

Knowing is believing? Information interventions to raise future ambition and academic achievements.

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In this project

Main questions:

- To what extent an information provision can raise academic and career achievements of children, *especially those from less privileged backgrounds?*
- Type of information: *career perspectives & growth mindset.*
- Target groups: children + their parents
- Pathways: beliefs (aspirations, expectations), time spending, budget allocation, and intra-household interactions

Our approach: A light-touch, student- and parent-based RCT on information on career decisions and the concept of a growth mindset.

Thailand's education

- Compulsory 'free' education up to Year 9 (age 15).
- Severe SES gradient on academic achievements and career options.
 - **Rich:** 91% (primary), 81% (middle school), 72% (high school), 55% (college)
 - **Ultra poor:** 88% (primary), 63% (middle school), 42% (high school), 3% (college)

Conditional Cash Transfer to ultra-poor students nationwide (since 2018).

- Support educational expenses (100 USD annual) among ultra-poor students (1.17 mil students)

Annual Survey on Aspirations and Expectations (2019, 5 regions nationwide)

- A large SES gap in beliefs about one's future among students
- Also, an SES gap persists among parents.
- The gap does not narrow even after the financial assistance.

Growth Mindset

Carol Dweck (2007)

- Your intelligence or personality is something you can develop, as opposed to something that is a fixed, deep-seated trait.
- Celebrating setbacks, perseverance and resilience.
- The power of 'yet'.
- Research supports that growth mindset is positive correlated with student performance, *but with heterogeneity.*

(see Yeager and Dweck 2021 for review)

FIXED MINDSET AND GROWTH MINDSET



"Failure is the limit of my abilities"

"I don't like to be challenged"

"I'm either good at it or I'm not.
I can either do it or not"

"Feedback and criticism are personal"

"My potential is predetermined"

"When I'm frustrated, I give up"

"I shy away from uncertainty and
stick to what I know"



"Failure is an opportunity to learn"

"challenges help me grow"

"My effort and attitude
determine my abilities"

"Feedback is necessary and constructive"

"I can learn to do anything I want"

"I'm inspired by the success of others"

"I embrace uncertainty and
try new things"

RCT on information and/or mentorship for school-age students on academic and job choices

Carlana, La Ferrara and Pinotti (2022), Goux, Gurgand and Maurin (2017), Card and Giuliano (2016), Goodman (2016)

RCT on growth mindset - mixed evidence

- Delavande (2022), Outes-Leon et al (2020), Yeager et al (2019), Bettinger et al (2018)
- Ganimian (2020), Li and Bates (2019), Macnamara (2018), Sisk et al (2018)

RCT on related non-cognitive skills on academic and job choices

Alan and Ertac (2015), Alan et al (2019)

Roles of aspirations, expectations on later achievements

Dalton, Ghosal and Mani (2016), Genicot and Ray (2017, 2020), La Ferrara (2019), Lekfuangfu and Odermatt (2022), Tanguy et al (2014), Guyon and Huillery (2021)

Intervention Design

Our intervention (1)

Target #1: School-age students in north-eastern Thailand

- Year 7 (age 13) and Year 4 (age 10)
- Weekly, one-hour in a classroom, total of 8 weeks.

Target #2: Parents of a subset of students

- 3 sessions (1.5 hrs) to their parents (invited to the school during weekends).

Intervention arms (#hours):

T1: Career (4) + placebo (4)

T2: Growth Mindset (4) + placebo (4)

T3: Career (4) + Growth Mindset (4)

T4: Career (4) + Growth Mindset (4) + Parents' C&G (4.5)

C: Pure Control



Content of the Intervention

Career Perspective:

- What are 'new' jobs? Examples of well-known people who work in non-traditional jobs.
- Finding your *comparative advantages* exercise (RIASEC exercise)
- Guidance on how to pursue activities for each personality (a SMART exercise)
- De-gender stereotype
- *Note: we do not provide information on earnings or strict requirements necessary for specific jobs.*

Growth Mindset Concept:

- Concept of growth mindset vs fixed mindset
- How to perceive failure; celebrate mistakes and effort; the power of "yet".
- Homework for students to practice with their carers at home.
- Examples of well-known people who have a growth mindset.

Measurements at baseline & midline

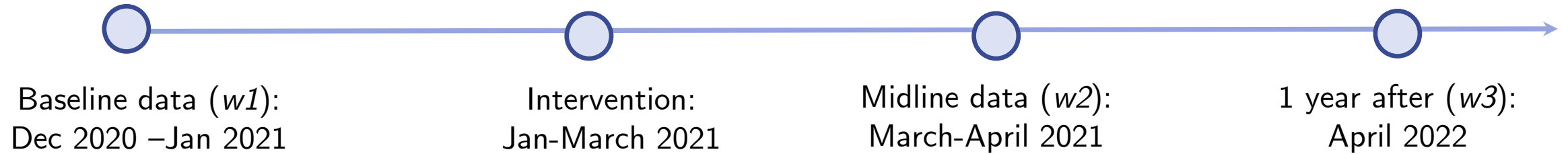
Main outcomes

- Growth Mindset score (Likert scales)
- Cognitive: test scores in maths and Thai (based on the national examination of grades 4 and 7.)
- Non-cognitive: the Strength and Difficulty Score (Thai version, self-reported, Thailand's Ministry of Public Health)

Pathways

- Beliefs about occupation & education
 - Aspirations
 - Expectations
- Gendered job choices
- Time spending and money spending
- Interactions with people: peers, family, teacher

Timeline

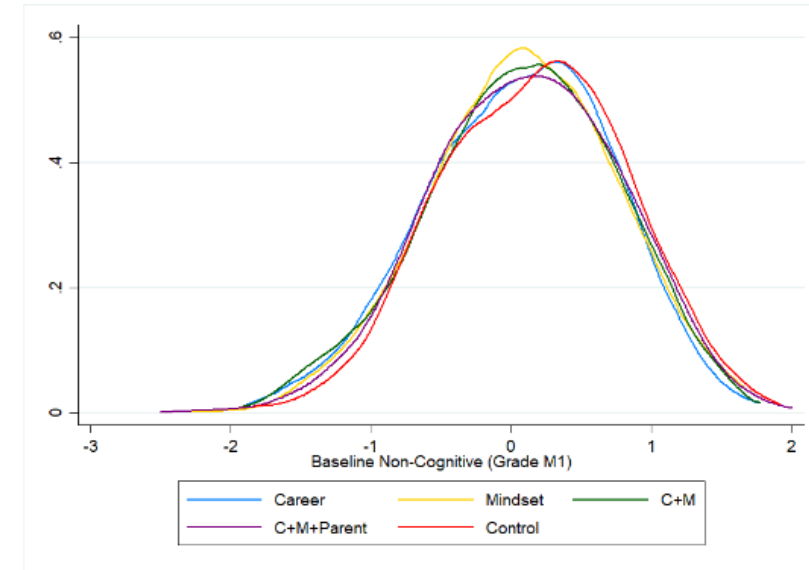
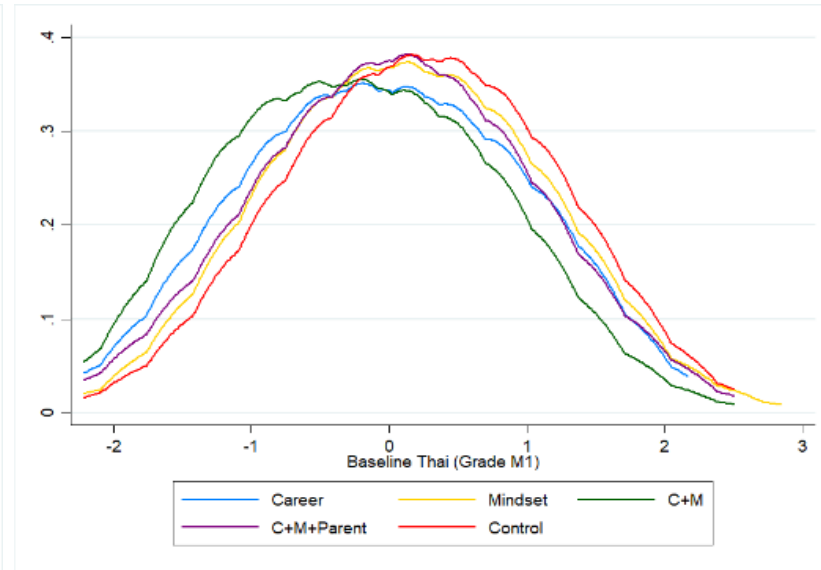
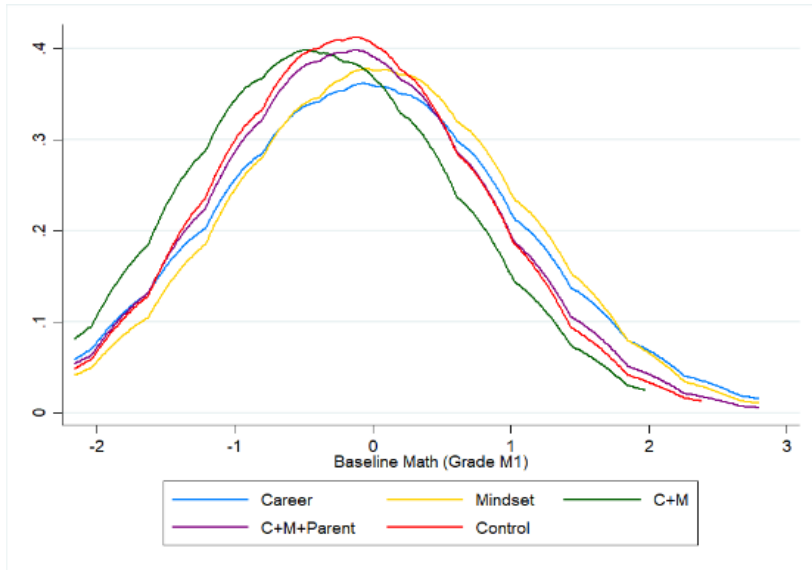


Sample Selection

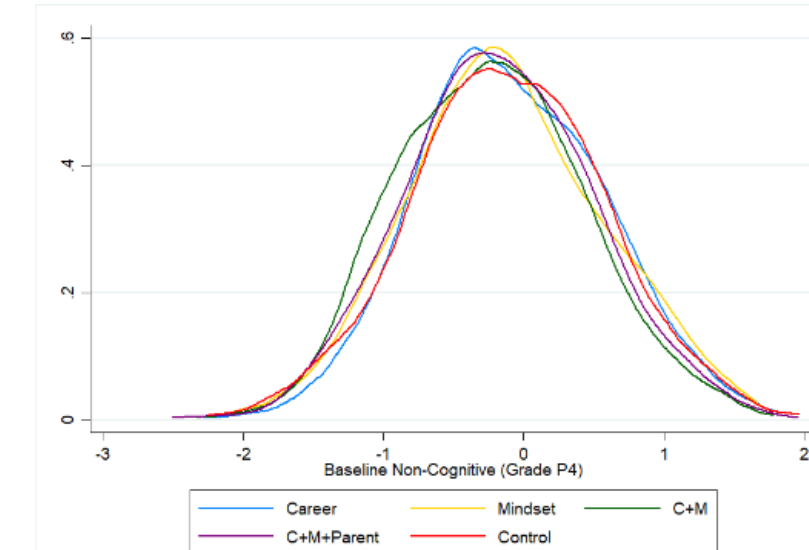
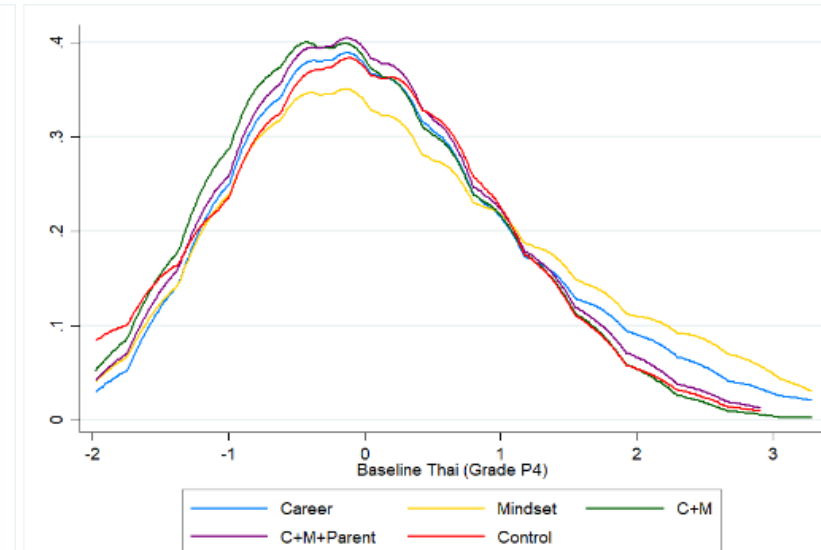
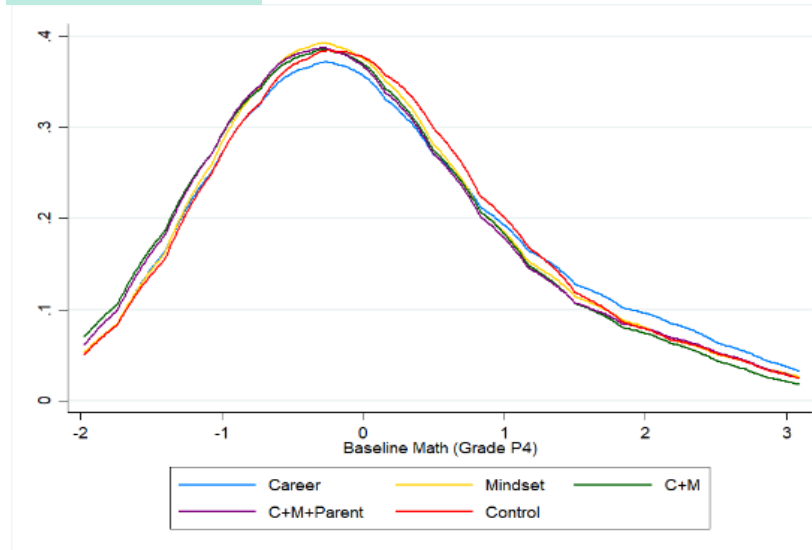
- Sampling selection: relatively large schools with a relatively larger share of ultra-poor students.
- 251 schools in 3 north-eastern provinces: Khon Kaen (145), Udonthani (100). Kalasin (6)
- **Students:** Year 7: 10,000; Year 4: 6,000
- **Parents:** Year 7: 950; Year 4: 733

Balancing test: abilities at baseline

Year 7



Year 4



Main specification

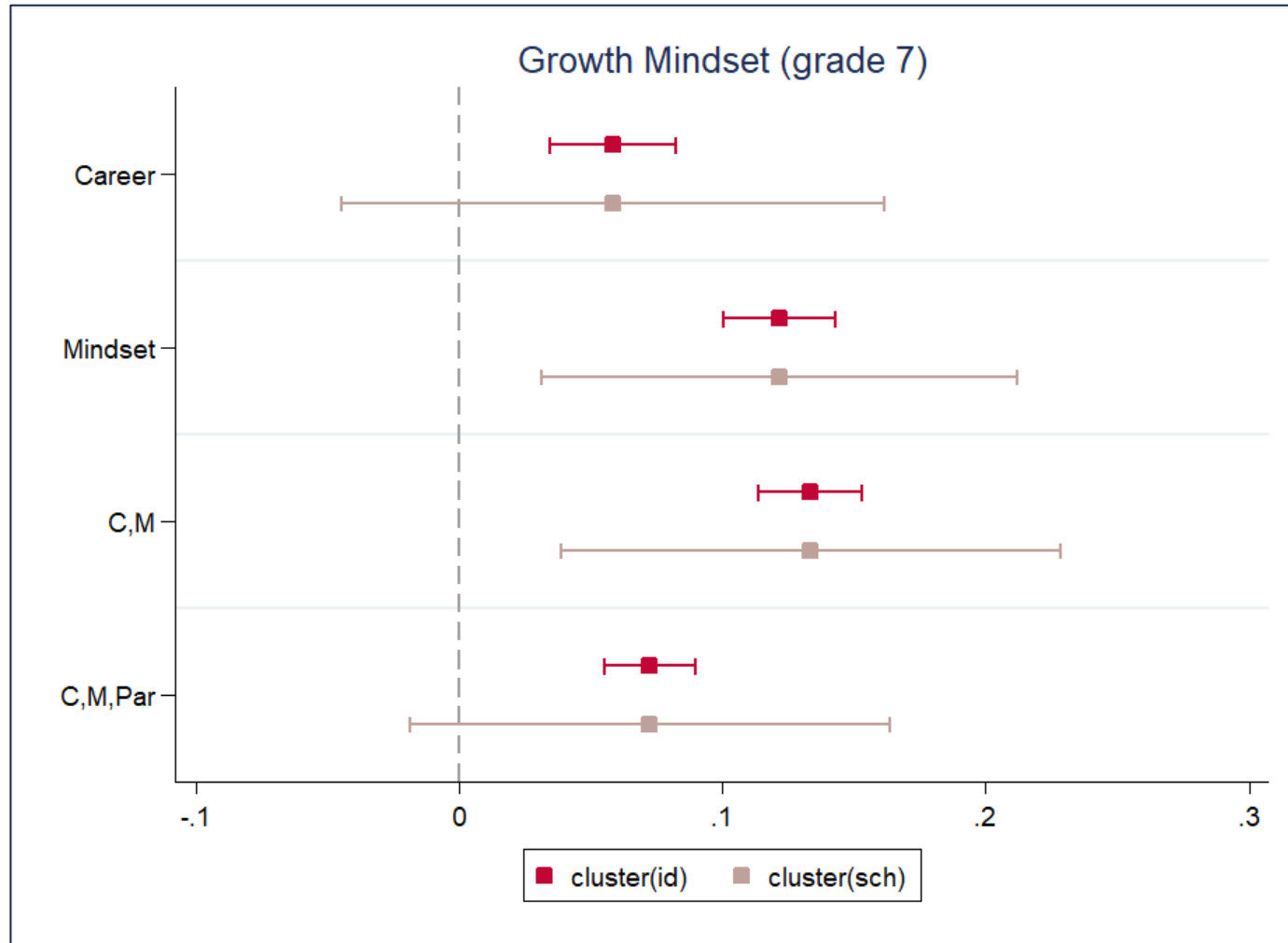
Estimating ITT using an ANCOVA specification (McKenzie 2012, Dalton et al 2021)

$$Y_{i,s,t} = \sum_{m=1}^4 \beta_m T_{m,i,s} + w_t + Y_{i,s,t=1} + X_{i,t} + v_{i,s,t}$$

- Treatment indicators $T_{m,i,s}$ for an individual i , in treatment m , in school s , in survey t .
- $Y_{i,s,t=1}$ is the baseline value of the outcome of interest
- w_t is survey wave dummy.
- $X_{i,t}$ is a vector of child's characteristics (gender, grant status, own ranking).
- *Standard errors* are robust and clustered in various ways: person, school, and under multiple hypothesis assumption (for p-values of main outcomes).
- Missing baseline values is coded as zero, with dummy variables indicating missing values.

Main outcomes

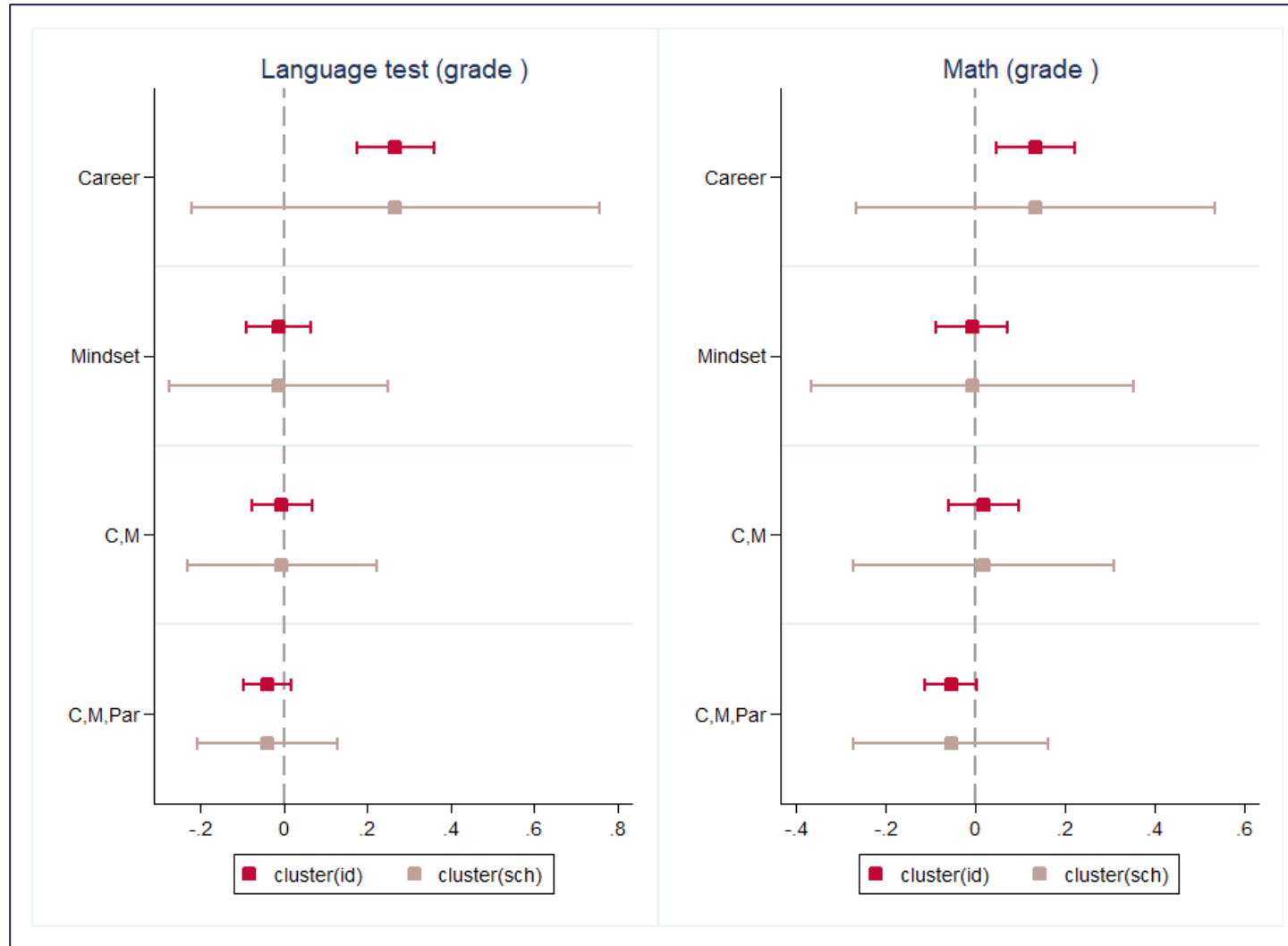
Growth mindset score



Positive change, esp. from treatments with GM content

SE clustered at the individual- and the school-level.

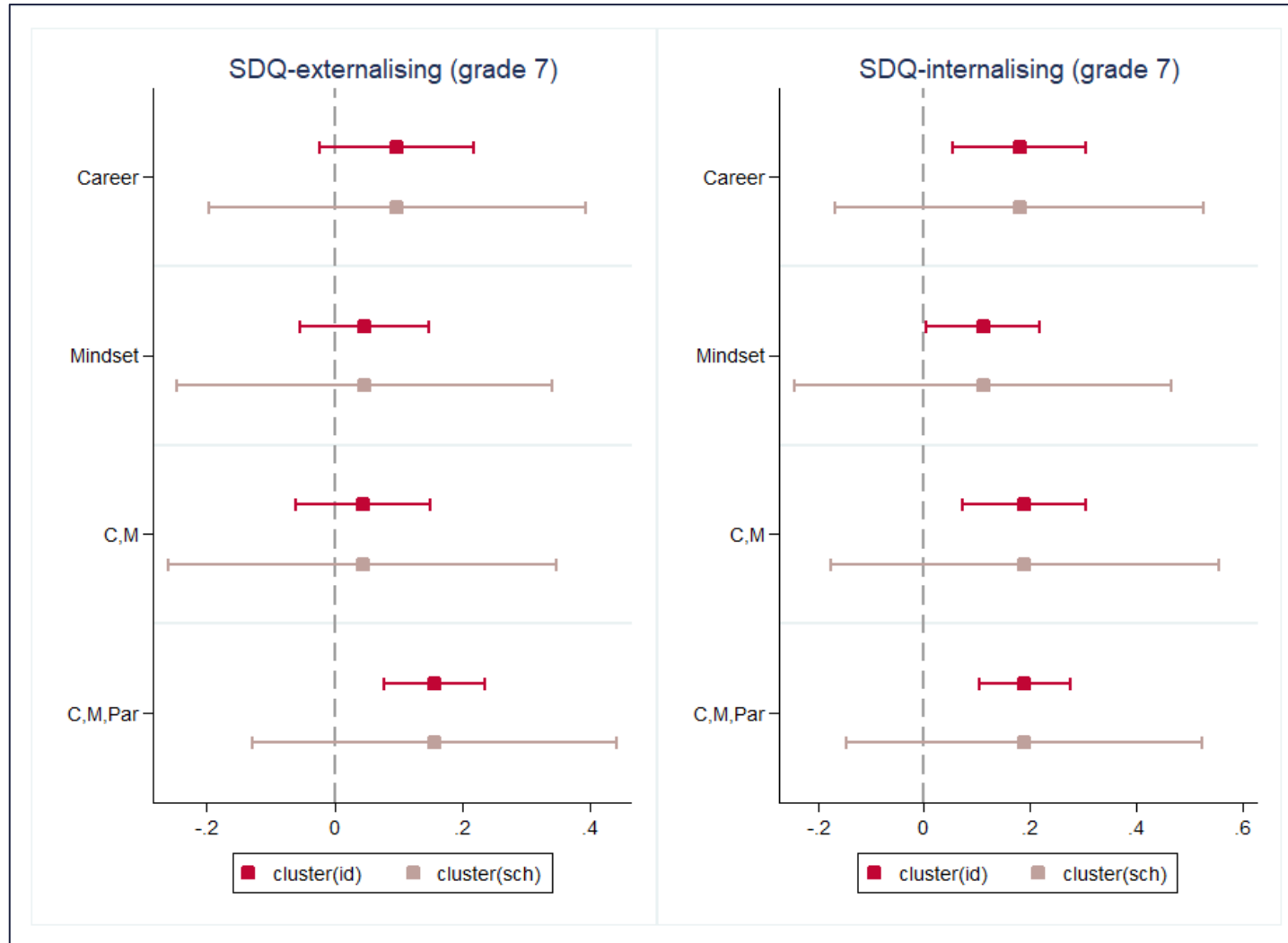
Cognitive skills



Increase among treatments with career information. SE much larger with school-level clustering

SE clustered at the individual- and the school-level.

Non-cognitive skills



Increase in behavioural outcomes when incorporated with parent intervention.

SE clustered at the individual- and the school-level.

What are the pathways?

Aspirations:

- What is your ideal level of education?
- What is your ideal job? (converted O*NET-based and CAMSIS indices)
- Do you think you can reach the education/job you indicated?

Expectations:

- What is the level of education you will realistically attain?
- What is the job you will realistically do?

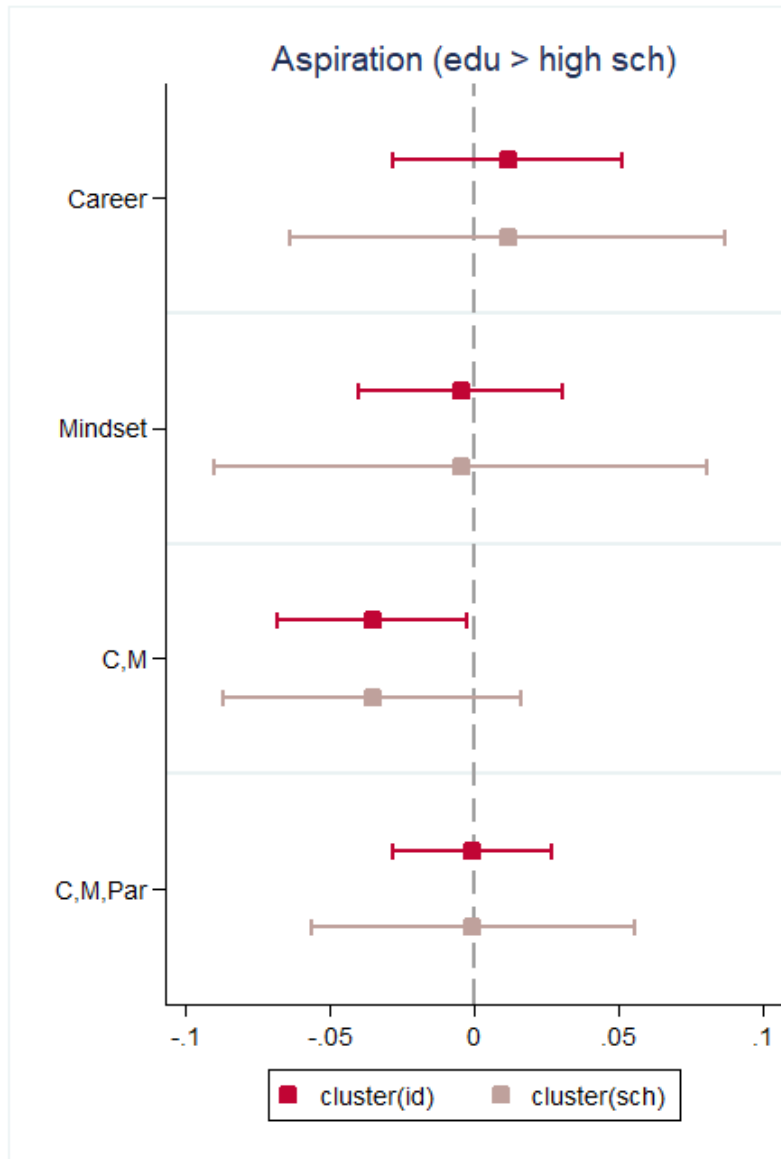
Income Expectations:

- Expected own salary in a given educational level (below/at least college)
- Expected salary if any low- or high-ability in a given educational level

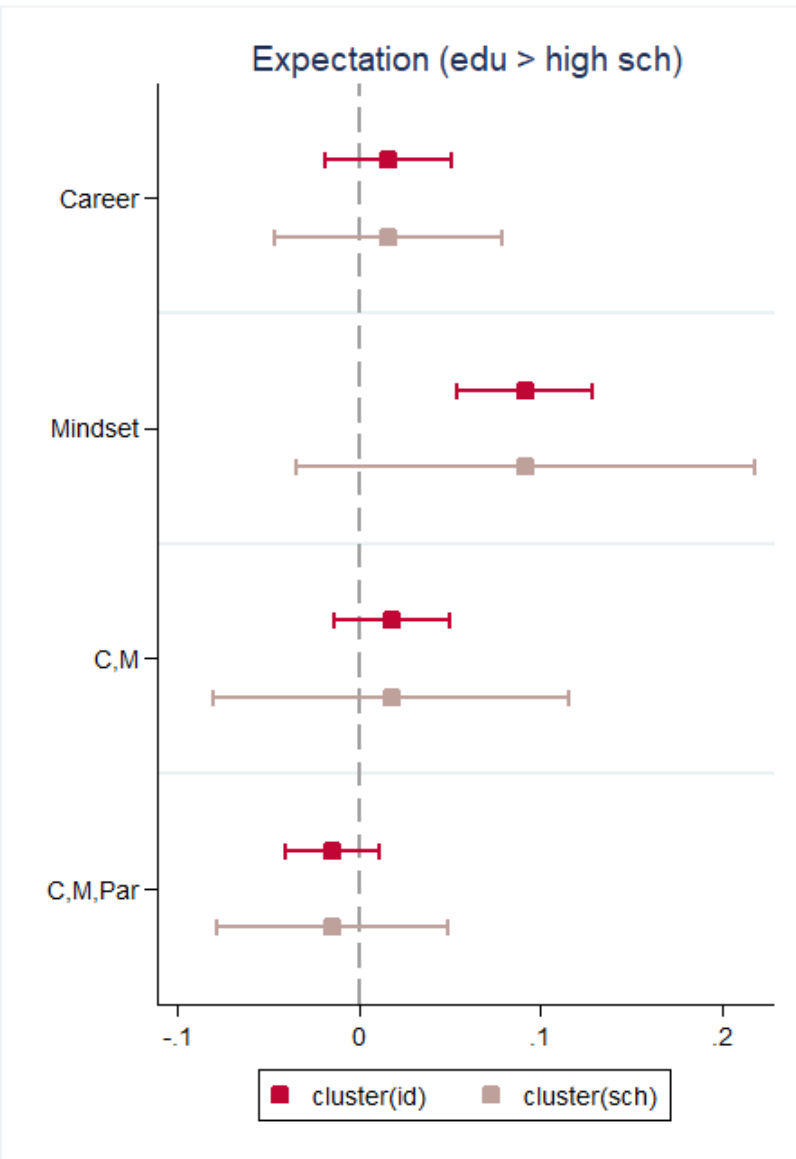
Gendered-Jobs:

- Jobs that a typical female/male would do

Edu Aspirations

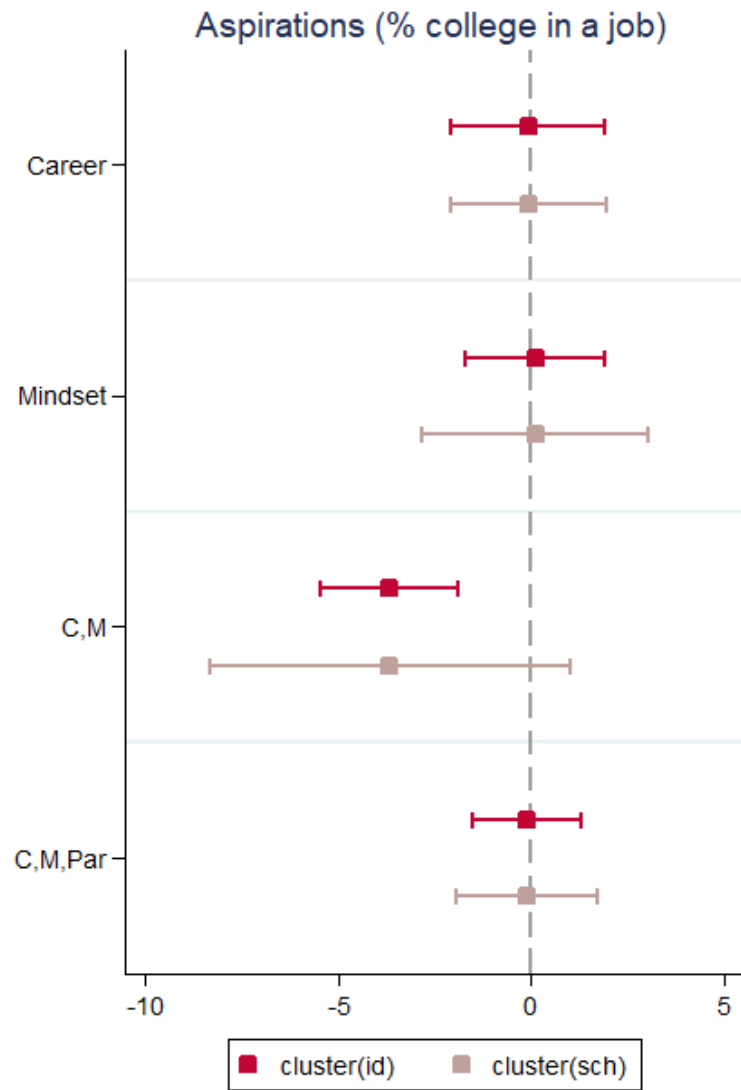


Edu Expectation

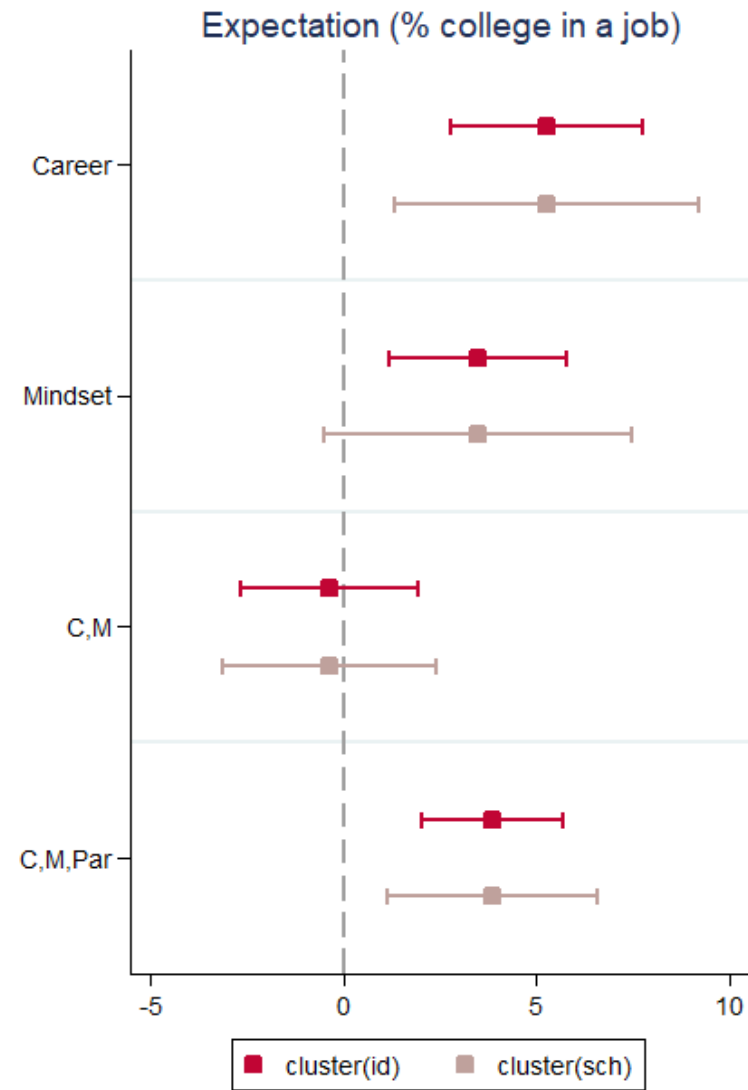


SE clustered at the individual- and the school-level.

Career Aspirations

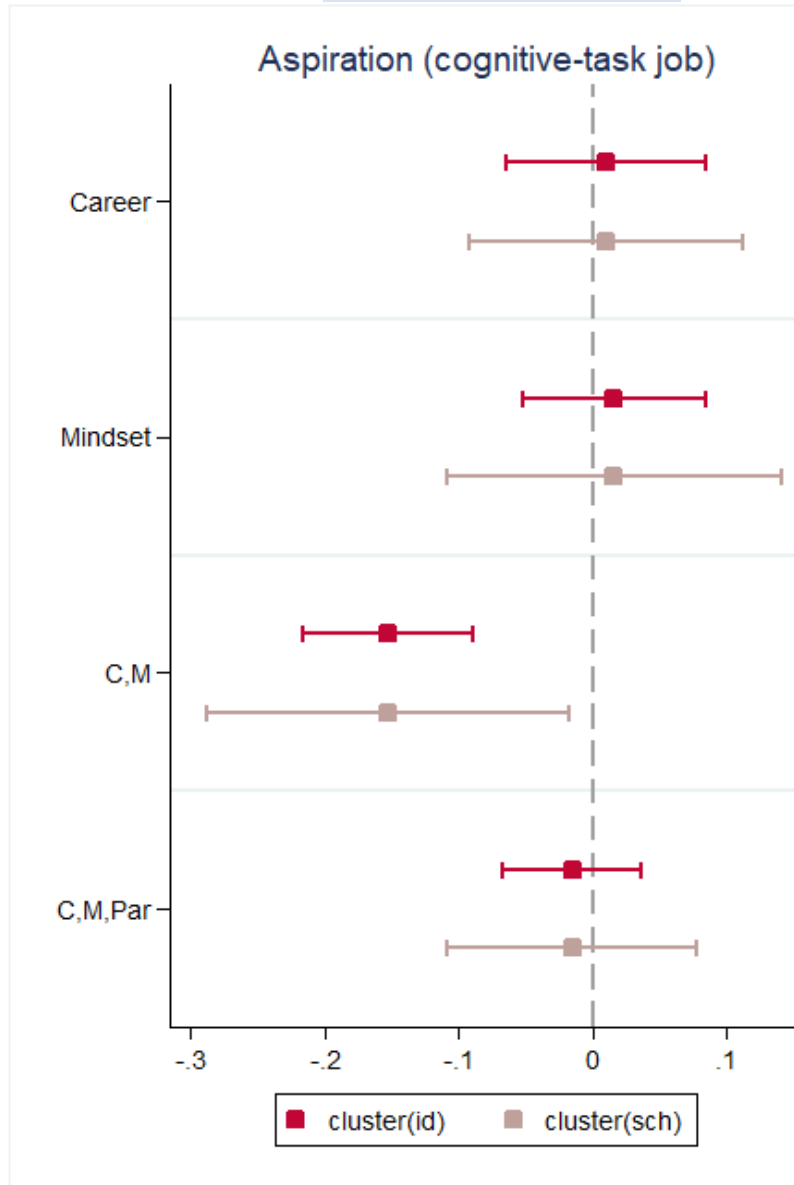


Career Expectation

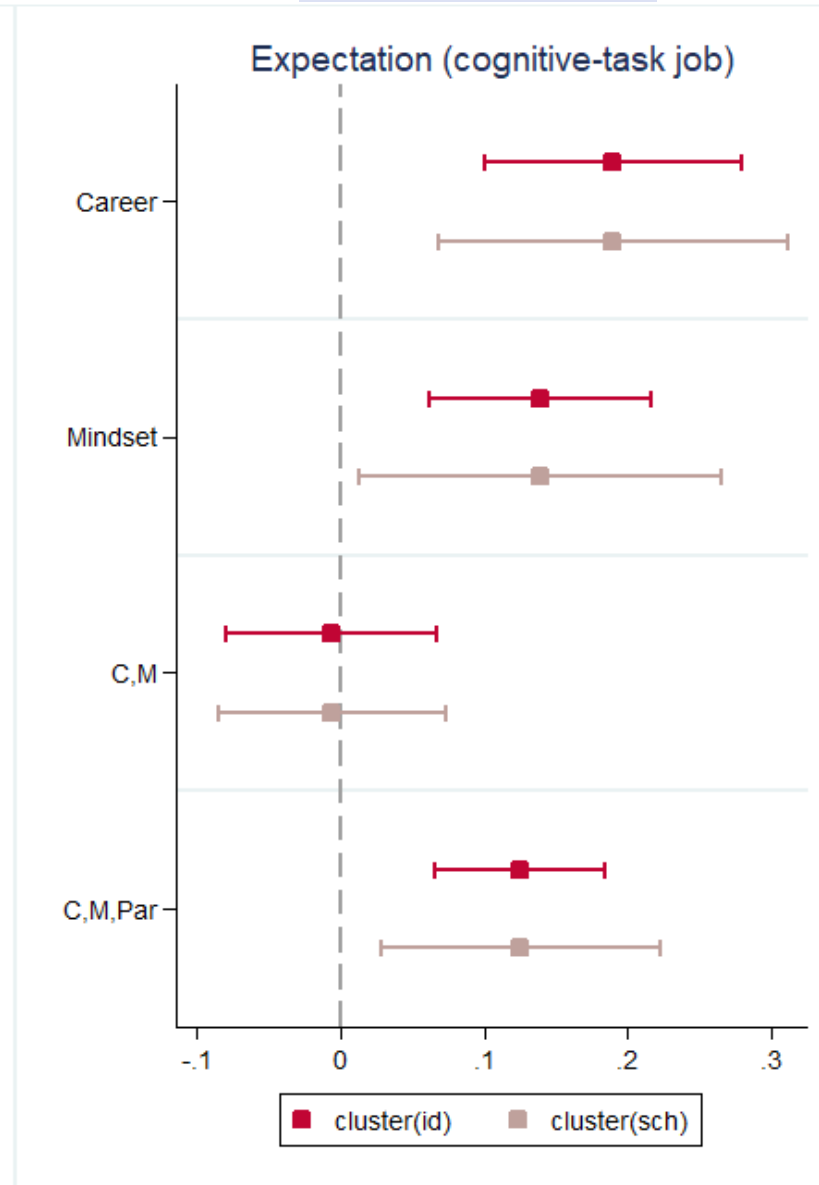


SE clustered **at the individual-** and the school-level.

Career Aspirations

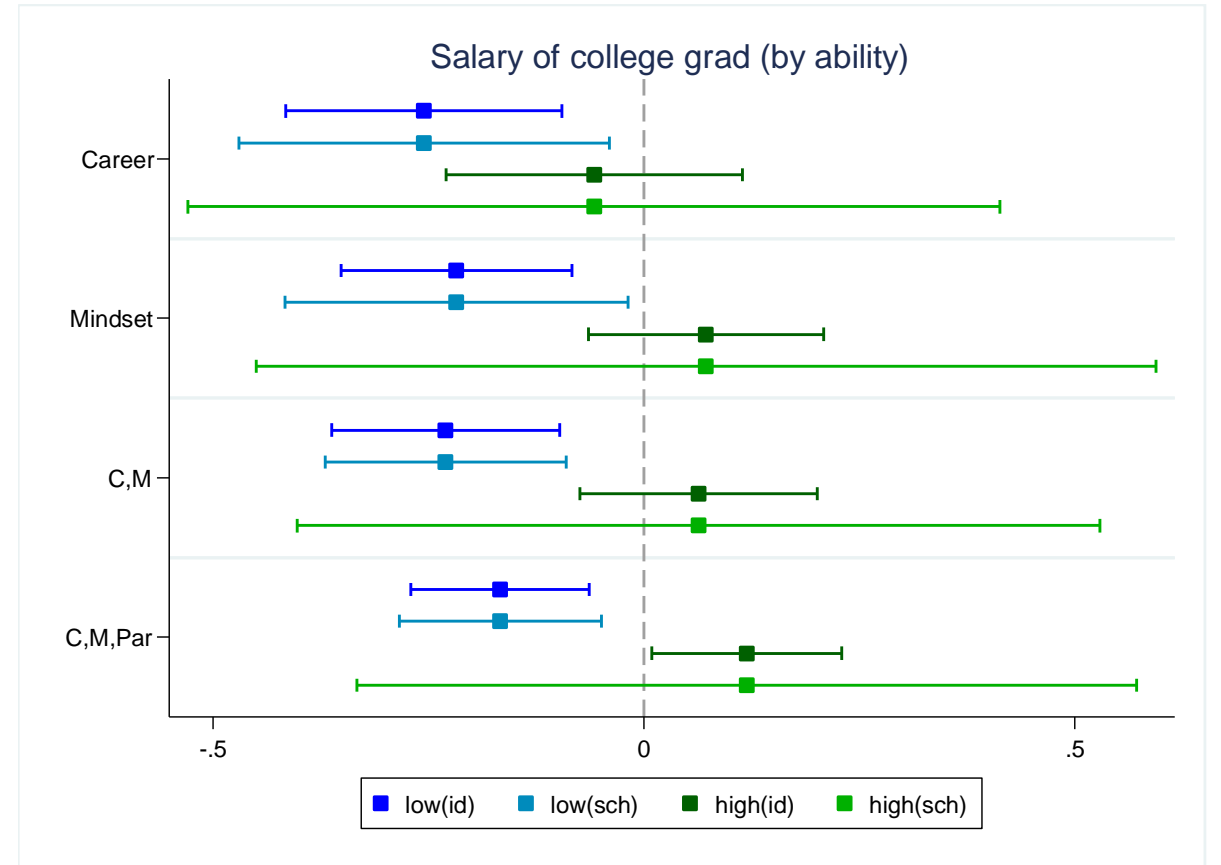
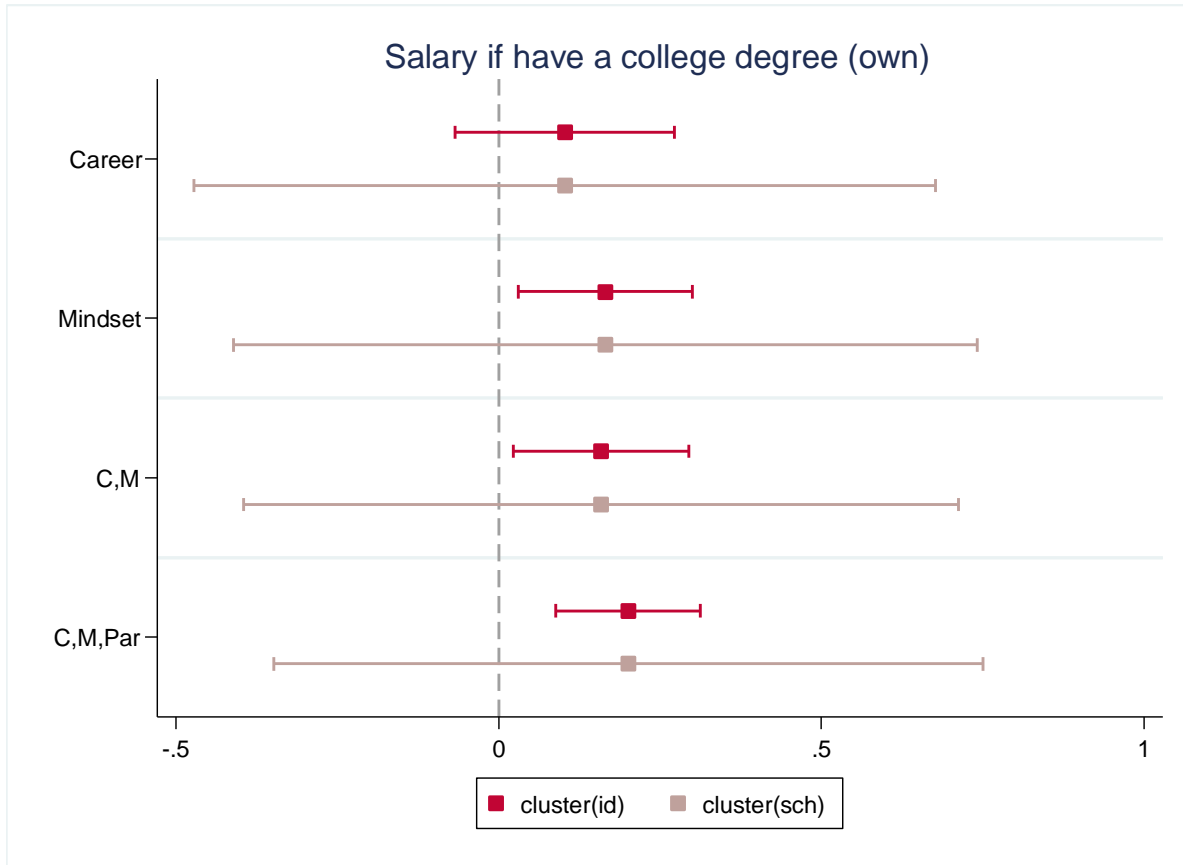


Career Expectation



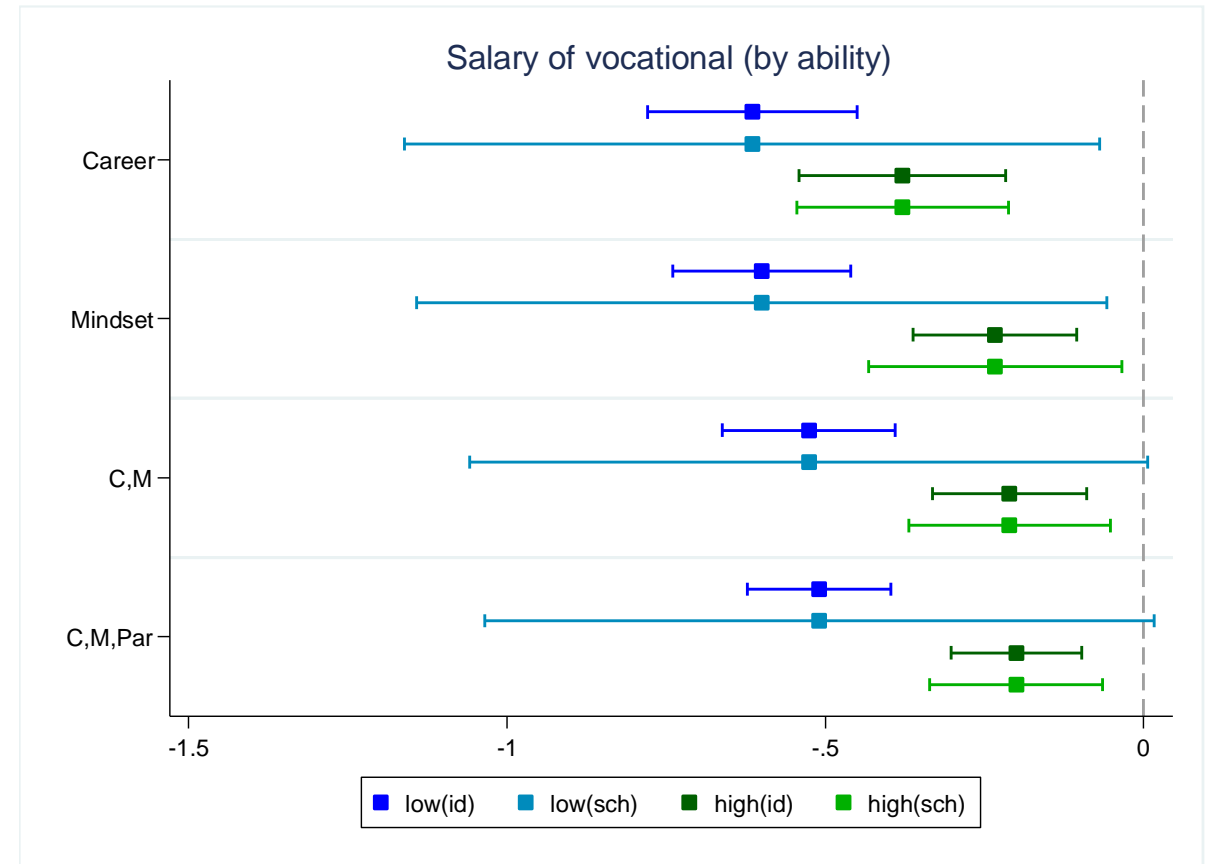
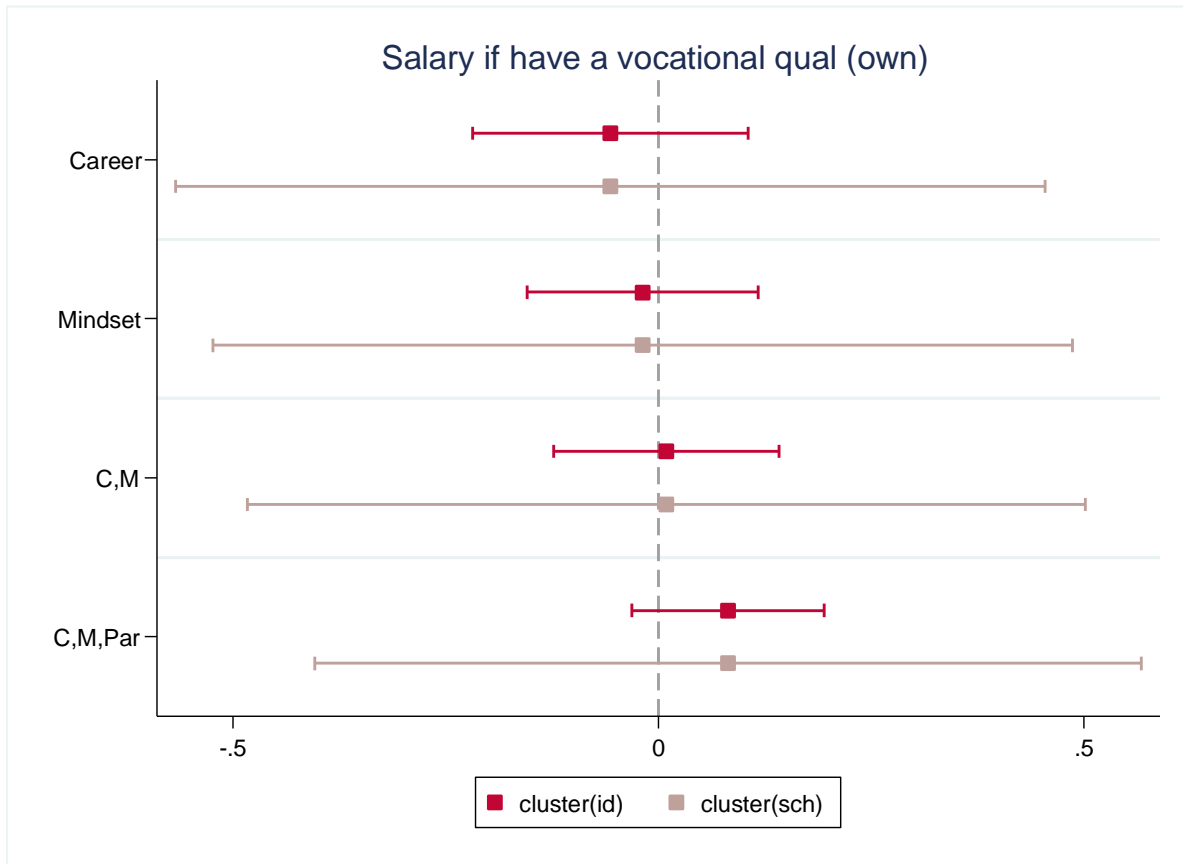
SE clustered at the individual- and the school-level.

Expected salary with a college degree: own & by ability (waves 1 and 2)



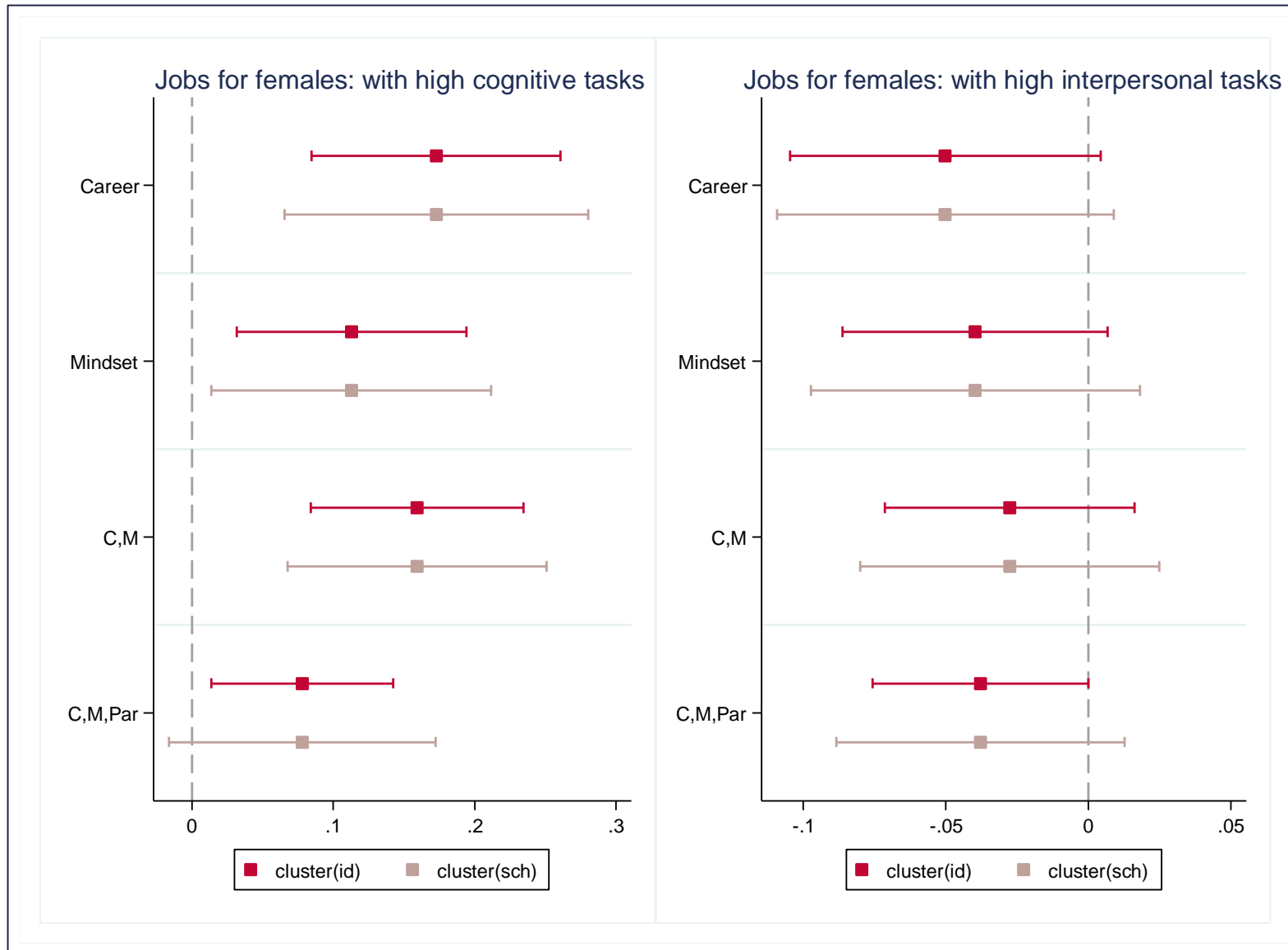
SE clustered at the individual- and the school-level.

Expected salary with a vocational qual: own & by ability (waves 1 and 2)

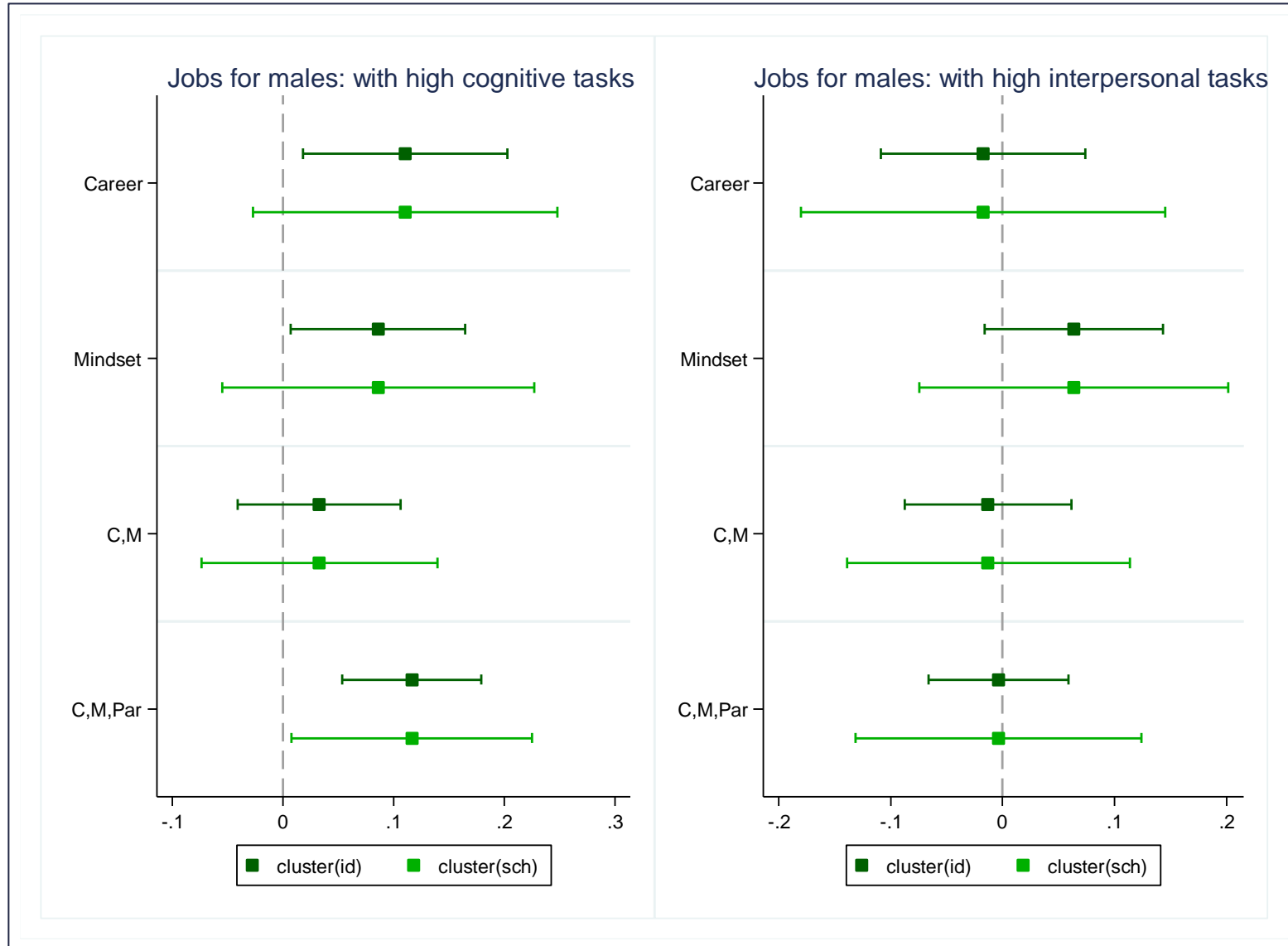


SE clustered at the individual- and the school-level.

Expected jobs for females (waves 1 and 2)

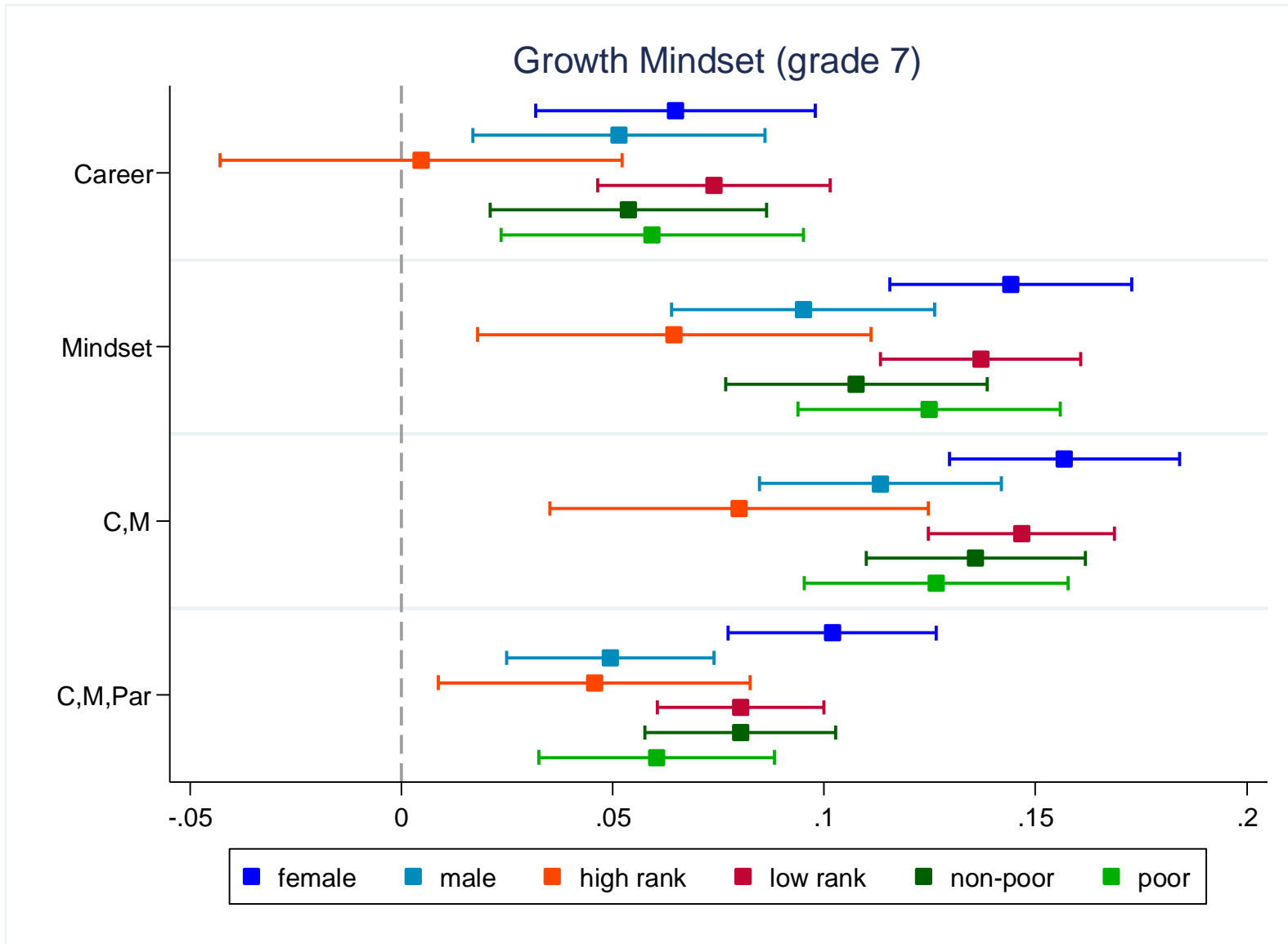


Expected jobs for males (waves 1 and 2)



Heterogenous Responses:

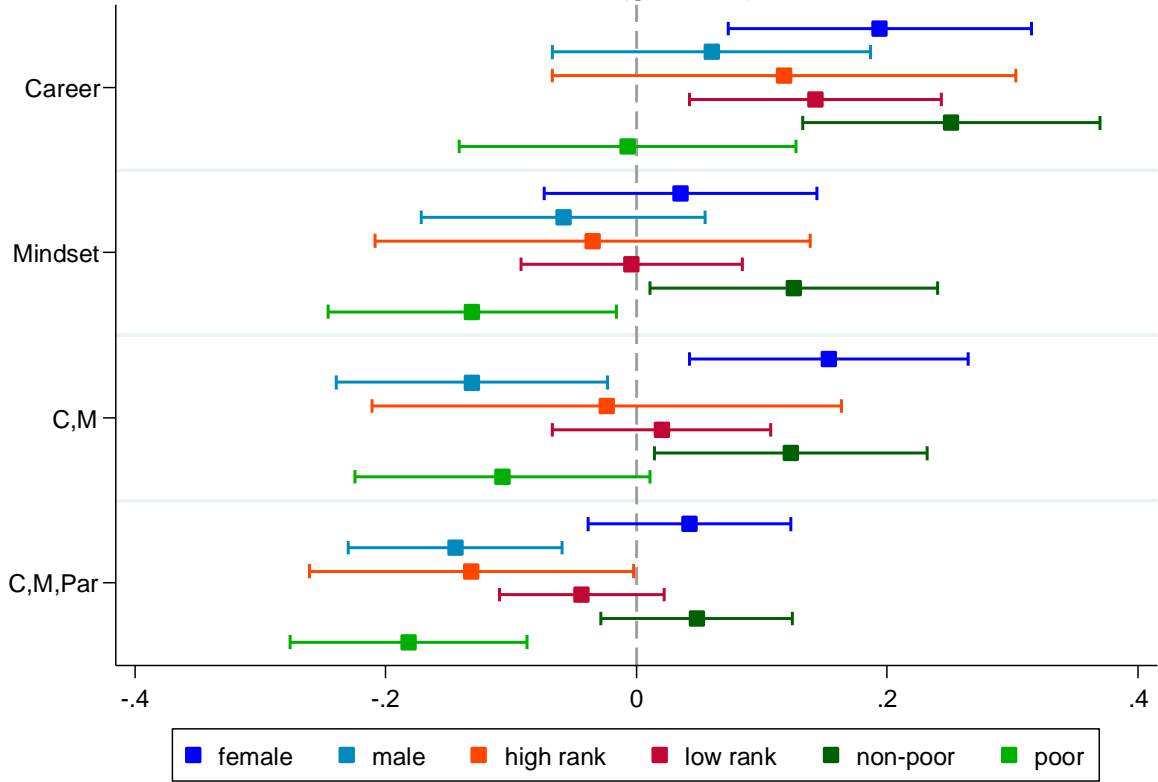
- Gender
- Ability Rank (self-reported)
 - “Where do you rank yourself among people of your age at your school?”
- SES (educational grant status)



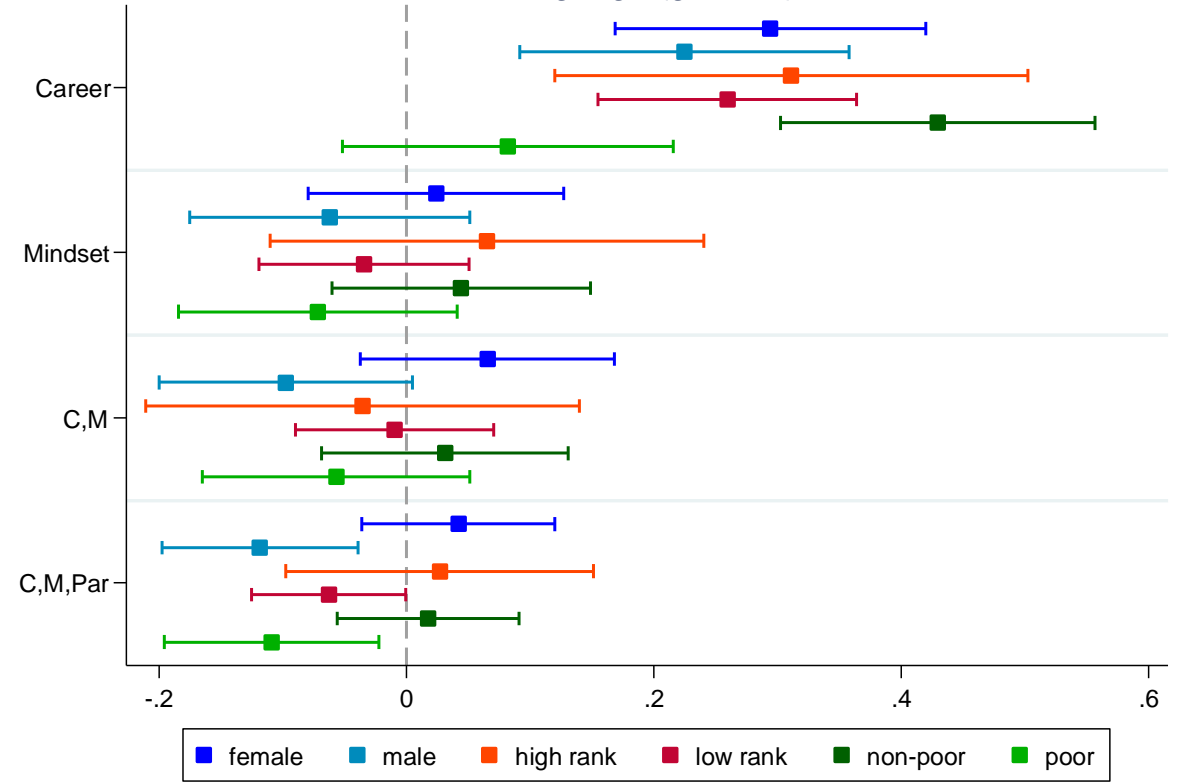
SE clustered at the individual level.

Cognitive skills by each group

Maths (grade 7)

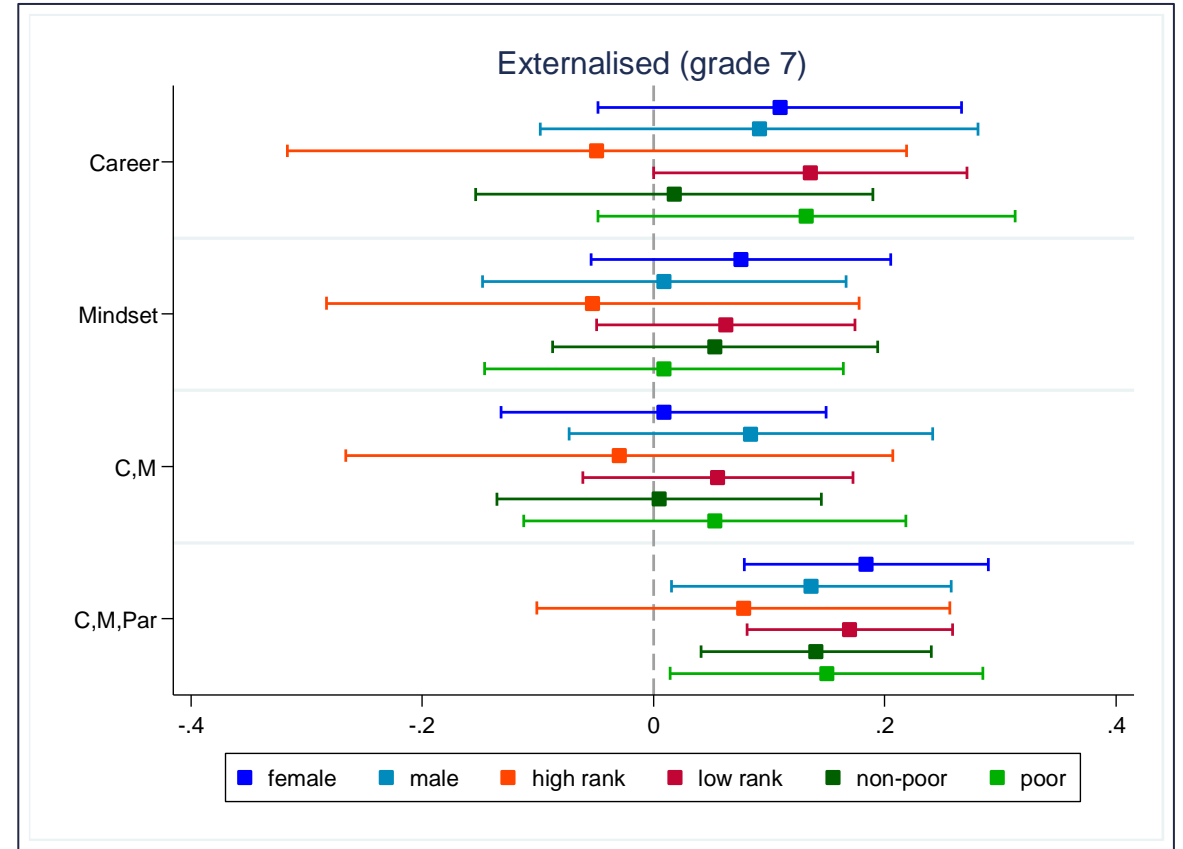
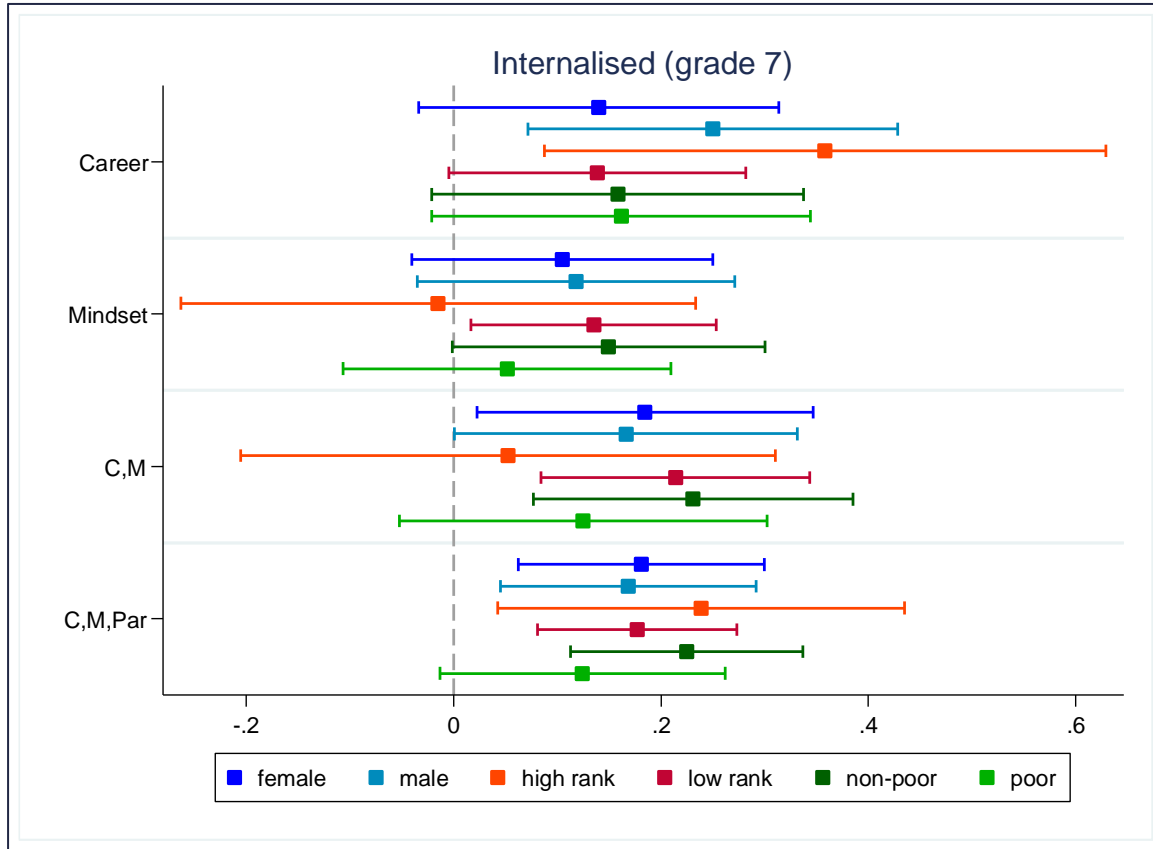


Language (grade 7)



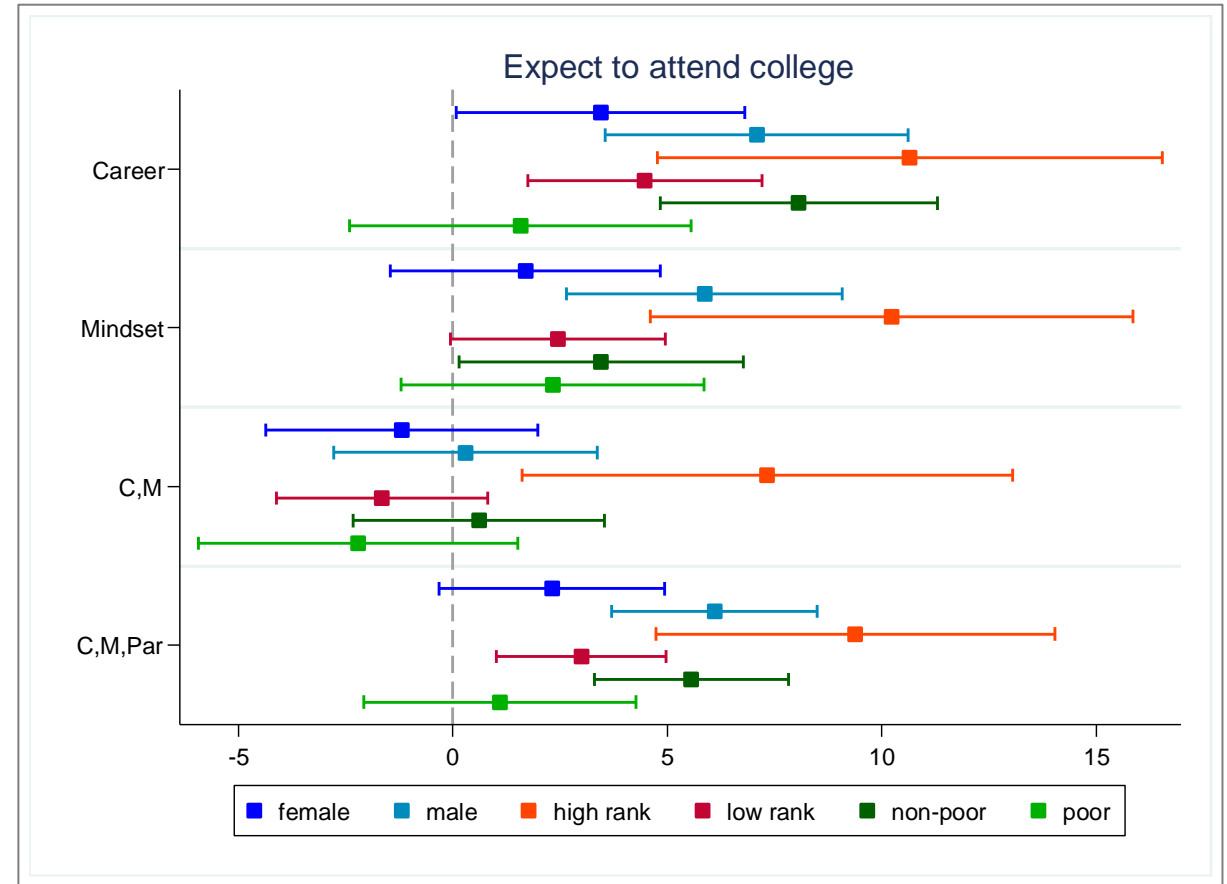
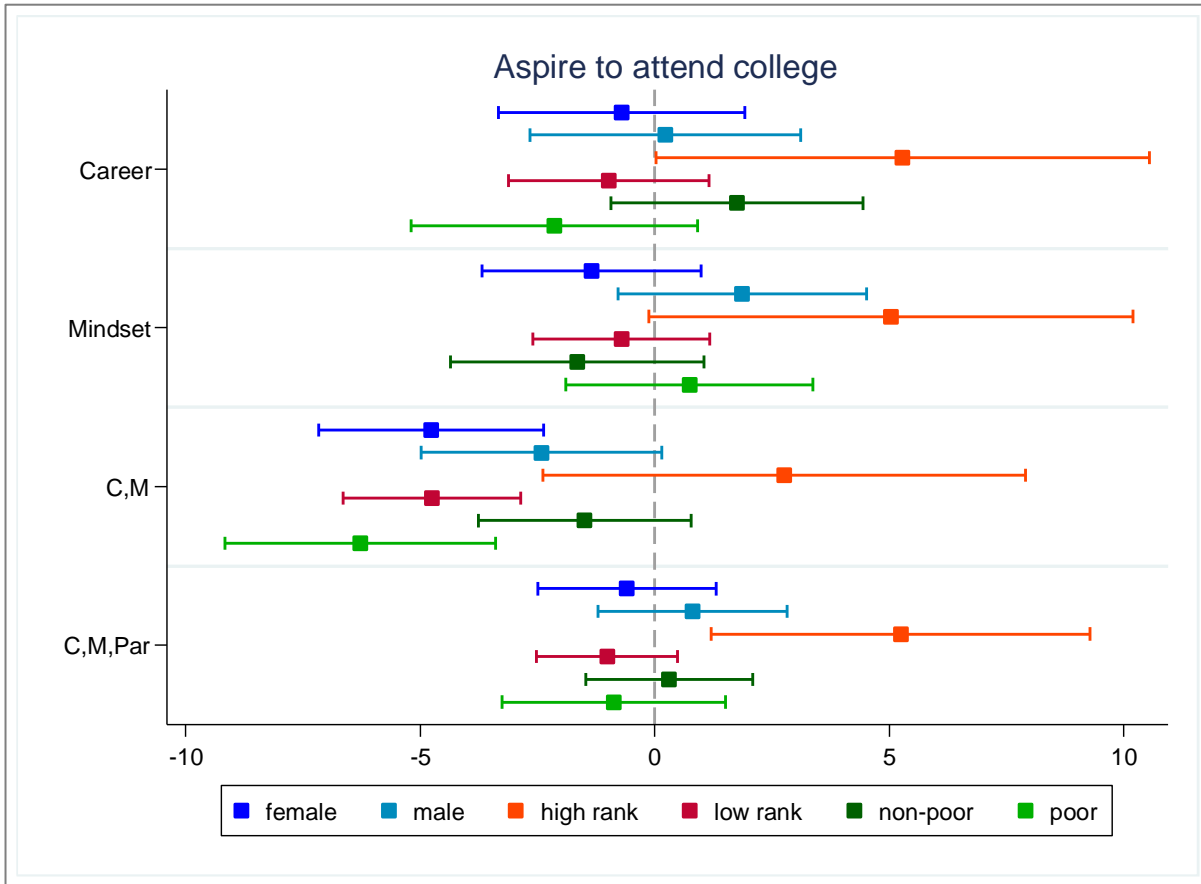
SE clustered at the individual level.

Non-cognitive skills by each group



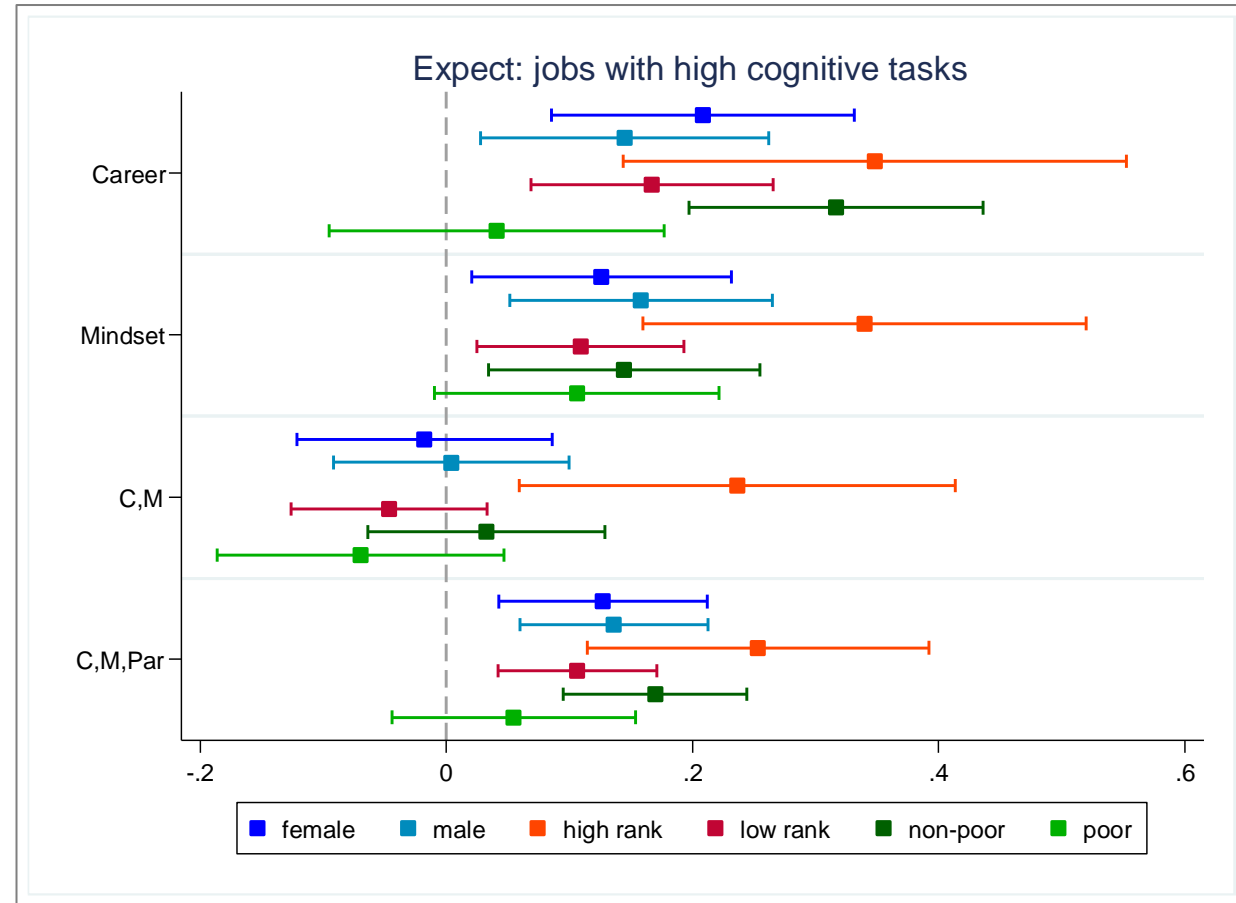
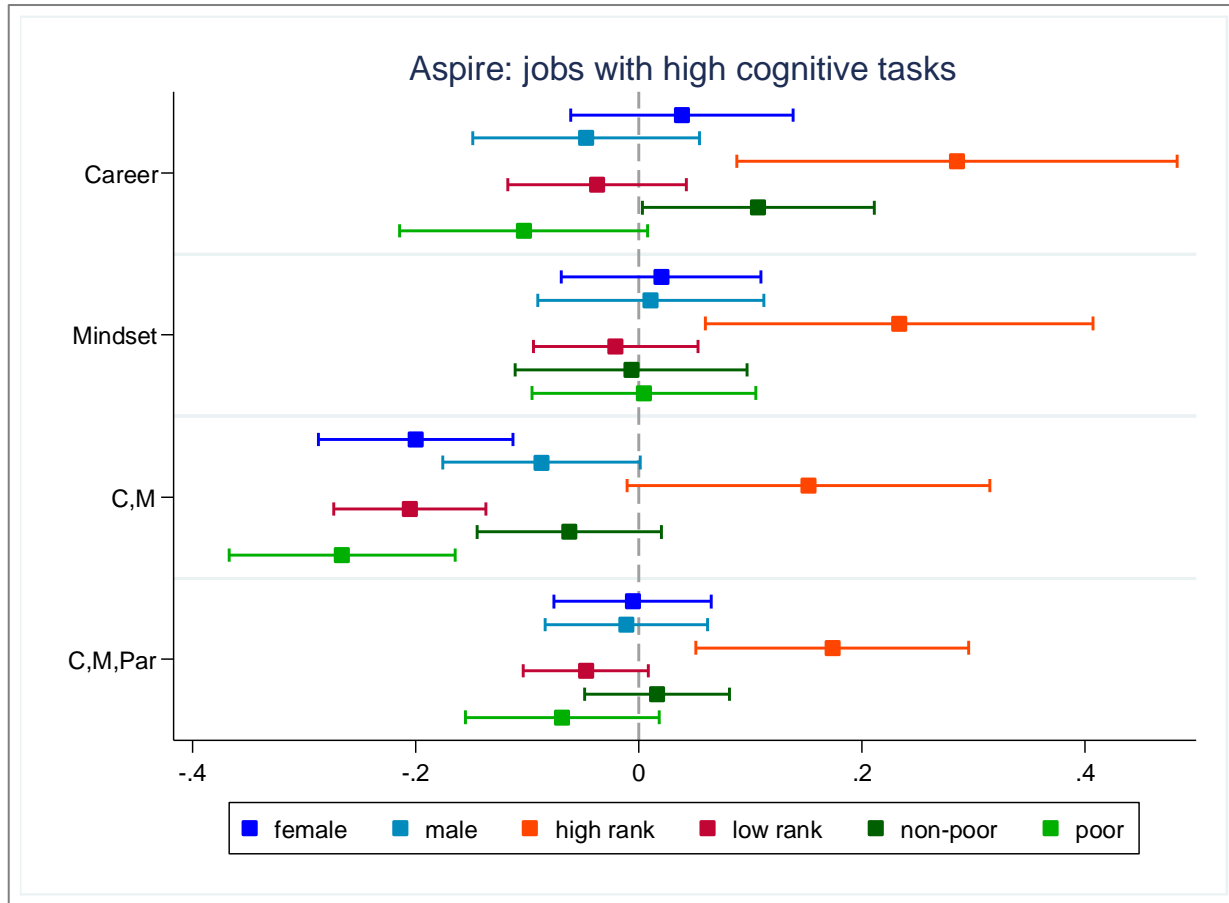
SE clustered at the individual level.

Beliefs about education



SE clustered at the individual level.

Beliefs about jobs



SE clustered at the individual level.

What about parents?

Survey on Parents: We collect the data from **parents in Treatment 4** (parent treatment).
No data on the control group.

A before/after panel regression with individual FE

$$Y_{ist} = \gamma w_2 + X_{it} + \theta_i + v_{ist}$$

- w_2 is a dummy for the midline wave (w_2); γ is the *after* effect among the treated parents (of Treatment 4)
- θ_i is the individual fixed effect
- X_{it} is a vector of characteristics (gender, grant status, own ranking) of child i .
- *Standard errors* are robust and clustered in various ways: person, school.

	Growth Mindset Score	Parental Aspirations			Parental Expectations		
		High cognitive task	% College- educated	CAMSIS	High cognitive task	% College- educated	CAMSIS
Panel: Year 7							
After	0.09*** [0.01] (0.000)	-0.04 [0.04] (0.356)	-0.43 [1.27] (0.733)	0.42 [0.80] (0.596)	0.13** [0.05] (0.018)	4.53*** [1.65] (0.006)	2.30** [0.94] (0.014)
Observations	1,034	869	869	869	861	861	861
No. parents	517	498	498	498	502	502	502

Notes: SE clustered at the individual level are in squared brackets. P-values in parentheses from the model with SE clustered at the school level.

Summary so far...

- An information-based RCT on career perspective and growth mindset concept to school-age students, and to some of their parents.
- Evidence that mindsets are *malleable*.
- We have evidence (weak) that our interventions raise test scores of older students.
- Potential channels are through *occupational expectations*, their view on career options, and *income expectations*.
- Weaker evidence shows that the intervention also changes parent's beliefs.
- The intervention, however, fail to raise future orientation of poor students. Females are more malleable to our intervention.
- Longer-term evaluation of the intervention is the next step.

Thank you.

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