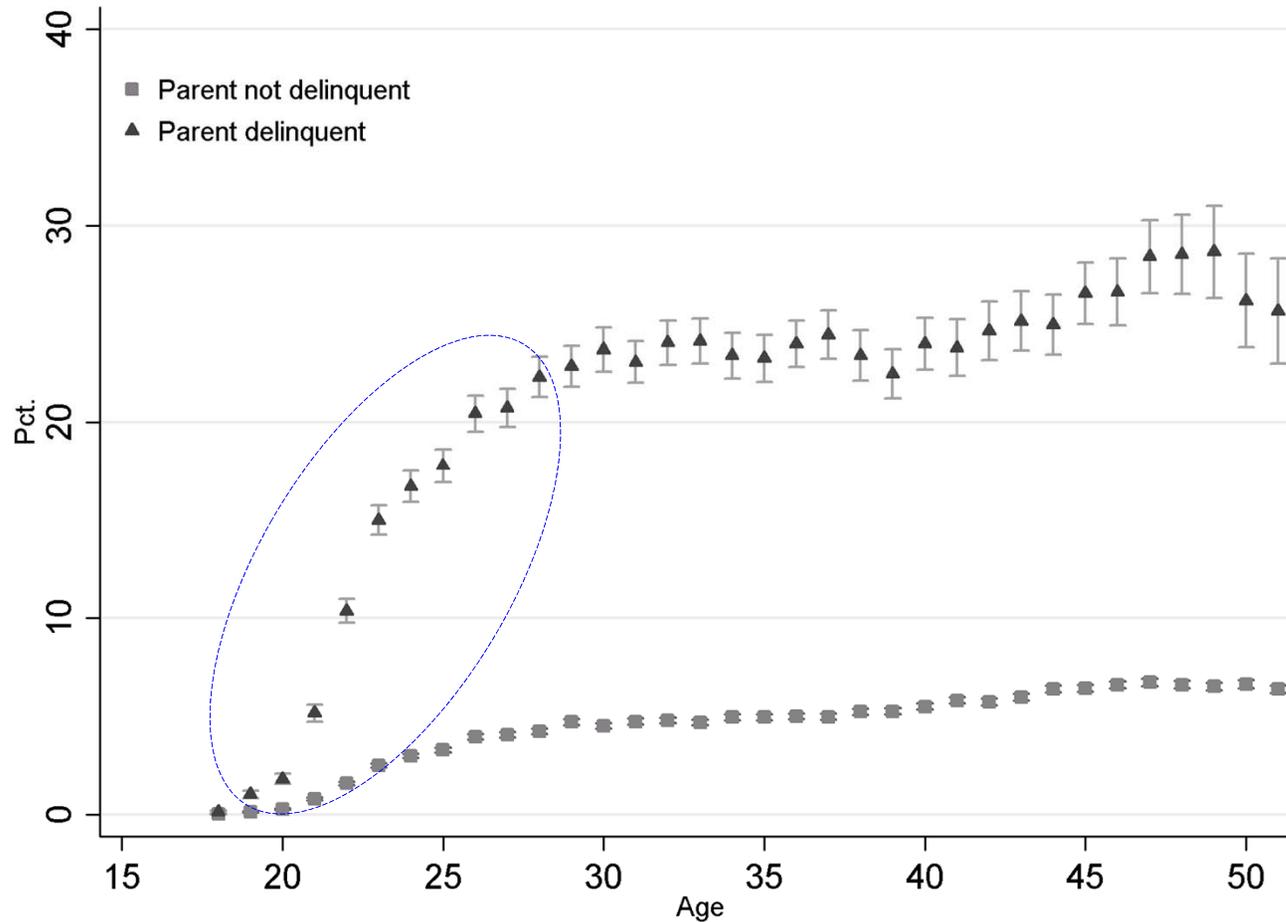
By age, 2011



Ratio $\approx 4 - 7$: same for all levels of loan balances

The intergenerational correlation

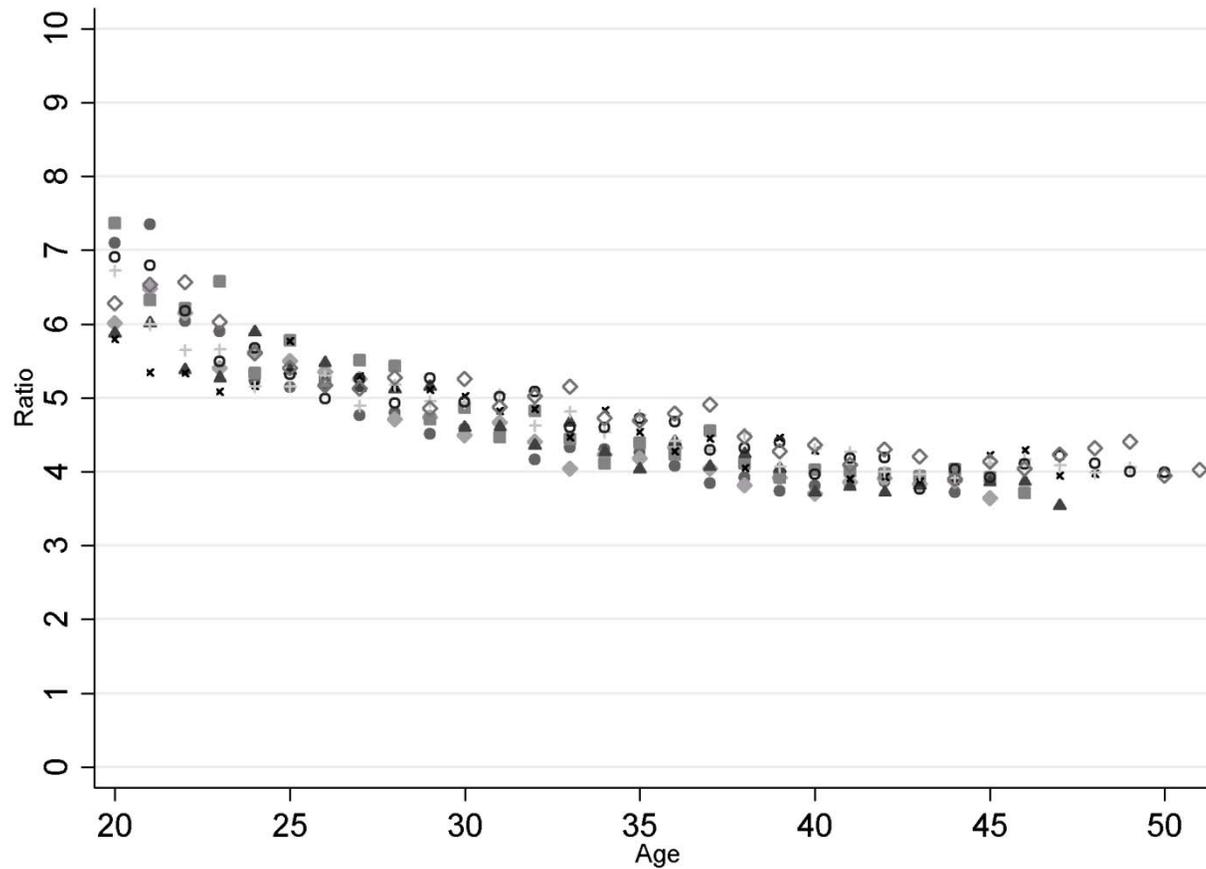
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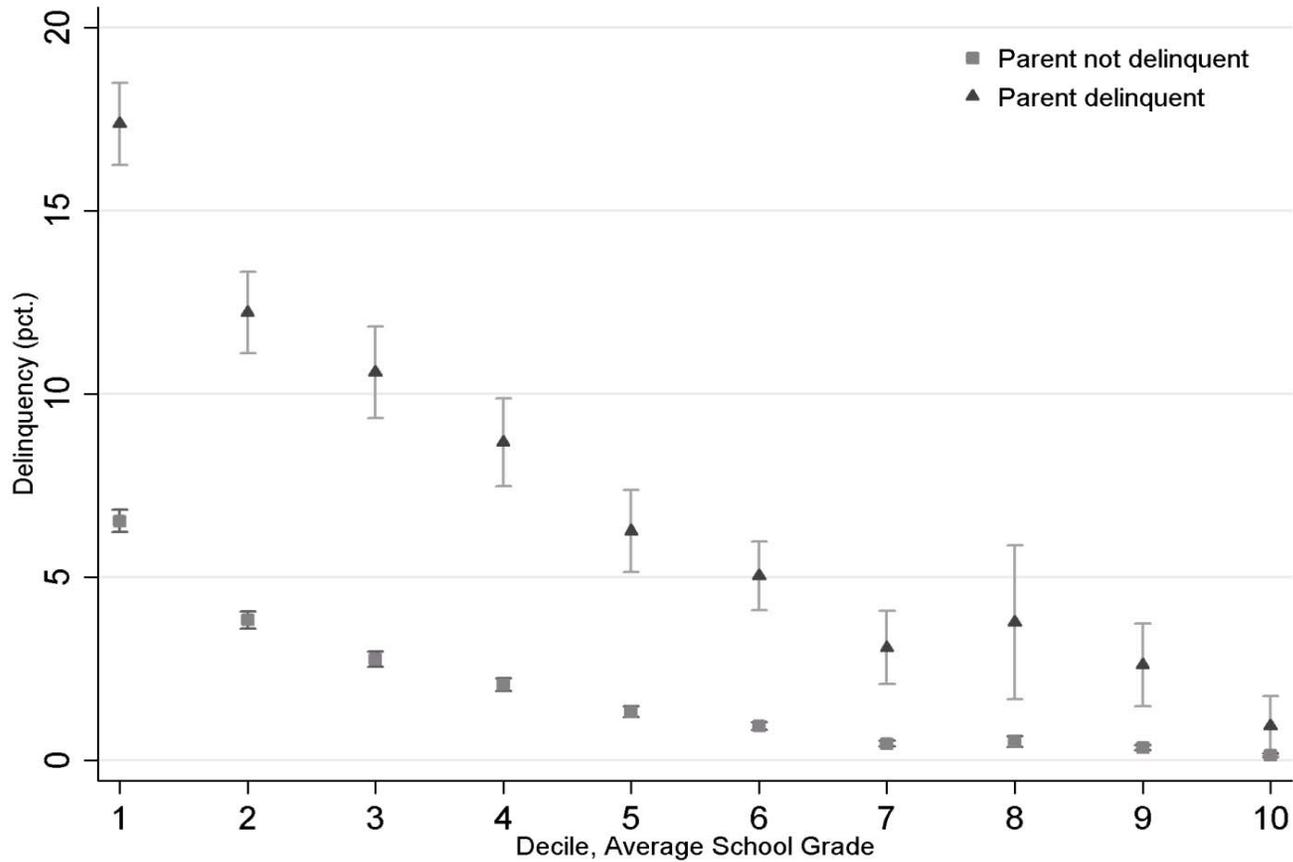
By age, 2004-2011



Ratio constant across years, 2004-2011

The intergenerational correlation

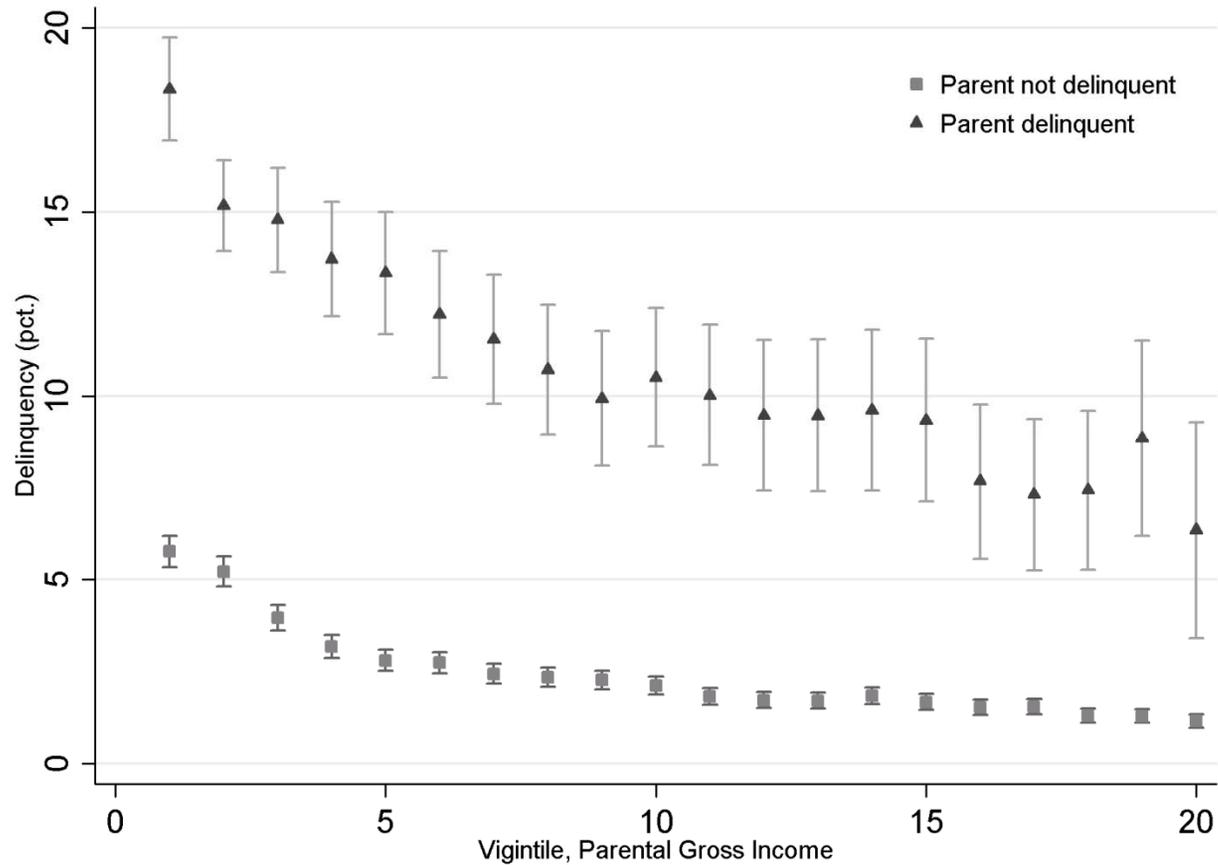
By ability



Ratio 4 – 7 across all GPA levels

The intergenerational correlation

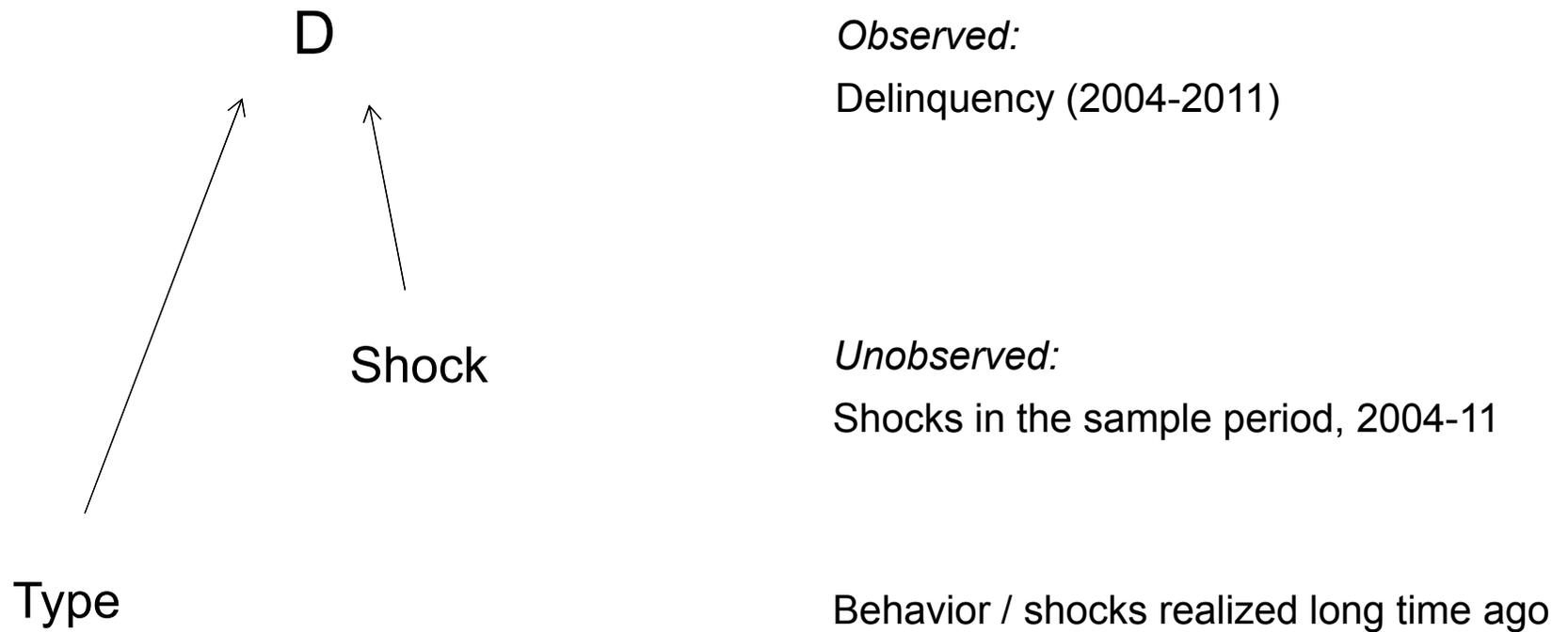
By parental income



Ratio 4 – 7 across all levels of parental income

Conceptual Framework

Decomposition of delinquency



Potential explanations

The intergenerational correlation

1 Risk sharing I:

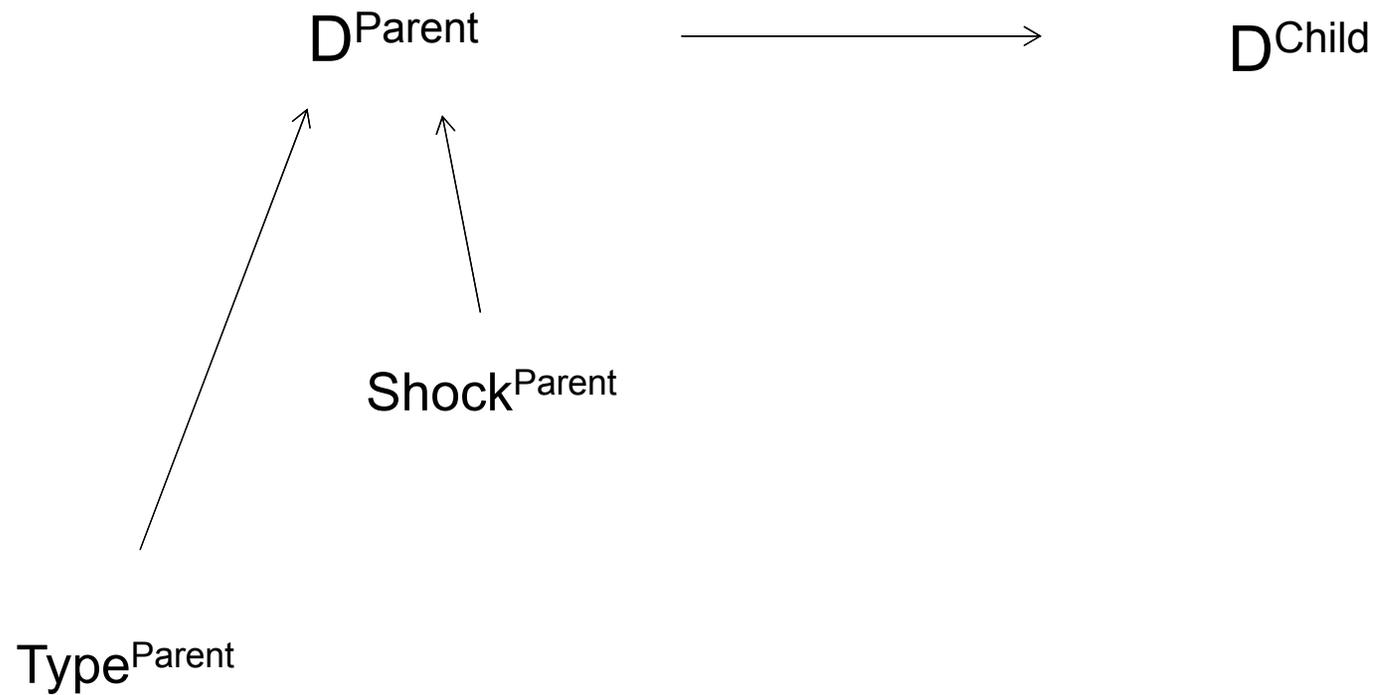
Parents receive a shock → cannot protect child from delinquency following shock

2 Risk sharing II:

Parents are “bad” types → cannot protect child from delinquency following shock

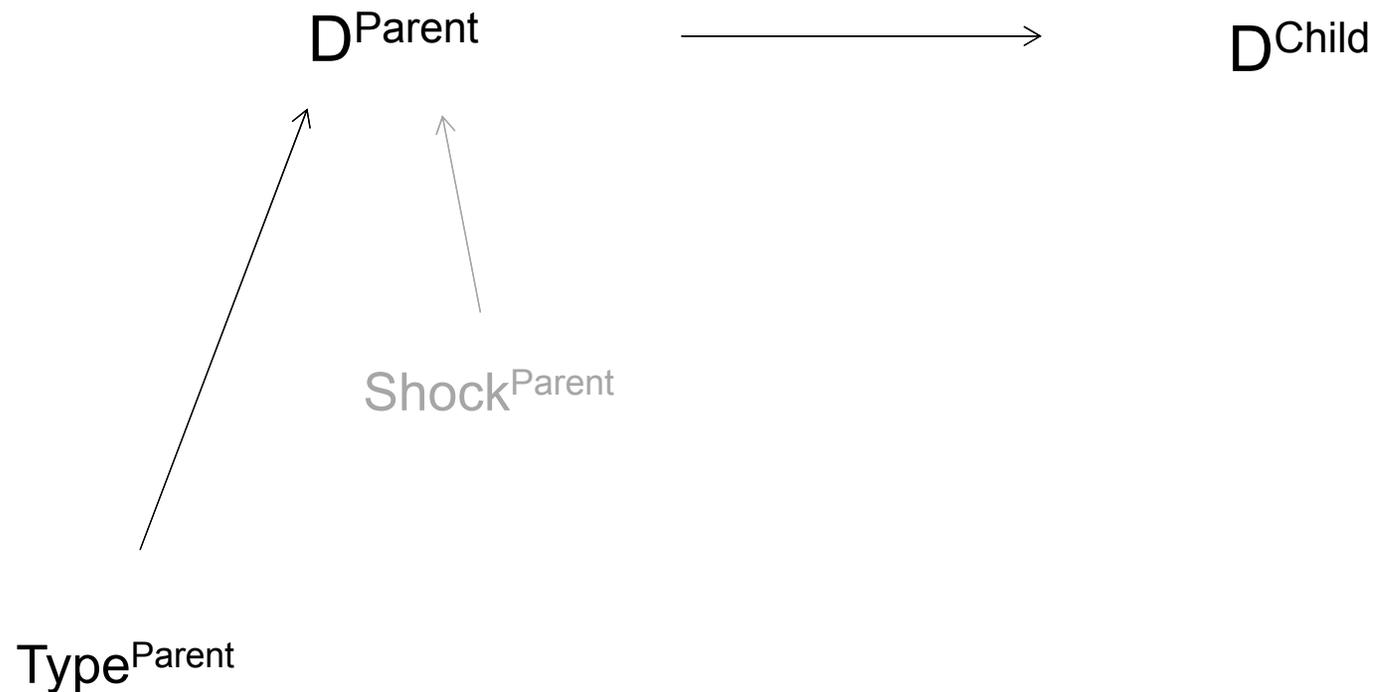
3 Children inherit “bad” type

Conceptual Framework



Conceptual Framework

Isolating the impact of parental type on child delinquency

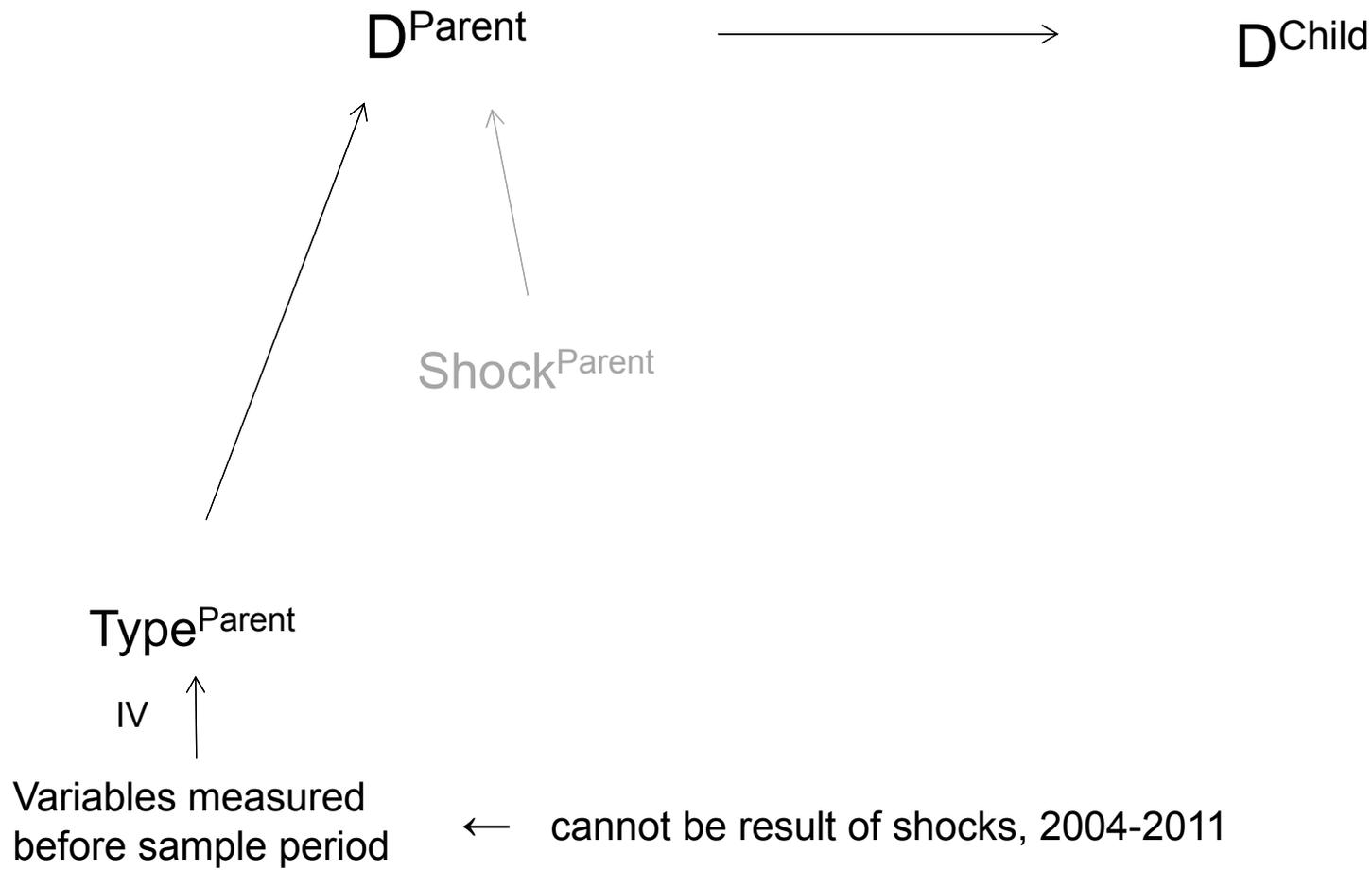


Rule out explanation 1:

Parents receive a shock → cannot protect child from delinquency

Conceptual Framework

Isolating the impact of parental type on child delinquency



Importance of Parental Type

Variables measured before sample period



- Financial assets of parents, 1987-1994
 - If parents are relatively impatient types then financial assets generally low
 - # of years (1987-1994) where parents had financial assets <1 months of income
 - Parents delinquent: 6.5 / 8
 - Parents *not* delinquent: 4.3 / 8

Importance of Parental Type

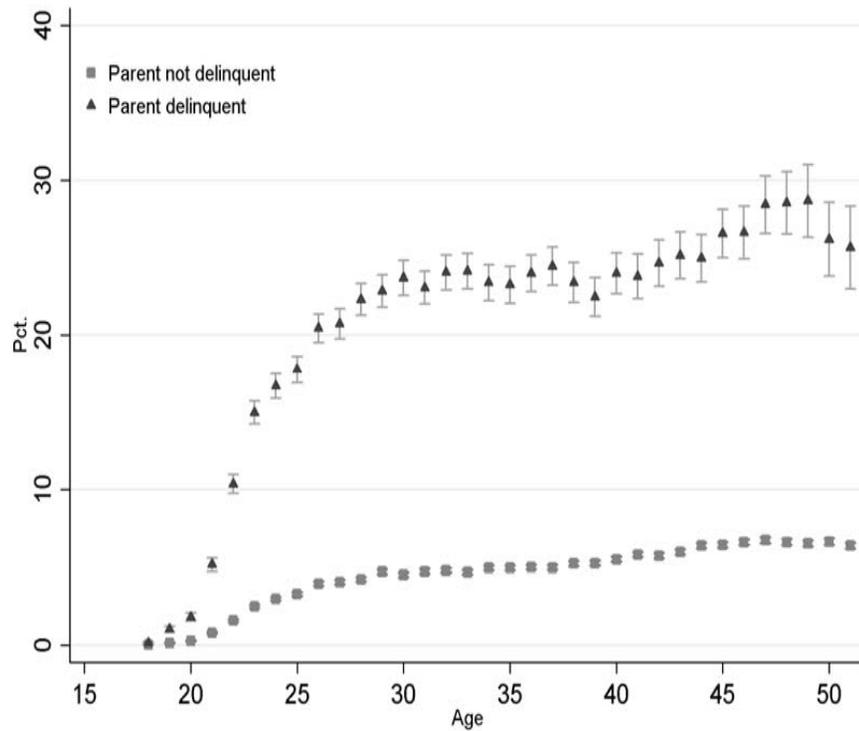
Variables measured before sample period



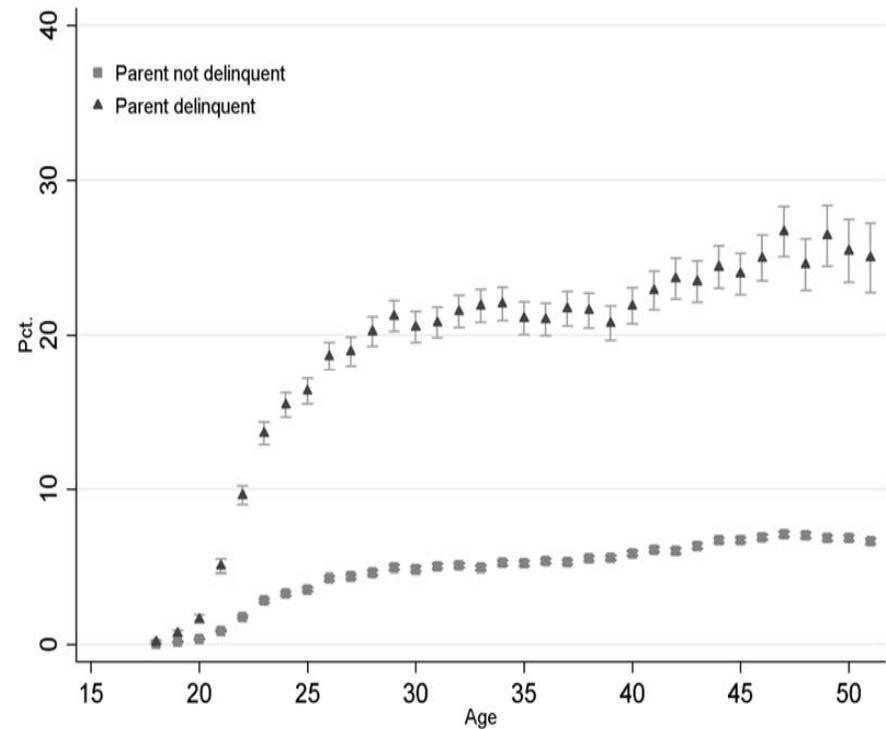
- Financial assets of parents, 1987-1994
 - If parents are relatively impatient types then financial assets generally low
 - # of years (1987-1994) where parents had financial assets <1 months of income
 - Parents delinquent: 6.5 / 8
 - Parents *not* delinquent: 4.3 / 8
- Birth weight of child:
 - Parents delinquent: 3320 gr
 - Parents *not* delinquent: 3424 gr

The importance of parents, 2004/2011

Child delinquency in 2011



2011



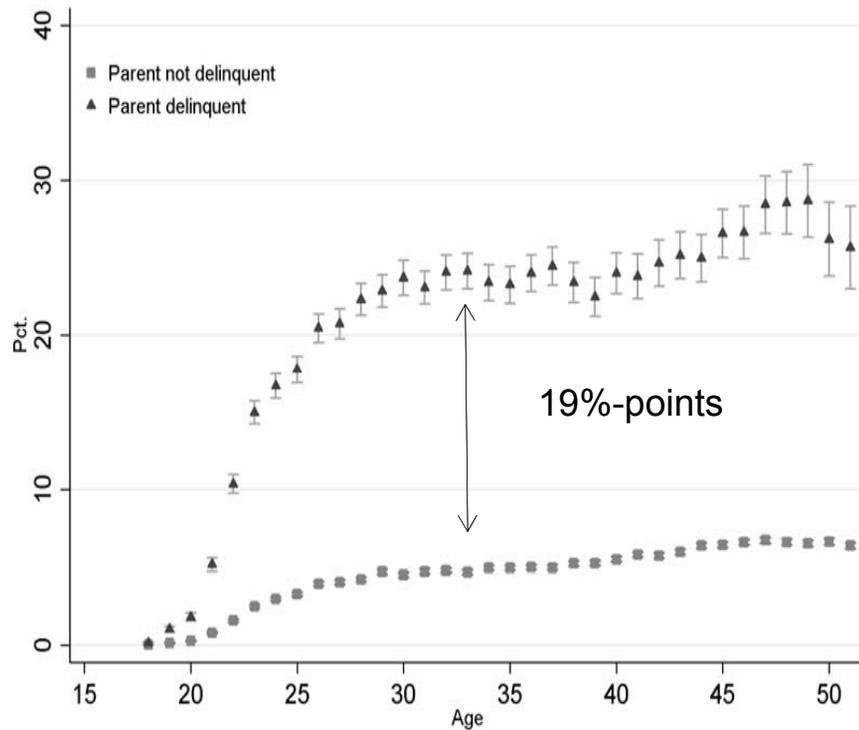
Parents

2004

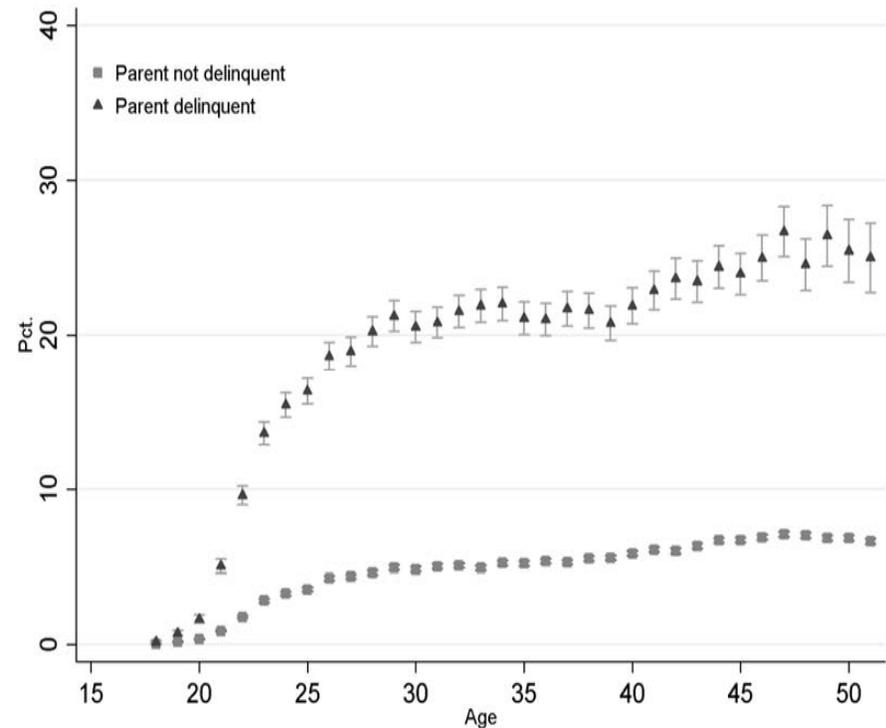
Almost no difference – suggests that delinquency not due to current shocks

The importance of parents, 2004/2011

Child delinquency in 2011



2011



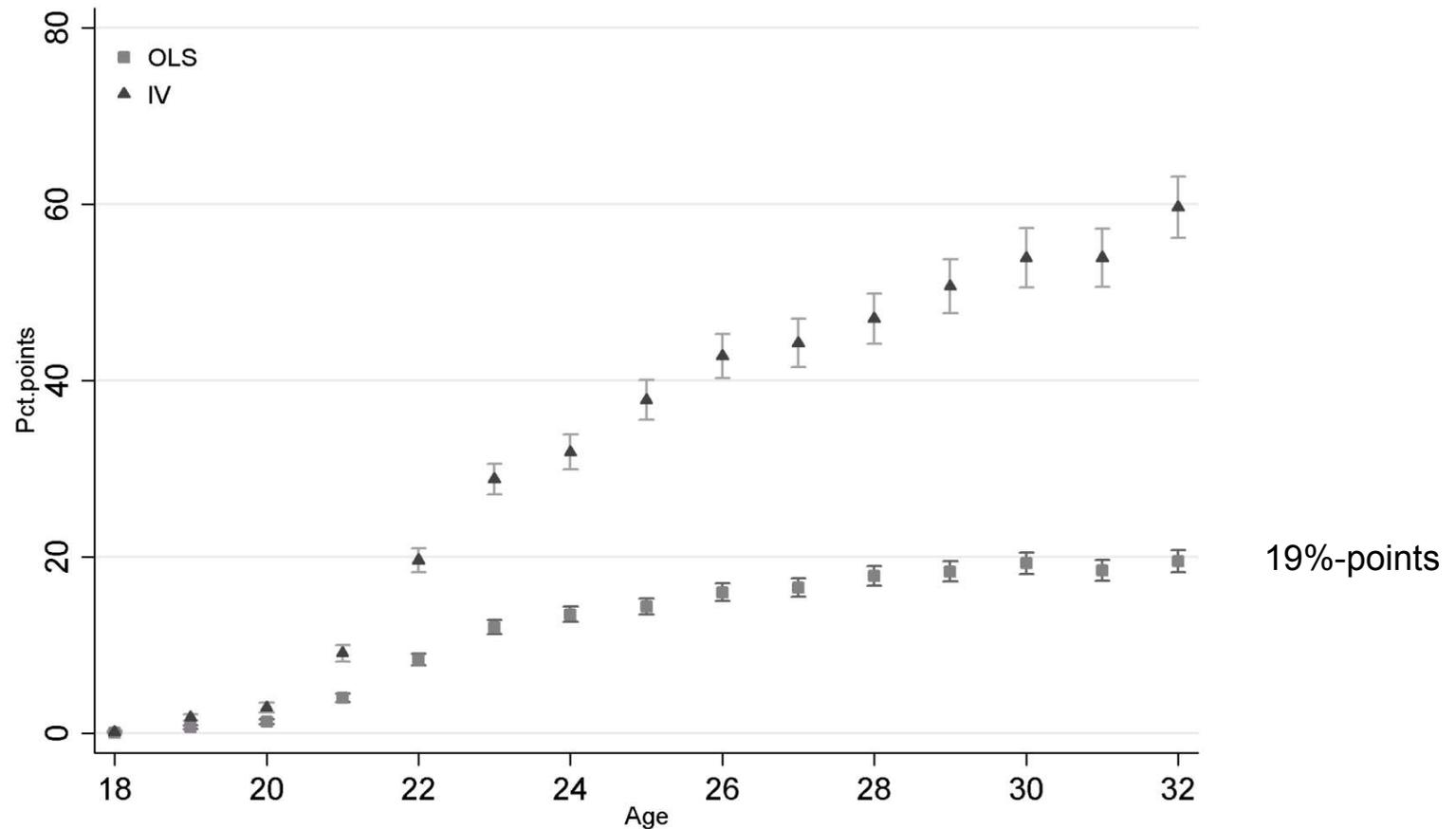
Parents

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Importance of Parental Type

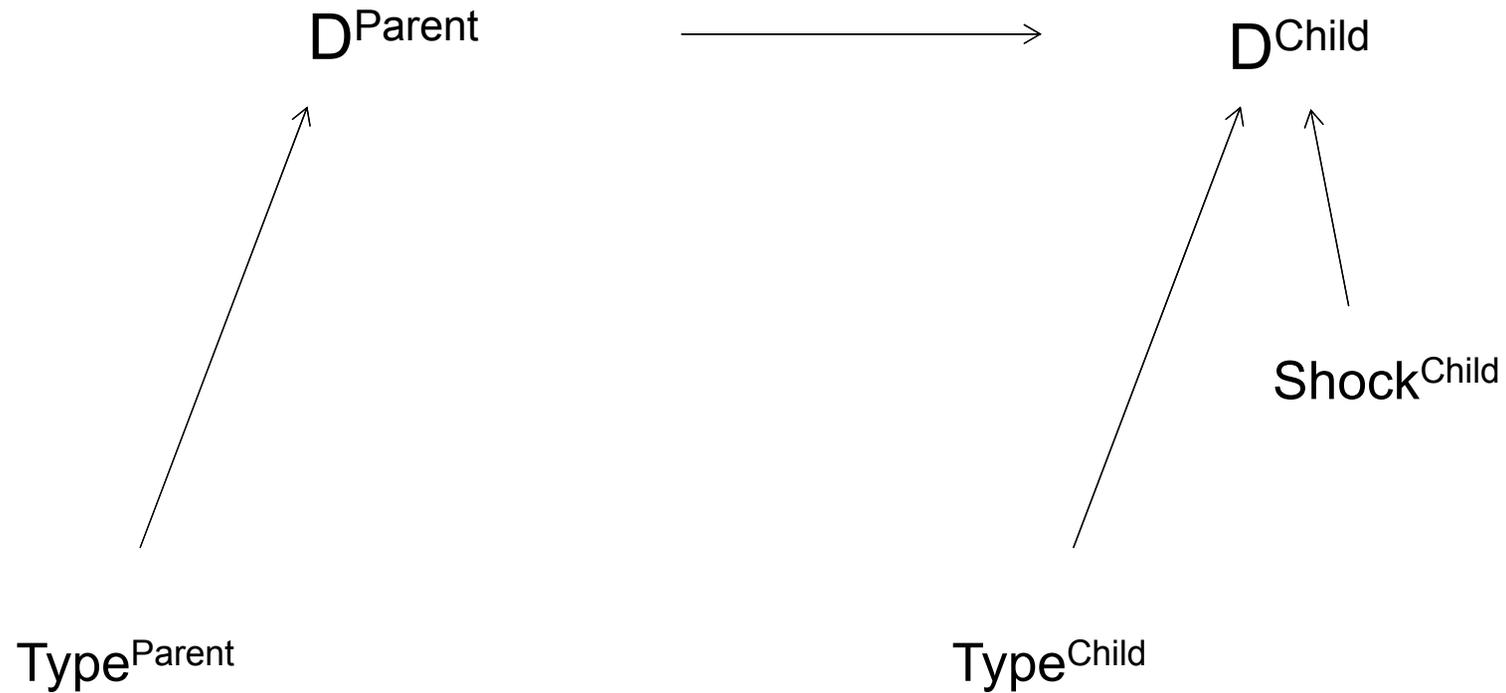
Difference in delinquency rate 2011, parents delinquent/not delinquent 2011



Parental type determines child delinquency

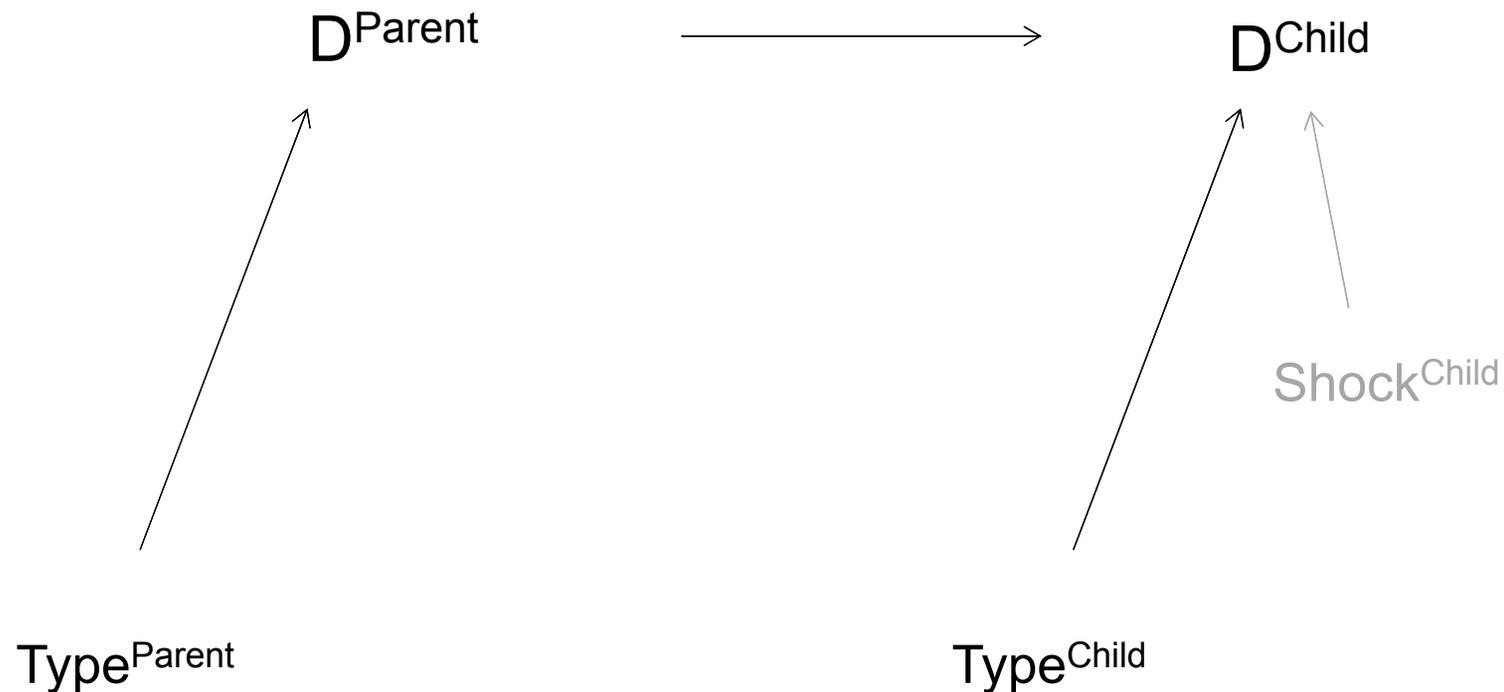
Conceptual Framework

Child delinquency when no shock



Conceptual Framework

Child delinquency when no shock

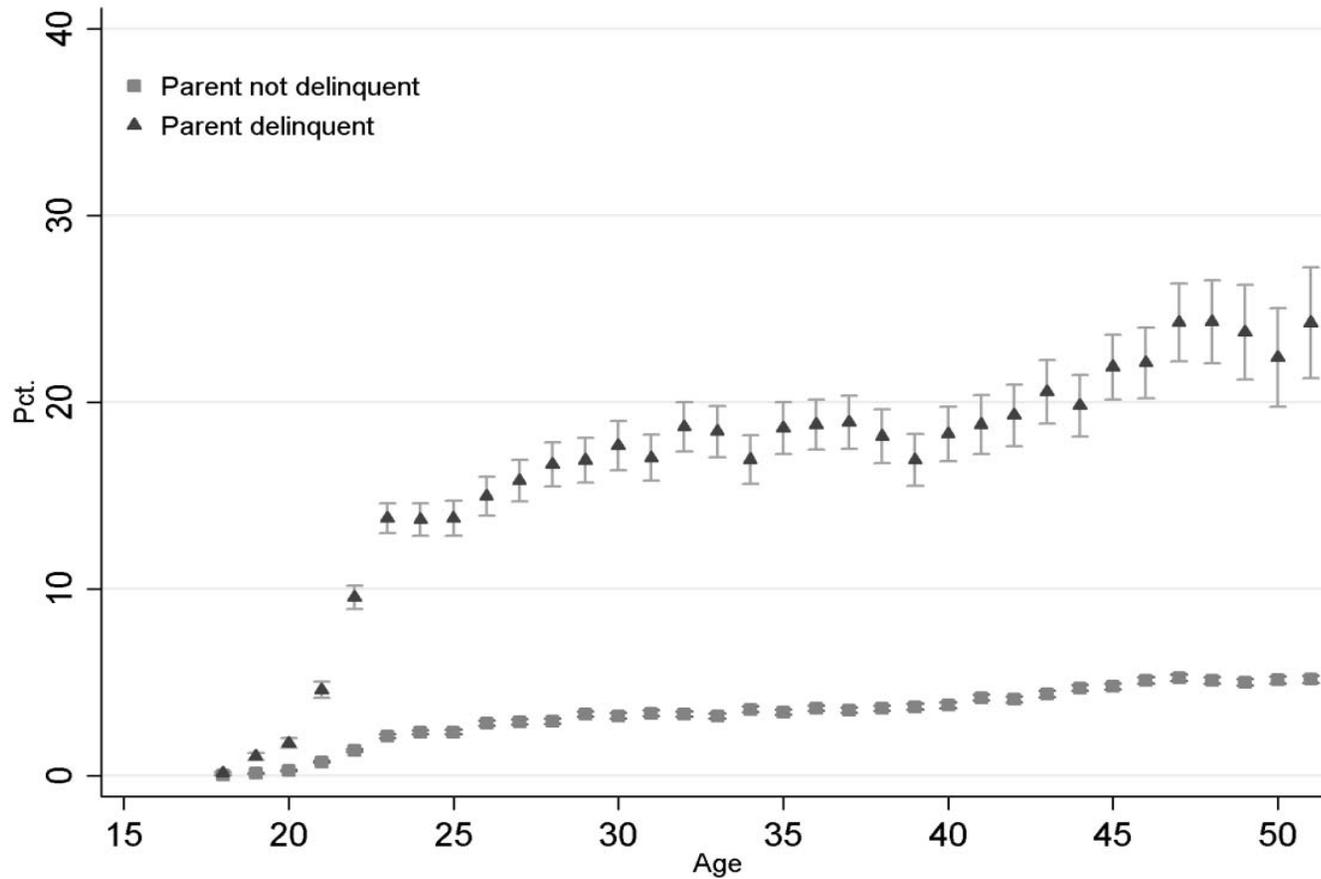


Rule out explanation 2:

Parents are “bad” types → cannot protect child from delinquency

Look at sample of children who were never unemployed 2004-2011

Child never unemployed 2004-2011



Parental type is transferred to children

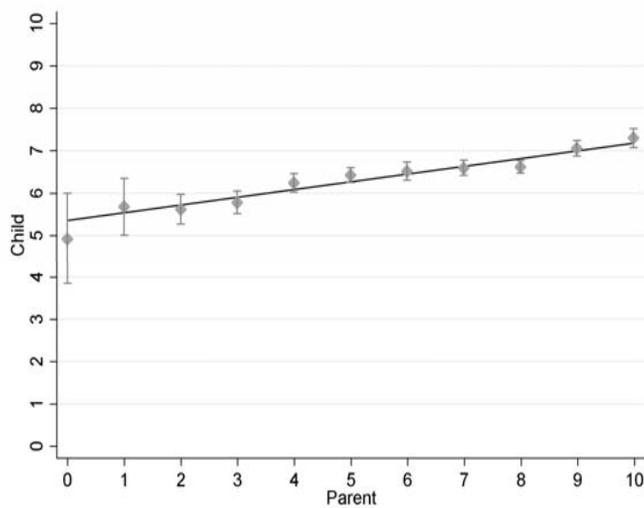
Survey

- **Patience:** How do you view yourself: Are you in general impatient or do you always exhibit high patience?
- **Impulsivity:** How do you view yourself: Are you in general impulsive or are you not impulsive at all?
- **Risk willingness:** How do you view yourself: Are you in general ready to take a risk or do you try to avoid risk taking?

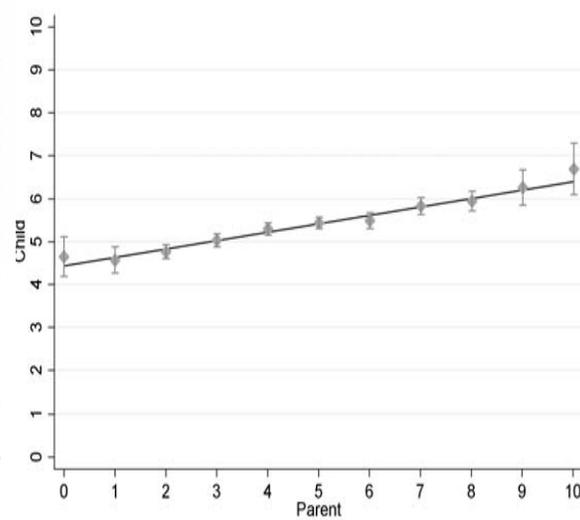
- All questions answered on scale from 1 to 10
- Survey issued to children
- Ask children about behavior of their parents (and own behavior)

Survey

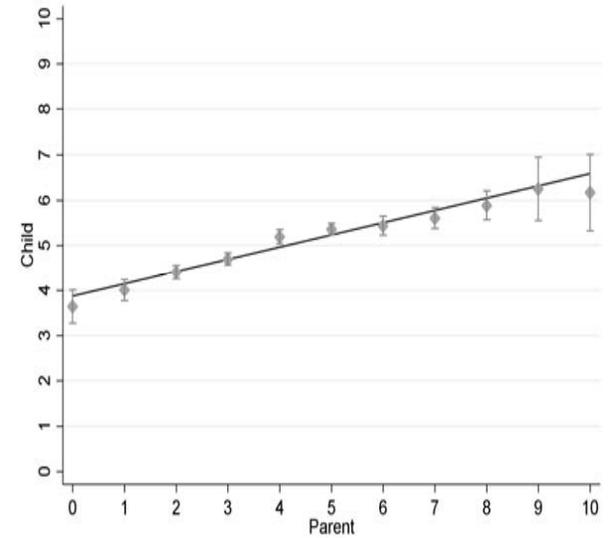
Survey measures are correlated across parent and child



Patience



Impulsivity



Risk willingness

Survey

Actual *child* delinquency on child behavioral type

Patience	-0.00122 (-1.02)		-0.000562 (-0.47)	-0.00209 (-1.66)
Impulsivity		0.00512 ^{***} (3.38)	0.00374 [*] (2.31)	0.00205 (1.37)
Risk Willingness			0.00457 ^{**} (3.26)	0.00401 ^{**} (2.65)
Controls				X
<i>N</i>	3688	3688	3688	3688

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Controls: College, sex, cohort dummies, income decile.

Childrens behavioral type predict actual delinquency

Survey

Actual *parental* delinquency on parental behavioral type

Patience	-0.00326*			-0.00256	-0.00226
	(-2.38)			(-1.81)	(-1.64)
Impulsivity		0.00450**		0.000933	0.000928
		(2.83)		(0.51)	(0.50)
Risk Willingness			0.00673***	0.00587***	0.00512**
			(4.31)	(3.32)	(2.91)
Controls					X
<i>N</i>	3688	3688	3688	3688	3688

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Controls: College, sex, cohort dummies, income decile.

Parental behavioral type predicts actual parental delinquency

Conclusion

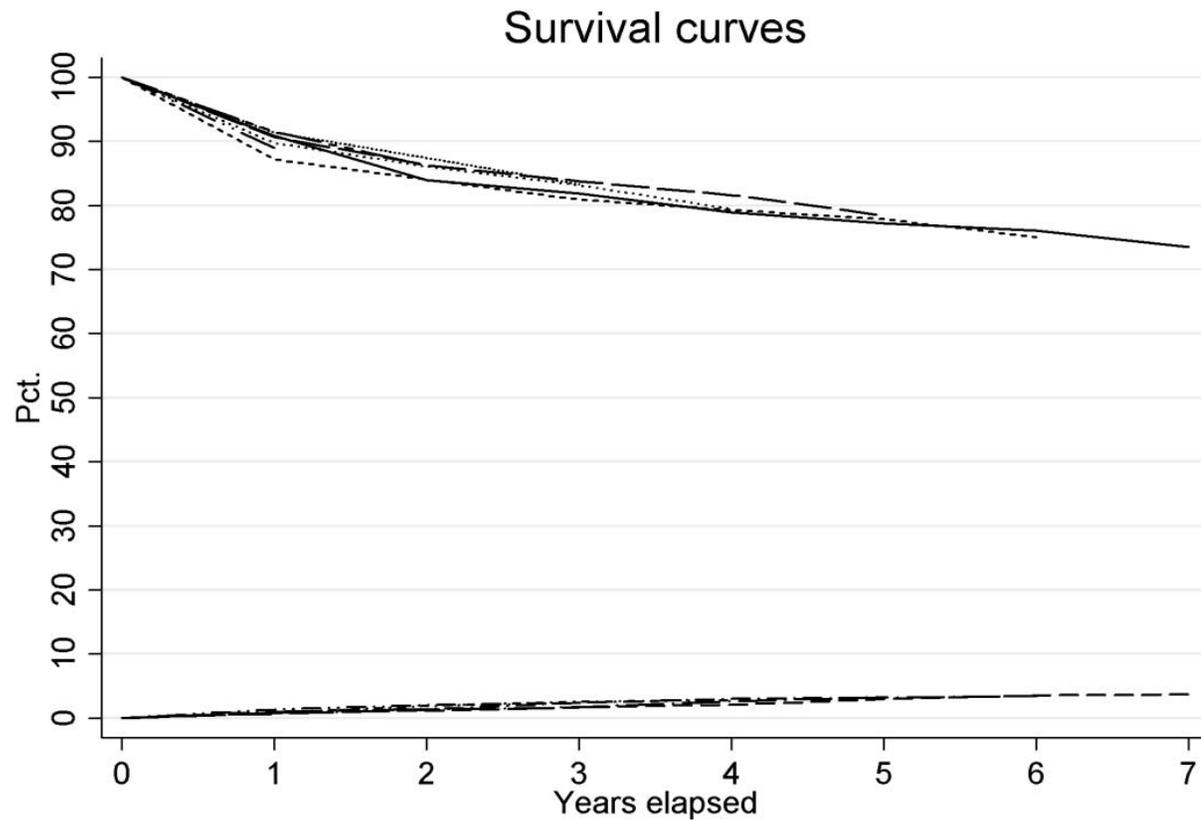
- Delinquency is strongly correlated across generations
- Birth weight and historical financial behavior of parents predict current delinquency
- All results hold in a multiple regression setting with a rich set of covariates
- Overall conclusion:

Children inherit bad financial behavior from parents

Extra Slides

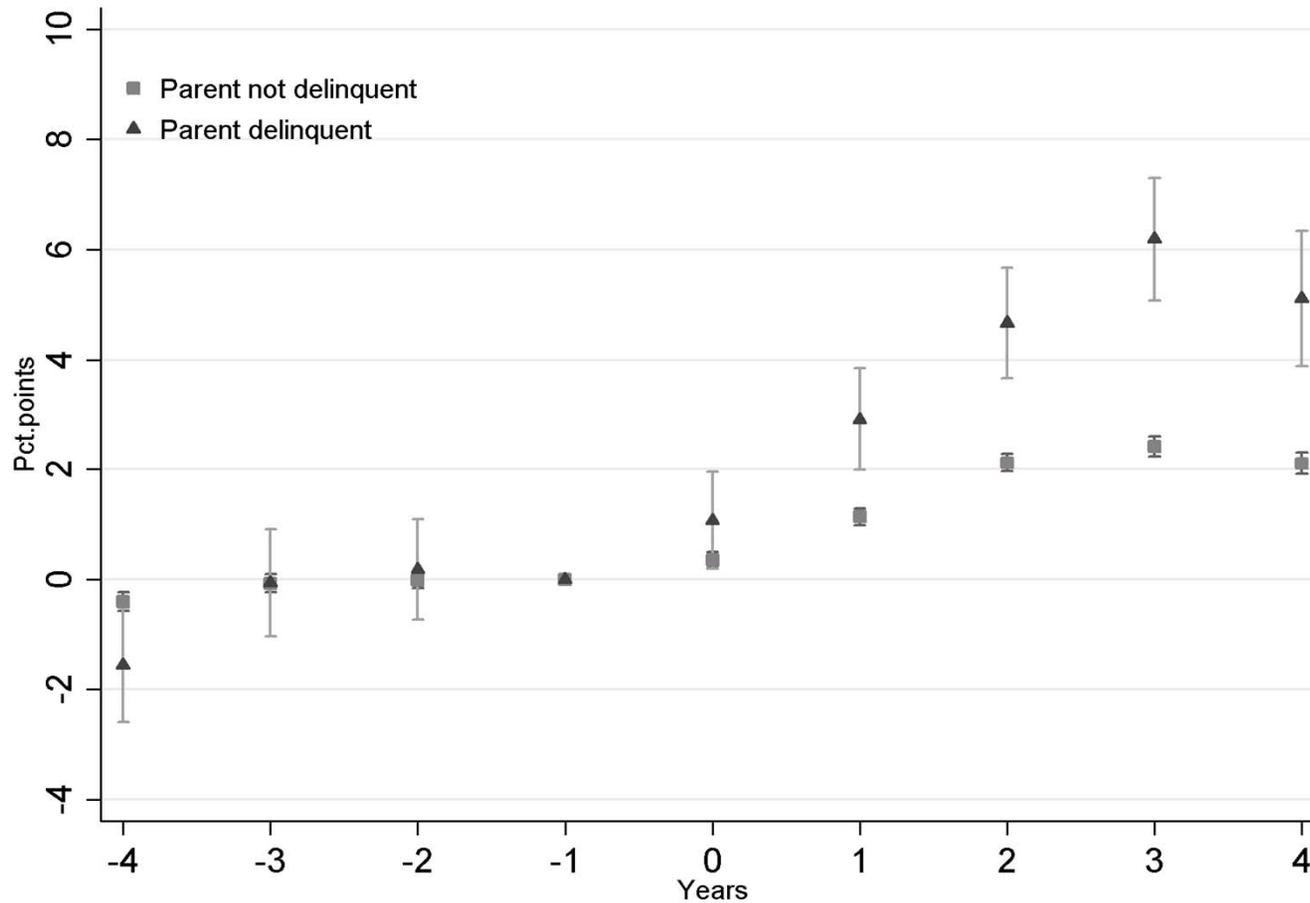
Results

Is delinquency a persistent state?



Unemployment event analysis

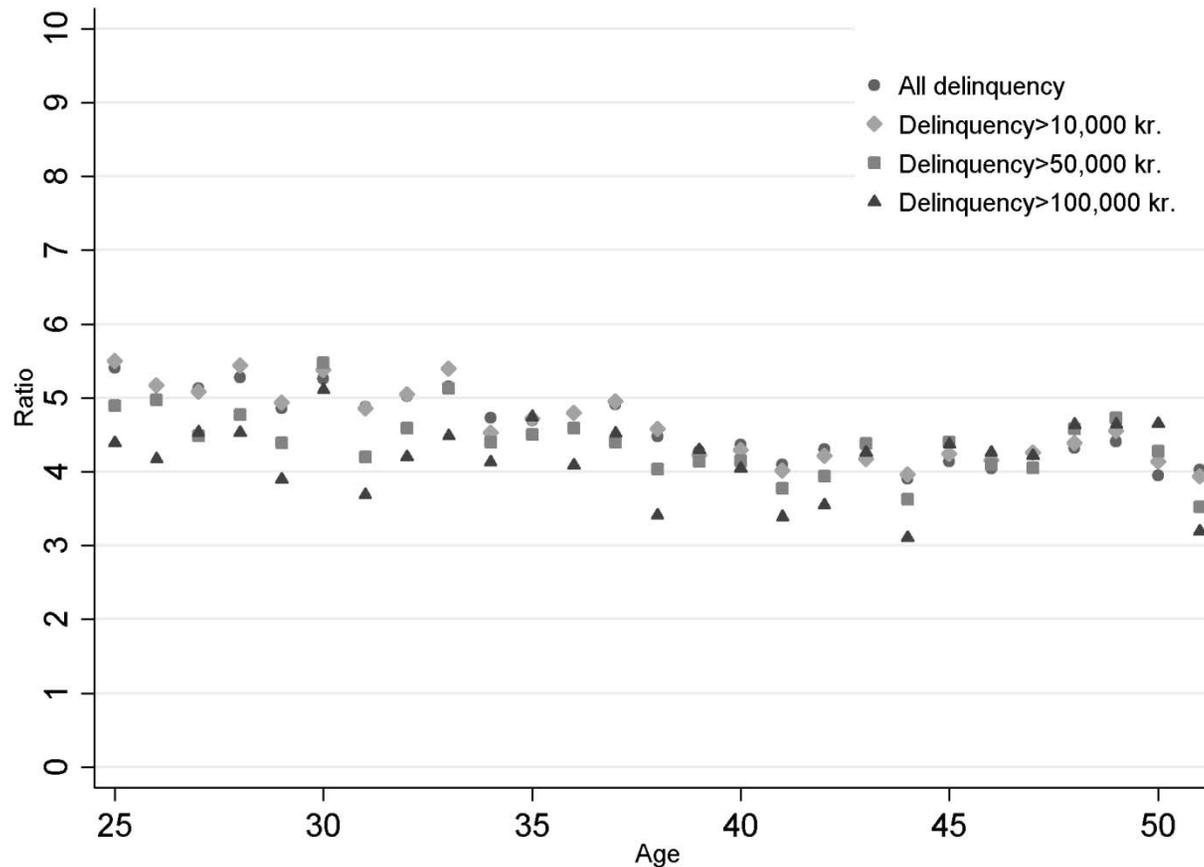
If unemployed > 3 months



Unemployment account only for small fraction of overall delinquency

The intergenerational correlation

Ratio of delinquency (parents delinq./not delinq.) in 2011 for different loan sizes



Ratio is the same for all levels of loan balances

The importance of type

- Quantify the importance of type transfer by comparing OLS and IV

$$Type^C = \alpha_0 + \alpha_1 Type^P + u$$

$$D^C = \alpha_0 + \alpha_1 D^P + u$$

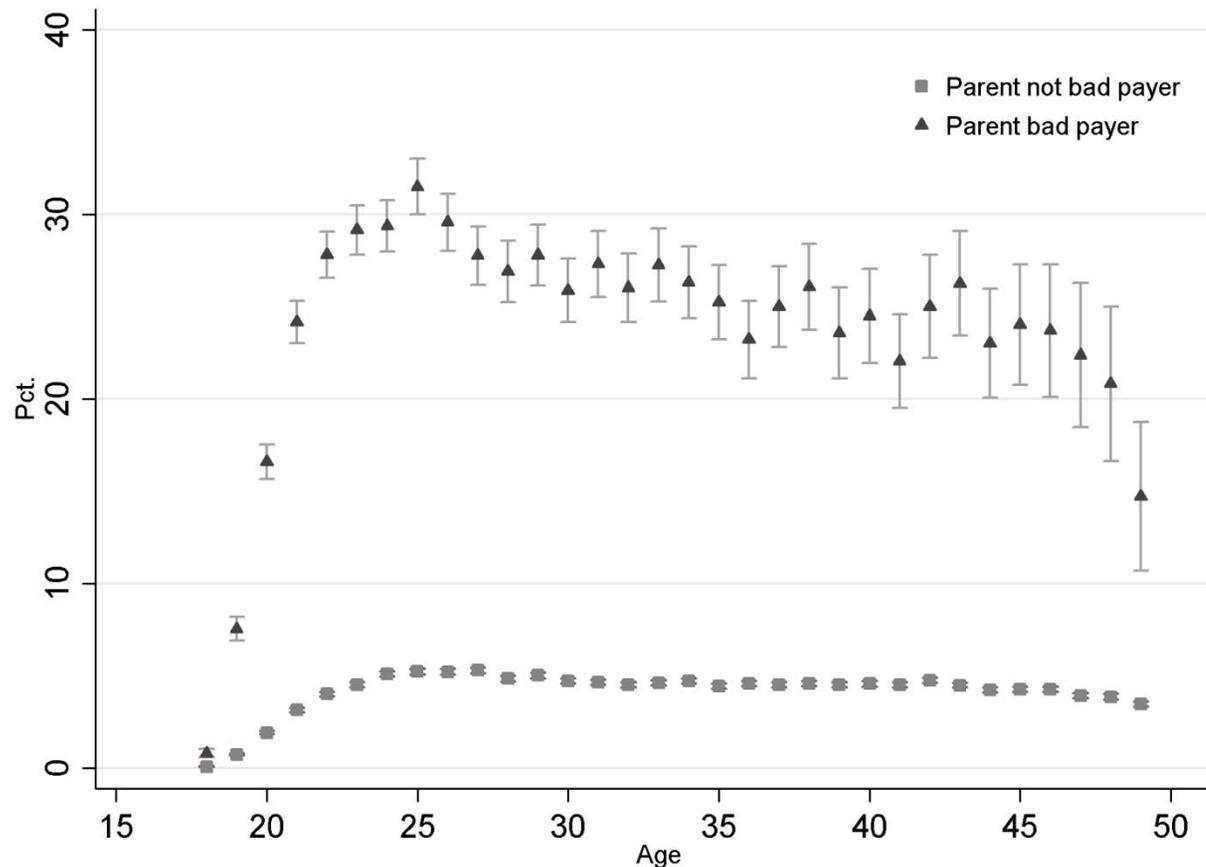
$$plim \hat{\alpha}_1^{OLS} = \alpha_1 \frac{var(Type^P)}{var(Type^P) + var(Shock^P)} < \alpha_1$$

$$plim \hat{\alpha}_1^{IV} = \alpha_1$$

- At least 50% of variation in parental delinquency is related to type – and this tend to be passed on to their children

Credit bureau – bad payer file 2009

If recorded as bad payer then no access to credit – serious trouble



Same pattern for different but related outcome

Bankruptcy in Denmark

Decided by probate court (no automatic debt discharge)

- Must have credible future earnings prospects
- Financial distress must not be due to reckless/irresponsible financial behavior
- Debt must not be consumption debt or debt to the government
- Debt level has to be insurmountable (≥ 250.000 DKK, but decided case-by-case)
- Only partial debt discharge (collect fraction of future earnings up to 5 years after)

