# The gender gap in top jobs - the role of overconfidence

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# Introduction

- There is a large gender gap in the probability of being in a "top job" in mid-career: men are 1.5-times more likely to work in a top job at age 42 (in BCS70)
    - Women are less likely to make partner at law firms (Azmat, Cuñat, and Henry 2020) and reach corporate leadership positions (Bertrand and Hallock 2001).

- Recent literature has raised the possibility that some of this gap may be attributable to women not "leaning in" and being less confident in their abilities as compared to male peers.
    - Women are more likely to shy away from competition (Niederle and Vesterlund 2007; Azmat and Petrongolo 2014), underestimate their abilities, and are less likely to overclaim knowledge (Jerrim, Parker, and Shure 2019) than men.

# Overconfidence

- Three types of overconfidence: overplacement of one's skills compared to others, **overestimation of own abilities compared to objective measures**, and overestimation of the precision of certain beliefs (overprecision) (Moore and Healy 2008).

- Gender differences have been established in overconfidence (e.g., Becker, Hubbard, and Murphy 2010), yet little links this to gender inequality in labor market outcomes

- Overplacement has been explored as a factor explaining gender inequality in the expected wages of (prospective) university students (Reuben, Sapienza, and Zingales 2015; Briel et al. 2021).
    - Men are more likely to have upward-biased beliefs about their abilities
    - Overplacement explains 7.7% - 18% of the gender gap in wage expectations

- It is not clear whether the role of overconfidence would be similarly large on the actual labor market.

# Our contribution

- We look at the role of overconfidence in the gender gap in top job employment at age 42

- We define overconfidence using a composite measure of objective cognitive abilities compared to a measure of subjective estimated abilities using BCS70

- We make three contributions
  - Using representative data as opposed to labs/experiments

  - Looking at a real life, long term labor market outcome

  - Testing the role of overconfidence on the probability of having a top job

- Our results show that men being more overconfident explains 5-11 percent of the gap in top job employment.

- We also find that overconfidence mostly matters for those who do not have partners or children

- Our last point looks in life  ...  important factor of  ... job ...  ...  the

# Data

- Cohort study from England (BCS70)

- Born in 1970

- Rich data on various cognitive skills at age 5, 10 and 16, as well as on subjective estimated abilities at age 10 and 16

- Family background, educational attainment (test scores/exams) and HE degrees (course, elite university)

- Outcomes: whether one works in a top job (hourly wage, hours worked, having a partner, having children)

- Top jobs: NS-SEC 1. High-status occupations that tend to have higher earnings, more job security, and better career trajectories (Goldthorpe and McKnight 2006)

- (Usual problems: attrition, non-response)

# The gender gap in top jobs in BCS70



No. of obs: 3602

# Measuring overconfidence

- (1) Index of objective cognitive abilities (18 tests from age 5, 10 and 16, CFA) ▸ Table A1

- (2) Index of subjective self-assessment of abilities (7 survey questions from age 10 and 16, IRT) ▸ Table A2

- Residuals after regressing percentile ranks in (2) on (1) (Anderson et al., 2012): **residual scores**

# The distribution of overconfidence by gender
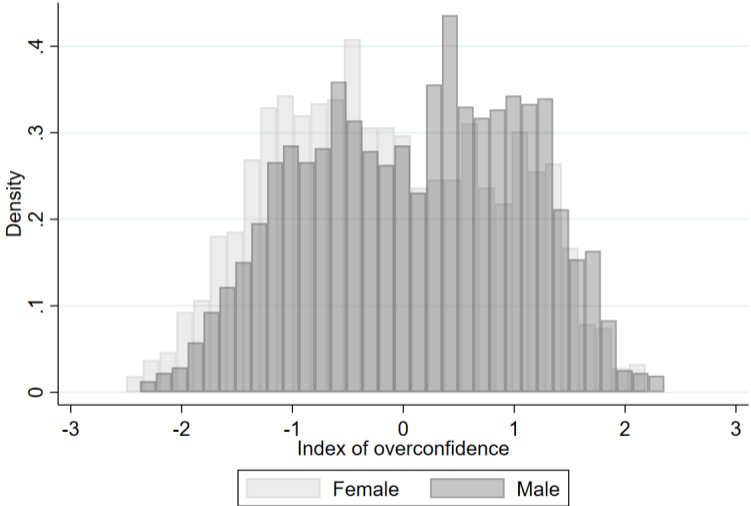


No. of obs: 3602

# Descriptive statistics

| | Obs | Mean men | Mean women | Diff. (Women-men) | SE | Two-tailed t-test p-values |
|---|---|---|---|---|---|---|
| Works in a top job | 3602 | 0.24 | 0.16 | -0.08 | 0.01 | 0.00 |
| Works in a STEM top job | 3602 | 0.08 | 0.02 | -0.06 | 0.01 | 0.00 |
| Works in a LEM top job | 3602 | 0.15 | 0.12 | -0.03 | 0.01 | 0.00 |
| Log hourly pay | 3441 | 2.39 | 2.20 | -0.19 | 0.02 | 0.00 |
| Weekly hours worked | 3602 | 45.97 | 40.68 | -5.29 | 0.33 | 0.00 |
| Objective cognitive abilities, STD | 3602 | 0.02 | -0.03 | -0.05 | 0.03 | 0.15 |
| Subjective estimated abilities score, STD | 3602 | 0.07 | -0.11 | -0.18 | 0.02 | 0.00 |
| Overconfidence score, STD | 3602 | 0.10 | -0.15 | -0.25 | 0.03 | 0.00 |
| Has cohabiting partner | 3602 | 0.82 | 0.72 | -0.09 | 0.01 | 0.00 |
| No. of children in HH | 3602 | 1.18 | 1.04 | -0.15 | 0.03 | 0.00 |

Notes: Positive difference indicates that women have higher score or probability. Source: BCS70 (CLS n.d.). Sample of those in full-time employment at age 42.

# Empirical strategy

- Overconfidence is clearly not randomly assigned to people: we provide descriptive evidence in a Mincer-type framework

- We look at the relationship between overconfidence and top job employment conditional of being employed full-time (however, our results are very similar on the total sample as well)

- Linear probability models to predict top job employment (sample of those in full time employment: 3,602 obs)

- Kitagawa-Blinder-Oaxaca decomposition of the gender gap in top job employment

- (Bad) control variables
  - demographics (ethnicity, region) and parental SES/education

  - private school, pre-university (GCSE Math test scores, doing A-levels) and university attainment (Russell Group x STEM, LEM, OSSAH, Other)

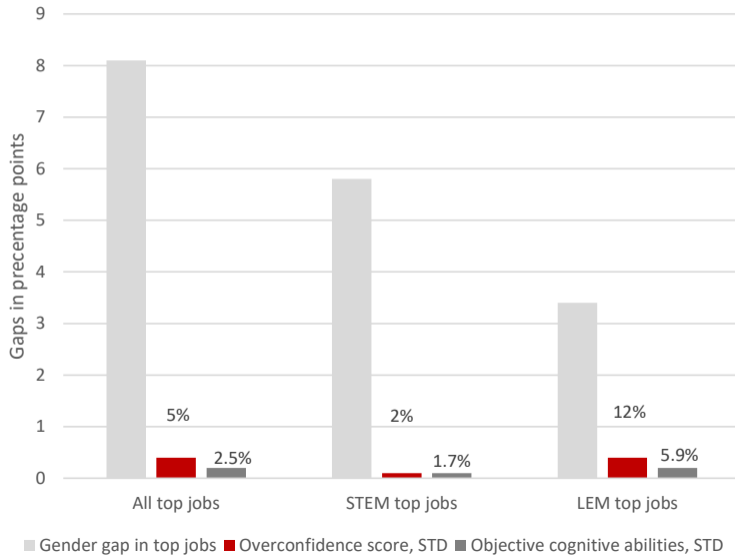  - partnership and number of children

# Results

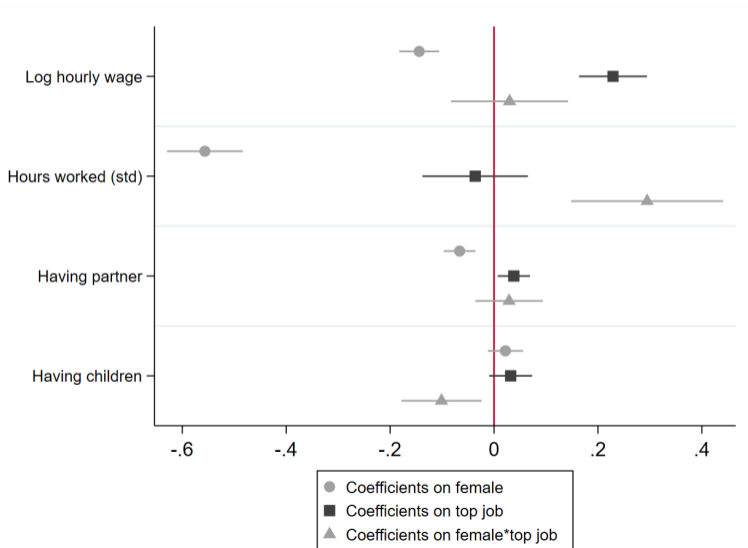# The role of overconfidence in the gender gap in top jobs
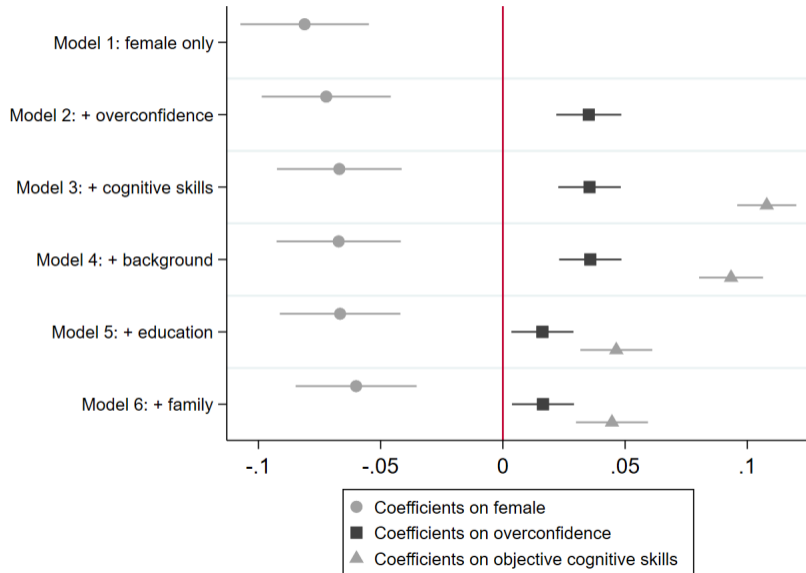
# Heterogeneity in the role of overconfidence
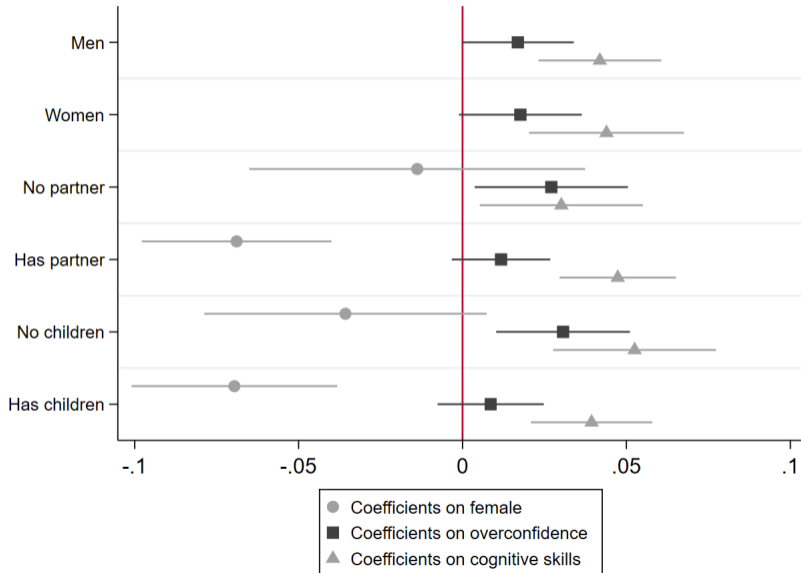
# Decomposition of the gender gap in top jobs

# Costs and benefits of working in a top job: alternative outcome variables

# Robustness checks

- Defining top jobs based on wages (top 20%)

- Alternative samples: total sample, employed

- Looking into the role of overconfidence in selection to (full-time) employment - does not matter (it matters for graduation though)

- Still to do: handling attrition/non-response

# Conclusions

- We fill a gap in the literature by looking at the relationship between overconfidence and top jobs

- We find that men being more overconfident than women explains 5-11% of the gender gap in top jobs (small or large?)

- This relationship is heterogeneous: stronger for those not having children or partners

- We find suggestive descriptive evidence that for women, working in a top job vs. having children are substitutes

- Policy conclusion: non-cognitive skills are malleable, there might be room for interventions
    - Question though: fixing women or fixing institutions?

Thanks for your attention!

# Appendix

# Measures on cognitive abilities in BCS70

**Table A1: Measures on cognitive abilities in BCS70, age 5, 10 and 16**

| Age 5 | Age 10 | Age 16 |
|---|---|---|
| English Picture Vocabulary Test | Edinburgh Reading Test | Applied Psychology Unit (APU) Arithmetic Test |
| Copying Designs Test | Friendly Maths Test | APU Vocabulary |
| Human Figure Drawing | Spelling Dictation Task | BAS Matrices |
| Complete a Profile Test | British Ability Scales (BAS) Word Definitions | Edinburgh Reading Test |
| Schonell Reading Test | BAS Word Similarities | Spelling Test |
| | BAS Recall of Digits | |
| | BAS Matrices | |
| | Pictorial Language Comprehension Test | |

Source: Moulton et al. (2020)

# Measures on subjective estimated abilities in BCS70

| | |
|---|---|
| **Age 10** | |
| Good at math | Question: Are you good at mathematics? Yes/No/I don't know |
| Good at spelling | Question: Are you good at spelling? Yes/No/I don't know. |
| **Age 16** | |
| Good at math | Question: Are you good at mathematics? *Yes/No/I don't know* |
| Good at spelling | Question: Are you good at spelling? *Yes/No/I don't know* |
| Clever | Please say whether the following applies to you. *Applies very much/Applies somewhat/Does not apply* I am clever. |
| Good at exams | Please say whether the following applies to you. *Applies very much/Applies somewhat/Does not apply* I am good at exams. |
| Not good at school (inverted) | Please say whether the following applies to you. *Applies very much/Applies somewhat/Does not apply* I am not very good at school. |