Compulsory Conscription and Educational Outcomes

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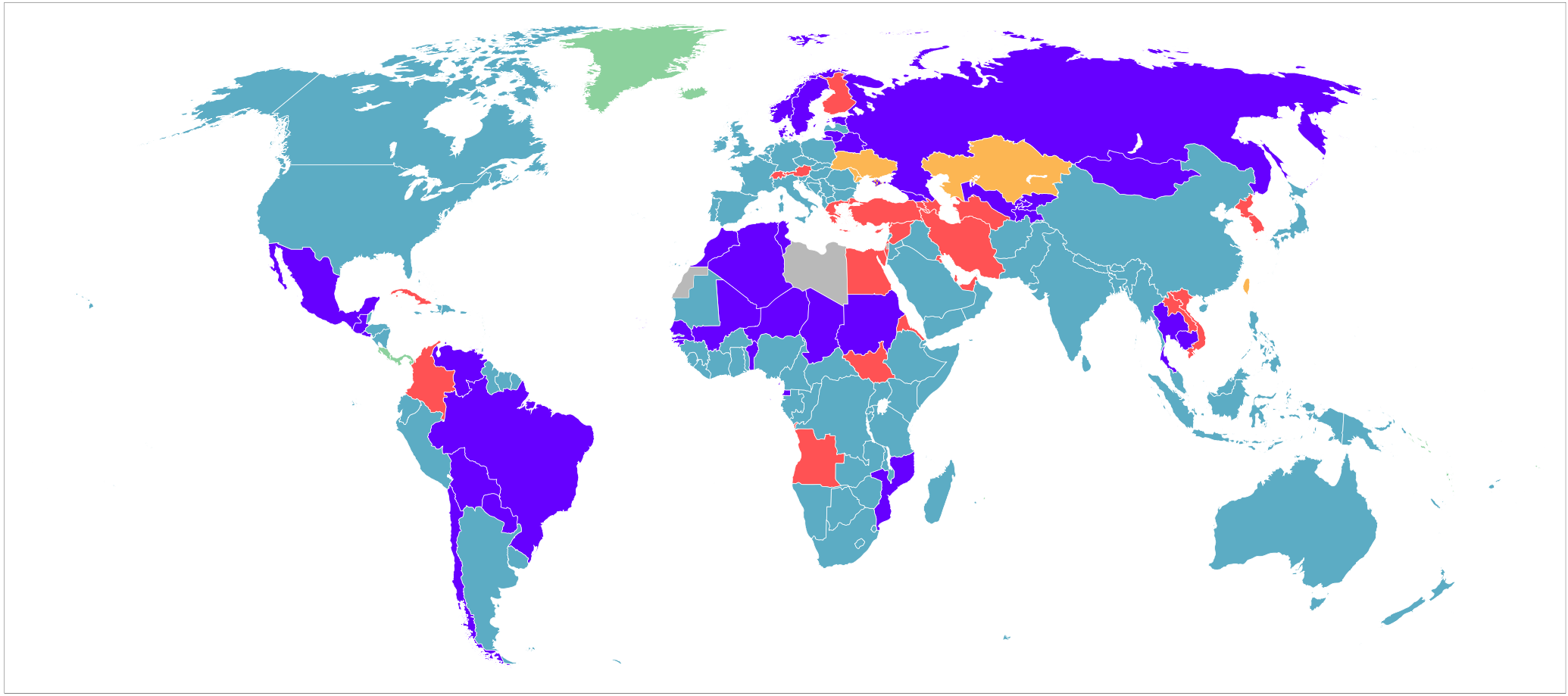
Military service across countries

- No armed forces
- No enforced conscription
- Active draft system, but less than 20% of the whole age group are conscripted
- Plan to abolish conscription in the near future
- Conscription
- No information



Source: respective militaries

"Military service is the only remaining example in modern societies of forced labor that is legal outside the criminal justice system."

Bingley, Lundborg and Vincent Lyk-Jensen (2020)

Previous research findings on effects of CMS

Authors	Data	Findings
Hjalmarsson and Lindquist (2016)	Swedish register data	Increased post-service crime, significantly lower income and higher probability of receiving unemployment and welfare benefits for individuals from disadvantaged backgrounds.
Imbens and van der Klaauw (1995)	Dutch statistics	10 years after the CMS, draftees had lower earnings than non-draftees.
Torun and Tumen (2016)	Turkish LFS	Abolishment of CMS reduced years of schooling.
Maurin and Xenogiani (2007)	French LFS	Abolishment of CMS produced a significant decline in the relative education and the relative entry wages of men coming from a low socioeconomic background.

Previous research findings on effects of CMS

Authors	Data	Findings
Bauer, Bender, Paloyo and Schmidt (2012) Bauer, Bender, Paloyo and Schmidt (2014)	German register data	No long-run impact on the labor-market performance of conscripts. Increased the likelihood of completing higher education
Grenet, Hart and Roberts (2011)	British longitudinal data	No long-run impact on real earnings of conscripts.
Bingley, Lundborg and Vincent Lyk-Jensen (2020)	Danish administrative data	A negative mean impact on earnings: no effect among low-ability men, but negative effects for high-ability.
Card and Cardoso (2012)	Portuguese longitudinal data	Large positive effect on wages of low-educated men.

Possible issues

- Self-selection,
- Endogenous timing, and
- Omitted variables bias.

Institutional setup – CMS in Cyprus

Possible issues

- Self-selection,
- Endogenous timing, and
- Omitted variables bias.

Possible solutions

- Compulsory military service
- Service cannot be postponed
- Two CMS reforms (2010 and 2016)

Institutional setup – UCY

- Nation-wide university entrance exams – pankypries
- In 2019, for instance:
  - 3300 students went to study abroad
  - 2800 students enrolled into the public universities in Cyprus
- Students do not pay fees

Data

All UCY students enrolled since 2008

- Personal information: coded ID number, sex, year of birth, age on admission, district of residence, citizenship;
- Academic information: level of studies (under- or postgraduate; 1st, 2nd or 3rd degree; …), school and department within the school, term of admission, entrance exam scores, all the exams the students took, school term when the course was taken, grades they received on each exam taken; and
- CMS information: number of academic terms (i.e. semesters) served in the army.

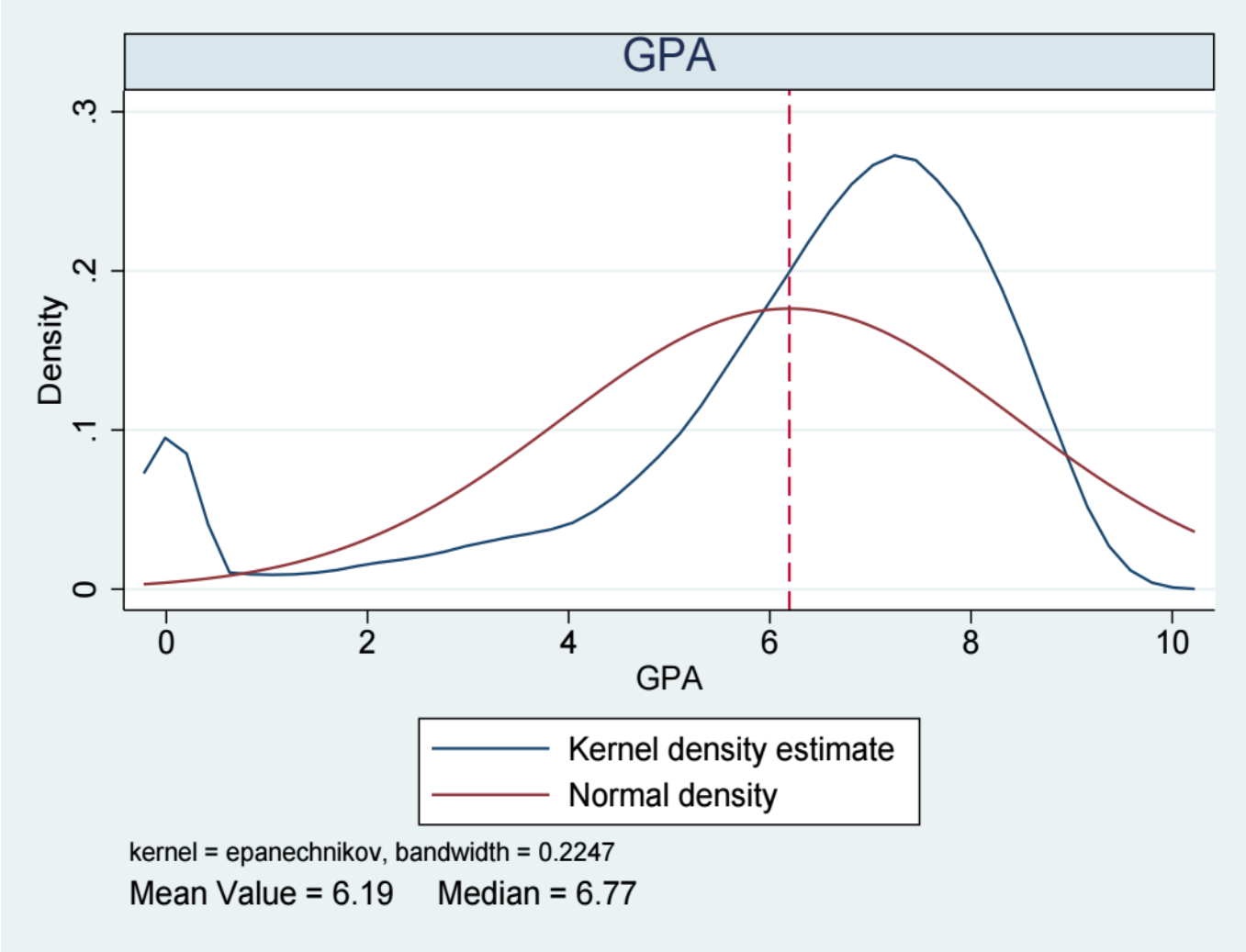
Data

- Only students of Greek Cypriot nationality,
- who attended a public secondary school,
- were between 17 and 21 years of age on admission,
- studying for their first degree at the undergraduate level,
- excluding the Medical school,
- leaving us with
  - 407,336 student-course level observations
  - relating to 12,008 students that we observe
  - from 2008 to 2019.

Data

Year of admission	Admission grade			
	Overall	Male	Female	Diff (F-M)
2008	18.061	17.336	18.112	0.776*
2009	17.752	17.270	17.859	0.589*
2010	18.010	17.901	18.043	0.142
2011	18.060	17.792	18.144	0.352*
2012	17.952	17.835	17.992	0.157
2013	17.868	17.820	17.889	0.069
2014	17.799	17.775	17.812	0.037
2015	17.915	17.977	17.883	-0.094
2016	17.668	17.679	17.662	-0.017
2017	17.758	17.789	17.742	-0.047
2018	17.589	17.778	17.490	-0.288*
2019	17.301	17.251	17.328	0.077

Data


GPA
Density
0
.1
.2
.3
0
2
4
6
8
10
GPA
Kernel density estimate
Normal density
kernel = epanechnikov, bandwidth = 0.2247
Mean Value = 6.19
Median = 6.77

Methodology

Direct approach

$$GPA_i = a + X_i \beta + u_i$$

X_i : sex, army term count, admission term dummies (Model 1)

+ admission grade (Model 2)

+ age on admission (Model 3)

+ YoB (Model 4)

+ area dummies (Model 5)

Results: direct approach, OLS regression

	(1)	(2)	(3)	(4)	(5)
Male	-0.492***	-0.104*	-0.188***	-0.260***	-0.277***
	(-8.017)	(-1.768)	(-2.724)	(-3.197)	(-3.406)
Army term count	0.258***	0.079***	0.067***	0.068***	0.076***
	(11.802)	(3.736)	(3.127)	(2.977)	(3.304)
Admission grade		0.494***	0.497***	0.496***	0.499***
		(38.447)	(38.635)	(38.437)	(38.996)
N	12008	12008	12008	12008	12008
adj. R^2	0.019	0.125	0.126	0.126	0.133

t statistics are in parentheses. Levels of significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Robust standard errors.

Results: direct approach, quantile regression

	(1)	(2)	(3)	(4)	(5)
10th percentile					
Male	0.036	0.219	0.005	-0.160	-0.222
	(0.142)	(1.010)	(0.015)	(-0.538)	(-0.832)
Army term count	0.382***	0.174**	0.158*	0.163**	0.214**
	(5.728)	(2.345)	(1.920)	(2.377)	(2.401)
Admission grade		0.619***	0.607***	0.593***	0.555***
		(13.467)	(10.271)	(10.805)	(8.941)
90th percentile					
Male	-0.432***	0.008	-0.040	-0.018	-0.028
	(-10.211)	(0.131)	(-0.675)	(-0.283)	(-0.378)
Army term count	0.217***	0.049**	0.045**	0.049*	0.044**
	(12.593)	(2.489)	(2.217)	(1.800)	(2.010)
Admission grade		0.427***	0.427***	0.425***	0.429***
		(42.009)	(34.046)	(44.377)	(62.467)
N	12008	12008	12008	12008	

t statistics are in parentheses. Levels of significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Robust standard errors.

Methodology

Difference-in-difference

$$GPA_i = a + \beta_1 male_i + \beta_2 reform + \beta_3 male_i * reform + \sum_j \beta_{4j} area_{ij}$$

2-year event windows*:

	Before	After
Reform 1	2008, 2009	2010, 2011
Placebo 1**	2010, 2011	2012, 2013
Placebo 2**	2012, 2013	2014, 2015
Reform 2	2014, 2015	2016, 2017

* Gruber (1994)

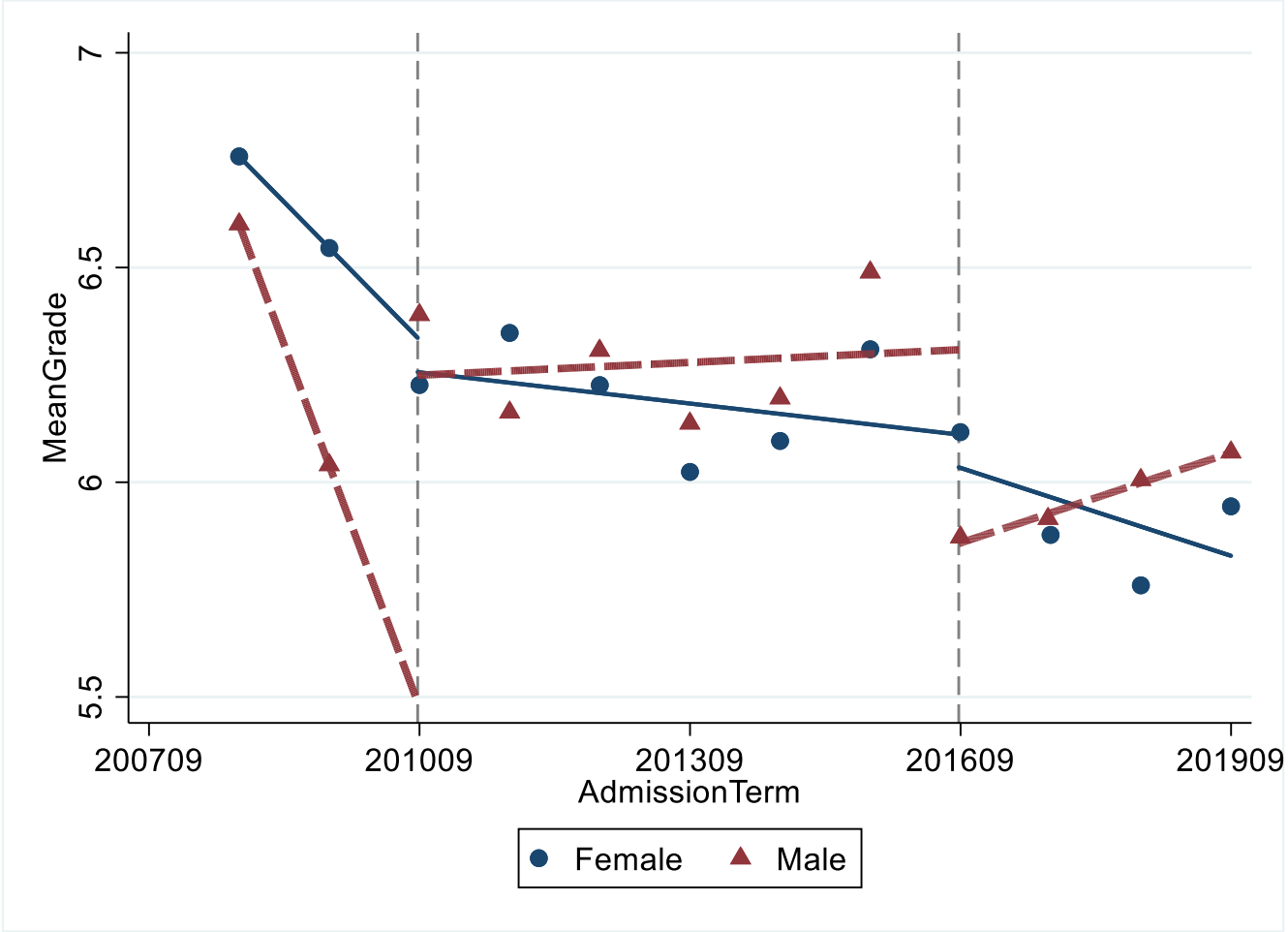
** Carletti, De Marco, Ioannidou and Sette (2020)

Results: difference-in-difference analysis

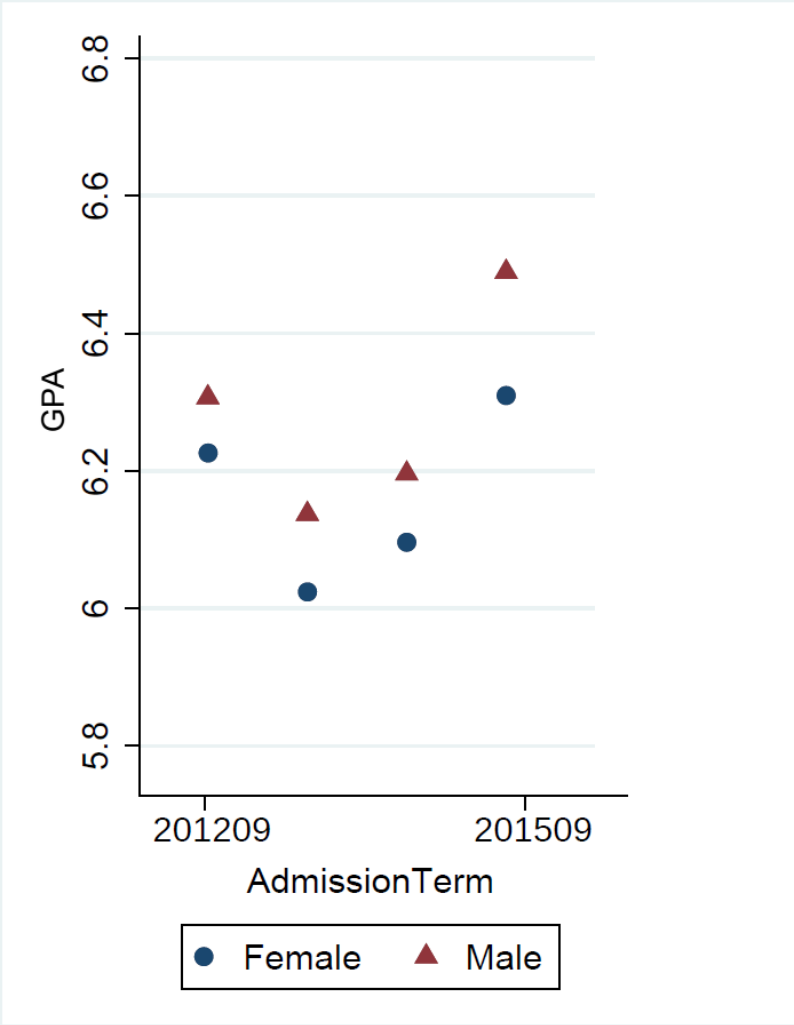
	(1)	(2)	(3)	(4)
Male × Reform 1	0.337**			
	(2.273)			
Male × Placebo 1		0.106		
		(0.715)		
Male × Placebo 2			0.044	
			(0.295)	
Male × Reform 2				-0.265*
				(-1.793)
N	4486	4681	4398	4141
adj. R^2	0.007	0.008	0.006	0.010

Notes. We regress variable *mean grade* on *male*, *reform* and an interaction of the two binary variables, *male*reform* in 2-year windows about the corresponding reform, using individual level observations. We also include district fixed effects. Reform 1 = 1 if t ≥ 2010 and zero otherwise, Placebo 1 = 1 if t ≥ 2012 and zero otherwise, Placebo 2 = 1 if t ≥ 2014 and zero otherwise and Reform 2 = 1 if t ≥ 2016 and zero otherwise. *t* statistics are in parentheses. Levels of significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

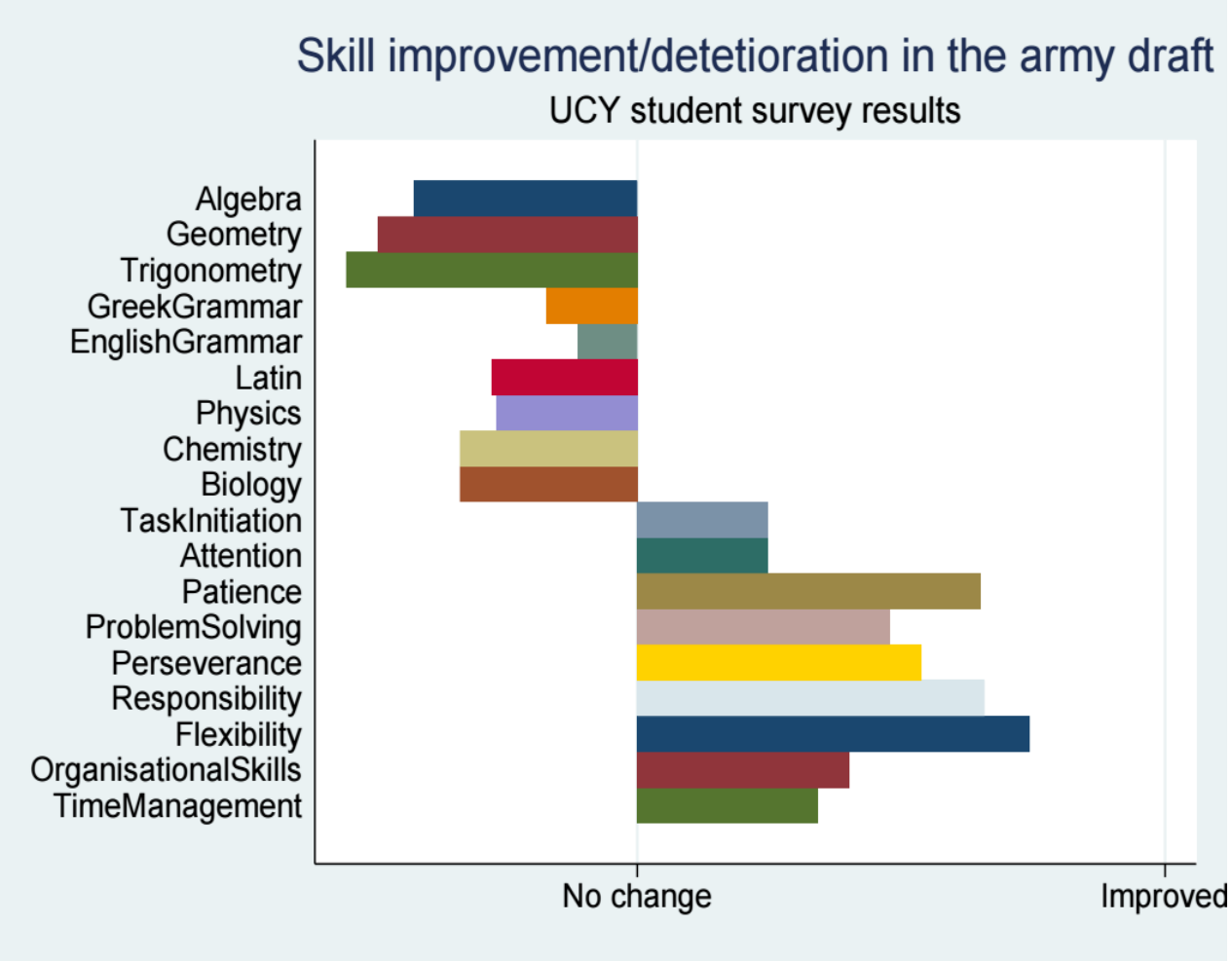
Results: difference-in-difference analysis



Zoom-in: Parallel trends before the 2nd reform



Possible explanation: survey results



Ideas for future research

- Effectiveness analysis: how does and to what extent army training encourage development of transferable skills.
- Qualitative analysis: which type of training programs may improve educational outcomes for students who lack skills necessary for academic success.
- Efficiency analysis: whether improvement in academic performance compensates for the delay in entering the labor market in the long term.

Thank you!

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