Inter-Ethnic Friendship and Hostility in Hungarian Schools:
The Role of Academic Achievement and Exposure

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Outline

- Social relevance, motivation & contribution
- Preview of main results
- Data and methods
- Questions:
    1. Does the "acting white" mechanism exist in Hungarian schools?
    2. How can inter-ethnic friendships be encouraged?
    3. Using these policy instruments, what kind of consequences can we expect? Back-of-the-envelope national estimates
- Conclusion and further research

Social Relevance: Social Cohesion

- Close contact with members of a disadvantaged minority decreases prejudice against the minority
    - People from the majority are less prejudiced against the minority if they are connected to people from the minority
    - Meta-analysis of Pettigrew and Tropp (2006, 2011) using 500 studies from 700 samples shows average correlation of -0.21 between number of intergroup contacts and prejudice
        - average effect size is somewhat larger (-0.34) in studies with exogenous variation in contact (experimental design, no self selection)
- Most of these studies analyze potential contact ("acquaintances")
    - Broader than friendship (2. generation studies: friendship)
- Does closeness of the contact matter?
    - Intuitively it should: closer contacts should lead to higher levels of tolerance

Social Relevance: Social Cohesion

- Two examples supporting the role of very close contacts
- Very close contact with members of a disadvantaged minority increases support for policies that benefit disadvantaged minorities
    - Boisjoly, Duncan, Kremer, Levy and Eccles (2006) find that white students who are randomly assigned to African American roommates are significantly more likely to endorse affirmative action
- In the Hungarian Life Course Survey (TARKI) of adolescents non-Roma respondents with Roma friends scored lower by 0.4 std. on a standardized scale of prejudice against the Roma
    - ethnicity measured as a combination of interviewer classification (in one wave), identification of biological parents (in two waves) and identification of the adolescents themselves (in four waves)
    - association is similar among boys and girls

Social Relevance: Life Chances of Minorities

- Contact with the members of the majority may lead to better choices and better integration of members of a disadvantaged minority
- Theories of Social Capital (Loury, 1977) and Weak Ties (Granovetter, 1973)
  - ► most important examples are choosing schools and finding jobs
  - ► Crain (1992) finds that black students who were randomly assigned opportunity to attend middle-class schools had better outcomes and more white friends sixteen years later
- Does closeness of contact matter?
  - ► Literature inconclusive
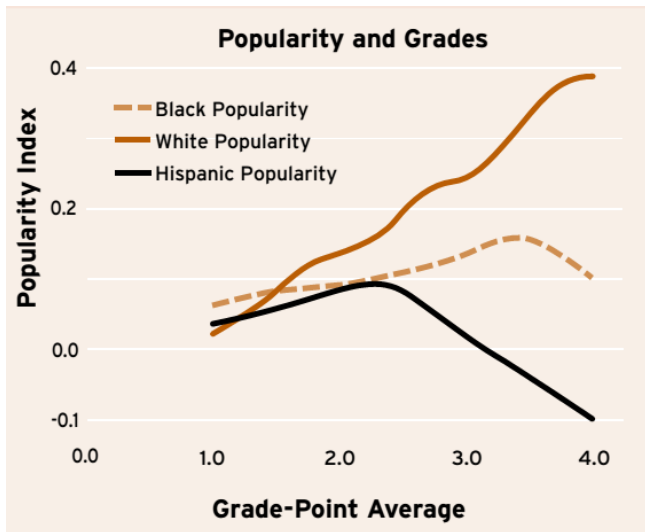
Motivation: Inter-Ethnic Friendships Matter

- Our starting point:
    - Non-Roma students with Roma friends are expected to become more tolerant than non-Roma students who simply have Roma classmates
- How can inter-ethnic friendships be encouraged?
    1. Being exposed to classmates of different ethnicity (necessary condition)
        - and having equal status
    2. Sharing common goals, common interest with them
- Higher achievement in school *may be* an important common goal

Higher achievement is not necessarily a common goal

- The potential problem of "acting white"
  - Academically inclined and better performing members of a minority may be shunned by their peers
  - Negative incentive for them to work for higher achievement
  - Can undermine achievement as a common goal that can foster inter-ethnic friendships

- Fryer and Torelli (2010): Black and Hispanic HS. students with high GPA have fewer friends from their own minority group than similar students with lower GPA
  - And this is not compensated by having more friends from the majority
  - Resulting in fewer friends altogether

- Fryer and Torelli emphasize results on "popularity"
  - Number of friends weighted by how many friends they have, iterated
  - But their result is the same if they simply look at the number of friends

"Acting White": adverse effects, US

Fryer and Torelli (2010): popularity of high school students and their GPA

Popularity and Grades

- - Black Popularity
— White Popularity
— Hispanic Popularity

Popularity Index
Grade-Point Average

Our Contribution

- We analyze the association of inter-ethnic contacts with GPA in Hungarian schools
  - ▸ Roma students and non-Roma students
  - ▸ Our data covers primary school students in grade 8
    - ★ relatively small classes (average class size is 25)
    - ★ typical student spent 8 years with same classmates by the time of our measurement of friendship
- We measure hostility as well as friendship
  - ▸ No study looked hostility in relation with GPA
    - ★ in part because the Add Health data (analyzed by Fryer and Torelli and many others) does not contain measures on hostility
- We look at the interaction of GPA and ethnic composition in associations with contacts
- We carry out a simple simulation exercise to assess the nation-wide benefits to higher achievement and more equal distribution of Roma students across classes

Preview of Main Results

- Our evidence does not support the existence of "Acting White"
  - On the contrary: Roma students with better results have more friends and fewer refusals. Incentives work in the right direction
    - ⋆ in the same way as non-Roma students with better results have more friends and fewer refusals
- Higher exposure of Roma students to non-Roma classmates increases inter-ethnic friendships more than it increases inter-ethnic refusals
  - the driving force is interethnic contacts of high-GPA Roma students
- Higher exposure of Roma students to non-Roma classmates benefits high-GPA Roma students
  - in terms of the composition of their friendships
  - but hurts low-GPA Roma students by decreasing their overall number of friends and by increasing their overall number of refusals
- Policies that combine more equal distribution of Roma students and raise the achievement of Roma are likely to produce higher social cohesion
  - than policies that aim at one of the two only

Data
Sample

- 8th-grade students
- Primary schools in 74 of the larger municipalities in Hungary
  - Except Budapest
  - Fraction Roma in classes between 10 percent and 90 percent
- 82 schools
  - 164 classes
  - 3213 students (637 Roma, 2569 non-Roma, 7 unknown)
- Fieldwork: Spring 2010
- Classes are dropped if fewer than 10 students or more than 25 percent missing
- Questionnaire about friendship and refusal nominations

Data
Measuring friendship network

- Questions about friendship and refusals
  - Format comparable the Add Health survey in the U.S.
    - but refusals included, too
  - Names of friends entered, converted to identifiers, and linked to classmates
    - linking ethnic identity and all personal information as well
- Five best male friends
- Five best female friends
- Refusals
  - List those classmates of yours (max 5) that you would not sit next to on a train
- Additional questions on friends outside the class and school as well as neighbors
  - list up to two for each
  - information on those individuals are also collected

Data
Other variables

- Survey included additional questions on grades and family background
- Ethnicity
  - ▶ 2 questions asked to allow for dual identity
    - ★ "In our country, people belong to different minorities and ethnic groups. To what ethnic group do you consider yourself to primarily belong?"
    - ★ "To what ethnic group do you consider yourself to belong secondarily?"
- GPA in grade 8
  - ▶ Linked from class records
  - ▶ Maximum GPA 5; minimum passing GPA 2
  - ▶ Created "High GPA" category: GPA between 3.5 and 5
- Test scores in grades 8 and 10
  - ▶ From administrative records (NABC)

Data

- The IEF students have lower achievement and less educated parents than the national average
- IEF vs. NABC
  - Table shows standardized test scores and parental education
  - In the IEF survey
  - and the National Assessment of Basic Competences
    - same grade, same year, admin survey

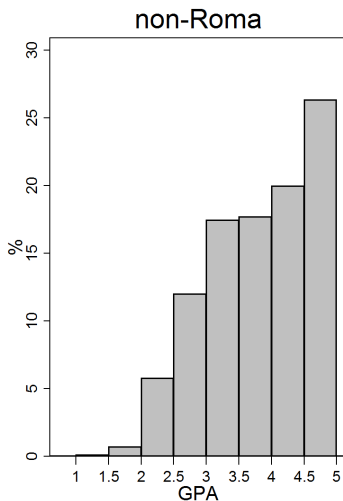|		IEF	NABC
Test scores	Math	-0.26	0
	Reading	-0.30	0
Education level: primary or less	Father	21%	14%
	Mother	28%	18%
Fraction of Roma students		20%	14%

Fraction of Roma students

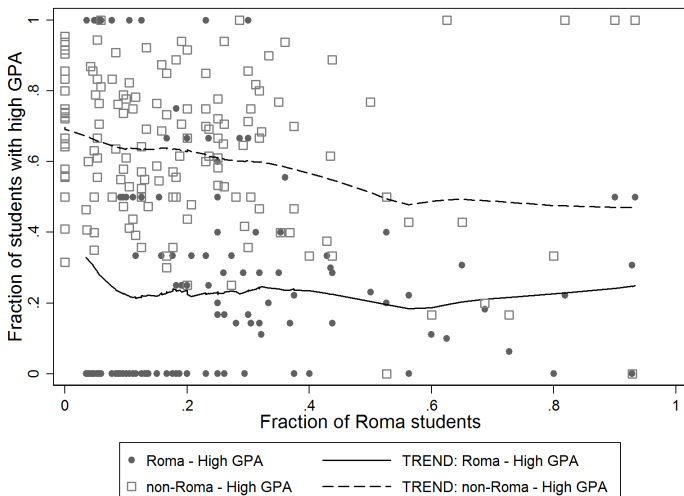- Our sample over-represents classes with higher fraction of Roma students (mean=0,21)
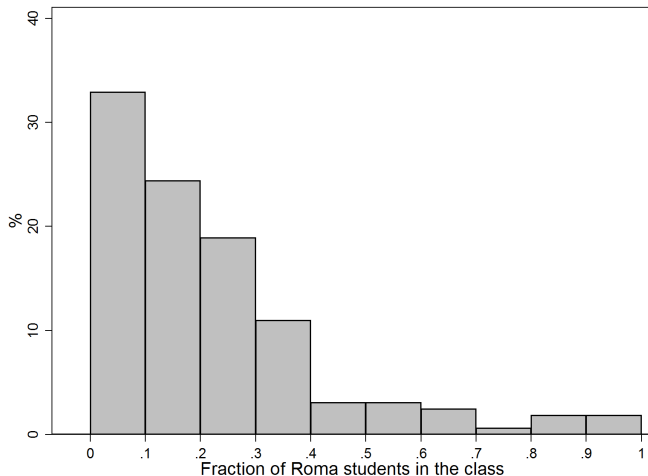
GPA By Ethnicity

- Average GPA 3.8 among non-Roma;   2.9 among Roma
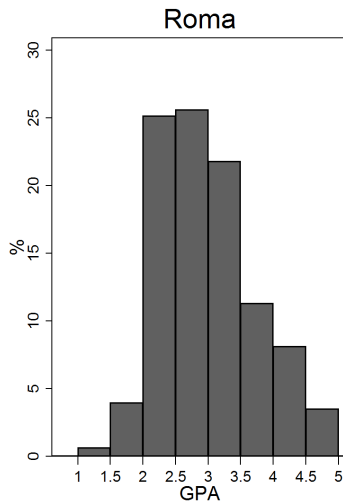
Fraction of Roma students in class and GPA

- Fraction of Roma not related to GPA among Roma but weakly negatively related to GPA among non-Roma

Fraction of Roma students in class and test scores

- Fraction of Roma weakly negatively related to test scores among Roma and strongly negatively related to test scores among non-Roma
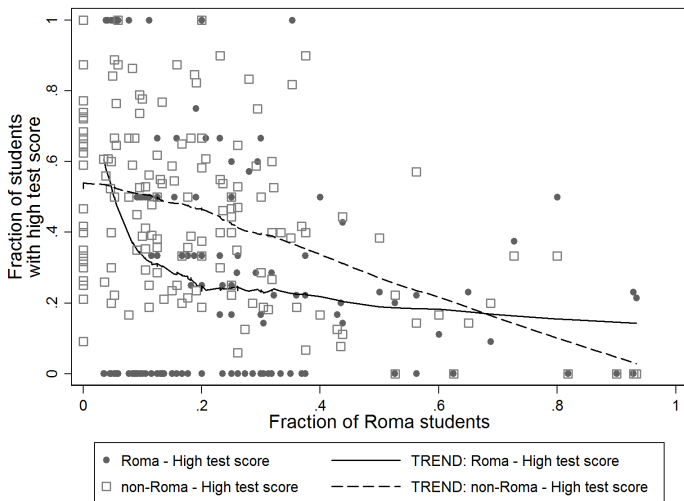
Methods

- Number of friends (refusals): the number of same-sex classmates nominating the individual as friend (refusing her/him)
  - "Indegree"
  - Net nominations = friendship nominations - refusals
- We constrain contacts to same-sex friendship nominations and refusals
  - Standard in literature; excluding intimate relationships
- We show graphs first
  - Separately for Roma and non-Roma
- Then we show linear regressions
  - Separately for Roma and non-Roma
  - We control for many variables of the individual and the class
  - We also include class FE, sometimes classXgender FE
- Do not interpret Roma vs non-Roma magnitudes for now
  - Magnitudes depend on the size of the group
  - Will be analyzed in next section

Friendships and refusals

Summary statistics

Number of friends and refusals

|	Indegree	Roma	non-Roma	Gap
Friendships	with Roma	1.7	0.5	1.2
	with non-Roma	1.7	3.5	-1.8
Refusals	by Roma	0.2	0.2	0.0
	by non-Roma	1.1	0.8	0.3

	Outdegree	Roma	non-Roma	Gap
Friendships	with Roma	1.7	0.4	1.3
	with non-Roma	2.0	3.5	-1.5
Refusals	toward Roma	0.2	0.3	-0.1
	toward non-Roma	0.7	0.8	-0.1

1. QUESTION:

DOES THE "ACTING WHITE" MECHANISM EXIST IN HUNGARIAN SCHOOLS?

All fiends and GPA

- Students with higher GPA have more friends
  - Relationship very similar for Roma and non-Roma


All friends
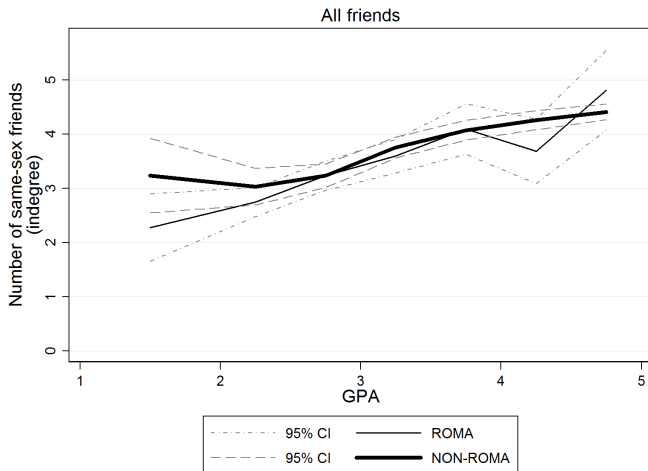
Non-Roma friends and GPA

- Students with higher GPA have more non-Roma friends
  - ▸ Relationship very similar for Roma and non-Roma (slopes)
  - ▸ Homophily seems strong but is overestimated; see later
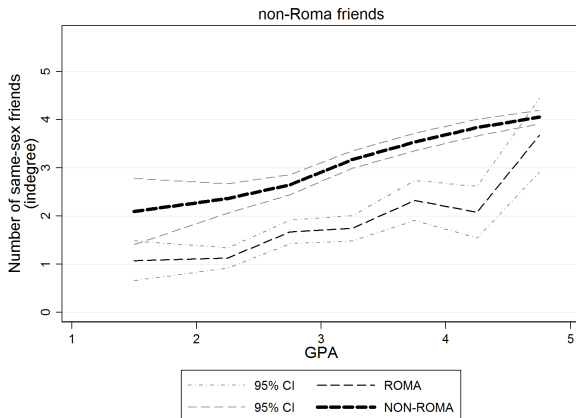
non-Roma friends

Roma friends and GPA

- Roma students with higher GPA do not have fewer Roma friends
- Non-Roma students with higher GPA have slightly fewer Roma friends
  - ▸ Very week relationships
  - ▸ Homophily seems strong but is overestimated; see later
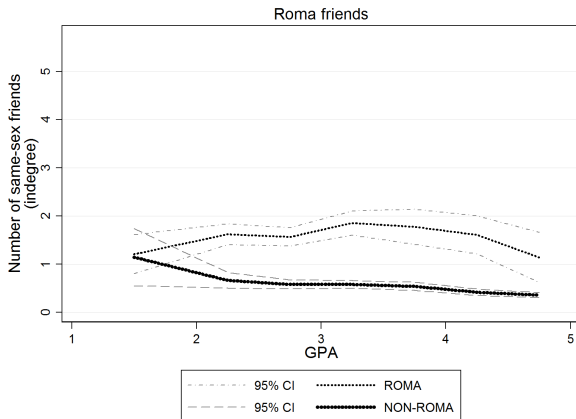
Friends of Roma students and GPA

- Results are robust to the inclusion of control variables and fixed-effects

	(1) # of Roma friends	(2) # of Roma friends	(3) # of Roma friends	(4) # of non-Roma friends	(5) # of non-Roma friends	(6) # of non-Roma friends
Average grade (GPA)	0.056	0.067	0.172	0.673***	0.622***	0.511***
	(0.085)	(0.107)	(0.117)	(0.104)	(0.156)	(0.177)
Controls		yes	yes		yes	yes
Class fixed effects		yes			yes	
Class-gender group fixed effects			yes			yes
Adjusted R^2	0.009	0.410	0.508	0.087	0.344	0.497
N	637	637	637	637	637	637

Dependent variable: Number of friends (indegree)
Robust standard errors adjusted for clustering by class are in parentheses
Controls: age, gender, number of skipped classes with permission, education level of mother/father, living together with mother/father, mother/father employed in regular job, parenting, years in kindergarten, financial hardship, household size, Roma neighbours, non-Roma neighbours, composition of neighbourhood, number of same-sex students with good grades & filled out questionnaire
Dummies are included for missing regressors
* p < 0.10, ** p < 0.05, *** p < 0.01

Friends of Roma students and test scores

- Results are similar for test scores

	(1) # of Roma friends	(2) # of Roma friends	(3) # of Roma friends	(4) # of non-Roma friends	(5) # of non-Roma friends	(6) # of non-Roma friends
Test score	-0.175	-0.032	0.136	0.485***	0.326**	0.225
	(0.106)	(0.108)	(0.120)	(0.108)	(0.160)	(0.152)
Controls		yes	yes		yes	yes
Class fixed effects		yes			yes	
Class-gender group fixed effects			yes			yes
Adjusted R^2	0.007	0.400	0.500	0.049	0.315	0.482
N	637	637	637	637	637	637

Dependent variable: Number of friends (indegree)
Robust standard errors adjusted for clustering by class are in parentheses
Controls: age, gender, number of skipped classes with permission, education level of mother/father, living together with mother/father, mother/father employed in regular job, parenting, years in kindergarten, financial hardship, household size, Roma neighbours, non-Roma neighbours, composition of neighbourhood, number of same-sex students with good grades & filled out questionnaire
Dummies are included for missing regressors
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Friends of Roma students and behavior grade

- Results are similar for behavior grade

	(1) # of Roma friends	(2) # of Roma friends	(3) # of Roma friends	(4) # of non-Roma friends	(5) # of non-Roma friends	(6) # of non-Roma friends
Behavior grade	-0.027	-0.037	-0.044	0.353***	0.302***	0.286**
	(0.069)	(0.093)	(0.128)	(0.066)	(0.108)	(0.126)
Controls		yes	yes		yes	yes
Class fixed effects		yes			yes	
Class-gender group fixed effects			yes			yes
Adjusted R^2	-0.001	0.400	0.498	0.041	0.319	0.486
N	637	637	637	637	637	637

Dependent variable: Number of friends (indegree)
Robust standard errors adjusted for clustering by class are in parentheses
Controls: age, gender, number of skipped classes with permission, education level of mother/father, living together with mother/father, mother/father employed in regular job, parenting, years in kindergarten, financial hardship, household size, Roma neighbours, non-Roma neighbours, composition of neighbourhood, number of same-sex students with good grades & filled out questionnaire
Dummies are included for missing regressors
* p < 0.10, ** p < 0.05, *** p < 0.01

Further robustness checks

- Results are the same if LHS variable is replaced by some kind of popularity measure
  - One-step popularity: weighting one's friends by the number of the friends of one's friends
  - The index of popularity introduced by Fryer and Torelli
    - when number of one's friends friends, the number of their friends etc. are taken into account as well, in an iterated fashion
- If we include GPA, test scores and behavior grade together in the regressions GPA remains strongest
  - Achievement matters more than behavior
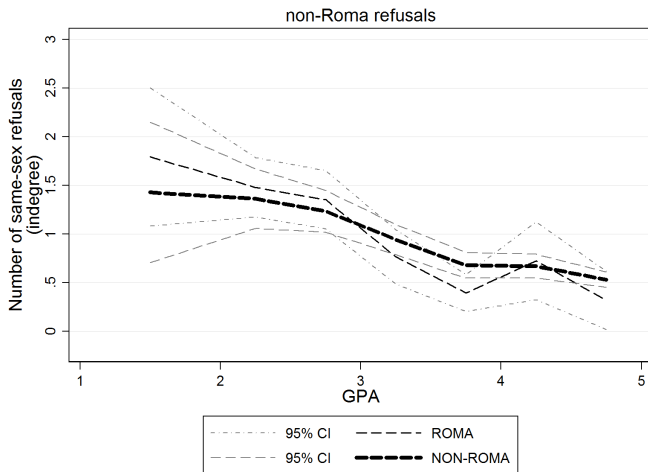 - GPA is more salient than test score

All refusals and GPA

- Students with higher GPA have fewer refusals
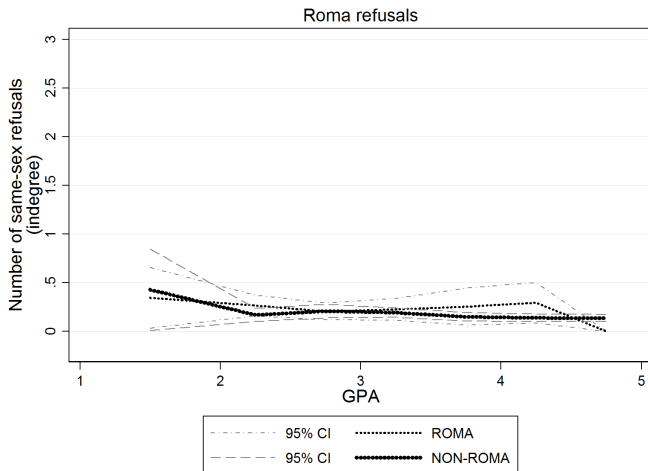 - Relationship similar for Roma and non-Roma
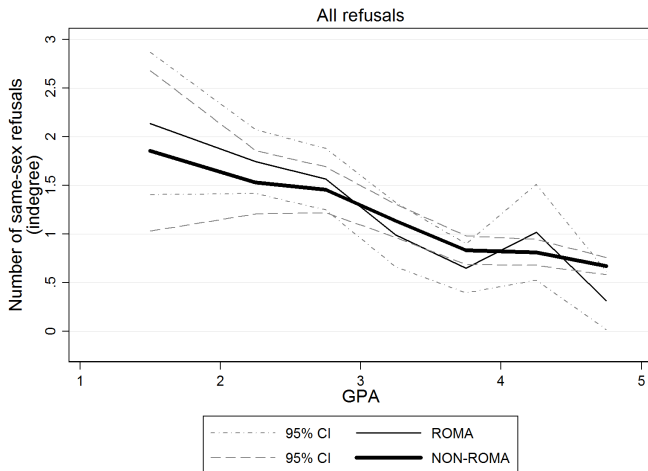
All refusals

Refusals by non-Roma and GPA

- Students with higher GPA are less often refused by non-Roma
  - Relationship similar for Roma and non-Roma

non-Roma refusals

Refusals by Roma and GPA

- Students with higher GPA have the same number of Roma refusals
  - Relationship similar for Roma and non-Roma

Roma refusals

Refusals of Roma students and GPA

- Results are similar (sometimes stronger) when controlling for covariates and fixed-effects

	(1) # of refusals by Roma	(2) # of refusals by Roma	(3) # of refusals by Roma	(4) # of refusals by non-Roma	(5) # of refusals by non-Roma	(6) # of refusals by non-Roma
Average grade (GPA)	-0.030	-0.158***	-0.121*	-0.558***	-0.568***	-0.370**
	(0.038)	(0.056)	(0.072)	(0.106)	(0.134)	(0.148)
Controls		yes	yes		yes	yes
Class fixed effects		yes			yes	
Class-gender group fixed effects			yes			yes
Adjusted R^2	-0.002	0.063	0.061	0.053	0.324	0.433
N	637	637	637	637	637	637

Dependent variable: Number of refusals (indegree)
Robust standard errors adjusted for clustering by class are in parentheses
Controls: age, gender, number of skipped classes with permission, education level of mother/father, living together with mother/father, mother/father employed in regular job, parenting, years in kindergarten, financial hardship, household size, Roma neighbours, non-Roma neighbours, composition of neighbourhood, number of same-sex students with good grades & filled out questionnaire
Dummies are included for missing regressors
* p < 0.10, ** p < 0.05, *** p < 0.01

"Net" relationships and GPA

- Students with higher GPA have more "net" relationships
  - ▶ Relationship similar for Roma and non-Roma
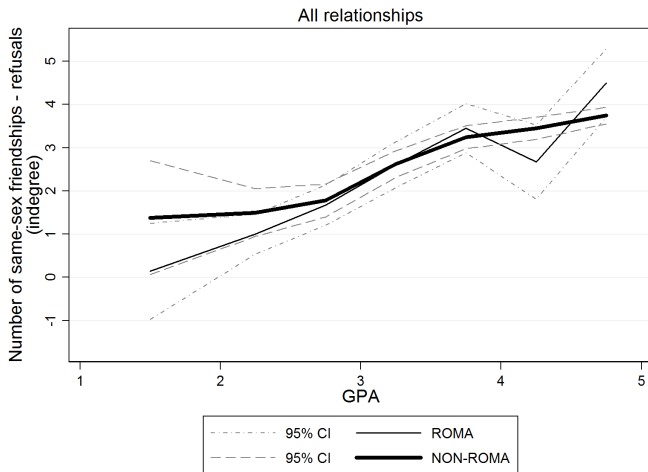
All relationships

"Net" relationship to non-Roma students and GPA

- "Net" relationships to non-Roma strongly positively related to GPA
  - Very similar for Roma and non-Roma

non-Roma relationships
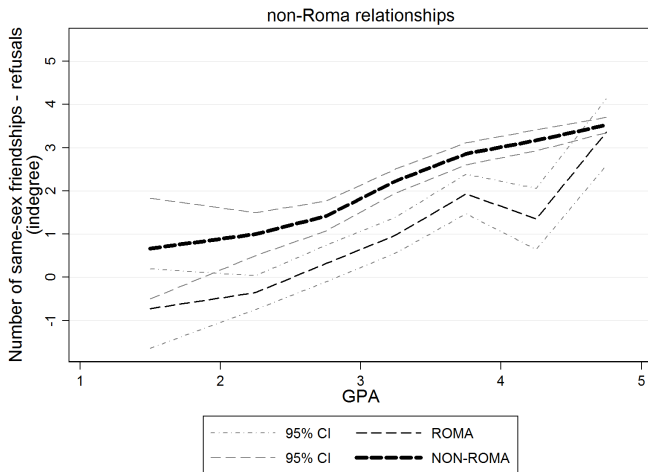
"Net" relationship to Roma students and GPA

- "Net" relationships to Roma students are not related to GPA
  - Relationship similar for Roma and non-Roma

Roma relationships
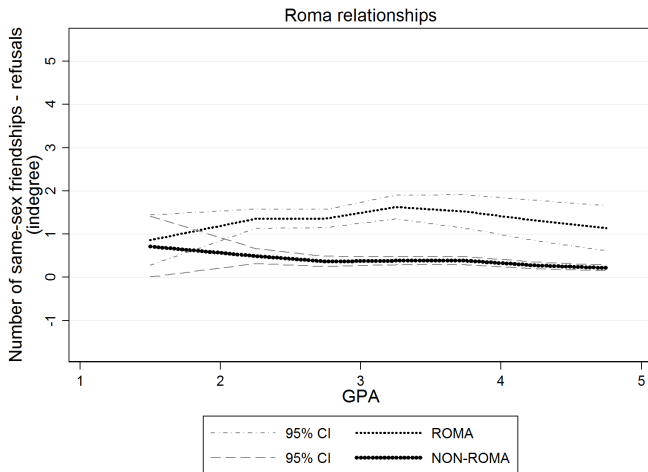
"Net" relationships of Roma students and GPA

- Results are similar (sometimes stronger) when controlling for covariates and fixed-effects

	(1) # of "net" relationships to Roma	(2) # of "net" relationships to Roma	(3) # of "net" relationships to Roma	(4) # of "net" relationships to non-Roma	(5) # of "net" relationships to non-Roma	(6) # of "net" relationships to non-Roma
Average grade (GPA)	0.086 (0.099)	0.225 (0.141)	0.292* (0.153)	1.231*** (0.158)	1.191*** (0.246)	0.881*** (0.257)
Controls		yes	yes		yes	yes
Class fixed effects		yes			yes	
Class-gender group fixed effects			yes			yes
Adjusted R^2	0.007	0.257	0.295	0.115	0.342	0.455
N	637	637	637	637	637	637

Dependent variable: Number of friendships - refusals (indegree)
Robust standard errors adjusted for clustering by class are in parentheses
Controls: age, gender, number of skipped classes with permission, education level of mother/father, living together with mother/father, mother/father employed in regular job, parenting, years in kindergarten, financial hardship, household size, Roma neighbours, non-Roma neighbours, composition of neighbourhood, number of same-sex students with good grades & filled out questionnaire
Dummies are included for missing regressors
* p < 0.10, ** p < 0.05, *** p < 0.01

Summary of the results
Relationship of GPA and friendship nominations and refusals

	Nominations by non-Roma			Nominations by Roma		
	Friendships	Refusals	Net	Friendships	Refusals	Net
Roma	+	-	+	0	0/-	0/+
non-Roma	+	-	+	0/-	0	0

+: increasing with GPA
-: decreasing with GPA
0: independent from GPA

- Friendship nominations by non-Roma are positively related to GPA
  - refusals by non-Roma are negatively related to GPA
  - similar toward Roma and non-Roma classmates, no ethnic bias
- Friendship nominations and refusals by Roma are not related to GPA
  - similar toward Roma and non-Roma classmates, no ethnic bias
- No evidence for negative effects of "acting white"

2. QUESTION:

HOW CAN INTER-ETHNIC FRIENDSHIPS BE ENCOURAGED?
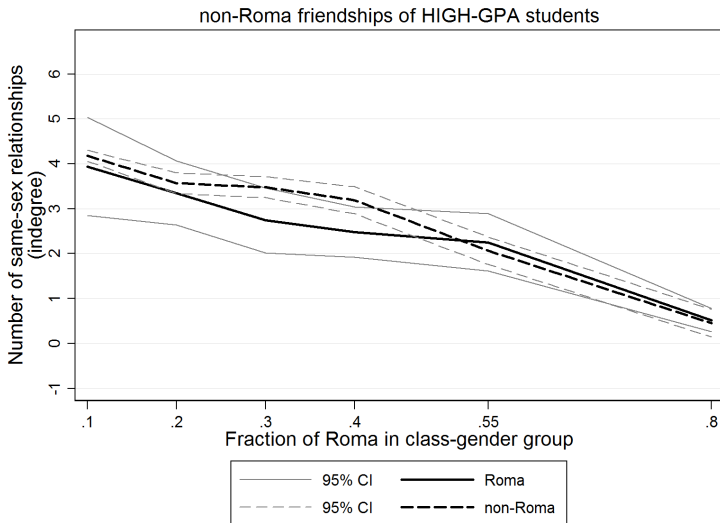
Role of exposure

Role of school achievement

Inter-ethnic friendships and hostility and exposure to the other ethnic group

- We show graphs for the number of friendship nominations and refusals as a function of the fraction of Roma students ("exposure") in class
  - ▶ Recall the distribution of the ethnic composition in our sample: most classes between 10% Roma and 50% Roma
- We show results for students with high GPA and low GPA separately
  - ▶ High GPA: at least 3.5
    - ★ 23% of Roma; 64% of non-Roma
  - ▶ Low GPA: below 3.5
    - ★ 77% of Roma; 36% of non-Roma
- Recall (slide 17) that the fraction of Roma students in the class is not related to the fraction of high-GPA students among the Roma students
  - ▶ but it is negatively related to the fraction of high-GPA students among the non-Roma students

Friendship nominations by non-Roma

Friendship nominations of high-GPA Roma and non-Roma students by non-Roma classmates

non-Roma friendships of HIGH-GPA students

Refusals by non-Roma

Refusals of high-GPA Roma and non-Roma students by non-Roma classmates

non-Roma refusals of HIGH-GPA students

Number of same-sex relationships (indegree) vs Fraction of Roma in class-gender group

Legend: 95% CI, Roma, 95% CI, non-Roma

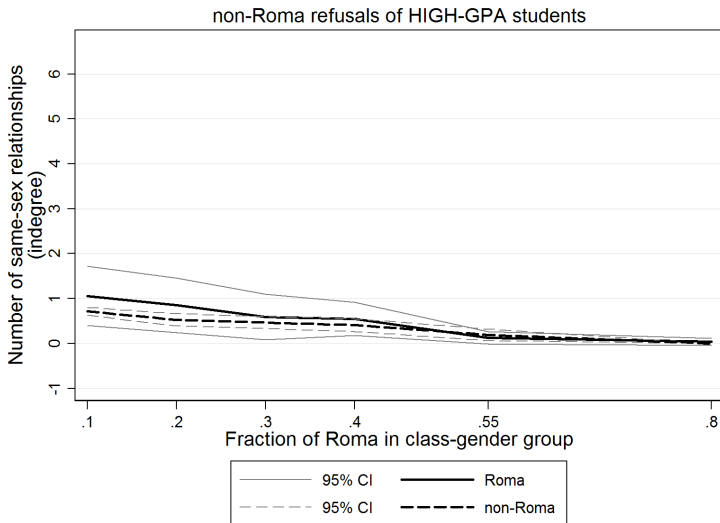# Friendship nominations by non-Roma

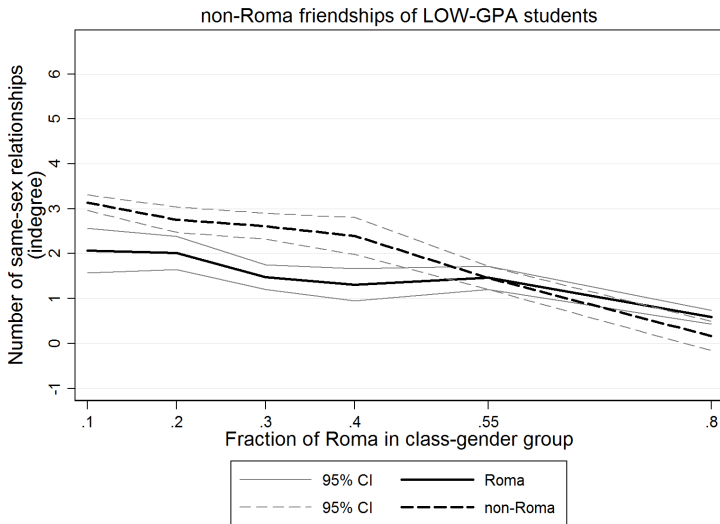Friendship nominations of low-GPA Roma and non-Roma students by non-Roma classmates

non-Roma friendships of LOW-GPA students

Number of same-sex relationships (indegree) vs. Fraction of Roma in class-gender group

Legend:
- 95% CI (solid)
- 95% CI (dashed)
- Roma
- non-Roma

Refusals by non-Roma

Refusals of low-GPA Roma and non-Roma students by non-Roma classmates

non-Roma refusals of LOW-GPA students

(x-axis) Fraction of Roma in class-gender group

(y-axis) Number of same-sex relationships (indegree)

Legend:
- 95% CI
- 95% CI
- Roma
- non-Roma
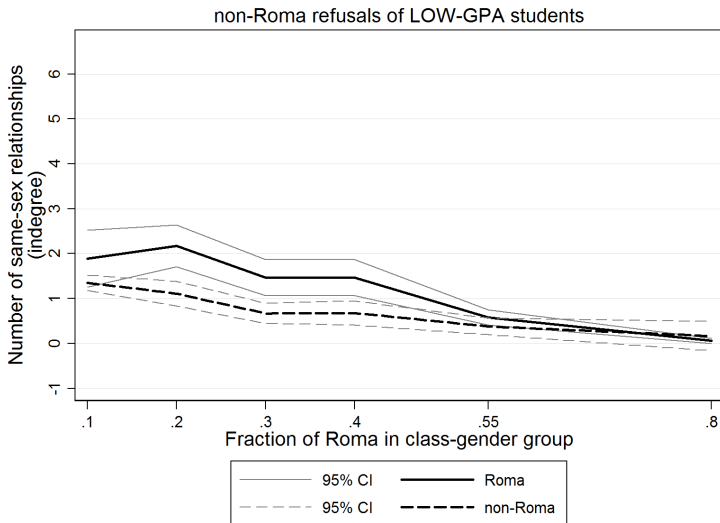
Friendship nominations and refusals by non-Roma

Summary of results for high-GPA Roma and non-Roma students

- High-GPA Roma students have substantially more non-Roma friends in classes with few Roma students than in classes with many Roma students
  - They also have somewhat more non-Roma refusals
- The relationship is similar to friendship nominations and refusals of high-GPA non-Roma students by non-Roma classmates
- Not only the slopes but the levels are also similar
  - except around .3 and .4
    - but confidence intervals are wide
- Interpretation: High-GPA Roma students are treated the same way by their non-Roma classmates as high-GPA non-Roma students
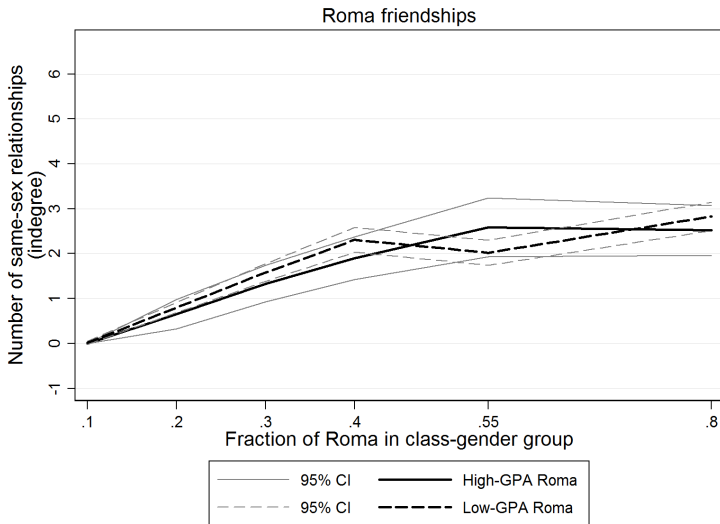
Friendship nominations and refusals by non-Roma

Summary of results for low-GPA Roma and non-Roma students

- Low-GPA Roma students have more non-Roma friends in classes with few Roma students than in classes with many Roma students
  - ▶ But this relationship is weaker than friendship nominations of low-GPA non-Roma students by non-Roma classmates
  - ▶ So low-GPA Roma students have fewer non-Roma friends than their non-Roma peers when fraction Roma is low

- Low-GPA Roma students have more non-Roma refusals in classes with few Roma students than in classes with many Roma students
  - ▶ And this relationship is stronger than refusals of low-GPA non-Roma students by non-Roma classmates
  - ▶ So low-GPA Roma students have more non-Roma refusals than their non-Roma peers when fraction Roma is low

- Interpretation: Low-GPA Roma students are befriended less and refused more by their non-Roma classmates as low-GPA non-Roma students

Friendship nominations by Roma

Friendship nominations of high-GPA Roma and low-GPA Roma students by Roma classmates

Roma friendships

Number of same-sex relationships (indegree) vs Fraction of Roma in class-gender group

Legend: 95% CI, High-GPA Roma, 95% CI, Low-GPA Roma

Refusals by Roma

Refusals of high-GPA Roma and low-GPA Roma students by Roma classmates

Roma refusals

95% CI — High-GPA Roma
95% CI — Low-GPA Roma
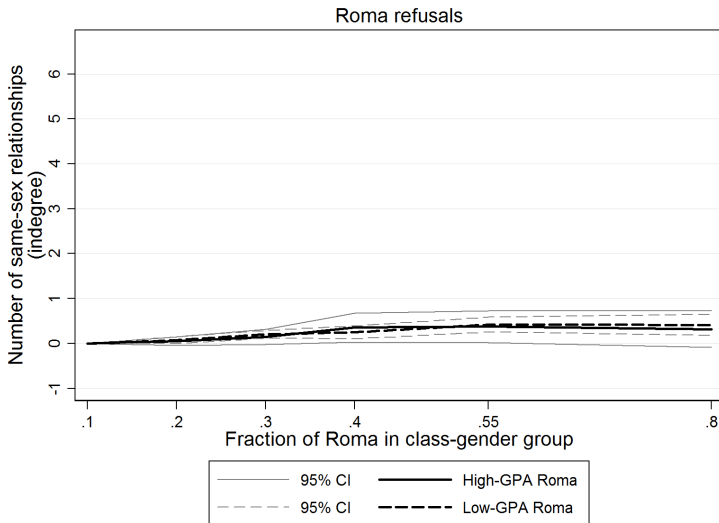
Friendship nominations and refusals by Roma

Friendship nominations and refusals of Roma students by Roma classmates

- There is no significant difference between high-GPA Roma students and low-GPA Roma students in how they are nominated as friends or refused by their Roma classmates
  - No difference in levels
  - No difference in the relationships with the fraction of Roma students in class

- Roma-Roma refusals are very rare even if exposure to Roma classmates is high

Friendship nominations and refusals overall

Friendship nominations and refusals of high-GPA Roma students

ROMA - HIGH GPA
All relationships

Legend:
- 95% CI — Fiendships
- 95% CI — Refusals

x-axis: Fraction of Roma in class-gender group
y-axis: Number of same-sex relationships (indegree)
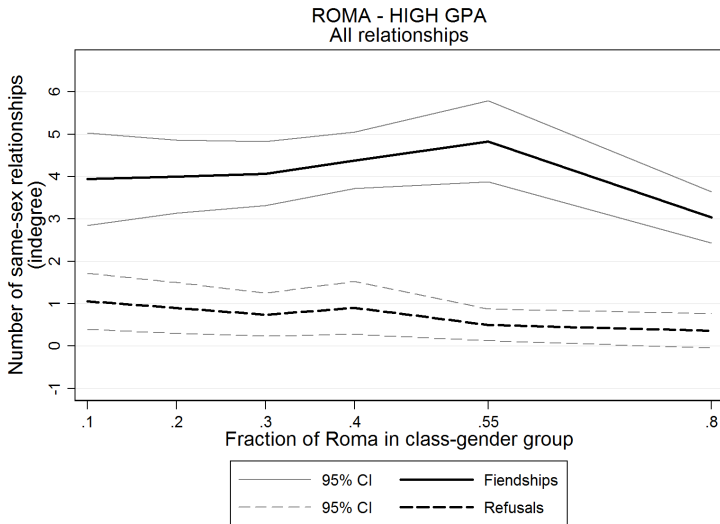
Friendship nominations and refusals overall

Friendship nominations and refusals of low-GPA Roma students

ROMA - LOW GPA
All relationships

95% CI — Fiendships
95% CI — — Refusals
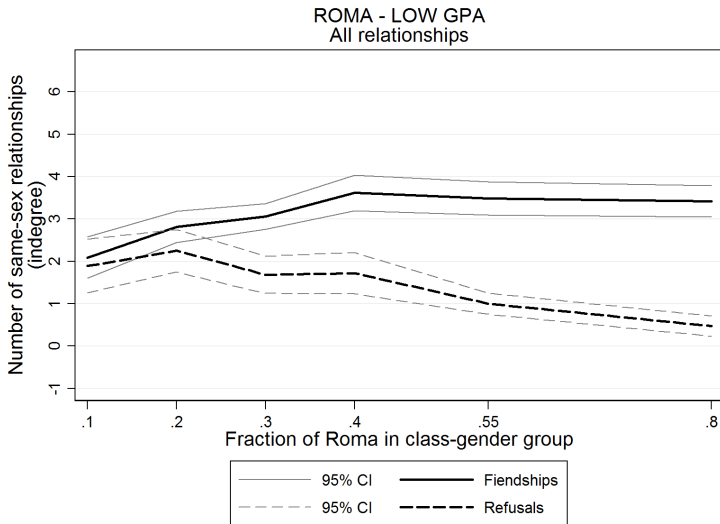
Robustness of Results on Friendships of Roma

- All results hold conditional on covariates

	(1) # of all friends	(2) # of all friends	(3) # of all friends	(4) # of Roma friends	(5) # of Roma friends	(6) # of Roma friends	(7) # of Non-Roma friends	(8) # of Non-Roma friends	(9) # of Non-Roma friends
Fraction of Roma same-sex classmates	0.257 (0.594)	-0.185 (0.564)	0.274 (1.113)	3.636*** (0.403)	3.628*** (0.390)	4.726*** (0.717)	-3.378*** (0.360)	-3.813*** (0.344)	-4.451*** (1.002)
Fraction of Roma same-sex classmates * Low GPA	1.203** (0.489)	1.230*** (0.461)	0.961* (0.545)	0.188 (0.308)	0.348 (0.329)	0.243 (0.380)	1.014*** (0.297)	0.881*** (0.284)	0.718** (0.361)
Number of same-sex classmates	0.102*** (0.027)	0.163*** (0.029)	0.186*** (0.049)	0.141*** (0.022)	0.143*** (0.031)	0.148*** (0.032)	-0.040 (0.029)	0.020 (0.027)	0.038 (0.043)
Average grade (GPA)	0.961*** (0.137)	0.927*** (0.151)	0.981*** (0.213)	0.073 (0.081)	0.086 (0.074)	0.160 (0.101)	0.888*** (0.120)	0.842*** (0.139)	0.821*** (0.188)
Controls		yes	yes		yes	yes		yes	yes
Class fixed effects			yes			yes			yes
Adjusted R²	0.120	0.198	0.269	0.404	0.439	0.521	0.224	0.298	0.391
N	629	629	629	629	629	629	629	629	629
p-value of the effect of Roma classmates for Low GPA students	0.000	0.011	0.229	0.000	0.000	0.000	0.000	0.000	0.000

Dependent variable: Number of friendships (indegree)
Robust standard errors adjusted for clustering by class are in parentheses
Controls: age, gender, number of skipped classes with permission, education level of mother/father, living together with mother/father, mother/father employed in regular job, parenting, years in kindergarten, financial hardship, household size, Roma neighbours, Non-Roma neighbours, composition of neighbourhood, number of same-sex students with good grades & filled out questionnaire
Dummies are included for missing regressors
* p < 0.10, ** p < 0.05, *** p < 0.01

Friendship nominations and refusals of Roma students

Summary of results for high-GPA and low-GPA Roma

- Number of friends of Roma students with **high GPA** is not related to the ethnic composition of their class
  - Refusals are not related to ethnic composition, either
  - In classes where fraction of Roma is low the decrease in the number of Roma friendships is fully compensated by the increase of non-Roma friendships

- Number of friends of Roma students with **low GPA** is inversely related to the fraction of non-Roma students in their class
  - Refusals are also inversely related to the fraction of non-Roma students
  - In classes with fewer Roma students, they have fewer Roma friends (due to fewer opportunities to have Roma friends)
    - ★ and they do not have enough extra non-Roma friends to compensate for this (despite more opportunities)

Inter-Ethnic Difference In Relationships

- Difference between Roma and non-Roma students in the number of their non-Roma relationships

		Friendships with non-Roma	Refusals by non-Roma
Raw gap		-1.8	+0.3
Explained	GPA	-0.5	+0.3
	Exposure	-0.85	-0.4
Unexplained		-0.45	+0.4

3. QUESTION:

USING THESE POLICY INSTRUMENTS, WHAT KIND OF
CONSEQUENCES CAN WE EXPECT?

Back-of-the-envelope national estimates

Simple Welfare Analysis

- Take our estimates as causal effects of exposure
  - Estimate the "effect" of the fraction of Roma students in class on the probability of non-Roma students nominating at least one Roma friend / refusing at least one Roma classmate
    - ⋆ linear probability models, fraction of Roma students on the RHS entered as spline
    - ⋆ other RHS variables include fraction of high-GPA students among the Roma students and other control variables

- What would happen to the number of non-Roma friends of Roma students if fraction of Roma students were different? (using NABC admin data)
  - Start from existing distribution of fraction of Roma students in class
    - ⋆ estimated from data on their fraction in school, with additional assumptions
  - Predict number of non-Roma students who nominate at least one Roma student as their friend
  - Then re-do the exercise assuming different fraction of Roma in each class

Simple Welfare Analysis

- Experiment: increase inter-ethnic exposure to its theoretical maximum
    - and keep level of GPA constant

- Outcomes of interest: number of non-Roma students who
    - have a Roma friend (at least one)
    - don't have Roma friend
    - refuse a Roma classmate (at least one)
    - do not refuse any Roma classmate

	Lower bound	Upper bound	Equal distribution
Has a Roma friend	12,200	20,300	28,300
Does not have a Roma friend	74,900	66,800	58,800
Refuses a Roma classmate	7,200	11,900	17,100
Does not refuse a Roma classmate	79,900	75,200	70,000

Simple Welfare Analysis

- Experiment: increase inter-ethnic exposure to its theoretical maximum and increase fraction of high-GPA students among the Roma students until the gap is closed

Number of non-Roma students who have Roma contact (in '000)

Type of contact	Baseline estimation*	Achievement gap closed**	Equal distribution***	Both instruments
Friendship (F)	16	22	28	34
Refusal (R)	10	8	17	15
Net contact (N=F-R)	B=6	14	11	19
Additional net contact (Δ=N-B)	-	8	5	13

*National estimates. Scaling up IEF estimates using NABC data. Average of lower and upper bounds (slide 56)
**Eg. by targeted educational interventions
***Fraction of Roma students is the same in each class of the given microregion (járás)

Conclusions

- We analyzed the association of inter-ethnic contacts with GPA in Hungarian schools in 8th grade
  - Roma students and non-Roma students
  - We measured hostility as well as friendship
  - We looked at the interaction of GPA and ethnic composition in associations with contacts

- We found that Roma students with higher GPA are more popular and less refused than Roma students with lower GPA
  - No evidence for negative effects of "acting white"
  - On the contrary, if interpreted as causal relationships, substantial positive returns to better performance

- Higher exposure of Roma students to non-Roma classmates benefits high-GPA Roma students
  - in terms of the composition of their friendships
  - but hurts low-GPA Roma students by decreasing their overall number of friends and by increasing their overall number of refusals

Tentative Policy Conclusion

- Policies that aim at both
  - increasing exposure (more equal distribution of Roma students)
  - and raising Roma achievement at the same time
- Are likely to produce substantially higher social cohesion
- than policies that aim at one of the two only

Further research

- We carried out some simple welfare analysis
  - We plan to do more sophisticated simulations
- We plan to analyze the incentives for Roma to work harder
  - And the effect of such incentives if exposure to non-Roma students changes
- We plan to contrast our results to those in the U.S.
  - analyzing the Add Health data ourselves