

**More than Words:
Expressed and Revealed Preferences of Top College Graduates
Entering Teaching in Argentina***

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Abstract

School systems are trying to attract top college graduates into teaching, but we know little about what dissuades this group from entering the profession. We provided college graduates who applied to a selective alternative pathway into teaching in Argentina with information on what their working conditions and pay would be if they were admitted into the program. Then, we observed whether they reported that they wanted to go into teaching and whether they did so. We found that individuals who received information about working conditions or pay were more likely to report that they no longer wanted to pursue their application to the alternative pathway, but no more likely to drop out of the program's selection process. This could be due to prominence effects. Students with higher GPAs were more likely to drop out if they received information on working conditions, but not if they received information on pay.

I. Introduction

Recent studies found that teachers who help students make large academic gains can offset learning disadvantages associated with students' background and increase their chances of enrolling in college and earning higher wages when they start working (Araujo, Carneiro, Cruz-Aguayo, & Schady, forthcoming; Chetty et al., 2011; Kane, McCaffrey, Miller, & Staiger, 2013; Kane & Staiger, 2008; Rivkin, Hanushek, & Kain, 2005; Sanders & Horn, 1998).

These studies have mobilized school systems to enact reforms to provide students with effective teachers (Bruns & Luque, 2014; Vegas et al., 2012). An approach that has gained traction is to attract top college graduates into teaching. To date, there are more than 40 alternative pathways into teaching in Africa, the Americas, Asia, Europe, and Oceania.

Yet, we know little about the factors that dissuade top candidates from entering teaching. Two questions remain to be addressed—one substantive and the other methodological: (a) what are the factors that dissuade top college graduates from entering teaching?; and (b) in addressing this question, can we rely on what individuals *say* to infer what they will *do*?

We designed an experiment to shed light on both questions. We provided college graduates who applied to a selective alternative pathway into teaching in Argentina with information about their potential working conditions and pay. We also observed whether these applicants reported that they still wanted to go into teaching and whether they actually did so. This experiment allowed us to test whether: (a) these graduates are dissuaded from entering teaching once they learn what their working conditions and pay would be if admitted to the program; and (b) the factors that they claimed dissuade them from teaching ultimately influenced their decision to enter the profession.

We found that individuals who received information about working conditions or pay were more likely to *report* that they no longer wanted to pursue their application to the alternative pathway, but no more likely to *drop out* of the selection process of the program. These findings suggest that unfavorable working conditions and pay are not enough to dissuade the average applicant to this alternative pathway from entering the profession, once he/she has decided to apply. The results also indicate that we cannot predict what these college graduates will do by surveying them, a method that is still used often to infer their preferences.

Our study contributes to the literature on teacher selection on at least three fronts. First, it focuses on college graduates interested in teaching, as opposed to current teachers. Second, it contrasts evidence on their expressed and revealed preferences, instead of relying solely on either type of information. And finally, it observes individuals at the exact time of career choice.

The paper is structured as follows. Section 2 reviews prior research. Section 3 describes the experiment. Section 4 introduces the datasets used in this paper. Section 5 presents the empirical strategy. Section 6 reports the results. Section 7 discusses the policy implications.

2. Prior Research

There is an extensive body of research on why individuals enter teaching. Economists explain career choices using models in which individuals act to maximize their expected utility, subject to constraints imposed by their personal background, alternatives in the job market, and occupational incentives. Research has focused on the role of initial pay (Hoxby & Leigh, 2004; Rumberger, 1987; Stinebrickner, 2001a); cognitive skills (Podgursky, Monroe, & Watson, 2004; Stinebrickner, 2001b); opportunity costs (Corcoran, Evans, & Schwab, 2004; Hoxby & Leigh, 2004); hiring practices (Murnane, Singer, Willett, Kemple, & Olsen, 1991); entry requirements (Donald Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Eric A Hanushek & Pace, 1995);

and working conditions (Kinoshita, 1987; Lucas, 1977; Smith, 1983) as constraints on the choices of potential entrants to the profession; and on pay differentials as offsetting the negative effects of these constraints (Kershaw & McKean, 1962; Lankford, Loeb, & Wyckoff, 2002).

Education researchers focus on the ways in which entry into teaching deviates from economists' career choice models. They argue that working conditions are not constraints that can be overcome through compensation (Johnson, Kraft, & Papay, 2012; Liu, Johnson, & Peske, 2004). This debate has ushered in a generation of research that pays greater attention to non-pecuniary incentives for teachers, such as job matching (Jackson, 2013); peer quality (Jackson & Bruegmann, 2009), principal quality (Grissom, 2011); school accountability (Feng, Figlio, & Sass, 2010); neighborhood characteristics (Don Boyd, Lankford, Loeb, Ronfeldt, & Wyckoff, 2011); and other working conditions (Bacolod, 2007; Eric Alan Hanushek & Rivkin, 2007).

Research on the determinants of entry into the teaching profession, however, remains limited. First, nearly all studies focus on the motivations of *current* (as opposed to *potential*) entrants into teaching. This is problematic because individuals who enter the profession have different preferences and/or constraints from non-entrants. Thus, studies of current entrants yield little information on how to attract those who opt for other professions.

Second, previous studies examine individuals' motivations for going into teaching by relying *either* on what people say *or* on what they do. The limitation of studies of expressed preferences is that several factors unrelated to people's motivations influence their responses, such as the number and order of questions, the wording of each question, the scales presented to respondents, their attempts to avoid looking bad in front of interviewers and their lack of consideration of the issues on which they are being consulted (Bertrand & Mullainathan, 2001;

Duckworth & Yeager, 2015). The limitation of studies of revealed preferences is that they omit important variables that may bias estimates of the importance of observable factors.

This gap in the literature matters because studies that have relied on expressed or revealed preferences have reached conflicting conclusions. Teachers gravitate towards the best-paid jobs that they can get (Steele, Murnane, & Willett, 2010), but when they are asked, they de-emphasize the importance of pay and emphasize working conditions (Liu et al., 2004).

Finally, prior studies observe individuals either *before* or *after* they decide whether to go into teaching, rather than at the time of career choice. Prospective data is problematic because there are many factors beyond individuals' motivations that alter their original intentions. Retrospective data is limited by imperfect recall and non-random missing information.

3. Experiment

Our experiment differs from previous studies in that it: (a) focuses on potential entrants to the profession; (b) contrasts evidence on their expressed and revealed preferences; and (c) observes individuals at the exact time of career choice.

The question we want to answer is: what is the causal effect of *information* on the working conditions and pay on the decision of top college graduates to enter teaching? We randomly assigned applicants to an alternative pathway into teaching to one of three surveys: (i) a control survey in which we asked them about their motivations for applying to and expectations of the program; (ii) a treatment survey in which we revealed what their working conditions would be if they were admitted into the program; or (iii) another treatment survey in which we revealed what their pay would be if they were admitted into the program. Then, we compared the share of applicants in these three groups who reported that they wanted to drop out of the selection process of the program and who did so.

Context

Enseñá por Argentina (ExA) is a non-profit founded in 2009 that recruits college graduates to teach in public and private pre-schools, primary, and secondary schools serving low-income students for two years. Its mission is to provide students in hard-to-staff schools with effective teachers and to transform its corps members into leaders for education reform. It is an adaptation of Teach for America (TFA), which started in the United States in 1990. It follows similar strategies to recruit and select individuals as TFA and 38 similar organizations, which form the Teach for All (TFALL) network.

ExA conducts a selective admissions process. First, individuals complete an online application. Then, ExA scans these applications to make sure that they meet minimum requirements.¹ ExA reviews applications that meet these requirements and uses rubrics to score applicants. Applicants with scores above a threshold are invited to an “assessment center” where they: (a) teach a demonstration lesson; (b) complete a written exercise; (c) participate in an interview; (d) complete a critical thinking assessment; and (e) work with a group to solve a case study. ExA uses other rubrics to score applicants during this process. Applicants above a threshold are invited to join the program. At every stage, some applicants respond to callbacks, others reject them, and yet others ignore them. Thus, we can observe applicants at the moment when they decide whether to enter teaching.²

¹ These include: (i) having graduated from college; (ii) being an Argentine citizen or permanent resident; (iii) being willing to work in the City or Province of Buenos Aires; and (iv) being 36 years old or younger.

² In Argentina, ExA is the only alternative pathway into teaching for college graduates. Thus, when an individual rejects a callback from ExA, he or she is essentially choosing not to go into teaching.

Once applicants are admitted into the program and become “corps members,” they attend a four-week Summer Training Institute (STI) of workshops and clinical practice. Once corps members begin teaching, they are enrolled part-time in a teacher-training program to obtain their teaching degree by the end of their two-year commitment.

This is an ideal group of individuals for this study. These top college graduates have demonstrated their willingness to enter teaching by applying to an alternative pathway. They are not simply engaging in hypothetical scenarios about the factors that would dissuade them *if* they considered entering the profession. Yet, unlike regular entrants into teaching, they have little to no exposure to teaching, and thus are less likely to have prior knowledge of the working conditions and/or pay of the profession. Therefore, we can observe what happens when most of them learn this information for the first time.

We do not claim that our findings generalize to regular teachers in Argentina, or even to top college graduates *not* interested in teaching. We understand that the motivations and opportunity costs of these two groups differ from those of our study participants, but this is exactly the group that alternative pathways into teaching are trying to lure into teaching.

Treatment

We sent out invitations to all individuals who submitted an application to ExA in 2012 to complete a survey.³ Applicants were invited to participate *after* they had applied to the program, but *before* they were notified of whether they had moved on to the next stage of the selection process (September 26-October 1, 2012).

The invitation to complete the survey looked the same for all applicants, but we randomly assigned them to a link that led them to one of three different surveys: a control survey, a

³ We clarified that the data would only be used for a research project and would not be seen or used by ExA.

working conditions survey, or a pay survey.⁴ The first and last parts of all three surveys were identical. The first part included questions about applicants' demographic, academic, and professional background. The third part asked applicants whether they were still interested in pursuing their application to ExA and what changes would make the program more appealing.

The second part differed by survey. In the control survey, it included five questions on applicants' motivations for applying to ExA and their expectations on working conditions and pay if they were admitted to the program. In the treatment surveys, it included five prompts that revealed to applicants information about their working conditions or pay at ExA, depending on their experimental group. The information on these prompts was accurate and identical for everyone within each treatment group, but the order of the prompts was randomized.⁵

Immediately after each prompt, we asked applicants whether the information they read influenced their decision to want to continue to pursue their applications to the program.

In the working conditions survey, the five prompts revealed to applicants that: (a) they may not be assigned to a public school; (b) they may be assigned to a low-cost private school; (c) they may teach at multiple schools; (d) they may not know their school assignments until the day before classes begin; and (v) they may have to switch schools from one year to the next.

In the pay survey, the five prompts revealed to applicants: (a) how much they were expected to make during their two-year commitment; (b) how much they were expected to make if they stayed in teaching for 15 years; (c) how much they were expected to make by the end of their teaching careers; (d) the three ways in which they could increase their pay (e.g., accumulate

⁴ The English translation of the surveys are in Online Appendix A.

⁵ ExA had not disseminated this information to its applicants prior to our study. Applicants could have enquired about these issues prior to the study, but this occurred rarely at this stage of the selection process.

years of experience, enroll in professional development, and/or obtain a graduate degree); and (e) the need for a teaching certificate to receive the benefits of regular teachers at public schools.

These working conditions and pay are the ones that any college graduate seeking to enter teaching faces in Argentina (whether he or she tries to do so through ExA or by him or herself).⁶ In this regard, our study follows previous research, which focuses on the influence of working conditions and pay of specific school systems. Many aspects described in these prompts are not unique to Argentina, but also prevalent in other Latin American countries (see, for example, de Moura Castro & Ioschpe, 2007; Vaillant & Rossel, 2006; Vegas & Umansky, 2005).

We took several steps to minimize non-response. We entered all survey respondents into a lottery for an iPod Nano. We also sent reminders to complete the survey two days after it opened, and one day before it closed. We had a 64% response rate (i.e., 651 out of 1,017 applicants finished the survey).⁷ Figure 1 shows attrition from the study by experimental group.

<Figure 1>

Outcomes

We measured the impact of the informational prompts on applicants' propensity to pursue their application to ExA through expressed and revealed preferences. We observed the former at

⁶ Unfortunately, data on the pay and working conditions of all teachers in Argentina is scarce and outdated. The latest national census of teachers for which results are publicly available dates back to 2004 (the results of the 2014 census have not yet been published). However, the few relevant indicators covered in this census suggest that many teachers in Argentina face the same working conditions as ExA corps members: nearly a quarter of Argentine teachers work in private schools, more than half are not tenured, and about a fourth teaches in multiple schools (DiNIECE, 2006). The census did not include any questions on teachers' pay.

⁷ We limit our analysis to applicants who answered all questions in the survey because the two outcomes of interest are the last two questions in the surveys.

the end of all surveys, when we asked applicants whether they wanted to continue pursuing their application to ExA. We observed the latter by tracking each applicant at every step of ExA's selection process and observing whether they accepted, rejected, or ignored a callback. As Figure 2 shows, applicants have to go through several steps to become a corps member. At every step, both ExA and the applicant decide whether the applicant moves forward. Thus, we measured whether applicants accepted, ignored, or rejected each of these callbacks.

<Figure 2>

4. Data

We use three datasets in our study: (a) the data from ExA's online application; (b) the data from ExA's selection process; and (c) the data from our experiment.

Application Data

The dataset from ExA's online application includes the responses of 1,017 individuals who finished an application to the program in 2012. The application includes questions about individuals' demographic, academic, and professional background. It also asked individuals to rank their motivations for applying to the program, as well as the factors that worried them about the program.

Table 1 includes the summary statistics for key variables in the application dataset and balancing checks across randomization groups. Column 1 includes the means and standard deviations (in parentheses) for all applicants. Columns 2-4 include the means and standard deviations for applicants assigned to the control group (T0), the working conditions survey (T1), and the pay survey (T2). Columns 5-6 include the differences between the means of T1 and T2 and that of the control group, with their standard errors (in parentheses). Columns 7 and 8

include an F-test of joint significance for the coefficients on both treatment groups, and its p-value. Column 9 includes the number of non-missing observations.

<Table 1>

Ninety-three percent of applicants were Argentine, 70% were female, and they were mostly from the City (51%) or the Province (45%) of Buenos Aires. The average applicant was 29 years old. Only 15% of applicants attended a double-shift, bilingual high school. About 80% spoke English. The average Grade Point Average (GPA) was 7.4 (out of 10). Fourteen percent of applicants were Science, Technology, Engineering, or Math (STEM) majors, and 5% were education majors. Forty-one percent of applicants had a graduate degree. Forty-six percent volunteered and 74% worked for pay, but only 14% had applied for a teaching position. Table 1 also indicates that the sample is balanced across randomization groups in almost all of the variables. This suggests that the experimental groups are comparable.

Table B.1 in Online Appendix B includes the factors listed most frequently among applicants as one of their top-three motivations for applying to ExA: making a difference through education (90%), believing that there is a crisis in education (41%), having a sense of purpose (41%), teaching as a calling (40%), working with low-income children (30%). A smaller share of applicants reported being motivated by having a paid job (7%) or being part of an international teaching movement (4%).

The table also includes the factors listed most frequently among applicants as one of their top-three concerns about applying to ExA: having little prior knowledge about ExA (69%), not knowing the schools where they would be placed (54%), not getting paid enough (43%), deviating from their career (32%), the lack of encouragement from those around them (29%), and the fact that ExA is a full-time job (28%). Importantly, the informational prompts in our

study directly address the top three concerns of applicants. A smaller share of applicants reported concern about not teaching well (21%), the lack of prestige of teaching (14%), and their two-year commitment (12%).

Selection Data

The dataset from ExA's selection process includes the scores of all 1,017 applicants on all of the stages they reached, including: (a) the online application (used to score applicants on accomplishments, leadership, and perseverance); (b) the group case study (to assess organization, critical thinking, and communication skills); and (c) the demonstration lesson, written exercise on setting priorities, interview, and critical thinking assessment (to assess leadership, perseverance, communication, alignment with ExA's mission, openness to new ideas, and respect for diversity).

Table B.2 includes the summary statistics and balance checks for the competencies scored in the first stage of the selection process, which took place prior to randomization. It includes the 827 individuals who met the requirements to apply to ExA and whose applications were scored. In this table, we use the 1-to-4 scale employed by ExA to give a sense of the distribution of scores, but in our analyses we standardized these scores using the mean and standard deviation of all individuals whose applications were reviewed. The table shows that the experimental groups are balanced on two out of the three scores.

Survey Data

The dataset from the survey includes the responses of 651 individuals who finished one of the surveys. This includes the responses of the control group on motivations for applying to ExA and expectations about working conditions and pay if admitted to the program.

Table B.3 includes the means and standard deviations for these variables. We cannot compare applicants' responses to questions in this part of the survey because we did not include them in the treatment surveys.⁸ We can, however, use the responses to the control group survey to shed light on how much applicants knew about their potential working conditions and pay. In the control group, applicants used a 1-to-5 scale to rate the extent to which they considered a factor when applying to ExA; in the treatment group, applicants used it to rate the extent to which the information on the prompts changed their minds about applying to ExA.

Respondents to the control survey said they considered the following factors when applying to ExA, from most to least important: (a) working at a public school; (b) working close to home; (c) starting the job in February or March; (d) initial pay; (e) pay increases; and (f) benefits. The three most important factors chosen by respondents confirm that applicants knew little about the program when they submitted their application. ExA assigns most of its corps members to low-cost private schools, they typically place them in multiple schools, and they often do not place corps members until late in the school year.

Respondents to the control survey were also asked how much they expected to make under three hypothetical situations: (a) if admitted into ExA, on their first year; (b) if not admitted into ExA and took another job; and (c) if admitted into ExA, after two years. Figure 3 shows that more than half of applicants expected to make more than the average salary of an ExA corps member (ARS 3,000), which confirms that they knew little about what their pay would be if they were admitted into the program.

<Figure 3>

⁸ This decision was deliberate to allow us to measure the impact of the information on pay and working conditions, above and beyond the mere effect of making applicants think about these factors.

Attrition

Table B.4 checks for balance between individuals who completed the survey (non-attritors) and those who did not (attritors) using the variables in Tables 1 and B.2. There are three minor differences. Non-attritors were seven percentage points less likely to be from the City of Buenos Aires and eight percentage points more likely to be from the Province. They were also five percentage points less likely to be concerned about having little prior knowledge about ExA. Finally, non-attritors had slightly higher scores on leadership. This suggests that attritors and non-attritors are comparable.

Table B.5 checks whether attrition is problematic for either treatment group. Columns 1 through 3 present the means and standard deviations of these variables for non-attritors. Columns 4 through 6 include the same metrics for attritors. Then, we investigate whether attrition differed by experimental group. We run a regression of each variable on a dummy for attritors, the two treatment dummies, and the interactions between the dummy for attritors and each of the two treatment dummies. Columns 7 and 8 report the coefficients on the interactions in these regressions and their standard errors. There is little indication that attrition was differentially problematic for either treatment group.

5. Empirical Strategy

We want to estimate the causal effect of information on working conditions or pay on applicants' propensity to *say* that they will drop out or to drop out of ExA's selection process. Specifically, we are interested in the effect of *receiving* the information, rather than *being*

assigned to it (i.e., the Treatment-on-the-Treated, or TOT effect).⁹ Therefore, we use random assignment into one of the surveys as an instrument for completing that survey.

As discussed by Bloom (1984) and Angrist & Imbens (1991), the problem of partial compliance in experiments is that we want to obtain the causal estimate of receiving an intervention (rather than simply being assigned to it), but take-up of the intervention is endogenous (i.e., individuals self-select into it).

In our experiment, our structural equation of interest is:

$$D_i = \beta_0 + \beta_1 R_i^W + \beta_2 R_i^P + \epsilon_i \quad (1)$$

where D_i is *either* a dummy for applicants who say that they will drop out (D_i^E)¹⁰ or for applicants who drop out (D_i^R),¹¹ R_i^W is a dummy for applicants who replied to the working conditions survey, R_i^P is a dummy for applicants who replied to the pay survey, and ϵ_i is the error term. The problem is that R_i^W and R_i^P are endogenous (i.e., they are correlated with ϵ_i because there are unobservable characteristics that make some individuals more prone to reply).

We exploit the fact that we observe two other variables, A_i^W and A_i^P which are dummies for applicants who have been assigned to the working conditions and pay surveys, respectively. These variables are correlated with R_i^W and R_i^P (i.e., being assigned to one of the treatment surveys makes an individual more likely to reply to it; an individual can *only* reply to a survey if

⁹ There is no reason to expect that being assigned to a treatment surveys would have an effect because all invitations were identical. The ITT effects are consistent with the TOT effects. We include them in Tables B.9-B.14.

¹⁰ D_i^E equals 1 if applicants selected option “No, I’m no longer interested” in the last question of the survey and 0 otherwise. Our results are consistent if we include “I don’t think so, but I’m not sure.”

¹¹ D_i^R equals 1 if an individual has not responded to, rejected, or not shown up for a callback at *any* stage during ExA’s selection process.

he/she was assigned to it). Yet, they are uncorrelated with the unobservable characteristics that make some individuals more prone to reply, which are in ϵ_i . Therefore, we use them to estimate two linear probability models to obtain the *predicted* values \hat{R}_i^W and \hat{R}_i^P (i.e., the variation in the probability of replying to the treatment surveys that is predicted by the random assignment).¹²

Thus, the two first stage linear probability models that we fit are:

$$\hat{R}_i^W = \hat{\gamma}_0 + \hat{\gamma}_1 * A_i^W + \hat{\gamma}_2 * A_i^P \quad (2)$$

$$\hat{R}_i^P = \hat{\delta}_0 + \hat{\delta}_1 * A_i^P + \hat{\delta}_2 * A_i^W \quad (3)$$

A_i^W and A_i^P play different roles in (2) and (3). In (2), A_i^W is the instrument for \hat{R}_i^W and A_i^P acts as a covariate, but in (3) A_i^P is the instrument for \hat{R}_i^P and A_i^W is the covariate.

Our second stage linear probability models are:

$$D_i = \hat{\alpha}_0 + \hat{\alpha}_1 * \hat{R}_i^W + \hat{\alpha}_2 * A_i^P \quad (4)$$

$$D_i = \hat{\pi}_0 + \hat{\pi}_1 * \hat{R}_i^P + \hat{\pi}_2 * A_i^W \quad (5)$$

where $\hat{\alpha}_1$ and $\hat{\pi}_1$ are estimates of β_1 and β_2 , respectively, in equation (1) above (i.e., of the causal effect of information of working conditions on applicants' propensity to drop out, controlling for the effect of information on pay and vice versa).

We fit variations of these models that include a dummy for female applicants, the applicant's college GPA, the applicant's average score on the online application, a dummy for

¹² Probit and logit models are preferable to estimate effects with dummies as dependent variables. We used linear probability and probit models to estimate the ITT effects (Tables B.9-B.14). When we used a probit model to estimate the TOT effects, we encountered the problems of convergence that are typical of probit/logit instrumental variables models with limited dependent variables. As Angrist (2001) shows, in such cases, two-stage least squares using linear probability models at both stages yields consistent and unbiased estimates. Thus, we used linear probability models to estimate the TOT effects.

applicants who worked for pay, and a dummy for applicants who have applied to teach as covariates. We also fit variations that interact the treatments with these covariates to explore heterogeneous effects. All models estimate Huber-White robust standard errors to account for the heteroskedasticity in the dichotomous outcome.

6. Results

Expressed Preferences

Table 2 shows the coefficients from the second stage of the two-stage least squares (2SLS) estimation of the TOT effects of receiving information on working conditions or pay on applicants' propensity to *say* that they will drop out of ExA's selection process. Columns 1 and 3 show the effects of information on working conditions and pay without covariates. Columns 2 and 4 show the same effects with covariates from ExA's online application.

<Table 2>

The coefficients can be interpreted as marginal effects. As the coefficient on the constant indicates, virtually no applicant who replied to the control group survey reported that he/she wanted to drop out of ExA's selection process. Yet, applicants who replied to the working conditions survey were 25 percentage points more likely to report that they wanted to drop out. Applicants who replied to the pay survey were 31 percentage points more likely to report that they wanted to drop out. As we would expect, columns 2 and 4 show that the magnitude of the coefficients on the treatment dummies does not change when we include covariates. In short, once applicants find out about their working conditions and pay in ExA, many say they no longer want to pursue their application.

Heterogeneous Effects. Table 3 shows the interactions in the second stage of the 2SLS estimation of the TOT effects of receiving information on working conditions or pay on applicants' propensity to *say* that they will drop out.¹³

<Table 3>

Female applicants were 16 percentage points *less* likely to say that they wanted to drop out if they received information on working conditions. Employed applicants were 15 percentage points *more* likely to say that they wanted to drop out if they received information on pay. On average, a one standard deviation increase in an applicant's selection score made him/her nine percentage points more likely to say that he/she wanted drop out if he/she received information on working conditions, but this coefficient is only marginally statistically significant. There were no statistically significant interactions between either treatment and applicants' GPA, or the dummies for applicants who had applied to teach, and STEM majors.

Revealed Preferences

Table 4 shows the coefficients from the second stage of the 2SLS estimation of the TOT effects of receiving information on working conditions or pay on applicants' propensity to drop out of ExA's selection process.

<Table 4>

Thirty-two percent of applicants who completed the control group survey dropped out at some stage of the selection process. Yet, applicants who replied to either treatment survey were no more likely to drop out than their control group peers. In fact, with 95% confidence, we can rule out the possibility that the working conditions survey led to an increase in the dropout rate

¹³ Unfortunately, we cannot estimate heterogeneous effects by prior knowledge of applicants because we only measured this knowledge among applicants assigned to the control group survey.

of 12 percentage points or more, and that the pay survey led to an increase of 9 percentage points or more. These estimates remain virtually unchanged with the inclusion of covariates. These results indicate that, regardless of what they say, applicants who learn about their working conditions and pay are no less likely to pursue their application to ExA.¹⁴

Heterogeneous Effects. Table 5 shows the interactions in the second stage of the 2SLS estimation of the TOT effects of receiving information on working conditions or pay on applicants' propensity to drop out.

<Table 5>

The coefficients on the main effects indicate that females, applicants with high selection scores, and STEM majors are more likely to drop out of ExA's selection process, regardless of the experimental group to which they were assigned. However, only in one case does the information make applicants *more* likely to drop out of ExA's selection process: on average, a one standard deviation increase in an applicant's GPA made him/her 27 percentage points more likely to drop out if he/she received information on working conditions.¹⁵ There are no other statistically significant interactions between either treatment and any group of applicants.

¹⁴ In Table B.7, we estimate the effects of the treatments on actual dropout rates by stage in ExA's selection process and our results are consistent with those in Table 4. In Table B.16, we fit the same models as in Table 4 only with individuals who responded and our results remain virtually unchanged.

¹⁵ These results may seem surprising, since applicants with higher GPAs may be more informed about their potential pay and working conditions as the rest of the applicant pool. We tested whether control group applicants with above-average GPAs were less likely to: (a) overestimate their salary during ExA; or (b) list working at a public school, working close to home, or starting their job in February/March as one of their top motivations for applying to the program. We found no evidence that this was the case (results available upon request).

Robustness Checks

Composition. One potential concern with our results is that the individuals who *said* they wanted to drop out of ExA's selection process may not be the same as those who later decided *not* to drop out of the process. This could happen if respondents to the treatment surveys were not chosen to move on to the next stage of ExA's selection process and did not get an opportunity to ignore or reject a callback. Thus, Table B.6 includes a chi-square test of whether applicants *said* they wanted to drop out against whether they dropped out.

Panel A shows that there is no statistically significant relationship between what applicants *said* and what they *did*, which provides further evidence that expressed preferences do not predict revealed preferences. In fact, 66% of respondents who *said* that they would drop out of ExA's selection process did not do so. Importantly, 30% of those who said they would *not* drop out did so. Yet, as Panels B-D show, this group does not drive the differences between the control and treatment groups (the share of applicants who did not say that they would drop out but later did so is about 30% in all experimental groups). Rather, the differences are driven by applicants who said they would drop out but did not do so.

Timing. Another potential concern is that the difference in the timing of the measurement of expressed and revealed preferences is driving our results. It is possible that the informational prompts made applicants more likely to drop out of ExA's selection process *right after* they completed the survey (i.e., when they were invited to attend the assessment process), but that we do not see these effects because we consider them jointly with other potential effects later in the

Importantly, these results are not explained by the fact that applicants with higher GPAs were less/more misinformed about

process. To address this concern, we fit variations of the models in Table 4 in which we create dummies for applicants who drop out at different stages of ExA's selection process

Table B.7 shows the results of these models, estimated with three possible outcomes: dropping out before the assessment center; dropping out before attending the summer training institute; and dropping out before the start of the school year. The effect of receiving information about working conditions and pay is consistently around zero, regardless of the outcome considered. In fact, far from seeing more applicants drop out of ExA's selection process right after they receive information on working conditions and pay (columns 1-4), we see the opposite: the effect is small, but negative, and in some cases (marginally) statistically significant. This suggests that the discrepancy between expressed and revealed preferences that we observe in our results is not due to differences in the timing at which each is measured.

Mechanisms

Bluffing. Our results may suggest that applicants who responded to either treatment survey are "bluffing" (i.e., intentionally misrepresenting their plans). This is unlikely. First, if applicants in the treatment surveys were expecting their stated intentions to lead to changes in their own working conditions and pay if they were admitted into the program, it is hard to explain why they did not bluff in their responses to each individual prompt as well. As Table B.3 shows, the average applicant in the working conditions survey responded to each prompt saying that it "did not change [his/her] mind at all;" even the average applicant in the pay survey responded to two out of the five prompts saying that "it influenced [his/her] decision somewhat." Second, it is not clear why respondents to the working conditions survey would bluff so differently from respondents to the pay survey on the individual prompts, but not on the questions on whether they wanted to pursue their application to the program.

Prominence. It is also possible that making one aspect more prominent in the minds of applicants (e.g., working conditions or pay) would affect their expressed, but not their revealed preferences. We can indirectly test for these “prominence” effects by taking advantage of the second to last question of all surveys, which asked applicants to rank the changes that would make ExA more appealing. We examine whether respondents to the working conditions survey are more likely to demand changes related to working conditions and whether respondents to the pay survey are more likely to demand changes related to pay.

Table B.8 shows the second stage of the 2SLS estimation of the TOT effects of receiving information on working conditions or pay on applicants’ propensity to rank each of the options in the last question of the survey as their top recommended change.¹⁶

There is some evidence that prominence effects might be at play. Respondents to the working conditions survey were five and seven percentage points more likely than their control group peers to recommend being matched to a capable principal and being assigned to schools with other corps members, respectively. However, respondents to the pay survey were no more likely to list these factors. Similarly, respondents to the pay survey were five percentage points more likely than those in the control group to demand bonuses based on students’ performance. Yet, respondents to the working conditions survey were no more likely to demand this change. Both groups were more likely to demand changes that could be categorized as influencing *both* working conditions *and* pay, such as ensuring adequate classroom resources and providing corps members with professional development opportunities tailored to their needs.

¹⁶ The dependent variable in each column is a dummy that equals 1 if the applicant selected a potential change as their first-ranked option and 0 otherwise.

7. Discussion

To our knowledge, ours is the first study to estimate the causal effect of providing top college graduates with information on working conditions or pay on their self-reported and actual decisions to enter teaching. We find that, upon learning about their working conditions or pay, the *average* applicant to *Enseñá por Argentina* is not dissuaded from entering the program. This finding suggests that this specific alternative pathway does not need to improve the working conditions and pay of the teaching position it offers to retain most of its applicants.

We also find, however, that certain groups (e.g., female applicants, STEM majors, and applicants with a high selection score) are more likely to drop out from ExA's selection process, and that disclosing information on working conditions made applicants with higher GPAs more likely to drop out of this process. Thus, this alternative pathway is missing out on some of its best applicants (as defined by its own selection metrics), and some of these applicants are dissuaded by working conditions. This is not surprising because the opportunity cost of entering teaching is likely to differ across applicants; specifically, this cost is likely to be higher for groups with more outside options. Yet, these findings suggest that it may be possible to influence the *composition* of admits into the program by improving working conditions or addressing the concerns of these groups of applicants (e.g., identifying the specific conditions that dissuade these groups and understanding whether there are ways of offsetting their effects).

Finally, we find that applicants to ExA who receive information on working conditions and pay are more likely to *say* that they will not pursue their application to ExA, but they are no more likely to drop out of the selection process. In fact, we are able to show that most applicants who said that they would drop out did not end up doing so. This finding suggests that this alternative pathway should not rely on applicants' immediate responses to information on

working conditions or pay to infer their eventual actions. As we show, informational prompts may be making some factors temporarily prominent in the minds of applicants during the survey. Yet, these short-lived effects may have little bearing on applicants' decisions on entering teaching. These findings are consistent with other recent experiments in education that have shown that it is possible to alter the responses of individuals to a survey question simply by changing its framing (Schueler, 2012; West, Chingos, & Henderson, 2012).

The extent to which these findings generalize to other TFALL programs in Latin America will depend on the characteristics of applicants to these programs and the working conditions and pay for uncertified teachers in these countries resemble those of Argentina. Similarly, the extent to which our results generalize to other alternative pathways in the region will also depend how similar these programs are to those within the TFALL network.

Even if these findings only generalize to applicants to this specific alternative pathway, we believe that they are of considerable interest for several reasons. First, ours is the first study to document the existence of a group of college graduates who is willing to enter the profession in Argentina, regardless of the relatively poor working conditions and pay that new teachers face. Second, the admits of this pathway are typically placed in hard-to-staff schools. According to existing regulations, if two or more individuals apply to a teaching post in a public school, the school ought to prioritize candidates with teaching degrees. Participants in this pathway do not earn such a degree until they graduate from the program, so they are only admitted into a public school if *no other certified teacher* has applied for a given opening. Thus, the admits of this alternative pathway typically serve the most disadvantaged children in Argentina. Third, some

of the graduates of this pathway move on to positions of relative influence in education, potentially affecting the lives of many other disadvantaged children.¹⁷

Our findings raise important, but separate questions that warrant further research, including: (a) would this information dissuade top college graduates *from applying* to this alternative pathway if they had received it prior to making this decision?; (b) would *different* information about pay or working conditions dissuade current applicants from entering this particular pathway?; and (c) would *other* groups of individuals (e.g., college graduates not currently considering teaching as a profession) respond similarly to participants in our study?

These questions, while important, are beyond the scope of our study. Additionally, as we argue in the experiment section, we have selected the sample and timing of our interventions to address what we believe is the most policy-relevant question: are college graduates who have already demonstrated an intention to enter teaching dissuaded by working conditions or pay? An experiment designed to examine whether working conditions or pay dissuades college graduates to apply to teach would be of little interest unless it could also observe whether applicants actually enter the profession. Similarly, there is no evidence that our experiment left out important factors that may have dissuaded applicants from entering teaching. Finally, an experiment that focused on the effects of working conditions and pay on individuals who are not

¹⁷ For example, alumni of ExA have gone on to occupy the following positions: Chief of Staff of the Planning and Innovation Department of the Ministry of Education of the City of Buenos Aires, Coordinator of the Network of After School Programs of the Ministry of Education of the City of Buenos Aires, Founder and CEO of a non-profit on youth development, Coordinator of Educational Projects for the Secretary of Youth of the National Ministry of Social Development, and Director of Program Evaluation of a non-profit building housing for the poor.

considering to enter teaching would be of little interest if there is little or no chance of them actually entering the profession (e.g., if their opportunity cost is too high anyway).

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Figure 1. Attrition from the Study by Experimental Group

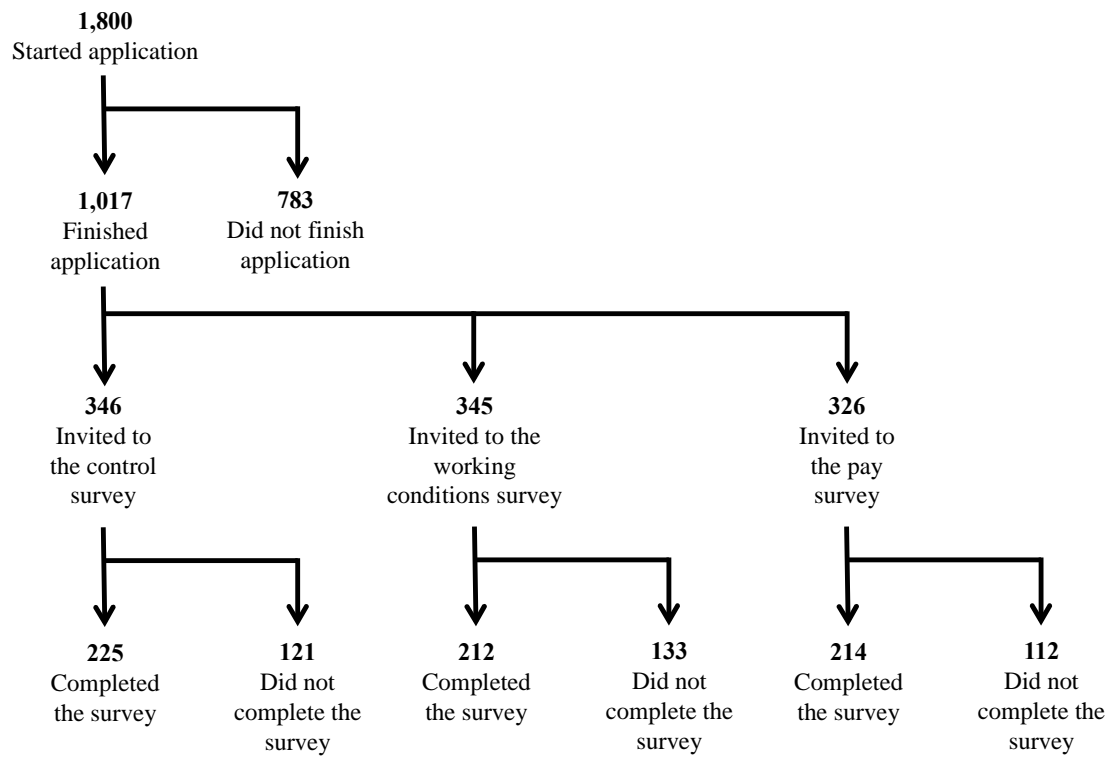


Figure 2. ExA's Selection Process in 2012

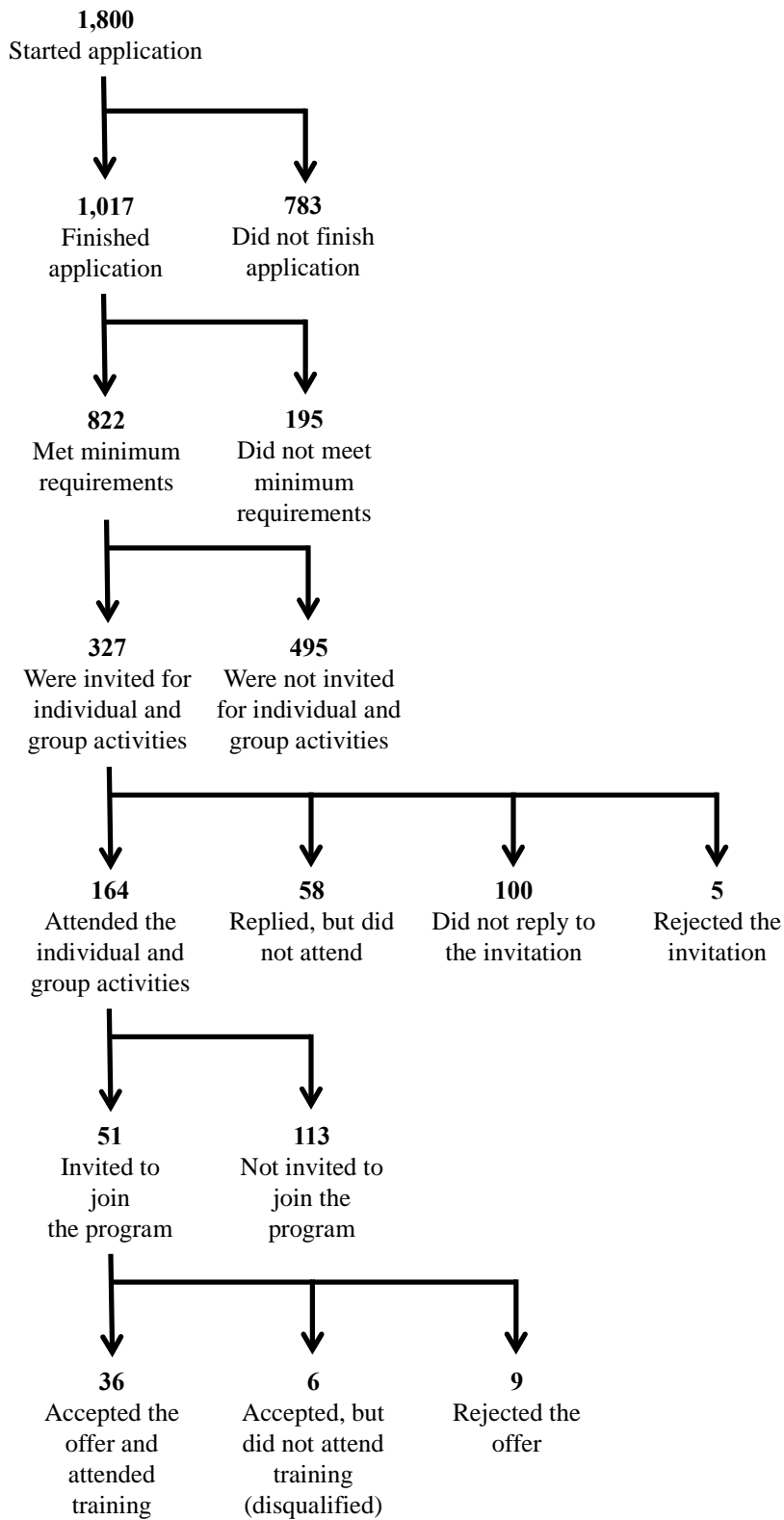
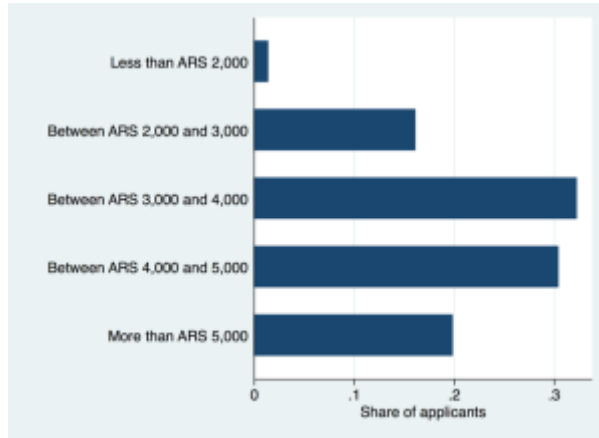
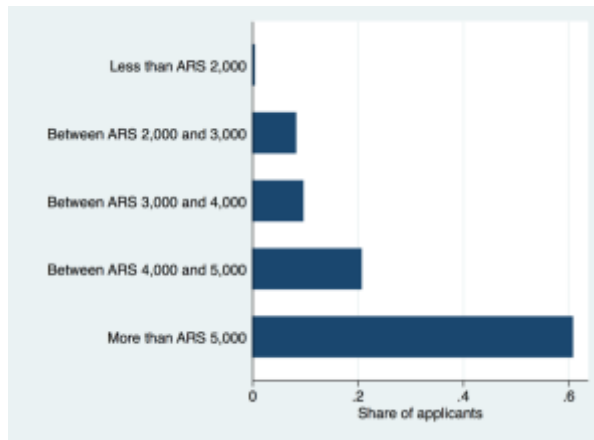


Figure 3. Salary Expectations of Respondents to Control Survey

Panel A. Salary expectations if admitted into ExA



Panel B. Salary expectations if not admitted into ExA



Panel C. Salary expectations if admitted into ExA, after ExA

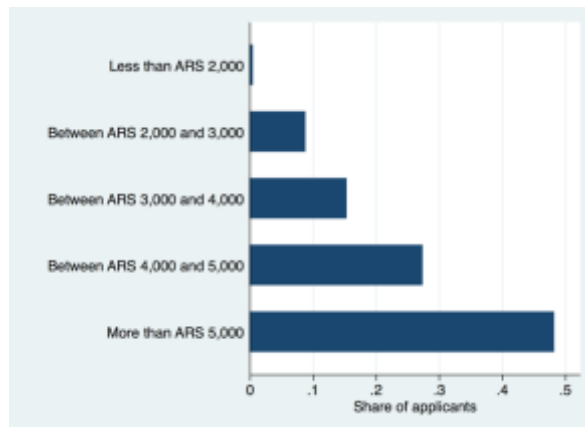


Table 1. Application Variables: Balance by Randomization Group

| | (1) All | (2) T0 | (3) T1 | (4) T2 | (5) T1-T0 | (6) T2-T0 | (7) F-test | (8) p-value | (9) N |
|---------------------------|-------------------|-------------------|-------------------|-------------------|-----------------|-----------------|---------------|----------------|----------|
| Argentine | .93 (.255) | .928 (.259) | .919 (.273) | .945 (.229) | -.009 (.02) | .017 (.019) | .955 | .385 | 1017 |
| Female | .7 (.458) | .679 (.467) | .69 (.463) | .733 (.443) | .011 (.035) | .054 (.035) | 1.334 | .264 | 1017 |
| Age | 28.889 (5.858) | 29.077 (5.475) | 28.553 (6.048) | 29.047 (6.053) | -.524 (.441) | -.03 (.45) | .836 | .434 | 1003 |
| City of Buenos Aires | .506 (.5) | .52 (.5) | .51 (.501) | .488 (.501) | -.01 (.038) | -.033 (.039) | .369 | .692 | 1017 |
| Province of Buenos Aires | .454 (.498) | .436 (.497) | .455 (.499) | .472 (.5) | .019 (.038) | .036 (.038) | .438 | .645 | 1017 |
| Double-shift bilingual HS | .146 (.353) | .139 (.346) | .162 (.369) | .135 (.342) | .024 (.027) | -.004 (.027) | .576 | .562 | 1017 |
| Speaks English | .797 (.402) | .795 (.404) | .806 (.396) | .791 (.407) | .011 (.03) | -.003 (.031) | .12 | .887 | 1017 |
| College GPA (out of 10) | 7.385 (.917) | 7.408 (.903) | 7.383 (.941) | 7.362 (.909) | -.025 (.071) | -.047 (.07) | .219 | .803 | 1004 |
| STEM major | .138 (.345) | .142 (.349) | .148 (.355) | .123 (.329) | .006 (.027) | -.019 (.026) | .499 | .607 | 1017 |
| Education major | .052 (.222) | .046 (.21) | .055 (.228) | .055 (.229) | .009 (.017) | .009 (.017) | .192 | .825 | 1017 |
| Graduate degree | .411 (.492) | .399 (.49) | .446 (.498) | .387 (.488) | .048 (.038) | -.012 (.038) | 1.388 | .25 | 1017 |
| Volunteered | .464 (.499) | .468 (.5) | .487 (.501) | .436 (.497) | .019 (.038) | -.033 (.038) | .909 | .403 | 1017 |
| Worked (paid) | .738 (.44) | .737 (.441) | .748 (.435) | .73 (.445) | .011 (.033) | -.007 (.034) | .14 | .869 | 1017 |
| Applied to teach | .142 (.349) | .13 (.337) | .145 (.353) | .15 (.358) | .015 (.026) | .02 (.027) | .314 | .731 | 1017 |

Notes: (1) Standard deviations in parentheses in columns 1-4; standard errors in parentheses in columns 5-6. (2) * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. (3) Applicants' GPAs and selection scores are standardized.

Table 2. 2SLS TOT Effects of Information on Expressed Preferences

| | <i>Outcome: Applicant said he/she wanted to drop out</i> | | | |
|-------------------------------|--|------------------------|----------------------|------------------------|
| | (1) | (2) | (3) | (4) |
| Replied (working conditions) | 0.250*** (0.0303) | 0.254*** (0.0339) | | |
| Assigned (pay) | 0.309*** (0.0321) | 0.307*** (0.0368) | | |
| Replied (pay) | | | 0.309*** (0.0321) | 0.307*** (0.0368) |
| Assigned (working conditions) | | | 0.250*** (0.0303) | 0.254*** (0.0339) |
| Female | | -0.0298 (0.0376) | | -0.0298 (0.0376) |
| Age | | -0.00845* (0.00488) | | -0.00845* (0.00488) |
| College GPA (std.) | | 0.0254 (0.0946) | | 0.0254 (0.0946) |
| Employed | | 0.0567 (0.0346) | | 0.0567 (0.0346) |
| Teaching | | -0.0215 (0.0375) | | -0.0215 (0.0375) |
| Applied to teach | | 0.00991 (0.0543) | | 0.00991 (0.0543) |
| Selection score (std.) | | 0.0118 (0.0284) | | 0.0118 (0.0284) |
| Applied to ExA before | | -0.109 (0.0685) | | -0.109 (0.0685) |
| STEM major | | 0.0479 (0.0505) | | 0.0479 (0.0505) |
| Constant | 0.00444 (0.00444) | 0.227* (0.137) | 0.00444 (0.00444) | 0.227* (0.137) |
| Observations | 651 | 513 | 651 | 513 |

Notes: (1) Standard errors in parentheses. (2) * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. (3) All models include robust standard errors. (4) Applicants' GPAs and selection scores are standardized.

Table 3. 2SLS TOT Heterogeneous Effects of Information on Expressed Preferences

| | <i>Outcome: Applicant said he/she wanted to drop out</i> | | | | | | | | | | | |
|------------------------------|--|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Replied (working conditions) | 0.249*** (0.0299) | | 0.251*** (0.0311) | | 0.253*** (0.0305) | | 0.251*** (0.0306) | | 0.251*** (0.0329) | | 0.248*** (0.0302) | |
| Assigned (pay) | 0.309*** (0.0321) | | 0.308*** (0.0322) | | 0.313*** (0.0322) | | 0.308*** (0.0321) | | 0.313*** (0.0364) | | 0.308*** (0.0321) | |
| Replied (pay) | | 0.309*** (0.0322) | | 0.308*** (0.0327) | | 0.310*** (0.0319) | | 0.309*** (0.0322) | | 0.310*** (0.0364) | | 0.308*** (0.0321) |
| Assigned (working) | | 0.250*** (0.0301) | | 0.251*** (0.0305) | | 0.250*** (0.0304) | | 0.251*** (0.0305) | | 0.250*** (0.0330) | | 0.249*** (0.0302) |
| Female | 0.00431 (0.0343) | - | | | | | | | | | | |
| x Female | -0.161** (0.0775) | 0.0759 (0.0784) | | | | | | | | | | |
| College GPA (std.) | | | -0.00138 (0.00338) | -0.00135 (0.00369) | | | | | | | | |
| x College GPA (std.) | | | -0.00747 (0.137) | -0.00860 (0.124) | | | | | | | | |
| Employed | | | | | 0.0739** (0.0318) | -0.00709 (0.0309) | | | | | | |
| x Employed | | | | | -0.0947 (0.0688) | 0.147** (0.0697) | | | | | | |
| Applied to teach | | | | | | | -0.0171 (0.0418) | 0.0197 (0.0418) | | | | |
| x Applied to teach | | | | | | | 0.0728 (0.110) | -0.0512 (0.101) | | | | |
| Selection score (std.) | | | | | | | | | -0.0153 (0.0239) | 0.0369 (0.0230) | | |
| x Selection score (std.) | | | | | | | | | 0.0939* (0.0536) | -0.0730 (0.0611) | | |
| STEM major | | | | | | | | | | | 0.0527 (0.0477) | 0.0579 (0.0461) |
| x STEM major | | | | | | | | | | | 0.0643 (0.100) | 0.0516 (0.104) |
| Constant | 0.00138 (0.0244) | 0.0568** (0.0248) | 0.00461 (0.00460) | 0.00461 (0.00461) | - (0.0210) | 0.00908 (0.0202) | 0.00711 (0.00813) | 0.00138 (0.00815) | 0.00548 (0.00590) | 0.00661 (0.00621) | -0.00282 (0.0082) | -0.00354 (0.00798) |
| Observations | 651 | 651 | 647 | 647 | 651 | 651 | 651 | 651 | 523 | 523 | 651 | 651 |

Notes: (1) Standard errors in parentheses. (2) * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. (3) All models include robust standard errors.

Table 4. 2SLS TOT Effects of Information on Revealed Preferences

| | <i>Outcome: Applicant dropped out</i> | | | |
|-------------------------------|---------------------------------------|-----------------------|----------------------|-----------------------|
| | (1) | (2) | (3) | (4) |
| Replied (working conditions) | 0.00622 (0.0578) | -0.0447 (0.0582) | | |
| Assigned (pay) | -0.0142 (0.0358) | -0.0184 (0.0370) | | |
| Replied (pay) | | | -0.0217 (0.0545) | -0.0285 (0.0567) |
| Assigned (working conditions) | | | 0.00382 (0.0355) | -0.0278 (0.0363) |
| Female | | 0.0882*** (0.0337) | | 0.0877*** (0.0337) |
| Age | | -0.00384 (0.00382) | | -0.00370 (0.00379) |
| College GPA (std.) | | -0.0332* (0.0202) | | -0.0335 (0.0203) |
| Employed | | 0.0138 (0.0310) | | 0.0127 (0.0311) |
| Teaching | | -0.0603 (0.0395) | | -0.0599 (0.0397) |
| Applied to teaching post | | 0.0509 (0.0467) | | 0.0529 (0.0467) |
| Selection score (std.) | | 0.330*** (0.0188) | | 0.330*** (0.0187) |
| Applied to ExA before | | -0.0145 (0.0785) | | -0.0147 (0.0791) |
| STEM major | | 0.180*** (0.0483) | | 0.180*** (0.0485) |
| Constant | 0.318*** (0.0251) | 0.422*** (0.114) | 0.318*** (0.0251) | 0.419*** (0.112) |
| Observations | 1017 | 810 | 1017 | 810 |

Notes: (1) Standard errors in parentheses. (2) * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. (3) All models include robust standard errors.

Table 5. 2SLS TOT Heterogeneous Effects of Information on Revealed Preferences

| | <i>Outcome: Applicant dropped out</i> | | | | | | | | | | | |
|------------------------------|---------------------------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Replied (working conditions) | 0.00508 (0.0577) | | 0.0237 (0.0596) | | 0.00856 (0.0576) | | 0.00409 (0.0578) | | -0.0398 (0.0581) | | 0.00488 (0.0574) | |
| Assigned (pay) | -0.0176 (0.0359) | | -0.0150 (0.0360) | | -0.0132 (0.0357) | | -0.0138 (0.0357) | | -0.0120 (0.0367) | | -0.0111 (0.0356) | |
| Replied (pay) | | -0.0272 (0.0545) | | -0.0263 (0.0560) | | -0.0209 (0.0546) | | -0.0217 (0.0544) | | -0.0194 (0.0562) | | -0.0171 (0.0541) |
| Assigned (working) | | 0.00298 (0.0354) | | 0.00671 (0.0359) | | 0.00444 (0.0356) | | 0.00416 (0.0355) | | -0.0275 (0.0364) | | 0.00281 (0.0353) |
| Female | 0.0623* (0.0351) | 0.0783** (0.0345) | | | | | | | | | | |
| x Female | 0.0191 (0.0759) | -0.0608 (0.0787) | | | | | | | | | | |
| College GPA (std.) | | | -0.00537 (0.00742) | -0.00044 (0.0102) | | | | | | | | |
| x College GPA (std.) | | | 0.274*** (0.102) | -0.0845 (0.133) | | | | | | | | |
| Employed | | | | | 0.0224 (0.0332) | 0.00722 (0.0332) | | | | | | |
| x Employed | | | | | -0.0988 (0.0730) | -0.0245 (0.0734) | | | | | | |
| Applied to teach | | | | | | | -0.0209 (0.0454) | -0.0229 (0.0460) | | | | |
| x Applied to teach | | | | | | | -0.0797 (0.104) | -0.0628 (0.100) | | | | |
| Selection score (std.) | | | | | | | | | 0.352*** (0.0191) | 0.341*** (0.0192) | | |
| x Selection score (std.) | | | | | | | | | -0.0642 (0.0489) | -0.0143 (0.0510) | | |
| STEM major | | | | | | | | | | | 0.168*** (0.0515) | 0.163*** (0.0511) |
| x STEM major | | | | | | | | | | | -0.0162 (0.105) | 0.0109 (0.108) |
| Constant | 0.276*** (0.0334) | 0.265*** (0.0340) | 0.318*** (0.0253) | 0.318*** (0.0253) | 0.304*** (0.0314) | 0.313*** (0.0320) | 0.321*** (0.0262) | 0.321*** (0.0262) | 0.399*** (0.0260) | 0.400*** (0.0260) | 0.294*** (0.0256) | 0.295*** (0.0253) |
| Observations | 1017 | 1017 | 1011 | 1011 | 1017 | 1017 | 1017 | 1017 | 827 | 827 | 1017 | 1017 |

Notes: (1) Standard errors in parentheses. (2) * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. (3) All models include robust standard errors.