Childhood Circumstances and Young Adulthood Outcomes: The Effects of Mothers' Financial Problems

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34th IARIW General Conference

Dresden, Germany

August 21-27, 2016

Organization

- Objective
 - estimate the cognitive and non-cognitive consequences on young adults of growing up with a mother who reported experiencing major financial problems (MFP) following children from before birth over a period of more than two decades and considering a rich set of child outcomes, both cognitive and non-cognitive.
- Research Question
 - A relevant one! Shriver Report: A Woman's Nation Pushes Back from the Brink, 2014: one in three women face financial difficulties, children depend on them
- Cohort Data
 - Avon Longitudinal Study of Parents and Children (ALSPAC)
- Method
 - The detailed cohort study permits controlling for a large set of mother, family and child's characteristics
- Results
 - mothers' financial problems are associated with worse cognitive and non-cognitive outcomes in adolescence controlling for both income and a set of standard variables
 - find little difference between financial problems at earlier and later child ages.

Research Questions

Existing Literature

- "Financial insecurity **may** generate stress and anxiety in the people concerned, and make it harder for families to invest in education and housing."
 - (Commission on the Measurement of Economic Performance and Social Progress, Stiglitz *et al.* 2009: 198) ... I added the bold ...
- Large literature from various disciplines has explored the effect of economic resources and family background on child development and child outcomes later in life (for review: Duncan and Brooks-Gun 1995, Haveman and Wolfe 1995, Mayer 1997).
- This literature has mainly considered **income** as a measure of economic resources and has mainly focused on child **cognitive** outcomes.

Two main questions

Transmission mechanism: how the family's financial situation and other characteristics transmit to children's well-being and other outcomes later in life?

Whether income matters for child outcomes later in life

- 1) Investment-model channel (Becker, 1981, Becker and Tomes, 1986, 1994)
- 2) Family-process channel (Guo and Harris, 2000, Yeung et al., 2002, Washbrook, 2014)

When it matters (timing)

- 1) Early-childhood income might affect the development of basic cognitive skills feeding through to later achievements (Duncan and Brooks-Gunn, 1997)
- 2) Late-childhood economic conditions are associated with increased awareness, impacting children's self-esteem and psychological well-being, and in turn children's achievements (Ogbu, 1978, Mickelson, 1990)

Empirical evidence

- Income matters for cognitive achievements
 - (Blanden and Gregg, 2004, Ermish and Francesconi, 2010, Gregg and Machin, 2000 for the UK; Maurin, 2002 for France)
- In the US, **permanent income** has a larger effect than transitory income, but the effect is still smaller than that of other family characteristics such as **mother's ability** or **ethnicity**.
- Hardy (2014) using PSID presents evidence on the impact of family-income volatility on post-secondary education and adult income. He shows on average a small negative effect on educational outcomes and no effect on adult income.
- Income has a positive effect on mediating factors such as family relationship, home environment
 - (Washbrook, 2014, Yeung et al., 2002)
- Mixed evidence on the importance of timing
 - (Duncan and Brooks-Gunn, 1997, Haveman et al., 1991, Guo, 1998)

The authors contend that

- Income captures only part of the story: temporary financial difficulties, financial stress, financial insecurity, can reduce parents' well-being, and in turn affect child development.
- Self-reported MFP has a value and not significantly correlated with income
- Relevant nowadays as the Great Recession has generated a situation of uncertainty that increases financial worries and difficulties. These:
 - >affect the **wider middle class**
 - affect individuals' psychological well-being in the form of anxiety and fears
 - Can undermine the willingness to make long-term investments in (saving for higher) education and housing

The Data "The children of the 90's"

ALSPAC cohort data – Avon county (Bristol) (Obs: 14,541 pregnant women giving birth between April 1991-Dec.1992)





Bronfenbrenner's ecological design ... almost



Targeted Questionnaires: contents and timing

- Carer (mostly the mother)
 - Your environment, you, having a baby, your pregnancy (8-42 weeks gest.), looking after the baby, caring for the toddler, your health, lifestyle, home, family, your studying young person, eating habit (8-145 mths)
- Child based
 - My young baby (4 wks), my daughter/son-girl/boy, their health and behaviour, at school, health, well-being, at home, happiness (65-192 mths one by 6 mths avg)
- Child completed
 - Growing up, things to do, my teeth, my school, about me, my world, my hands, feet and me, school life, food and things, reading and singing, leisure and school, life of a teenager (65-192 mths one by 6 mths avg); at around 18: your friends, internet use, gambling, your body
- Partner
 - Your Environment, being a father, baby and me, toddler in the house, partner health, lifestyle, home, father and family and surroundings (12,18 wks gest., 8wks, 8, 21,33,47,61,73,85,97,110,122, 134,145 mths)
- Puberty
 - Growing and changing (months 97, 115, 128, 140, 157, 175, 192, 204)
- Schools
 - Child behavior, abilities, your class, your school, math assessment, developing child (year 3, 4)
- Class and Head Teacher
 - Math, science, spelling assessment (year 6)

Representativeness

	Great Britain (%)	Avon (%)	ALSPAC (%)
Owner Occupier	63.4	68.7	79.1
Car in household	75.6	83.7	90.8
Married couple	71.8	71.7	79.4
Non-white mother	7.6	4.1	2.2

	Bi	rth	1 yea	r clinic	2 year clinic		
	ALSPAC	UK 1990	ALSPAC	UK 1990	ALSPAC	UK 1990	
Males							
Weight (kg)	3.55	3.55	10.54	10.15	13.03	12.53	
Length (cm)	51.26	51.09	76.53	76.23	87.54	87.82	
Females							
Weight (kg)	3.42	3.41	9.84	9.73	12.42	12.29	
Length (cm)	50.41	50.21	74.6	74.43	86.17	86.49	

Household Income

• Income measured at child's age 3, 4, 7, 8, 11

"On average, about how much is the take home family income each week (include social benedits etc)?"

- Categorical variable of 5 or 10 bands
- We convert income bands at each wave to income figures using data on net household income distribution from the Family Resource Survey (FRS), South West region, deflated to 2008 prices.
 - This imputation is robust (n.o.d. ... note of the discussant 🙄)
- Income is then averaged over childhood and log transformed

Financial problems

• Mother had a major financial problem (MFP)

"Listed below are a number of events which may have brought changes in your life. Have any of these occurred since your study child's XXX birthday?"

• You had a major financial problem

→Count no. of years mother reported to have a MFP from child's birth to age 11
→ persistency is important!

• 43% of mothers reported a MFP at least once from child's birth to age 11

The Distribution of Major Financial Problems (median 1.7)



Financial problems and income

• Correlation between income and MFP: -0.17

Income quartile	Average no. of MFP	Std. Dev.
First	1.65	2.19
Second	1.02	1.66
Third	0.85	1.54
Fourth	0.50	1.14

Financial difficulties

Correlation with mother's and family characteristics

	Mum had a MFP	Mum's age	Mum's education	Father's education	Single adult hh	No. children	Mum employed	Mum's mental health	Hh income	Difficulty in affording	House owner	Mater. depriv.
Mum had a MFP	1											
Mum's age	-0.0277*	1										
Mum's education	-0.0371*	0.3084*	1									
Father's education	-0.0589*	0.2935*	0.4919*	1								
Single adult hh	0.0713*	-0.1004*	-0.0912*	-0.0825*	1							
No. children	0.0095*	0.0654*	-0.0389*	-0.0212*	-0.0570*	1						
Mum employed	-0.0135*	0.0899*	0.1380*	0.0420*	-0.0546*	-0.0379*	1					
Mum's mental health	-0.0689*	-0.0229*	-0.0089*	-0.0006	-0.1129*	-0.0577*	-0.0372*	1				
Hh income	-0.1352*	0.2934*	0.4359*	0.4328*	-0.3881*	0.0135*	0.1692*	0.0699*	1			
Difficulty in affording ^(a)	0.2180*	-0.0760*	-0.1462*	-0.1553*	0.1399*	0.0373*	-0.1351*	-0.2279*	-0.3445*	1		
House ownership	-0.0899*	0.3024*	0.2293*	0.2114*	-0.2957*	-0.0450*	0.2057*	0.0073	0.4770*	-0.1918*	1	
Mater. deprivation	0.0260*	0.0488*	0.0228*	-0.0018	0.1609*	-0.0239*	-0.1070*	-0.0904*	-0.1979*	0.1708*	-0.3329*	1

* indicate 5% significance level. (a) Difficulty in affording food, rent, clothing.

Financial difficulties

Correlation with other life events

Life events	Mum had a MFP	Mother income reduced	Mother lost job	Partner lost job	Mum got very ill	Divorced/ separated	Mum had troubles with law	Partner had troubles with law	Partner went away
Mum had a MFP	1								
Mum income was reduced	0.1212*	1							
Mum lost her job	0.0432*	0.2228*	1						
Parter lost his job	0.0709*	0.3313*	0.0538*	1					
Mum got very ill	0.0641*	0.0809*	0.0349*	0.0429*	1				
Divorced/separated	0.0745*	0.1731*	0.0342*	0.0269*	0.0470*	1			
Mum had troubles with law	0.0398*	0.0383*	0.0197*	0.0244*	0.0274*	0.0569*	1		
Partner had troubles with law	0.0470*	0.0706*	0.0191*	0.0704*	0.0341*	0.1478*	0.1469*	1	
Partner went away	0.0321*	0.1165*	0.0320*	0.0439*	0.0672*	0.2181*	0.0285*	0.1100*	1

* indicate 5% significance level.

Child outcomes (non-cognitive)

• Subjective well-being: Short Moods and Feeling Questionnaire (SMFQ)

- Composed of 13 items reflecting how the child felt over the past two weeks (e.g. feeling miserable or unhappy, crying a lot, feeling lonely) *Q: How to form a composite index of SWB?*
- Child-reported at age 16 and 18
- Carer-reported at age 16

Antisocial behaviours: Development and Well-being Assessment

- Long questionnaire assessing common emotional, behavioural and hyperactivity disorders
- Focus on troublesome behaviours: whether the child exhibited a certain type of behaviour over the last 12 months on a list of 15 behaviours (e.g. bullying people, stealing from shops, being physical cruel with someone)
- Carer-reported at age 16
- Teacher-reported at age 11

Child outcomes (non-cognitive)

- Behaviour: Strengths and Difficulties Quest. (SDQ)
 - Behavioural-screening questionnaire composed of 25 questions
 - Can be divided in two sub-scales (see Goodman et al., 2010):
 - Externalizing: conduct problems + hyperactivity
 - Internalizing: emotional health + peer-relationship problems
 - Connections with the BIG FIVE skills (Openness, Consc, Extrav, Agreabl, Neurot/emot stability)?
 - Carer-reported at age 11
 - Teacher-reported at age 11

• Physical Health: BMI

- Clinical measures at age 11, 13 and 16
- We use a dummy variable for "normal" BMI, i.e. between the 5th and 85th percentiles of the specific age-sex distribution (*proxy for obesity?*)

Child outcomes (cognitive)

- Educational outcomes: General Certificate of Secundary Education (GCSE) qualification
 - Exam taken in the UK at the end of compulsory school (age 16)
 - Official results from National Pupil Database
 - We consider two outcomes:
 - Dummy for achieving the highest qualification, i.e. Level 2 (at least five A*-C grades)
 - Average final points from all the subjects

Empirical Strategy

Empirical Strategy

- Regressions: weighted estimates using Inverse Probability Weighting (IPW) for attrition (40% after child age 16 concentrated in lower income/education families)
 - Overall childhood
 - Early and late childhood
- Controls (same for both regression groups)
- Conditioning for the role of mother's mental health
- IPW because not all observations are observed in all waves.
 - Attrition is more concentrated in lower-income and lower-educated families. The authors use observable pre-birth information (child's gender, and mother's education, age at birth, ethnicity, marital status, employm. status, financial problems and mental health) to predict the attrition probability at each child outcome wave, and correct final estimates using the inverse of the predicted probabilities (1/p) as weights.
- All continuous variables normalised (estimated coefficients are beta scores)

Empirical Strategy

For each child outcome we estimate linear models with standardized coefficients:

$$CO_i = \alpha + \beta MFP_i^{0-11} + \gamma lny_i^{0-11} + \delta X_i + \theta Flag_i + \varepsilon_i$$

Where:

- CO_i = outcome of child *i*
- MFP_i = no. years mother reported a major financial problem
- *lnyi* = net hh income (ln)
- X_i = controls (mother's age at birth, gender, first born, parent's education, no. children, parents' divorced or separated, single-parent hh, child's ethnicity, mother from a non-EU country, no. house moves, no. years mother worked, parental childcare, private school, home ownership)
- $Flag_i$ = set of missing values flag

Within each model we also **balance** the sample in order to compare the estimates across the same children

Empirical Strategy: imputation of MFP

Missing indicator method for missing RHS variables.

- a) When information in some waves for MFP is missing, we replace it by the mother's MFP count in the available waves, multiplied by the ratio of the total number of waves to the observed number of waves. With ten waves of MFP information, someone who reports eight values (of 0 or 1), will then have their count over these eight years multiplied by 10/8
- b) When the information on MFP is not available in any wave, we replace the missing value with the total sample mean and introduce a missingvalue flag as a right-hand side variable
- c) About 37% of mothers answer the MFP question in all ten waves. Another 30% have missing values for one to five waves, 21% have missing values for six to nine waves, while 12% of mothers never replied to this question

Empirical Strategy: imputation of income

- Income imputation: Household income is calculated as a household-level mean over all of the childhood waves in which income information is reported. When all income observations are missing for a given child, we replace the value with the overall sample mean and insert a missing-value flag
- About 30% of mothers reported income information in all five waves, while 23% have missing information in all waves
- When the dependent variable is missing, the case is dropped

Main Results

Summary Table - Overall Childhood

Child's outcome	No. of yrs mother had a MFP	Net hh income (ln)	No. of MFP mother's MH	Net hh income mother's MH	Effect of mother's MH as mediator for MFP
Non-cognitive outcomes					
Table A4 Subjective Well-Being (N:2200)					
SWB at age 16 (SMFQ)	-0.158***	0.008	-0.115***	-0.003	27.2%
SWB at age 18 (SMFQ)	-0.127***	0.023	-0.078**	0.011	38.6%
SWB at age 16 (SMFQ, carer-reported)	-0.164***	0.025	-0.072*	0.001	56.1%
Table A5.1 AB (Carer-reported N: 3829)					
Antisocial behaviours at age 16	0.130***	-0.008	0.102***	-0.003	21.5%
SDQ behaviour at age 11	-0.127***	0.016	-0.059**	0.003	53.5%
SDQ emotional health at age 11	-0.154***	0.066***	-0.074***	0.050**	51.9%
Table A5.2 AB (Teacher-reportedN:6290)					
Antisocial behaviours at age 11	0.011	0.020	0.004	0.022	n.s.
SDQ behaviour at age 11	-0.033**	-0.012	-0.023*	-0.014	30.3%
SDQ emotional health at age 11	-0.060***	0.042***	-0.049***	0.039**	18.3%
Table A6 BMI (N:1561)					
Normal BMI at age 11	-0.074	0.008	-0.066	0.006	n.s.
Normal BMI at age 13	-0.102**	0.012	-0.109**	0.013	-6.9%
Normal BMI at age 16	-0.096**	0.033	-0.108**	0.036	-12.5%
Cognitive outcomes					
Table A7 – Educational Achievements (N:9902)					
Achieved Highest Level 2	-0.020**	0.020*	-0.016	0.018*	n.s.
Average GCSE points	-0.025***	0.037***	-0.022**	0.036***	12.0%

Summary: children growing up in families with MFP have sign. worse cog and non-cog outcomes |family income

(a one st dev rise in MFP leads to an avg 0.10 st dev fall in non-cognitive outcomes)



Cognitive

Mediating role of mother's mental health

- Economic conditions may impact child development through their effect on family psychological well-being (*Family process channel*, see e.g. Guo and Harris 2000; Yeung *et al*. 2002; Washbrook *et al*. 2014)
- Mother's mental health measured through the Edinburgh Post-natal Depression Scale (0-30 higher values indicates better mental health) at several ages of the child. Not just post-partum but also early parenthood from 8 to 134 mths (age 11)
- Controlling for mother's mental health reduces the MFP coefficients but they remain significant. A quarter to a half of the effect of MFP on well-being, behaviour and emotional health works via mother's distress
 - Interpretation: income and financial problems affect mother's mental health, which in turn affects child outcomes? Reverse causality? Single mother? Widow, Separation? Mother working?
- Incidence of mental health (proportion less 15)?

Early (age 0 to 5) versus late childhood (age 6 to 11) (by estimating models dividing between early and late childhood)

• Existing evidence on importance of early vs. late childhood events produced mixed results (e.g. Duncan and Brooks-Gunn, 1997)

• Duncan and Brooks-Gunn suggest that early childhood *economic conditions* more important for *cognitive* outcomes

- In this study:
 - No evidence on the effect of timing on *non-cognitive outcomes*
 - In only three cases timing for MFP is significant and interesting sign change, never for income

Summary Table - Early vs Late Childhood

Child's outcome	No. of yrs mot	her had a MFP	T-test	Net househo	T-test	
	Age 0-5	Age 6-11	(p-value)	Age 0-5	Age 6-11	(p-value)
Non-cognitive outcomes						
SWB at age 16 (SMFQ)	-0.104***	-0.041	0.253	-0.024	0.032	0.323
SWB at age 18 (SMFQ)	-0.088***	-0.029	0.228	0.045	-0.003	0.408
SWB at age 16 (SMFQ, carer)	-0.053*	-0.128***	0.176	0.032	-0.004	0.507
Antisoc. behav. age 16 (Carer)	0.059***	0.075**	0.686	-0.013	-0.005	0.833
SDQ behaviour age 11 (Carer)	-0.078***	-0.044**	0.228	0.021	0.005	0.408
SDQ emotional age 11 (Carer)	-0.082***	-0.062***	0.575	0.038	0.003	0.821
Antisoc. behav. age 11 (Teacher)	-0.003	0.036**	0.081	0.003	0.018	0.627
SDQ behaviour age 11 (Teacher)	-0.018	-0.026**	0.675	0.003	-0.011	0.581
SDQ emotional age 11 (Teacher)	-0.035**	-0.023	0.600	0.040**	0.022	0.548
Normal BMI age 11	-0.083**	0.036	0.060	0.023	0.013	0.895
Normal BMI age 13	-0.074**	-0.003	0.264	0.06	-0.03	0.201
Normal BMI age 16	-0.106***	0.043	0.015	-0.015	0.036	0.448
Cognitive outcomes						
Achieved Level 2	-0.008	-0.024**	0.325	0.007	0.014	0.750
Average GCSE points	-0.013	-0.006	0.643	0.041***	0.035***	0.736

Conclusions

- Focus: the effect of mother's reported financial problems versus income on a number of child outcomes
- Financial problems during childhood have a significant negative impact on both cognitive and non-cognitive child outcomes, conditional on income
- *MFP stronger predictor than income* for non-cognitive outcomes:
 - a one-standard deviation rise in MFP leads to an average 0.10 standard deviation fall in non-cognitive outcomes
- Income matters more for educational outcomes

Discussion



 Provides robust evidence on a relevant, but delicate empirical question

 Shows the importance of cohort data for social policy! Unfortunately, European countries are not joining efforts to coordinate and foster the collection of cohort data

Transmission channels: missing relevant information?

- Investment channel
 - Income *directly* affects family's ability to obtain resources to invest on child quality.
 - Big merit of the study: MFP counts, not income per se!
 - However, how MFP affect child outcomes? In my view, missing info on
 - a) savings (some families may smooth a shock, some may not) housing may not be a good proxy,
 - b) time and money investments on sport, music, art important for non cog devt
 - c) fertility choices (little emperor syndrome)
- Family-process channel
 - economic problems may indirectly lead to worse marital and parent-child relationships, increasing household conflict, and diminish time and quality of time spent in activities w/ child
 - mother's mental health, relevant but not a sufficient proxy
 - Relational (marital and parent-child) well-being can be directly asked (MPP "All in the Family: How Do Social Capital and Material Wellbeing Affect Relational Wellbeing?" SIR 2015) ... and MFP?
 - social capital may play a role too ...

The opportunity for an epidemiological approach

In cohort studies

- the occurrence of "disease" or other "outcomes" in the different exposure groups can be measured and compared
- can calculate incidence rates or risks and their differences and ratios
- Though, not always observe the outcome of interest
- Identification of risk or protective factors in determining a desired cognitive or non cognitive child outcome. Policy useful information!
- Robust causal analysis
 - (e.g. antisocial behavior RCT's not apprpriate)