How does peer cheating influence on individual cheating behavior?

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Motivation

- Peer effects are meaningful for students. They can infuence positively (Griffith and Rask, 2014) and negatively (Bayer et al., 2009; Kremer and Levy, 2003).
- The analysis how social networks affect academic performance and cheating were in many papers (McCabe and Trevino, 1993; McCabe and Trevino, 1997; Lam et al., 2012; Leming, 1980). Also this topic is important to universities too.
- Poldin et al., 2015 demonstrated comparing analysis of how social networks influence on academic achievements in HSE and UniCamp, while it was not the analysis effects on the level of cheating.

In our research we try to find out how social networks influence on cheating behavior.

Literature

Lam et al., 2012 demonstrate that friendship and study group are endogenously formed networks, which have significant and positive influence on individuals.

- *Hypothesis 1: Academic dishonesty will be indirectly related to co-workers' and friends' academic performance*

Students who face strong disapproval of academic dishonesty from their peers potentially less violate the rules of honor code (Bonjean and McGee, 1965)

- *Hypothesis 2: Academic dishonesty will be directly associated with co-workers' and friends' level of cheating.*

Literature

Research papers that investigates influence of academic outcomes on cheating behavior found strong negative correlation between high GPA and academic dishonesty (McCabe and Trevino, 1997).

- *Hypothesis 3: Academic dishonesty will be indirectly related to academic individual achievement.*

In Underwood and Szabo, 2003 cheating within males prevailed, but also within active users of the Internet therefore the share of women who had considerate Internet experience was more tended to academic dishonesty.

- *Hypothesis 4: Males are more likely to individual's violations of academic aspects of the honor code.*

Literature (HSE)

- Poldin et al., 2015 estimate peer effects as similarity in student attributes and established strong positive impact of peers on academic performance of individual.
- Borisova and Peresetsky, 2016 suggest novel method of student cheating evaluation. Authors estimate the scale of cooperation, which reveals connection with the GPA level, students' expectations of the cheaters' share and students' moral norms.
- E. Borisova et al., 2014 show that motivation to cheat is predicated on students' moral norms, on their expectations of rule compliance among their peers, and on their academic performance.

Data

- Dataset is constructed from the online survey that was conducted on the third-year students of the Faculty of Economics in October 2020. Respondents were asked to write the names of their close friends and students respondents work and consult with while studying.
- We used data that was gathered in May of 2020, which includes names and grades for Data Science homework. The main detail in this homework was the recognition of plagiarism by Yandex Contest in scale from 0 to 6, where 0 – not cheating homework, 6 – fully cheating homework.
- Data about individual GPA, sex and the number of group was gathered from official HSE web-site.

Model

$$cheat = \alpha + \beta_1\ cheat\_formal + \beta_2\ gpa\_formal + \beta_3\ gpa + \beta_4\ sex + \beta_5\ group + \varepsilon$$

$$cheat = \alpha' + \beta'_1\ cheat\_informal + \beta'_2\ gpa\_informal + \beta'_3\ gpa + \beta'_4\ sex + \beta'_5\ group + \varepsilon$$

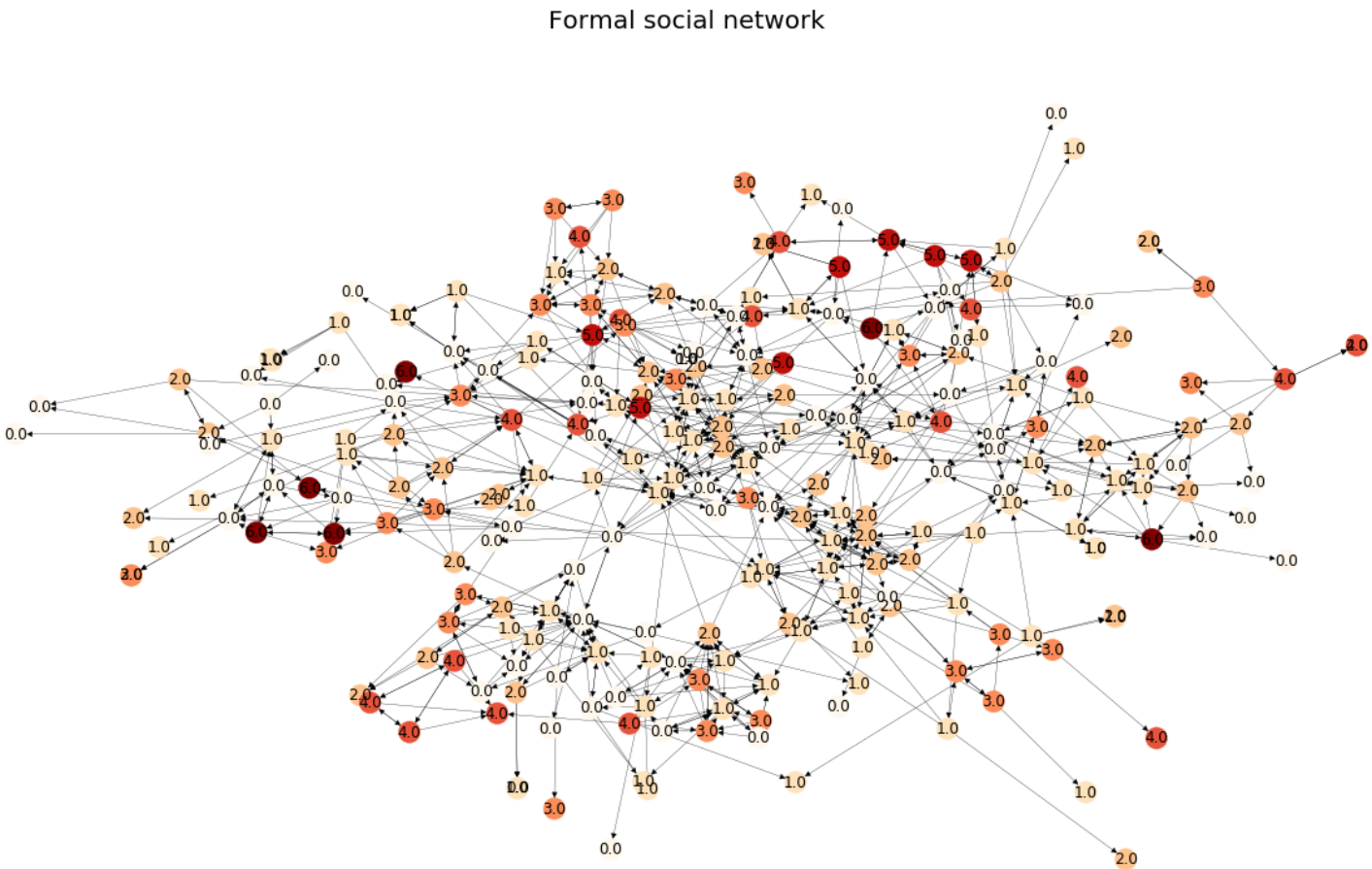
- β_1, β'_1 are "Endogenous effects", which are how one's average peer's level of cheating affect the one's level of cheating;
- β_2, β'_2 are 'Contextual effects", which are how one's average peer's GPA affect one's the level of cheating,
- β_3, β'_3 are "Own effects of GPA", which are how GPA affect the level of cheating,
- β_4, β'_4 are "Own effects of sex", which are how sex affect the level of cheating,
- β_5, β'_5 are "Correlated effects", which are unobservable factors which affect students in the same group.

Results

Table: Formal social network

	Dependent variable:				
	cheat				
	(1)	(2)	(3)	(4)	(5)
cheat_formal	0.435*** (0.071)	0.393*** (0.077)	0.392*** (0.077)	0.386*** (0.075)	0.394*** (0.085)
gpa_formal		−0.110 (0.077)	−0.111 (0.077)	0.014 (0.084)	−0.009 (0.104)
sex			0.036 (0.144)	0.068 (0.140)	0.048 (0.143)
gpa				−0.260*** (0.079)	−0.281*** (0.083)
group_control					YES
Constant	0.000 (0.071)	0.000 (0.071)	−0.015 (0.093)	−0.029 (0.091)	0.011 (0.248)
Observations	163	163	163	163	163
R^2	0.189	0.200	0.200	0.251	0.302
Adjusted R^2	0.184	0.190	0.185	0.232	0.225
Note:					*p<0.1; **p<0.05; ***p<0.01

Results

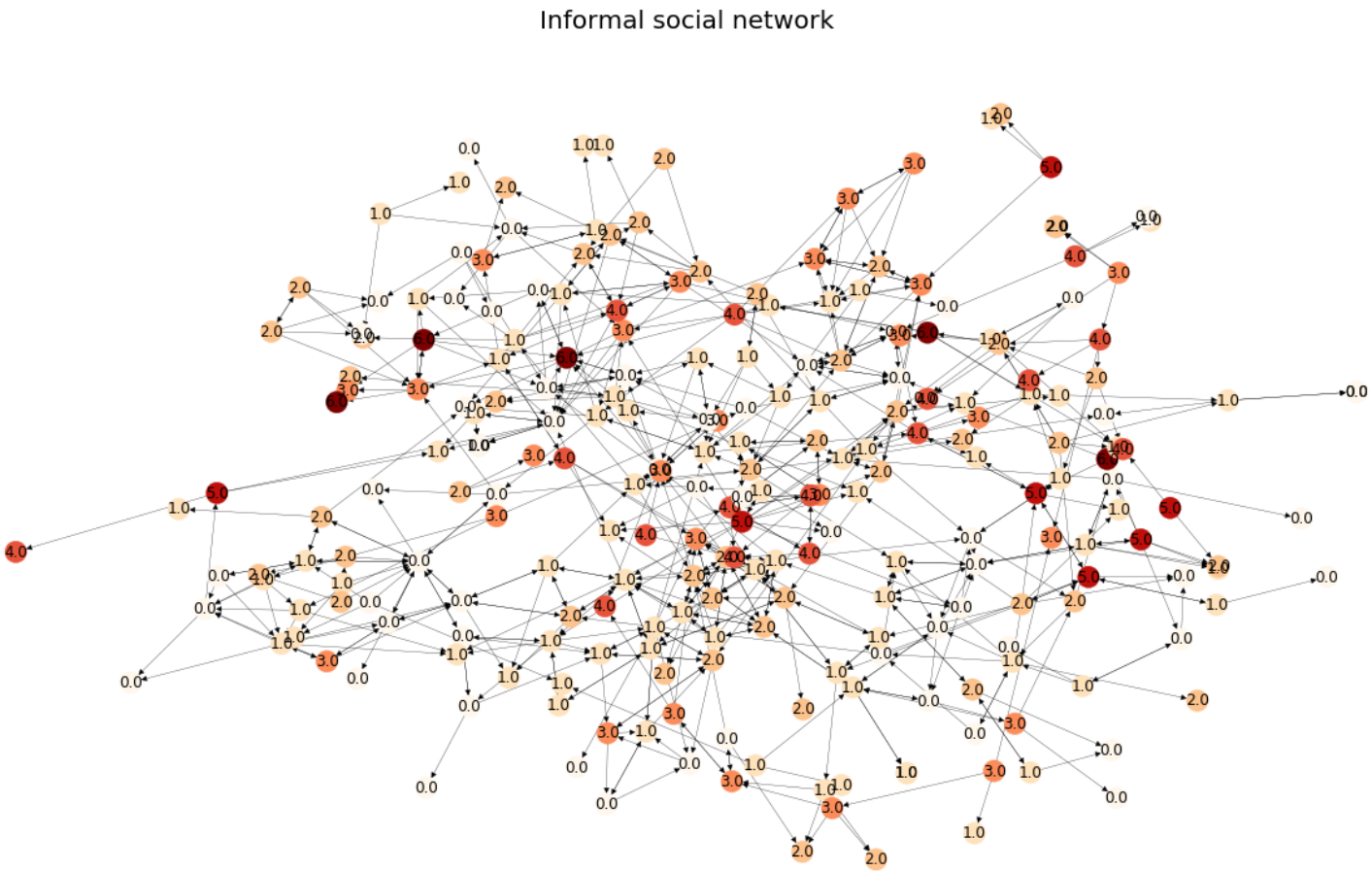


Results

Table: Informal social network

	Dependent variable:				
	cheat				
	(1)	(2)	(3)	(4)	(5)
cheat_informal	0.372*** (0.073)	0.332*** (0.079)	0.331*** (0.080)	0.326*** (0.077)	0.303*** (0.083)
gpa_informal		−0.101 (0.079)	−0.102 (0.080)	−0.007 (0.081)	−0.047 (0.090)
sex			0.017 (0.149)	0.059 (0.143)	0.047 (0.146)
gpa				−0.283*** (0.075)	−0.309*** (0.080)
group_control					YES
Constant	0.000 (0.073)	0.000 (0.073)	−0.007 (0.097)	−0.025 (0.093)	0.015 (0.245)
Observations	163	163	163	163	163
R^2	0.138	0.147	0.147	0.217	0.269
Adjusted R^2	0.133	0.136	0.131	0.197	0.189
Note:					*p<0.1; **p<0.05; ***p<0.01

Results



Results

- We found the significant positive endogenous peer effect for both types of relationships (higher cheating among peers $\Rightarrow$ higher individual cheating)
- We did not find the "contextual effects" in regressions (higher GPA among peers $\Rightarrow$ less individual cheating), because:
  - HSE students are communicative and have formal and informal relationships independently from the GPA
  - Co-working in HSE is widespread and often doing assignments together enhance the effectiveness of all students
  - We had not enough data about students with less GPA, who may have more motives to plagiarism
- We found significant negative "Own effect of GPA", so smarter students are more honest and less cheated, while students with less GPA are prone to plagiarism.
- We did not find the "Own effect of sex", which demonstrates balanced incentives to plagiarism for males and females.

What's next?

- More control variables to solve self selection problem
- Conduct surveys to recognize perception of cheating and student's self-confidence
- Use data about another student's assignments and exam