Elite Colleges As Signals: Experimental Evidence from Bangladesh

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December 4, 2025

Elite College Premium

- Extensive evidence of higher labor market returns from attending elite colleges. (Brewer et al., 1996; Black and Smith, 2004; Hoekstra, 2009; Li et al., 2012; MacLeod et al., 2017; Sekhri, 2020)
- These returns may result from:
  - **Value-added effects**: Enhanced learning outcomes driven by superior infrastructure and faculty.
  - **Signaling effects**: Higher returns even without changes in learning outcomes, as attending elite institutions signals quality to employers.
- Students from elite colleges often do not have a learning advantage at the margin (Clark, 2010; Abdulkadiroglu et al., 2014; Bui et al., 2014; Lucas and Mbiti, 2014)

Research Questions

1. What is the labor market premium associated with elite college attendance?
2. What is the mechanism?
3. Is there gender discrimination in the labor market?

We used a correspondence study to answer these questions.

Contribution to the Literature

- Literature on the labor market premium of attending elite colleges. (Brewer et al., 1996; Black and Smith, 2004; Hoekstra, 2009; Li et al., 2012; MacLeod et al., 2017; Sekhri, 2020).
  - We shed light on causal mechanisms.
- Literature on gender disparity within the labor market
  - Correspondence studies focusing developed countries do not discern significant gender differences in callback rates.(Bertrand and Mullainathan, 2004; Nunley et al. 2015; Kline et al., 2022)
  - We explore this in the context of developing countries where gender discrimination is more salient.

Experimental Design

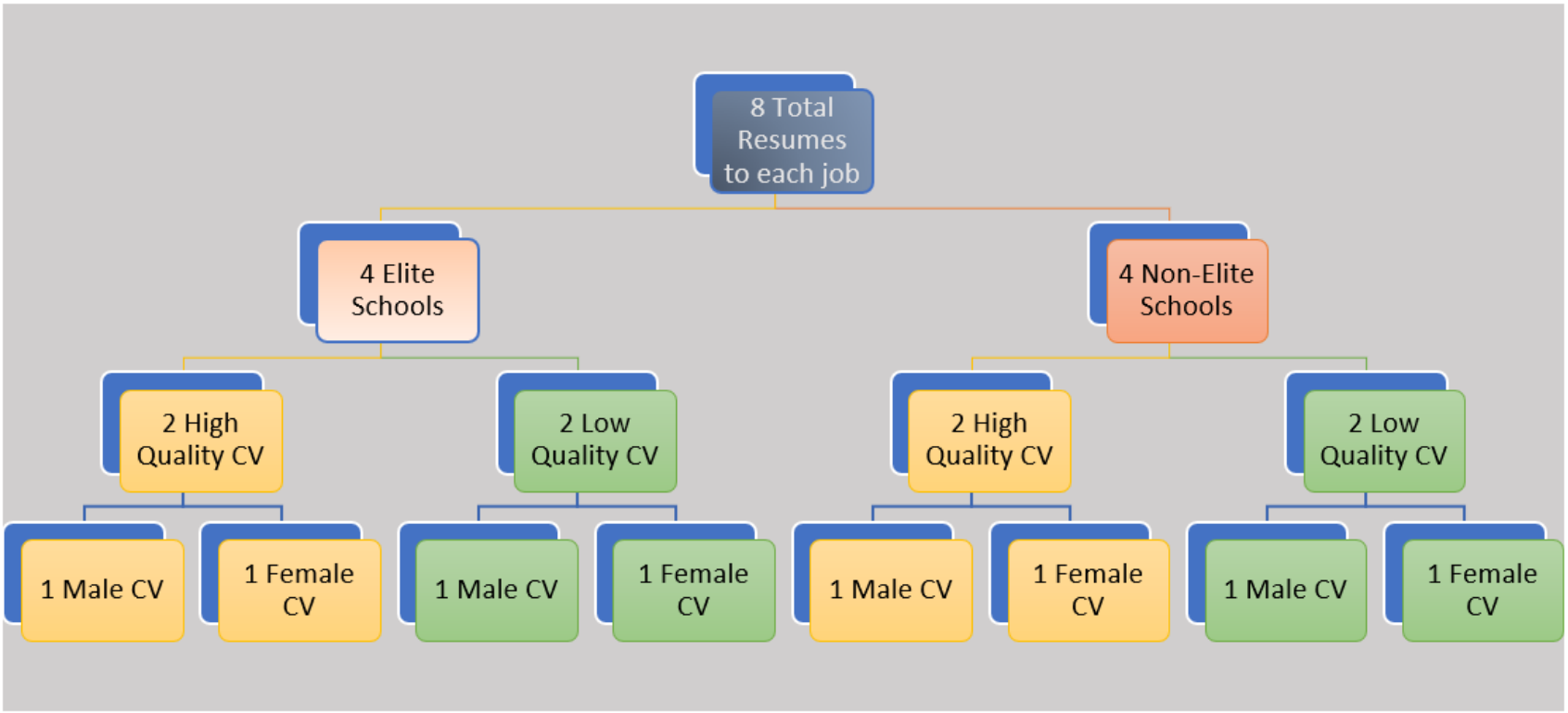

Figure: Experimental Design

Experimental Design

- We conducted the experiment in Bangladesh (May-Dec 2023)
- Responded to around 500 job ads posted on BDJOBS, the country's largest online job portal.
  - Focused on jobs that requires at least a college degree
  - Four industries: a) sales, (b) human resources, (c) finance and (d)front desk.
  - Ads requiring application fees, copies of educational certificates, or in-person applications were excluded.
- Nearly 4,000 resumes were sent, with eight resumes mailed per ad.
- We recorded employer details (e.g., job requirements, equal-opportunity mentions) and callbacks.

Balance Table | Average Callbacks | High- vs. low-quality CVs

Empirical Approach

- Our main regression is as follows:

$$callback_{ij} = \beta_0 + \beta_1 elitecollege_{ij} + \gamma X_{ij} + \theta_j + u_{ij} \quad (1)$$

- We index candidates by i and job advertisements by j.
- $callback_{ij}$ is an indicator variable for receiving a call for an interview.
- *elitecollege* is an indicator variable for graduating from an elite college.
- X_{ij} are resume-specific controls such as CGPA, major, language proficiency, and labor market experience.
- θ_j controls for advertisement fixed effects that control for factors such as industry, minimum qualification sought, etc.

Results: Large Premiums from Attending Elite Colleges

	Callback				
VARIABLES	(1)	(2)	(3)	(4)	(5)
Elite College	0.035***	0.035***	0.035***	0.035***	0.035***
	(0.008)	(0.007)	(0.007)	(0.008)	(0.008)
Resume characteristics	No	Yes	Yes	Yes	Yes
Industry Type	No	No	Yes	Yes	Yes
Month	No	No	No	Yes	Yes
Advertisement fixed effect	No	No	No	No	Yes
Observations	4,056	4,056	4,056	4,056	4,056
Mean	0.103	0.103	0.103	0.103	0.103

Notes: Estimates are marginal effects from linear probability models. Standard errors are clustered at the advertisement level. *** indicates significance at 1, ** at 5, and * at 10 percent level.

Results

- The elite college premium exists across all four industries, with no discernible difference. table
- The elite college premium does not vary by CV attributes (high-quality vs. low-quality). table
  - Suggests signaling as the key mechanism.
- The gains from attending elite colleges do not vary by advertisement traits. table

Gender Gap in Callback

	Callback				
VARIABLES	(1)	(2)	(3)	(4)	(5)
Female	-0.037***	-0.035***	-0.036***	-0.027**	-0.031**
	(0.011)	(0.011)	(0.011)	(0.014)	(0.015)
Resume characteristics	No	Yes	Yes	Yes	Yes
Industry Type	No	No	Yes	Yes	Yes
Month	No	No	No	Yes	Yes
Advertisement fixed effect	No	No	No	No	Yes
Observations	4,056	4,056	4,056	4,056	4,056
Mean for male applicants	0.121	0.121	0.121	0.121	0.121

Notes: Estimates are marginal effects from linear probability models. Standard errors are clustered at the advertisement level. *** indicates significance at 1, ** at 5, and * at 10 percent level.

Gender Gap in Callbacks: Mechanism

- Literature documents two types of discrimination: taste-based and statistical.
- The observed gender gap in callbacks is driven by taste-based discrimination.
  - The gender gap in callbacks does not fall with improved CV attributes.
  - We use a heteroskedastic probit model (Neumark, 2012) to show that taste-based discrimination is the driving mechanism. table
    - decomposes the marginal effect into two distinct components: the "level" effect and the "variance" effect.
    - The former captures *taste-based* discrimination while the latter reflects *statistical* discrimination.

Elite College Attendance and Gender Gap

- Overall, elite college attendance does not reduce the gender gap in callbacks. table
- However, there is important heterogeneity:
  - For high-quality resumes, elite college attendance lowers the gender gap.
  - For low-quality resumes, elite college attendance exacerbates the gender gap.

Concluding Remarks

- We use a correspondence study to show large gains from attending elite colleges, even when candidates' abilities are comparable.
  - These gains exist across all four industries.
  - Similar for high- and low-quality CVs.
- We observe a large gender gap in callbacks.
  - Driven by taste-based discrimination.
  - Elite college attendance lowers the gender gap only for high-quality CVs.
- Might perpetuate intergenerational inequality
  - as students from low- and middle-income families often face financial constraints in accessing elite private universities.

Thank you!!

For any questions, please contact:

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Appendix

Table: Covariate Balance

Variable	Non-elite College (1)	Elite College (2)	Difference (1)-(2) (3)
Female	0.500	0.500	0.000
	[0.000]	[0.000]	
High quality CV	0.500	0.500	0.000
	[0.000]	[0.000]	
Master's GPA	3.426	3.425	0.000
	[0.001]	[0.001]	
College GPA	3.475	3.475	-0.001
	[0.001]	[0.001]	
High School GPA	4.851	4.849	0.001
	[0.002]	[0.002]	
Secondary School GPA	4.923	4.923	0.000
	[0.000]	[0.000]	
Has volunteering experience	0.236	0.243	-0.007
	[0.008]	[0.008]	
Has leadership experience	0.227	0.230	-0.003
	[0.008]	[0.008]	
Has IELTS score	0.218	0.214	0.004
	[0.008]	[0.008]	
Has Training	0.227	0.229	-0.001
	[0.008]	[0.008]	

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Table: Average Callback Rates

Variable	All (1)	Non-elite (2)	Elite (3)	Difference (3)-(2) (4)	P-value (5)
Overall	0.1028	0.085	0.12	0.035	0.002
By Gender					
Male	0.121	0.104	0.138	0.0335	0.02
Female	0.084	0.066	0.102	0.036	0.003
By CV quality					
High	0.116	0.1005	0.133	0.032	0.02
Low	0.0887	0.07	0.107	0.037	0.003
By Industry					
Sales/Marketing	0.129	0.11	0.148	0.037	0.075
HR/Admin	0.059	0.048	0.07	0.022	0.14
Finance/Accounting	0.094	0.073	0.116	0.043	0.018
Receptionist/Call center	0.128	0.109	0.146	0.037	0.0756

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Elite College Attendance & Callback: By Industry

VARIABLES	(1) Sales and Marketing	(2) HR and Administration	(3) Accounting and Finance	(4) Front desk and call centre
Elite College	0.037**	0.022*	0.043***	0.037**
	(0.018)	(0.012)	(0.016)	(0.018)
Observations	1,016	1,000	1,016	1,024
R-squared	0.447	0.502	0.469	0.571
Mean	0.129	0.0590	0.0945	0.128

Notes: Estimates are marginal effects from linear probability models. Each regression controls for resume characteristics, month of application submission, and job-advertisement fixed effects. Standard errors are clustered at the advertisement level. *** indicates significance at 1, ** at 5, and * at 10 percent level.

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Elite College Attendance & Callbacks: By CV Quality

VARIABLES	(1) All	(2) High-quality resume	(3) Low-quality resume	(4) All
Elite college	0.035***	0.033***	0.038***	0.037***
	(0.008)	(0.011)	(0.011)	(0.010)
High-quality resume				-0.049
				(0.042)
Elite college x High-quality resume				-0.005
				(0.012)
Observations	4,056	2,028	2,028	4,056
R-squared	0.505	0.629	0.541	0.506
Mean	0.103	0.117	0.0888	0.103

Notes: Estimates are marginal effects from linear probability models. Each regression controls for resume characteristics, month of application submission, and job-advertisement fixed effects. Standard errors are clustered at the advertisement level. *** indicates significance at 1, ** at 5, and * at 10 percent level.

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Elite College & Callback: Heterogeneity by Gender

VARIABLES	(1) High-quality resume	(2) Low-quality resume	(3) All
Elite school	0.022	0.048***	0.034***
	(0.014)	(0.016)	(0.011)
Female	-0.050**	-0.014	-0.032**
	(0.020)	(0.020)	(0.016)
Elite school x Female	0.023	-0.021	0.002
	(0.016)	(0.019)	(0.012)
Observations	2,028	2,028	4,056
R-squared	0.630	0.541	0.505
Mean	0.117	0.0888	0.103

Notes: Estimates are marginal effects from linear probability models. Each regression controls for resume characteristics, month of application submission, and job-advertisement fixed effects. Standard errors are clustered at the advertisement level. *** indicates significance at 1, ** at 5, and * at 10 percent level.

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Elite College Callbacks: Heterogeneity by Ad Traits

VARIABLES	(1) Client interaction needed	(2) Dhaka-based	(3) Mid-level job	(4) Full-time job	(5) Computer skill required	(6) Equal opportunity
Elite school	0.033***	0.030**	0.025**	0.038	0.023	0.018*
	(0.010)	(0.014)	(0.012)	(0.027)	(0.017)	(0.011)
Elite school x Heterogeneity Indicator	0.005	0.008	0.018	-0.004	0.016	0.031**
	(0.016)	(0.017)	(0.016)	(0.028)	(0.020)	(0.016)
female	-0.032**	-0.032**	-0.032**	-0.032**	-0.032**	-0.032**
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Observations	4,048	4,056	4,048	4,056	4,048	4,048
R-squared	0.499	0.499	0.499	0.499	0.499	0.499
Mean	0.0648	0.0928	0.0636	0.135	0.0664	0.0694

Notes: Estimates are marginal effects from linear probability models. Each regression controls for resume characteristics, month of application submission, and job-advertisement fixed effects. Standard errors are clustered at the advertisement level. *** indicates significance at 1, ** at 5, and * at 10 percent level.

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Heteroskedastic Probit Estimates for Callbacks

	Callback		
	Linear probability Model	Basic Probit	Heteroskedastic Probit
	(1)	(2)	(3)
Female	-0.035***	-0.034***	-0.031***
	(0.008)	(0.011)	(0.0099)
Decomposition of marginal effects:			
Marginal effect of gender through level			-0.089*
			(0.049)
Marginal effect of gender through variance			0.059
			(0.052)
Number of observations	4,056	4,056	4,056

Notes: Estimates are marginal effects from linear probability model (Column 1), basic probit model (Column 2), and heteroskedastic probit model (Column 3). Each regression controls for resume characteristics. Standard errors are clustered at the advertisement level. The marginal effects are evaluated at sample means. The standard errors for the two components of the marginal effects in Column (3) are computed using the delta method using procedures used in Neumark (2012). *** indicates significance at 1, ** at 5, and * at 10 percent level.

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Difference in Attributes Between High and Low-Quality CVs

Variable	Low-quality CV (1)	High-quality CV (2)	All (3)	Difference (1)-(2)
Master's GPA	3.275	3.576	3.425	-0.301***
	[0.001]	[0.001]	[0.001]	
College GPA	3.326	3.624	3.475	-0.299***
	[0.001]	[0.001]	[0.001]	
High School GPA	4.700	5.000	4.850	-0.300***
	[0.002]	[0.000]	[0.001]	
Secondary School GPA	4.845	5.000	4.923	-0.155
	[0.000]	[0.000]	[0.000]	
Has volunteering experience	0.000	0.479	0.240	-0.479***
	[0.000]	[0.011]	[0.005]	
Has leadership experience	0.000	0.458	0.229	-0.458***
	[0.000]	[0.012]	[0.006]	
Has IELTS score	0.000	0.432	0.216	-0.432***
	[0.000]	[0.010]	[0.005]	
Has Training	0.000	0.456	0.228	-0.456***
	[0.000]	[0.011]	[0.006]	

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