Gender and Quantity–Quality: Results from the Millennium Cohort Survey

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General point: With the MCS data we can look at the effect of additional births on child outcomes in a much richer way. We have measures of both **Parental Investment** as well as much richer measures of **child outcomes** which come from cognitive tests. Also, the child outcomes link quite well to the parental investment behaviours, so we can test whether:

Additional Births $\rightarrow$ Lower Parental Investments $\rightarrow$ Worse Child Outcomes

This is in line with Becker's original Q–Q formulation, in which the trade-off is explicitly mediated by parental investment behaviour. It also has links to all of the newish papers on parental time use and child outcomes.

We are particularly interested in the gender dynamic here, as empirically it seems like girls do worse when parents change their investment patterns after birth (see Juhn et al. (2015), as well as a large proportion of the results from our Q–Q tests in other contexts). We will thus estimate the following two stage least squares specification:

$$fertility_j = \alpha_1 + \alpha_2 twins_j + \boldsymbol{X} + \boldsymbol{S} + \boldsymbol{H} + \varepsilon_j \quad (1)$$

$$y_{ij} = \beta_1 + \beta_2 \widehat{fertility}_j + \boldsymbol{X} + \boldsymbol{S} + \boldsymbol{H} + \varepsilon_j \quad (2)$$

for child i in family j. This will be estimated seperately for male and female children. Outcome variable y will consist of the parental investment and child outcome variables in the table below.

Table 1: Variables of Interest

Investment Variables
Does parent read to child i
Does parent write with child i
Outcome Variables
Child i's outcome on verbal tests
Child i's outcome on numerical tests
Child i's outcome on reading tests
Child i's outcome on pattern recognition tests

Current things to follow up on:

1. What other outcomes do we have? We have active school selection, though this has some issues, for example it may be that it is only chosen once. In the UCL seminar, someone raised the interesting question of what happens to household goods? Do parents spend more time on *common* goods, and less time with each individual child? Can we look at total time spent reading to all children, as well as total time spent reading to each child? Can we estimate some elasticity of time use?
2. How do time dynamics work in this case? We may expect a child who has had a twin sibling for longer should be more affected by the dilution of parental time
3. How do gender dynamics work? Is a girl followed by girl twins less affected than a girl followed by boy twins? All of this requires having sufficient power to split the sample in various ways
4. How does SES interact with this? There is a mail from Sonia (Tues Sep 29, 2015 with topic "MCS paper") that we should look into

1 Tables

Table 2: Parental Investments and Q-Q Trade-off (two plus)

	Girls		Boys	
	Reading Help	Writing Help	Reading Help	Writing Help
Fertility	-0.179	-0.599**	0.189	0.232
	[0.281]	[0.293]	[0.307]	[0.349]
Observations	1704	1704	1744	1744

Notes: Reading Help measures the frequency with which a parent helps their child read during a five day week. Writing Help is measured similarly. Both are recorded in Wave 4 of the MCS. Standard errors are reported in parentheses. ***p-value<0.01, **p-value<0.05, *p-value<0.01.

Table 3: Standardised Test Outcomes and Q-Q Trade-off (two plus)

	Girls				Boys			
	Verbal	Maths	Reading	Patterns	Verbal	Maths	Reading	Patterns
Fertility	-0.585*	-0.560	-0.030	-1.236*	0.120	0.200	0.281	-0.041
	[0.307]	[0.362]	[0.314]	[0.631]	[0.264]	[0.296]	[0.403]	[0.265]
Observations	1796	1686	1664	1680	1868	1708	1688	1704

Notes: Verbal score is from the British Ability Scales, Second Edition, measured in Wave 5 of the MCS. Mathematical ability comes from NFER Number Skills, measured in Wave 4 of the MCS. Word Reading and Pattern Construction both come from the British Ability Scales in Wave 4 of the MCS. Standard errors are reported in parentheses. ***p-value<0.01, **p-value<0.05, *p-value<0.01.

Table 4: Parental Investments and Q-Q Trade-off (three plus)

	Girls		Boys	
	Reading Help	Writing Help	Reading Help	Writing Help
Fertility	-0.540	-0.723	0.090	0.096
	[0.671]	[0.608]	[0.230]	[0.271]
Observations	1284	1284	1324	1324

Notes: Reading Help measures the frequency with which a parent helps their child read during a five day week. Writing Help is measured similarly. Both are recorded in Wave 4 of the MCS. Standard errors are reported in parentheses. ***p-value<0.01, **p-value<0.05, *p-value<0.01.

Table 5: Standardised Test Outcomes and Q-Q Trade-off (three plus)

	Girls				Boys			
	Verbal	Maths	Reading	Patterns	Verbal	Maths	Reading	Patterns
Fertility	-0.850**	-1.221**	-0.122	0.544	0.096	-0.191	-0.211	0.154
	[0.398]	[0.483]	[0.496]	[0.732]	[0.217]	[0.228]	[0.210]	[0.174]
Observations	1365	1268	1251	1263	1428	1293	1273	1287

Notes: Verbal score is from the British Ability Scales, Second Edition, measured in Wave 5 of the MCS. Mathematical ability comes from NFER Number Skills, measured in Wave 4 of the MCS. Word Reading and Pattern Construction both come from the British Ability Scales in Wave 4 of the MCS. Standard errors are reported in parentheses. ***p-value<0.01, **p-value<0.05, *p-value<0.01.

References

JUHN, C., Y. RUBINSTEIN, AND C. A. ZUPPANN (2015): "The Quantity-Quality Trade-off and the Formation of Cogntive and Non-Cognitive Skills," NBER Working Papers 21824, National Bureau of Economic Research, Inc.