Essays on Aspirations and the Labor Market

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Doctor of Philosophy in Economics

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Overview of co-authors

- Chapter 2 "Occupational aspirations and skills: an experiment". Ferley Rincon (FR) conceived the idea and developed the Experimental Design and Hypotheses with the helpful suggestions of Cesar Mantilla (CM) and Marcela Ibañez. CM also provided feedback at all stages of data collection and manuscript writing.

- *Chapter 3* "Mobility and productivity in a dual labor market: an experiment" and *Chapter 4* "Care valuation and old-age support: an experiment" are both coauthored with Cesar Mantilla.

  CM and FR conceived the idea and developed the Experimental Design and Hypotheses. FR programmed the experiments and collected the data. FR executed the preliminary data analysis and CM contributed to the data analysis. FR and CM wrote *Chapter 3*, and FR authored *Chapter 4* based on CM's comments to enhance and expand the manuscript.

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Chapter 1

Introduction

My research explores the implications of workers' beliefs for labor supply and inequality. Specifically, I am interested in the relationship between aspirations and effort provision in different life stages.

In Chapter 2, we study the relationship between occupational aspirations and performance on a standardized test. Occupational aspirations are individuals' responses to the question "What do you want to be when you grow up?" In our experiment, students have to list their ranking of three ideal occupations. We used expected and actual scores in a national high school exit exam as an indicator of effort provision. To study this relationship all the students were required to answer the questions of a career test but only the treatment group received career suggestions. We conducted this lab-in-the-field experiment with students in the last year of high schools in Arauca, a department with a high rate of violence due to the armed conflict and a high rate of young people who are not in education, employment, or training. Our findings suggest that while career suggestions can influence students' occupational aspirations, they do not appear to impact the expected or actual scores on the exam. We argue that although occupational aspirations can be influenced by career suggestions, they do not affect educational performance.

In Chapter 3, we analyze the relationship between income aspirations and performance on a codification task. Income aspirations are individuals' responses to the question "What level of income would you like to receive for your effort?" In our experimental dual labor market, participants could receive either a high or a low piece rate for the same kind of tasks. We measured effort provision based on the number of tasks completed within a set time frame. In this proctored online experiment, we exogenously vary the rule to assign participants to the high piece rate and low piece rate sub-groups. We invited participants between 18 and 27 years old, and we characterized two samples: only students and workers. We argue that the perception of labor mobility based on productivity may transform the incentives to provide effort. Moreover, the effects for workers are dependent on the rule dictating the initial allocation. In other words, the perception of mobility is important in the provision of effort, which ultimately increases productivity.

In Chapter 4, we explore the relationship the relationship between old-age support aspirations and care valuation. Old-age support aspirations are individuals' responses to the question "What type of support would you like to receive in old age?" In our hypothetical vignette, the old-age

support could be provided by an offspring, a family member or a professional caregiver. Effort provision is measured as the amount of parental care time expected from the offspring. In this vignette study, we aim to explore gender bias in expected caregiving time allocation by randomly changing the gender of the recipients of participants' suggestions. Participants were invited via the Rosario Experimental and Behavioral Economics Lab - REBEL from non-students subject pool, and they received the survey link via email. Our experiment revealed that the expected informal caregiving time provided by an individual's offspring seems to be more influenced by the type of caregiver replacing the offspring, rather than the offspring's gender itself.

Chapter 2

Occupational aspirations and skills: an experiment

Ferley Rincón[1]

Abstract

We propose a lab-in-the-field experiment to evaluate a low-cost scalable information intervention on high school students' occupational and educational pathways. We employ a career test to study how career suggestions impact students' occupational aspirations and expectations for a national high school exit exam. All students were required to answer career test questions related to three components of career counseling: self-awareness, education, and the labor market. Only the treatment group received career suggestions. Using an incentivized table of bets, participants reported their expected scores on the exam. Receiving career suggestions affects students' occupational aspirations, but 70% did not alter their aspirations after the treatment. Furthermore, receiving career suggestions negatively affected students' self-assessment of their skills for pursuing a technical program and did not affect their expectations for the exam. Additionally, there was no discernible difference in the exam performance of students who received suggestions compared to those who did not.

Keywords: occupational aspirations; academic performance; skills; career test.

JEL Classification Codes: J24, D84, C93, D91, I24.

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2.1 Introduction

Two paths may coexist in the individual career trajectories of people after completing secondary education: studying or working (Alvarado et al., 2020). Youth's time allocation to studying or working could follow a utility-maximization process, given the constraints they face, impacting their current and future consumption through human capital accumulation and its influence on future labor market outcomes (Behrman et al., 2014; Dalton et al., 2016). However, certain internal constraints, such as occupational aspirations, cognitive abilities, and self-efficacy, develop simultaneously as decisions are made (Simões et al., 2017). On the other hand, time allocation may also reflect the constraints imposed by external factors such as employment and educational opportunities or social norms (De Hoyos Navarro et al., 2016). The years of the life cycle after high school are characterized by change and vulnerability (De Hoyos et al., 2015) and receiving career counseling could increase students' academic aspirations and confidence in their abilities (Carlana et al., 2022).

The study of the relationship between skills and occupational aspirations using naturally occurring data is not trivial. The main issue is that motivation, simultaneously affects skills measurement (Ofek-Shanny, 2021) and students' occupational aspirations (Dudovitz et al., 2017). Moreover, eliciting occupational aspirations could become a cumbersome task due to uncertain career expectations and measurement error problems (e.g., missing answers on the survey questions) (Greve et al., 2021).

In economic theory, aspirations are generally defined as long-term goals that act as reference points in people's utility function (Dalton et al., 2016). Interventions aimed at raising aspirations are related with the level of education the participants desire to achieve or the type of career they want to pursue (Carlana et al., 2022). Gehrke et al. (2023) suggest that effective interventions should aim for students to develop aspirations that are aligned with their abilities. Receiving career suggestions could allows students to widen their set of aspirations that students perceive as attractive and attainable (Genicot and Ray, 2017), and thus reinforce, adjust, or change existing occupational aspirations.

Lent et al. (1994) propose that an individual's occupational or academic interest at any point in time is reflective of his or her concurrent self-efficacy beliefs and outcome expectations. In other words, people form interest in career-relevant activities in which they view themselves to be efficacious and in which they anticipate positive outcomes (Holland, 1997). However, self-efficacy beliefs and outcome expectations could derive from the amount of favorable social persuasory communications in relation to particular educational and occupational relevant activities (Bandura et al., 1986). Following this model, we suggest that career suggestions can shape self-efficacy and outcome expectations, in addition to influencing occupational aspirations. We argue that the suggestions and support from mentors, career advisors, and other role models provide information that could determine or modify beliefs about self-efficacy and outcome expectations through social persuasion and depending on how this information is incorporated into self-efficacy judgments (DiRenzo et al., 2013).

We conducted a lab-in-the-field experiment to study the impact of career suggestions on students' occupational aspirations and educational performance. We compared the reported occu-

pational aspirations and expected scores in a national high school exit exam between students who received career suggestions and those who did not. Students were asked to list their ranking of three ideal occupations, and we used an incentivized table to elicit their expected scores in the exam. For occupational aspirations, students had to fill three boxes with careers based on their preferences. For educational performance expectations, we employed a table in which students could allocate monetary values to their expected scores in four cognitive abilities. Since the four monetary values differed, we argue that the table provided a reliable signal of the accuracy of outcome expectations (Herranz-Zarzoso and Sabater-Grande, 2018), which translates into our measure of students' beliefs about their skills.

In our analysis, we provide evidence regarding the impact of an official career test. We use the tool "Proyécta-T" [2], a career test provided by the Colombian Ministry of Education. This test is divided into three sections: self-awareness ("My world"), education ("The world of training"), and the labor market ("The world of work"). Each section may include questions related to skills, expectations, and preferences.[3] Students who received career suggestions answered the test directly on the Ministry's website and received a personalized list of careers based on their test answers. [4] Students who do not receive career suggestions, serving as the baseline group, answered the test question in oTree (Chen et al., 2016). For this group, we tried to simulate in oTree the templates of the test questions on the Ministry of Education website. Screenshots of the questions were taken from the Ministry's website, and buttons were overlaid onto the images to record the answers on our platform for the baseline group.

While the relationship between occupational uncertainty and educational attainment in young adulthood has been documented using survey data (Sikora, 2018), this often relies on interpreting blank or missing values as signs of uncertainty. However, distinguishing the reasons behind a "do not know" response or a missing value is challenging, as they may have various and distinct explanations (Greve et al., 2021). We hypothesize that career suggestions can help students reduce their occupational uncertainty because they receive 5 recommendations based on their reported skills, expectations, and interests. In our experiment, no missing values are allowed. Students must report the ranking of three ideal occupations to continue with the activity. Furthermore, to examine the impact of career recommendations in the medium term, we also conducted a repeated measurement of occupational aspirations and educational performance expectations after the national exam through a survey. The interplay of measurements before and after the exam can provide valuable insights into the stability of occupational aspirations and educational performance expectations, as well as their relationship with the exam.

We find that occupational aspirations are affected by career suggestions. Thirty-two percent of students who received career suggestions reported a different most preferred occupation before and after the treatment, whereas only 20% of students in the baseline group exhibited similar behavior. However, we found no differences in the average expected or actual scores in the national exam between these two groups of students. When we compared the most preferred occupation

[2] https://edusitios.colombiaaprende.edu.co/proyectat/herramienta-proyecta-t

[3] In Spanish, they used the labels "Desempeño", "Expectativas" and "Interés", respectively

[4] Students in the treatment group received general instructions via oTree, accessed career information through a provided link, then returned to oTree to report career suggestions and continue with the experiment.

reported after the treatment and in the survey we find no differences between the experimental groups. Additionally, more than 44% of the students appear to have stable occupational aspirations. We argue that career suggestions are helping students adjust their occupational aspirations but are not affecting their educational performance. Our results indicate that students are optimistic about their exam scores, but the correlation between their anticipated and actual scores depends on whether the educational performance expectations are measured before or after the exam. The correlation between the expected and actual scores before the exam ranges from 0.07 to 0.28, and after the exam, it ranges from 0.2 to 0.29. Finally, we find that receiving career suggestions reduces students' beliefs in their capabilities to attain a technical degree. This could be because students have high expectations for higher education, especially in pursuing a professional career.

We conducted the experiment with 17 groups of students in the last year of high school, in 7 schools. Students received an invitation to participate some days before the experiment and parental consent was required to participate. [5] The sample was restricted to students in Arauca, the department in Colombia with the second-highest rate of young people who are not in education, employment, or training[6], often labeled as *ninis* (from the Spanish phrase "ni estudia ni trabaja"). In Arauca, 57% of people aged 18-24 are *ninis*, with 54% of them unemployed and 46% out of the labor market (Cheyne García et al., 2024).

Experiments have vastly contributed to the understanding of occupational aspirations (Serra, 2022). The offered controlled environment gives an opportunity to understand the effects of information policies and career counseling on higher education choices (Carlana et al., 2022). We contribute to this experimental literature from a different perspective, by studying the effect of a low-cost and easily-scalable intervention aimed at improving students' aspirations regarding higher education (Bonilla-Mejía et al., 2019). Career suggestions imply the interaction of students with an online platform and involve sets of tailored information at the individual level. Our study sheds light on two elements. First on the understanding of the adjustment of of occupational aspirations. Second, on the effect of receiving career suggestions on career paths.

Regarding the first element, experiments have contributed to the evidence about occupational aspirations adjustment (Guyon and Huillery, 2021). The general finding is that some students fail to aspire to their potential due to external (i.e., poverty) and internal (i.e., behavioral biases) constraints (Dalton et al., 2016). Furthermore, occupational aspirations have been identified as markers of hopelessness and self-efficacy (Olenik-Shemesh et al., 2018; Dudovitz et al., 2017). In empirical studies, occupational aspirations have been found to be related to academic and labor market outcomes even a decade later (Greve et al., 2021; Sikora, 2018). In the domain of career guidance intervention within low-income contexts, Gehrke et al. (2023) report that a half-day workshop designed to expand students' aspirational has a weakly negative effect on the diversification in students' occupational aspirations. We contribute to this literature by analyzing how students adjust their occupational aspirations based on personalized career suggestions.

Regarding the second element, experiments have contributed to the understanding of expected and actual academic performance (Herranz-Zarzoso and Sabater-Grande, 2018; Clark et al., 2020).

[5] We also requested parental consent to make cash payments to students

[6] The acronym "NEET" is more commonly used in Europe and East Asia

Departing from Lent et al.'s theoretical contribution (1994) on academic interest and performance, multiple field experiments have explored how academic expectations are affected by experiential factors. More controlled settings have shown that career paths are affected by personal performance accomplishments (Laajaj et al., 2022; Rodriguez-Planas, 2012), vicarious learning (Riley, 2024; Ahmed et al., 2024; Bhan et al., 2020), social persuasion (Gehrke et al., 2023; Ashraf et al., 2020; Carlana, 2019; Kerr et al., 2020) and physiological states and reactions (non-cognitive skills) (Kerr et al., 2020; Martins, 2010). Recent experiments, using information interventions in educational contexts, have shown that providing information can improve test scores and change the educational trajectories of students (Carlana et al., 2022; Goux et al., 2014) We contribute to this literature by showing that career suggestions do not affect educational performance expectations. Moreover, career stability is not related to the student's expected performance in a standardized exam.

At the risk of stating the obvious, we have found evidence that career suggestions have an effect on occupational aspirations. Furthermore, we have found evidence for stable occupational aspirations (Gottfredson, 1981). Much less obvious is our finding that participants who received career suggestions reduced their self-assessment of their skills for pursuing technical programs. Since occupational aspirations seem to be determinant in students' transition from school to work, understanding the occupational aspirations windows could help in the broader comprehension of the *ninis* problem.

2.2 Experimental Design

2.2.1 The aspirations and expectations

We grouped the tasks of the experiment in two categories. The occupational aspirations, capturing what the students wish to achieve related to their career (Kuhn and Wolter, 2023); and the educational expectation, capturing what students expect to achieve related to the access to higher education (Pinquart and Ebeling, 2020). Additionally, we include a measure of self-efficacy and expected school-to-work transitions.

Occupational aspirations

We requested students to list their ranking of three ideal occupations. Occupational aspirations were collected twice during the experiment, at the beginning of the experiment and after treatment. Participants were presented with three boxes, each corresponding to one occupation, and were instructed to fill them based on their preferences, with the first box representing what they would most like to pursue and the third box representing what they would least prefer. Importantly, once a box was filled, no changes could be made to the previous boxes, ensuring that each choice was distinct and sequentially ordered. We categorize the reported occupations according to the *Knowledge Field* (hereafter, field) *Knowledge Core* (hereafter, core) established by the Ministry of National Education. A *field* is a group of *cores* considering certain affinity in the contents. A *Core* is defined as "a division or classification of a *field* of knowledge into its essential fields, disci-

plines, or professions" (MEN, 2024). For example, the field of "Social sciences" consists of twelve related cores, such as "Anthropology, Liberal Arts", "Training in the military or police sector", and "Sports, Physical Education, and Recreation", among others. The Appendix A.3, presents a list of the *fields* and their corresponding *cores*.

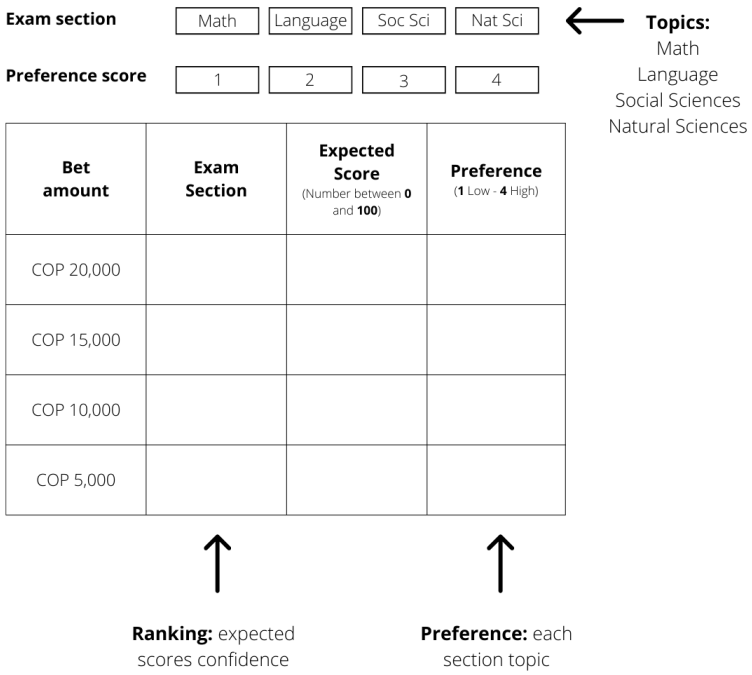

Figure 2.1: Graphical description of the bets table.

Educational performance expectations

We now move to educational expectations. We asked the participants to report their expected scores for four sections of a standardized exam. The national high school exit exam comprises four sections: Mathematics, Spanish, Natural Sciences, and Social Sciences. We asked the students to report their expected scores in each section of the exam and assign an amount of money incentives to each expected score, like making a bet. Expectations for performance were established for each of these sections, with 0 representing the lowest possible score and 100 denoting the highest attainable score. We instructed them to try to be as accurate as possible because earnings depend on the difference between their expected and actual scores in the sections. Participants whose score difference was less than or equal to 10 points received their winnings during a scheduled meeting after the publication of individual exam scores by the state institution responsible for standardized test administration.

The task employed to elicit the expected scores in the exam is inspired by the idea of bets proposed by Clark et al. (2020) and adapted by Herranz-Zarzoso and Sabater-Grande (2018) to allow participants to bet based on their individual grade goals. In our task, participants have to place bets on their expected scores in four different sections. Figure 2.1 displays an example of the table with four columns. The first column shows the possible bets amount of money. In the second column, students are tasked with associating each bet with one of the four sections, while ranking the sections based on the confidence in their expected scores. In the third column, participants have to type their expected score. Finally, in the fourth column, we ask them to assign a number from 1 (low) to 4 (high) to indicate their preference for each section's topic. Importantly, the same test cannot be assigned different monetary values, nor can the same level of preference be assigned to multiple sections.

Self-efficacy beliefs

We also asked the participants to self-assess their skills for four types of career paths using a scale of 0 to 100. To measure self-efficacy, students were asked to rate their abilities for pursuing two types of higher education programs, technical or undergraduate, and two careers, military or self-employed, with 0 signifying "I feel incapable of doing it at all" and 100 indicating "I feel highly confident I can do it".

Expected Transitions

We also employed a task to understand the relationship between occupational aspirations and educational expectations following the idea proposed by Arcidiacono et al. (2020). Occupational aspirations were categorized into six broad groups: students, employees, self-employed individuals, unpaid workers, individuals in military service, and the "nini" category. Students were asked about the likelihood of being part of each occupational group in the upcoming year, conditional on their performance in the national high-school exit exam. We used the following three categories to characterize possible scores: Low (0-250 points), Medium (251-350 points), and High (more than 350 points). It is important to note that, for all students in the sample, these probabilities were elicited for all possible occupation-score combinations.

The survey

After the date of submission of the national examination, but before the date of publication of students' results, we conducted a survey to obtain a repeated measurement of occupational aspirations and educational expectations. We asked students to:

- List their ranking of three ideal occupations.
- Report their expected scores in each section of the exam (they had already submitted).
- Evaluate their skills for pursuing four types of educational and occupational pathways.
- Assess the likelihood of being part of six occupational groups in the upcoming year.

Additionally, we included questions about the municipality in this data collection. These additional socioeconomic questions were not included in the survey at the end of the experiment because some studies have shown that making external constraints salient could affect students' aspirations and performance in the exam (Genicot and Ray, 2017).

2.2.2 Treatments

Our treatment involves a variation in the information received during career counseling. The *Baseline*, capturing the effect of answering the questions of a career test; and the *Suggestions*, capturing the effect of receiving career suggestions based on the answers during the test.

The treatment *Baseline* refers to the case where students answer questions of the career test. This test includes 28 questions about skills, preferences, and expectations. The skills questions refer to the performance in the subjects, self-efficacy, type of intelligence, and socio-emotional skills. The preferences-related questions explore students' inclinations regarding subjects, hobbies, self-perception, fields of interest, role models, economic sectors, and job attributes. Expectations questions revolve around students' future academic path, desired job attributes, and envisioned lifestyle. For detailed information on these questions, their respective categories, and their weights for calculating career suggestions, refer to Figure A.2 in the Appendix [7].

In the *Suggestions* treatment, the students answered the questions and subsequently received career suggestions. These suggestions present 5 of 56 *cores*, which are determined by analyzing the weighted sum of the participant's responses and are customized to align with each student's specific answers closely. Personalized suggestions allow the students to reduce their options when it comes to making decisions about their future occupations.

2.2.3 Payments, sampling and implementation

The experiment involved 387 students, of whom 327 completed the survey conducted after the exam. One participant self-identified as non-binary and is therefore not included in our analysis. Participants received a fixed payment of COP 20,000 in all treatments, conditional on completing the activity. At the end of the experiment, participants completed a survey, which included socioeconomic questions and a quiz with questions from previous years' national high school exit exams. Each session lasted approximately 90 minutes. This average payment is equivalent to roughly 0.5 times a daily minimum wage by the time we conducted the experiment. We made cash payments to the students at the end of the activity.

During the scheduled meeting after the publication of individual exam scores, participants received the payments related to the difference between the expected and actual scores in the exam. Fifty-eight percent of the students who participated in the experiment received their payment, 32 in cash and 91 via bank transfer. Students received on average COP 22,421 for their bets.[8]

[7] Original Technical sheet (Spanish): https://proyectateherramienta.mineducacion.gov.co/MenVocOcup/imagenes/FichaTecnica.pdf

[8] This average payment is equivalent to roughly 0.7 times a daily minimum wage by the time we conducted the experiment.

The experiment was programmed in oTree (Chen et al., 2016) and the survey was administered using pen and paper. We obtained approval from the Ethics Committee at Universidad del Rosario in Bogotá. The experimental sessions took place in August 2022 (before the exam), the survey was conducted in October 2022 (after the exam), and the variable payment of the experiment was in December 2022. Our participants were completing high school in three municipalities of the Department of Arauca, Colombia.

2.3 Hypotheses

We start with the comparison, in terms of expectations, between the students who answered the questions of the career test and those who additionally received career suggestions:

Hypothesis 1 (H1): Score expectations in the exam are higher when the students receive career suggestions compared to those who only answered the questions of the career test.

To provide some intuition for H1, we introduce the concept of occupational aspirations. Occupational aspirations are an individual's point-in-time indicator of the individual self-concept. The aspirations can be either ideal or realistic. The ideal aspirations reflect career goals given ideal conditions, while realistic occupational aspirations reflect the perceived likelihood of entering a particular educational or occupational path (Rojewski, 2005). We argue that receiving career suggestions aids students in considering educational and occupational pathways that correspond to achieving their potential (Guyon and Huillery, 2021). By providing insights into potential career paths aligned with their preferences, these suggestions may raise students' motivation to access higher education programs, thereby raising their score expectations in the exam.

Our second hypothesis is related to the internal constraints that pertain to access to higher education (Dalton et al., 2016), especially self-assessment bias. Self-efficacy refers to one's beliefs in their capabilities to execute behaviors necessary to produce specific performance attainments (Bandura, 1977). We argue that receiving suggestions can enhance students' self-assessment of their skills. These suggestions, aligned with their preferences, can strengthen individuals' beliefs in their capabilities to attain designated types of performances (Carlana et al., 2022).

Hypothesis 2 (H2): Receiving career suggestions increases the students' beliefs about their capabilities to achieve a higher education degree.

We also explore the difference between the expected and actual academic achievement (Pinquart and Ebeling, 2020). Expectations are the outcomes people feel they will most likely achieve given one's perceived situation and constraints (Zimmerman, 2011). Whereas self-efficacy beliefs are concerned with one's response capabilities (i.e., "can I do this?"), expectations involve the imagined outcomes (i.e., "what will happen?")(Lent et al., 1994). We argue that receiving career suggestions could modify people's self-evaluations of the likelihood of attaining specific levels of performance. These suggestions can enable students to make more accurate assessments of their skills as they are better able to identify the *knowledge core* that aligns with their preferences.

Hypothesis 3 (H3): Receiving career suggestions leads to a more accurate outcome expectation about the scores in the exam.

2.4 Results

2.4.1 Descriptive statistics

Table 2.1: Frequencies of *field* of knowledge by gender

Field	Men	Women	Total
Social Sciences	20.67	28.27	25.32
Health	8.67	32.49	23.26
Engineering	39.33	8.44	20.41
Agriculture	10.67	8.44	9.3
Arts	9.33	8.02	8.53
Management	3.33	6.33	5.17
Education	4	4.64	4.39
Other	2.67	3.38	3.1
Natural Sciences	1.33	0	0.52

We asked for some demographic information at the end of the experiment that allowed us to characterize our sample. Sixty-one percent identified as female, averaging 17 years old (std. dev. 1.06), and 49% had previously participated in career counseling activities. Forty-five percent simultaneously work and study, while fifty-one percent believe that caregiving negatively impacts their learning process. Thirty-six percent reported repeating at least one year, and twelve percent left school at some point during their studies. Eleven percent aspire to pursue a technical career, 18% a technological career, 78% a professional career, and 2% a military career. Twenty-five percent plan to reside in the municipality after completing high school, while 58% plan to leave for educational purposes and 17% for other reasons. On average, the 1.68 people in the students' households share the same room. Twenty percent have no access to the internet, 47% use mobile internet, and 33% have a Wi-Fi connection. Additionally, we collected information on parental occupations, revealing that 46% of mothers are engaged in unpaid work, while 43% of fathers are self-employed. Table A.1 in the Appendix, validates that the assignment of conditions is balanced in these observable characteristics but not in the proportion of people who repeat grades or drop out, so we analyze this variable in the section 2.4.3.

Regarding the occupational pathways, Table 2.1 presents the frequency distribution of *knowledge fields* corresponding to students' ideal occupations, categorized by gender. The most common fields include Social Sciences, Health Sciences, Engineering, and Agriculture. The most popular field among women is Health (32.49%), and Eng (39.33%) among men. Specifically, Medicine stands out as the top *cores* among women (16.88%), whereas men prefer Mechanical Engineering and related occupations.

Regarding the educational pathways, Table A.3 presents self-efficacy beliefs related to four types of careers: technical, professional, military, and self-employment. On average, students express high confidence in their abilities to pursue technical and professional careers, as well as

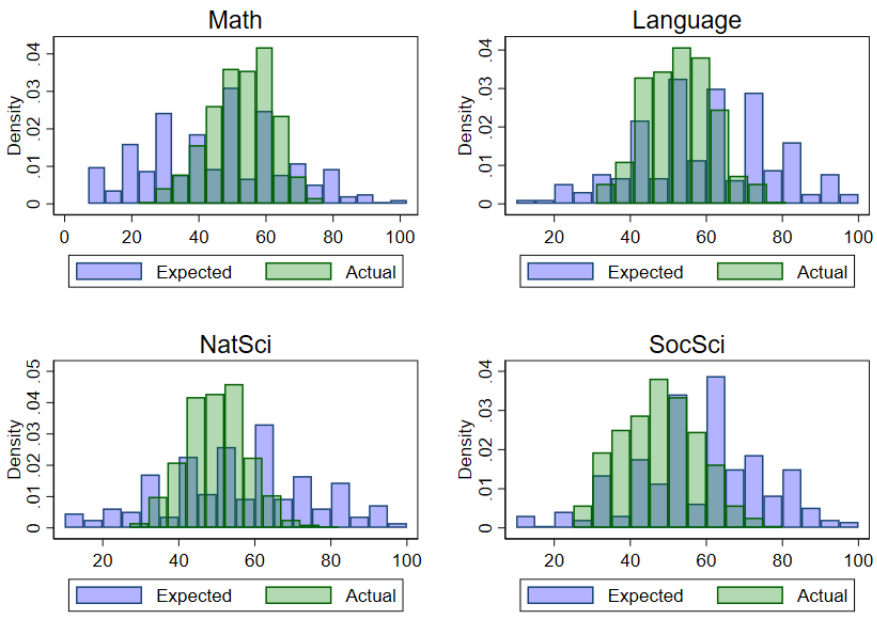

Figure 2.2: Expected scores and actual scores in the exam sections: Math, Language, Natural sciences and Social sciences

to start their own business (around 80%). However, confidence levels are significantly lower for military career skills (37%,40%). It's important to note that self-efficacy beliefs do not necessarily align with objectively assessed skills (Lent et al., 1994). Therefore, we also analyze the expected and actual scores in the exam. Figure 2.2 illustrates that the distribution of actual scores is more compact than that of expected scores. Interestingly, students tend to be pessimistic about their Math scores while being optimistic about their scores in Language, Natural sciences, and Social sciences. [9]

2.4.2 A career test and occupational aspirations

In this section, we investigate the relationship between the occupational aspirations reported by the students and the suggestions provided by the career test. Firstly, we examine the frequencies of *fields* and *cores* corresponding to the students' favorite occupation post-treatment. Secondly, we analyze the extent of changes in the reported occupational aspirations attributed to receiving *suggestions*.

We examine differences in the most preferred occupation by treatment condition, with the *field* and *core* corresponding to the students' most preferred occupation as the dependent variable.

[9] Table A.2 shows that despite being incentivized, the correlation between the actual and expected scores in the experiment (before the exam) is lower than that in the survey (after the exam).

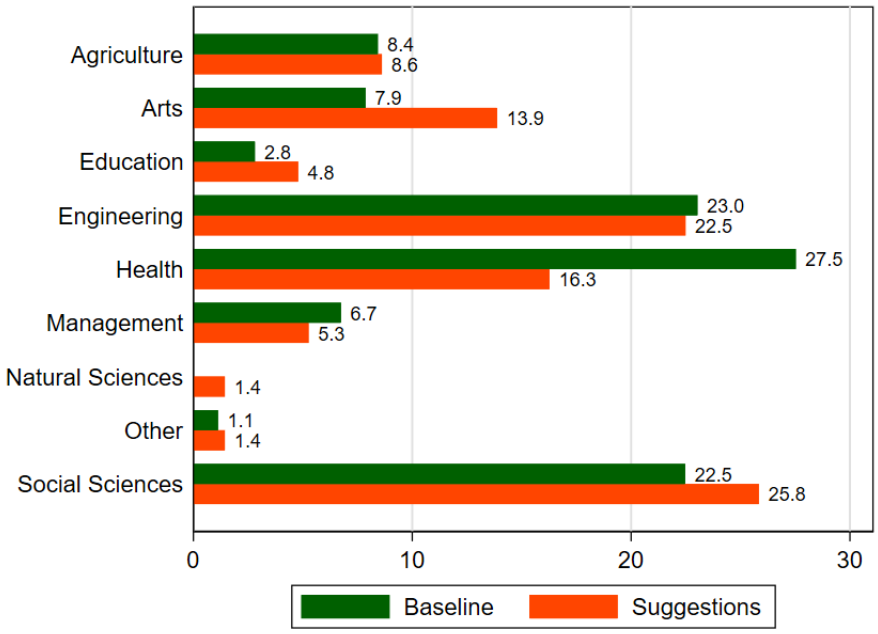

Figure 2.3: Frequencies of Fields of Knowledge by treatment conditions

Figure 2.3 shows the distribution of *fields* frequencies post-treatment. There is no evidence of differences in the *fields* distribution of frequencies between students in the *baseline* group and those given *suggestions* (Chi-squared test, p-value 0.104). Nevertheless, the differences in the *cores* distribution are statistically significant (Chi-squared test, p-value 0.041). Table A.5 in the Appendix shows the distributions of *core* frequencies after the treatment. [10]

Table 2.2: Favorite *field* and *core* ranking changes by treatment condition

Ranking	Knowledge field			Knowledge core		
	Baseline	Suggestions	Total	Baseline	Suggestions	Total
Same	85.96	77.99	81.65	79.78	67.94	73.39
Different	7.87	10.05	9.04	8.99	9.57	9.3
Left	6.18	11.96	9.3	11.24	22.49	17.31

We also analyze the difference in the ranking of *fields* and *cores* before and after the treatment. These changes can be categorized as follows: (i) remaining in the *same* position in the ranking,

[10] Comparing the distributions of *fields* and *cores* before the treatment, there is no significant difference in the frequency distributions between the students in the *baseline* condition and those who received *suggestions* (Chi-squared test, p-values 0.555, 0.324, respectively)

(ii) moving to a *different* position in the ranking, or (iii) *left* the ranking. Eighty-two percent of students report an occupation from the same *field* and seventy-three percent report an occupation from the same *core* before and after the treatment, indicating that the *field* and *core* remains in the *same* ranking. Additionally, 9 % (9.3%) move their favorite field (core) to a *different* position, while 9.3 % (17.31%) *left* the ranking. The difference in the distributions of ranking changes of the favorite field and core between the *baseline* and the *suggestions* conditions is statistically significant (Chi-squared test, p-values 0,095, 0.012). Table 2.2 shows that the movement of the favorite *field* and *core* from the ranking's top to a different position is more frequent when students receive career *suggestions* than in the *baseline* condition.

Summing up, we find no differences in the *fields* related with the favorite occupation after the treatment but there are differences in the *cores*, however, more than 68 % of the students report the same *field* and *core* in the occupational ranking top. In line with these findings, we explore the changes of *fields* and cores related in the three different levels of preference (ranking position) using an OLS model. This serves as a "hard" consistency measurement since we compare the responses at the same level before and after the treatment. The dependent variable in this analysis is an indicator of whether the two responses are different in the *area* or the *core* levels. Table A.4, in the Appendix, reports the coefficients of this regression. We confirm that receiving *Suggestions* increases the probability of reporting different *fields* and *cores*, before and after the treatment, but the magnitude of the effect depends on the level of preference. These align with theories on occupational aspirations stability, suggesting that patterns of likes, dislikes and indifference regarding career-relevant activities and occupations tend to stabilize during late adolescence or early adulthood and may take very compelling experiences to provoke a fundamental reappraisal of career self-efficacy and outcomes beliefs (Gati and Gutentag, 2015).

2.4.3 A career test and skills

We conducted an OLS analysis to examine the effect of the career test on educational expectations and self-efficacy. We used two sets of dependent variables: variables related to skills (the scores in the exam) and variables related to beliefs about the skills (self-efficacy).

In our first analysis, the expected and actual scores in the exam were the dependent variables, explained by our treatment and other covariates listed in Table 2.3. We reported the results for each test separately, with columns 1-4 displaying the coefficients for the expected scores and columns 5-8 reporting the coefficients for the actual scores.

The Expected and Actual scores between students in the *Baseline* and those who also received *Suggestions* are not statistically different. Moreover, we confirm that stronger preferences and higher bets are associated with higher expected scores in almost all the tests. Furthermore, higher actual scores are associated with males, younger individuals, and students who aspire to study in other cities. Reporting that helping at home hinders the learning process is negatively correlated with exam performance. Higher bets are linked to higher actual scores in the Math and Social Sciences tests.

Table 2.3: OLS results for the determinants of the expected and actual scores in the national exam

	Score in each section of the national exam: 0-100							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Expected scores				Actual scores			
VARIABLES	Math	Language	NatSci	SocSci	Math	Language	NatSci	SocSci
Treatment	1.949	1.393	1.736	0.635	-0.889	0.828	0.052	0.732
	(1.718)	(1.756)	(1.839)	(1.756)	(0.867)	(0.937)	(0.878)	(1.071)
Preference	3.124***	2.210**	3.249***	1.416	0.583	-0.327	0.798*	-0.071
	(0.966)	(0.991)	(1.087)	(0.934)	(0.421)	(0.455)	(0.449)	(0.587)
Bet amount	1.545***	1.281***	1.374***	1.358***	0.277***	-0.013	-0.078	0.261**
	(0.202)	(0.210)	(0.226)	(0.200)	(0.082)	(0.101)	(0.089)	(0.126)
Higher Education	0.076	0.049	0.048	0.112**	0.001	-0.041*	-0.026	-0.031
	(0.048)	(0.048)	(0.051)	(0.050)	(0.025)	(0.023)	(0.023)	(0.027)
Female	-2.058	1.373	-2.512	-2.040	-3.327***	-1.379	-3.262***	-2.851***
	(1.803)	(1.788)	(1.900)	(1.732)	(0.942)	(0.945)	(0.862)	(1.070)
Age (norm.)	-0.591	-1.997**	-1.603	-1.638	-1.331***	-1.244**	-0.942*	-0.281
	(0.987)	(0.985)	(1.221)	(1.055)	(0.484)	(0.502)	(0.484)	(0.549)
Workers	-0.052	-0.607	0.323	1.124	-0.893	-1.677*	-1.276	-0.720
	(1.748)	(1.685)	(1.841)	(1.701)	(0.884)	(0.911)	(0.848)	(1.031)
Care	0.332	1.187	1.950	-0.582	-1.999**	-0.842	-2.751***	-2.324**
	(1.717)	(1.671)	(1.792)	(1.678)	(0.860)	(0.889)	(0.809)	(1.022)
Migration: education	1.162	-3.253	-0.998	-1.363	2.525**	2.938***	1.639*	3.951***
	(2.261)	(2.187)	(2.288)	(2.354)	(1.056)	(1.116)	(0.982)	(1.249)
Migration: other	1.295	-3.277	0.255	-1.474	0.129	-0.343	-0.855	0.192
	(2.829)	(2.924)	(3.085)	(3.139)	(1.388)	(1.445)	(1.353)	(1.724)
Constant	13.226*	23.895***	20.203***	24.122***	57.784***	60.367***	54.985***	47.262***
	(7.001)	(7.129)	(6.960)	(7.387)	(3.492)	(3.712)	(3.160)	(4.245)
Observations	387	387	387	387	383	383	383	383
R-squared	0.427	0.266	0.304	0.222	0.306	0.196	0.219	0.201
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Additional controls in all models: indicator of participation in vocational activities, dropout and repeater indicator, career type, people per room at home, internet connection, risk and patience preference and parental occupation. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2.4: OLS results for the determinants of change in the *field* and *core* of Knowledge related with the occupations reported before and after the treatment

	Self-efficacy rate: 0-100			
	(1)	(2)	(3)	(4)
	Studying		Working	
VARIABLES	Tech	Uni	Military	Self-employed
Treatment	-5.638***	-0.539	-1.326	-1.316
	(2.093)	(1.423)	(3.400)	(2.032)
Income	0.109***	0.094***	0.365***	0.184***
	(0.042)	(0.029)	(0.061)	(0.035)
Higher Education	0.230***	0.341***	-0.055	0.219***
	(0.062)	(0.052)	(0.097)	(0.062)
Female	3.412	1.793	-6.800*	0.643
	(2.234)	(1.527)	(3.595)	(2.111)
Age (norm.)	-0.701	0.357	-0.504	-0.533
	(1.273)	(1.039)	(2.082)	(1.277)
Workers	1.735	1.707	6.213*	7.627***
	(2.143)	(1.431)	(3.536)	(2.189)
Care	-3.536*	-0.599	-1.686	-1.620
	(2.046)	(1.471)	(3.380)	(2.047)
Migration: education	-0.572	2.665	1.890	-3.516
	(2.848)	(1.963)	(4.281)	(2.528)
Migration: other	1.253	2.583	3.960	0.946
	(3.313)	(2.535)	(5.009)	(3.213)
Constant	75.945***	56.015***	40.296***	55.615***
	(8.048)	(6.582)	(12.535)	(7.399)
Observations	387	387	387	387
R-squared	0.182	0.317	0.168	0.190
Individual Controls	Yes	Yes	Yes	Yes

Additional controls in all models: indicator of participation in vocational activities, dropout and repeater indicator, career type, people per room at home, internet connection, risk and patience preference and parental occupation. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

In the second analysis, we examined the students' self-assessment of their skills. We found that receiving *Suggestions* resulted in a 6% decrease in self-efficacy for achieving a technical degree,

compared with only answering the questions of the career test in the *Baseline* group. However, we found no effect of the differences between our treatment conditions on the other measures of self-efficacy. Additionally, we observed a positive correlation between higher expectations for entering higher education and stronger beliefs in one's ability to obtain a degree and pursue a self-employment career that is not related to pursuing a military career. Students who reported working also expressed stronger beliefs in their ability to pursue a self-employment career. We also confirmed a positive correlation between salary expectations and the students' self-assessment of their skills.

Summing up, we find weak evidence for H1 and H2. Regarding H1, there's no statistical difference in the score expectations between students who receive career suggestions compared to those who only answered the questions of the career test. Regarding H2, receiving career suggestions from the test reduces the students' beliefs about their capabilities to achieve a technical degree, despite the test feedback includes only basic knowledge cores rather than specific careers. Self-efficacy is postulated as helping to determine one's choice of activities and environments and one's effort expenditures when confronted by challenges (Lent et al., 1994). Regarding H3, given that career suggestions have no statistically significant effect on expected scores or actual scores, then we cannot discuss the effect of recommendations on the accuracy of the skills self-assessments.

2.4.4 Robustness checks and additional results

Occupational aspirations in the Survey

We mention in Section 2.4.2 differences in the most preferred occupation by treatment condition. Furthermore, we find that more than sixty-eight percent of the participants report the same *field* and *core* before and after the treatment (Table A.6).[11] We also compare the most preferred occupation in the after-treatment ranking and the survey ranking (Table A.7). Upon considering only participants who took part in both the experiment and the survey, we find no differences in the distributions of ranking changes in the favorite field and core between the *baseline* and the *suggestions* conditions (Chi-squared test, p-values 0,594, 0.314, 0.484, 0.160).

Table A.8 in the Appendix displays the frequency of career suggestions in the after-treatment ranking and the survey ranking of the students. Fifty-one percent mentioned the same number of suggestions in both rankings (along the main diagonal) [12], 42% mentioned fewer suggestions in the survey ranking compared to the after-treatment ranking (below the main diagonal), and 7% mentioned more suggestions in the survey ranking compared to the after-treatment ranking (above the main diagonal). These results show that students consider some career suggestions but over time the effect becomes weaker.

[11] 325 students report their ranking of three ideal occupations in the survey

[12] Thirty percent of the participants who received suggestions did not mention any of the five suggestions in the rankings

Measuring the effect on the practice task

In Section 2.4.3, we found no differences in the expected or actual scores between students in the *baseline* group and those who received career *suggestions*. A complementary question is how career *suggestions* affect performance in the short-term academic performance. We measure academic performance using a quiz with 8-questions from previous exams. We include two questions from each exam section: Math, Language, Natural Sciences, and Social Sciences. As in the exam, students must complete the quiz as part of the activity, but no rewards are given for correct answers. On average, students got 2.35 questions right (std. dev. 1.26), with the most correct answers in Social Sciences (0.88) and the fewest in Math (0.29). Students who received career *suggestions* scored 0.08 points higher than those in the *baseline* group. Table A.9 in the Appendix reports the coefficients for the regression of the score in each quiz section explained by the treatment conditions. Qualitatively, the results are similar to Table 2.3, but some variables lost statistical significance due to the reduced magnitude of the effect. We argue that our findings apply to short-term academic performance. The weaker effect in math may be due to the placement of these questions in the first part of the quiz or the low performance in this section.

A career test and the expected transitions

Figure A.1 illustrates the transition probabilities from school to six occupational groups, contingent upon students' expected score levels in the exam. Higher exam scores correspond to an increased likelihood of transitioning from high school to higher education, while the probability of moving to other types of occupations decreases. This result shows that students' reported likelihood of pursuing further studies is conditioned by their expected exam scores. However, Table 2.3 shows that career *suggestions* do not seem to be motivating students to expect higher exam scores. These findings can be partially explained by the high level of education the students desire to achieve (78% aspire to pursue a professional career) and their optimism about their scores on the exam (Figure 2.2). In other words, career *suggestions* are helping students adjust their occupational aspirations, but not their desired educational level or the perceived barriers to these aspirations (Table A.10). Very high aspirations among adolescents had been documented in other low-and middle-income contexts (Ross, 2019; Janzen et al., 2017).

2.5 Conclusions

We designed and conducted a lab-in-the-field experiment in which participants answered questions about self-awareness, education, and the labor market as part of an official career test. Students in the *baseline* group only answered test questions, while the other group also received five career *suggestions*. We study how the effect of career suggestions on students' occupational aspirations and educational expectations. For occupational aspirations, students were asked to list their ranking of three ideal occupations before and after the treatment, and in a survey (after the national exam and before the publication of students' results). For educational expectations, we designed an incentivized table to elicit students' expected scores in the four sections of the exam,

and we also asked about these expectations without monetary incentives in the survey. We also asked the participants to report the self-assessment of their skills for pursuing two types of higher education programs, technical or undergraduate, and two careers, military or self-employed.

We find that occupational aspirations are affected by career suggestions. The impact of career suggestions varies depending on the level of preference and tends to weaken over time. However, more than 68 % of the students report the same *field* and *core* of knowledge in their occupational ranking top after the treatment. Moreover, we found no differences in the expected or actual scores between students in the *baseline* group and those who received career *suggestions*. We argue that career suggestions are helping students adjust their occupational aspirations but not their educational expectations for two reasons. First, students are optimistic about their exam scores, and the correlation between their anticipated and actual scores is less than 0.3. Secondly, students have high expectations for higher education, particularly in pursuing a professional career. This last reason is related to the finding that receiving career suggestions reduces the students' beliefs about their capabilities to achieve a technical degree.

The evident following question is how these results are informative outside the controlled environment offered by the laboratory. Perhaps the most important conclusion from our experiment is that receiving career suggestions could affect the set of occupational aspirations but not the level of education aspirations the students desire to achieve. If occupational aspirations partly explain the transition from school to work, interventions that aim to reduce the aspiration bias are fundamental to promote students' well-being (Agasisti and Maragkou, 2023). Too high aspirations may lead to frustration and a decreased willingness to consider alternative educational paths (i.e., technical careers).

Our career test was useful for studying the impact of career suggestions on self-efficacy beliefs, outcome expectations, and occupational aspirations. In addition, we learned about the stability of occupational aspirations and the high expectations for higher education. However, the use of this official career test comes at the cost that we cannot control if students accessed the Ministry of Education website before or after the experiment (and received suggestions). Future studies may explore the introduction of new e-mentoring or online career counseling services. For instance, career tests whose suggestions are based on incentive-compatible measurements of skills, expectations, and preferences, while also enabling students to access information about different careers that vary in their level of schooling.

In this chapter, we focus on the career suggestions provided by a public career test, leaving aside the study of career suggestions given by humans. These human career suggestions have been explored in related and broader literature about role-model interventions. Future experiments may combine human and career test suggestions. For instance, to explore whether the same career suggestions provided by a computer, a family member, a teacher, or a counselor have the same effect on occupational aspirations, self-efficacy beliefs, and outcome expectations. Given that students may have stable occupational aspirations over time, it could be important to track them as they transition from school to work. This could be useful for two reasons. First, to understand how career recommendations influence students' decisions regarding pursuing higher education or entering the workforce after completing high school. Second, to examine the relationship between preferred careers, suggested careers, and actual careers.

Chapter 3

Mobility and productivity in a dual labor market: an experiment

Ferley Rincón[1] Cesar Mantilla[2]

Abstract

We propose an experiment where participants receive one of two contracts involving a piece-rate payment for performing a real-effort task. The differences in piece-rate levels aim to capture earnings differentials between formal and informal markets to study how the reallocation rules of these contracts, capturing labor mobility, affect the workers' effort supply. We use a tournament structure where the worst-performer of the best contract and the top-performer of the worst contract enter into a contest, whose outcome is defined by the completed transcriptions in a real-effort task. We find that these contests, regardless of a low or high mobility rule based on effort, increase the participants' productivity. We also find that low mobility rules have a larger effect on a sample of workers when combined with a meritocratic initial allocation of the contracts. By contrast, students react more to rules evoking high labor mobility. We also find that the most significant increase in productivity comes from participants who retain the best contract after the contest, suggesting that perceptions of downward mobility are dominant in altering effort supply.

Keywords: contract allocation; labor mobility; meritocracy; dual labor market; labor productivity.

JEL Classification Codes: C90, J24, J41, M5, O17

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3.1 Introduction

Two hypotheses may explain the co-existence of formal and informal labor markets: exit and exclusion (De Soto, 1989; Perry et al., 2007; Fernández et al., 2017; Pham, 2022; Arango and Flórez, 2021). The exit hypothesis pertains to the choice of the optimal relationship with the state, affected by the perceptions of efficiency and the degree of satisfaction (Maloney, 2004). On the other hand, exclusion refers to structural factors that drive workers away from the formal economy without a deliberate choice. This exclusion is associated with market failures, such as those caused by moral hazard (Bardey et al., 2015), and labor market rigidities. Although exclusion is not a deliberate choice, the perception of labor mobility–through equality of opportunities–may affect aggregate outcomes (Marrero and Rodríguez, 2013). At the individual level, perceptions of labor mobility affect the effort provision in the short-run and, by altering aspirations, the intention to accumulate human capital in the long-run (Dalton et al., 2016).

The study of mobility in dual labor markets using naturally occurring data is not trivial. The main issue is that structural conditions of a labor market, such as fiscal conditions or the demand for industry-specific human capital, simultaneously affect mobility and productivity. Moreover, measuring the perceptions of labor mobility at the individual level could become a cumbersome task due to selection issues (e.g., a correlation between positive perceptions of mobility and observability of a given individual) and measurement error problems.

We designed and conducted a proctored online experiment to measure differences in productivity resulting from perceptions of labor mobility in a controlled setting. We use a tournament structure to allocate two types of contracts, whose difference in piece-rate payments reflect the gap in remuneration between formal and informal labor markets (La Porta and Shleifer, 2014). Since our primary purpose is to study the perceptions of labor mobility, we compare different rules for contract reassignment based on current effort provision. We employ a real-effort task that does not require any previous knowledge. Participants must transcript several codes, from numbers to letters, whose correspondence changes after every correctly solved code. Since the task is the same for all participants, and the number of completed tasks defines the commonly known mobility rule between labor markets, we argue that the task provides a good signal of the participants and their competitors' effort, which translates into our measure of productivity.

We argue that the perception of labor mobility based on productivity may transform the incentives to provide effort. If the perception of labor mobility is high, workers might incorporate a premium in the piece-rate in their expected future payment. This premium is associated with a transition from the informal to the formal market. By contrast, a scenario with limited mobility between markets, or a scenario where mobility is not correlated with effort, will limit the incentives to the current piece-rate payment. Moreover, differences in relative payments for a similar task may also reduce productivity (Breza et al., 2018), making it harder for participants in the informal sector to perceive that increasing effort provision can lead them to a better contract. These perceptions of mobility will interact with our different tournament rules for contract reassignment.

In our tournament, participants belong to a group of four contestants who have a limited amount of time to complete as many tasks as possible. Two of them belong to the formal market, labeled "Contract A"; and the other two participants to the informal market, labeled "Contract

B". Participants with Contract A get paid twice as much per completed task. When the task time ends, the worst-performer with Contract A and the top-performer with Contract B enter a contest that reassigns contracts. In our treatment with low labor mobility, the contest has perfect discrimination. The player with the most completed tasks automatically receives Contract A for the next round, leaving Contract B for the other player. In our treatment with high labor mobility, the contest has noisy discrimination. The probability of winning the contest is proportional to the number of completed tasks. We compare both treatments with a baseline scenario. Here, the contracts from all four players are randomly reallocated every round, regardless of their performance. Although labor mobility is high, it is unrelated to effort provision.

Another advantage of our tournament approach to dual labor markets is studying sorting based on abilities. Although the productivity gap between formal and informal markets is known (La Porta and Shleifer, 2014), it is not clear whether formal markets effectively select the most productive workers. Another possibility is that expectations about low mobility opportunities and gaps in remuneration could lead to an aspirations trap that induces an effort reduction. For this reason, we also study the initial contract allocation by comparing a merit-based assignment (using productivity from a practice round) with a random assignment. The interplay of both treatment arms might be important because low mobility could perpetuate random allocations, and meritocracy could signal tournament attributes (e.g., perception of initial fairness).

We conducted the experiment in a proctored online format with two samples: students with previous experience in the laboratory and workers without any prior experience in this type of studies. The two samples were restricted to participants from Colombia, a country with a self-employment rate of 51%, the highest among OECD members, and whose labor market is characterized by its low mobility from the informal to the formal sector (Prada, 2012).

We find that the productivity was higher in treatments where contract reallocation involved tournaments. Moreover, the effect of merit-based initial allocations is intertwined with mobility rules: If contracts are randomly reallocated, merit-based allocations decrease productivity. By contrast, merit-based allocations that were followed by reallocations with contests increase productivity. The reported effects were also heterogeneous by samples. The contest with low labor mobility (i.e., with perfect discrimination) has a larger and positive effect on productivity in the workers' sample, whereas students become more productive when the contest has a higher perception of labor mobility (i.e., with noisy discrimination).

Experiments have vastly contributed to the understanding of the shadow economy from the tax evasion perspective (Alm, 2012; Alm and Malézieux, 2021). The offered controlled environment gives an opportunity to understand monitoring and sanctioning rules better. We contribute to this experimental literature from a different perspective, by studying exclusion in tournament environments mimicking dual labor markets. Our study sheds light on two elements. First, on the understanding of effort provision for different payment and transition rules between formal and informal markets. Second, on the sorting of individuals in competitive environments.

Regarding the first element, natural experiments, field experiments, as well as lab and lab-in-the-field experiments, have contributed to the vast evidence connecting relative payments and effort (Cohn et al., 2014; Cullen and Perez-Truglia, 2022; Senik, 2021; Card et al., 2012). The general finding is that the chosen effort level is sensitive to their wages and is also affected by the

information about co-workers' wages when they do not differ in productivity. In more controlled settings, the social comparison in effort provision typically involves three-person gift-exchange games (Charness and Kuhn, 2007; Gächter and Thöni, 2010; Nosenzo, 2013). Recent experiments, using real effort tasks and piece-rate payments, show that subjects' effort is affected by the information about relative wage changes (Bracha et al., 2015; Rojas-Fallas and Williams, 2020) and the timing of wage increases (Sliwka and Werner, 2017). In the domain of tax compliance, one example of social comparison involves differential tax rates. Bazart and Bonein (2014) report that these differences trigger negative reciprocity and reduce tax compliance. We contribute to this literature by letting participants reduce these payment differentials through effort provision in a controlled environment where contract reallocation depends on this provision, but differentially according to our treatments.

Regarding the second element, experiments have contributed to understanding contract selection and sorting in competitive environments within the firm. Departing from Lazear and Rosen's theoretical contribution (1981) on performance-based payments, multiple natural and field experiments have explored how productivity is affected by these schemes (Bandiera et al., 2007; Leuven et al., 2011; Delfgaauw et al., 2014). More controlled settings have shown that contract selection is affected by productivity (Cadsby et al., 2007; Eriksson et al., 2009), but also by other factors associated with the perception of how competitive the environment is (that are unrelated to productivity). The most well-known is gender (Gneezy et al., 2003), but risk-aversion and selfishness could also affect this sorting (Dohmen and Falk, 2011). We contribute to this literature by showing that labor mobility leads to productivity-based sorting when rules involve effort provision. Moreover, we report that initial contract allocations based on meritocracy tend to foster effort provision in competitive environments.

At the risk of being too obvious, we validate the importance of mobility rules between labor markets in fostering effort provision. Much less obvious is our finding that participants who almost lose Contract A increase their productivity in response to this "alarm." Since the perceived threats of losing the privileged contract seem to be determinant in effort provision, understanding downward mobility as an alarm of exclusion could help in the broader comprehension of the co-existence of formal and informal markets.

3.2 Experimental Design

3.2.1 The tournament

We grouped participants in teams of four and instructed them to complete as many tasks as possible within the time limit of 120 seconds. Two participants received Contract A, and the other two received Contract B within each team. Both contracts employ a piece-rate payment, but in Contract A the participants get paid twice as much for each correctly solved task. At the end of each round, participants within a group were lexicographically ranked using two arguments. The first argument, contract type, guarantees that players holding Contract A were ranked first and second, and those with Contract B remained third and fourth. The second argument was the number of correctly solved tasks during the current round, a measure we will refer to as the participants'

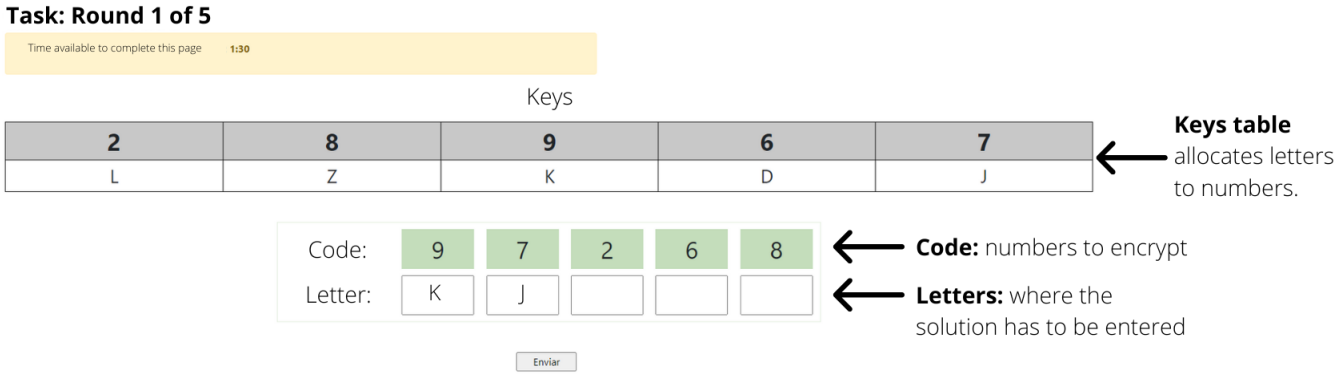

Figure 3.1: Graphical description of the encryption task.

productivity. Hence, in theory, we could have participants ranked third or fourth with more correctly solved tasks than those in the top two ranking positions. The participants ranked second and third face a contest in which they compete based on their productivity. Hereafter, we will call this contest a "playoff." The winner will obtain Contract A for the next round, and the loser will get Contract B. In the following subsection, we describe the implementation of this competition.

The task employed in the tournament is a modification of the encryption task proposed by Erkal et al. (2018), and adapted by Benndorf et al. (2019) with a double-randomization to reduce learning. In our task, participants have to encrypt a combination of five randomly generated numbers into letters. Figure 3.1 displays an example of this task. Participants observe a table on top with the correspondence from numbers to letters. Below, participants have a box displaying the numbers to encrypt and the cells to write the corresponding letter. The task is counted as correct when all the letters are correctly entered. After a correct task, the double-randomization occurs: the correspondence between numbers and letters shown in the top table is redrawn, and so is the ordering of the numbers in the bottom box.

We modify the original encryption task and limit the employed letters to five: Z, D, J, K, L. The reason is that typing abilities of our samples of students and workers might differ considerably. Hence, limiting the number of letters that participants have to type might reduce pre-existent heterogeneities between samples, which in turn may affect effort provision due to uncontrolled factors (Dechenaux et al., 2015). The chosen consonants are below the five vowels in a QWERTY keyboard, the standard in Colombia. The reason is that, in a related experiment, we vary whether the transcription involved vowels or consonants, so we kept the same letters for comparability of baseline productivity.

Participants play this tournament for five rounds, plus an initial practice round without direct payoff consequences. At the end of each round, contracts are reallocated based on the playoff outcome, and groups are reshuffled. This reshuffling is stratified based on the ranking positions *after* the playoff. In other words, when the participant with Contract B wins the playoff, she is now ranked second and receives Contract A. The loser of Contract A is now ranked in third place

and receives Contract B. In each round, our reshuffling procedure is stratified by contract type. We thus guarantee two players with Contract A and two players with Contract B per group.

3.2.2 Treatments

Our treatments involve variations in two dimensions. The reallocation of contracts, capturing labor mobility; and in the initial assignment of contracts, capturing any path-dependent outcomes that might result important in combination with labor mobility.

Let us start with contract reallocation. The treatment *Playoff-Perfect* refers to the case where the playoff between players ranked second and third is directly defined by their round's productivity. We borrow the term "perfect" from contest theory (Szymanski, 2003). The playoff outcome is deterministic because it can *perfectly* discriminate the player exerting the highest effort (as in a standard auction where the highest bid wins). In our case, we assume that the player with the highest effort also has higher productivity.

The treatment *Playoff-Noisy* refers to the case where the odds of winning the playoff are proportional to each player's productivity. The playoff outcome is stochastic–or noisy–because as long as a player has a positive productivity, she has a positive probability of winning. For instance, if the player ranked second solved eight tasks and the player ranked third solved 12 tasks–a possible ranking given its lexicographic nature–the former player will have a 40% chance of winning and the latter the remaining 60% chance. Generally speaking, the odds of winning the playoff for player i, who has a productivity ϕ_i, and faces player j with ϕ_i are:

$$P_i(\phi_i, \phi_j) = \frac{\phi_i}{\phi_i + \phi_j} \tag{3.1}$$

In the *Playoff-Perfect* treatment, the tie-breaking rule dictates that if both contestants have the same productivity, the winner of Contract A is randomly decided. Note that in this case, the allocation rule in *Playoff-Perfect* and *Playoff-Noisy* becomes equivalent.

We contrast these treatments with a baseline condition that we define as *Random*. In this treatment, *all* participants are randomly reassigned to a contract in every new round. After this description, the immediate question is why all, and not only the participants ranked second and third, are randomly reassigned. The reason is twofold. First, this condition eliminates any future effect of being ranked first or last. Hence, it lets us see the pure effect of the piece-rate payment. Second, a treatment condition that would have looked "closer" to the tournaments with playoff, where the random allocation only involved the players ranked second and third, is already captured in the other treatments by every outcome in which their productivity is identical.

We now move to the exogenous variation in the initial allocation of contracts. We have a *Merit*(-based) treatment, in which we use the participants' productivity during the practice round to assign contracts in round 1. Participants were sorted by productivity and then divided into two categories, as holders of Contract A and B. Then, we created groups of four participants, ensuring that there were two participants with Contract A and another two with Contract B in each group. In the *Merit* treatment, the instructions for the practice round mentioned that, although there was no direct payment, their performance would affect the game in the future. We contrast this

Table 3.1: Description of treatments

Treatment arms		**Allocation rules**	
Reallocation	**Initial allocation**	Rounds 2-5: Reallocation rules	Round 1: Contract A's allocation based on
Playoff-Perfect	Merit	Deterministic playoff between 2nd-3rd	Round 0's productivity
Playoff-Noisy	Merit	Stochastic playoff between 2nd-3rd	Round 0's productivity
Random	Merit	Random reallocation between 1st to 4th	Round 0's productivity
Playoff-Perfect	Luck	Deterministic playoff between 2nd-3rd	Randomness
Playoff-Noisy	Luck	Stochastic playoff between 2nd-3rd	Randomness
Random	Luck	Random reallocation between 1st to 4th	Randomness

condition with a *Luck*(-based) treatment, in which we randomly assigned contracts for round 1. Table 3.1 summarizes the six conditions emerging from our 3×2 between-subjects design.

3.2.3 Payments, sampling and implementation

We randomly select one of the five tournament rounds for payment. The piece-rate payments were COP 3,000 and 1,500 in Contracts A and B, respectively. Participants also received a fixed payment of COP 10,000 in all treatments, conditional on completing the activity.

Participants completed a survey at the end of the experiment. It included an incentivized measure of risk-aversion using the staircase procedure proposed by Falk et al. (2023). Each session lasted approximately 60 minutes[3] and participants received, on average, COP 36,939. This average payment is equivalent to roughly 1.2 times a daily minimum wage by the time we conduct the experiment.[4] We processed payments via bank transfer.

The experiment was programmed in oTree (Chen et al., 2016) and conducted online. We obtained approval from the Ethics Committee at Universidad del Rosario in Bogotá. We conducted the sessions targeting students in September 2021. They were invited using the Rosario Experimental and Behavioral Economics Lab - REBEL students subject pool. We conducted the sessions targeting workers in November 2021. They were invited via social media (i.e., Facebook and Twitter) to complete a pre-selection survey. We use this survey to validate the participants' work status, obtain their consent to be contacted by e-mail, and use their bank account information for payment. The Ethics Committee also approved this survey. We invited participants between 18 and 27 years old that were holders of a bank account in their name. Although sessions in September and November targeted students and workers, respectively, about 20 to 24% of the participants in one type of session self-identified with the other group.

[3] We had 6 (2.8 %) participants with early dropouts from the activity. We replaced these participants with bots, whose productivity was manually adjusted to be ten sequences.

[4] This amount was equal to approximately USD 9.65 by September 2021.

3.3 Hypotheses

We preregistered our hypotheses in AsPredicted (#75078, https://aspredicted.org/B4W_FH4). We start with the comparison, in terms of productivity, between the degrees of mobility induced in our dual labor markets:

Hypothesis 1 (H1): Productivity is higher in the *Playoff-Noisy* condition compared to the *Playoff-Perfect* condition. Both playoff treatments induce larger productivity than the *Random* treatment.

To provide some intuition for H1, we introduce the idea of the contest success function–CSF (Tullock, 2001; Chowdhury and Sheremeta, 2011), mapping efforts (i.e., productivity in our case) into probabilities of winning. Eq. 3.1 represents a case in which the odds of winning are linear for the *Playoff-Noisy* condition. However, suppose each effort term in Eq. 3.1 is exponentiated to a value greater than one. In that case, the winning probabilities are higher for the contestant providing more effort. In the extreme case, our *Playoff-Perfect* condition, this contestant wins with certainty. If participants are heterogeneous, and we argue that the two contract types create this heterogeneity, the perfect discrimination of effort in the latter condition reduces the incentives to provide effort. A similar argument applies when comparing with the *Random* condition. Since participants do not have future incentives from preserving the current contract, effort (i.e., productivity) drops.

Our second hypothesis is related to the other treatment arm. We argue that an initial allocation based on productivity creates a degree of entitlement to Contract A. As a consequence, participants provide more effort to keep this contract.

Hypothesis 2 (H2): *Merit*(-based) initial allocation leads to higher productivity compared to the *Luck*(-based) allocation.

We will also explore the cross-treatment effects between the contest type dictating mobility and the initial allocation, although we do not have clear hypotheses *ex ante*. We finally hypothesize over the effect that switching contracts may have on the participants' effort provision. In essence, we argue that contract promotion has a larger impact than the corresponding demotion. This difference is caused by the gap in piece-rate incentives and the realization of upward mobility.

Hypothesis 3 (H3): Promoted workers are more productive than demoted workers once they switch contracts.

3.4 Results

3.4.1 Descriptive statistics

We asked for some demographic information at the end of the experiment that allowed us to characterize our two samples. We will call "students" those whose occupation is only students or unemployed people studying. The participants who report being workers (paid or unpaid), and those unemployed who are not students, will be called "workers" hereafter. Students were on average 20.6 years old (std. dev. 1.8), 73% of them self-identified as females, and 20% reported an average personal income greater than the minimum wage. Ninety-four percent of participants

reported using a laptop and 6% a desktop computer, 39% reported utilizing a mouse, and 61% the laptop's mouse pad during the activity. Ninety-two percent perceived that their internet connection was good during the experiment. When we asked them about social security, 59% reported having contributory health insurance, and 13% of them make pension contributions.

Regarding the workers sample, they were on average 21.9 years old (std. dev. 1.9), 63% of them self-identified as females, and 67% reported an average personal income greater than the minimum wage. Ninety-one percent of participants reported using a laptop and 9% a desktop computer, 60% reported utilizing a mouse, and 40% a mouse pad during the activity. Ninety-two percent perceived that their internet connection was good during the experiment. When we asked them about social security, 75% reported having contributory health insurance, and 53% reported making pension contributions. Tables B.1 and B.2, in the Appendix, validate that the assignment of conditions is balanced in these observable characteristics.

The average productivity was 10.49 completed tasks per round (std. dev. 2.39). Participants in the *Playoff-Noisy* condition completed 10.63 tasks (std. dev. 2.56), in the *Playoff-Perfect* condition completed 10.56 tasks (std. dev. 2.49), and in the *Random* condition completed 10.27 tasks (std. dev. 2.08). Regarding the initial allocation, in the *Merit* condition they completed 10.57 tasks (std. dev. 2.48), a similar value to the 10.39 tasks (std. dev. 2.30) completed on the *Luck* condition. We found that students completed 10.54 tasks per round (std. dev. 2.15), a value slightly larger than for the workers' population (10.45 tasks, std. dev. 2.57). We employed a transcription task with double randomization to reduce learning between rounds. However, we found that the average number of completed tasks in the first paid round was 10.15 (std. dev. 2.08), whereas, in the last round, it increased to 11.46 (std. dev. 2.20).

Since we are interested in mobility between contracts, we compute transition probabilities between contracts A and B in consecutive rounds. We call A-A and B-B those keeping the respective contracts, and B-A and A-B the promoted and demoted participants. Table 3.2 reports these transitions. The differences between the *Merit* and *Luck* conditions are not statistically significant (Chi-squared test, p-value 0.512). However, we find some differences by reallocation treatments. For some intuition, look at the transition probabilities in the *Random* reallocation condition. Any listed outcome is equally likely since all contracts are randomly reassigned between rounds. This is why all the reported values are very close to 25%. By contrast, in the treatments with tournaments, promotions and demotions are less likely, as they range between 10.6 and 10.9 percent. What is more interesting is that transition probabilities do not differ between *Playoff-Perfect* and *Playoff-Noisy* (Chi-squared test, p-value 1.000). Although, in theory, the *Playoff-Noisy* had higher labor mobility, the piece-rate incentives made it very common that the player with Contract A that was entering the playoff had an advantage. The main consequence of this outcome is that the treatment effects discussed in the rest of this section correspond to the higher perception of mobility evoked by the *Playoff-Noisy* with respect to the *Playoff-Perfect* condition, rather than by an *effective* difference in contract mobility between these treatments.

Table 3.2: Transition probabilities by treatment conditions

TRANSITION	Initial allocation		Reallocation			All
	Luck	Merit	Random	Perfect	Noisy	
A-A	33.08	35.88	25	39.02	39.19	34.54
A-B	16.41	14.12	24.63	10.61	10.81	15.22
B-A	16.67	14.12	24.63	10.98	10.81	15.34
B-B	33.84	35.88	25.75	39.39	39.19	34.9

3.4.2 Effect of the reallocation rules

We conduct an OLS analysis with the number of completed tasks as the dependent variable, explained by our treatment arms and other covariates listed in Table 3.3. We report the results for the pooled sample and the samples of workers and students separately. Odd columns report the coefficients without interactions between treatments, and even columns add these interactions.

For the full sample, productivity increases in about 0.33 completed tasks in the treatments with playoff competitions. Nonetheless, these coefficients are non-distinguishable from each other. However, by computing the treatment effects separately for workers and students, we find that each sample is more affected by one of the treatment conditions. The productivity increase associated with the *Playoff-Perfect* condition is driven by the workers, whereas this productivity increase for the *Playoff-Noisy* condition is driven by the students. We also confirm that the higher piece-rate incentives from Contract A induce higher productivity among these participants. To put treatment effects in perspective, the increase in productivity from any playoff competition dwells between one-third to one-fifth of the effect from doubling the piece-rate incentives. We find that women are more productive in the workers' sample. This result is aligned with the more recent evidence on women's performance in competitive environments in non-WEIRD countries (Gneezy et al., 2009; Dariel et al., 2017), as opposed to the early evidence where woman's performance deteriorates under competition (Gneezy et al., 2003; Niederle and Vesterlund, 2007).

Note that the initial allocation does not have any effect. Column 4 reveals a different story for workers after interacting our treatment arms. Merit-based allocations decrease productivity for the random reallocation of contracts in about 0.75 completed tasks. Still, it seems to increase productivity for the treatments with playoffs in about 0.3 to 0.4 completed tasks. Nonetheless, the sum of the merit coefficient with each interaction is not statistically significant. Column 6 reveals that the initial allocation does not affect productivity, and by interacting this treatment arm with contract reallocation, the predictive power of both treatments is gone.

Summing up, we find partial evidence for H1 and H2. Regarding H1, contests capturing labor mobility increase productivity with respect to a random reallocation of contracts. However, we do not find evidence that the *Playoff-Noisy* condition induces greater productivity than the *Playoff-Perfect* condition. The overall effects seem to be similar regardless of the type of playoff. Regarding H2, the *Merit* condition by itself does not predict higher productivity. However, the reason is that its effect depends on its interaction with labor mobility. A merit-based initial allocation is counter-

Table 3.3: OLS results for the determinants of productivity by type of participant.

	Number of completed tasks in 120 seconds					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All		Workers		Students	
Initial allocation						
Merit	0.034	-0.409*	0.011	-0.748**	0.136	0.071
	(0.128)	(0.213)	(0.200)	(0.351)	(0.165)	(0.264)
Reallocation						
Perfect	0.313**	0.069	0.427*	-0.140	0.060	0.217
	(0.154)	(0.203)	(0.233)	(0.327)	(0.190)	(0.253)
Noisy	0.341**	-0.126	0.238	-0.438	0.495**	0.237
	(0.157)	(0.249)	(0.230)	(0.383)	(0.206)	(0.317)
Merit × Perfect		0.454		1.082**		-0.313
		(0.303)		(0.496)		(0.373)
Merit × Noisy		0.846***		1.196**		0.481
		(0.308)		(0.472)		(0.405)
Contract A	1.702***	1.707***	1.809***	1.810***	1.527***	1.509***
	(0.124)	(0.124)	(0.180)	(0.183)	(0.162)	(0.161)
Worker	-0.173	-0.174				
	(0.131)	(0.130)				
Women	0.299**	0.273**	0.448**	0.397**	0.024	-0.039
	(0.139)	(0.138)	(0.190)	(0.187)	(0.196)	(0.200)
Constant	9.756***	10.012***	9.013***	9.557***	10.343***	10.456***
	(0.282)	(0.288)	(0.423)	(0.457)	(0.347)	(0.358)
Observations	1,020	1,020	570	570	450	450
R-squared	0.242	0.248	0.248	0.259	0.272	0.278
p-values for F-tests on linear combinations of coefficients						
Perfect - Noisy = 0	(0.811)		(0.403)		(0.032)	
Merit + Merit × Perfect = 0		(0.826)		(0.338)		(0.358)
Merit + Merit × Noisy = 0		(0.064)		(0.161)		(0.079)

Additional controls in all models: age, type of computer, mouse, risk parameter and quiz score. Round fixed effects included. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

productive when future contract allocations do not depend on current effort. By contrast, this merit-based allocation increases productivity when labor mobility is high. In other words, H2 is only supported when mobility rules provide dynamic incentives to hold Contract A in the future.

A separate look at the workers' and students' samples reveal that the effects of *Merit* are driven by the former group. Since the workers are expected to be more heterogeneous in abilities, we conjecture that the initial conditions are more important for them. This reasoning could explain the interaction effects between *Merit* and the reallocation treatments. By contrast, students might infer less heterogeneity in their abilities and are more used to competitive environments. Therefore, they react more to the tournament system with higher mobility, the *Playoff-Noisy* condition.

3.4.3 Sorting and labor mobility

We learned that the higher piece-rate payment from Contract A induces greater productivity compared to Contract B. In this section, we explore two "dynamic" components from our contracts. First, we analyze the degree of sorting induced by our labor mobility rules. We aim to understand to which extent the productivity gap between contracts is due to better coders consistently holding Contract A. Second, following H3, we study whether labor mobility increases productivity among the promoted participants more than the equivalent decrease among the demoted ones.

We explore these questions using an OLS model. The dependent variable is the number of completed tasks in round t, and the independent variables of interest correspond to "contract transitions" between $t-1$ and t. Here, A-A captures the additional productivity from participants ranked first in $t-1$, holding Contract A in t, with respect to players ranked last (B-B, the excluded group). The interaction between A-A and the playoff captures the difference in productivity between those ranked first in $t-1$, and those ranked second that kept Contract A in t by winning the playoff. The variable A-B captures demoted participants, and B-A the promoted ones. Finally, the interaction between B-B and playoff captures the difference in productivity between those ranked third in $t-1$ that lost the playoff and those ranked fourth in $t-1$.

Table 3.4 reports the coefficients of this regression exercise. Each column corresponds to a different reallocation treatment. The sorting is evident in Columns 1 and 2, involving the perfect and noisy playoff. Let us start with Column 1, for the *Playoff-Perfect* condition. B-B participants completed on average 9.4 tasks, whereas A-A participants completed 4.5 additional tasks (an increase of 48%). A-A players who went through the playoff are slightly less productive in t compared to A-A players (-0.9 tasks), whereas those that were promoted (B-A) completed 1.5 fewer tasks than A-A players. The distance between A-A players and those demoted (A-B) is much larger since the latter completed around 2.7 fewer tasks.

In Column 2, for the *Playoff-Noisy* condition, we observe similar–though smaller–differences between contract transitions. A-A players are 41% more productive than B-B players, those with Contract A that went through the playoff are slightly less productive than those who do not (-0.6 tasks), whereas the promoted players completed roughly one fewer task than the A-A players. On the other hand, the demoted players completed 1.5 fewer tasks than the A-A players. We also have evidence of sorting in this treatment condition. However, the smaller differences in productivity with respect to A-A players suggest that the noisy playoff effectively induces a higher degree of

Table 3.4: OLS results for the effect of *contract reallocation* on the current productivity

	Completed tasks in the current round				
	(1)	(2)	(3)	(4)	(5)
	All participants			Playoff participants	
VARIABLES	Playoff-Perfect	Playoff-Noisy	Random	Playoff-Perfect	Playoff-Noisy
Contract transition					
A-A	4.544***	3.372***	0.287	1.961***	0.765*
	(0.359)	(0.355)	(0.312)	(0.413)	(0.459)
A-B	1.778***	1.476***	0.388	0.128	-0.573
	(0.388)	(0.397)	(0.301)	(0.371)	(0.537)
B-A	3.012***	2.354***	0.389	1.280***	0.295
	(0.414)	(0.439)	(0.300)	(0.373)	(0.553)
A-A × Playoff	-0.925***	-0.610*			
	(0.325)	(0.361)			
B-B × Playoff	1.368***	1.865***			
	(0.350)	(0.407)			
Merit	-0.016	0.425*	-0.359	0.142	0.146
	(0.202)	(0.252)	(0.232)	(0.277)	(0.346)
Worker	-0.044	-0.409	-0.281	-0.006	-0.558*
	(0.212)	(0.263)	(0.221)	(0.296)	(0.335)
Constant	9.414***	8.286***	12.114***	10.779***	10.060***
	(0.398)	(0.415)	(0.527)	(0.522)	(0.516)
Observations	256	292	268	124	143
R-squared	0.555	0.418	0.135	0.392	0.305
p-values for *F*-tests on linear combinations of coefficients					
A-A = B-A	(0.000)	(0.042)	(0.752)	(0.068)	(0.317)
B-A = A-B	(0.002)	(0.078)	(0.996)	(0.003)	(0.080)

Additional controls in all models: age, type of computer, mouse, risk parameter and score in the instructions quiz. Round fixed effects included. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

mobility.

Finally, Column 3 serves as a placebo test. Recall that in the *Random* reallocation treatment *all* the participants switch contracts regardless of their current productivity or contract type. Hence, by construction, we should not observe any sorting: A-A players should not differ from B-A players, and A-B players should not differ from B-B players (whose productivity is captured in the constant). The results validate this placebo test. None of the coefficients capturing contract transitions predict productivity.

Overall, these results provide partial support for H3: B-A participants are more productive than A-B participants in treatments with playoffs, even though they have just switched contracts, but not on the *Random* reallocation treatment. We validate that piece-rate incentives are fundamental, even among very similar participants, as they explain the differences in productivity between promoted and demoted participants.

An unexpected result observed in Table 3.4 is the effect of not losing Contract A in the playoff. These A-A participants are more productive than the B-A participants. This result is presented more clearly in Columns 4 and 5, where we block sorting effects by excluding participants ranked first and last in each group. Here, A-A means being second and winning the playoff, and the constant captures players ranked third that lost the playoff. For the *Playoff-Perfect* condition, the B-A coefficient is larger than the A-B coefficient, confirming H3. However, our main interest dwells on comparing the A-A and the B-A coefficients. Since the former is larger, we confirm that participants keeping Contract A after the playoff increase their effort in the following round. The most straightforward interpretation for this pattern is that being close to losing this contract was a "threat" that raised their productivity. In the *Playoff-Noisy* condition, we also validate H3. However, entering the playoff did not increase the productivity among those that "almost lose" Contract A. Hence, this alarm for demotion appears when mobility chances are low.

We performed an additional regression exercise in which the dependent variable is the difference in the participants' productivity between periods t and $t-1$, explained by the held contracts in periods t and $t-1$. This regression "in differences" is more demanding, as any predictor variable that results statistically significant depends on within-subjects variation in productivity. Table 3.5 reports the results for each reallocation treatment. We find that contract transitions are not statistically significant in the *Playoff-Perfect* and (as expected) in the *Random* conditions. We argue that the differences in productivity reported in Table 3.4 reveal the lower mobility in the *Playoff-Perfect* condition, leading to a higher sorting. Consequently, productivity gaps across ranking positions remain stable over time. In the *Playoff-Noisy* condition, we confirm that players holding Contract A after winning the playoff increased their productivity with respect to themselves in the past. By contrast, players losing the playoff while holding Contract B decrease their productivity in the following round.

Moreover, we find that the A-B and B-A coefficients are non-significant in the playoff treatments. Hence, promoted and demoted players do not alter their productivity sufficiently to predict that switching contracts affects their performance regarding the previous round. We reconcile these results with those displayed in Table 3.4 by confirming that our tournament structure effectively sorts participants based on their productivity. However, most of the differences when switching contracts do not come from a boost (or a drop) in their motivation that changes their

Table 3.5: OLS results for the effect of *contract reallocation* on the productivity change.

	Tasks in the current round - Tasks in the previous round					
	(1)		(2)		(3)	
VARIABLES	Playoff-Perfect		Playoff-Noisy		Random	
Contract transition						
A-A	-0.305	(0.366)	-0.835**	(0.326)	-0.067	(0.274)
A-B	0.128	(0.386)	0.075	(0.506)	-0.166	(0.195)
B-A	-0.279	(0.361)	-0.530	(0.340)	0.150	(0.198)
A-A × Playoff	0.322	(0.243)	1.107***	(0.293)		
B-B × Playoff	-0.217	(0.361)	-0.532*	(0.295)		
Merit	-0.259	(0.195)	0.024	(0.219)	0.050	(0.210)
Worker	0.060	(0.200)	-0.064	(0.216)	0.133	(0.146)
Constant	0.217	(0.374)	0.586*	(0.334)	-0.074	(0.452)
Observations	256		292		268	
R-squared	0.069		0.084		0.046	

Additional controls in all models: age, gender, type of computer, mouse, risk parameter and quiz score. Round fixed effects included. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

performance, but rather from the differences when they are compared with other participants.

3.4.4 Robustness checks and additional results

Measuring the effect of "labelling" the reallocation rules

We mention in Section 3.2 that the three reallocation rules become identical when the players ranked second and third completed the same number of transcriptions. Although we only observe this outcome about 6% of the time, because Contract A typically induced higher productivity, we use these 59 observations to study what happened in the following round. Table B.3 reports the coefficients for this regression. Qualitatively, the results are similar to Table 3.3, but some of the variables lost their statistical significance due to the reduced sample size. We thus focus on the two statistically significant variables. First, the *Playoff-Perfect* variable reveals higher productivity (1.7 additional tasks) in the following round (see model 1). Second, when we include cross-treatment effects, *Merit* becomes more negative (-1.4) and statistically significant. We argue that our results hold qualitatively for this particular scenario, where the only difference between treatments is how the contract reallocation is labeled.

Aggregate effects

A complementary question is how reallocation rules affect the group's productivity, measured as the number of completed tasks from the four members in a given round. It is not clear whether the effects of labor mobility are sufficiently large to increase the group's total number of completed tasks, despite the productivity drops caused by demotions and lack of mobility for holders of Contract B. We report in Table B.4, in the Appendix, the OLS coefficients from this regression. Following model 1, merit-based allocations increase the group's productivity in 1.8 tasks. However, as we previously show, the effects of *Merit* are intertwined with reallocation rules. Following model 2, in the *Playoff-Perfect* and *Playoff-Noisy* conditions, merit-based allocations increase the group's productivity in 2.1 and 4.4 tasks, respectively. We thus argue that labor mobility increases total productivity, conditional on a meritocratic initial allocation. The combined effects of *Merit* and playoffs are mostly driven by the workers' sample (see models 3-4), whereas the effect of merit-based allocations is driven by students (see model 5).

Differences between formal and informal workers

We conducted a regression similar to Table 3.3 in which we include as predictors the categorical variables indicating *(i)* whether participants were in the contributive health system, *(ii)* were currently contributing to their pension scheme, and *(iii)* whether their monthly earnings were above the minimum wage. These three variables are good proxies of being a formal worker. Table B.5 in the Appendix reports these results. We find that contributions to health and pension schemes predict a higher number of completed tasks for the sample of workers, but not in the sample of students. Our interpretation of this result is that formal workers are more likely to have higher productivities, revealing that pre-existing differences in typing skills do matter in this sample, even if the employed task was novel to everyone and minimized learning.

3.5 Conclusions

We designed and conducted an online experiment in which participants receive one of two types of contracts, paying different piece-rates for solving the same transcription task. We vary the initial allocation and reallocation rules of both contracts to study how labor mobility affects productivity, defined as the number of correctly solved tasks within a time limit. Our *Playoff-Perfect* and *Playoff-Noisy* treatments enable labor mobility based on rewarding the best performers holding Contracts A and B. The reward for the top-performer with Contract A was to keep this contract for the next round. The reward for the top-performer with Contract B was to enter a contest, giving her a chance to switch contracts with the bottom-performer holding Contract A. In the *Playoff-Perfect* condition, expected mobility was low because the contestant with the higher productivity was the winner. Since holders of Contract A typically were more productive due to the higher piece-rate incentive, they had an advantage in this type of playoff. In the *Playoff-Noisy* condition, expected mobility was high because the odds of winning the playoff were proportional to the number of completed tasks, giving a higher chance to the contestant with Contract B. Both reallocation rules

are compared to baseline condition in which contracts were reallocated every round, regardless of the participants' productivity.

We find that both treatments with playoffs encourage participants to provide more effort. However, the effects of each playoff type seems to affect more one type of population. The effects among workers are driven by the *Playoff-Perfect* treatment, whereas the effects among students are driven by the *Playoff-Noisy* treatment. Moreover, the effects for workers are dependent on the rule dictating the initial contract allocation. Merit-based allocation increases productivity, as long as productivity is rewarded through labor mobility rules. We argue that workers rely more on signals hinting less competitive contests (i.e., perfect contest discrimination and the meritocratic contract allocation) for two reasons. First, they may expect a higher dispersion in productivity between participants compared to the sample of students. Second, there is more heterogeneity in how competitive is their environment compared to University students. For this reason, the latter are more likely to increase their effort when contests offer more mobility opportunities.

The evident following question is how these results are informative outside the controlled environment offered by the laboratory. Perhaps the most important conclusion from our experiment is that the perception of mobility is important in the provision of effort, which ultimately increases productivity. If exclusion partly explains the existence of dual labor markets, signals that this exclusion can be overcome are fundamental to encourage such efforts.

Our tournament structure was useful to introduce and convey contract mobility in dual labor markets. In addition, we learned about how being close to lose Contract A also increased productivity, one more advantage of perceiving "downward" mobility. However, the tournament format comes at the cost of implicitly assuming that labor mobility is a zero-sum game: for each promoted participant to Contract A, another participant is demoted to Contract B. Future research could introduce new rules for contract reallocation. For instance, by promoting holders of Contract B, without demoting bottom-performers of Contract A, if a productivity threshold is met.

In this chapter, we focus on the exclusion from the primary labor market, leaving aside the study of self-selection into the secondary labor market. This self-selection has been explored on a related and broader literature on tax compliance. Future experiments may combine exclusion and voluntary exit. For instance, to explore whether the perception of exclusion can serve as a self-deception mechanism to opt for the secondary labor market without incurring in self-image costs from tax avoidance. Imagine a setting where piece-rate payments depend on the productivity ranking, and the existence of a flat tax rate makes profitable to select the primary labor market only if one expects a minimum ranking position. Participants may self-deceive, arguing that the reason for going directly to the secondary market, without taxes, was their fear of ending up very low in the ranking.

Chapter 4

Care valuation and old-age support: an experiment

Ferley Rincón[1] Cesar Mantilla[2]

Abstract

We devise and report an instrument to measure perceptions of intergenerational caregiving, from adult offspring to their elder parents. We use a vignette involving a hypothetical adult offspring faced with the decision to provide time or pay for care in three scenarios. The differences between the scenarios aim to capture willingness-to-pay differentials for three types of caregivers. We also investigated how the gender of the offspring in the vignette influenced participants' recommendations for allocating time to the parents' care or paying for it. Using a staircase method, participants make four interdependent choices in the question, with the early option being identical for all and the delayed option varying individually. We find that the type of caregiver in the scenario affects recommendations regarding the allocation of time for care. By contrast, we find no evidence of gender bias in the normative time provision between the hypothetical son and daughter. We also find that participants without children expect a higher willingness to pay for care. Moreover, participants' aspirations of support from their children in their old age influence the recommendations on time allocation for the hypothetical child, with higher aspirations leading to lower willingness to pay.

Keywords: gender bias; caregiving time; beliefs; formal and informal care.

JEL Classification Codes: J22, D64, C90, D91, J14

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4.1 Introduction

Informal and formal care co-exist in the provision of long-term care (LTC hereafter) for elderly parents (Hess et al., 2023). Informal care refers to unpaid care provided by offspring, family members, friends, and neighbors, often without a contract (de Jong et al., 2023). Formal care refers to paid care and pertains to an optimal relationship with the market, affected by the identity of the care provider and the continuity of the care relationship (Folbre and Nelson, 2000). Informal care is associated with more personalized and emotional components of support, such as those related to the cultural value of familial care (Weicht, 2013). Social norms on children's caregiver obligations and the beliefs about the quality of caregiving services in the market may affect the Family-to-Market care displacement (Dinkelman and Ngai, 2022). At the individual level, the increasing female labor force participation and changes in the social security systems affect the expectations of support from children in old age (Bau, 2021; Pei and Cong, 2020).

The study of Family-to-Market care displacement of LTC using naturally occurring data is not trivial. The main issue is that social norms on offspring's duties, simultaneously affect the time allocation to home and market production. Moreover, eliciting recommendations for dedicating time to care or paying for parental care could become a cumbersome task due to the heterogeneity in the socioeconomic status of the households (e.g., parental age and savings for old age) and measurement error problems.

Paying a caregiver can help meet the care needs of elderly parents, but the value of children's time to parents is difficult to measure in monetary terms. Different methods are used to evaluate informal caregiving, such as the opportunity cost method, the proxy good method, the contingent valuation method, and the conjoint method (Oliva-Moreno et al., 2017). The opportunity cost and proxy good methods, known as "revealed preference methods," rely on the accuracy of participants' reported behaviors. Even though labor market prices are used for assessment, informal care services are usually not traded in the market, and many caregivers do not have paid employment. On the other hand, the contingent valuation and conjoint methods fall under "stated preference methods," gathering insights on preferences through hypothetical scenarios (Amilon et al., 2020). These methods gather data on individuals' preferences by presenting hypothetical scenarios and often ask about the amount of money respondents would be willing to pay (WTP) or accept (WTA) for a unit change in caregiving time (Liu et al., 2020). In our experiment, we measure the differences in the normative WTP for 8 hours of care conditional in certain assumed household characteristics outlined in a hypothetical scenario, known as a vignette experiment (Fuster and Zafar, 2023).

We argue that our alternative measure presents the caregiving needs of two elderly parents. These hypothetical parents routinely seek help from third parties for tasks beyond their capabilities (Curcio Borrero et al., 2023; WHO, 2021). Through questions, we aim to elicit participants' valuation of the caregiving time provided by different types of caregivers. These caregivers serve as substitutes for the hypothetical offspring during 8 hours of parental care. Furthermore, we randomly vary the gender of the hypothetical offspring in the vignette (Jakobsson et al., 2016). Since our primary purpose is to study gender bias in long-term care valuation, we compare suggestions among participants whose vignettes featured either a hypothetical son or a daughter.

We study the Family-to-Market care displacement through three distinct questions, each one associated with a caregiver type. In our scenario related to a family member. Despite not being part of the nuclear family, we assume an existing relationship between the caregiver and the hypothetical offspring. In our professional caregiver scenario, we assume no prior relationship between the caregiver and the offspring, as the relationship is established within the market for LTC services. We compare both scenarios with a baseline scenario. Here, we study the rate of substitution of eight hours of caregiving for money in the care relationship between the offspring and their parents. This baseline scenario serves as the practice round for participants.

We implement a staircase method in our experimental task, as participants face a set of four interdependent choices to obtain the WTP in each question (Falk et al., 2023). Each question presents participants with a time option, describing a fixed time allocation for parental caregiving, and a payment option, describing a payment for care services whose value varies in each choice. The payment option's value depends on the participants' previous choices in each question. Unlike single-answer methods, the staircase properties enable us to discern underlying decision rules across the four choices. Participants' choices can lead to valuations in a wide range of WTP. These valuations can be categorized into two: extreme valuations and non-extreme valuations. Consistently selecting the same option reflects extreme valuation influenced by social norms. Conversely, alternating between the time and money options reflects a normative WTP for parental care, leading to a non-extreme valuation. Non-extreme valuations may serve as a proxy for the opportunity cost associated with offspring's caregiving time for their parents. Non-extreme valuations are particularly relevant for understanding the intensive margin of care valuation, while extreme valuations are relevant for the extensive margin (the choice between children's care and other people's care). While participants may make choice errors, the resulting WTP may exhibit less measurement error due to monotonicity enforcement.

Extreme valuations may indicate societal norms concerning the time dedicated to personally assisting aging parents. Specifically, "adult children have to dedicate time for parental care, regardless the price at which they can hire other people" (always dedicating time), and its opposite, "adult children have to pay for parental care, regardless of the price at which they can hire other people" (always paying). The former may be linked to children's duty to directly care for their parents, while the latter may be connected to easing the burden related to adult children's obligation to care for their parents and their own children. To further enhance our understanding, we also investigate participants' aspirations for their own support in old age, enabling a comparison between the outcomes of the staircase procedure and responses to an open-ended question. The interplay of what participants expect from a hypothetical character and their own children can offer valuable insights into the valuation of caregiving and associated social norms.

We observe both non-extreme valuations and extreme valuations across all three types of caregivers. However, we argue that the frequency of recommendations depends on the type of caregiver that substitutes the adult child in caring for the elderly parents. Non-extreme valuations are more frequent when the child is substituted by a member of the extended family. On the other hand, extreme valuations are more related to two specific substitutions: the substitution of caregiving time for money and the substitution of the adult child by the professional caregiver. "Always dedicating time" is more frequent when the child could make a transfer to the parents,

whereas "always paying" is more frequently suggested when the child has the option to hire a professional. Hence, the Family (children) to Market (professional) movement is partly determined by prices and partly by what is expected from the children.

We conducted the experiment in an online format. Participants received an invitation to participate and were granted access to the survey link for one day using their ID number. The sample was restricted to participants from Colombia, a country where the law imposes a legal obligation on children to provide care for parents over 60 years old, and whose market for LTC services is very limited and only the most affluent can afford them. [3] In Colombia, 84% of long-term family (unpaid) caregivers are women and provide 86% of total hours of LTC provided by the families (Stampini et al., 2020).

Experiments have vastly contributed to the understanding of caregiving time valuation (de Jong et al., 2023; Engel et al., 2021; Hoefman et al., 2019; De Meijer et al., 2010). The offered controlled environment gives an opportunity to understand the normative provision of care by children for their elderly parents. We contribute to this experimental literature from a different perspective, by using the staircase properties of our care valuation tasks. Our study shed light on two elements. First, on the understanding of social norms related to the WTP for caregiving time from different types of caregivers. Second, on the relation between participants' aspirations of support from their own children and their valuation of caregiving time.

Regarding the first element, vignette experiments have contributed to the vast evidence about gendered care time provision (Schmid et al., 2012). They have been used to elicit recommendations on mothers' caregiving time and the perceived benefits and costs associated with these allocations (Cortés et al., 2022; Boneva et al., 2021). Jakobsson et al. (2016) show that elderly parents' access to formal care is affected by the normative provision of informal care from daughters. In the domain of social norms, Hess et al. (2023) and van den Broek and Morita (2017) report gender differences in support of the norm that children must provide care for their parents. We contribute to this literature by showing that there is no gender bias in the WTP for three different types of substitutes for children's caregiving time in LTC (Bonsang and Costa-Font, 2020).

Regarding the second element, experiments have contributed to understanding the expected children's support of elderly parents. Departing from Becker (1974) and Bergstrom (1989) theoretical contribution on interactions among members of the same family, multiple models have explored children to parents transfers of time and money (Hsu and Le, 2024; Barigozzi et al., 2020; Pei and Cong, 2020; Becker et al., 2016). Some surveys have explored people's aspirations for later life (Humphrey et al., 2011) but most of them explore the ideas of successful aging and the individual's expectations for old-age support (Wang et al., 2022; Weng and Li, 2020). The most well-known finding in this literature is that familial support from children to elderly parents influences fertility decisions and investments in offspring. We contribute to this literature by showing that having children is related to the valuation of elderly caregiving time (Sugisawa et al., 2020). Moreover, we report that higher aspirations of transfers from one's children in old age are related to the opinions in hypothetical questions.

At the risk of being too obvious, we validate the correlation between the aspirations of chil-

[3] Law 599/2000 (Congreso de Colombia, 2000), Law 1251/2008 (Congreso de Colombia, 2008), Law 1850/2017 (Congreso de Colombia, 2017)

dren's support in old age and the normative WTP for parental care. Much less obvious is our finding that there is no gender bias neither in the care valuation nor in the norms related to time allocation for elderly support. Since the normative children's support in old age is seen to be the determinant of care valuation, and not the children's gender, understanding the relationship between the households and the caregivers who assume responsibilities typically associated with children could offer valuable insights into the broader coexistence of formal and informal care.

4.2 Experimental Design

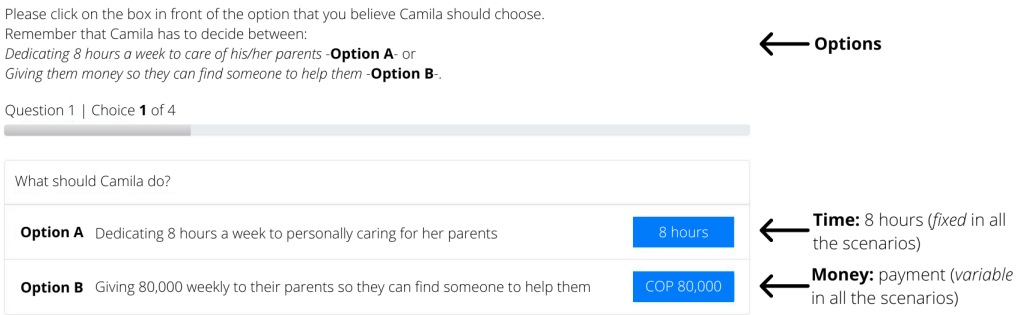


Figure 4.1: Graphical description of the valuation task.

4.2.1 The staircase tasks

We provided participants with a scenario and instructed them to share their opinions based on their experiences in a valuation task, answering three questions. Each question presented interdependent choices between dedicating time or paying for parental care. Additionally, we included an incentivized measure of distributional preferences to serve as a proxy for reciprocity, along with questions about the participants' aspirations for old age.

The valuation task

The vignette features a hypothetical family consisting of two elderly parents and an adult offspring. The parents are described as being 65 years old, unable to work, and lacking pension or savings. This couple needs 8 hours of care every week, and their adult offspring has to choose between two care options in each question. In the first option, the child has to dedicate 8 hours to personally caring for the parents. In the second option, the child can pay a caregiver.

The task employed to capture WTP for 8 hours of care is a modification of the staircase proposed by Cornsweet (1962), and adapted by Falk et al. (2023) with a multiple price list of 15 choices reduced to a four-choices measure. In our task, participants have to make four recommendations

regarding the allocation of time versus money for LTC in each question. Figure 4.1 displays an example of this task. Participants observe a description of two options (A, Time; B, Money) at the top. Below, participants have to make four sequential choices between time and money options.

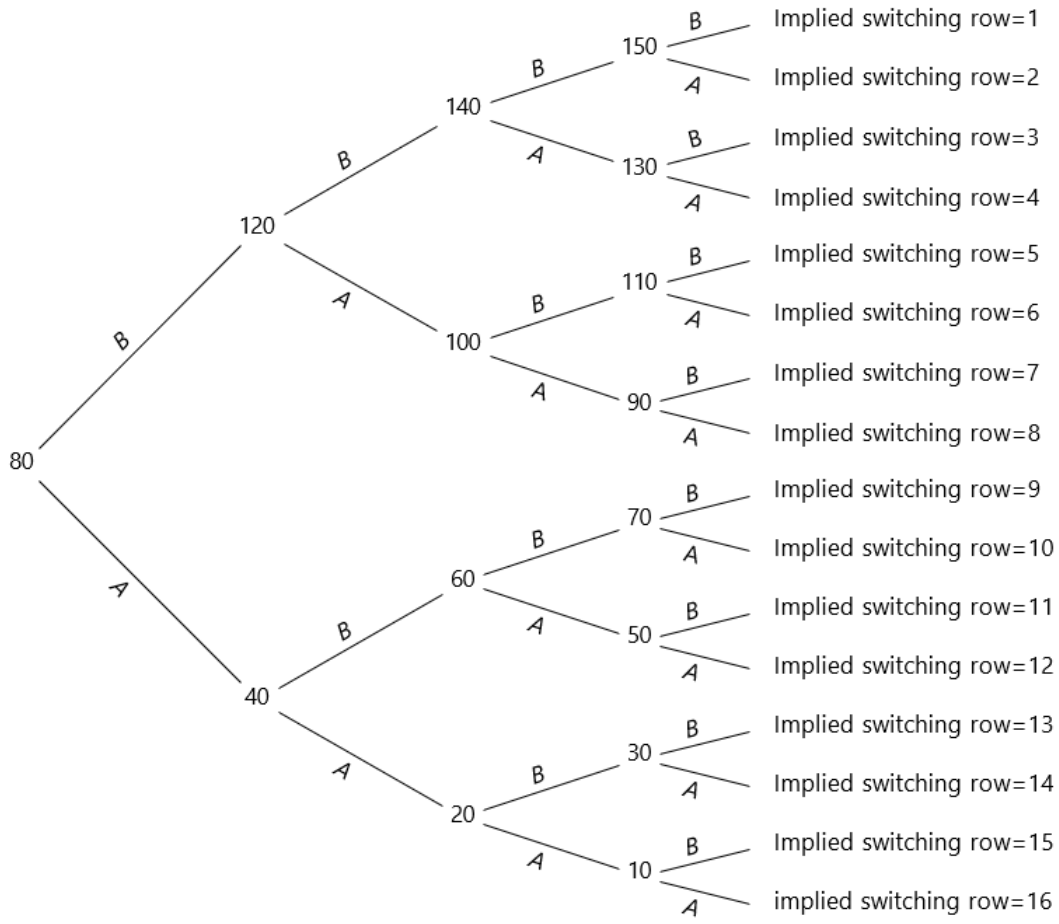


Figure 4.2: Tree for the staircase WTP (numbers= payment, A= Time option, B= Money option). Adapted from (Falk et al., 2023)

Figure 4.2 presents the tree for the staircase procedure. All participants had to choose between dedicating 8 hours to care for their parents or paying kCOP 80 (COP 80, 000) for caregiving services in the first option. The time option remained the same in the second choice and all subsequent choices in the question. However, if participants chose the time option (A) in the first choice, the subsequent payment amount decreased to kCOP 40 Conversely, if participants opted for the money option (B) in the first choice, the subsequent payment amount increased to kCOP 80 In the same manner, the money option was decreased or increased in the third decision when the time (A) or money (B) options were preferred in the second decision, respectively. This procedure was repeated four times.

We modify the staircase and limit the possible valuations of 8 hours of care between kCOP 0 and kCOP 150. The chosen limit is equivalent to 5 times the minimum daily wage in Colombia. This modification was driven by the recognition that our sample's valuations of caregiving might vary considerably due to prevailing social norms regarding children's caregiver obligations. Hence, by imposing a high upper limit on the monetary payment for parental care we aimed to mitigate the risk of "never-switching" behavior, which may affect the data quality due to choice errors and bias (Jack et al., 2022). The four interdependent choices enforce monotony, preventing the choice of "multiple switching" patterns. However, when the people reach the upper or the lower valuations it is because they always choose the same option in all four choices of each question. In other words, they consistently recommended "always paying" or "always dedicating time".

Distributional Preferences

To elicit distributional preferences we used the Equality Equivalence Test proposed by Kerschbamer (2015), but we adapted it using the staircase procedure proposed by (Falk et al., 2023). Each multiple price list of 8 choices in Figure C.1 in the Appendix is reduced to a three-choices measure.

The procedure involves choices between two blocks of options: a *disadvantageous inequality* related block and an *advantageous inequality* related block. In each block, there are two options: an egalitarian allocation (or symmetric) and a non-egalitarian allocation (or asymmetric). The egalitarian option remained constant (sender= kCOP 50; receiver= kCOP 50) in all choices, but the non-egalitarian option varies in each block. Figure C.2 illustrates the payments for the senders in the non-egalitarian allocation of both blocks depending on the choice. Payments for the receiver in the non-egalitarian allocation of the *disadvantageous inequality* block are below the payment in the egalitarian allocation (kCOP 35) and higher in the *advantageous inequality* block (kCOP 65).

4.2.2 Treatments

Our treatments involve variations in two dimensions. The name of the offspring depicted in the vignette, capturing the gender of the recipient of the recommendation; and the type of caregiver, capturing how the monetary option is linked to LTC services in each question. These variations are summarized in Table 4.1.

Let us start with the gender of the hypothetical offspring. We use the names "Camilo" and "Camila" to signal the gender of the offspring. We chose these names because only involve differences in the last letter. We randomized the child offspring at the individual level and this remains constant and remains constant for each participant. Thus we have a between-subject comparison, with participants assigned to either the *Son* treatment and *Daughter* treatment.

We now move to the variation in the type of caregiver. The time option remained constant in all questions and all choices related to the vignette, but the money option is associated with making a payment to a different type of caregiver in each question: (i) Transfer; (ii) Family; (iii) Professional. The questions are presented to all participants in the same order. In the *Transfer* question, baseline, the child could make a direct monetary transfer to the parents for them to meet their need for care. In the *Family* caregiver question, the caregiver is a member of the extended family who receives

payment for their caregiving work. In the *Professional* caregiver question, the care is provided by a professional caregiver who has no prior relationship with the hypothetical family. Neither the caregiver in the Professional nor the Family questions reside in the household. In other words, we have a within-subject comparison between questions because participants answer the *Transfer* question about the direct substitution of the time dedicated by the offspring to their parents for money, and then two questions about the recommended WTP for *Family* and *Professional* care services.

Notice that our questions do not mention anything about the contractual relationship between the hypothetical offspring and the caregiver. However, we argue that we study the Family-to-Market displacement because each question implies different relationships between the nuclear family and the external caregiver. The choices in the *Transfer* question could be treated as private care solutions, in the *Family* question as community care solutions, and the *Professional* question as market care solutions.

Table 4.1: Description of treatments

Treatment conditions		**Treatment indicators**	
Gender	**Question**	Offspring name	Money option
Daughter	Transfer	Camila	Giving money to the parents
Daughter	Family	Camila	Paying a family member
Daughter	Professional	Camila	Paying a professional
Son	Transfer	Camilo	Giving money to the parents
Son	Family	Camilo	Paying a family member
Son	Professional	Camilo	Paying a professional

4.2.3 Payments, sampling and implementation

The experiment was conducted with 951 participants. Seven participants entered the experiment twice, so we dropped their last participation [4] Participants received a fixed payment of kCOP 15 in all treatments, conditional on completing the activity. At the end of the experiment, participants completed a survey, which included socioeconomic questions and an incentivized measure of distributional preferences using a staircase version of the Equality Equivalence Test proposed by Kerschbamer (2015) to measure preferences for egalitarian distributions. There was a 10% chance of receiving payment for this task. Randomly, 116 participants (12% of the sample) were selected for payment and received an average of kCOP 45,3 as a bonus. Each session lasted approximately 30 minutes and participants received, on average, kCOP 20,6. This average payment is equivalent to roughly 0.5 times a daily minimum wage by the time we conducted the experiment. We processed payments via bank transfer.

[4] After finishing the session, we noticed this repeated participation while merging the information of earnings and bank details to proceed with the payment.

The experiment was programmed in oTree (Chen et al., 2016) and conducted online. We obtained approval from the Ethics Committee at Universidad del Rosario in Bogotá, and the sessions took place in May 2022. Participants were invited via the Rosario Experimental and Behavioral Economics Lab - REBEL from *non-students* subject pool, and they received the survey link via email. Any inquiries were addressed through WhatsApp.

4.3 Hypothesis

We start with the comparison, in terms of the WTP, between the types of caregiver:

Hypothesis 1 (H1): WTP is higher in the *Professional* care question compared to the *Family* care question. Both questions induce a larger WTP than the *Transfer* question.

We argue that WTP is influenced by the nature of the relationship between the nuclear family and the external caregiver. The concept of 'familiarization of care' plays a crucial role in this hypothesis. It refers to the extent to which societies assign moral responsibility for caregiving to families, potentially imposing penalties on those who choose non-familial care services. To illustrate, in some societies, caregiving is deeply ingrained within the family unit, and there may be moral or social expectations that family members should provide care to their elderly or dependent relatives (Verbakel, 2018). In such contexts, individuals may have a stronger inclination to personally provide care rather than pay for external services. In contrast, in societies where caregiving responsibilities are less rigidly assigned to families, there may be greater acceptance of paid caregiving services, leading to differences in WTP (Hess et al., 2023). We anticipate that the further the social distance between the offspring and the potential caregiver, the higher the expected WTP for caregiving services.

Our second hypothesis is related to the gender of the hypothetical offspring in our vignette. To provide some intuition for H2, we introduce the idea of social norms and opportunity cost. This perspective suggests that when deciding between personally caring for their parents or paying for caregiver services, offspring's choices may be influenced by social norms and opportunity costs (Barigozzi et al., 2020). First, there is a social norm according to which society expects daughters to be the main caregivers of their parents, influenced by gender stereotypes suggesting they're more responsive to parents' needs (Batur et al., 2024; Kalmijn and Saraceno, 2008). Second, sons and daughters may face unequal job market situations that influence their opportunity cost of caregiving. In practical terms, individuals with lower incomes might allocate more of their time to caregiving, given their relatively limited financial resources, while those with higher incomes may be more inclined to opt for paid care services (Schmid et al., 2012). The interplay of the gender wage gap and social norms may lead to differences in the recommendations for hypothetical parents based on the offspring's gender in the vignette.

Hypothesis 2 (H2): Hypothetical daughters are expected to be willing to pay more for care than hypothetical sons in all the questions.

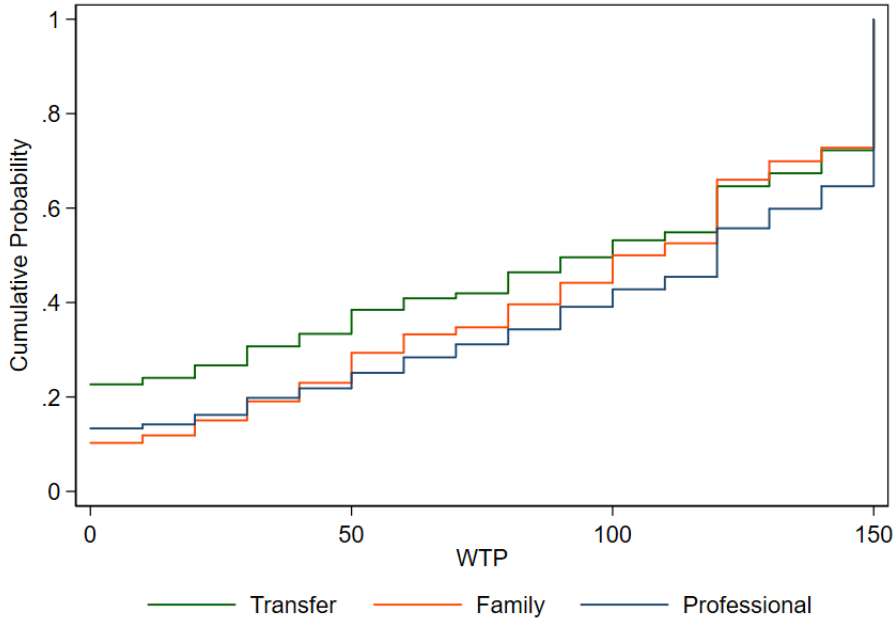


Figure 4.3: Cumulative distribution function of WTP (in kCOP) by type of care.

4.3.1 Descriptive statistics

We asked for some demographic information at the end of the experiment that allowed us to characterize our sample. Sixty-three percent identified as female, averaging 34 years old (std. dev. 11.6), with 39% reporting having children. Nine percent experienced the loss of both parents, 18% one parent, while 32% co-resided and 41.2% lived separately from parents. More than half reported having a job (41% full-time and 10% part-time), 26% said to be self-employed, 4% are unpaid workers, 9% were unemployed, 8% are only students and 4% reported other occupations. Over 28 % reported income below kCOP 2000 and 70% have at least undergraduate studies. When we asked them about social security, 71% reported having contributory health insurance, and 51% of them make pension contributions. Tables A.1 in the Appendix, validate that the assignment of conditions is balanced in these observable characteristics but not in parent's contribution to pension, so we analyze this variable in the section 4.3.4.

Regarding aspirations for old age, at age 65, fifty-nine percent of participants aspire to their main source of income being investments, 33% a pension, 6% a job, and 3% a government subsidy. On average, participants would like to work 6.6 hours per week (std. dev. 6.3) and receive kCOP 346 per month (std. dev. kCOP 663,6) from their offspring. Additionally, ninety-seven percent aspire to live in their own house, 80% wish to reside with their partner and 93% hope their children attain a postgraduate degree.

The average WTP shows an increasing trend with the order of questions. In the baseline choice, participants recommend a direct monetary *Transfer* of kCOP 83,3 (std. dev. kCOP 60) as a substi-

tute for eight hours dedicated to personally caring for the parents. In the subsequent choices, the WTP for eight hours is kCOP 92,8 (std. dev. kCOP 52) for a *Family* caregiver and kCOP 98,8 (std. dev. kCOP 55) for a *Professional* caregiver, respectively.[5] These differences in WTP may be linked to the relationships and skills related with caregiving services. In Colombia, eldercare workers fall into three broad categories: family networks, general services employees, and nursing assistants. Family networks often provide unpaid care by relatives, with a notable gender bias towards women. General services staff typically lack formal qualifications, often having previously worked as domestic workers. Conversely, nursing assistants undergo a 2-year technical training course to acquire necessary skills (Pineda Duque, 2021; Quevedo et al., 2021)

In Figure 4.3 we observed that the WTP for care follows a bimodal distribution, with kCOP 0 ("0" hereafter) and kCOP 150 ("150" hereafter) as modes in all the questions. Considering these bimodal distributions and the gaps at the extremes of the distribution, we analyze the WTP in three categories: extreme valuations (0,150) and non-extreme valuations [10-140]. "Always dedicating time" (0) is associated with the monetary *Transfer* to the parents, whereas "always paying" (150) is recommended more frequently when the question involves payments for a *Professional* caregiver. The cumulative distribution also indicates that non-extreme valuations are more common when a *Family* caregiver is being considered.

The difference between the recommended WTP frequency distributions in each question is statistically significant (Chi-squared test, p-value < 0.001). In other words, the WTP varies depending on the type of caregiver mentioned in each question. [6] Regarding H1, mean WTP is higher in the *Professional* caregiver question compared to the *Family* caregiver question, and both questions induce a larger WTP than the *Transfer* question. However, this result depends on whether or not extreme valuations are included in the calculations. [7]

4.3.2 Effect of the hypothetical son/daughter

We conduct an analysis of frequencies with the WTP as the dependent variable, explained by our treatment conditions. In Figure 4.4, we compare the frequency distribution of the WTP to the hypothetical son/daughter by type of care separately.

We report the frequency distribution of WTP in Table C.3 in the Appendix. As seen in Figure 4.4, there is no evidence for gender bias in the frequency distribution of WTP when the question involves a *Transfer* or a *Professional* caregiver (Chi-squared test, p-values 0.566, 0.831). Nonetheless, we observed a weak difference when a member of the extended family is involved, specifically in the *Family* caregiver question (Chi-squared test, p-values 0.088). To put this result in other words, this means that on average our participants expect men and women to have an equal WTP for LTC services. When we analyzed the WTP categories, we also found no statistically significant differences due to the sex of the hypothetical offspring in any of the questions presented in the Table 4.2 (Chi-squared test, p-values 0.195, 0.388, 0.229). We found that men and women are

[5] In Colombia, at the time of our experiment, the daily minimum wage for an 8-hour workday was kCOP 33,3.

[6] We compute the frequency of extreme valuations in each question and Table C.2, in the Appendix, reports these frequencies.

[7] After excluding not extreme valuations, the mean WTP was calculated for 3 categories: *Transfer* (468 observations - kCOP 84), *Family* (590 observations - kCOP 83), and *Professional* (484 observations - kCOP 89).

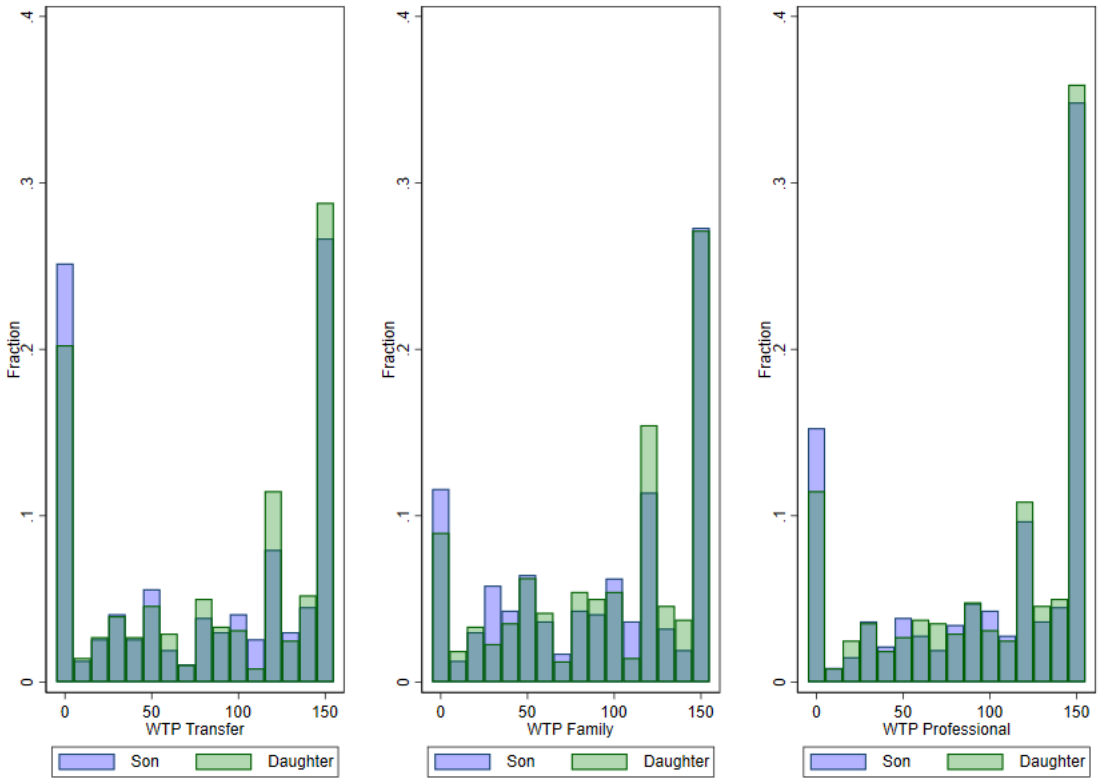


Figure 4.4: Frequency distribution of WTP (in kCOP) by treatment conditions.

expected to provide the same caregiving time for their parents. This result is aligned with the more recent evidence about less conservative beliefs about women's time allocation (Cortés et al., 2022; Bursztyn et al., 2020).

Table 4.2: Frequency distribution of WTP categories (in kCOP) by treatment conditions

	Transfer		Family		Professional	
WTP	Son	Daughter	Son	Daughter	Son	Daughter
0	25.16	20.25	11.61	8.98	15.27	11.48
10-140	48.17	50.94	61.08	63.88	49.89	52.61
150	26.67	28.81	27.31	27.14	34.84	35.91

It is important to note that the specific characteristics of the participants in our sample may influence the results of our survey. With more than 70% of respondents holding advanced degrees and requiring access to a computer and the internet to participate, our sample may not accurately represent the broader population. To analyze the beliefs about the traditional gender roles of our sample, we included six questions in the survey at the end of the experiment [8]. Answers to these questions range from 1, "strongly disagree", to 5, "strongly agree". Through principal component analysis, we derived a factor representing a linear combination of the six items [9]. By predicting the factor score using regression analysis (Mooi et al., 2018), our sample tends to disagree with traditional gender roles, as illustrated in Figure C.3 in the Appendix.

Summing up, we find no evidence for H2. Daughters are expected to be equally willing to pay for care as sons in all questions. We also confirm that, on average, there are no differences in the responses between the men and women who answered the questions [10]. Furthermore, gender identity between participants and the hypothetical offspring does not lead to differences in the WTP. [11] These results contradict more recent evidence on gender differences in support norms related to parental care (Hess et al., 2023).

4.3.3 Children and old age support

We learned that the gender of the hypothetical offspring does not affect the WTP. In this section, we explore two characteristics of our participants to understand to which extent their expectations and aspirations of intergenerational transfers influence their recommendations. First, we analyze differences in the recommendations of participants with and without children. Second, we study whether having higher aspirations of support from children in old age correlates with the WTP.

[8] (1) Men are better at mathematics than women; (2) Both men and women should contribute to household income; (3) The duty of a man is to earn money, while a woman must take care of the home and family; (4) Women are better at housework than men; (5) The head of the household should be the man; (6) Men are better at handling money than women.

[9] using the Kaiser Criterion (Mooi et al., 2018)

[10] Table C.4 in the Appendix (Chi-squared test, p-values 0.934, 0.153, 0.829)

[11] Table C.5 in the Appendix (Chi-squared test, p-values 0.432, 0.678, 0.477)

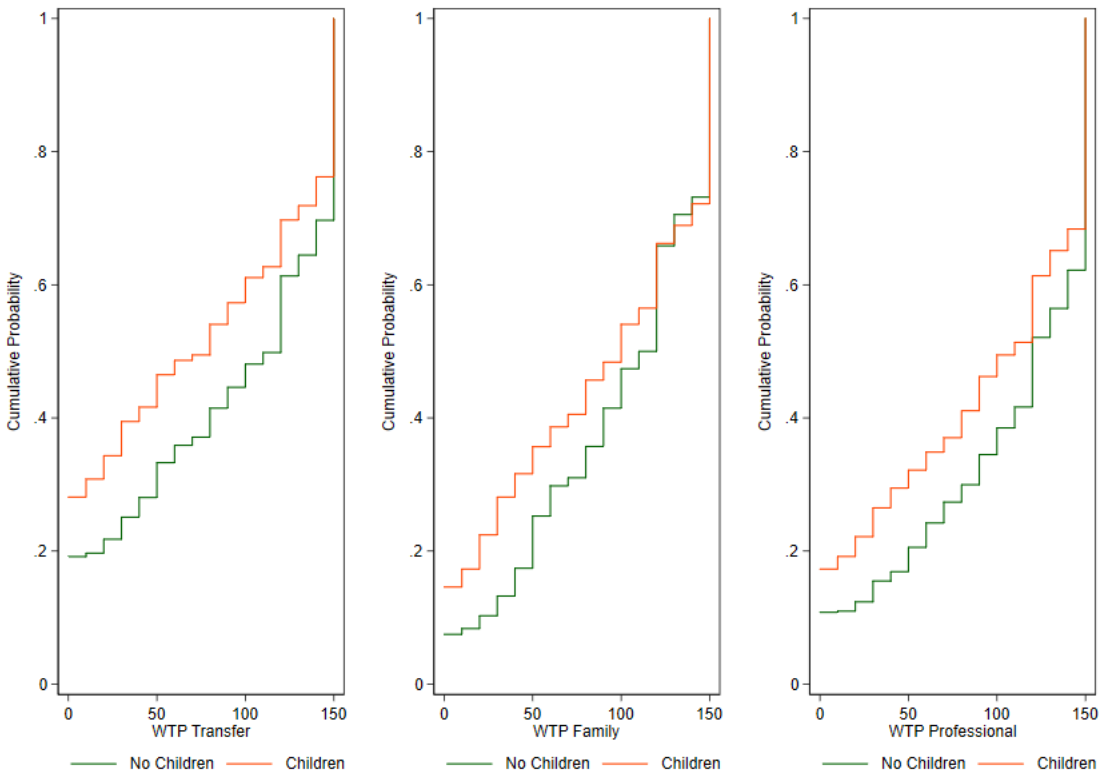


Figure 4.5: Cumulative distribution function of WTP (in kCOP) for participants with and without children

We explore these questions using the analysis of frequencies. The dependent variable is the category of the WTP in each question, and the independent variables of interest related to the expectations of intergenerational transfers correspond to "participants with and without children". Figure 4.5 report the distributions. Participants with children recommend "always dedicating time" more frequently in all scenarios. Conversely, those without children recommend "always paying" more frequently when the scenarios involve a direct *Transfer* or a payment for a *Professional* caregiver. Non-extreme valuations are more frequent when a *Family* caregiver is being considered, especially when participants don't have children. The difference related to the number of children is statistically significant in all scenarios (Chi-squared test, p-values 0.003, 0.001, 0.008).[12]

The aspirations of intergenerational transfers could partially explain the correlation between recommendations and the number of children. In the survey at the end of the experiment, we asked some questions to capture participants' aspirations for old age. Two questions directly relate to participants' aspirations of support from their own children: (i) *Time* transfer, "at age 65, how much money per month would you like to receive from your children?"; (ii) *Money* transfer,

[12] Table C.6

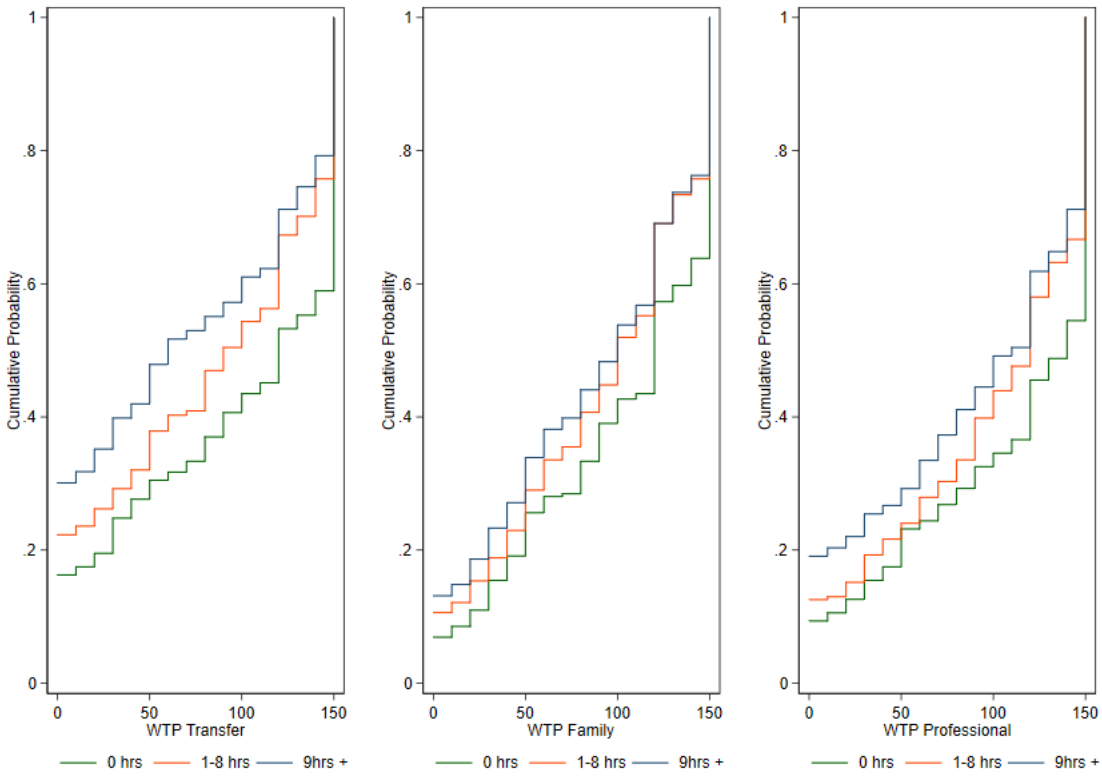


Figure 4.6: Cumulative distribution function of WTP (in kCOP) by participants' aspirations of time support from their children

"at age 65, how many hours of care per week would you like to receive from your children?". Figure 4.6 report the distributions. Participants with high aspirations of time or money transfer from their own children in their old age correlate with a lower WTP to the hypothetical child.[13]

4.3.4 Robustness checks and additional results

Response times

We mention in Section 4.3.1 differences in recommendations depending on the type of care mentioned in each scenario. A complementary question is how the response times affect the patterns in recommendations. Response times can serve as indicators of participants' cognitive engagement and understanding during experiments. Quick responses are often symptomatic of subjects that are not engaging with the experiment seriously, while longer response times could indicate that the participants are considering carefully the task information (Spiliopoulos and Ortmann, 2018). We measured response times as the sum of seconds in the four decisions in each scenario. Participants were divided into four quartiles ("Q1", "Q2", "Q3", "Q4") based on their response time in each scenario. Figure C.4 displays the cumulative distribution functions of WTP in each scenario according to the quartile of response time. Qualitatively, the results are similar to Figure 4.3, but with more variance when considering a *Family* caregiver. As depicted in Figure C.4, "always dedicating time" is more frequently recommended when the alternative to spending time with parents is making a monetary *Transfer*. Conversely, "always paying" is recommended more frequently when the scenario involves payments for a *Professional* caregiver.

Egalitarian preferences and norms

We discuss in Section 4.3.3 differences in recommendations between participants with and without children. Furthermore, we report a negative correlation between participants' aspirations for support from their children and their WTP. These findings can be partially explained by social norms related to old-age support (Becker et al., 2016). Although we don't have a direct measure of intergenerational reciprocity, we measured preferences for egalitarian distributions through a modified version of The Equality Equivalence Test (Kerschbamer, 2015) in a staircase framework (Falk et al., 2023). In Figure C.5, in the Appendix, we present the frequency distribution of recommendations for both egalitarian and non-egalitarian participants.[14] Egalitarian participants recommended more frequently the extreme valuations in all the questions, related to the norms of "always dedicating time" and "always paying". On the other hand, non-egalitarian individuals suggested non-extreme valuations related to different monetary valuations of caregiving time. [15]

[13] Table C.8 (Chi-squared test, p-values < 0.001, 0.003, < 0.001) and Table C.7 in the Appendix (Chi-squared test, p-values 0.001, 0.287, 0.045)

[14] Participants who choose the egalitarian or symmetric option (Option B) in the first two choices are considered to be egalitarian. We don't take into account the third choice because the previous choices might lead to equal nodes (Disadvantageous Inequality Block: 65,000; 65,000 and Advantageous Inequality Block: 35,000; 35,000) as shown in Figure C.5.

[15] Table C.9 in the Appendix (Chi-squared test, p-values < 0.001, < 0.001, < 0.001)

Differences between formal and informal parents

We compare the recommendations of participants whose parents make contributions to a pension or not. The dependent variable is the category of the WTP in each scenario, and the independent variables correspond to "participants whose parents make pension contributions and those whose parents don't" [16]. Table C.10 in the Appendix shows that participants whose parents make pension contributions recommend "always dedicating time" more frequently in all scenarios. Conversely, participants whose parents don't make pension contributions recommend "always paying" more frequently when the scenarios involve a direct *Transfer*. Non-extreme valuations are more frequent when a *Family* caregiver is being considered, especially when parents don't make pension contributions. The difference related to parent's pension contributions is statistically significant in scenarios involving the *Transfer* and a *Family* caregiver (Chi-squared test, p-values 0.005, 0.015, 0.171).

4.4 Conclusions

We devise and report an instrument to measure perceptions of intergenerational caregiving, specifically focusing on the role of adult offspring in providing personal care for their elderly parents. We varied the gender of the offspring in a hypothetical vignette to study how its impact on recommendations regarding personally caring for parents or opting for LTC services. Through three questions, we evaluated the substitution rate of time dedicated to assisting aging parents personally for a direct transfer, payment to a family member, or payment to a professional caregiver. Using a staircase method, participants make four interdependent choices to obtain the WTP in each question. Participants' choices can lead to valuations in a wide range of WTP. These valuations can be categorized into two: extreme valuations and non-extreme valuations. Consistently selecting the same option reflects extreme valuation influenced by social norms. Conversely, non-extreme valuations may serve as a proxy for the opportunity cost associated with adult children's caregiving time for their parents. Non-extreme valuations are particularly relevant for understanding the intensive margin of care valuation, while extreme valuations are relevant for the extensive margin (the choice between children's care and other people's care).

We observe both non-extreme valuations and extreme valuations across all three types of caregivers. However, we argue that the frequency of recommendations depends on the type of caregiver that substitutes the adult offspring in caring for the elderly parents. Non-extreme valuations are more commonly suggested when the offspring is replaced by a member of the extended family. On the other hand, "Always dedicating time" is more frequent when the offspring could make a transfer to the parents, whereas "always paying" is more frequently suggested when the child has the option to hire a professional caregiver. We argue that participants' recommendations indicate that the Family-to-Market care displacement is only partially explained by the costs associated

[16] We categorized the participants based on their response to the question "What are (did) your parents doing (do) to support themselves financially in old age?" Parents who make mandatory or voluntary contributions to pensions are classified as "*Pension* Contributors". Those parents who rely on savings, investments, insurance payments, preparation for assistance from their children, or no financial support mechanism are classified as "*Non-pension* Contributors."

with LTC services. A significant portion is attributed to prevailing social norms dictating the offspring's responsibility to care for their parents in old age. We identify two extremes: participants who believe that irrespective of the cost and relationship with other caregivers, the offspring must always or never dedicate time to care for their parents personally. These patterns appear independent of the gender of the individual receiving the suggestion but are shaped by the participant's aspirations for support in old age from their own children.

The evident following question is how these results are informative outside the controlled description offered by the vignette. Our experiment revealed that the expected informal caregiving time provided by an individual's offspring seems to be more influenced by the type of caregiver replacing the offspring, rather than the offspring's gender itself. Moreover, the results suggest that informal care given by adult children to older adults is not just a substitute, but rather a complement to the assistance provided by other caregivers. Despite the availability of subsidies or support for formal care arrangements, our findings indicate that adult children will still have the duty to care for their elderly parents personally.

Our staircase was useful for reaching a wide range of WTP using only a set of four interdependent choices per question. we learned that the degree of substitutability of childcare time is influenced by factors such as the cost of hiring another caregiver, the relationship with the caregiver, and beliefs about the offspring's responsibilities. However, the staircase procedure comes at the cost of implicitly assuming the monotonicity in choices: the valuation either increases or decreases linearly depending on the previous choice. This procedure fails to capture non-linear valuations such as the related to undefined preferences. This approach may overlook non-linear valuations associated with undefined preferences. For instance, compare valuations derived from open-ended responses, multiple price list methods, and staircase adaptations of multiple price lists.

In this chapter, we focus on how the type of caregiver affects the valuation of eight hours of caregiving, leaving aside the study of the supply of formal and informal care. This supply has been investigated in related and broader literature on care provision and care services. Future experiments could evaluate the linearity assumption in care valuation: the idea that the valuation of caregiving services increases linearly with the amount or intensity of care provided. This assumption suggests a direct and proportional relationship between the quantity of care given and the value attributed to it. However, care is a complex activity involving emotional, social, and physical aspects that may not be linearly associated with perceived quality and may not remain constant over the duration of care services.

Bibliography

Agasisti, T. and K. Maragkou (2023). Socio-economic gaps in educational aspirations: do experiences and attitudes matter? Education Economics 31(4), 471–487.

Ahmed, H., M. Mahmud, F. Said, and Z. Tirmazee (2024). Encouraging female graduates to enter the labor force: Evidence from a role model intervention in pakistan. Economic Development and Cultural Change 72(2), 919–957.

Alm, J. (2012). Measuring, explaining, and controlling tax evasion: lessons from theory, experiments, and field studies. International Tax and Public Finance 19(1), 54–77.

Alm, J. and A. Malézieux (2021). 40 years of tax evasion games: a meta-analysis. Experimental Economics 24(3), 699–750.

Alvarado, A., B. Conde, R. Novella, and A. Repetto (2020). Neets in latin america and the caribbean: Skills, aspirations, and information. Journal of International Development 32(8), 1273–1307.

Amilon, A., J. Ladenburg, A. Siren, and S. V. Østergaard (2020). Willingness to pay for long-term home care services: Evidence from a stated preferences analysis. The Journal of the Economics of Ageing 17, 100238.

Arango, L. E. and L. A. Flórez (2021). Regional labour informality in Colombia and a proposal for a differential minimum wage. The Journal of Development Studies 57(6), 1016–1037.

Arcidiacono, P., V. J. Hotz, A. Maurel, and T. Romano (2020). Ex ante returns and occupational choice. Journal of Political Economy 128(12), 4475–4522.

Ashraf, N., N. Bau, C. Low, and K. McGinn (2020). Negotiating a better future: How interpersonal skills facilitate intergenerational investment. The Quarterly Journal of Economics 135(2), 1095–1151.

Bandiera, O., I. Barankay, and I. Rasul (2007). Incentives for managers and inequality among workers: Evidence from a firm-level experiment. The Quarterly Journal of Economics 122(2), 729–773.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. Psychological review 84(2), 191.

Bandura, A. et al. (1986). Social foundations of thought and action. Englewood Cliffs, NJ 1986(23-28), 2.

Bardey, D., F. Jaramillo, and X. Peña (2015). Unemployment insurance in the presence of an informal sector. The World Bank Economic Review 29(suppl_1), S126–S134.

Barigozzi, F., H. Cremer, and K. Roeder (2020). Caregivers in the family: daughters, sons and social norms. European Economic Review 130, 103589.

Batur, Z. Z., J. Vergauwen, and D. Mortelmans (2024). The effects of adult children's gender composition on the care type and care network of ageing parents. Ageing & Society 44(1), 17–42.

Bau, N. (2021). Can policy change culture? government pension plans and traditional kinship practices. American Economic Review 111(6), 1880–1917.

Bazart, C. and A. Bonein (2014). Reciprocal relationships in tax compliance decisions. Journal of Economic Psychology 40, 83–102.

Becker, G. S. (1974). A theory of social interactions. Journal of Political Economy 82(6), 1063–1093.

Becker, G. S., K. M. Murphy, and J. L. Spenkuch (2016). The manipulation of children's preferences, old-age support, and investment in children's human capital. Journal of Labor Economics 34(S2), S3–S30.

Behrman, J. R., R. De Hoyos, and M. Székely (2014). Out of school and out of work: a conceptual framework for investigating'ninis' in latin america and the caribbean.

Benndorf, V., H. A. Rau, and C. Sölch (2019). Minimizing learning in repeated real-effort tasks. Journal of Behavioral and Experimental Finance 22, 239–248.

Bergstrom, T. C. (1989). A fresh look at the rotten kid theorem–and other household mysteries. Journal of Political Economy 97(5), 1138–1159.

Bhan, P. C. et al. (2020). Do role models increase student hope and effort? evidence from india. University of Glasgow.

Boneva, T., K. Kaufmann, and C. Rauh (2021). Maternal labor supply: Perceived returns, constraints, and social norms.

Bonilla-Mejía, L., N. L. Bottan, and A. Ham (2019). Information policies and higher education choices experimental evidence from colombia. Journal of Behavioral and Experimental Economics 83, 101468.

Bonsang, E. and J. Costa-Font (2020). Behavioral regularities in old age planning. Journal of Economic Behavior & Organization 173, 297–300.

Bracha, A., U. Gneezy, and G. Loewenstein (2015). Relative pay and labor supply. Journal of Labor Economics 33(2), 297–315.

Breza, E., S. Kaur, and Y. Shamdasani (2018). The morale effects of pay inequality. The Quarterly Journal of Economics 133(2), 611–663.

Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020). Misperceived social norms: Women working outside the home in saudi arabia. 110(10), 2997–3029.

Cadsby, C. B., F. Song, and F. Tapon (2007). Sorting and incentive effects of pay for performance: An experimental investigation. Academy of Management Journal 50(2), 387–405.

Card, D., A. Mas, E. Moretti, and E. Saez (2012). Inequality at work: The effect of peer salaries on job satisfaction. American Economic Review 102(6), 2981–3003.

Carlana, M. (2019). Implicit stereotypes: Evidence from teachers' gender bias. The Quarterly Journal of Economics 134(3), 1163–1224.

Carlana, M., E. La Ferrara, and P. Pinotti (2022). Goals and gaps: Educational careers of immigrant children. Econometrica 90(1), 1–29.

Charness, G. and P. Kuhn (2007). Does pay inequality affect worker effort? experimental evidence. Journal of Labor Economics 25(4), 693–723.

Chen, D. L., M. Schonger, and C. Wickens (2016). oTree—an open-source platform for laboratory, online, and field experiments. Journal of Behavioral and Experimental Finance 9, 88–97.

Cheyne García, J. A., M. M. Correa Zabala, D. R. Torralba, L. N. León, C. A. Galvis, and E. C. Salinas (2024). Transición de la educación al trabajo:¿ dónde están los jóvenes de hoy?

Chowdhury, S. M. and R. M. Sheremeta (2011). A generalized Tullock contest. Public Choice 147(3), 413–420.

Clark, D., D. Gill, V. Prowse, and M. Rush (2020). Using goals to motivate college students: Theory and evidence from field experiments. Review of Economics and Statistics 102(4), 648–663.

Cohn, A., E. Fehr, B. Herrmann, and F. Schneider (2014). Social comparison and effort provision: Evidence from a field experiment. Journal of the European Economic Association 12(4), 877–898.

Congreso de Colombia (2000). Por la cual se expide el código penal. http://secretariasenado.gov.co/senado/basedoc/ley_1850_2017.html.

Congreso de Colombia (2008). Por la cual se dictan normas tendientes a procurar la protección, promoción y defensa de los derechos de los adultos mayores. http://secretariasenado.gov.co/senado/basedoc/ley_1251_2008.html.

Congreso de Colombia (2017). Por medio de la cual se modifica la ley 1361 de 2009 para adicionar y complementar las medidas de protección de la familia y se dictan otras disposiciones. http://secretariasenado.gov.co/senado/basedoc/ley_1850_2017.html.

Cornsweet, T. N. (1962). The staircase-method in psychophysics. The American Journal of Psychology 75(3), 485–491.

Cortés, P., G. Koşar, J. Pan, and B. Zafar (2022). Should mothers work? how perceptions of the social norm affect individual attitudes toward work in the us.

Cullen, Z. and R. Perez-Truglia (2022). How much does your boss make? the effects of salary comparisons. Journal of Political Economy 130(3), 000–000.

Curcio Borrero, C.-L., N. Orozco, J. Enrique, O. J. Gómez Ramírez, D. V. Burbano Rivera, C. V. Plazas-Gómez, P. A. Rodríguez Lesmes, V. Perrotta, D. Pineda, A. Javier, et al. (2023). Hacer visible lo invisible: meditaciones sobre el cuidado informal y las personas cuidadoras. Claves para reinterpretar su normatividad. Editorial Universidad del Rosario.

Dalton, P. S., S. Ghosal, and A. Mani (2016). Poverty and aspirations failure. The Economic Journal 126(590), 165–188.

Dariel, A., C. Kephart, N. Nikiforakis, and C. Zenker (2017). Emirati women do not shy away from competition: Evidence from a patriarchal society in transition. Journal of the Economic Science Association 3(2), 121–136.

De Hoyos, R., C. Gutiérrez, and V. Vargas (2015). The harmful interaction between economic crisis, violence, and ninis in mexico. Washington, DC: Banco Mundial. Informe previo para el estudio "Ninis en América Latina." https://openknowledge. worldbank. org/handle/10986/22349.

De Hoyos Navarro, R. E., A. Popova, and F. H. Rogers (2016). Out of school and out of work: a diagnostic of ninis in latin america. World Bank Policy Research Working Paper (7548).

de Jong, L., T. Schmidt, J. T. Stahmeyer, S. Eberhard, J. Zeidler, and K. Damm (2023). Willingness to provide informal care to older adults in germany: a discrete choice experiment. The European Journal of Health Economics 24(3), 425–436.

De Meijer, C., W. Brouwer, M. Koopmanschap, B. van den Berg, and J. van Exel (2010). The value of informal care–a further investigation of the feasibility of contingent valuation in informal caregivers. Health Economics 19(7), 755–771.

De Soto, H. (1989). Ther other path: The invisible revolution in the third world.

Dechenaux, E., D. Kovenock, and R. M. Sheremeta (2015). A survey of experimental research on contests, all-pay auctions and tournaments. Experimental Economics 18(4), 609–669.

Delfgaauw, J., R. Dur, A. Non, and W. Verbeke (2014). Dynamic incentive effects of relative performance pay: A field experiment. Labour Economics 28, 1–13.

Dinkelman, T. and L. R. Ngai (2022). Time use and gender in africa in times of structural transformation. Journal of Economic Perspectives 36(1), 57–80.

DiRenzo, M. S., C. H. Weer, and F. Linnehan (2013). Protégé career aspirations: The influence of formal e-mentor networks and family-based role models. Journal of Vocational Behavior 83(1), 41–50.

Dohmen, T. and A. Falk (2011). Performance pay and multidimensional sorting: Productivity, preferences, and gender. American Economic Review 101(2), 556–90.

Dudovitz, R. N., P. J. Chung, B. B. Nelson, and M. D. Wong (2017). What do you want to be when you grow up? career aspirations as a marker for adolescent well-being. Academic Pediatrics 17(2), 153–160.

Engel, L., M. Ajdukovic, J. Bucholc, and N. McCaffrey (2021). Valuation of informal care provided to people living with dementia: a systematic literature review. Value in Health 24(12), 1863–1870.

Eriksson, T., S. Teyssier, and M.-C. Villeval (2009). Self-selection and the efficiency of tournaments. Economic Inquiry 47(3), 530–548.

Erkal, N., L. Gangadharan, and B. H. Koh (2018). Monetary and non-monetary incentives in real-effort tournaments. European Economic Review 101, 528–545.

Falk, A., A. Becker, T. Dohmen, D. Huffman, and U. Sunde (2023). The preference survey module: A validated instrument for measuring risk, time, and social preferences. Management Science 69(4), 1935–1950.

Fernández, C., L. Villar, N. Gómez, and P. Vaca (2017). Taxonomía de la informalidad en América Latina.

Folbre, N. and J. A. Nelson (2000). For love or money—or both? Journal of Economic Perspectives 14(4), 123–140.

Fuster, A. and B. Zafar (2023). Survey experiments on economic expectations. In Handbook of Economic Expectations, pp. 107–130. Elsevier.

Gächter, S. and C. Thöni (2010). Social comparison and performance: Experimental evidence on the fair wage–effort hypothesis. Journal of Economic Behavior & Organization 76(3), 531–543.

Gati, I. and T. Gutentag (2015). The stability of aspect-based career preferences and of the recommended list of occupations derived from them. Journal of Vocational Behavior 87, 11–21.

Gehrke, E., F. Lenel, and C. Schupp (2023). Occupational aspirations and investments in education: Experimental evidence from cambodia.

Genicot, G. and D. Ray (2017). Aspirations and inequality. Econometrica 85(2), 489–519.

Gneezy, U., K. L. Leonard, and J. A. List (2009). Gender differences in competition: Evidence from a matrilineal and a patriarchal society. Econometrica 77(5), 1637–1664.

Gneezy, U., M. Niederle, and A. Rustichini (2003). Performance in competitive environments: Gender differences. The Quarterly Journal of Economics 118(3), 1049–1074.

Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. Journal of Counseling psychology 28(6), 545.

Goux, D., M. Gurgand, and E. Maurin (2014). Adjusting your dreams? the effect of school and peers on dropout behaviour.

Greve, J., M. Saaby, A. Rosdahl, and V. T. Christensen (2021). Uncertain occupational expectations at age 19 and later educational and labour market outcomes. Labour 35(2), 163–191.

Guyon, N. and E. Huillery (2021). Biased aspirations and social inequality at school: Evidence from french teenagers. The Economic Journal 131(634), 745–796.

Herranz-Zarzoso, N. and G. Sabater-Grande (2018). Monetary incentives and self-chosen goals in academic performance: An experimental study. International Review of Economics Education 27, 34–44.

Hess, M., W. Schmitz, L. Naegele, and P. Stiemke (2023). You will take care of me when i am old: Norms on children's caregiver obligations-an analysis with data from the european values study. Journal of Family Research 35, 196–211.

Hoefman, R. J., J. van Exel, and W. B. Brouwer (2019). The monetary value of informal care: obtaining pure time valuations using a discrete choice experiment. Pharmacoeconomics 37(4), 531–540.

Holland, J. L. (1997). Making vocational choices: A theory of vocational personalities and work environments. Psychological Assessment Resources.

Hsu, M. and T. T. Le (2024). Fertility decisions and the norm of intergenerational support to aging parents. International Studies of Economics.

Humphrey, A., L. Lee, and R. Green (2011). Aspirations for later life. Department for Work and Pensions London, UK.

Jack, B. K., K. McDermott, and A. Sautmann (2022). Multiple price lists for willingness to pay elicitation. Journal of Development Economics 159, 102977.

Jakobsson, N., A. Kotsadam, A. Syse, and H. Øien (2016). Gender bias in public long-term care? a survey experiment among care managers. Journal of Economic Behavior & Organization 131, 126–138.

Janzen, S. A., N. Magnan, S. Sharma, and W. M. Thompson (2017). Aspirations failure and formation in rural nepal. Journal of Economic Behavior & Organization 139, 1–25.

Kalmijn, M. and C. Saraceno (2008). A comparative perspective on intergenerational support: Responsiveness to parental needs in individualistic and familialistic countries. European Societies 10(3), 479–508.

Kerr, S. P., T. Pekkarinen, M. Sarvimäki, and R. Uusitalo (2020). Post-secondary education and information on labor market prospects: A randomized field experiment. Labour Economics 66, 101888.

Kerschbamer, R. (2015). The geometry of distributional preferences and a non-parametric identification approach: The equality equivalence test. European Economic Review 76, 85–103.

Kuhn, A. and S. C. Wolter (2023). The strength of gender norms and gender-stereotypical occupational aspirations among adolescents. Kyklos 76(1), 101–124.

La Porta, R. and A. Shleifer (2014). Informality and development. Journal of Economic Perspectives 28(3), 109–26.

Laajaj, R., A. Moya, and F. Sánchez (2022). Equality of opportunity and human capital accumulation: Motivational effect of a nationwide scholarship in colombia. Journal of Development Economics 154, 102754.

Lazear, E. P. and S. Rosen (1981). Rank-order tournaments as optimum labor contracts. Journal of Political Economy 89(5), 841–864.

Lent, R. W., S. D. Brown, and G. Hackett (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. Journal of Vocational behavior 45(1), 79–122.

Leuven, E., H. Oosterbeek, J. Sonnemans, and B. Van Der Klaauw (2011). Incentives versus sorting in tournaments: Evidence from a field experiment. Journal of Labor Economics 29(3), 637–658.

Liu, W., T. Lyu, X. Zhang, S. Yuan, and H. Zhang (2020). Willingness-to-pay and willingness-to-accept of informal caregivers of dependent elderly people in shanghai, china. BMC health services research 20, 1–11.

Maloney, W. F. (2004). Informality revisited. World Development 32(7), 1159–1178.

Marrero, G. A. and J. G. Rodríguez (2013). Inequality of opportunity and growth. Journal of Development Economics 104, 107–122.

Martins, P. S. (2010). Can targeted, non-cognitive skills programs improve achievement? evidence from epis.

MEN (2024). Glosario sistema nacional de información de la educación superior.

Mooi, E., M. Sarstedt, I. Mooi-Reci, E. Mooi, M. Sarstedt, and I. Mooi-Reci (2018). Principal component and factor analysis. Market research: The process, data, and methods using Stata, 265–311.

Niederle, M. and L. Vesterlund (2007). Do women shy away from competition? do men compete too much? The Quarterly Journal of Economics 122(3), 1067–1101.

Nosenzo, D. (2013). Pay secrecy and effort provision. Economic Inquiry 51(3), 1779–1794.

Ofek-Shanny, Y. (2021). Assessment of minorities' skills using low-stakes tests-evidence from pisa and a field experiment. Technical report, Working Paper.

Olenik-Shemesh, D., T. Heiman, and N. S. Keshet (2018). The role of career aspiration, self-esteem, body esteem, and gender in predicting sense of well-being among emerging adults. The Journal of Genetic Psychology 179(6), 343–356.

Oliva-Moreno, J., M. Trapero-Bertran, L. M. Peña-Longobardo, and R. del Pozo-Rubio (2017). The valuation of informal care in cost-of-illness studies: a systematic review. Pharmacoeconomics 35, 331–345.

Pei, Y. and Z. Cong (2020). Children's education and their financial transfers to ageing parents in rural china: Mothers and fathers' strategic advantages in enforcing reciprocity. Ageing & Society 40(4), 896–920.

Perry, G. E., O. Arias, P. Fajnzylber, W. F. Maloney, A. Mason, and J. Saavedra-Chanduvi (2007). Informality: Exit and exclusion. The World Bank.

Pham, T. H. H. (2022). Shadow economy and poverty: What causes what? The Journal of Economic Inequality 1(1), 1–31.

Pineda Duque, J. A. (2021). Care work: Professionalization and valuation of nurses and nursing assistants in health and old age in colombia. Care and Care Workers: A Latin American Perspective, 203–215.

Pinquart, M. and M. Ebeling (2020). Students' expected and actual academic achievement–a meta-analysis. International Journal of Educational Research 100, 101524.

Prada, C. F. (2012). Análisis de los flujos de trabajadores y la segmentación laboral en Colombia. Ensayos Sobre Política Económica 30(68), 74–113.

Quevedo, I., P. Herrera-Idárraga, and H. Hernández (2021). Condiciones laborales de las y los trabajadores del cuidado en colombia. Informe Quanta-Cuidado y Género. Recuperado de: https://cuidadoygenero. org/condiciones-laborales.

Riley, E. (2024). Role models in movies: the impact of queen of katwe on students' educational attainment. Review of Economics and Statistics 106(2), 334–351.

Rodriguez-Planas, N. (2012). Longer-term impacts of mentoring, educational services, and learning incentives: Evidence from a randomized trial in the united states. American Economic Journal: Applied Economics 4(4), 121–139.

Rojas-Fallas, J. and J. F. Williams (2020). Wage differences matter: An experiment of social comparison and effort provision when wages increase or decrease. Games 11(4), 59.

Rojewski, J. W. (2005). Occupational aspirations: Constructs, meanings, and application. Career development and counseling: Putting theory and research to work, 131–154.

Ross, P. H. (2019). Occupation aspirations, education investment, and cognitive outcomes: Evidence from indian adolescents. World Development 123, 104613.

Schmid, T., M. Brandt, and K. Haberkern (2012). Gendered support to older parents: do welfare states matter? European Journal of Ageing 9(1), 39–50.

Senik, C. (2021). Wage satisfaction and reference wages. In Handbook of Labor, Human Resources and Population Economics, pp. 1–13. Springer.

Serra, D. (2022). Role models in developing countries. Handbook of experimental development economics.

Sikora, J. (2018). Aimless or flexible? does uncertainty in adolescent occupational expectations matter in young adulthood? Australian Journal of Education 62(2), 154–168.

Simões, F., A. Meneses, R. Luís, and R. Drumonde (2017). Neets in a rural region of southern europe: Perceived self-efficacy, perceived barriers, educational expectations, and vocational expectations. Journal of Youth Studies 20(9), 1109–1126.

Sliwka, D. and P. Werner (2017). Wage increases and the dynamics of reciprocity. Journal of Labor Economics 35(2), 299–344.

Spiliopoulos, L. and A. Ortmann (2018). The bcd of response time analysis in experimental economics. Experimental economics 21, 383–433.

Stampini, M., M. L. Oliveri, P. Ibarrarán, D. Londoño, H. J. S. Rhee, and G. M. James (2020). Working less to take care of parents?: Labor market effects of family long-term care in latin america.

Sugisawa, H., Y. Sugihara, and Y. Nakatani (2020). Long-term care preference among japanese older adults: differences by age, period and cohort. Ageing & Society 40(6), 1309–1333.

Szymanski, S. (2003). The economic design of sporting contests. Journal of Economic Literature 41(4), 1137–1187.

Tullock, G. (2001). Efficient Rent Seeking, pp. 3–16. Boston, MA: Springer US.

van den Broek, T. and M. Morita (2017). Moral beliefs about filial support, work and gender in japan: a latent class analysis. Family, Work and Wellbeing in Asia, 89–106.

Verbakel, E. (2018). How to understand informal caregiving patterns in europe? the role of formal long-term care provisions and family care norms. Scandinavian Journal of Public Health 46(4), 436–447.

Wang, Y., H. Liu, Y. Pei, and B. Wu (2022). Worry about old-age support: Chinese rural bachelors' perspective. Current Psychology, 1–11.

Weicht, B. (2013). The making of 'the elderly': Constructing the subject of care. Journal of Aging Studies 27(2), 188–197.

Weng, Y. and D. Li (2020). Are there benefits to having more children for the oldest-old elderly? a longitudinal analysis on successful aging in china. Asian Population Studies 16(1), 82–99.

WHO (2021). Decade of healthy ageing: baseline report. World Health Organization.

Zimmerman, B. J. (2011). Motivational sources and outcomes of self-regulated learning and performance: Graduate center of city university of new york. In Handbook of self-regulation of learning and performance, pp. 63–78. Routledge.

Appendix A

Occupational aspirations and skills: an experiment

A.1 Balance Table

Table A.1: Balance between treatments: Baseline and Suggestions conditions

	(1) Obs.	(2) Mean	(3) Std. Dev	(4) Mean Questions	(5) Mean Feedback	(6) p-value Diffs. (4) vs (5)
Age	387	16.80	1.06	16.92	16.69	0.04
Female	387	0.61	0.49	0.62	0.60	0.68
Vocational	387	0.49	0.50	0.50	0.48	0.74
Workers	387	0.46	0.50	0.46	0.46	0.93
Care	387	0.51	0.50	0.50	0.53	0.61
Repeaters	387	0.36	0.48	0.44	0.29	0.00
Dropout	387	0.12	0.33	0.16	0.09	0.02
Migration	387					0.46
No		0.25	0.43	0.24	0.26	
Yes, education		0.58	0.49	0.57	0.60	
Yes, other		0.17	0.37	0.19	0.14	
People per room	387	1.68	0.65	1.71	1.66	0.45
Internet connection	387					0.21
No		0.20	0.40	0.22	0.17	
Mobile		0.47	0.50	0.48	0.46	
Wi-Fi		0.33	0.47	0.29	0.37	
Mother Occupation	387					0.78
Employee		0.16	0.37	0.14	0.18	
Self-employed		0.19	0.39	0.17	0.20	
Unpaid-work		0.46	0.50	0.48	0.44	
Unemployed		0.05	0.22	0.06	0.05	
Other		0.14	0.35	0.15	0.13	
Father Occupation	387					0.21
Employee		0.18	0.39	0.22	0.01	
Self-employed		0.43	0.50	0.44	0.42	
Unpaid-work		0.03	0.17	0.04	0.02	
Unemployed		0.07	0.25	0.10	0.04	
Other		0.29	0.46	0.20	0.37	

Table A.2: Correlations between the actual and the expected scores in the experiment and in the survey

Section	Experiment	Survey
Math	0.28	0.27
Language	0.07	0.20
NatSci	0.11	0.20
SocSci	0.14	0.29

Table A.3: Self-efficacy by gender

Self-efficacy	Men		Women	
Technical	80.553	(21.003)	85.646	(20.805)
Professional	85.580	(17.309)	90.418	(14.586)
Military	40.473	(32.795)	36.776	(33.491)
Self-employed	80.340	(18.691)	80.304	(21.837)

Standard deviations in parentheses.

Table A.4: OLS results for the determinants of change in the *field* and *core* of knowledge related with the occupations reported before and after the treatment

	Indicator of changes in the Field and Core of Knowledge					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Field 1	Field 2	Field 3	Core 1	Core 2	Core 3
Treatment	0.109**	0.171***	0.199***	0.141***	0.221***	0.223***
	(0.042)	(0.049)	(0.051)	(0.047)	(0.052)	(0.052)
Higher Education	-0.000	-0.000	-0.001	-0.001	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	0.034	0.065	0.069	0.081*	0.057	0.050
	(0.043)	(0.051)	(0.054)	(0.048)	(0.054)	(0.054)
Age (norm.)	-0.025	-0.023	0.013	-0.021	-0.020	-0.016
	(0.023)	(0.030)	(0.032)	(0.028)	(0.029)	(0.033)
Workers	-0.014	-0.075	-0.025	-0.035	-0.062	-0.099*
	(0.041)	(0.048)	(0.052)	(0.047)	(0.054)	(0.055)
Care	0.156***	0.079	0.024	0.141***	0.071	0.070
	(0.039)	(0.048)	(0.051)	(0.046)	(0.052)	(0.053)
Migration: education	-0.012	0.112*	0.106*	-0.003	0.145**	0.122*
	(0.050)	(0.059)	(0.063)	(0.058)	(0.064)	(0.066)
Migration: other	0.027	0.185**	0.058	0.015	0.194**	0.060
	(0.065)	(0.078)	(0.079)	(0.072)	(0.082)	(0.082)
Constant	-0.123	0.123	0.112	-0.045	0.245	0.144
	(0.153)	(0.174)	(0.186)	(0.168)	(0.185)	(0.188)
Observations	387	387	387	387	387	387
R-squared	0.133	0.090	0.085	0.100	0.091	0.110
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes

Additional controls in all models: indicator of participation in vocational activities, dropout and repeater indicator, career type, people per room at home, internet connection, risk and patience preference and parental occupation. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.5: Frequencies of *cores* of knowledge by treatment conditions

Core	Baseline	Suggestions	Total	Core	Baseline	Suggestions	Total
Medicine	16.85	9.09	12.66	Political Science	0	2.39	1.29
Veterinary Medicine	7.3	8.13	7.75	Uncategorized	1.12	1.44	1.29
Sports Education	6.18	3.83	4.91	Advertising	0	1.91	1.03
Management	5.06	3.83	4.39	Bacteriology	0.56	1.44	1.03
Mechanical Engineering	5.06	3.35	4.13	Dentistry	1.12	0.96	1.03
Modern Languages	6.74	1.91	4.13	Accounting	1.12	0.48	0.78
Psychology	2.81	5.26	4.13	Economics	0.56	0.96	0.78
Architecture	2.81	4.78	3.88	Electronic Engineering	0.56	0.96	0.78
Education	2.81	4.78	3.88	Mining Engineering	0.56	0.96	0.78
Systems Engineering	4.49	2.87	3.62	Agronomy	0.56	0.48	0.52
Civil Engineering	5.06	1.91	3.36	Electrical Engineering	0.56	0.48	0.52
Fine Arts	2.81	3.35	3.1	Sociology	0	0.96	0.52
Journalism	3.37	2.87	3.1	Agricultural Engineering	0	0.48	0.26
Military Training	1.12	4.31	2.84	Agronomic Engineering	0	0.48	0.26
Law	1.69	3.35	2.58	Animal Science	0.56	0	0.26
Design	3.37	1.44	2.33	Biology	0	0.48	0.26
Visual Arts	0	4.31	2.33	Biomedical Engineering	0.56	0	0.26
Performing Arts	1.12	2.87	2.07	Chemistry	0	0.48	0.26
Nursing	2.25	1.44	1.81	Food Engineering	0	0.48	0.26
Nutrition	2.81	0.96	1.81	Geology	0	0.48	0.26
Other Engineering Programs	2.25	1.44	1.81	Library Science	0	0.48	0.26
Environmental Engineering	1.12	1.91	1.55	Music	0.56	0	0.26
Therapies	1.69	1.44	1.55	Philosophy	0	0.48	0.26
Administrative Engineering	0	2.39	1.29	Physics	0.56	0	0.26
Optometry	2.25	0.48	1.29	Surgical Instrumentation	0	0.48	0.26

Table A.6: Favorite *field* and *core* ranking changes by treatment condition (survey participants: *before* and *after* treatment)

Ranking	Knowledge field			Knowledge core		
	Baseline	Suggestions	Total	Baseline	Suggestions	Total
Same	83.22	79.67	81.23	76.92	70.33	73.23
Different	9.09	9.34	9.23	9.09	9.34	9.23
Left	7.69	10.99	9.54	13.99	20.33	17.54

Table A.7: Favorite *field* and *core* ranking changes by treatment condition (survey participants: *after-treatment* and *survey*)

Ranking	Knowledge field			Knowledge core		
	Baseline	Suggestions	Total	Baseline	Suggestions	Total
Same	69.23	63.19	65.85	53.85	43.96	48.31
Different	16.78	18.68	17.85	20.28	21.43	20.92
Left	13.99	18.13	16.31	25.87	34.62	30.77

Table A.8: Number of *core* suggestions included in the *after-treatment* ranking and the *survey* ranking

After-treatment	Survey				Total
	0	1	2	3	
0	29.67	5.49	0	0	35.16
1	12.09	17.03	1.1	0	30.22
2	6.59	6.04	3.85	0.55	17.03
3	4.95	10.44	2.2	0	17.58
Total	53.3	39.01	7.14	0.55	100

Table A.9: OLS results for the determinants of the scores in the quiz

	Score in the quiz: 0-2			
	(1)	(2)	(3)	(4)
VARIABLES	Mat	Len	NatSci	SocSci
Treatment	0.084*	0.120	-0.074	0.028
	(0.051)	(0.073)	(0.078)	(0.061)
Higher Education	0.001	-0.004**	-0.003	0.001
	(0.001)	(0.002)	(0.002)	(0.002)
Female	-0.069	0.062	-0.089	-0.142**
	(0.058)	(0.078)	(0.080)	(0.069)
Age (norm.)	-0.030	-0.017	-0.031	0.009
	(0.028)	(0.044)	(0.043)	(0.038)
Workers	0.025	-0.041	-0.084	0.042
	(0.055)	(0.078)	(0.082)	(0.065)
Care	0.095*	-0.093	0.023	-0.066
	(0.052)	(0.072)	(0.077)	(0.061)
Migration: education	-0.057	0.055	0.034	0.016
	(0.069)	(0.085)	(0.097)	(0.081)
Migration: other	-0.054	0.123	-0.086	0.189*
	(0.084)	(0.110)	(0.121)	(0.105)
Constant	0.193	1.384***	1.150***	0.575**
	(0.176)	(0.279)	(0.272)	(0.244)
Observations	387	387	387	387
R-squared	0.083	0.091	0.062	0.075
Individual Controls	Yes	Yes	Yes	Yes

Additional controls in all models: indicator of participation in vocational activities, dropout and repeater indicator, career type, people per room at home, internet connection, risk and patience preference and parental occupation. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.10: OLS results for the determinants of the perceived barriers to educational aspirations.

VARIABLES	(1) Loans	(2) Parents	(3) Work	(4) Stereotypes	(5) Distance	(6) Family	(7) Admission
Treatment	0.579	0.443	1.894	-0.099	-1.522	-0.444	-2.942
	(2.838)	(3.639)	(3.029)	(2.874)	(3.135)	(3.447)	(2.995)
Higher Education	0.023	0.113	-0.192**	-0.031	-0.143	-0.032	-0.037
	(0.085)	(0.100)	(0.086)	(0.086)	(0.087)	(0.097)	(0.084)
Female	2.426	10.389***	0.683	10.530***	1.330	5.801	3.833
	(3.175)	(3.825)	(3.123)	(3.175)	(3.375)	(3.538)	(3.072)
Age (norm.)	1.498	-2.577	1.278	1.623	3.579*	2.345	0.869
	(1.733)	(2.256)	(1.993)	(2.006)	(2.129)	(2.145)	(2.030)
Workers	-3.131	-2.012	1.690	5.110*	-2.928	5.510	-5.010*
	(2.980)	(3.764)	(3.084)	(3.073)	(3.109)	(3.635)	(3.033)
Care	4.672	7.706**	6.583**	6.090**	6.085**	6.274*	8.093***
	(2.856)	(3.577)	(2.871)	(2.949)	(2.976)	(3.418)	(2.835)
Migration: education	0.921	0.538	-3.948	-3.527	0.128	1.859	6.414
	(3.539)	(4.737)	(3.816)	(3.425)	(3.901)	(4.021)	(3.918)
Migration: other	7.203	0.256	-1.201	2.314	2.630	0.480	0.986
	(4.739)	(5.566)	(4.933)	(4.808)	(5.177)	(4.987)	(4.654)
Constant	35.291***	11.667	48.804***	9.378	39.729***	14.916	39.696***
	(11.920)	(13.115)	(11.811)	(11.192)	(11.681)	(12.063)	(11.228)
Observations	387	387	387	387	387	387	387
R-squared	0.085	0.072	0.104	0.103	0.077	0.109	0.072
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Questions are worded as: "Do you think the following barriers could be an obstacle in the achievement of your educational aims?" (Options: (1) Access to loans or economic resources; (2) Parental plans; (3) The needs of work; (4) Gender stereotypes; (5) Proximity to educational institution; (6) Family plans related to children or marriage; (7) Not feeling up to the admission requirements). Answers in this module also range from 0 (Nothing) to 100 (Completely).
Additional controls in all models: indicator of participation in vocational activities, dropout and repeater indicator, career type, people per room at home, internet connection, risk and patience preference and parental occupation. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

A.2 Additional Figures

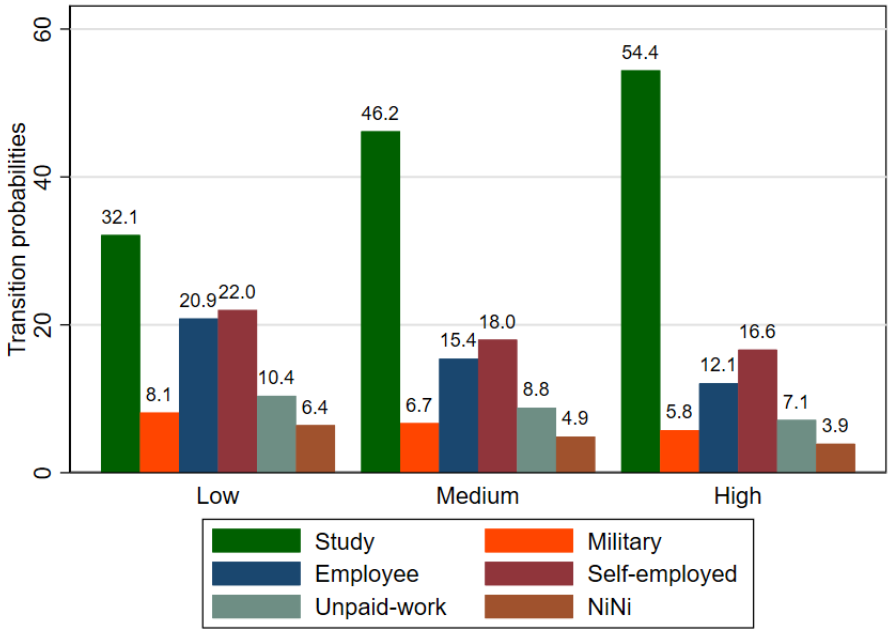
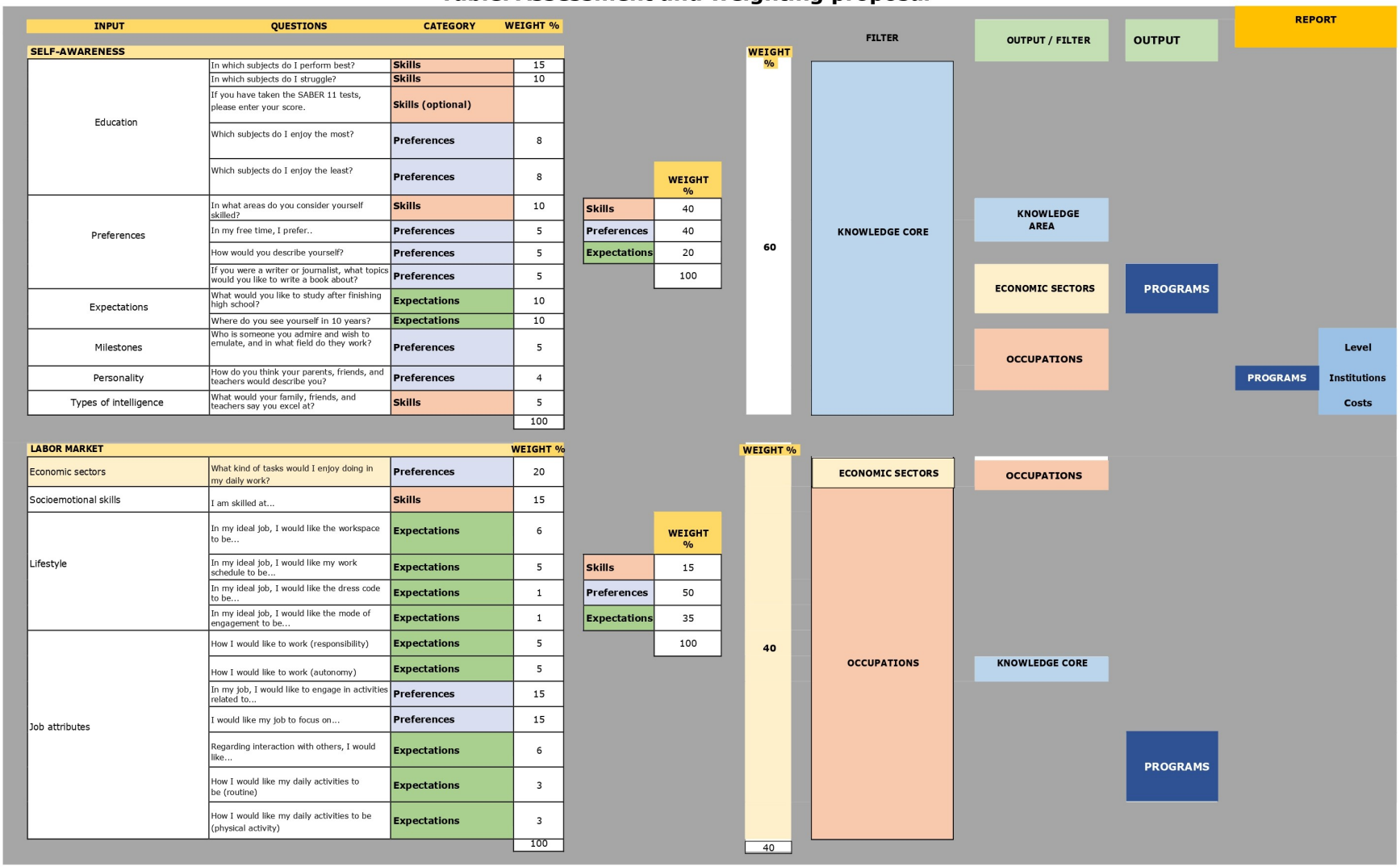


Figure A.1: Transition probabilities and the expected score level in the exam

Table. Assessment and weighting proposal



INPUT	QUESTIONS	CATEGORY	WEIGHT %
SELF-AWARENESS			
Education	In which subjects do I perform best?	Skills	15
	In which subjects do I struggle?	Skills	10
	If you have taken the SABER 11 tests, please enter your score.	Skills (optional)	
	Which subjects do I enjoy the most?	Preferences	8
	Which subjects do I enjoy the least?	Preferences	8
Preferences	In what areas do you consider yourself skilled?	Skills	10
	In my free time, I prefer..	Preferences	5
	How would you describe yourself?	Preferences	5
	If you were a writer or journalist, what topics would you like to write a book about?	Preferences	5
Expectations	What would you like to study after finishing high school?	Expectations	10
	Where do you see yourself in 10 years?	Expectations	10
Milestones	Who is someone you admire and wish to emulate, and in what field do they work?	Preferences	5
Personality	How do you think your parents, friends, and teachers would describe you?	Preferences	4
Types of intelligence	What would your family, friends, and teachers say you excel at?	Skills	5
			100
LABOR MARKET			**WEIGHT %**
Economic sectors	What kind of tasks would I enjoy doing in my daily work?	Preferences	20
Socioemotional skills	I am skilled at...	Skills	15
Lifestyle	In my ideal job, I would like the workspace to be...	Expectations	6
	In my ideal job, I would like my work schedule to be...	Expectations	5
	In my ideal job, I would like the dress code to be...	Expectations	1
	In my ideal job, I would like the mode of engagement to be...	Expectations	1
Job attributes	How I would like to work (responsibility)	Expectations	5
	How I would like to work (autonomy)	Expectations	5
	In my job, I would like to engage in activities related to...	Preferences	15
	I would like my job to focus on...	Preferences	15
	Regarding interaction with others, I would like...	Expectations	6
	How I would like my daily activities to be (routine)	Expectations	3
	How I would like my daily activities to be (physical activity)	Expectations	3
			100

	WEIGHT %
Skills	40
Preferences	40
Expectations	20
	100

	WEIGHT %
Skills	15
Preferences	50
Expectations	35
	100

Figure A.2: Technical sheet of the career test

A.3 Career suggestions classification

Knowledge fields

Groups of academic programs consider certain affinity in the contents, in specific areas of knowledge, in the areas of action of higher education whose training purposes lead to research or the performance of occupations, professions, and disciplines. The fields of knowledge are eight:

1. Agricultural: Agronomy, Veterinary, and related fields.
2. Social Sciences: Social Sciences and Humanities
3. Arts: Fine Arts
4. Management: Economics, Administration, Accounting, and related fields
5. Education: Education Sciences
6. Engineering: Engineering, Architecture, Urbanism, and related fields
7. Health: Health Sciences
8. Natural Sciences: Mathematics and Natural Sciences

Knowledge cores

Division or classification of a field of knowledge into its essential fields, disciplines, or professions. There are 55 knowledge cores.

Agricultural

1. Agronomy
2. Animal Husbandry
3. Veterinary Medicine

Social Sciences

1. Anthropology, Liberal Arts
2. Library Science, others in social sciences and humanities
3. Political Science, International Relations
4. Social Communication, Journalism, and related occupations
5. Sports, Physical Education, and Recreation

6. Law and related occupations
7. Training related to the military or police sector
8. Geography, History
9. Modern Languages, Literature, Linguistics, and related occupations
10. Psychology
11. Philosophy, Theology, and Related Occupations
12. Sociology, Social Work, and Related Occupations

Arts

1. Plastic and Visual Arts and related occupations
2. Performing Arts
3. Advertising and related occupations
4. Design
5. Music
6. Other programs associated with fine arts

Management

1. Management
2. Economics
3. Public Accounting

Education

1. Education

Engineering

1. Architecture
2. Biomedical Engineering and related occupations
3. Environmental Engineering, Sanitary Engineering, and related occupations
4. Administrative Engineering and related occupations

5. Agricultural Engineering, Forestry, and related occupations
6. Agroindustrial Engineering, Food, and related occupations
7. Agronomic, Livestock Engineering, and related occupations
8. Civil Engineering and related occupations
9. Mining Engineering, Metallurgy, and related occupations
10. Systems Engineering, Telematics, and related occupations
11. Electrical Engineering and related occupations
12. Electronics Engineering, Telecommunications, and related occupations
13. Industrial Engineering and related occupations
14. Mechanical Engineering and related occupations
15. Chemical Engineering and related occupations
16. Other engineering disciplines

Health

1. Bacteriology
2. Nursing
3. Therapies
4. Surgical Instrumentation
5. Medicine
6. Nutrition and Dietetics
7. Dentistry
8. Optometry, other health sciences occupations
9. Public Health

Natural Sciences

1. Biology, Microbiology, and related occupations
2. Physics
3. Geology and other programs in natural sciences
4. Mathematics, Statistics, and related occupations
5. Chemistry and related occupations

A.4 Experimental Protocol: Translated Version

- **Career Test:** We use *purple* for the condition where students respond to *Questions*, *teal* for the condition where they receive *Suggestions*.
- **Expected Score on the Exam:** We use *gray* for the condition where students expect a *Low* score, *brown* for *Medium*, and *orange* for the condition *High*.

General Instructions

In this activity, you will answer some questions about your educational aspirations and the *Saber 11 – ICFES* exam. Payments associated with questions about the expected results on the *Saber 11* will be given to you in an activity after the publication of individual results by ICFES.

This activity is individual. Please do not talk or try to look at other participants' answers. If there's something you don't understand, please raise your hand, and one of the monitors will approach you and try to help you individually.

Participant Code

You received a participant code with your invitation to participate; this is your identification throughout the activity. We will never ask for your name or ID number. Please do not lose or give away your participant code; you will need it to claim your payment.

Your participant code consists of the initial letters of your first name and last name, followed by your birth date. For instance, if your name is Lina Ríos and you were born on 11 February 1995, you will have to type LR11021995. To begin the activity, please enter your code, and write everything in uppercase. This code is important to ensure your participation in the rest of the activity and the payment assignment. [Participant Code]

Payment

Presenting your participant code will grant you your payments in cash. The people in charge of the payments will not know your answers or how they were generated, only how much they need to pay you.

Initial Question

Please list 3 *professions*, *occupations*, or *trades* that you consider ideal for you. Write them in order of importance, where **1** means "what I would most like to do" and **3** means "what I would least like to do":

Click on each box to activate it and write your response. After entering the response, you will NOT be able to modify it, so think carefully. Fill in the boxes in order.

1. Occupation 1

2. Occupation 2
3. Occupation 3

Section for *Questions* Condition

Answer the following questions [1]

Section for *Suggestions* Condition

1. Click on the link below to access the QUESTIONS. Once there, answer the questions until you reach the "Results" section.

QUESTIONS

2. After reaching the "Results," please return and write down the five knowledge cores with which you have the greatest affinity according to the "Results."

Click on each box to activate it and write your response. After entering it, you will NOT be able to modify it, so think carefully. Fill them in order.

1. Suggestion 1
2. Suggestion 2
3. Suggestion 3
4. Suggestion 4
5. Suggestion 5

[1] Screenshots of the questions from the Ministry's website

Occupational Aspirations

Taking into account the previous activity, please list again 3 professions, trades, or occupations that you consider ideal for yourself. Write them in order of importance, where **1** means "it is what I would most like to do" and **3** means "it is what I would least like to do":

Click on each box to activate it and write your response. After entering the response, you will NOT be able to modify it, so think carefully. You must fill in the boxes in order.

After you have entered your answer you will NOT be able to modify it, so think carefully.

1. Occupation 1
2. Occupation 2
3. Occupation 3

Occupational Aspirations

What type of career do you consider necessary to do what you would like the most?:

- Technical
- Technological
- Professional
- Military
- None

Write the name of the educational institution where you would like to study. You can also write "I DON'T KNOW".

Institute 1

Do you have a second option? If so, write the name of the educational institution where you would also like to study. You can write **"I DON'T KNOW" or "I HAVE NO SECOND OPTION"**:

Institute 2

Saber 11 – ICFES Expectations

Now you are going to fill out a table where you will predict your score on the *Saber 11* exam as if you were placing a bet. We will deliver the winnings on a second visit to the school, after the publication of the exam results by ICFES.

The rules of the bet are as follows:

1. The exam has four sections: Math, Language, Social Sciences, and Natural Sciences. Each section is scored from **0** (lowest score) to **100** (highest score).
2. You should rank the section according to the degree of *confidence* you have in the expected scores.

   Place the section you are most confident about your score in the first row (which pays 20,000 if correct).

   Place the second section you are most confident about your score in the second row (which pays 15,000 if correct), and so on.
3. For each section, write your *EXPECTED SCORE* as a number between **0** and **100**. We will mark it as a hit, and you will receive the corresponding payment, *if the number you write as EXPECTED SCORE is within **10 numbers above or below** your REAL SCORE on the section of the exam.*
4. Tell us, based on your preferences for the content of each section, how you would organize them from least favorite, with the number **1**, to most favorite with the number **4**. You must drag a number to each box in the last column and numbers cannot be repeated.

Note: Note that the expected score in which you are most confident does not necessarily have to be assigned to your favorite section. For example, your favorite section may be *Math* (in which case you would assign it a 4 in the last column), but you are more confident in what score you think you will get in *Language* (in which case this score would go in the first row).

Table of answers, drag and write

Section	
	Math
	Language
	Social Sciences
	Natural Sciences
Preference Rating:	1 2 3 4

Table A.11: Bet Table (Experiment)

Amount of money for the bet	**Section**	**Expected Section Score** (Number from **0** to **100**)	**Rate Your Preference** (**1** least preferred and **4** most preferred)
20,000			
15,000			
10,000			
5,000			

Overall Score

When the results of the *Saber 11* exam are published, we will rank the students in YOUR CLASSROOM into (4) four groups according to the overall score in the section of the exam. Each group will have an equal number of people. *We also want to know your prediction*.

Which group do you think you will be classified into? If you guess the group you will be in, you will receive an additional **$5,000**.

Performance	**Low**	**Medium**	**High**	**Superior**
Select only **ONE** circle	O	O	O	O

Ability to hit

We want to know how confident you feel about guessing your section scores. How many sections do you think your *EXPECTED SCORE* will be within **10** points (above or below) of your *REAL SCORE*? Click on the line and then move the box to choose a number between 0 and 4

None All

Higher Education

On a scale of 0 to 100, where **0** is "I am not going to continue studying" and **100** is "I am definitely going to enroll in a Higher Education program", please tell us How likely are you to enroll in a Higher Education program next year? Click on the line and then move the box to choose a number between 0 and 100

I am not going to continue studying

I am definitely going to enroll in a Higher Education program

Skills

Regardless of your educational aspirations, but **thinking about your abilities**, on a scale of 0 to 100, where **0** is "I feel incapable of doing it at all", and **100** is "I feel highly confident I can do it", please tell us, How capable do you feel of doing the following things?

Click on the line and then move the box to choose a number between 0 and 100 *in each case*.

Obtaining a technical/technological degree:

Cannot do it at all — Highly certain can do

Pursuing a military career:

Cannot do it at all — Highly certain can do

Starting your own business:

Cannot do it at all — Highly certain can do

Obtaining a professional degree:

Cannot do it at all — Highly certain can do

Barriers

On a scale of 0 to 100, where **0** is "Does not affect my educational aspirations at all" and **100** is "Completely prevents the achievement of my educational aspirations," please tell us How much do you think the following barriers could be an obstacle in the achievement of your educational aspirations?

Click on the line and then move the box to choose a number between 0 and 100 *in each case*.

Access to educational loans or financing:

Does not affect at all — Completely prevents

Parents' desire for you NOT to continue studying:

Does not affect at all — Completely prevents

Need to start working:

Does not affect at all — Completely prevents

Gender prejudices associated with occupations:

Does not affect at all — Completely prevents

Geographical distance to the higher education institution of your interest:

Does not affect at all — Completely prevents

Your family plans (e.g., getting married, having children):

Does not affect at all — Completely prevents

Your ability to meet the admission requirements for a higher education program:

Does not affect at all — Completely prevents

Expected Income

Suppose you choose one of the following **types of careers** and graduate. How much do you think you would earn monthly in 5 years, at today's salaries?

Click on the line and then move the box to choose a number between 0 and $10,000,000$ *in each case*.

Technical/Technological:

$0 $10,000,000

Military Career:

$0 $10,000,000

Professional:

$0 $10,000,000

Not studying and starting your own business:

$0 $10,000,000

Not studying and starting to work:

$0 $10,000,000

From School to Work

The *Saber 11* results are classified into 3 ranges according to the score: HIGH, MEDIUM, LOW (See Table below).

In the following questions, please tell us how you think the *Saber 11* results will affect your occupational status next year, specifically in **JUNE 2023**.

LOW	MEDIUM	HIGH
Less than 250	Between 251 and 350	More than 350

How likely is it?

[

LOW (Suppose you stay here)	MEDIUM	HIGH
Less than 250	Between 251 and 350	More than 350

/

LOW	MEDIUM (Suppose you stay here)	HIGH
Less than 250	Between 251 and 350	More than 350

/

LOW	MEDIUM	HIGH (Suppose you stay here)
Less than 250	Between 251 and 350	More than 350

]

[Suppose you score **LOW** on the Saber 11 exam, meaning you score less than 250 points. Suppose you score **MEDIUM** on the Saber 11 exam, meaning you score between 251 and 350 points / Suppose you score **HIGH** on the Saber 11 exam, meaning you score more than 350 points.]

Please fill out the following Table with the likelihood that you will be doing each of these activities next year in JUNE:

Sum of probabilities **0**

Note: The sum of probabilities must be equal to 100

Table A.12: Transition Table (Experiment)

OCCUPATION	**PROBABILITY**
Not working or studying	
Working for a salary for an employer	
Working with relatives without pay	
Studying	
Performing military service	
Self-employed	

ICFES Questions

In the following questions, you will answer **8** questions similar to those included in the Saber 11 exam: **2** in Math, **2** in Language, **2** in Social Sciences, **2** in Natural Sciences.

In a subsequent activity, we will ask your parents' beliefs about your performance on these 8 questions.

Click "Next" to begin.

Question 1: Math

A school needs to send 5 students as representatives to a forum on environmental pollution. It was decided that 2 students would be from grade 10 and 3 from grade 11.

In grade 10, five students are prepared for the forum, and in grade 11, there are 4. How many different groups can be formed to send to the forum?

A. 9
B. 14
C. 20
D. 40

Select only ONE answer:
A. **O** B. **O** C. **O** D. **O**

Question 2: Math

Among the 16 students in a classroom, a raffle will be held for a ticket to enter an amusement park. Each student must choose a number from 3 to 18. The raffle is conducted as follows: 6 balls are placed in an urn, each numbered from 1 to 6; a ball is drawn, the number is noted, and then the ball is placed back in the urn. The experiment is repeated 2 more times. The sum of the 3 scores obtained determines the winning number of the raffle. If the first draw in the raffle results in a 2, it is more likely that the student who chose the number 10 wins the raffle than the student with the number 7, because

A. The higher the chosen number, the higher the probability of winning.
B. The first student has one more chance to win than the second.
C. It is more likely to continue obtaining even numbers.
D. The difference between 10 and 18 is greater than between 2 and 7.

Select only ONE answer:
A. **O** B. **O** C. **O** D. **O**

ANSWER QUESTIONS 3 AND 4 ACCORDING TO THE FOLLOWING TEXT

One of the scenarios where vallenato began to mix with the music that the bourgeoisie listened to and danced to - waltzes, mazurkas, Neapolitan songs - was the *colitas*. This was the name given to the "colas" or end-of-party events of the wealthy class: weddings, baptisms, birthdays, religious festivities... During the Sarao, while the gentlemen enjoyed the European music played by a makeshift provincial orchestra, the workers spent the party in the kitchen and sheds playing the accordion, guacharaca, and drum. After the orchestra was dismissed, those in the back were invited to come forward, and bosses and cowhands sat down to drink and sing together. There has been discussion about the role played by the *colitas* in this story. Some say that these end-of-party gatherings were the maternity ward of vallenato, as they combined European and native rhythms: together they gave birth to vallenato airs. "The *colitas* are the direct ancestor of modern vallenato", says Lopez Michelsen.

Nevertheless, it seems more accurate to think that the *colitas* did not help shape the genre but rather helped to spread it. To begin with, these kinds of improvised parties were not known throughout the region, but only in the Upar Valley area. In El Paso, there were no *colitas*. In many places along the river, there weren't either. Moreover, on the other hand, historians indicate that the *colitas* emerged at the beginning of the 20th century when vallenato had already begun to pick up steam with the classic instrumental trio. In contrast, the "piquerías" and retos did indeed constitute one of the most effective molds for the creation, propagation, and development of vallenato from the very beginning. The legend of Francisco el Hombre speaks of his challenge with the devil, whom he only manages to defeat when he sings the credo backwards. The great accordionists traveled for days to attend "piquerías," whether arranged in advance or through messengers, as "La gota fría" attests". Remember Moralitos that day / you were in Urumita / and you didn't want to stop."

Taken from: Samper, D. & Tafur M. (1997). *100 años de vallenato.* Bogotá: MTM Ediciones

Question 3: Critical Reading

The author introduces López Michelsen's quote in order to present the opinion of an expert in vallenato, and

A. Reinforce the main thesis of the text, according to which the *colitas* were promoters of the genre.

B. Indicate a debatable position regarding the role played by the *colitas* in the origin of the genre.

C. Legitimize the main thesis of the text, according to which the *colitas* originated modern vallenato.

D. Convince the reader that the *colitas* were the sole promoters of modern vallenato.

Select only ONE answer:
A. **O** B. **O** C. **O** D. **O**

Question 4: Critical Reading

The author quotes a verse from *La gota fría* to support the idea that accordion players traveled to attend different "piquerias," because in this verse there is a reference to

A. an accordion player who sang *colitas*, named Lorenzo Morales.
B. Urumita, a town famous for the realization of *colitas*.
C. an accordion player passing through a town.
D. Urumita, a town to which accordion players went.

Select only ONE answer:
A. **O** B. **O** C. **O** D. **O**

Question 5: Social Science

The Constitutional Court ruled in favor of a soldier who had filed a lawsuit claiming that the military institution did not respect his right to conscientious objection because his religion prohibits him from using weapons and participating in military practices. The basis of the ruling is the defense of the soldier's freedom of conscience.

Which of the following options is consistent with this ruling?

A. Order the army to hand over the soldier's military passbook to the soldier and his immediate disassociation from the institution.

B. Order the soldier to complete his mandatory military service with all assigned responsibilities.

C. Order the army that the soldier participates in training and only performs office tasks.

D. Order the soldier to participate only in military parades, proudly wearing military attire.

Select only ONE answer:
A. **O** B. **O** C. **O** D. **O**

Question 6: Social Studies and Citizenship

During the rainy seasons, many rural areas in Colombia experience school flooding and road interruptions to access these schools.

Which of the following options most violates the right to education?

A. Organizing transportation schemes for students to attend schools not affected by floods.

B. Adjusting the school calendar so that there are no classes during the flood season.

C. Broadcasting some classes through the local radio station to reduce the days students have to attend school.

D. Transporting children to non-flooded schools twice a week and reducing the number of class hours.

Select only ONE answer:

A. **O** B. **O** C. **O** D. **O**

Question 7: Natural Sciences

Ecosystems are considered open systems because the constant flow of matter and energy they exchange with their external environment is fundamental to their maintenance. According to this information, which of the following models precisely represents an open ecosystem?

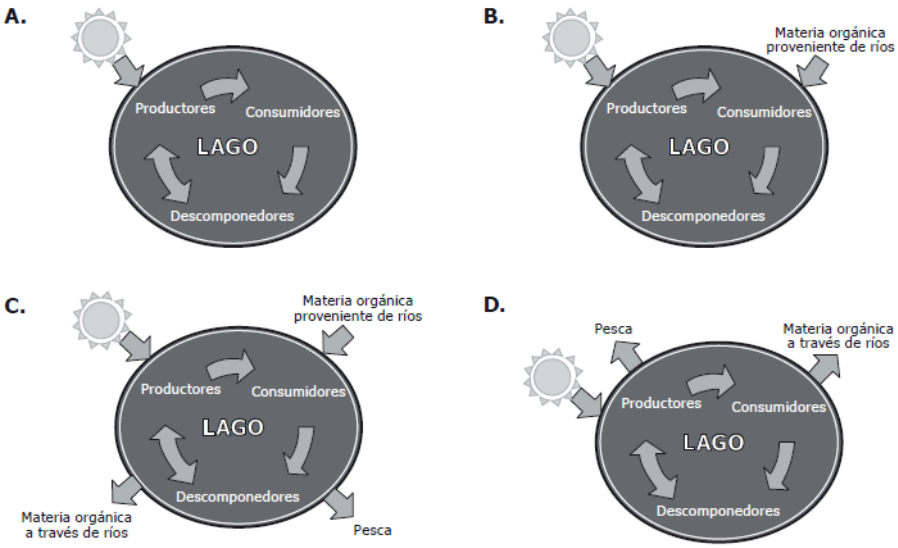


Figure A.3: Question 7

Select only ONE answer:

A. **O** B. **O** C. **O** D. **O**

Question 8: Natural Sciences

Proteins are formed from messenger RNA chains. In this process, for every three consecutive nucleotides of messenger RNA, one amino acid is coded. Below is a messenger RNA sequence:

AUGGCAAGAAACGACCACAUCUAGGUAUGC

The AUG nucleotides encode only to indicate the start of protein formation, and the UAG nucleotides encode only to indicate its termination. Based on this information, how many amino acids will form the protein?

A. 8
B. 18
C. 6
D. 10

Select only ONE answer:
A. **O** B. **O** C. **O** D. **O**

A.5 Survey: Translated Version

Municipality

1. During 2022, which of the following problems have occurred in your household?
    - Death of a household member.
    - Serious illness or accident of a household member.
    - Separation of spouses.
    - Economic problems (job loss, bankruptcy, or business closure).
    - Loss of crops or death (theft) of animals.
    - Loss of the home occupied by the household or loss of farms, lots, lands, or other buildings.
    - Robberies, extortion or attempted extortion, fights, and brawls.
    - Public order problems (clashes between armed groups, attacks).
    - Natural disasters (floods, landslides, fires, earthquakes).
2. Do you think that 2022, compared to 2021, regarding public order issues, has been?
    - Less violent
    - Equally violent
    - More violent
3. Use a scale of 1 to 5 to answer the following questions. **1** indicates "Not at all" and **5** "A lot".
    - How safe do you feel on the public roads of your municipality (streets and highways)?
    - How likely are you to be a victim of a crime in the next 12 months?

- How much does the public force (Police, Army) contribute to the security of your neighborhood?
- How justifiable is it to use violence to protect the family?

4. Use a scale of 1 to 5 to indicate how much you trust each of the following institutions in your municipality. **1** indicates "Complete distrust" and **5** "Complete trust".

   - Municipality
   - Municipal Council
   - Municipal Judges
   - Community Action Board
   - Municipal Social Organizations (for example, CUT, Joel Sierra)
   - National Navy
   - National Army
   - Colombian Air Force
   - National Police
   - Public Service Companies
   - Hospital/Health Center
   - Colombian Institute of Family Welfare

5. Use a scale of 1 to 5 to indicate how much you agree with the following actions. **1** indicates "Completely disagree" and **5** "Completely agree".

   - Altering SISBEN scores to receive subsidies
   - Not contributing to pensions, even when employed
   - Using physical violence to ensure children achieve better grades
   - Not reporting when being a victim or witness of a crime
   - Bullying or harassing classmates
   - Not supporting daughters to pursue further education after high school

6. We are interested in understanding the day-to-day experiences that may cause you distress or fear. It can be about anything, for example, your health, your safety, your family, your finances, your future. Can you describe an event that caused you to fear during the week before the Saber 11 - ICFES exam? (The last week of August)

Aspirations

1. Now you are going to fill in a table where you will predict your score on the *Saber 11* exam as if you were making a prediction. The predictions will be compared with the scores obtained and the bets made in August. This will be done after the publication of the exam results by ICFES.

   The rules of the prediction are as follows:

   (a) The exam has four tests: Math, Language, Social Sciences, and Natural Sciences. Each test is scored from **0** (lowest score) to **100** (highest score).

   (b) You should rank the tests according to the degree of *confidence* you have in the prediction of your performance.

   Place the test you are most confident about your score in the first row.

   Place the second test you are most confident about your score in the second row, and so on.

   Additionally, in the first column use a number from **0** to **100** to say How confident are you in your prediction?

   (c) For each test, write your *EXPECTED SCORE* as a number between **0** and **100**.

   (d) Tell us, based on your preferences for the contents of each test, how you would organize them from your least favorite, with the number **1** to the most favorite with the number **4**.

   Note: Note that your most reliable prediction does not necessarily have to be assigned to your favorite test. For example, your favorite test may be *Math* (in which case you would assign it a 4 in the last column), but you are more confident in what score you think you will get in *Language* (in which case this test would go in the first row).

Test	Math	Language	Social Sciences	Natural Sciences
Preference Rating	1	2	3	4

Table A.13: Bet Table (Survey)

How confident are you in your prediction? Number from 0 to 100	**Test**	**Expected Test Score** (Number from **0** to **100**)	**Rate your preference** (**1** the least preferred to **4** the most preferred)

2. We want to know how capable you feel of getting your test scores right. How many tests do you think your EXPECTED SCORE will be less than 10 points (above or below) from your ACTUAL SCORE?

   - None
   - One
   - Two
   - Three
   - All

3. Please make a list of 3 **professions, trades, or occupations** that you consider ideal for you. Write them in order of importance, where 1 means "it's what I would most like to do":

   - Occupation 1
   - Occupation 2
   - Occupation 3

4. What type of career do you consider necessary to do what you would most like?

   - I don't know
   - Technical
   - Technological
   - Professional
   - Military
   - None

5. On a scale from 0 to 100, where **0** is "I am not going to continue studying" and **100** is "I am definitely going to enroll in a Higher Education program", please tell us How likely you are to enroll in a Higher Education program next year?

6. Please fill in the following Table with the likelihood that you will be doing each of these activities next year in JUNE: 2023. Consider your expected scores on the Saber 11.

   Note: The sum of probabilities must be equal to 100%

   Sum of probabilities (Write the result of the sum)

Table A.14: Transition Table (Survey)

OCCUPATION	PROBABILITY
Not working or studying	
Working for a salary for an employer	
Working with relatives without pay	
Studying	
Performing military service	
Working for yourself	

A.6 Experimental Protocol: Original Version (Spanish)

Las variaciones en el protocolo están escritas en corchetes, y están codificadas por colores:

- **Test de Orientación Vocacional:** Usamos el color *púrpura* para la condición en la que los estudiantes responden *Preguntas*, *verde azulado* para la condición en la que reciben *Sugerencias*.
- **Puntaje esperado en el Exámen:** Usamos el color *gris* para la condición en la que los estudiantes esperan un puntaje *Bajo*, *pardo* para *Medio*, y *naranja* para la condición *Alto*.

Instrucciones Generales

En esta actividad responderá algunas preguntas sobre sus aspiraciones educativas y en el examen *Saber 11 – ICFES*. Los pagos asociados a las preguntas sobre los resultados esperados en el *Saber 11*, le serán entregados en una actividad posterior a la publicación de los resultados individuales que hace el ICFES.

La actividad es individual. Le pedimos que por favor no hable ni trate de mirar las respuestas de los demás participantes. Si hay algo que usted no entiende, por favor levante la mano, uno de los monitores se acercará y tratará de ayudarlo de manera individual.

Código de participante

Con su invitación a participar recibió un código de participante, esa es su identificación durante toda la actividad. Nunca le pediremos su nombre ni su número de documento de identidad. Por favor no pierda ni entregue su código de participante, lo necesitará para reclamar sus ganancias.

Su código está compuesto por las iniciales de su primer nombre y apellido seguido de su fecha de nacimiento. Por ejemplo, si usted se llama Lina Ríos y usted nació el 11 de febrero de 1995, debe ingresar LR11021995. Para iniciar por favor ingrese su código, escriba todo en mayúscula. Este código es importante para asegurar su participación en el resto de la actividad y la realización de los pagos. [Código de participante]

Pago

Presentando su código de participante le darán sus pagos en efectivo. La persona que hace los pagos no conocerá sus respuestas, ni cómo fueron generados, solamente cuanto tiene que pagarle.

Pregunta Inicial

Por favor haga una lista de 3 *profesiones*, *oficios* u *ocupaciones* que considere ideales para usted. Escríbalas en orden de importancia, donde **1** significa que "es lo que más me le gustaría hacer" y **3** significa que "es la que menos le gustaría hacer":

Haga clic encima de cada recuadro para poder activarlo y escribir su respuesta. Después de ingresada la respuesta NO podrá modificarla así que piénsela bien. Debe llenar los recuadros en orden.

1. Ocupación 1
2. Ocupación 2
3. Ocupación 3

Sección para la Condición *Preguntas*

Responda las siguientes preguntas. [2]

Sección para la Condición *Sugerencias*

1. Haga *clic* sobre el vínculo mostrado abajo para acceder a las PREGUNTAS. Una vez allí, responda las preguntas hasta llegar a los "Resultados".

   PREGUNTAS

2. Luego de llegar a los "Resultados" por favor regrese y escriba los 5 núcleos de conocimiento con los que tiene mayor afinidad según los "Resultados".

Haga *clic* encima de cada recuadro para poder activarlo y escribir su respuesta. Después de ingresada no puede modificarla así que piénsela bien. Debe llenarlos en orden.

1. Sugerencia 1
2. Sugerencia 2
3. Sugerencia 3

[2] Capturas de pantalla de las preguntas del sitio web del Ministerio de Educación

4. Sugerencia 4
5. Sugerencia 5

Aspiraciones ocupacionales

Teniendo en cuenta la actividad anterior por favor haga nuevamente una lista de 3 profesiones, oficios u ocupaciones que considere ideales para usted. Escríbalas en orden de importancia, donde **1** significa que "es lo queInstitucióngustaría hacer" y **3** significa que "es la que menos le gustaría hacer":

Haga *clic* encima de cada recuadro para poder activarlo y escribir su respuesta. Después de ingresada la respuesta NO podrá modificarla así que piénsela bien. Debe llenar los recuadros en orden.

1. Ocupación 1
2. Ocupación 2
3. Ocupación 3

Aspiraciones ocupacionales

¿Qué tipo de carrera considera necesaria para hacer lo que más le gustaría?:

- Técnica
- Tecnológica
- Profesional
- Militar
- Ninguna

Escriba el nombre de la institución educativa en la que desea estudiar. También puede escribir "NO SÉ".

Institución 1

¿Tiene una segunda opción? En caso de que sí, escriba el nombre de la institución educativa donde también le gustaría estudiar. Puede escribir **"NO SÉ" o "NO TENGO SEGUNDA OPCIÓN"**:

Institución 2

Expectativas Saber 11 – ICFES

Ahora va a llenar una tabla donde usted va a predecir su puntaje en el examen *Saber 11* como si estuviera haciendo una *apuesta*. Las ganancias las entregaremos en una segunda visita al colegio, luego de la publicación de los resultados del examen por parte del ICFES.

Las reglas de la apuesta son las siguientes:

1. El examen tiene cuatro pruebas: Matemáticas, Lectura Crítica, Sociales y Ciudadanas, Ciencias Naturales.

   Cada prueba se califica de **0** (puntaje más bajo) a **100** (puntaje más alto).

2. Usted debe ordenar las pruebas según qué tan *confiable* es su predicción sobre cómo le va a ir.

   En la que tenga más seguridad de su puntaje, póngala en la primera fila (que paga 20,000 si acierta).

   En la segunda en la que tenga más seguridad de su puntaje, póngala en la segunda fila (que paga 15,000 si acierta), y así sucesivamente.

3. Para cada prueba, escriba su *PUNTAJE ESPERADO* como un número entre **0** y **100**.

   Marcaremos como un acierto, y recibirá el pago correspondiente, *si el puntaje que usted escriba como PUNTAJE ESPERADO esté maximo **10 puntos por debajo o por encima** de su PUNTAJE REAL de la prueba.*

4. Cúentenos, de acuerdo a sus gustos por los contenidos de cada prueba, cómo las organizaría desde sus menos favorita, con el número **1** hasta la más favorita con el número **4**. Debe arrastrar un número a cada casilla de la última columna y no se pueden repetir números.

Nota: Tenga en cuenta que su predicción más confiable no necesariamente debe asignarse a su prueba favorita. Por ejemplo, puede que su prueba favorita sea *Matematicas* (en cuyo caso le asignaría un 4 en la última columna), pero tiene más confianza en cuál puntaje cree que sacará en *Lectura Critica* (en cuyo caso esta prueba iría en la primera fila).

Tabla de respuestas arrastre y escriba
Prueba

Matematicas
Lectura Critica

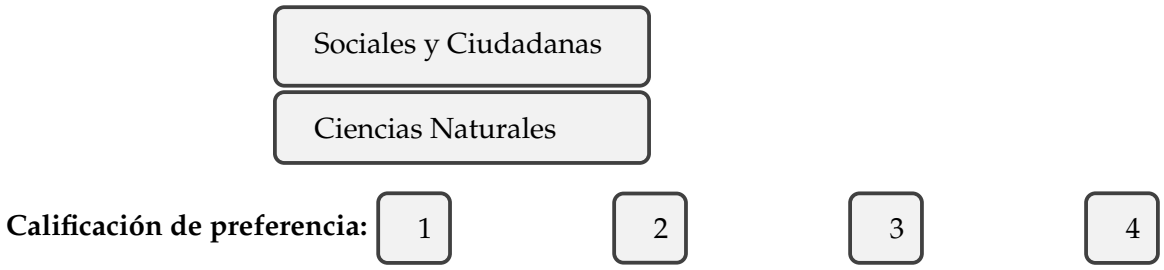


Table A.15: Tabla de Apuestas (Experimento)

Ganancia si acierta en el puntaje	**Prueba**	**Puntaje esperado prueba** (Número de **0** a **100**)	**Califique su preferencia** (**1** la menos preferida y **4** la más preferida)
20,000			
15,000			
10,000			
5,000			

Puntaje global

Cuando se publique los resultados del examen *Saber 11*, vamos a ordenar a los estudiantes de SU SALÓN en (4) cuatro grupos según el puntaje global en las pruebas. Cada grupo tendrá igual número de personas. *También queremos conocer su predicción*.

¿Usted en que grupo cree que será clasificado? Si acierta el grupo en el que quedará recibirá **$5,000** adicionales.

Desempeño	**Bajo**	**Basico**	**Alto**	**Superior**
seleccione solo **UN** círculo	O	O	O	O

Capacidad para acertar

Queremos saber qué tan capaz se siente de acertar en sus puntajes de las pruebas.

¿En cuántas pruebas cree que su *PUNTAJE ESPERADO* estará a menos de **10** puntos (por encima o por debajo) de su *PUNTAJE REAL*?

Haga *clic* sobre la linea y luego mueva el recuadro para elegir un número entre 0 y 4

Ninguna Todas

Educación Superior

En una escala del 0 al 100, donde **0** es "no voy a continuar estudiando" y **100** es "con toda seguridad voy a ingresar a un programa de Educación Superior", por favor díganos ¿Qué tan probable es que el próximo año ingrese a un programa de Educación Superior? Haga *clic* sobre la línea y luego mueva el recuadro para elegir un número entre 0 y 100

No voy a continuar estudiando

Con toda seguridad voy a ingresar a un programa de Educación superior

Habilidades

Independientemente de sus aspiraciones educativas, pero **pensando en sus habilidades**, en una escala del 0 al 100, donde **0** es "me siento totalmente incapaz de hacerlo", y **100** es "me siento totalmente capaz de hacerlo", por favor diganos, ¿Qué tan capaz se siente de hacer las cosas que se mencionan a continuación?

Haga *clic* sobre la línea y luego mueva el recuadro para elegir un número entre 0 y 100 *en cada caso*.

Tener un título técnico/tecnológico:

Totalmente Incapaz — Totalmente Capaz

Hacer una carrera militar:

Totalmente Incapaz — Totalmente Capaz

Tener su propio negocio:

Totalmente Incapaz — Totalmente Capaz

Tener un título profesional:

Totalmente Incapaz — Totalmente Capaz

Barreras

En una escala del 0 al 100, donde **0** es "No afecta en nada el logro de mis aspiraciones educativas" y **100** es "Impide completamente el logro de mis aspiraciones educativas", por favor díganos ¿Qué tanto cree que las siguientes barreras podrían ser un obstáculo en el logro de sus aspiraciones educativas?

Haga *clic* sobre la línea y luego mueva el recuadro para elegir un número entre 0 y 100 *en cada caso*.

El acceso a créditos educativos o financiación:

No afecta en nada — Impide completamente

El deseo de sus padres de que usted NO siga estudiando:

No afecta en nada — Impide completamente

La necesidad de empezar a trabajar:

No afecta en nada — Impide completamente

Los prejuicios de género asociado a las ocupaciones:

No afecta en nada — Impide completamente

La distancia geográfica a la institución de educación superior de su interés:

No afecta en nada — Impide completamente

Sus planes familiares (por ejemplo: casarse, tener hijos):Sus planes familiares (por ejemplo: casarse, tener hijos):

No afecta en nada — Impide completamente

Su capacidad para cumplir con los requisitos de admisión en un programa de educación superior:

No afecta en nada — Impide completamente

Ingresos esperados

Suponga que usted elige alguno de los siguientes **tipos de carreras** y se gradúa. ¿Cuánto cree que que usted ganaría mensualmente dentro de 5 años, a *salarios de hoy*?

Haga *clic* sobre la línea y luego mueva el recuadro para elegir un número entre 0 y 10,000,000 *en cada caso*.

Técnica/Tecnológica:

$0 — $10.000.000

Carrera Militar:

$0 — $10.000.000

Profesional:

$0 — $10.000.000

No estudia y crea su propio negocio:

$0 — $10.000.000

No estudia y empieza a trabajar:

$0 — $10.000.000

De la Escuela al Trabajo

Los resultados del Saber 11 se clasifican en 3 rangos según el puntaje: ALTO, MEDIO, BAJO (Ver Tabla abajo).

En las siguientes preguntas por favor díganos como cree que los resultados del saber 11 afectarán su ocupación el siguiente año, específicamente en **JUNIO de 2023**

BAJO	MEDIO	ALTO
Menos de 250	Entre 251 y 350	Más de 350

¿Qué tan probable es?
[

BAJO (Suponga queda acá)	MEDIO	ALTO
Menos de 250	Entre 251 y 350	Más de 350

/

BAJO	MEDIO (Suponga queda acá)	ALTO
Menos de 250	Entre 251 y 350	Más de 350

/

BAJO	MEDIO	ALTO (Suponga queda acá)
Menos de 250	Entre 251 y 350	Más de 350

]

[Suponga que usted obtiene un puntaje global **BAJO** en el *Saber 11*, es decir, obtiene menos de 250 puntos. Suponga que usted obtiene un puntaje global **MEDIO** en el *Saber 11*, es decir, obtiene entre 251 y 350 puntos / Suponga que usted obtiene un puntaje global **ALTO** en el *Saber 11*, es decir, obtiene más de 350 puntos.]

Llene por favor la siguiente tabla con las probabilidades de que esté haciendo cada una de estas actividades el siguiente año en JUNIO:

Suma de probabilidades **0**

Nota: La suma de las probabilides debe ser igual a 100%

Table A.16: Tabla de Transiciones (Experimento)

OCUPACIÓN	**PROBABILIDAD**
No este trabajando, ni estudiando	
Trabajando por un salario para un empleador	
Trabajando con familiares sin remuneración	
Estudiando	
Prestando servicio militar	
Trabajando por cuenta propia	

Preguntas ICFES

En las siguientes preguntas usted responderá **8** preguntas similares a las que se incluyen en el exámen *Saber 11*: **2** de Matemáticas, **2** de Lectura Crítica, **2** de Sociales y Ciudadanas, **2** de Ciencias Naturales. En una actividad posterior le preguntaremos a sus acudientes sobre cómo creen que fue su desempeño en estas 8 preguntas.

Haga *clic* en "Siguiente" para comenzar.

Pregunta 1: Matemáticas

Un colegio necesita enviar 5 estudiantes como representantes a un foro sobre la contaminación del medio ambiente. Se decidió que 2 estudiantes sean de grado décimo y 3 de grado undécimo.

En décimo hay 5 estudiantes preparados para el foro y en undécimo hay 4, ¿Cuántos grupos diferentes pueden formarse para enviar al foro?

A. 9
B. 14
C.20
D. 40

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

Pregunta 2: Matemáticas

Entre los 16 estudiantes de un salón de clases se va a rifar una boleta para ingresar a un parque de diversiones. Cada estudiante debe escoger un número del 3 al 18. El sorteo se efectúa de la siguiente manera: se depositan 6 balotas en una urna, cada una numerada del 1 al 6; se extrae una balota, se mira el número y luego se vuelve a depositar en la urna. El experimento se repite 2 veces más. La suma de los 3 puntajes obtenidos determina el número ganador de la rifa. Si en la primera extracción del sorteo se obtuvo 2, es más probable que el estudiante que escogió el número 10 gane la rifa que la gane el estudiante con el número 7, porque

A. Al ser mayor el número escogido es mayor la probabilidad de ganar.
B. El primer estudiante tiene un posibilidad más de ganar que el segundo.
C. Es más probable seguir obteniendo números pares.
D. Es mayor la diferencia entre 10 y 18 que entre 2 y 7.

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

RESPONDA LAS PREGUNTAS 3 Y 4 DE ACUERDO CON LA SIGUIENTE INFORMACIÓN

Uno de los escenarios donde empezó a codearse el vallenato con la música que escuchaba y bailaba la burguesía - valses, mazurcas, canciones napolitanas- fue el de las *colitas*. Era este el nombre que recibían las "colas" o finales de fiesta de la clase adinerada: bodas, bautizos, cumpleaños, festejos religioso...Durante el sarao, mientras los señores se divertían con la música europea que interpretaba una precaria orquesta provinciana, los trabajadores pasaban la fiesta en la cocina y los galpones a punta de acordeón, guacharaca y caja. Despachada la orquesta, los de atrás eran invitados a pasar adelante, y patrones y vaqueros se sentaban a tomar y cantar juntos. Se ha discutido hacerca del papel que cumplieron las *colitas* en esta historia. Algunos dicen que estos remates de fiesta fueron el pavellón de maternidad del vallenato, pues convinaron ritmos europeos y nativos: entre ambos dieron a luz los aires vallenatos. "Las *colitas* son el ancestro directo del vallenato moderno", afirma Lopez Michelsen.

Pero parece más acertado pensar que las *colitas* no ayudaron a formar el género, sino a divulgarlo. Para empezar, esta clase de fiestas improvisadas no se conocieron en toda la región, sino tan sólo en la zona del Valle de Upar. En El Paso no hubo *colitas*. En muchos lugares del río tampoco. Y, por otra parte, los historiadores indican que las *colitas* surgieron a comienzos del siglo XX, cuando ya el vallenato había empezado a coger ritmo con el trío del instrumental clásico. En cambio, las piquerias y retos sí constituyeron desde el principio uno de los más efectivos moldes de creación, propagación y desarrollo del vallenato. La leyenda de Francisco el hombre habla de su desafio con el diablo, a quien únicamente logra derrotar cuando le canta el credo al revés. Los grandes acordeoneros viajaban durante días para acudir a piquerias, concertadas de antemano o a través de recados, como lo atestigua "La gota fría". "Acordate Moralitos de aquel día / que estuviste en Urumita / y no quisiste hacer parada".

Tomado de : Samper, D. y Tafur M.(1997).*100 años de vallenato.* Bogotá: MTM Ediciones

Pregunta 3: Lectura Crítica

El autor introduce la cita de López Michelsen con el fin de presentar la opinión de un conocedor del vallenato y

A. Reforzar la tesis principal del texto, según la cual las *colitas* fueron divulgadoras del género.
B. Señalar una posición discutible sobre el papel que desempeñaron las *colitas* en el origen del género.

C. Legitimizar la tesis principal del texto,según la cual las *colitas* originaron el vallenato moderno.

D. Convencer al lector de que las *colitas fueron las únicas divulgadoras del vallenato moderno*.

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

Pregunta 4: Lectura Crítica

El autor cita el verso de *La gota fría* para apoyar la idea de que los acordeoneros viajaban para asistir a diferentes pirquerias, porque en este se hace referencia a

A. un acordeonero que cantaba *colitas*, llamado Lorenzo Morales.
B. Urumita, un pueblo famoso por la realización de *colitas*.
C. un acordeonero que se encontraba de paso por un pueblo.
D. Urumita, un pueblo al cual iban los acordeoneros.

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

Pregunta 5: Sociales y Ciudadanas

La Corte Constitucional falló a favor de un soldado que había interpuesto una tutela al considerar que la institución militar no le respetaba el derecho a la objeción de conciencia, porque su religión le prohíbe el uso de armas y las prácticas militares. El fundamento del fallo es la defensa de la libertad de conciencia del soldado.

¿Cuál de las siguientes opciones es coherente con este fallo?

A. Ordenarle al ejercito la entrega de la libreta militar al soldado y su inmediata desvinculación de la institución.

B. Ordenarle al soldado cumplir su servicio militar obligatorio con todas las responsabilidades asignadas.

C. Ordenarle al ejercito que el soldado participe de los entrenamientos y haga solo tareas de oficina.

D. Ordenarle al soldado participar únicamente en paradas militares, portando con orgullo la dotación militar.

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

Pregunta 6: Sociales y Ciudadanas

Durante las épocas de lluvias, en muchas zonas rurales de Colombia se inundan escuelas y se interrumpen los caminos para llegar a estas.

¿Cuál de las siguientes opciones vulnera más el derecho a la educación?

A. Organizar esquemas de transporte para que los estudiantes vayan a clases en escuelas no afectadas por las inundaciones.

B. Ajustar el calendario escolar para que no haya clases en las época de inundación.

C. Darle una parte de las clases a través de la emisora de radio local, para reducir los días que tienen que asistir al colegio.

D. Trasladar a los niños a escuelas no inundadas dos veces por semana y reducir el número de horas de clases.

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

Pregunta 7: Ciencias Naturales

Los ecosistemas se consideran sistemas abiertos porque en su mantenimiento es fundamental el flujo de materia y energía que intercambian de manera constante con su medio externo. De acuerdo con la información anterior, ¿cuál de los siguientes modelos representa precisamente un ecosistema abierto?

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

Pregunta 8: Ciencias Naturales

A partir de las cadenas de ARN mensajero se forman las proteínas. En este proceso, por cada tres nucleótidos consecutivos de ARN mensajero se codifica un aminoácido. A continuación se muestra una secuencia de ARN mensajero.

AUGGCAAGAAACGACCACAUCUAGGUAUGC

Los nucleótidos AUG codifican únicamente para indicar el inicio de la formación de la proteína y los nucleótidos UAG codifican únicamente para indicar su terminación. Con base en esta información, ¿cuántos aminoácidos conformarán la proteína?

A. 8
B. 18
C. 6
D. 10

Seleccione solo UNA respuesta:
A. **O** B. **O** C. **O** D. **O**

A.7 Survey: Original Version (Spanish)

Municipio

1. Durante el 2022, ¿Cuáles de los siguientes problemas se han presentado en su hogar?

    - Muerte de algún miembro del hogar.
    - Enfermedad o accidente grave de algún miembro del hogar.
    - Separación de los cónyuges.
    - Problemas económicos (perdida del empleo, quiebra o cierre de negocio).
    - Perdida de cosechas o muerte (robo) de animales.
    - Perdida de la vivienda que ocupaba el hogar o perdida de fincas, lotes, tierras u otras edificaciones.
    - Atracos, extorsión o intento de extorsión, riñas y peleas.
    - Problemas de orden público (enfrentamientos entre grupos armados, atentados)
    - Desastres naturales (Inundaciones, deslizamientos, incendios, terremotos)

2. ¿Usted cree que el 2022, comparado con el 2021, respecto a problemas de orden público ha sido?

    - Menos violento
    - Igual de violento
    - Mas violento

3. Use una escala de 1 a 5 para responder las siguientes preguntas. **1** indica "Nada" y **5** "Mucho".

    - ¿Qué tan seguro se siente en la vía pública de su municipío (calles y carreteras)?
    - ¿Qué tan posible es que usted sea víctima de algún delito en los próximos 12 meses?
    - ¿Qué tanto aporta la fuerza pública (Policía, Ejercito) a la seguridad de su barrio/vereda?
    - ¿Qué tan justificable es usar la violencia para cuidar a la familia?

4. Use una escala de 1 a 5 para indicar cuánto confía usted en cada una de las siguientes instituciones de su municipio. **1** indica "Absoluta desconfianza" y **5** "Absoluta confianza".

    - Alcaldía
    - Concejo Municipal
    - Jueces Municipales
    - Junta de Acción Comunal
    - Organizaciones Sociales Municipales (por ejemplo, CUT, Joel Sierra)

- Armada Nacional
- Ejército Nacional
- Fuerza Aérea Colombiana
- Policía Nacional
- Empresas de Servicios Públicos
- Hospital/Puesto de Salud
- Instituto Colombiano de Bienestar Familiar

5. Use una escala de 1 a 5 para indicar qué tan de acuerdo está con las siguientes acciones. **1** indica "Completamente en desacuerdo" y **5** "Completamente de acuerdo".

   - Alterar los puntajes del SISBEN para recibir subsidios
   - No contribuir a pensiones, aunque se esté trabajando
   - Usar la violencia física para que los hijos saquen mejores calificaciones
   - No presentar denuncias cuando se es víctima o testigo de un delito
   - Acosar o hacer matoneo a los compañeros de clase
   - No apoyar a las *hijas* para que puedan estudiar después del colegio

6. Estamos interesados en entender las experiencias del día a día que pueden causarle angustia o miedo. Puede ser sobre cualquier cosa, por ejemplo, sobre su salud, su seguridad, su familia, sus finanzas, su futuro. ¿Puede describir un evento que le causó miedo durante la semana previa a la presentación del examen Saber 11 – ICFES? (La última semana de Agosto)

   Use como considere el resto de la hoja

Aspiraciones

1. Ahora va a llenar una tabla donde usted va a predecir su puntaje en el examen *Saber 11* como si estuviera haciendo una predicción. Las predicciones las compararemos con los puntajes obtenidos, y las apuestas que hizo en Agosto. Esto se hará luego de la publicación de los resultados del examen por parte del ICFES.

   Las reglas de la predicción son las siguientes:

   (a) El examen tiene cuatro pruebas: Matemáticas, Lectura Crítica, Sociales y Ciudadanas, Ciencias Naturales.

   Cada prueba se califica de **0** (puntaje más bajo) a **100** (puntaje más alto).

   (b) Usted debe ordenar las pruebas según qué tan *confiable* es su predicción sobre cómo cree que le fue.

   En la que tenga más seguridad de su puntaje, póngala en la primera fila.

   En la segunda en la que tenga más seguridad sobre su puntaje, póngala en la segunda fila, y así sucesivamente.

Adicionalmente, en la primera columna use un número de **0** a **100** para decir ¿Qué tan seguro está de su predicción?

(c) Para cada prueba, escriba su *PUNTAJE ESPERADO* como un número entre **0** y **100**.

(d) Cúentenos, de acuerdo a sus gustos por los contenidos de cada prueba, cómo las organizaría desde sus menos favorita, con el número **1** hasta la más favorita con el número **4**.

Nota: Tenga en cuenta que su predicción más confiable no necesariamente debe asignarse a su prueba favorita. Por ejemplo, puede que su prueba favorita sea *Matematicas* (en cuyo caso le asignaría un 4 en la última columna), pero tiene más confianza en cuál puntaje cree que sacará en *Lectura Critica* (en cuyo caso esta prueba iría en la primera fila).

Prueba	Matemáticas	Lectura Crítica	Sociales y Ciudadanas	Ciencias Naturales	
Calificación de Preferencia	1	2	3	4	

Table A.17: Tabla de Apuestas (Encuesta)

¿Qué tan seguro (a) está de su predicción? Número de 0 a 100	**Prueba**	**Puntaje esperado Prueba** (Número de **0** a **100**)	**Califique su preferencia** (**1** la menos preferida y **4** la más preferida)

2. Queremos saber qué tan capaz se siente de acertar en sus puntajes de las pruebas. ¿En cuántas pruebas cree que su PUNTAJE ESPERADO estará a menos de 10 puntos (por encima o por debajo) de su PUNTAJE REAL?

   - Ninguna
   - Una
   - Dos
   - Tres
   - Todas

3. Por favor haga una lista de 3 **profesiones, oficios u ocupaciones** que considere ideales para usted. Escríbalas en orden de importancia, donde 1 significa que "es lo que más me le gustaría hacer":

- Ocupación 1
- Ocupación 2
- Ocupación 3

4. ¿Qué tipo de carrera considera necesaria para hacer lo que más le gustaría?:
   - No sé
   - Técnica
   - Tecnológica
   - Profesional
   - Militar
   - Ninguna
5. En una escala del 0 al 100, donde **0** es ”no voy a continuar estudiando” y **100** es ”con toda seguridad voy a ingresar a un programa de Educación Superior”, por favor díganos ¿Qué tan probable es que el próximo año ingrese a un programa de Educación Superior?

   Escriba un número entre 0 y 100:
6. Llene por favor la siguiente tabla con las probabilidades de que esté haciendo cada una de estas actividades el siguiente año en JUNIO de 2023. Tenga en cuenta sus puntajes esperados en el Saber 11.

   Nota: La suma de las probabilides debe ser igual a 100%

Table A.18: Tabla de Transiciones (Encuesta)

OCUPACIÓN	**PROBABILIDAD**
No este trabajando, ni estudiando	
Trabajando por un salario para un empleador	
Trabajando con familiares sin remuneración	
Estudiando	
Prestando servicio militar	
Trabajando por cuenta propia	
Suma de probabilidades	(Escriba el resultado de la suma)

Appendix B

Mobility and productivity in a dual labor market: an experiment

B.1 Balance Tables

Table B.1: Balance between treatments: Luck and Merit conditions

	(1) Obs.	(2) Mean	(3) Std. Dev	(4) Mean Luck	(5) Mean Merit	(6) *p*-value Diffs. (4) vs (5)
Age	207	21.35	(1.98)	21.21	21.48	0.33
Female	205	0.67	(0.47)	0.63	0.71	0.20
Risk taker (staircase)	207	14.03	(7.4)	14.48	13.62	0.40
Quiz score	205	1.33	(0.64)	1.36	1.31	0.59
Minimum Wage	207	0.46	(0.5)	0.41	0.51	0.17
Education Level	207					0.62
High school		0.22	(0.42)	0.25	0.19	
Technical/Technological		0.09	(0.28)	0.08	0.09	
Undergraduate		0.60	(0.49)	0.60	0.60	
Posgraduate		0.09	(0.29)	0.07	0.11	
Occupation	207					0.41
Only student		0.38	(0.49)	0.36	0.40	
Unemployed		0.04	(0.2)	0.07	0.02	
Full-time		0.20	(0.4)	0.16	0.24	
Part-time		0.17	(0.38)	0.18	0.17	
Self-employed		0.15	(0.36)	0.17	0.13	
Unpaid worker		0.01	(0.12)	0.01	0.02	
Other		0.03	(0.18)	0.04	0.03	
Health Contribution	207	0.68	(0.47)	0.71	0.66	0.45
Pension Contribution	207	0.64	(0.48)	0.66	0.63	0.69
Desktop PC (0=*Laptop*)	207	0.08	(0.27)	0.08	0.07	0.86
Mouse	207	0.51	(0.5)	0.46	0.55	0.24
Quality internet connection	207	0.92	(0.27)	0.95	0.90	0.17

Willingness to take risks elicited using Falk et al.'s (2023) staircase procedure.

Table B.2: Balance between treatments: Random, Playoff-Perfect, Playoff-Noisy conditions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Mean			p-value Diff.		
	Obs.	Mean	St. Dev	Random	Playoff-Perfect	Playoff-Noisy	(4) vs (5)	(4) vs (6)	(5) vs (6)
Age	207	21.35	(1.98)	21.22	21.64	21.22	0.23	0.98	0.22
Female	205	0.67	(0.47)	0.69	0.69	0.64	0.94	0.60	0.55
Risk taker (staircase)	207	14.03	(7.4)	14.36	13.88	13.88	0.71	0.71	1.00
Quiz score	205	1.33	(0.64)	1.42	1.37	1.22	0.65	0.08	0.16
Minimum Wage	207	0.46	(0.5)	0.46	0.47	0.46	0.94	0.97	0.90
Education Level	207						0.68	0.3	0.46
High school	207	0.22	(0.42)	0.16	0.20	0.30			
Technical/Technological	207	0.09	(0.28)	0.09	0.11	0.07			
Undergraduate	207	0.60	(0.49)	0.67	0.58	0.55			
Posgraduate	207	0.09	(0.29)	0.07	0.12	0.08			
Occupation	207						0.57	0.32	0.6
Only student		0.38	(0.49)	0.36	0.39	0.39			
Unemployed		0.04	(0.2)	0.04	0.06	0.03			
Full-time		0.20	(0.4)	0.22	0.18	0.20			
Part-time		0.17	(0.38)	0.15	0.14	0.23			
Self-employed		0.15	(0.36)	0.12	0.20	0.14			
Unpaid worker		0.01	(0.12)	0.03	0.02	0.00			
Other		0.03	(0.18)	0.07	0.02	0.01			
Health Contribution	207	0.68	(0.47)	0.64	0.61	0.78	0.67	0.06	0.02
Pension Contribution	207	0.64	(0.48)	0.66	0.68	0.59	0.76	0.45	0.29
Desktop PC (0=*Laptop*)	207	0.08	(0.27)	0.07	0.12	0.04	0.37	0.39	0.08
Mouse	207	0.51	(0.5)	0.45	0.52	0.55	0.44	0.21	0.65
Quality internet connection	207	0.92	(0.27)	0.97	0.88	0.92	0.05	0.19	0.43

Willingness to take risks elicited using Falk et al.'s (2023) staircase procedure.

B.2 Additional Tables

Table B.3: OLS results for the determinants of productivity participants ranking 2-3

	Number of completed tasks in 120 seconds			
VARIABLES	(1)		(2)	
Initial allocation				
Merit	-0.240	(0.739)	-1.352**	(0.668)
Reallocation				
Perfect	1.655***	(0.613)	0.276	(1.157)
Noisy	1.148	(0.864)	0.336	(1.246)
Merit × Perfect			2.299	(1.435)
Merit × Noisy			1.750	(1.746)
Contract A	0.514	(0.515)	0.432	(0.490)
Worker	0.746	(0.510)	0.970	(0.633)
Female	0.581	(0.518)	0.780	(0.609)
Risk taker (staircase)	0.026	(0.037)	0.047	(0.040)
Constant	8.918***	(1.315)	8.773***	(1.308)
Observations	59		59	
R-squared	0.209		0.266	

Additional controls in all models: age, gender, type of computer, mouse, risk parameter and quiz score. Round fixed effects included. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B.4: OLS results for the determinants of group productivity by type of participants.

	Number of completed tasks in 120 seconds per group					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All		Workers		Students	
Initial allocation						
Merit	1.792***	-1.499	-0.210	-4.931***	2.983***	2.529*
	(0.605)	(1.026)	(0.917)	(1.239)	(0.839)	(1.409)
Reallocation						
Perfect	0.468	-1.443	0.355	-1.997	0.698	0.581
	(0.744)	(1.235)	(1.030)	(1.308)	(1.212)	(1.921)
Noisy	0.334	-3.039**	0.218	-6.187***	2.593***	1.953
	(0.782)	(1.324)	(1.428)	(2.171)	(0.944)	(1.616)
Merit × Perfect		3.623**		4.618**		0.195
		(1.440)		(2.134)		(2.022)
Merit × Noisy		5.954***		9.821***		1.238
		(1.415)		(2.102)		(1.885)
Constant	39.816***	42.086***	32.730***	39.628***	46.733***	47.042***
	(2.289)	(2.384)	(3.365)	(3.638)	(3.739)	(3.767)
Observations	265	265	127	127	138	138
R-squared	0.319	0.363	0.380	0.484	0.404	0.406
p-values for F-tests on linear combinations of coefficients						
Merit + Merit × Perfect = 0		(0.034)		(0.848)		(0.060)
Merit + Merit × Noisy = 0		(0.000)		(0.004)		(0.012)

Additional controls in all models [group means]: share of women, age, type of computer, mouse, risk parameter and quiz score. Round fixed effects included. Additional control in models 1-2: share of workers per group. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.

Table B.5: OLS results for the determinants of productivity by type of participant - social security.

	Number of completed tasks in 120 seconds					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All		Workers		Students	
Initial allocation						
Merit	0.038	-0.340	0.015	-0.685*	0.120	0.117
	(0.128)	(0.219)	(0.201)	(0.361)	(0.172)	(0.269)
Reallocation						
Perfect	0.315**	0.152	0.447*	-0.021	0.032	0.181
	(0.153)	(0.208)	(0.231)	(0.330)	(0.191)	(0.259)
Noisy	0.306*	-0.137	0.018	-0.645*	0.479**	0.337
	(0.160)	(0.253)	(0.240)	(0.391)	(0.210)	(0.323)
Merit × Perfect		0.299		0.895*		-0.282
		(0.321)		(0.530)		(0.372)
Merit × Noisy		0.799**		1.188**		0.275
		(0.313)		(0.482)		(0.413)
Contract A	1.670***	1.678***	1.709***	1.723***	1.489***	1.478***
	(0.124)	(0.124)	(0.182)	(0.182)	(0.163)	(0.162)
Worker	-0.299**	-0.315**				
	(0.152)	(0.153)				
Health Contribution	0.039	0.064	0.370*	0.411*	-0.224	-0.213
	(0.139)	(0.140)	(0.219)	(0.219)	(0.195)	(0.198)
Pension Contribution	0.438***	0.416**	0.697***	0.636***	-0.415	-0.345
	(0.165)	(0.172)	(0.215)	(0.226)	(0.254)	(0.259)
Wage above minimum	-0.099	-0.049	-0.101	-0.034	-0.406*	-0.368*
	(0.140)	(0.144)	(0.194)	(0.205)	(0.214)	(0.219)
Constant	9.714***	9.926***	8.802***	9.253***	10.630***	10.663***
	(0.291)	(0.299)	(0.448)	(0.477)	(0.367)	(0.379)
Observations	1,020	1,020	570	570	450	450
R-squared	0.249	0.254	0.271	0.281	0.286	0.289
p-values F tests						
Perfect - Noisy = 0	(0.952)		(0.069)		(0.030)	
Merit + Merit × Perfect = 0		(0.856)		(0.557)		(0.537)
Merit + Merit × Noisy = 0		(0.042)		(0.126)		(0.232)

Additional controls in all models: gender, age, type of computer, mouse, risk parameter and instructions quiz score. Round fixed effects included. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

B.3 Experimental Protocol: Translated Version

Below you will find the translated version of the protocol. Variations between treatments are written in brackets, and are color-coded:

- **Initial allocation of contracts:** We use *purple* for the *Merit*(-based) condition, and *teal* for the *Random* condition.
- **Contract reallocation:** We use *gray* for the *Random* condition, *brown* for the *Playoff-Perfect* condition, and *orange* for the *Playoff-Noisy* condition.

General Instructions

In this activity, your task consists of encoding sequences of *numbers* into *letters*. Your payoff depends on luck and the number of correctly solved sequences by you and other participants. You will participate in a practice round and then in a tournament with five rounds.

- **Practice: Round 0.** The purpose of this round is to familiarise yourself with the task. You will have 120 seconds to encode as many *sequences* as you can from numbers to letters.
- **Tournament: Rounds 1 to 5.** In each round, you will have 120 seconds to encode as many *sequences* as you can, from numbers to letters. Your round payoff depends on the number of correctly-solved sequences and the type of contract you have.

There are two types of contracts: *Contract A* and *Contract B*. The task is the same in both contracts, but the piece-rate in *Contract A* is twice the value of the piece-rate in *Contract B*. You will be part of a group with three other people, four people in total. Two of them will receive *Contract A* and the other two *Contract B*.

Why we call it a "Tournament"?

Your contract could be changed at the end of each round, depending on your performance and luck. The implication is that:

- If you have *Contract A*, you can be demoted to *Contract B*.
- If you have *Contract B*, you can be promoted to *Contract A*.

After the practice round, we will explain in detail the rules for switching contracts.

Additional bonus

Before the end of the activity, we will present you with five situations in which you can earn an additional payoff, depending on your decisions and luck.

Payoffs for this activity

Your payoff for the entire activity corresponds to the round's earnings in ONE round, randomly chosen from the five tournament rounds, plus COP 10,000 for completing the activity and the survey. Keep in mind that you could have an additional gain.

Please chat with us if you need help. An instructor will contact you individually to help.

To begin the activity, please introduce the initial letters of your first name and last name, followed by your birth date. For instance, if your name is Lina Ríos and you were born on 11 February 1995, you will have to type LR11021995. This tag is important to ensure your participation in the rest of the activity and the payment assignment. [Participant code]

Task Description

You will see a number sequence that you have to translate into a series of letters (Z, D, J, K, L). Each **NUMBER has its own LETTER**, you will have to type the corresponding letter as an answer in each box.

Each translation of 5 numbers into their respective letters will be called a sequence. Each time you complete a sequence, *click* the button "Send". Should the translation have any mistake, the computer will ask you to correct it. If there are no mistakes in the translation, the sequence will be complete.

When a sequence is complete, the correspondence between NUMBERS and LETTERS will change. This means that each translation is different from the previous one.

How to perform the translation?

Below you can see the screen you will observe during the translation task.[See Figure 3.1]

You can find a table with the keys to translate numbers into letters in the upper part. You can find a table with 5 numbers and 5 empty boxes in the bottom part. You will have to type the LETTER that corresponds to each NUMBER.

We want to remind you that there are only five letters in the translation, and they will be the same in all the rounds. The following image shows the location of these five letters. You can see below and check with your keyboard.

You will have 120 seconds to complete correctly as many sequences as you can. The first time, you will perform the task for practice purposes.

Please, press "next" to start. Once you *click*, time will start running for the practice round.

Practice Round

You will dispose of 120 seconds to practice with the task you have to perform in the following rounds.

In the *Tournament* rounds, your performance and luck can influence the allocation of your contract. For this reason, it is important to practice and try to complete as many sequences as you can. At the end of this round, half of the participants will be assigned to *Contract A* and the other half to *Contract B*.

How will be the initial allocation of contracts for the Tournament?

[According to your performance in this practice round. The first half of the participants, who completed the highest number of sequences, will receive *Contract A*. Participants ranked in the other half will receive *Contract B* / Randomly. In other words, your likelihood of receiving either *Contract A* or *Contract B* is the same. Use this practice round to familiarise yourself with the task and test your skills.]

Tournament

Following, you will participate in a tournament of 5 rounds. In each round, you will be part of a group of four (4) people: two (2) will have a "*Contract A*" and two (2) will have a "*Contract B*." The other three (3) members of your group will change round after round. There will always be two *Contract A* and two *Contract B* in each group.

In each round, you will have 120 seconds to complete as many sequences as you can. The payment for each completed sequence will depend on the contract you were assigned to at the end of the previous round:

- *Contract A*: receive $3,000 per completed *sequence*.
- *Contract B*: receive $1,500 for completed *sequence*.

Ranking and probability of receiving a Contract A in the next round

This is a tournament because it ranks the participants with *Contract A* and *Contract B* in their group [, and defines who will receive the contracts for the next round / , and defines who will receive the contracts for the next round].

Ranking	Position and Contract	Likelihood Contract A
1	First position of participants with Contract A	[50% / 100 % / 100 %]
2	Second position of participants with Contract A	[50% / Playoff / Playoff]
3	First position of participants with Contract B	[50% / Playoff / Playoff]
4	Second position of participants with Contract B	[50% / 0 % / 0 %]

If two participants with the same contract have the same number of completed *sequences*, the first and second places in the contract are assigned randomly.

According to the third column of the table, [**the likelihood to switch contracts is the same for all participants**. That is, it is equally likely to receive either *Contract A* or *Contract B*. / the participant Ranked 1st retains *Contract A*, and the participant Ranked 4th retains *Contract B*. On the other hand, participants ranked 2nd and 3rd may switch contracts in the playoff. / the participant Ranked 1st retains *Contract A*, and the participant Ranked 4th retains *Contract B*. On the other hand, participants ranked 2nd and 3rd may switch contracts in the playoff.]

What is the playoff?

[The allocation of *Contract A* depends on the number of completed sequences made by the participants ranked 2nd and 3rd. **The one who completed more *sequences* among the participants in the Playoff gets *Contract A***. If both participants get the same number of complete sequences, the probability of winning *Contract A* is the same for both participants (50%). / The allocation of *Contract A* depends on the number of completed sequences made by the participants in the Ranking **2** and **3**. Obtaining *Contract A* depends on a draw. **The higher the number of sequences with respect to the other participant in the playoff, the higher the likelihood of winning *Contract A***. If both participants complete the same number of sequences, the likelihood of winning Contract A is the same for both participants (50%). The exact equation is as follows:

$$\text{Probability Contract A} = \frac{\text{Your sequences}}{\text{Your sequences} + \text{The contestant's sequences}}.$$

]

Comprehension quiz

Questions:

1. [You complete 6 sequences and the other participants also complete 6 sequences. / You complete 6 sequences and the other participant in the playoff completes 4 sequences. / You complete 6 sequences and the other participant in the playoff completes 4 sequences.] Your probability of receiving Contract A in the next round will be:

0% , 30%, **50%**, **60%**, 90% ó **100%**

2. [You complete 6 sequences and the other participants also complete 6 sequences. / You complete 6 sequences and the other participant in the playoff also completes 6 sequences. / You

complete 6 sequences and the other participant in the playoff also completes 6 sequences.] Your probability of having Contract A in the next round is:

0% , 30%, **50%**, 60%, 90% ó 100%

B.4 Experimental Protocol: Original Version (Spanish)

Las variaciones en el protocolo están escritas en corchetes, y están codificadas por colores:

- **Asignación inicial de contratos:** Usamos el color *púrpura* para la condición basada en el *Merito*, y el color *verde azulado* para la condición *Aleatoria*.
- **Reasignación de contratos:** Usamos el color *gris* para la condición *Aleatoria*, *pardo* para la condición *Repechaje-Perfecto*, y *naranja* para la condición *Repechaje-Ruidoso*.

Instrucciones Generales

En esta actividad su tarea consiste en pasar secuencias de *números* a *letras*. Su pago depende del azar, y de la cantidad de secuencias correctas que usted y otros participantes realicen. Usted participará en una ronda de práctica, y luego en un Torneo de 5 rondas.

- **Práctica: Ronda 0.** El propósito es que se familiarice con la tarea. Usted tendrá 120 segundos para pasar la mayor cantidad de *secuencias* que pueda de números a letras.
- **Torneo: Rondas 1 a 5.** En cada ronda, usted tendrá 120 segundos para pasar la mayor cantidad de *secuencias* que pueda de números a letras. Su pago en cada ronda depende del número de secuencias correctas que haga y del tipo de contrato que tenga.

Hay dos tipos de contrato: *Contrato A* y *Contrato B*. La tarea es la misma con ambos contratos, pero el pago por *secuencia* correcta con el *Contrato A* es el doble que con el *Contrato B*. Usted estará en un grupo con otras tres personas, cuatro en total. Dos recibirán el *Contrato A* y los otros dos el *Contrato B*.

¿Por qué le llamamos Torneo?

Al final de cada ronda podrá cambiar de contrato, según su rendimiento y la suerte. Esto quiere decir que:

- Si tiene el *Contrato A*, puede ser relegado a tener el *Contrato B*.
- Si tiene el *Contrato B*, puede ser promovido a tener el *Contrato A*.

Luego de la ronda de práctica explicaremos en detalle los cambios de contrato.

Ganancia adicional

Antes de finalizar se le presentarán 5 situaciones en las que dependiendo de sus decisiones y del azar podrá obtener una ganancia adicional.

Pagos de la actividad

Su pago por toda la actividad corresponde a las ganancias en UNA de las cinco rondas del Torneo elegida al azar y $10.000 pesos por completar la actividad y responder la encuesta. Recuerde que podrá tener una ganancia adicional.

Por favor, escribanos por chat si necesita ayuda. Uno de los monitores se comunicará con usted y tratará de ayudarlo de manera individual.

Para iniciar por favor ingrese las iniciales de su primer nombre y apellido seguido de su fecha de nacimiento. Por ejemplo, si usted se llama Lina Ríos y usted nació el 11 de febrero de 1995, debe ingresar LR11021995. Escriba todo en mayúscula. Este código es importante para asegurar su participación en el resto de la actividad y la realización de los pagos. [Código de participante]

Descripción de la tarea

A continuación, usted va a ver una secuencia de números que debe traducir a una serie de letras (Z, D, J, K, L). A cada **NÚMERO le corresponde una LETRA**, debe escribir esta letra como respuesta en cada casilla.

A cada traducción de 5 números en sus respectivas letras le llamaremos secuencia. Cada vez que complete una secuencia, haga *clic* en el botón "Enviar". Si la traducción tiene errores, el computador le pedirá que los corrija. Si la traducción no tiene errores, la secuencia quedará completa.

Al terminar una secuencia cambiarán los NÚMEROS y las LETRAS asociadas. Es decir, cada traducción es diferente a la anterior.

¿Cómo hacer la traducción?

Debajo puede ver la pantalla que observará durante la tarea de traducción [Vea la figura 3.1]

En la parte de arriba encuentra una tabla con las claves para traducir a letras. En la parte de abajo encuentra una tabla con 5 números y 5 casillas vacías. Usted debe escribir la LETRA que corresponde a cada NÚMERO.

Queremos recordarle que sólo hay cinco letras en la traducción, y serán las mismas en todas las rondas. La siguiente imagen muestra la ubicación de esas cinco letras. Esto lo puede ver debajo y confirmar en su teclado (Ver imagen B.3).

Usted dispondrá de 120 segundos para completar correctamente todas las secuencias que pueda. Esta vez resolverá la tarea a modo de prueba.

Por favor oprima "Siguiente" para comenzar. Una vez haga *clic* comenzará a correr el tiempo de prueba.

Ronda de Práctica

Usted tendrá 120 segundos para probar la tarea que deberá realizar en las siguientes rondas.

En las rondas del *Torneo* su desempeño y la suerte puede que influyan en la asignación de su contrato. Por esto es importante que practique y trate de completar el mayor número de secuencias

que pueda. Al finalizar esta ronda, la mitad de los participantes serán asignados al *Contrato A* y la otra mitad al *Contrato B*.

¿Cómo será la asignación inicial de contratos para el Torneo?

[Según su rendimiento en esta ronda de práctica. La primera mitad de los participantes, quienes completaron el mayor número de secuencias, recibirán el *Contrato A*. Los participantes clasificados en la otra mitad recibirán el *Contrato B* / Al azar. Es decir, es igual de probable que reciba el *Contrato A* o el *Contrato B*. Aproveche esta ronda de práctica para familiarizarse con la tarea e ir poniendo a prueba sus capacidades.]

Torneo

Usted ahora participará en un torneo por 5 rondas. En cada ronda hará parte de un grupo de cuatro (4) personas: dos (2) tendrán un *Contrato A* y dos (2) un *Contrato B*. Los otros tres (3) miembros de su grupo irán cambiando ronda tras ronda. Siempre habrá dos personas con el *Contrato A* y dos con el *Contrato B* en cada grupo.

En cada ronda tendrá 120 segundos para realizar el mayor número de *secuencias* que pueda. El pago por cada *secuencia* correcta dependerá del contrato al que fue asignado en la ronda anterior:

- *Contrato A*: recibe $3.000 por *secuencia* correcta.
- *Contrato B*: recibe $1.500 por *secuencia* correcta.

Ranking y probabilidad de tener un Contrato A en la siguiente ronda

Este es un torneo porque hace un ranking de los participantes con *Contrato A* y *Contrato B* de su grupo [, y define quién tendrá los contratos la próxima ronda / , y define quién tendrá los contratos la próxima ronda].

Ranking	Puesto y contrato	Probabilidad Contrato A
1	Primer puesto de los participantes con Contrato A	[50% / 100 % / 100 %]
2	Segundo puesto de los participantes con Contrato A	[50% / Reclasificación / Reclasificación]
3	Primer puesto de los participantes con Contrato B	[50% / Reclasificación / Reclasificación]
4	Segundo puesto de los participantes con Contrato B	[50% / 0 % / 0 %]

Si dos participantes con el mismo contrato tienen el mismo número de *secuencias* completas, el primer y segundo puesto del contrato se asignan al azar.

Según la tercera columna de la tabla,[**la probabilidad de cambiar de contrato es la misma para todos los participantes.** Es decir, es igual de probable que reciba el *Contrato A* o el *Contrato B*. / El participante en el Ranking **1** mantiene el *Contrato A*, y el participante en el Ranking **4** mantiene el *Contrato B*. Los participantes en el Ranking **2** y **3** pueden cambiar de contrato en la *Reclasificación*. El participante en el Ranking **1** mantiene el *Contrato A*, y el participante en el Ranking **4** mantiene el *Contrato B*. Los participantes en el Ranking **2** y **3** pueden cambiar de contrato en la *Reclasificación*.

¿En qué consiste la Reclasificación?

[La asignación del *Contrato A* depende del número de secuencias correctas que hayan realizado los participantes en el Ranking **2** y **3**. **Se queda con el *Contrato A* el que haya completado más *secuencias* entre los participantes en la Reclasificación.** Si ambos hacen la misma cantidad de secuencias correctas, la probabilidad quedarse con el *Contrato A* es la misma para ambos los participantes (50%). [La asignación del *Contrato A* depende del número de secuencias correctas que hayan realizado los participantes en el Ranking **2** y **3**. Quedarse con el *Contrato A* depende de un sorteo. **Entre más secuencias correctas respecto a las del otro participante en la Reclasificación, más chances de ganar.** Si ambos hacen la misma cantidad de secuencias correctas, la probabilidad quedarse con el *Contrato A* es la misma para ambos los participantes (50%). Así se ve la fórmula exacta:

$$\text{Probabilidad Contrato A} = \frac{\text{Sus tareas}}{\text{Sus tareas} + \text{Tareas del otro}}.$$

]

Preguntas de control

Preguntas:

1. [Usted hace 6 secuencias, y los otros participantes hacen 4 secuencias cada uno. / Usted hace 6 secuencias, y el otro participante hace 4 secuencias. / Usted hace 6 secuencias, y el otro participante hace 4 secuencias.] Su probabilidad de tener el Contrato A en la siguiente ronda es:

   0% , 30%, **50%**, **60%**, 90% ó **100%**

2. [Usted hace 6 secuencias, y los otros participantes también hacen 6 secuencias cada uno. / Usted hace 6 secuencias, y el otro participante también hace 6 secuencias. / Usted hace 6 secuencias, y el otro participante también hace 6 secuencias.] Su probabilidad de tener el Contrato A en la siguiente ronda es:

   0% , 30%, **50%**, 60%, 90% ó 100%

Appendix C

Care valuation and old-age support: an experiment

C.1 Balance Table

Table C.1: Balance between treatments: Son and Daughter conditions

	(1) Obs.	(2) Mean	(3) Std. Dev	(4) Mean Son	(5) Mean Daughter	(6) p-value Diffs. (4) vs (5)
Age	944	34.41	11.60	34.68	34.15	0.48
Female	942	0.63	0.48	0.64	0.62	0.51
N. Parents-alive	944	1.64	0.64	1.65	1.64	0.84
Mother Age	944	61.19	14.03	61.35	61.03	0.73
Father Age	944	59.47	12.30	59.35	59.59	0.77
Having children	944	0.39	0.49	0.39	0.39	0.92
Pension Contribution	944	0.51	0.50	0.53	0.49	0.29
Parents Pension	944	0.49	0.50	0.52	0.46	0.04
Time Transfer	944	92.54	99.95	95.00	90.14	0.46
Time Informal	944	37.69	44.33	37.44	37.92	0.87
Time Formal	944	28.06	50.48	29.68	26.49	0.33
Education Level	944					0.86
High School		0.11	0.31	0.11	0.10	
Technical		0.18	0.39	0.18	0.19	
Undergraduate		0.42	0.49	0.43	0.42	
Postgraduate		0.28	0.45	0.28	0.29	
Income $<$ COP 2000000	944	0.38	0.49	0.38	0.38	0.96
Occupation	944					0.91
Only Student		0.08	0.27	0.07	0.09	
Unemployed		0.09	0.28	0.08	0.09	
Full Time		0.41	0.49	0.42	0.39	
Partial Time		0.10	0.30	0.10	0.10	
Self-employed		0.26	0.44	0.26	0.27	
Unpaid-work		0.03	0.18	0.03	0.03	
Other		0.04	0.19	0.04	0.03	
Laptop	944	0.70	0.46	0.70	0.70	0.93

C.2 Additional Tables

Table C.2: Frequency distribution of WTP categories (in kCOP) by caregiver type

WTP	Transfer	Family	Professional	Total
0	22.67	10.28	13.35	15.43
10-140	49.58	62.5	51.27	54.45
150	27.75	27.22	35.38	30.12

Table C.3: Frequency distribution of WTP (in kCOP) by treatment conditions

	Transfer		Family		Professional	
WTP	Son	Daughter	Son	Daughter	Son	Daughter
0	25.16	20.25	11.61	8.98	15.27	11.48
10	1.29	1.46	1.29	1.88	0.86	0.84
20	2.58	2.71	3.01	3.34	1.51	2.51
30	4.09	3.97	5.81	2.3	3.66	3.55
40	2.58	2.71	4.3	3.55	2.15	1.88
50	5.59	4.59	6.45	6.26	3.87	2.71
60	1.94	2.92	3.66	4.18	2.8	3.76
70	1.08	1.04	1.72	1.25	1.94	3.55
80	3.87	5.01	4.3	5.43	3.44	2.92
90	3.01	3.34	4.09	5.01	4.73	4.8
100	4.09	3.13	6.24	5.43	4.3	3.13
110	2.58	0.84	3.66	1.46	2.8	2.51
120	7.96	11.48	11.4	15.45	9.68	10.86
130	3.01	2.51	3.23	4.59	3.66	4.59
140	4.52	5.22	1.94	3.76	4.52	5.01
150	26.67	28.81	27.31	27.14	34.84	35.91

Table C.4: Frequency distribution of WTP categories (in kCOP) by the gender of the participants

	Transfer		Family		Professional	
WTP	Man	Woman	Man	Woman	Man	Woman
0	22.92	22.6	11.17	9.78	13.47	13.32
10-140	48.71	49.92	58.45	64.76	50.14	52.11
150	28.37	27.49	30.37	25.46	36.39	34.57

Table C.5: Frequency distribution of WTP categories (in kCOP) by gender identity

	Transfer		Family		Professional	
WTP	Same sex	Different sex	Same sex	Different sex	Same sex	Different sex
0	24.24	20.29	10.77	9	14.48	11.51
10-140	48.15	50.84	63.64	63.81	50.51	52.72
150	27.61	28.87	25.59	27.2	35.02	35.77

Table C.6: Frequency distribution of WTP categories (in kCOP) for participants with and without children

	Transfer		Family		Professional	
WTP	No Children	Children	No Children	Children	No Children	Children
0	19.16	28.11	7.49	14.59	10.8	17.3
10-140	50.52	48.11	65.68	57.57	51.39	51.08
150	30.31	23.78	26.83	27.84	37.8	31.62

Table C.7: Frequency distribution of WTP categories (in kCOP) by the aspire money transfer

	Transfer		Family		Professional	
WTP	0	> 0	0	> 0	0	> 0
0	19.5	28.08	9.24	12.03	12.44	14.9
10-140	49.24	50.14	62.35	62.75	49.24	54.73
150	31.26	21.78	28.4	25.21	38.32	30.37

Table C.8: Frequency distribution of WTP categories (in kCOP) by the aspire time transfer (in hours)

	Transfer			Family			Professional		
WTP	0 hrs	1-8 hrs	9 hrs+	0 hrs	1-8 hrs	9 hrs+	0 hrs	1-8 hrs	9 hrs+
0	16.26	22.29	30.08	6.91	10.61	13.14	9.35	12.55	19.07
10-140	42.68	53.46	49.15	56.91	65.15	63.14	45.12	54.11	52.12
150	41.06	24.24	20.76	36.18	24.24	23.73	45.53	33.33	28.81

Table C.9: Frequency distribution of WTP categories (in kCOP) for the non-egalitarian and egalitarian participants

	Transfer		Family		Professional	
WTP	Inequality	Equality	Inequality	Equality	Inequality	Equality
0	19.44	29.57	8.24	14.62	10.42	19.6
10-140	55.05	37.87	68.58	49.5	58.16	36.54
150	25.51	32.56	23.17	35.88	31.42	43.85

Table C.10: Frequency distribution of WTP categories (in kCOP) by the parent's pension contribution

	Transfer		Family		Professional	
WTP	No Pension	Pension	No Pension	Pension	No Pension	Pension
0	18.18	26.97	7.58	12.86	12.12	14.52
10-140	52.16	47.1	66.02	59.13	54.33	48.34
150	29.65	25.93	26.41	28.01	33.55	37.14

C.3 Additional Figures

Disadvantageous Inequality Block

Dec. Nr.	LEFT		Your Choice	RIGHT	
	you receive	other person receives		you receive	other person receives
1	COP 30,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
2	COP 35,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
3	COP 40,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
4	COP 45,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
5	COP 50,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
6	COP 55,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
7	COP 60,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
8	COP 65,000	COP 65,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000

Advantageous Inequality Block

Dec. Nr.	LEFT		Your Choice	RIGHT	
	you receive	other person receives		you receive	other person receives
1	COP 30,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
2	COP 35,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
3	COP 40,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
4	COP 45,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
5	COP 50,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
6	COP 55,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
7	COP 60,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000
8	COP 65,000	COP 35,000	LEFT ○ ○ RIGHT	COP 50,000	COP 50,000

Figure C.1: EET Multiple Price List Blocks adapted from Kerschbamer (2015)

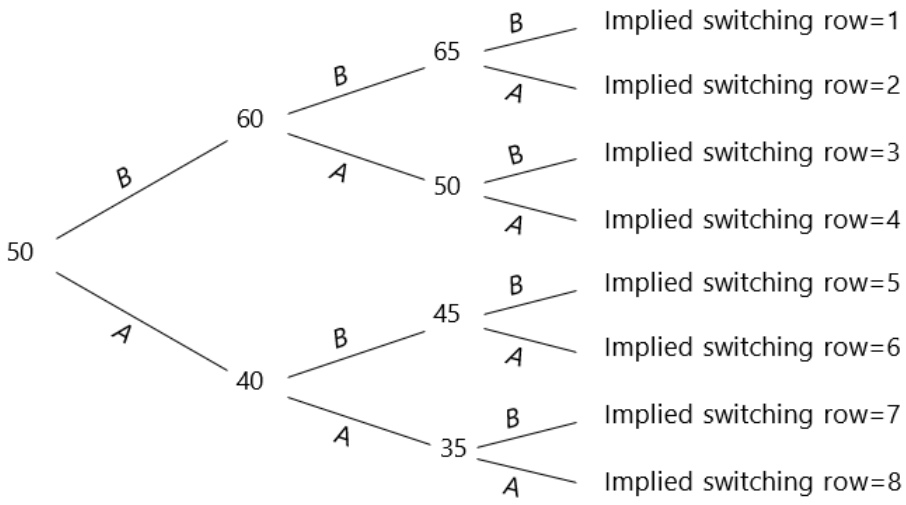


Figure C.2: Tree for the staircase EET (numbers in kCOP = receivers allocation, A= Non egalitarian option, B= Egalitarian option)(Kerschbamer, 2015)

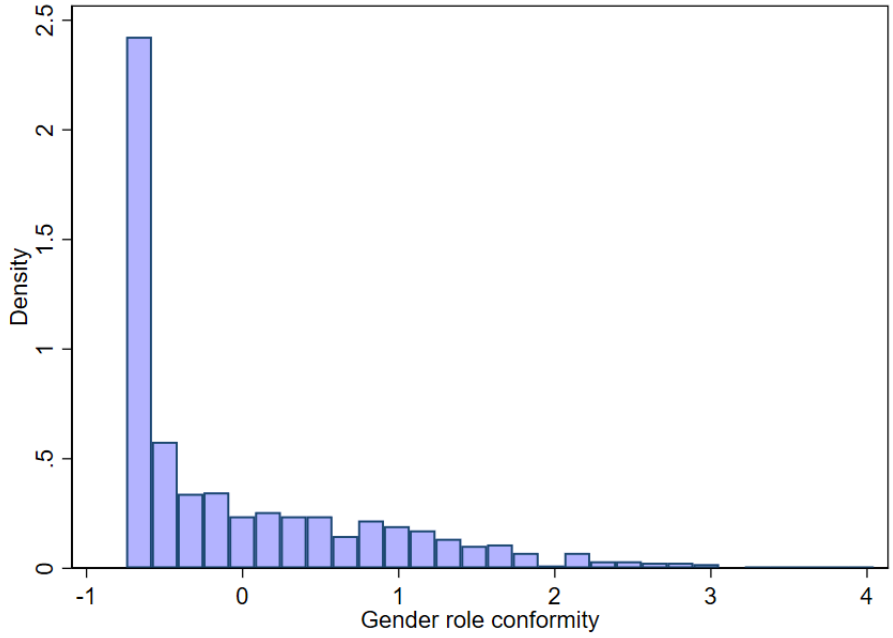


Figure C.3: Frequency distribution of "gender role conformity" in our sample.

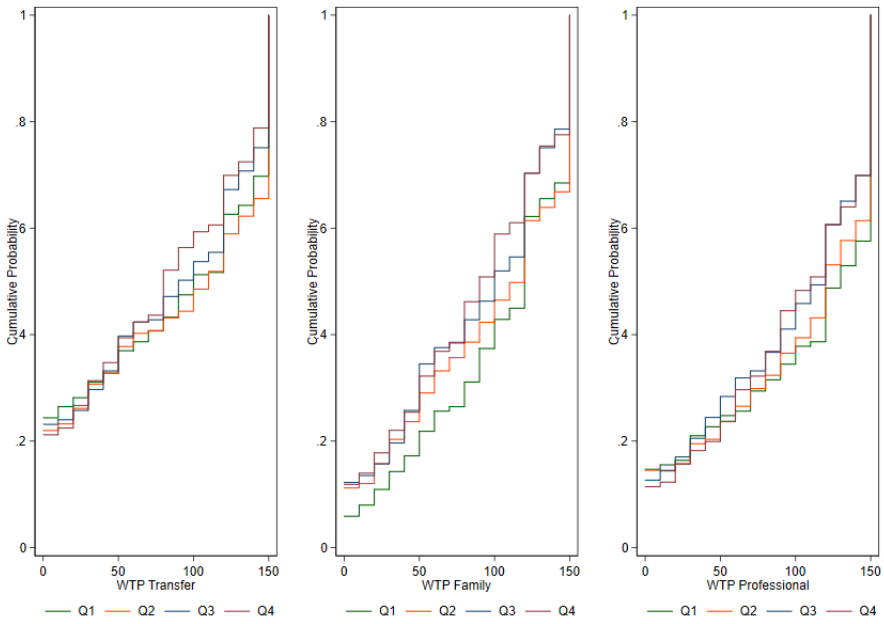


Figure C.4: Cumulative distribution function of WTP (in kCOP) by type of care and quartiles of response times.

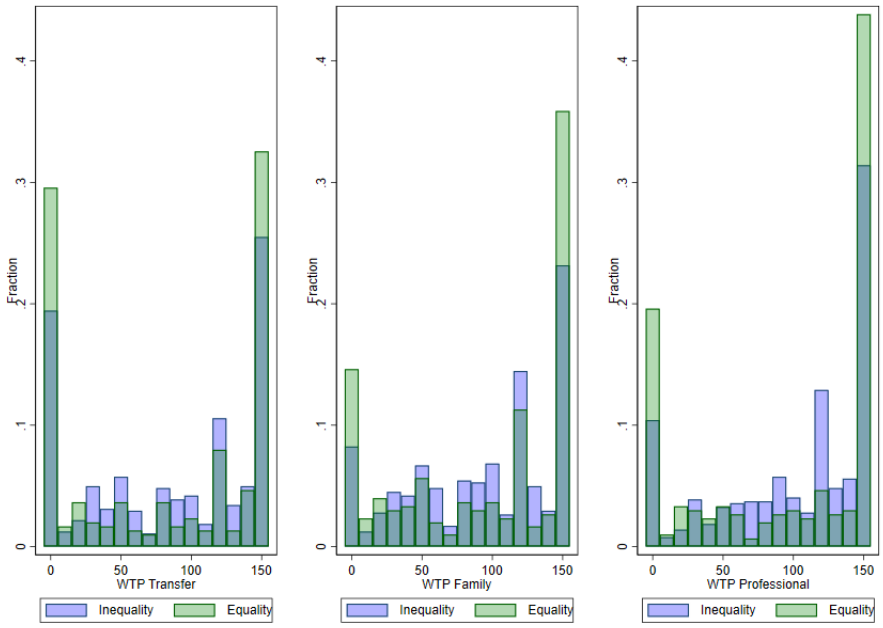


Figure C.5: Frequency distribution of WTP for nonegalitarian/egalitarian participants.

C.4 Experimental Protocol: Translated Version

- **Caregiver type:** We use *green* for the *Transfer* condition, and *orange* for the *Family* condition, and *blue* for the *Professional* condition.
- **Hypothetical child's gender:** We use *gray* for the *Son* condition, and *brown* for the *Daughter* condition.

General Instructions

In this activity, you will answer 3 questions about *a hypothetical case* (imaginary). Upon completing the activity and answering the final survey, you will receive $15,000. Additionally, you may be selected to receive an additional payoff described below.

Additional Payoff

The amount of the additional payoff will be between $35,000 and $65,000. This depends on your decisions, the decisions of other participants, and luck.

Message us on WhatsApp at 3157304369 if you need help or if you have any problem, and one of the monitors will contact you to assist you with the activity.

To begin the activity, please introduce the initial letters of your first name and last name, followed by your birth date. For instance, if your name is Lina Rıos and you were born on 11 February 1995, you will have to type LR11021995. This tag is important to ensure your participation in the rest of the activity and the payment assignment. [Participant Code]

Click on "Next" to start.

General Instructions

Please answer the following questions. These are hypothetical cases, so there are no right or wrong answers, but we ask you to respond according to what **YOU consider appropriate** in each situation.

Case

Suppose that [Camilo/Camila] is [an only son/an only daughter]. The parents of [Camilo/Camila] are 65 years old and can no longer work. Throughout their lives, neither their father nor their mother made contributions to pension funds, and they also have no other savings. *They need the help of a person for 8 hours each week to do some tasks.*

Question [1/2/3]

[Camilo/Camila] must decide between personally taking care of their parents or [giving them money/paying a family member/paying a professional]. In this question, assume that [the money that] [Camilo/Camila] [gives to his/her parents is for them to find someone to help them/is the one who pays the family member to help his/her parents/is the one who pays a professional to help his/her parents] for 8 hours a week [(for example, a nursing assistant)].

Next, we will present you two options: a amount of money that [Camilo/Camila] can [pay for someone to/pay to a family member to/pay to a professional to] help his/her parents , or the option for [Camilo/Camila] to dedicate 8 hours to helping them. When the amount is low, it is cheaper to [for someone to help his/her parents/pay the family member to help his/her parents/pay the professional to help his/her parents]; and when the amount is high, it is cheaper to personally help them for 8 hours than to pay [someone/the family member/the professional].

As we want to understand when it seems best to you that [Camilo/Camila] pays for help, or when [Camilo/Camila] should help for 8 hours instead of paying, we will present **4** different situations. **In all situations, the number of hours that [Camilo/Camila] should dedicate is 8 hours, but the amount of money [will change/that must be paid to the family member will change/that must be paid to the professional will change].**

What should [Camilo/Camila] do?
Please click on the box in front of the option that you believe [Camilo/Camila] should choose. Remember that [Camilo/Camila] has to decide between:

- *dedicating 8 hours a week to care of his/her parents* **-Option A-** or
- *[giving them money so they can find someone to/paying a family member to/paying a professional to]* help them **-Option B-**.

Question 1: Situation # of 4.

- **Option A:** Dedicating 8 hours a week to personally caring for his/her parents. **[8 hours]**.
- **Option B:** [Giving/Paying/Paying] $X[1]0,000 [weekly to their parents so they can find someone to help them/to a family member to help their parents for 8 hours a week/to a professional to help their parents for 8 hours a week] **[$X0,000]**.

Final Part

In this final part of the questionnaire, we will present you with 6 different situations about money allocations. In each situation, you can choose between two allocations: **Option A** and **Option B**. Each allocation implies payments for the **sender** and the **receiver**.

[1]It can take values between 1 and 15 depending on the choices of the participants and according with the tree for the staircase procedure described in the experimental design.

Situations 1 to 3

- In **Option A**, the money allocation for the **sender** will change, but the allocation for the **receiver** will always be $65,000.
- In **Option B**, both the **sender** and the **receiver** are always assigned $50,000.

Situations 4 to 6

- In **Option A**, the money allocation for the **sender** will change, but the allocation for the **receiver** will always be $35,000.
- In **Option B**, both the **sender** and the **receiver** are always assigned $50,000.

Drawing for additional gains

We ask you to respond to these 6 situations carefully, we will select 1 in every 10 people who respond to this survey to receive an additional payoff on top of the $15,000 for completing the activity.

The additional gain is calculated with a series of consecutive lotteries:

- The first lottery defines whether you will receive the gain: 1 out of every 10 will receive it.
- The second lottery defines whether you receive the gain from the sender or the receiver. Each option is equally probable, like when flipping a coin to play "heads or tails."
- The third and final lottery defines which of the six situations will be used to define the payment.

You will not know the identity of the person you are paired with, and the person you are paired with will not know your identity.

Situations 1 to 3

Please click on the blue box in front of the option you prefer. Remember that you must decide between two money allocations: **Option A** and **Option B.**

*Both options imply payments for the **sender** and the **receiver**.*

Situation # of 6.
Option A: What you receive: $X[2]0,000
What the other person receives: $65,000
[Option A].
Option B: What you receive: $50,000
What the other person receives: $50,000
[Option B].

[2]It can take values depending on the choices of the participants and according with the tree for the staircase procedure in the figure C.2.

Situations 4 to 6

Please click on the blue box in front of the option you prefer. Remember that you must decide between two money allocations: **Option A** and **Option B**.

*Both options imply payments for the **sender** and the **receiver**.*

Situation # of 6.
Option A: What you receive: $X0,000
What the other person receives: $35,000
[Option A].
Option B: What you receive: $50,000
What the other person receives: $50,000
[Option B].

Results

If you are chosen to receive the additional gain, the situation # could determine your payment.

In situation # you preferred option [A/B]

Option A: What you receive: $X0,000
What the other person receives: $Y0,000
[Option A].
Option B: What you receive: $50,000
What the other person receives: $50,000
[Option B].
In option A, you receive $X0,000 and the other person receives $Y0,000. The sum of what both receive is: $Z0,000

C.5 Experimental Protocol: Original Version (Spanish)

Las variaciones en el protocolo están escritas en corchetes, y están codificadas por colores:

- **Tipo de cuidador:** Usamos el color *verde* para la condición *Transferencia*, y el color *naranja* para la condición *Familiar*, y *azul* para la condición *Profesional*.
- **Sexo del hijo hipotético:** Usamos el color *gris* para la condición *Hijo*, y el color *pardo* para la condición *Hija*.

Instrucciones Generales

En esta actividad responderá 3 preguntas sobre *un caso hipotético* (imaginario). Por completar la actividad y responder la encuesta final recibirá $15.000. Además, podrá ser seleccionado para recibir una ganancia adicional que se describe a continuación.

Ganancia Adicional

El valor de la ganancia adicional estará entre $35,000 y $65,000. Ésta depende de sus decisiones, de las decisiones de los demás participantes, y del azar.

Escribanos al WhatsApp 3157304369 si necesita ayuda o en caso de que tenga algún problema, y uno de los monitores se comunicará con usted para brindarle asistencia en la actividad.

Para iniciar por favor ingrese las iniciales de su primer nombre y apellido seguido de su fecha de nacimiento. Por ejemplo, si usted se llama Lina Ríos y usted nació el 11 de febrero de 1995, debe ingresar LR11021995. Escriba todo en mayúscula. Este código es importante para asegurar su participación en el resto de la actividad y la realización de los pagos. [Código de participante]

Haga *clic* en "Siguiente" para comenzar.

Instrucciones Generales

Por favor responda las siguientes preguntas. Son casos hipotéticos, por lo que no hay respuestas correctas ni incorrectas, pero le pedimos responder de acuerdo con lo que **USTED considera adecuado** en cada situación.

Caso

Suponga que [Camilo/Camila] es [hijo único/hija única]. Los padres de [Camilo/Camila] tienen 65 años, y ya no pueden trabajar. Durante su vida, ni su padre ni su madre hicieron aportes a los fondos de pensiones y tampoco tienen otros ahorros. *Ellos necesitan la ayuda de una persona durante 8 horas a la semana para hacer ciertas tareas.*

Pregunta [1/2/3]

[Camilo/Camila] debe decidir entre encargarse personalmente de ayudar a sus padres o [darles dinero/pagar a un familiar/pagarle un profesional]. En esta pregunta, asuma que [el dinero que] [Camilo/Camila] [les entrega a sus padres es para que ellos busquen a alguien que los ayude/es quien le paga al familiar para que ayude a sus padres/es quien le paga a un profesional para que ayude a sus padres] durante 8 horas a la semana [(por ejemplo, un auxiliar de enfermería)].

A continuación, le presentaremos dos opciones: un monto de dinero que [Camilo/Camila] puede [pagar para que alguien /pagarle a un familiar para que/pagarle a un profesional para que] ayude a sus padres , o la opción de que [Camilo/Camila] dedique 8 horas a ayudarles. Cuando el monto es bajo, es más "barato" [pagar para que le ayuden a sus padres/pagarle al familiar para que le ayude a sus padres/pagarle al profesional para que le ayude a sus padres]; y cuando el monto es alto, es más "barato" ayudarles personalmente las 8 horas que pagarle [a una persona/al familiar/al profesional].

Como queremos entender cuándo le parece a usted mejor que [Camilo/Camila] pague por la ayuda, o cuándo [Camilo/Camila] debería ayudar por 8 horas en vez de pagar, le presentaremos **4** situaciones diferentes. **En todas las situaciones el número de horas que debería dedicar [Camilo/Camila] es de 8 horas, pero la cantidad de dinero [irá cambiando/que deberá pagarle al familiar irá cambiando/que deberá pagarle al profesional irá cambiando].**

¿Qué debería hacer [Camilo/Camila]?

Por favor haga clic en el recuadro que está frente a la opción que cree [Camilo/Camila] debería elegir.

Recuerde que [Camilo/Camila] debe decidir entre:

- *dedicar 8 horas a la semana para ayudar a sus padres* **-Opción A-** o
- *[darles dinero para que ellos busquen a alguien/pagarle a un familiar para/pagarle a un profesional para]* que los ayude **-Opción B-**.

Pregunta 1: Situación # de 4.

- **Opción A:** Encargarse personalmente de ayudar a sus padres durante 8 horas a la semana. **[Poner 8 horas]**.
- **Opción B:** [Darle/Pagarle/Pagarle] $X[3]0,000 [semanalmente a su padres para ellos busquen a alguien que los ayude/a un familiar para que ayude a sus padres durante 8 horas a la semana/a un profesional para que ayude a sus padres durante 8 horas a la semana] **[Poner $X0,000]**.

[3]Puede tomar valores entre 1 y 15 dependiendo de las elecciones de los participantes y de acuerdo con el procedimiento de escalera descrito en el diseño experimental2.2.

Parte final

En esta última parte del cuestionario, le presentaremos 6 situaciones diferentes sobre asignaciones de dinero. En cada situación puede elegir entre dos asignaciones: **Opción A** y **Opción B**. Cada asignación implica pagos para quién **envía** y quién **recibe**.

Situaciones 1 a 3

- En la **Opción A**, la asignación de dinero para quien **envía** irá cambiando, pero la asignación para quien recibe siempre será de $65,000.
- En la **Opción B**, a quien **envía** y **recibe** siempre se le asignan $50,000.

Situaciones 4 a 6

- En la **Opción A**, la asignación de dinero para quien **envía** irá cambiando, pero la asignación para quien recibe siempre será de $35,000.
- En la **Opción B**, a quien **envía** y **recibe** siempre se le asignan $50,000.

Sorteo de las ganancias adicionales

Le pedimos que responda a estas 6 situaciones con mucha atención, pues seleccionaremos a 1 de cada 10 personas que respondan esta encuesta para que reciba ganancias adicionales a los $15,000 por completar la actividad.

La ganancia adicional se calcula con una serie de loterías consecutivas:

- La primera lotería define si usted recibirá la ganancia: 1 de cada 10 la recibirán.
- La segunda lotería define si usted recibe la ganancia de la persona que envía, o la persona que recibe. Es igual de probable cada opción, como cuando se lanza una moneda para jugar al "cara y sello".
- La tercera y última lotería define cuál de las seis situaciones se utilizará para definir el pago.

Usted no podra conocer la identidad de la persona con la que fue emparejado y la persona con la que fue emparejado tampoco podra conocer su identidad.

Situación 1 a 3

Por favor haga clic en el recuadro azul que está frente a la opción que usted prefiera. Recuerde que debe decidir entre dos asignaciones de dinero: **Opción A** y **Opción B.**

*Ambas opciones implican pagos para quién **envía** y quién **recibe.***

Situación # de 6.

Opción A: Lo que usted recibe: $X[4]0,000
Lo que la otra persona recibe: $65,000
[Opción A].
Opción B: Lo que usted recibe: $50,000
Lo que la otra persona recibe: $50,000
[Opción B].

Situación 4 a 6

Por favor haga clic en el recuadro azul que está frente a la opción que usted prefiera. Recuerde que debe decidir entre dos asignaciones de dinero: **Opción A** y **Opción B**.
*Ambas opciones implican pagos para quién **envía** y quién **recibe**.*

Situación # de 6.
Opción A: Lo que usted recibe: $X0,000
Lo que la otra persona recibe: $35,000
[Opción A].
Opción B: Lo que usted recibe: $50,000
Lo que la otra persona recibe: $50,000
[Opción B].

Resultados

Si usted es elegido para recibir la ganancia adicional, la situacion # podria determinar su pago.

En la situacion # usted prefirio la opcion [A/B]

Opción A: Lo que usted recibe: $X0,000
Lo que la otra persona recibe: $Y0,000
[Opción A].
Opción B: Lo que usted recibe: $50,000
Lo que la otra persona recibe: $50,000
[Opción B].
En la opcion A usted recibe $X0,000 y la otra persona recibe $Y0,000. La suma de lo que ambos reciben es: $Z0,000

[4]Puede tomar valores que dependen de las elecciones de los participantes y de acuerdo con el procedimiento de escalera presentado en la figura C.2.