

1 Project ICFES: Evidence from a referral field experiment\* 1

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3 June 2, 2025 3

4 **Abstract** 4

5 Lorem Ipsum ([Beaman, Keleher, & Magruder, 2018](#)) 5

6 **JEL Classification:** C93, D03, D83, J24 6

7 **Keywords:** productivity beliefs, referrals, field experiment, skill identification, social  
8 class 7 8

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9      **1 Introduction**

9

10     Equally qualified individuals may face very different labor market outcomes depending 10  
11    on their socioeconomic status (SES). A key driver of this inequality is due to differences 11  
12    in social capital,<sup>1</sup> with recent empirical work characterizing its most important facet as 12  
13    the “share of high-SES friends among individuals with low-SES” because it correlates 13  
14    strongly with labor market income (Chetty et al., 2022). A lack of social capital means 14  
15    a lack of access to individuals with influential (higher paid) jobs and job opportunities. 15  
16    In economic terms, it implies having worse outcomes when using one’s network to find 16  
17    jobs conditional on the capacity on leveraging one’s social network.<sup>2</sup> 17

18     Referral hiring, the formal or informal process where firms ask workers to recommend 18  
19    qualified candidates for job opportunities, is a common labor market practice which 19  
20    makes evident the role of differences in social capital. As referrals must originate from 20  
21    the networks of referrers, the composition of referrer networks becomes a crucial channel 21  
22    that may propagate inequality: Similar individuals across socio-demographic charac- 22  
23    teristics tend to form connections at higher rates (McPherson, Smith-Lovin, & Cook, 23  
24    2001), making across SES (low-to-high) connections less likely than same-SES connec- 24  
25    tions (Chetty et al., 2022). Referrals will thus reflect similarities in socio-demographic 25  
26    characteristics present in networks even in the absence of biases in the referral procedure, 26  
27    i.e., referring at random from one’s network according to some productivity criteria. 27

28     Evidence shows referrals can be biased under substantial pay-for-performance incen- 28  
29    tives beyond what is attributable to differences in network compositions, at least for the 29  
30    case of gender (Beaman et al., 2018; Hederos, Sandberg, Kvissberg, & Polano, 2025). A 30  
31    similar bias against low-SES may further exacerbate outcomes of low-SES individuals: 31  
32    If job information are in the hands of a select few high-SES which low-SES have already 32

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<sup>1</sup>See for example Bourdieu (1986); Loury (1977) for pioneering work on the relationship between social position and human capital acquisition.

<sup>2</sup>See for example Lin, Ensel, and Vaughn (1981); Mouw (2003) for differential outcomes while using contacts in job search, and Pedulla and Pager (2019); Smith (2005) specifically for the effects of race conditional on network use. fill in citation sociology reading from slides

33 limited network access to (social capital hypothesis), and high-SES referrers are biased 33  
34 against low-SES, referring other high-SES at higher rates than their network compo- 34  
35 sition, we expect referral hiring to disadvantagee low-SES. The empirical question we 35  
36 answer is whether there is a bias against low-SES once we account for the network SES 36  
37 compositon in a controlled setting. 37

38 In this study, we focus on the role of SES in referrals by investigating whether 38  
39 individuals who are asked to refer someone tend to refer a same-SES candidate. We also 39  
40 explore potential mechanisms behind referral patterns under different incentives. To this 40  
41 end, we conducted a lab-in-the-field experiment with 734 participants in a Colombian 41  
42 university where different SES groups mix together. Participants were instructed to 42  
43 refer a qualified student for tasks similar to the math and reading parts of the national 43  
44 university entry exam (equivalent of SAT in US system). To incentivize participants 44  
45 to refer qualified candidates, we set earnings dependent on referred candidates' actual 45  
46 university entry exam scores. 46

47 Referral hiring in the labor market can range from firm-level formal referral programs 47  
48 asking employees to bring candidates to simply passing on job opportunities between net- 48  
49 work members ([Topa, 2019](#)). As participants in our study are students at the university 49  
50 referring based on exam scores, we abstract away from formal referral programs with 50  
51 defined job openings. Our setting instead resembles situations where contacts share 51  
52 opportunities with each other without the need for the referred candidate to take any 52  
53 action. This also eliminates reputational concerns as there is no firm (see for example 53  
[Bandiera, Barankay, and Rasul \(2009\); Witte \(2021\)](#)). At the same time, national uni- 54  
55 versity entry exam scores are still objective, widely accepted measures of ability, and 55  
56 we show evidence that referrers in our setting possess accurate information about these 56  
57 signals. 57

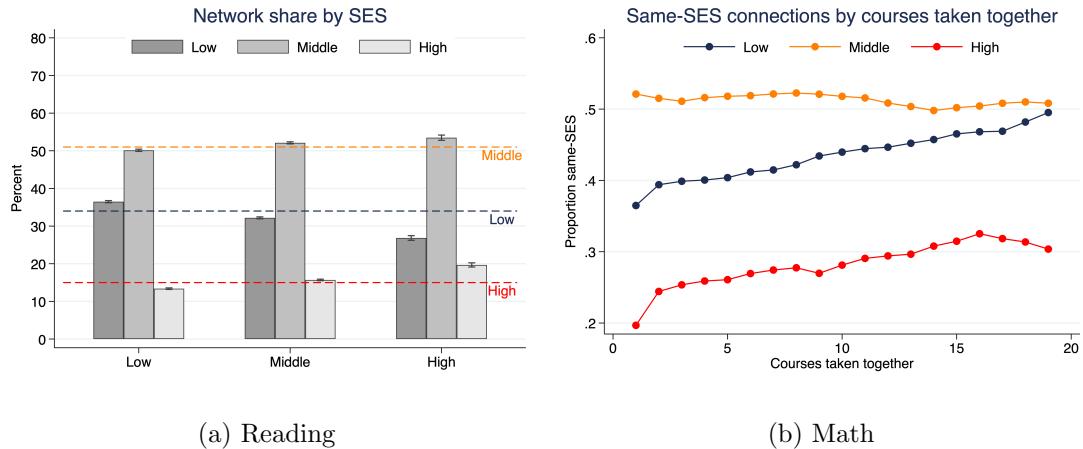
58 We find strong evidence that networks of high- and low-SES participants exhibit SES- 58  
59 homophily. Both groups are connected at higher rates with their own SES group than 59  
60 what would be at random given actual group shares at the university (Figure 1a). As 60  
61 students take more courses together within the same program, their networks dwindle in 61

size (Figures 2a and 2b), and become more homogenous in SES-shares (Figure 1b). We identify selection into academic programs as a key mechanism. The private university where our study takes place implements exogenous cost-based program pricing and does not offer SES-based price reductions. These result in programs with very large cost differences within the same university (Figure 3a). We find that average yearly fees paid increase with SES, and the high-SES share in the most expensive program at the university, medicine, drives the network segregation across SES (Figure 3b).

Do segregated networks account for all the differences in SES referral rates across SES groups? Same-SES referrals are 17% more common than is suggested by referrer networks. High- and low-SES referrers under refer each other by 50%. Yet, controlling for networks, our results suggest only low-SES students show significant same-SES homophily in referrals. Regardless of SES, referrals identify highly able individuals, and are characterized by a very high number of courses taken together. The latter underlies the impact of program selection in referrals, where the smaller and more homogenous choice sets come into play. Our treatment randomized participants across two different incentive schemes by adding a substantial monetary bonus (\$25) for the referred candidate on top of the pay-for-performance incentives. We provide evidence that treatment incentives did not change the referral behavior across the same-SES referral rate, the number of courses taken together with the referral candidate, and the candidate's exam scores.

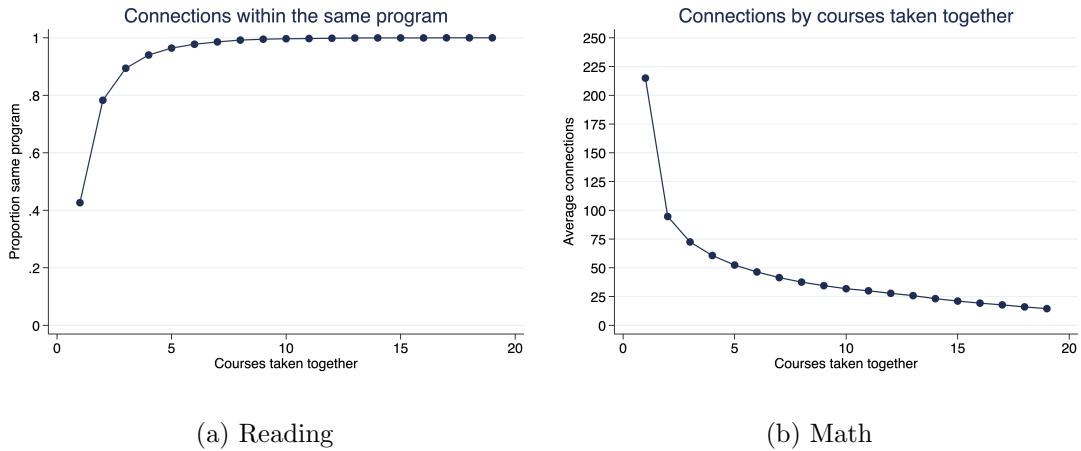
This paper extends various the literature  
The remainder of the paper is organized as follows. Section 2 begins with the background and setting in Colombia. In Section 3 we present the design of the experiment. In Section 4 we describe the data and procedures. Section 5 discusses the results of the experiment. Section 6 concludes. The Appendix presents additional tables and figures as well as the experiment instructions.

Figure 1: Effect of the Bonus on Referrals



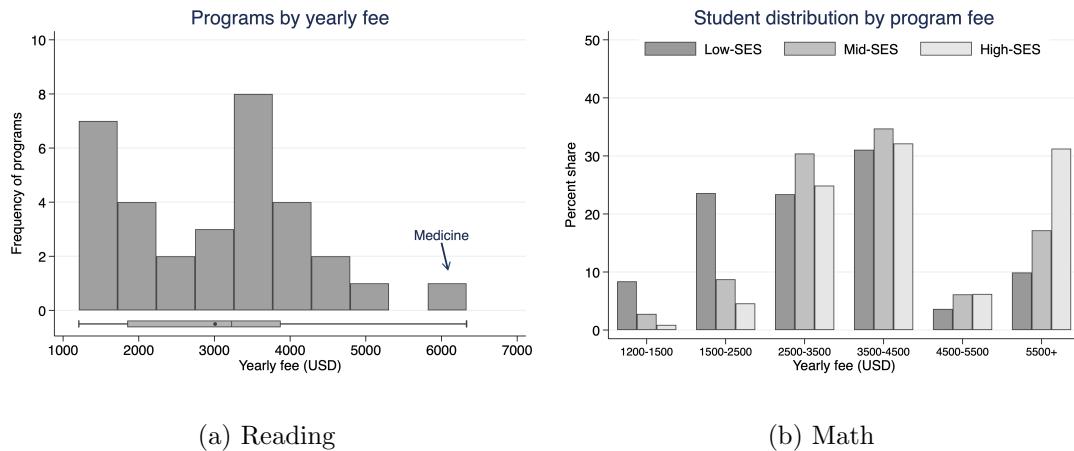
*Note:* The top panel compares the reading scores and tie strength of referrals across conditions. The bottom panel shows the average standardized math and tie strength of referrals across conditions. We test differences in across conditions using two-sample *t*-tests and find no meaningful differences. For both math and reading, treatment causes no significant changes in referral performance or tie strength.

Figure 2: Effect of the Bonus on Referrals



*Note:* The top panel compares the reading scores and tie strength of referrals across conditions. The bottom panel shows the average standardized math and tie strength of referrals across conditions. We test differences in across conditions using two-sample *t*-tests and find no meaningful differences. For both math and reading, treatment causes no significant changes in referral performance or tie strength. considering the net average monthly wage stands at \$350 and minimum legal wage is at \$200 in 2025

Figure 3: Effect of the Bonus on Referrals



*Note:* The top panel compares the reading scores and tie strength of referrals across conditions. The bottom panel shows the average standardized math and tie strength of referrals across conditions. We test differences in across conditions using two-sample  $t$ -tests and find no meaningful differences. For both math and reading, treatment causes no significant changes in referral performance or tie strength. considering the net average monthly wage stands at \$350 and minimum legal wage is at \$200 in 2025

88    **2 Background and Setting**

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89    **3 Design**

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90    **4 Results**

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91    **4.1 Descriptives**

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Table 1: Selection into the experiment

	<b>Admin Data</b>	<b>Sample</b>	<b><i>p</i></b>
Reading score	62.651	65.183	0.000
Math score	63.973	67.477	0.000
GPA	3.958	4.012	0.000
Low-SES	0.343	0.410	0.000
Med-SES	0.505	0.499	0.763
High-SES	0.153	0.091	0.000
Female	0.567	0.530	0.060
Age	21.154	20.651	0.000
Observations	4,417	734	5,151

*Note:* This table compares characteristics between the full administrative sample and the experimental sample. *p*-values for binary outcomes (Low-SES, Med-SES, High-SES, Female) are from two-sample tests of proportions; for continuous variables, from two-sample *t*-tests with unequal variances. All reported *p*-values are two-tailed.

Table 2: Balance between treatments

	<b>Baseline</b>	<b>Bonus</b>	<i>p</i>
Reading score	64.712	65.693	0.134
Math score	67.366	67.597	0.780
GPA	4.003	4.021	0.445
# connections	173.40	176.88	0.574
Tie strength	3.939	3.719	0.443
Low-SES	0.419	0.401	0.615
Med-SES	0.492	0.506	0.714
High-SES	0.089	0.094	0.824
Female	0.529	0.531	0.947
Age	20.576	20.733	0.380
Observations	382	352	734

*Note:* This table presents balance tests between **Baseline** and **Bonus** conditions. *p*-values for binary outcomes are from two-sample tests of proportions; for continuous variables, from two-sample *t*-tests with unequal variances. All reported *p*-values are two-tailed. Tie strength refers to the number of classes taken together. # connections refers to the number of individuals in referrer choice sets, otherwise called the “network degree”. Low-SES, Med-SES, and High-SES are binary variables indicating the share of participants in estrato 1 and 2, 3 and 4, or 5 and 6, respectively.

Table 3: Distribution of referrals by area

Area	Only one referral	Both areas	Total
Verbal	65	608	673
Math	61	608	669
Total	126	1,216	1,342

*Note:* The table shows how many referrers made referrals in only one area versus both areas. “Only one referral” indicates individuals who made referrals exclusively in that area. “Both areas” shows individuals who made referrals in both verbal and math areas. The majority of referrers (608) made referrals in both areas.

Table 4: Summary statistics for network members by nomination status

	Verbal		Math	
	Not Referred	Referred	Not Referred	Referred
Reading z-score	0.070 (0.003)	0.509 (0.039)	0.079 (0.003)	0.465 (0.040)
Math z-score	0.079 (0.003)	0.452 (0.042)	0.087 (0.003)	0.590 (0.043)
GPA z-score	-0.066 (0.003)	0.705 (0.041)	-0.069 (0.003)	0.711 (0.041)
Tie strength z-score	-0.153 (0.003)	2.690 (0.091)	-0.184 (0.003)	2.488 (0.090)
Low-SES	0.334 (0.001)	0.374 (0.019)	0.338 (0.001)	0.384 (0.019)
Med-SES	0.515 (0.001)	0.513 (0.019)	0.513 (0.001)	0.507 (0.019)
High-SES	0.151 (0.001)	0.113 (0.012)	0.149 (0.001)	0.109 (0.012)
Observations	128,174	673	127,481	669

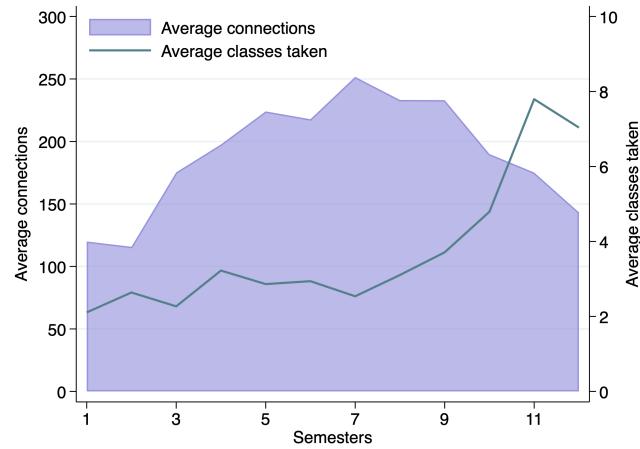
*Note:* Standard errors in parentheses. GPA, test scores, and tie strength are standardized at the network level. For each referrer's network, we first calculated the mean and standard deviation of each measure. We then computed the average of these means and standard deviations across all referrers. Each individual's score was standardized using these network-level statistics. The standardization formula is  $z = (x - \bar{x}_{network})/\sigma_{network}$ , where  $\bar{x}_{network}$  and  $\sigma_{network}$  are the average of network means and standard deviations, respectively. Low-SES, Med-SES, and High-SES are binary variables indicating the share of participants in estrato 1 and 2, 3 and 4, or 5 and 6, respectively. Tie strength measures the number of connections between individuals.

Table 5: Comparison of math and verbal scores by SES group and data source

	Math			Verbal		
	Network	Admin	Sample	Network	Admin	Sample
Low-SES	66.976 (0.052)	61.653 (0.346)	67.813 (0.694)	64.738 (0.043)	60.974 (0.274)	66.058 (0.574)
Mid-SES	65.627 (0.039)	64.531 (0.224)	66.859 (0.580)	63.685 (0.032)	63.154 (0.183)	64.779 (0.436)
High-SES	67.781 (0.077)	67.330 (0.416)	70.610 (1.295)	64.966 (0.063)	64.892 (0.341)	66.397 (1.214)
Observations	128,150	4,415	669	128,847	4,403	673

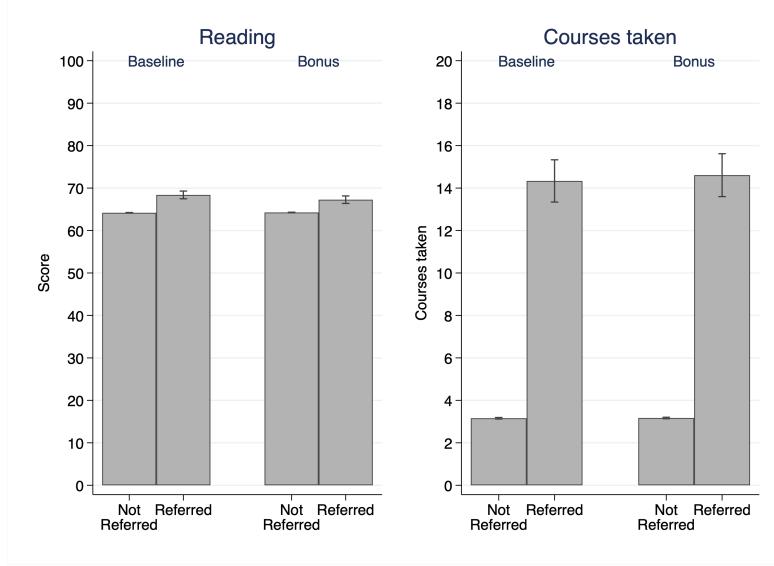
*Note:* Standard errors in parentheses. The table presents mean scores with standard errors for math and verbal tests across the entire network, the admin data, and the sample. Admin data consistently shows lower scores than both network and the sample across all SES groups consistent with selection, with the largest gaps occurring for the Low-SES. Differences between network and sample scores are generally smaller than those between either and the admin data.

Figure 4: Participant network size and tie strength by time spent at UNAB

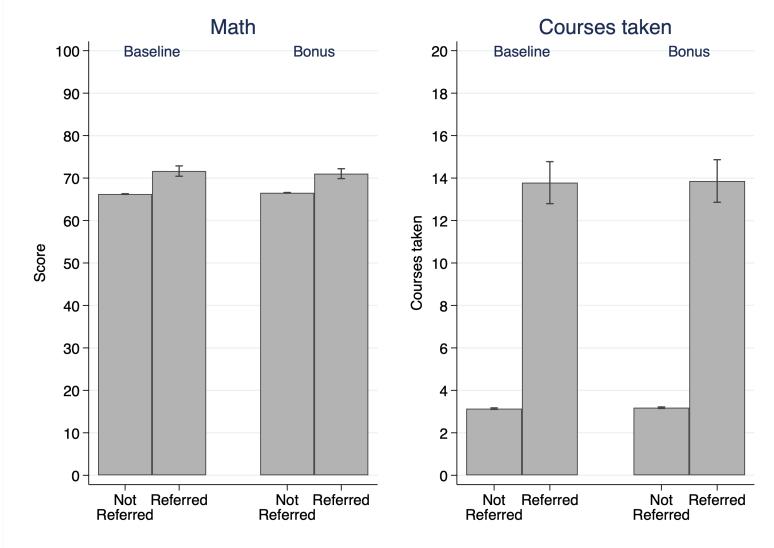


*Note:* This figure displays the average number of connections for referrers in blue and the average number of classes they have taken together with their connections in green across semesters spent at UNAB. The data shows an increase in the number of classes taken together as students progress in their programs, with the connections peaking around 7 semesters and dropping as certain students finish their bachelor's.

Figure 5: Effect of the Bonus on Referrals



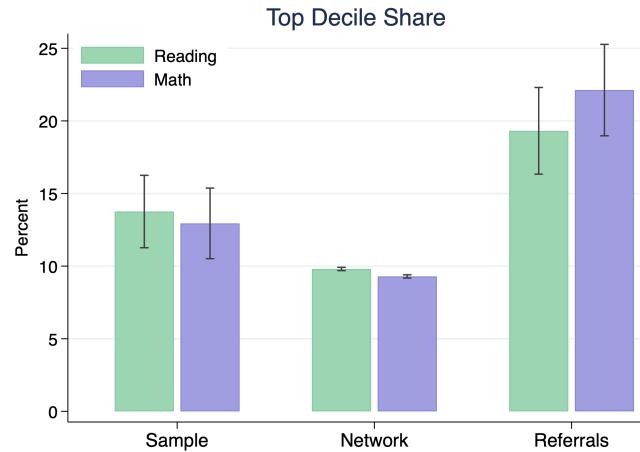
(a) Reading



(b) Math

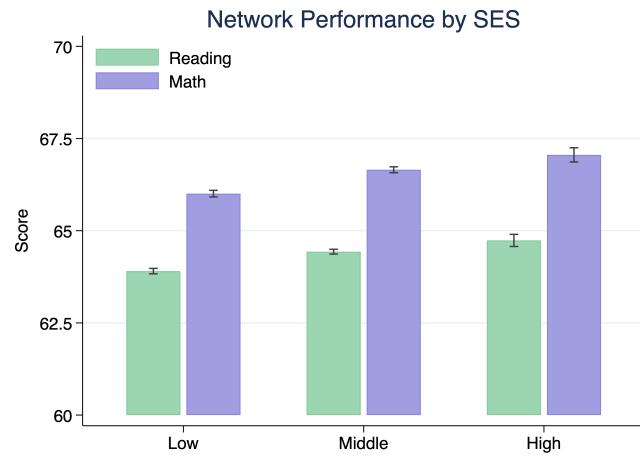
*Note:* The top panel compares the reading scores and tie strength of referrals across conditions. The bottom panel shows the average standardized math and tie strength of referrals across conditions. We test differences in across conditions using two-sample *t*-tests and find no meaningful differences. For both math and reading, treatment causes no significant changes in referral performance or tie strength.

Figure 6: Top decile performer share across the sample, network and referrals



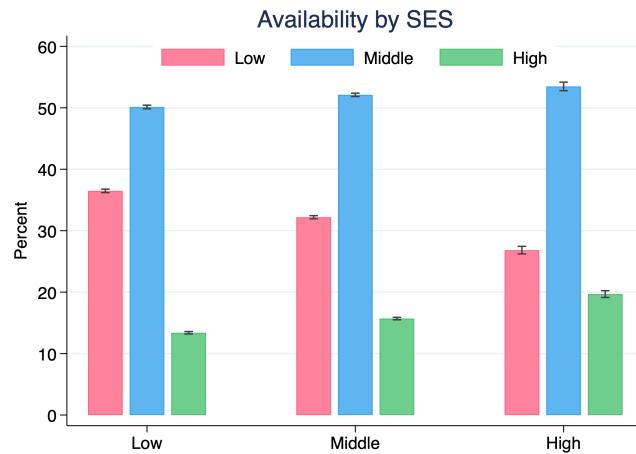
*Note:* This figure displays the percentage share of top decile individuals according to the admin data across three dimensions. First bar shows referrers in the sample of participants. Second bar is the share of top decile individuals in their networks. Third column shows the share of top decile among the referrals made. We test differences between proportions across these three groups using two-sample tests of proportions. For both math and reading scores, the differences between Sample and Network ( $p < 0.001$ ), Sample and Referrals ( $p < 0.005$ ), and Network and Referrals ( $p < 0.001$ ) are all statistically significant.

Figure 7: Participant network performance by subject and SES



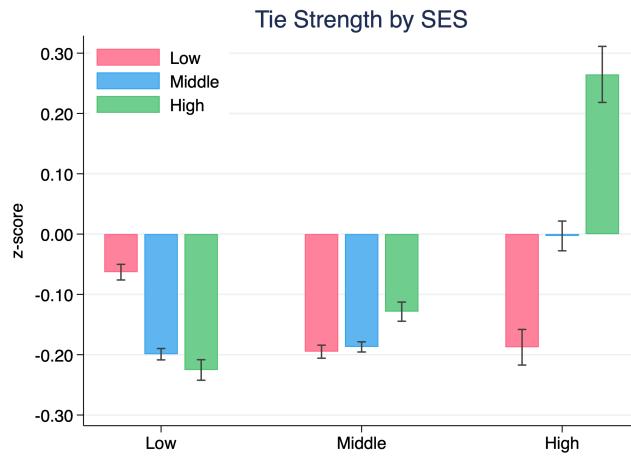
*Note:* This figure displays the network average math and reading z-scores across referrer SES. We test differences between scores across SES using paired  $t$ -tests. For both math and reading scores, all differences between SES groups are statistically significant (all  $p \leq 0.001$ ).

Figure 8: Participant network composition by SES



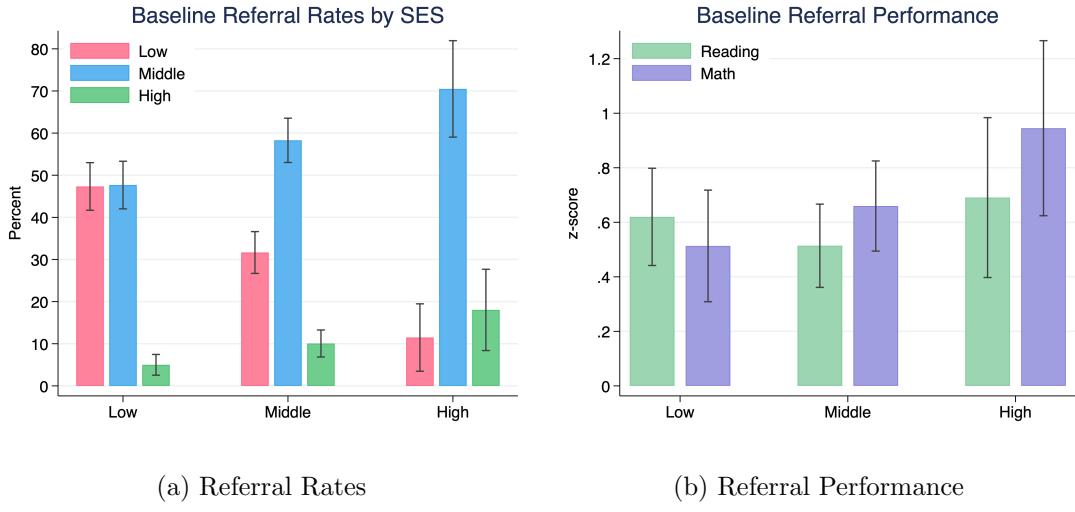
*Note:* This figure displays the composition of networks by SES. We test differences in proportions of peer connections across SES groups using two-sample tests of proportions. All differences are statistically significant ( $p < 0.001$ ): Low SES students are more likely to connect with Low SES peers than Middle or High SES students; Middle SES students form more connections with Middle SES peers than Low SES students; and High SES students have the highest proportion of High SES connections.

Figure 9: Participant network composition by SES



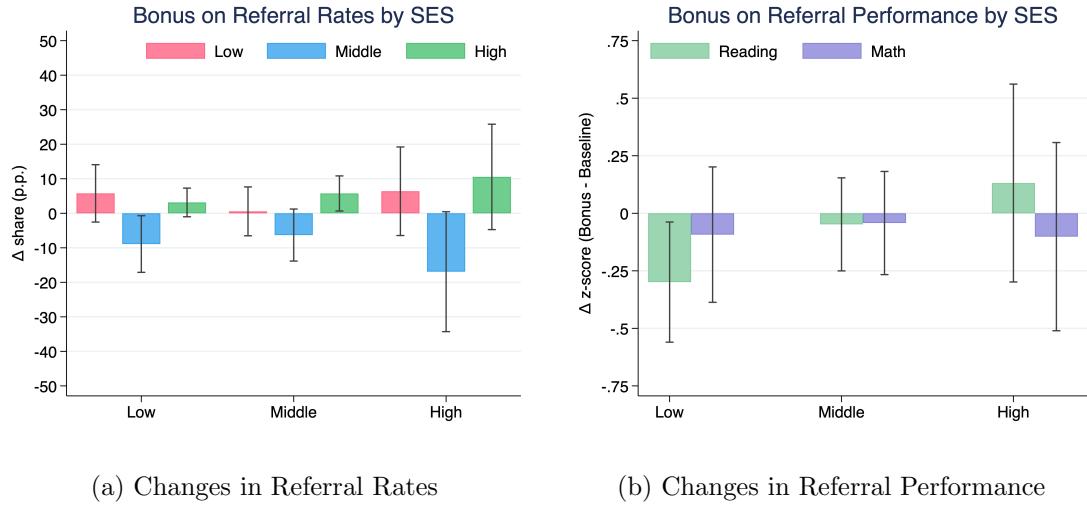
*Note:* This figure displays the standardized tie strength by SES. We test differences in standardized tie strength across SES groups using two-sample  $t$ -tests. All differences are statistically significant ( $p < 0.001$ ) except for the comparison between Middle and High SES students' connections to Low SES peers ( $p = 0.65$ ). The standardized tie strength for High SES students with other High SES students is substantially positive (0.26), while all other tie strengths are negative or near zero.

Figure 10: Baseline Referral Patterns by SES



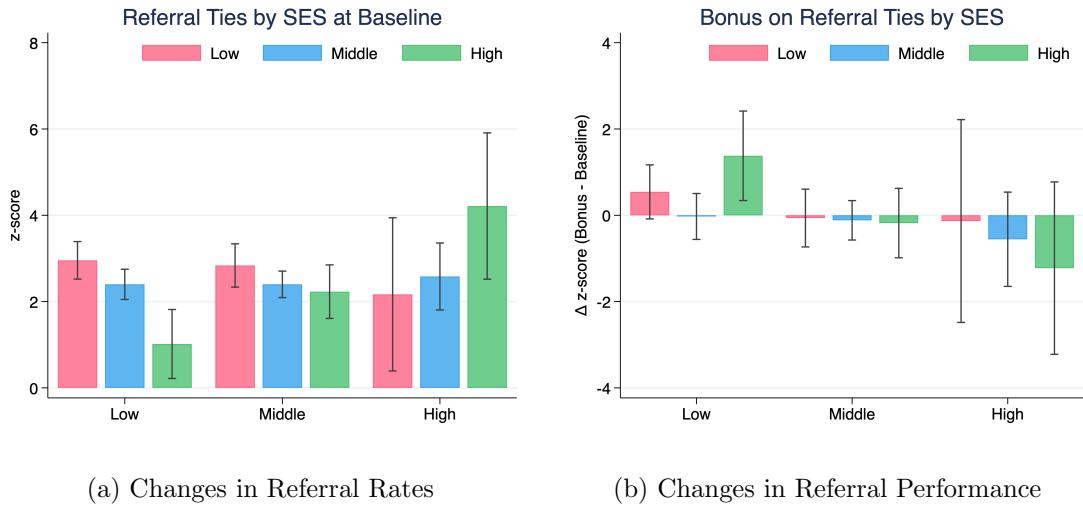
*Note:* The left panel shows the distribution of referrals across SES in the baseline condition. We test differences in SES shares across SES groups using two-sample tests of proportions. All differences are statistically significant ( $p < 0.1$ ). The right panel shows the average standardized math and reading scores of referred students by referrer's SES. We test differences in z-scores across SES groups using two-sample  $t$ -tests and find no statistically significant differences in reading scores across SES groups (all  $p > 0.36$ ). For math scores, we observe marginally significant differences between Low and High SES students ( $p = 0.08$ ) and between Middle and High SES students ( $p = 0.18$ ), with High SES referring peers with higher math performance.

Figure 11: Effect of the Bonus



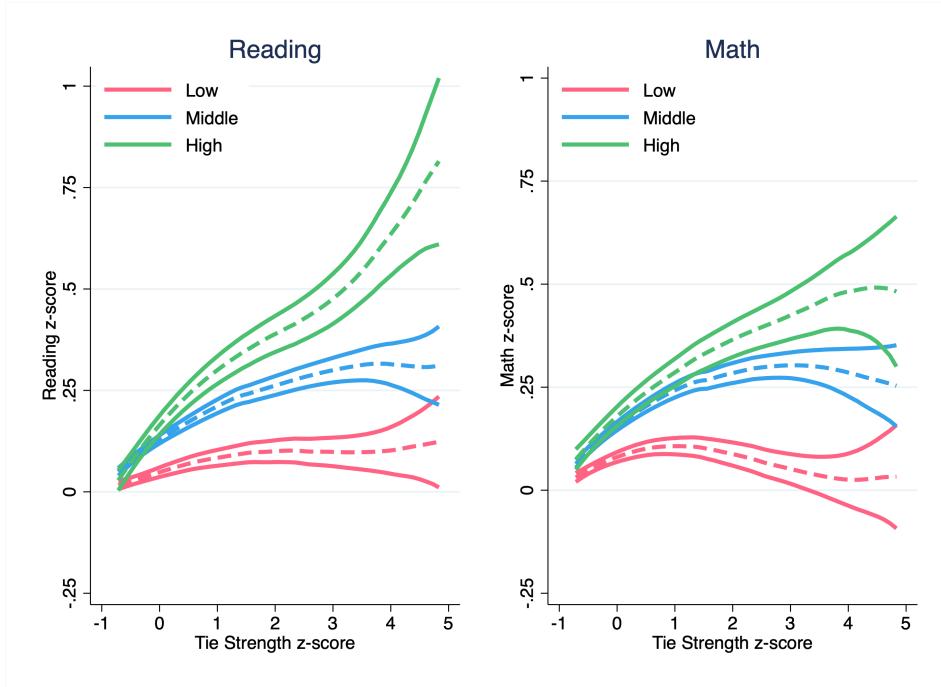
*Note:* The left panel shows the changes in referral rates across SES. We test differences in SES shares across conditions using two-sample tests of proportions. For Low-SES, only the change in referral share of Middle-SES is statistically significant ( $p = 0.034$ ). For Middle-SES, only the change in referral share of High-SES is statistically significant ( $p = 0.027$ ). For High-SES, only the change in referral share of Middle-SES is statistically significant ( $p = 0.059$ ). The right panel shows the differences in math and reading z-scores across SES. We test differences in SES shares across conditions using two-sample  $t$ -tests. For both reading and math scores, the only statistically significant difference is in the reading scores for Low-SES ( $p = 0.026$ ).

Figure 12: Effect of the Bonus on Tie Strength



*Note:* The left panel shows the changes in referral rates across socioeconomic strata (bonus minus baseline). The right panel shows the differences in average standardized math and reading scores of referred students by referrer's SES.

Figure 13: Performance by Tie Strength and SES



*Note:* This figure shows local polynomial regressions of network math and reading z-scores by social tie strength across socioeconomic status groups with 95% confidence intervals. Higher SES have steeper positive relationships between tie strength and the average performance those in their network across reading and math scores.

93      **References**

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<sup>129</sup> **A Additional Figures and Tables**

<sup>129</sup>

<sup>130</sup> **A.1 Additional Figures**

<sup>130</sup>

131 **B Experiment**

131

132 We include the English version of the instructions used in Qualtrics. Participants saw 132  
133 the Spanish version. Horizontal lines in the text indicate page breaks and clarifying 133  
134 comments are inside brackets. 134

135 **Consent**

135

136 You have been invited to participate in this decision-making study. This study is directed 136  
137 by [omitted for anonymous review] and organized with the support of the Social Bee Lab 137  
138 (Social Behavior and Experimental Economics Laboratory) at UNAB. 138

139 In this study, we will pay **one (1)** out of every **ten (10)** participants, who will be 139  
140 randomly selected. Each selected person will receive a fixed payment of **70,000** (seventy 140  
141 thousand pesos) for completing the study. Additionally, they can earn up to **270,000** 141  
142 (two hundred and seventy thousand pesos), depending on their decisions. So, in total, 142  
143 if you are selected to receive payment, you can earn up to **340,000** (three hundred and 143  
144 forty thousand pesos) for completing this study. 144

145 If you are selected, you can claim your payment at any Banco de Bogotá office by 145  
146 presenting your ID. Your participation in this study is voluntary and you can leave the 146  
147 study at any time. If you withdraw before completing the study, you will not receive 147  
148 any payment. 148

149 The estimated duration of this study is 20 minutes. 149

150 The purpose of this study is to understand how people make decisions. For this, we will 150  
151 use administrative information from the university such as the SABER 11 test scores of 151  
152 various students (including you). Your responses will not be shared with anyone and your 152  
153 participation will not affect your academic records. To maintain strict confidentiality, the 153  
154 research results will not be associated at any time with information that could personally 154

155 identify you.

155

156 There are no risks associated with your participation in this study beyond everyday risks. 156  
157 However, if you wish to report any problems, you can contact Professor [omitted for 157  
158 anonymous review]. For questions related to your rights as a research study participant, 158  
159 you can contact the IRB office of [omitted for anonymous review]. 159

160 By selecting the option “I want to participate in the study” below, you give your con- 160  
161 sent to participate in this study and allow us to compare your responses with some 161  
162 administrative records from the university. 162

163 • I want to participate in the study [advances to next page] 163

164 • I do not want to participate in the study 164

165 —————— 165

## 166 Student Information 166

167 Please write your student code. In case you are enrolled in more than one program 167  
168 simultaneously, write the code of the first program you entered: 168

169 [Student ID code] 169

170 What semester are you currently in? 170

171 [Slider ranging from 1 to 11] 171

172 —————— 172

173 [Random assignment to treatment or control] 173

<sup>174</sup> **Instructions**

<sup>174</sup>

<sup>175</sup> The instructions for this study are presented in the following video. Please watch it <sup>175</sup>  
<sup>176</sup> carefully. We will explain your participation and how earnings are determined if you are <sup>176</sup>  
<sup>177</sup> selected to receive payment. <sup>177</sup>

<sup>178</sup> [Treatment-specific instructions in video format] <sup>178</sup>

<sup>179</sup> If you want to read the text of the instructions narrated in the video, press the “Read <sup>179</sup>  
<sup>180</sup> instruction text” button. Also know that in each question, there will be a button with <sup>180</sup>  
<sup>181</sup> information that will remind you if that question has earnings and how it is calculated, <sup>181</sup>  
<sup>182</sup> in case you have any doubts. <sup>182</sup>

<sup>183</sup> • I want to read the instructions text [text version below] <sup>183</sup>

<sup>184</sup> ————— <sup>184</sup>

<sup>185</sup> In this study, you will respond to three types of questions. First, are the belief questions. <sup>185</sup>  
<sup>186</sup> For belief questions, we will use as reference the results of the SABER 11 test that you <sup>186</sup>  
<sup>187</sup> and other students took to enter the university, focused on three areas of the exam: <sup>187</sup>  
<sup>188</sup> mathematics, reading, and English. <sup>188</sup>

<sup>189</sup> For each area, we will take the scores of all university students and order them from <sup>189</sup>  
<sup>190</sup> lowest to highest. We will then group them into 100 percentiles. The percentile is a <sup>190</sup>  
<sup>191</sup> position measure that indicates the percentage of students with an exam score that is <sup>191</sup>  
<sup>192</sup> above or below a value. <sup>192</sup>

<sup>193</sup> For example, if your score in mathematics is in the 20th percentile, it means that 20 <sup>193</sup>  
<sup>194</sup> percent of university students have a score lower than yours and the remaining 80 percent <sup>194</sup>  
<sup>195</sup> have a higher score. A sample belief question is: “compared to university students, in <sup>195</sup>  
<sup>196</sup> what percentile is your score for mathematics?” <sup>196</sup>

<sup>197</sup> If your answer is correct, you can earn 20 thousand pesos. We say your answer is correct <sup>197</sup>

198 if the difference between the percentile you suggest and the actual percentile of your 198  
199 score is not greater than 7 units. For example, if you have a score that is in the 33rd 199  
200 percentile and you say it is in the 38th, the answer is correct because the difference is 200  
201 less than 7. But if you answer that it is in the 41st, the difference is greater than 7 and 201  
202 the answer is incorrect. 202

203 The second type of questions are recommendation questions and are also based on the 203  
204 mathematics, reading, and English areas of the SABER 11 test. We will ask you to think 204  
205 about the students with whom you have taken or are taking classes, to recommend from 205  
206 among them the person you consider best at solving problems similar to those on the 206  
207 SABER 11 test. 207

208 When you start typing the name of your recommended person, the computer will show 208  
209 suggestions with the full name, program, and university entry year of different students. 209  
210 Choose the person you want to recommend. If the name doesn't appear, check that you 210  
211 are writing it correctly. Do not use accents and use 'n' instead of 'ñ'. If it still doesn't 211  
212 appear, it may be because that person is not enrolled this semester or because they did 212  
213 not take the SABER 11 test. In that case, recommend someone else. 213

214 You can earn up to 250,000 pesos for your recommendation. We will multiply your 214  
215 recommended person's score by 100 pesos if they are in the first 50 percentiles. We will 215  
216 multiply it by 500 pesos if your recommended person's score is between the 51st and 216  
217 65th percentile. If it is between the 66th and 80th percentile, we will multiply your 217  
218 recommended person's score by 1000 pesos. If the score is between the 81st and 90th 218  
219 percentile, you earn 1500 pesos multiplied by your recommended person's score. And if 219  
220 the score is between the 91st and 100th percentile, we will multiply your recommended 220  
221 person's score by 2500 pesos to determine the earnings. 221

222 The third type of questions are information questions and focus on aspects of your 222  
223 personal life or your relationship with the people you have recommended. 223

224 **Earnings** 224

225 Now we will explain who gets paid for participating and how the earnings for this study 225  
226 are assigned. The computer will randomly select one out of every 10 participants to pay 226  
227 for their responses. For selected individuals, the computer will randomly choose one of 227  
228 the three areas, and from that chosen area, it will pay for one of the belief questions. 228

229 Similarly, the computer will randomly select one of the three areas to pay for one of the 229  
230 recommendation questions. 230

231 **Additionally, if you are selected to receive payment, your recommended per- 231  
232 son in the chosen area will receive a fixed payment of 100 thousand pesos. 232  
233 [Only seen if assigned to the treatment]** 233

234 Each person selected to receive payment for this study can earn: up to 20 thousand pesos 234  
235 for one of the belief questions, up to 250 thousand pesos for one of the recommendation 235  
236 questions, and a fixed payment of 70 thousand pesos for completing the study. 236

237 Selected individuals can earn up to 340 thousand pesos. 237

---

238 238

239 [Participants go through all three Subject Areas in randomized order] 239

240 **Subject Areas** 240

241 **Critical Reading** 241

242 For this section, we will use as reference the Critical Reading test from SABER 11, which 242  
243 evaluates the necessary competencies to understand, interpret, and evaluate texts that 243  
244 can be found in everyday life and in non-specialized academic fields. 244

245 [Clicking shows the example question from SABER 11 below] 245

246 Although the democratic political tradition dates back to ancient Greece, political 246  
247 thinkers did not address the democratic cause until the 19th century. Until then, democ- 247  
248 racy had been rejected as the government of the ignorant and unenlightened masses. 248  
249 Today it seems that we have all become democrats without having solid arguments in 249  
250 favor. Liberals, conservatives, socialists, communists, anarchists, and even fascists have 250  
251 rushed to proclaim the virtues of democracy and to show their democratic credentials 251  
252 (Andrew Heywood). According to the text, which political positions identify themselves 252  
253 as democratic? 253

- 254     • Only political positions that are not extremist 254  
255     • The most recent political positions historically 255  
256     • The majority of existing political positions 256  
257     • The totality of possible political currents 257

258 —————— 258

## 259   **Mathematics** 259

260 This section references the Mathematics test from SABER 11, which evaluates people's 260  
261 competencies to face situations that can be resolved using certain mathematical tools. 261

262 [Clicking shows the example question from SABER 11 below] 262

263 A person living in Colombia has investments in dollars in the United States and knows 263  
264 that the exchange rate of the dollar against the Colombian peso will remain constant 264  
265 this month, with 1 dollar equivalent to 2,000 Colombian pesos. Their investment, in 265  
266 dollars, will yield profits of 3% in the same period. A friend assures them that their 266  
267 profits in pesos will also be 3%. Their friend's statement is: 267

- 268     • Correct. The proportion in which the investment increases in dollars is the same 268  
269         as in pesos. 269

- Incorrect. The exact value of the investment should be known.
  - Correct. 3% is a fixed proportion in either currency.
  - Incorrect. 3% is a larger increase in Colombian pesos.

---

273

274 English

275 This section uses the English test from SABER 11 as a reference, which evaluates that 275  
276 the person demonstrates their communicative abilities in reading and language use in 276  
277 this language. 277

[Clicking shows the example question from SABER 11 below]

279 Complete the conversations by marking the correct option. 279

- 280 • Conversation 1: I can't eat a cold sandwich. It is horrible!

281 – I hope so.

282 – I agree.

283 – I am not.

284 • Conversation 2: It rained a lot last night!

285 – Did you accept? 285

286 – Did you understand? 286

287 – Did you sleep? 287

288

289 [Following parts are identical for all Subject Areas and are not repeated here for brevity] 289

290    **Your Score**

290

291    Compared to university students, in which percentile do you think your [Subject Area] 291  
292    test score falls (1 is the lowest percentile and 100 the highest)? 292

293    [Clicking shows the explanations below] 293

294    How is a percentile calculated? 294

295    A percentile is a position measurement. To calculate it, we take the test scores for all 295  
296    students currently enrolled in the university and order them from lowest to highest. The 296  
297    percentile value you choose refers to the percentage of students whose score is below 297  
298    yours. For example, if you choose the 20th percentile, you're indicating that 20% of 298  
299    students have a score lower than yours and the remaining 80% have a score higher than 299  
300    yours. 300

301    What can I earn for this question? 301

302    For your answer, you can earn **20,000 (twenty thousand) PESOS**, but only if the 302  
303    difference between your response and the correct percentile is less than 7. For example, if 303  
304    the percentile where your score falls is 33 and you respond with 38 (or 28), the difference 304  
305    is 5 and the answer is considered correct. But if you respond with 41 or more (or 25 or 305  
306    less), for example, the difference would be greater than 7 and the answer is incorrect. 306

307    Please move the sphere to indicate which percentile you think your score falls in: 307

308    [Slider with values from 0 to 100] 308

309    

---

 309

310    **Recommendation**

310

311    Among the people with whom you have taken any class at the university, who is your 311  
312    recommendation for the [Subject Area] test? Please write that person's name in the 312  
313    box below: 313

314    **Important:** You will not be considered for payment unless the recommended 314  
315    person is someone with whom you have taken at least one class during your 315  
316    studies. 316

317    Your response is only a recommendation for the purposes of this study and we will **not** 317  
318    contact your recommended person at any time. 318

319    [Clicking shows the explanations below] 319

320    Who can I recommend? 320

321    Your recommendation **must** be someone with whom you have taken (or are taking) a 321  
322    class. If not, your answer will not be considered for payment. The person you recommend 322  
323    will not be contacted or receive any benefit from your recommendation. 323

324    As you write, you will see up to 7 suggested student names containing the letters you 324  
325    have entered. The more you write, the more accurate the suggestions will be. Please 325  
326    write **without** accents and use the letter 'n' instead of 'ñ'. If the name of the person 326  
327    you're writing doesn't appear, it could be because you made an error while writing the 327  
328    name. 328

329    If the name is correct and still doesn't appear, it could be because the student is not en- 329  
330    rolled this semester or didn't take the SABER 11 test. In that case, you must recommend 330  
331    someone else. 331

332    My earnings for this question? 332

333 For your recommendation, you could receive earnings of up to 250,000 (two hundred and 333  
334 fifty thousand) PESOS. The earnings are calculated based on your recommendation's 334  
335 score and the percentile of that score compared to other UNAB students, as follows: 335

- 336 • We will multiply your recommendation's score by \$100 (one hundred) pesos if it's 336  
337 between the 1st and 50th percentiles 337
- 338 • We will multiply your recommendation's score by \$500 (five hundred) pesos if it's 338  
339 between the 51st and 65th percentiles 339
- 340 • We will multiply your recommendation's score by \$1000 (one thousand) pesos if 340  
341 it's between the 66th and 80th percentiles 341
- 342 • We will multiply your recommendation's score by \$1500 (one thousand five hun- 342  
343 dred) pesos if it's between the 81st and 90th percentiles 343
- 344 • We will multiply your recommendation's score by \$2500 (two thousand five hun- 344  
345 dred) pesos if it's between the 91st and 100th percentiles 345

346 This is illustrated in the image below: 346

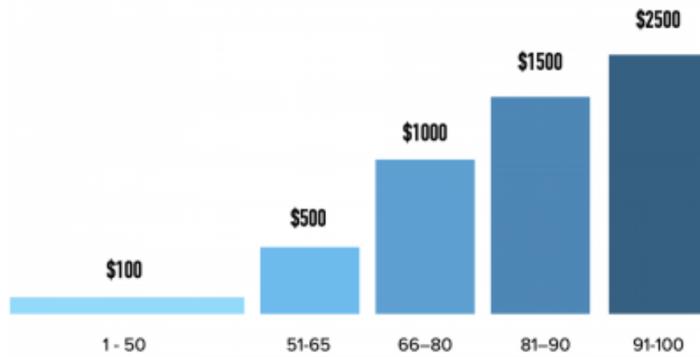


Figure B.1: Earnings for recommendation questions

347 For example, if your recommendation got 54 points and the score is in the 48th percentile, 347

348 you could earn  $54 \times 100 = 5400$  PESOS. But, if the same score of 54 points were in the 348  
349 98th percentile, you could earn  $54 \times 2500 = 135,000$  PESOS. 349

350 [Text field with student name suggestions popping up as participant types] 350

351 \_\_\_\_\_ 351

### 352 **Relationship with your recommendation** 352

353 How close is your relationship with your recommendedation: “[Name of the student 353  
354 selected from earlier]”? (0 indicates you are barely acquaintances and 10 means you are 354  
355 very close) 355

356 [Slider with values from 0 to 10] 356

357 \_\_\_\_\_ 357

### 358 **Your recommendation's score** 358

359 Compared to university students, in which percentile do you think [Name of the student 359  
360 selected from earlier]’s score falls in the **[Subject Area]** test (1 is the lowest percentile 360  
361 and 100 the highest)? 361

362 [Clicking shows the explanations below] 362

363 How is a percentile calculated? 363

364 A percentile is a position measurement. To calculate it, we take the test scores for all 364  
365 students currently enrolled in the university and order them from lowest to highest. The 365  
366 percentile value you choose refers to the percentage of students whose score is below 366  
367 yours. For example, if you choose the 20th percentile, you’re indicating that 20% of 367  
368 students have a score lower than yours and the remaining 80% have a score higher than 368  
369 yours. 369

370 What can I earn for this question?

370

371 For your answer, you can earn **20,000 (twenty thousand) PESOS**, but only if the 371  
372 difference between your response and the correct percentile is less than 7. For example, 372  
373 if the percentile where your recommended person's score falls is 33 and you respond with 373  
374 38 (or 28), the difference is 5 and the answer is considered correct. But if you respond 374  
375 with 41 or more (or 25 or less), for example, the difference would be greater than 7 and 375  
376 the answer is incorrect. 376

377 Please move the sphere to indicate which percentile you think your recommended per- 377  
378 son's score falls in: 378

379 [Slider with values from 0 to 100] 379

380 ————— 380

## 381 Demographic Information 381

382 What is the highest level of education achieved by your father? 382

383 [Primary, High School, University, Graduate Studies, Not Applicable] 383

384 What is the highest level of education achieved by your mother? 384

385 [Primary, High School, University, Graduate Studies, Not Applicable] 385

386 Please indicate the socio-economic group to which your family belongs: 386

387 [Group A (Strata 1 or 2), Group B (Strata 3 or 4), Group C (Strata 5 or 6)] 387

388 ————— 388

## 389 UNAB Students Distribution

389

390 Thinking about UNAB students, in your opinion, what percentage belongs to each socio- 390  
391 economic group? The total must sum to 100%: 391

- 392 [Group A (Strata 1 or 2) percentage input area] 392  
393 [Group B (Strata 3 or 4) percentage input area] 393  
394 [Group C (Strata 5 or 6) percentage input area] 394  
395 [Shows sum of above percentages] 395

---

396 \_\_\_\_\_ 396

## 397 End of the Experiment

397

398 Thank you for participating in this study. 398

399 If you are chosen to receive payment for your participation, you will receive a confirma- 399  
400 tion to your UNAB email and a link to fill out a form with your information. The process 400  
401 of processing payments is done through Nequi and takes approximately 15 business days, 401  
402 counted from the day of your participation. 402

403 [Clicking shows the explanations below] 403

404 Who gets paid and how is it decided? 404

405 The computer will randomly select one out of every ten participants in this study to be 405  
406 paid for their decisions. 406

407 For selected individuals, the computer will randomly select one area: mathematics, 407  
408 reading, or English, and from that area will select one of the belief questions. If the 408  
409 answer to that question is correct, the participant will receive 20,000 pesos. 409

410 The computer will randomly select an area (mathematics, critical reading, or English) to 410  
411 pay for one of the recommendation questions. The area chosen for the recommendation 411  
412 question is independent of the area chosen for the belief question. The computer will 412  
413 take one of the two recommendations you have made for the chosen area. Depending on 413  
414 your recommendation's score, you could win up to 250,000 pesos. 414

415 Additionally, people selected to receive payment for their participation will have a fixed 415  
416 earnings of 70,000 pesos for completing the study. 416

417 \_\_\_\_\_ 417

## 418 **Participation** 418

419 In the future, we will conduct studies similar to this one where people can earn money 419  
420 for their participation. The participation in these studies is by invitation only. Please 420  
421 indicate if you are interested in being invited to other studies similar to this one: 421

422 [Yes, No] 422