ELITE UNIVERSITIES AND THE PUBLIC SECTOR LABOR MARKET

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Abstract

This study aims to understand whether admission to higher education, particularly to an elite university, affects labor market outcomes in the public sector. Using administrative data on the universe of higher education applicants, together with information on all Chilean public servants, I implement a stacked regression discontinuity design that exploits variations in the minimum score needed to access a top-tier university, to causally estimate the effect of admission on the probability of working in the public sector, having a permanent contract, the level of earnings, and the likelihood of attaining a top position. The estimated effects are negative and significant for the law, business, and engineering majors on all the labor outcomes. I found differentiated impacts by gender, as the estimated results are only significant for women. Admission to public administration, a major specially designed to administer the state, does not significantly affect the labor outcomes considered.

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1 Introduction

The significantly large rate of graduates from elite universities in leadership roles has increased the interest in studying the impact of attending such selective institutions on post-college labor outcomes. Researchers have focused on exploring the effects on upper-tail results, such as securing top positions in prestigious firms and belonging to the highest percentile of the earnings distribution (Chetty et al., 2023; Zimmerman, 2019).

However, the literature has not studied the effect of elite higher education on labor outcomes within the state administration. This is particularly relevant, considering that the public sector plays a fundamental role in most economies. It is generally the largest employer in the labor market (e.g., more than 15 percent of the total workforce in the U.S.) and a major driver of social development (Finan et al., 2017).

Understanding how graduates of elite universities select into the public sector and the returns to those qualifications in its labor market is highly relevant for public administration's productivity and representation. Qualifications and skills of public servants are crucial in the public sector's production function (Best et al., 2023; Fenizia, 2022; Martinez-Bravo, 2017; Tsai et al., 2015), but the sector faces significant challenges in attracting and retaining highly productive workers (Borjas, 2002). On the other hand, higher-ranking positions in the public sector offer access to influential roles that can shape government policies and services. Under hiring policies that consider applicants' qualifications, elite higher education can help ensure equitable access to leading positions, which is critical to promoting a more representative government of the population it serves.

This paper aims to improve the understanding of elite higher education's role in public sector jobs by causally estimating the effect of enrolling in an elite university on the likelihood of working in the public sector and having a top position in Chilean public administration.

The Chilean case is appealing for studying the effect of elite higher education as it is a context where graduates from the two most selective universities in the country are

overrepresented in decision-making spaces. For example, 70% of all Chilean presidents graduated from one of these elite institutions. Between 1990 and 2016, 67% of government ministers, 50% of senators, and 32% of representatives graduated from an elite program (PNUD, 2017). Similarly, in the corporate world, nearly 2% of students accepted into business-focused programs of these elite universities represent 41% of all directors and top managers of publicly traded corporations in Chile (Zimmerman, 2019).

Part of elite higher education's relevance and mission is its capacity to form leaders. One way to increase diversity among leaders would be by modifying the elite institutions' admission practices, such as removing legacy preferences and considering other non-academic ratings (Chetty et al., 2023). Notably, the Chilean higher education application system does not evaluate any other applicants' characteristics or material apart from their entry exam scores for admission. Still, the data shows that elite university graduates in Chile are over-represented in high-rank positions in the public sector, which motivates the study of whether this phenomenon is pure selection or the causal effect of elite university education.

Two main barriers have prevented the study of the effects of elite higher education on public sector labor outcomes. The first is the lack of public servants' detailed information and its usually restricted access. The second is the challenge of finding an exogenous variation in acceptance to higher education institutions and programs.

The setting allows me to overcome these challenges as comprehensive data on the Chilean public sector workforce is available due to the *Ley de Transparencia* (Transparency Law) enacted in 2008, facilitating in-depth analyses. From this administrative data, I obtained post-graduate labor outcomes of all public servants under the executive branch of the Chilean government from 2018 to 2023. The data includes key information regarding the position's classification (government authority, managerial, professional, technical, administrative, and auxiliary) and its position in the salary scale (analogous to the General Schedule of the U.S. Civil Service). This allows me to clearly define what is con-

sidered a top position within the Chilean public administration.

I combine these outcomes with administrative information from the national, centralized university application process in Chile, which takes place once a year after high school graduation. The data includes information on the applications of all students in the country from year 2000 onwards. Importantly, as in other contexts, my analytical sample of higher education applicants shows a disproportionate rate of elite university graduates in Chilean public service top positions. Between 2000 and 2017, less than 13% of the students accepted into a university did so in an elite university. This proportion doubles when we consider individuals who held a top position in the public sector between 2018 and 2023.

The characteristics of the higher-education application system in Chile help overcome the identification problems arising from selection. Notably, this system relies solely on standardized test scores, enabling a clear identification strategy for estimating the causal effect of enrollment on public sector labor outcomes. High school graduating students willing to apply to tertiary education must take a set of standardized tests and rank up to their preferred 10 major-institution options in a centralized platform after receiving the results. The application system, through a deferred acceptance algorithm, generates an accepted and a waiting list of applicants each year for each degree-institution combination. I take advantage of the fact that the cutoff scores to be accepted in each of the degree-institution combinations cannot be predicted accurately, so applicants just accepted and those marginally waitlisted are comparable, allowing the implementation of a regression discontinuity design (RDD) strategy.

Further, I stack specific groups of these program-university RD's and instrument enrollment with acceptance to answer, for those in the neighbor of the cutoffs, what is the average effect of enrollment in an elite university, compared to a non-elite university, on the likelihood of working in the public sector and having a top position. The richness of the data allows me to observe all the degree-institution options ranked by the applicants,

which I use to define the comparison group unequivocally in each of the analyses. Additionally, the fact that applicants rank majors and institution combinations provides the opportunity to estimate the difference in outcomes of elite and non-elite graduates from the same groups of majors, narrowing the comparisons and allowing the effect to vary by group.

The estimated results show that enrollment in any major in an elite university in Chile, on average, reduces the likelihood of working in the public sector by roughly 15% compared to any major in a non-elite university. A differentiated effect by gender mainly explains these results, as the effect of enrollment into an elite university is considerably larger and statistically significant only for women. Also, the negative effect is concentrated among older individuals who graduated from voucher high schools outside the Metropolitan region. Notably, admission to an elite university, on average, does not affect the probability of reaching a high-rank position.

Elite universities in Chile generally offer a wider range of majors compared to non-elite universities. I identify the most prominent majors in top positions to facilitate a more accurate comparison and gain a deeper understanding of the distinct impact of elite education within specific majors. Then, I compare the labor outcomes of individuals enrolled in these specific majors at elite universities to the outcomes of those in the same majors at non-elite universities.

The results differ notably across the most frequent majors found in prestigious positions. For majors like Law, Business, and Engineering, referred to as the "business-oriented" group, enrolling in an elite university has a negligible and statistically insignificant impact on the likelihood of working in the public sector. Conversely, for majors categorized as "Health Non-Medicine," the effect is negative. Additionally, for males pursuing majors in "Architecture, Journalism, and Sociology," the effect is also negative. In contrast, there is a significant and substantial positive effect for Public Administration, a major specifically tailored for state administration.

While attending an elite university does not show consistent effects on reaching top positions across major groups, interesting patterns emerge when considering factors such as the type and location of the high school the worker graduated from and its gender. Male individuals from public and private schools (not for voucher schools) are more likely to attain top positions if they pursue a "Health Non-Medicine" major at an elite university. Conversely, their chances decrease if they opt for majors like "Architecture, Journalism, or Sociology." On the other hand, females from private high schools are less likely to achieve top positions if they attend an elite university. However, this trend reverses for males in the same majors but from public high schools.

In terms of location, for "Architecture, Journalism, or Sociology" majors, females who graduated from high schools in the Metropolitan region are less likely to secure top positions in the public sector. In contrast, the effect is positive for females from high schools outside the Metropolitan region. Similarly, males from the same majors and who graduated from high schools outside the Metropolitan region are less likely to reach top positions if they attend an elite university.

A growing body of literature has focused on estimating the causal effect of attending an elite higher education institution on labor outcomes. Findings show positive effects on earnings (Jia and Li, 2021; Anelli, 2020; MacLeod et al., 2017), as well as some null and mixed results (Mountjoy and Hickman, 2021; Hoekstra, 2009; Dale and Krueger, 2002). These findings are usually from contexts where the private sector labor market predominates. This work contributes to this literature by studying returns to elite universities in the public sector. In this setting, job assignment process and career advancement decisions are usually made in a political context, which can substantially differ from a market-driven environment in the private sector and is likely to affect the returns to elite higher education.

More recent works have studied the effect of elite higher education on the formation of leaders and attaining influential positions (Chetty et al., 2023; Zimmerman, 2019). The

estimated results show that more selective institutions do not seem to increase overall earnings after graduation, but they do increase the likelihood of reaching top positions at prominent firms and belonging to the top percentile of the earnings distribution. Notably, some of these results are only true for specific groups, such as males from affluent backgrounds. One of the contributions of this paper is to study the effect of elite universities on the likelihood of reaching a different type of leadership position. The Chilean civil service personnel classification and the salary pay scale help rank positions by relevance and level of responsibility, which I use to define a top position within the public sector administration.

Additionally, while quasi-experimental variation from admission cutoffs has been previously used to study the effect of elite universities, in this paper, I take advantage of the richness of the applications' data to explicitly define the counterfactual groups in each of my RDD analyses. This methodological improvement has not been previously implemented by preceding literature on elite education, and it allows us to understand better the estimated causal effects.

A growing body of the literature has been dedicated to understanding the incentives to attract talented candidates and improve management in the public sector (Muñoz and Prem, 2022; Ashraf et al., 2020; Muralidharan and Singh, 2020; Finan et al., 2017; Dal Bó et al., 2013). The results show that offering career opportunities or higher wages can attract more able applicants and that transparency and competitiveness in selection processes can lead to more effective workers being hired in the public sector. This study extends this existing body of literature by examining the impact of elite universities on the propensity of individuals from different groups of majors to work in the public sector. This offers a unique perspective on the challenges of attracting diverse majors to public administration. For example, the results suggest that individuals who enrolled in health non-medicine majors from elite universities would need better incentives to work in the public sector than their counterparts in non-elite universities. On the other hand, this re-

sult does not hold for business-oriented majors from elite universities.

Finally, most of the recent literature studying the public sector has commonly examined a specific type of job or institution within the public sector and, in many cases, in local government settings. This paper expands on understanding the public sector labor market by using data covering the universe of public servants hired in all institutions under the Chilean government (i.e., only excluded legislative, and judicial powers institutions).

ADD ROUTEMAP

2 Study Context

2.1 The Chilean Public Sector

In this study, I analyze the outcomes of public sector workers under the Chilean executive power in all centralized and decentralized agencies of the 24 existing ministries from 2018 onwards. Specifically, the outcomes considered are; having worked in the public sector, having a staff contract, earning levels, and the likelihood of reaching a top position in the public administration.

The Chilean public employment model is structured mainly based on the career system, although it has incorporated different elements to the model using more temporary contracts. This system is composed of an ascending structure of positions and remuneration grades linked to the importance of the function performed. A salary scale determines the remuneration structure,[1] and other general and specific allowances complement the

[1] Although some functions and sectors have their own assignment of grades based on other remunerations scale.

base salary.

Civil servants may have two types of contracts:[2] *planta* (staff) and *contrata*. The former corresponds to the permanent positions assigned by law to each institution, and the latter are those that perform more transitory duties. In the last decades, there has been a steady decline in the proportion of staff officers and an increase in temporary positions, evidencing a deterioration in labor conditions in the public sector.

Within staff positions, there are career officials and trusted servants. For the former group, entry is obtained through a public competition,[3] and they can't be fired arbitrarily, so they can only lose their job under specific legally established causes. On the other hand, trusted servants are staff that has the executive's exclusive confidence,[4] those subject to the free appointment and removal by the President or of the authority empowered to make the appointment. Before the creation of the SADP (for *Sistema de Alta Dirección Pública*, or Public Senior Management System) in 2003, staff positions were not under standardized selection procedures. Since the system came into force in 2004, discretion has been attenuated to appoint and remove some of these trusted positions whose functions are predominantly the execution of public policies and direct provision of services to the community. With the SADP implementation, these positions are appointed by the Senior Public Management Council[5] and are submitted to a public contest for periods of three years (renewable).

The contrata positions arose for the need to fulfilling more transitory tasks. At first, these public positions had a maximum duration of one fiscal year, at most, and had to end on December 31st of each year. Since 2017, all public institutions must elaborate and apply transparent recruitment and selection procedures based on merit, suitability, inclusion, and equal opportunities. Finally, the law establishes a limited number of contrata

[2]There is another type of contract, *honorarios*, but that personnel is not considered public servants.

[3]Positions that become vacant are replaced through internal competitions or by promotion in which the staff members of the respective service can participate. When these vacancies are not assigned through the mentioned procedures, they are open to a general entry contest.

[4]Ministers, Undersecretaries, Head Chiefs of Service, and Governors (not in the Central Government).

[5]CADP, for *Consejo de Alta Dirección Pública*.

officials that can be hired as staff members, which cannot exceed 20 percent.

2.2 The Higher Education Application System

This subsection provides an overview of Chile's higher education admission system. Understanding this framework is essential to analyze further the effect of university admission on public-sector employment outcomes.

The CRUCH (for *Consejo de Rectores de las Universidades Chilenas*, or Rector's Council of Chilean Universities) is an organization that comprehends the country's traditional universities. It includes 30 institutions, considered the country's most prestigious and historically significant.

Students willing to study in any CRUCH institution must take the PSU (for *Prueba de Selección Universitaria*, or University Selection Test), a standardized test that can only be taken at the end of each year. The only requirement to take this test is to complete high school. Most students take the PSU at the end of their 12th grade.

The PSU assesses the cognitive abilities and aptitudes of students in various academic disciplines. The exam includes compulsory tests in two main subjects: mathematics and language (Spanish). In addition, depending on the requirements of their preferred programs and institutions, prospective candidates can take two additional tests, natural sciences and history and social sciences. The PSU scores are measured on a scale of 150 to 850 points, with 450 points being the minimum score needed to apply to any program.

Each year, after receiving their PSU results, students apply through a simultaneous, centralized, and integer system.[6] In this process, applicants list their preferred set of eight university-major combinations. Upon reaching a cutoff point, applicants are automatically accepted to their highest listed option through a deferred acceptance algorithm (Gale and Shapley, 1962),[7] so applicants have incentives to rank their options according

[6]SUA, for *Sistema Único de Admisión*, or Single Admission System. This governing body ensures fairness and transparency in the selection process for all CRUCH universities.

[7]Similar to school choice systems in Boston and New York City.

to their true preferences. All the other institution-major combinations in the list are discarded.

Each university-major combination uses specific and publicly known weights for the different PSU subject exams. Therefore, the weighted score used to apply to major m, in the university u, in cohort c, is a composite of different PSU subject exams that can be expressed as:

$$PSU_{muc} = \sum_{s}^{S} w_{muc,s} \cdot PSU_s\,, \qquad \forall\ s = \text{Math, Spanish, Science, and History.}$$

Importantly, no other factors are considered in the admission process (e.g., statements of purpose), and applicants cannot predict the exact PSU's cutoff point of each institution-major because they vary yearly depending on the available slots in each institution and the applicants' demand.

3 Data and Sample

3.1 Public Sector Data

[*To be completed*]

- *Public sector data from 2018 to 2021 (currently expanding it to May 2023)*
- *Add definition of top position (Figure A.1)*
- *Add justification to examine specific majors (Figure A.3)*

3.2 Applications Data

[*To be completed*]

- *Two most selective universities considered as elite (PUC and UCh)*

4 Methodology

The greatest challenge to causally estimating the effect of admission to higher education on labor outcomes is that directly comparing the individuals admitted to a university with those not would generate biased estimates. Universities select their students, and at the same time, students decide where to apply, so the groups of admitted and not admitted individuals will differ in observable and non-observable characteristics. These differences will also likely determine individuals' labor outcomes; therefore, both groups won't be comparable, and the estimates will be biased.

The Chilean higher education admission system offers a unique opportunity to address this challenge. Applicants can't precisely predict the minimum test scores needed to be admitted to each program, as they vary yearly depending on the available slots in each institution and the corresponding applicants' demand of each cohort. Consequently, falling just above or below the cutoff point can be considered random, and both groups would not have any difference in observable or unobservable characteristics. Thus, I can estimate the local average treatment effect (LATE) of admission to a major-institution combination for the group near the cutoff point using an RDD, comparing applicants with PSU scores just above with those just below the program's cutoff point.

The estimating equation has the form

$$Y_{imuc} = f\left(x_{imuc}\right) + \delta D_{imuc} + \epsilon_{imuc}, \tag{1}$$

where Y_{imuc} are the labor outcomes of interest for student i applying to major m, in university u, in application cohort c; x_{imuc} is the student's PSU weighted score for major m in university u (i.e., the running variable), and $f\left(\cdot\right)$ is a smooth function. D_{imuc} is an indicator variable that takes value 1 if the student's score is higher or equal to the program-specific cutoff point (and therefore admitted to major m in university u) and 0 otherwise. The δ parameter captures the LATE of admission to program m in university u on the

corresponding outcome Y_{imuc}.

Every year, the admission system generates thousands of cutoffs, each corresponding to a specific major and institution combination. Equation (1) represents the empirical strategy to estimate the admission effect of a single major in a specific university, exploiting a single cutoff point.

As mentioned, the treatment assignment in the RDD context is as good as random conditional on observables. For this reason, the running variable is included in the estimation equation for identification purposes. If the relationship between the outcome and the running variable is assumed to be linear, the function $f(\cdot)$ would be a polynomial of grade 1. But to allow for non-linearities, a polynomial of a superior grade can be used. More importantly, an interaction of the polynomial with the indicator variable to allow for different slopes at each side of the cutoff is included. However, choosing an incorrect functional form leads to bias (Gelman and Imbens, 2019), so the literature has been moving to non-parametric local linear regression (Hahn et al., 2001). Finally, while not considered in equation (1), other observable characteristics can be included in the specification to increase the estimates' precision.

To estimate the LATE of admission to an elite university on labor outcomes, I use a stacked RDD approach following Abdulkadiroğlu et al. (2014), Pop-Eleches and Urquiola (2013) and Hastings et al. (2013). Specifically, my empirical strategy pools applications' data across all majors in the two more selective universities of the country (PUC and UCh), centering all the corresponding cutoffs. Therefore, a new running variable is generated by subtracting the specific program cutoff point from applicants' weighted PSU scores ($x_{imuc} - c_{muc}$), representing the distance to each program-specific cutoff. The estimated equation is

$$Y_{imuc} = f(x_{imuc} - c_{muc}) + \beta D_{imuc} + \gamma_{muc} + \varepsilon_{imuc}, \qquad \forall\, u = \text{PUC, UCh.} \tag{2}$$

Equation (2) also includes program-year fixed effects (γ_{muc}), and the estimated parameter $\hat{\beta}$ in this stack represents a weighted average of program-specific admission effects in an elite university. Importantly, the standard errors are clustered at the individual level as the same applicant can be in more than one of these singular RDs (e.g., in two different programs' waiting lists).

I will also estimate the admission effects to specific majors in elite universities separately, as they can face different labor markets within the public sector. More specifically, the state is a large provider of health services to the public. This justifies the study of medicine (the most selective major in Chile) separately, as medics' outside options in the private labor market might be proportionally fewer than other programs. Similarly, I will explore admission effects to law, engineering, and business majors in elite universities as they have been shown to be highly represented in managerial positions in the public sector (Fenizia, 2022) and also among top positions in the private sector (Zimmerman, 2019). A third program that justifies its separate study is that of public administrators, given that its main labor application is precisely in the state administration.

Finally, I will explore heterogeneous effects of admission by gender, as women have been documented to be over-represented in the public sector relative to their men counterparts.

5 Results

5.1 Regression Discontinuity Validity

The identification assumption in the RDD approach to obtain unbiased estimates is *continuity*, and it requires the expected value of the potential outcomes to be continuous on the running variable at the threshold. In other words, the potential outcomes should not jump at the cutoff point in the absence of the treatment. Implicitly, this assumption means that observable and non-observable characteristics that could determine the outcome (Y_{imuc})

are continuous on the running variable (x_{imuc}). In practice, the continuity assumption requires applicants near each side of the cutoff to be similar in variables affecting their future labor outcomes, like socioeconomic status and motivation. If these conditions are satisfied, RDD will provide valid (comparable) treatment and control groups at each side of the threshold, as the treatment assignment would be as good as random (conditional on observables) near the cutoff.

The continuity assumption would be violated if, for example, applicants can sort themselves at the right of the cutoff. This invalidates the identification strategy, as treatment and control groups would not be comparable due to a selection problem. In other words, students should not be able to manipulate their test scores (e.g., increasing their effort) to fall just above the acceptance threshold, implying self-selection of the highly motivated students into the treatment group. Consequently, unobservable factors that could determine future earnings (as motivation) would not be continuous at the cutoff.

One way to shed light on this is by looking for discontinuities of other predetermined observable variables. Another approach is examining the distribution density of applicants close to the cutoff (McCrary, 2008). This phenomenon is unlikely to happen in the admission to higher education context because students do not know ex-ante the precise cutoff (Hoekstra, 2009). Additionally, institutions usually set the acceptance threshold to achieve a target enrollment level and not for specific characteristics of students.

To verify the validity of this assumption, I run manipulation tests for the running variable using a local polynomial density estimation (Cattaneo et al., 2021; Cattaneo et al., 2020). In the presence of manipulation, a higher density of applicants just at the right of the centered cutoff should be observed, reflecting the non-random sorting of applicants. Figure 1 shows no significant accumulation of applicants just above the cutoff point, providing supporting evidence of no manipulation. Additionally, the formal test shows no statistical evidence of systematic manipulation of the running variable, as the null hypothesis of no manipulation can't be rejected (p-value = 0.71).

Further, I also examine applicants' baseline characteristics' continuity. For this purpose, I estimate equation (2) with applicants' characteristics as dependent variables. Figure 2 shows the estimated coefficient $(\hat{\beta})$ for each case. None of the estimated coefficients is statistically different from zero. Despite this being a necessary but not sufficient condition, as is also needed balance of unobserved characteristics, these results support the validity of the continuity assumption in my analytical sample.

5.2 Main Results

Admission to an elite university is critical in shaping outcomes and career trajectories in the public sector labor market. The analysis presented here shows that the effect of admission to an elite university on various dimensions of public-sector employment is substantial and statistically significant. In this section, I present overall findings of admission to an elite university irrespective of the major, starting with the negative impact on public sector employability and moving on to the effect on recruitment, earnings, and attainment of top positions.

First, the estimated results presented in Table 1 show that admission to an elite university has a negative and statistically significant effect of about 1 percentage point on the probability of working in the public sector. This effect represents a 7% decrease over the control group mean of 13%. These findings show that individuals admitted to elite universities are later less likely to pursue careers in the public sector.

Based on this finding, I further investigate the effect of admission to an elite university on the probability of having a staff contract in the public sector. The estimates presented in Table 2 reveal a significant decrease of 0.4 percentage points in the likelihood of having a staff contract, representing a 15% decrease over the control group mean.

In addition to the effects on employment and employee contracts, I examine the relationship between entry into elite universities and earnings in the public sector labor market. The regression discontinuity results presented in Table 3 show that people admitted

to an elite university tend to have lower average incomes than their counterfactuals. The estimated coefficient show that, overall, earnings are about 12% lower for those admitted to an elite university. This suggests that the perceived benefits of an elite education do not necessarily translate into greater financial rewards in the public sector labor market.

Finally, I examine whether attending an elite university affects the probability of attaining top positions in the public sector. Interestingly, the results in Table 4 show a null effect, suggesting that admission to elite universities does not significantly affect the probability of attaining top positions. Although this finding challenges the hypothesis of a direct link between elite education and top positions in the public sector, it raises important questions about the complex factors contributing to career development in this context.

Interestingly, when examining the effects of elite university admissions by gender in the public sector labor market, the analysis reveals an important difference. Although the point estimates for men correspond to the overall results, it is important to note that the estimates for this group are not statistically significant. Conversely, women's results show a significant negative effect, with larger point estimates. These differences by gender suggest that the link between elite university admissions and public sector outcomes is particularly pronounced for women. This nuanced understanding highlights the importance of considering gender as a critical factor in studying the complex dynamics of career outcomes in the public sector labor market.

5.3 Results by Major

Intriguing patterns emerge when examining the impact of admission to different majors at elite universities on the public sector labor market outcomes.

The results presented in Table A.1 show that, overall, applicants admitted to law, business, or engineering in elite universities have a 1 percentage point lower likelihood of working in the public sector. The estimated effect represents a 25 percent reduction compared to the control group's mean. As with the overall results, the point estimates show

a negative effect for men, but it is not statistically different from zero. However, this negative effect is statistically significant for women.

On the other hand, the results show different dynamics for medicine and public administration admissions to elite universities (see Tables A.2 and A.3). Although these majors positively affect the probability of working in the public sector, the effects are not statistically different from zero. While admission to elite universities in these majors may influence career choices, it does not guarantee a significant advantage in the public sector.

Shifting the focus to the effect on staff contracts, Tables A.5 and A.6 show an overall negative effect of admissions to elite law, business, or engineering majors and medicine in elite universities. In particular, the estimated effect for law, business, or engineering majors is a significant decrease of 0.4 percentage points, which is a 50% decrease relative to the control group's mean. Similarly, for medicine, there is a significant decrease of 3 percentage points, corresponding to a 45% decrease from baseline. It is worth noting that these significant results are again observed mainly in women. In contrast, admission to public administration in an elite university shows a positive effect, but it is not statistically different from zero.

Further, admitted students to law, business, or engineering majors in elite universities have 16% lower earnings in the public sector (Table A.7). This effect is, again, only statistically significant for women, suggesting a potential public sector wage penalty for women admitted to these majors. Conversely, Tables A.8 and A.9 show that the point estimates for admission to medical and public administration degrees in elite universities are positive but not statistically significant.

Finally, when examining the probability of reaching top positions in the public sector, a negative effect is observed in all three main groups of majors (see Tables A.10, A.11, and A.12). However, statistical significance is only observed for women admitted to law, business, or engineering.

In sum, the analysis of admissions to various majors at elite universities provides valu-

able insights into the complex dynamics of career outcomes in the public sector labor market. The findings show differences between majors, with majors in law, business, or engineering hurting public sector employment, employee contracts, monthly wages (for women), and the likelihood of top positions (for women). Medicine and public administration show more nuance, with positive but statistically insignificant effects on employment and public sector income. These results highlight the importance of considering the interplay between educational choices, gender, and career paths in the specific context of the public sector.

6 Conclusion

[*To be completed*]

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Figures

Figure 1: Manipulation Test

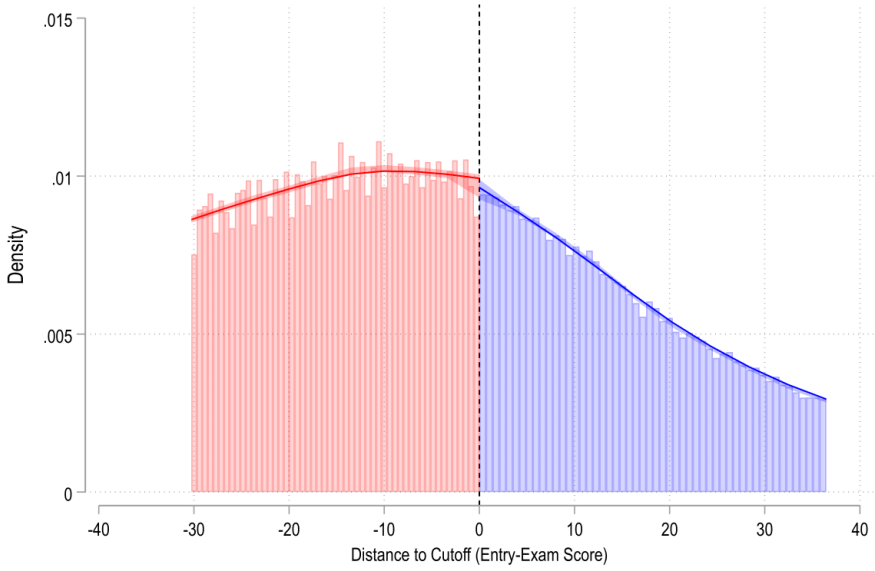
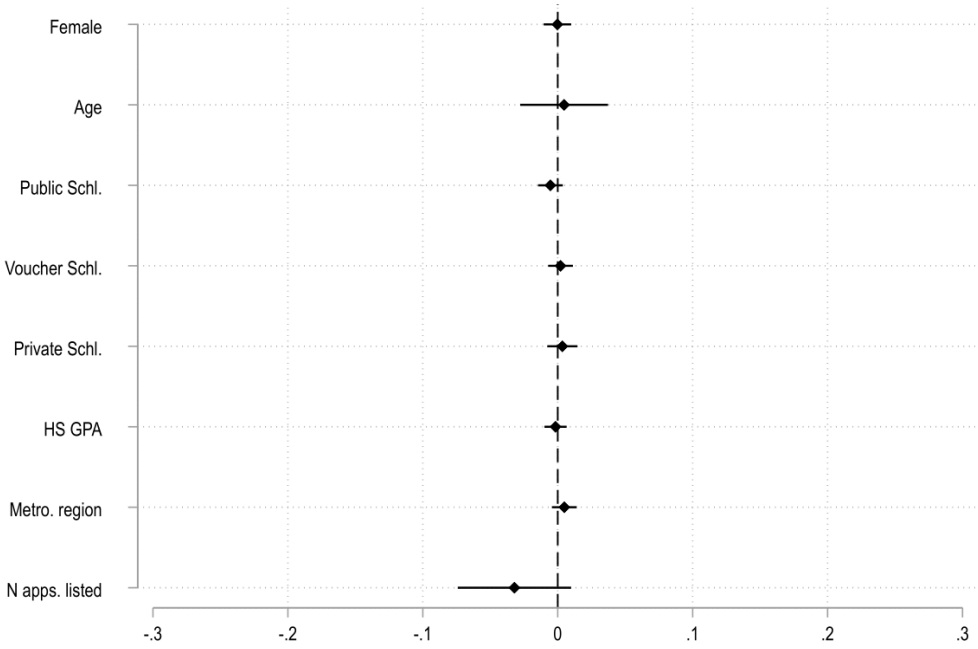


Figure 2: Continuity Test



Tables

Table 1: Admission to Elite University on Working in Public Sector

	Overall	Male	Female
Local polynomial	-0.009***	-0.006	-0.012***
	(0.003)	(0.004)	(0.005)
Control group mean	0.124	0.100	0.144
Optimal BW	31.4	33.7	35.4
N	205,718	104,246	116,413
Linear	-0.008*	-0.004	-0.011*
	(0.004)	(0.006)	(0.006)
Control group mean	0.128	0.108	0.147
BW	10.0	10.0	10.0
N	76,955	37,238	39,716

Table 2: Admission to Elite University on Staff Contract

	Overall	Male	Female
Local polynomial	-0.004**	-0.003	-0.004*
	(0.002)	(0.002)	(0.002)
Control group mean	0.027	0.021	0.032
Optimal BW	32.6	33.0	29.6
N	211,264	102,661	101,806
Linear	-0.005**	-0.004	-0.007**
	(0.002)	(0.003)	(0.003)
Control group mean	0.027	0.022	0.032
BW	10.0	10.0	10.0
N	76,955	37,238	39,716

Table 3: Admission to Elite University on Log Monthly Earnings

	Overall	Male	Female
Local polynomial	-0.135***	-0.095	-0.174***
	(0.046)	(0.058)	(0.065)
Control group mean	1.745	1.414	2.022
Optimal BW	29.9	32.6	34.8
N	198,050	101,704	114,963
Linear	-0.119**	-0.062	-0.172*
	(0.060)	(0.080)	(0.090)
Control group mean	1.826	1.545	2.083
BW	10.0	10.0	10.0
N	76,955	37,238	39,716

Table 4: Admission to Elite University on Top Position

	Overall	Male	Female
Local polynomial	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)
Control group mean	0.003	0.004	0.002
Optimal BW	31.6	31.1	26.6
N	206,721	98,429	93,502
Linear	-0.000	0.001	-0.001
	(0.001)	(0.001)	(0.001)
Control group mean	0.004	0.005	0.003
BW	10.0	10.0	10.0
N	76,955	37,238	39,716

A APPENDIX

A.1 Figures

Figure A.1: Top Position Definition

Salary scale grade	Govt. authorities, senior service chiefs	Managers (professional)	Managers (non-professional)	Professionals	Technicians, administrative and auxiliaries
A	8,424,014				
B	7,805,805				
C	7,217,956				
1-A	3,364,759				
1-B	3,445,450				
1-C	3,389,548	3,458,714	2,248,893		
2	3,334,590	3,334,085	2,212,114		
3	3,179,344	3,178,335	2,123,082		
4	3,032,770	3,031,251	2,038,626	2,982,523	
5	2,655,506	2,693,437	1,673,244	2,568,712	
6		2,461,138	1,569,843	2,417,531	
7		2,232,668	1,449,481	2,207,538	
8		2,031,271	1,344,313	2,011,540	
9		1,846,890	1,217,572	1,847,864	879,621
10		1,694,189	1,119,035	1,695,059	832,244
11		1,556,775	1,029,770	1,557,538	785,374
12		1,430,593	948,255	1,431,243	748,362
13				1,300,149	708,331
14				1,192,893	668,721
15				1,094,685	634,628
16				1,004,665	59,375
17				922,263	564,093
18				832,543	539,716
19				761,821	517,885
20				696,221	486,324
21				638,289	46,029
22				587,189	419,867
23				541,325	385,959
24					357,576
25					337,964
26					316,149
27					295,077
28					280,584
29					266,479
30					25,372
31					241,722

Figure A.2: Admission on Enrollment

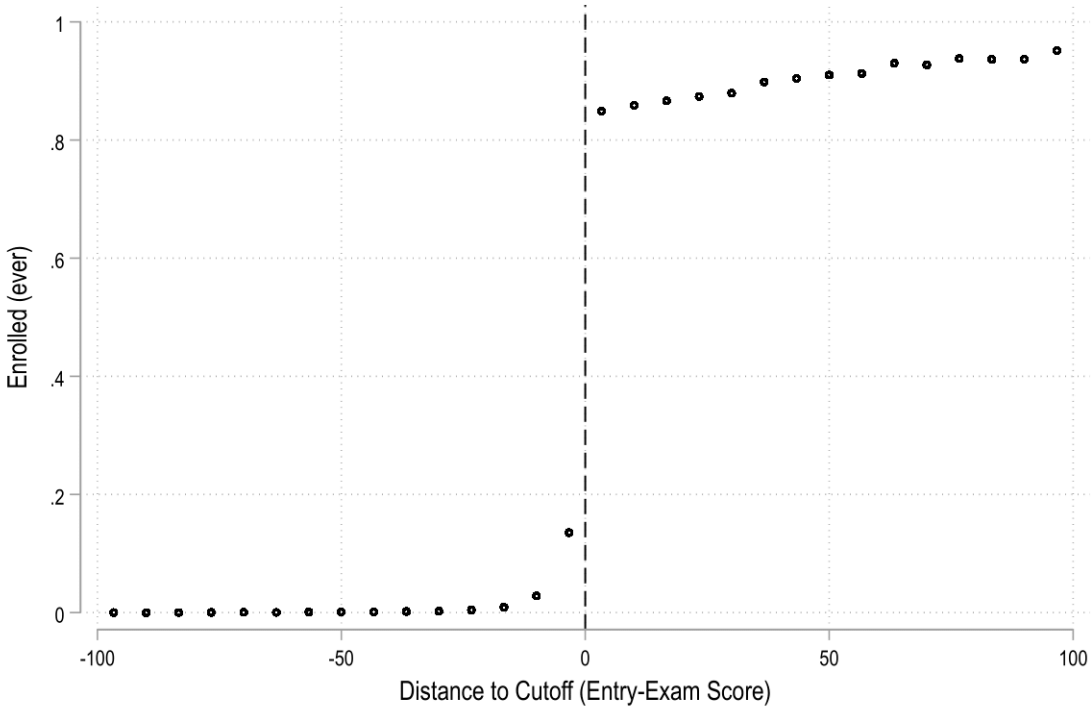
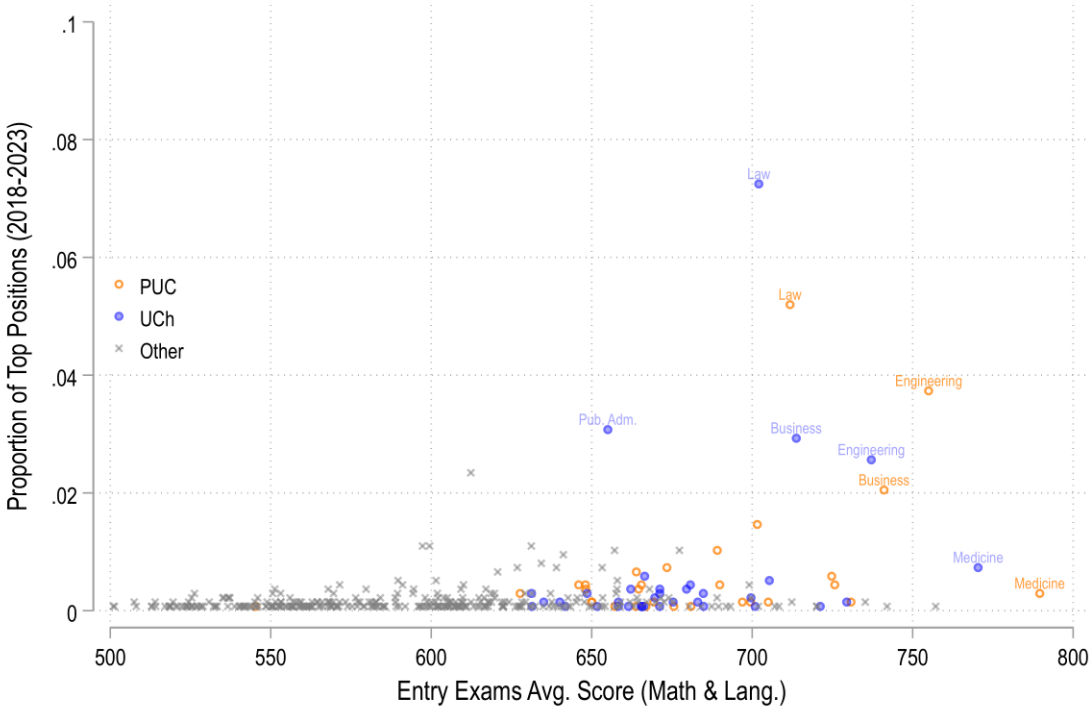


Figure A.3: Majors Selectivity and Proportion of Top Positions



A.2 Tables

Table A.1: Admission to Law, Business, or Engineering in Elite University on Working in Public Sector

	Overall	Male	Female
Local polynomial	-0.012**	-0.008	-0.022**
	(0.005)	(0.006)	(0.010)
Control group mean	0.047	0.040	0.061
Optimal BW	31.0	28.3	27.6
N	52,483	32,304	16,299
Linear	-0.013**	-0.007	-0.025*
	(0.006)	(0.007)	(0.012)
Control group mean	0.057	0.047	0.076
BW	10.0	10.0	10.0
N	19,309	12,749	6,559

Table A.2: Admission to Medicine in Elite University on Working in Public Sector

	Overall	Male	Female
Local polynomial	0.016	0.031	0.009
	(0.027)	(0.036)	(0.043)
Control group mean	0.326	0.334	0.318
Optimal BW	18.8	20.1	15.9
N	6,653	3,852	2,619
Linear	0.026	0.060	-0.010
	(0.028)	(0.039)	(0.042)
Control group mean	0.486	0.490	0.481
BW	10.0	10.0	10.0
N	3,773	2,071	1,702

Table A.3: Admission to Pub. Adm. in Elite University on Working in Public Sector

	Overall	Male	Female
Local polynomial	0.052	0.015	0.088
	(0.041)	(0.066)	(0.059)
Control group mean	0.175	0.164	0.185
Optimal BW	25.0	18.4	23.7
N	2,656	1,047	1,247
Linear	0.043	0.018	0.075
	(0.049)	(0.072)	(0.071)
Control group mean	0.202	0.214	0.192
BW	10.0	10.0	10.0
N	1,175	587	588

Table A.4: Admission to Law, Business, or Engineering in Elite University on Staff Contract

	Overall	Male	Female
Local polynomial	-0.004**	-0.003	-0.007*
	(0.002)	(0.002)	(0.003)
Control group mean	0.008	0.008	0.009
Optimal BW	22.3	37.7	18.5
N	40,282	40,065	11,659
Linear	-0.005**	-0.004	-0.007*
	(0.002)	(0.003)	(0.004)
Control group mean	0.009	0.009	0.009
BW	10.0	10.0	10.0
N	19,309	12,749	6,559

Table A.5: Admission to Medicine in Elite University on Staff Contract

	Overall	Male	Female
Local polynomial	-0.029*	0.009	-0.090***
	(0.017)	(0.026)	(0.032)
Control group mean	0.064	0.060	0.067
Optimal BW	17.4	13.9	11.2
N	6,240	2,805	1,899
Linear	-0.036**	-0.001	-0.082***
	(0.018)	(0.024)	(0.029)
Control group mean	0.084	0.067	0.102
BW	10.0	10.0	10.0
N	3,773	2,071	1,702

Table A.6: Admission to Pub. Adm. in Elite University on Staff Contract

	Overall	Male	Female
Local polynomial	0.016	0.042	0.009
	(0.020)	(0.030)	(0.024)
Control group mean	0.030	0.033	0.028
Optimal BW	21.5	18.0	24.4
N	2,337	1,026	1,279
Linear	0.035	0.080**	0.001
	(0.024)	(0.040)	(0.032)
Control group mean	0.039	0.054	0.026
BW	10.0	10.0	10.0
N	1,175	587	588

Table A.7: Admission to Law, Business, or Engineering in Elite University on Log Monthly Earnings

	Overall	Male	Female
Local polynomial	-0.179**	-0.117	-0.302**
	(0.073)	(0.086)	(0.146)
Control group mean	0.678	0.566	0.867
Optimal BW	31.1	28.8	28.5
N	52,703	32,853	16,735
Linear	-0.197**	-0.106	-0.352*
	(0.093)	(0.105)	(0.181)
Control group mean	0.830	0.684	1.102
BW	10.0	10.0	10.0
N	19,309	12,749	6,559

Table A.8: Admission to Medicine in Elite University on Log Monthly Earnings

	Overall	Male	Female
Local polynomial	0.175	0.463	0.008
	(0.394)	(0.519)	(0.622)
Control group mean	4.685	4.812	4.576
Optimal BW	18.8	20.3	16.2
N	6,653	3,882	2,670
Linear	0.351	0.891	-0.243
	(0.415)	(0.566)	(0.612)
Control group mean	7.072	7.150	6.983
BW	10.0	10.0	10.0
N	3,773	2,071	1,702

Table A.9: Admission to Pub. Adm. in Elite University on Log Monthly Earnings

	Overall	Male	Female
Local polynomial	0.778	0.284	1.228
	(0.586)	(0.947)	(0.854)
Control group mean	2.493	2.343	2.643
Optimal BW	24.6	18.3	23.5
N	2,622	1,039	1,234
Linear	0.592	0.259	1.026
	(0.705)	(1.028)	(1.015)
Control group mean	2.899	3.043	2.763
BW	10.0	10.0	10.0
N	1,175	587	588

Table A.10: Admission to Law, Business, or Engineering in Elite University on Top Position

	Overall	Male	Female
Local polynomial	-0.003	-0.001	-0.007*
	(0.002)	(0.002)	(0.004)
Control group mean	0.005	0.005	0.004
Optimal BW	23.0	29.6	17.0
N	41,228	33,522	10,761
Linear	-0.002	0.000	-0.008*
	(0.002)	(0.003)	(0.004)
Control group mean	0.006	0.006	0.007
BW	10.0	10.0	10.0
N	19,309	12,749	6,559

Table A.11: Admission to Medicine in Elite University on Top Position

	Overall	Male	Female
Local polynomial	-0.003	-0.004	-0.005
	(0.003)	(0.003)	(0.006)
Control group mean	0.002	0.002	0.002
Optimal BW	16.2	19.0	11.8
N	5,876	3,682	2,014
Linear	-0.003	-0.005	-0.000
	(0.003)	(0.003)	(0.004)
Control group mean	0.003	0.004	0.003
BW	10.0	10.0	10.0
N	3,773	2,071	1,702

Table A.12: Admission to Pub. Adm. in Elite University on Top Position

	Overall	Male	Female
Local polynomial	-0.013	-0.009	-0.021
	(0.015)	(0.020)	(0.021)
Control group mean	0.013	0.018	0.009
Optimal BW	18.2	25.5	14.9
N	2,025	1,374	829
Linear	-0.003	0.004	-0.008
	(0.017)	(0.029)	(0.021)
Control group mean	0.026	0.034	0.019
BW	10.0	10.0	10.0
N	1,175	587	588