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. 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
Did parent spend time when selecting school
Outcome Variables
Child i's outcome on ...

There is some evidence that the Q–Q trade-off may selectively affect boys and girls differently. Juhn et al. (2015)

1 Tables

Table 2: Standardised Test Outcomes and Q-Q Trade-off

	Girls			Boys		
	Reading	Writing	Patterns	Reading	Writing	Patterns
Fertility	xx.xx (xx.xx)	xx.xx (xx.xx)	xx.xx (xx.xx)	xx.xx (xx.xx)	xx.xx (xx.xx)	xx.xx (xx.xx)
First-Stage						
Test-state first stage						
Observations						

NOTES

Table 3: Standardised Test Outcomes and Q-Q Trade-off

	Girls				Boys			
	Verbal	Mathematical	Reading	Patterns	Verbal	Mathematical	Reading	Patterns
Fertility	-0.592*	-0.560	-0.036	-1.244**	0.105	0.199	0.280	-0.042
	[0.302]	[0.362]	[0.315]	[0.633]	[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

	Girls		Boys	
	Reading Help	Writing Help	Reading Help	Writing Help
Fertility	-0.178	-0.598**	0.189	0.230
	[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 reading 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.

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.