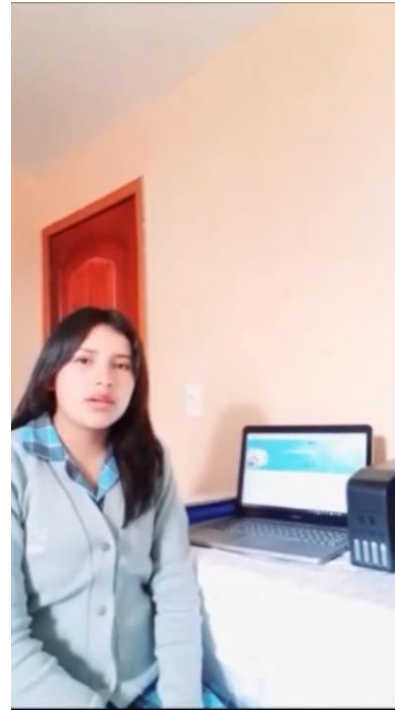


Phone-Based Assessment of Learning in the Last Years of School

Question 1: How to ensure high responses in remote assessment?

- Phone-based learning assessment **in the first months of the COVID-19 pandemic** (June - September 2020) of students in the **last three grades of school (K10, K11, K12)** in Ecuador.
- The sample consisted of 14,800 students (115 schools) covered by the program before pandemic.
- After pandemic, we were aiming to reach not less than 7,000 students by phone at home->
- We randomly ordered student phone numbers and randomly (re-) assigned enumerators.
- We surveyed students in **randomly formed 10 groups, waves** to increase representatives.
- When enumerators got through all waves attempting to reach every student multiple times, we randomly sampled **700 non-responders for intensive tracking** (contacting them through different media, recovering phones, offering monetary incentives).
- We successfully interviewed 7,317 students, with an overall survey **response rate of 49.43%**.
- Intensive tracking yielded a **40% response rate among** a random sample of 700 **initial non-responders**.



The picture used with kind permission from student, parents, and ministry of education of Ecuador.

BASELINE CHARACTERISTICS BY SURVEY RESPONSE STATUS

- We see lower response rates for students from the **bottom wealth quartile**, and among **male students**.
- We reweigh the sample means by **giving more weight to an intensively tracked random sample of initial non-responders**, slightly reducing the difference between respondents and non-responders (see Molina-Millán and Macours, 2021 for benefits of this strategy)

Table A1. Baseline Characteristics by Survey Response Status

	Don't Answer Survey	Answer Survey	Answer Survey (reweighted intensively tracked)	Standardized Mean Difference Column 1,2	Standardized Mean Difference Column 1,3
	(1)	(2)	(3)	(4)	(5)
Age	16.04	15.97	15.97	0.064	0.061
Female	0.48	0.55	0.54	0.134	0.12
Lowest Wealth Quartile	0.28	0.22	0.23	0.132	0.101
Second Wealth Quartile	0.24	0.26	0.25	0.041	0.017
Third Wealth Quartile	0.24	0.27	0.27	0.069	0.071
Top Wealth Quartile	0.25	0.25	0.25	0.021	0.014
Mother's education: high school or less	0.37	0.39	0.38	0.037	0.02
Mother's education: beyond high school	0.63	0.61	0.62	0.037	0.02
Grade 10	0.35	0.32	0.33	0.068	0.055
Grade 11	0.38	0.38	0.37	0.003	0.028
Grade 12	0.27	0.3	0.31	0.068	0.088
Only speaks native language	0.05	0.05	0.05	0.006	0.014
Sample Size (Students)	7,483	7,317			

Phone-Based Assessment of Learning in the Last Years of School

Question 3: Comparison with in-person measurement

In-Person Learning Assessment

Right before the pandemic outbreak (Before March 2020)

- 14,800 upper-secondary students (K10,K11,K12) In Educational Zone 2, Ecuador
- **Computer-Based Tests in the classroom in-person on:**
 - Personal Initiative
 - Negotiations
 - Statistics
 - English
 - Spanish

Phone-Based Learning Assessment

From June 30 to September 7, 2020

- 7,317 upper-secondary students are surveyed by phone and random 50% of respondents receive (on randomly selected subjects)
- **Phone-Based Assessment of learning on subject-specific knowledge questions (with the highest reliability)**
 - Personal Initiative
 - Negotiations
 - Statistics
 - X English (Foreign Language)
 - Spanish
- Framed as a game '**Who Wants to be a Millionaire**'
- Incentives: For randomly selected 90% of respondent's **lottery ticket to participate in a draw for a \$100 prize**. Each correct answer brings one more lottery ticket.

WHO declares Covid Outbreak (March 2020)

RELIABILITY OF PHONE-BASED ASSESSMENT IN THE LAST YEARS OF SCHOOL

Table 1: Reliability of Phone-Based Assessment (Weighted Regression)

	Phone-Based Assessment: Percentage of Correct Answers			
	Personal Initiative (1)	Negotiations (2)	Statistics (3)	Spanish (4)
Classroom-Based Assessment: Percentage of Correct Answers				
Personal Initiative	0.167*** (0.019)			
Negotiations		0.101*** (0.026)		
Statistics			0.056** (0.028)	
Spanish				0.202*** (0.016)
Treatment Lottery	-1.355 (2.215)	2.145 (2.343)	2.847 (2.107)	1.373 (2.54)
Constant	68.489*** (1.25)	26.777*** (0.943)	21.769*** (0.906)	63.862*** (1.327)
Students	1,507	1,504	1,514	3,000

Note: Intensively tracked students receive a weight of 10. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

- We find that **phone-based assessment has a very weak correlation with a performance at the in-person learning assessment.**
- The performance of phone-based assessments in the final grades of school is **comparable to the performance of phone-based assessments on basic numeracy and literacy in early grades** (Rodriguez-Segura and Schueler, 2022).
- We do not find that incentives improve student performance on a phone-based evaluation.