

# USING MOTIVATION LETTERS TO UNDERSTAND STUDENTS' HIGHER EDUCATIONAL CHOICES

## Discriminations and category-based policies research group

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Many students finish high school without a clear idea of the field of study that they want to specialize in college. Yet, this choice is one of the most important choices that a student has to make, as the field of higher educational specialization is closely related to labor market outcomes. When students enter college, they hold initial beliefs regarding their academic ability and tastes for different fields of study. They then receive new information that makes them update these beliefs. New grades inform them on their academic ability. Exposure to new courses and peers can make them learn more about their tastes. In this project, we explore the learning process that students go through during the first two years of higher education. Using data from a cohort of Sciences Po students, we study the learning process that make students stick to their initial aspirations or that make them change.

### Data

To study how students' tastes for different fields of study change over time, and what factors make them change, we use data from the cohort of students that was admitted to Sciences Po as undergraduates in 2014.

We elicit their tastes for their preferred field of study in social sciences at different points in time:

- 1) before they enter Sciences Po,
- 2) during their second year of undergraduate studies,
- 3) when they choose their Master's degree.

To elicit students' aspirations before they enter, we use the information they provided in the motivation letters they submitted with their application package. We then elicit their tastes halfway through college, through the information they provide in their motivation letters for their study abroad program.

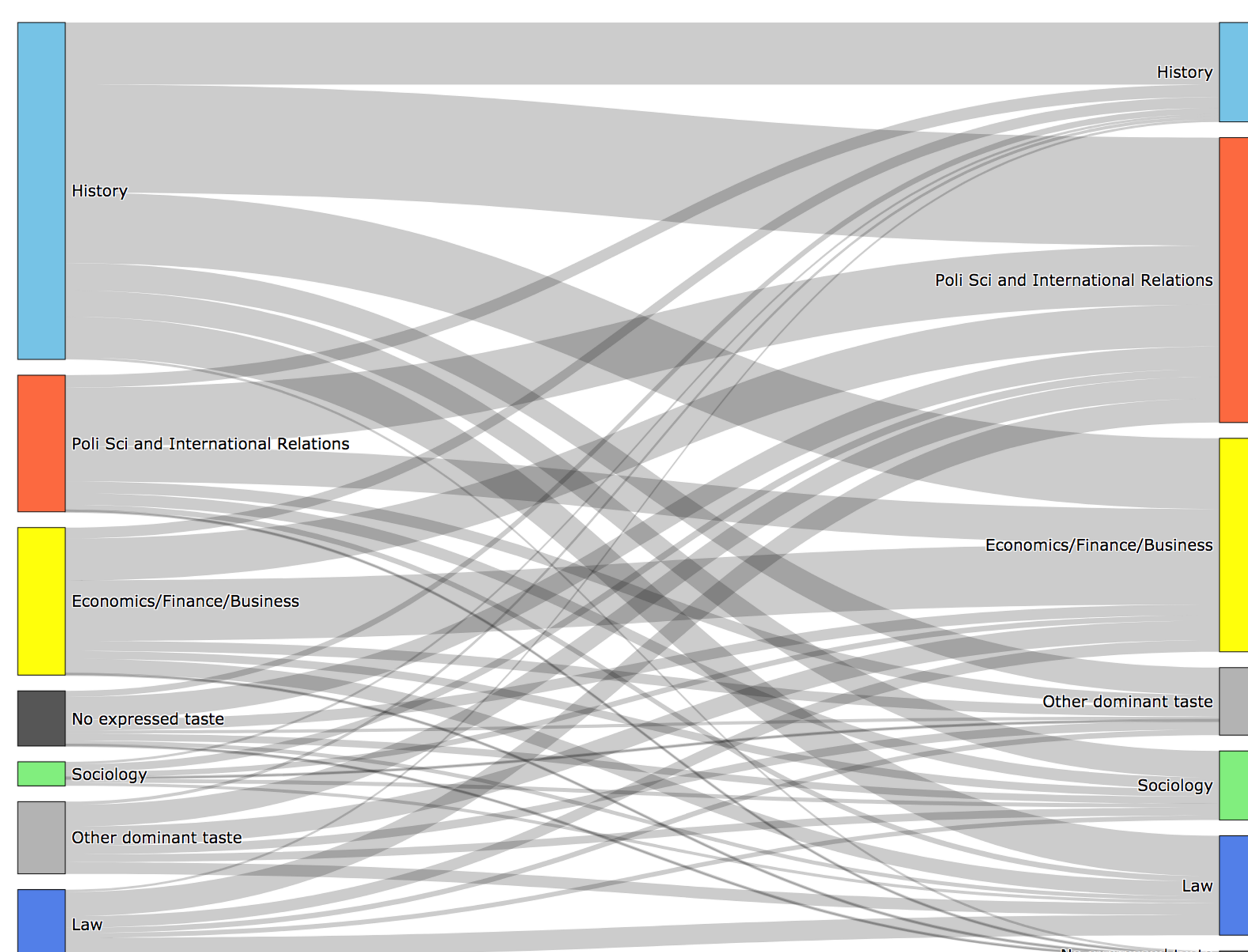
We also observe a set of treatments that students receive between these points in time, mainly their performance in the mandatory courses, their peers' performance, and their peers' tastes. With the information we elicit from the letters, we can determine the extent to which these treatments generate a change in students' aspirations during college.

### Academic tastes

Students' academic tastes in Sciences Po's main fields of study (economics, history, law, political science and sociology) are measured along two dimensions. We first identify the field for which a student has a dominant taste, and then we use keyword counts to have an objective measure of the intensity of tastes.

A large share of students change tastes by the time they are halfway through college. Many switch-out of history and into other fields such as political science and international relations or economics (Figure 1). Nonetheless, we find that high school tastes are a significant predictor of students' choices for Masters' degrees in economics, law, and political science and international relations.

Figure 1: Evolution of dominant tastes between high school (left) and second year (right)



### Tastes updating

What learning process leads to an update in dominant tastes? The analysis focuses on the ability signals that students receive during their first year of study. We describe the tradeoff that students sometimes face between their high school taste and the signals relative to their ability fit with this taste.

The main specification is:

$$\text{Change taste}_i = \alpha + \beta_1 \text{Grade}_i + \beta_2 \text{Best grade}_i + \beta_3 \text{Relative ability}_i + \beta_4 \text{Strength HS taste}_i + X_i \delta + \pi_i + \gamma_i + \tau_i + u_i$$

The explanatory variables account for the dimensions of the tradeoff that taste updating involves:

- 1) *Grade*: the grade that student *i* receives in first year in the

### Results

Table 4: Determinants of change in taste: individual-level characteristics

	Dep. var. = 1 if change in dominant taste					
	(1)	(2)	(3)	(4)	(5)	(6)
Course grade (std) in HS dom. taste	-0.0621*** (0.0158)			-0.0594*** (0.0157)		-0.0326* (0.0167)
Best grade is not in HS dom. taste		0.216*** (0.0443)			0.202*** (0.0444)	0.168*** (0.0480)
Strength HS dom. taste			-0.302*** (0.0614)	-0.298*** (0.0613)	-0.276*** (0.0607)	-0.279*** (0.0610)
Constant	0.911 (0.565)	0.802 (0.533)	1.257** (0.544)	1.055* (0.546)	1.125** (0.533)	1.013* (0.539)
Ind. Controls	Yes	Yes	Yes	Yes	Yes	Yes
RA FE	Yes	Yes	Yes	Yes	Yes	Yes
Campus FE	Yes	Yes	Yes	Yes	Yes	Yes
HS taste FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	906	917	913	902	913	902
R <sup>2</sup>	0.108	0.119	0.113	0.130	0.138	0.145

Notes: OLS regressions where the dependent variable is binary and equal to 1 if the student changes dominant taste between high school and 2nd year. Students who don't have a well-defined dominant taste in high school (no dominant taste or "other" dominant taste) are dropped. The explanatory variables are the standardized (at the field level) course grade in the student's high school dominant taste, a dummy variable equal to 1 if the student has her best (absolute) grade in a field that is not her high school dominant taste, and the high school taste intensity (measured with keywords shares). Individual controls include binary variables for gender, high socio-economic background, 3 baccalaureate dummies, 2 admission track dummies, 6 region of nationality dummies and the log of the number of words written in both motivation letters. See Appendix table C1 for a more detailed description of these variables. RA fixed effects are 3 dummy variables controlling for the differences in hand-labeling practices across our 4 research assistants. Campus FE are 6 dummy variables controlling for the different campuses students can live in. HS taste FE are 4 dummy variables for the high school dominant tastes students have. Robust standard errors in parentheses. Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 4 presents the main results. We find that ability signals are both drivers of stickiness when they are signals of good fit, and drivers of change when they are a signal that the student is better elsewhere (columns 1 to 3). However, a strong high school dominant taste is also a significant driver of taste persistence (columns 3 to 6).

Further analyses suggest that peers do not play a significant role in updating students' tastes. We also do not find differences in the process of tastes updating by gender, nor by socioeconomic background of students.