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COVID-19 and economic preferences

Evidence from a panel of cab drivers

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COVID-19 and economic preferences: evidence from a panel of cab drivers*

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Abstract

This paper investigates the impact of the COVID-19 pandemic on risk and time preferences. We use a longitudinal dataset from a survey of cab drivers in Lima (Peru) conducted before and nearly a year after the pandemic onset. We find a significant increase in risk tolerance and patience. The magnitude of the effect increases with age and becomes substantially larger for individuals 50 years and older. Our findings suggest that the pandemic could influence individuals' behaviour and socioeconomic outcomes via another channel, namely changes in economic preferences.

JEL classification: D01, D81, D91, I18
Keywords: risk preferences, time preferences, COVID-19

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1 Introduction

A substantial body of evidence finds that economic preferences are not stable but may be affected by shocks and life events such as illness, natural disasters, or civil war, among others.[1] Given the severe disruption caused by the COVID-19 pandemic, several studies have started to examine its impact on economic preferences. Answering this question is important to better understand the short and long run impacts of the pandemic on socioeconomic outcomes.[2] A worrying possibility is that, in addition to documented impacts on health and socioeconomic outcomes, the pandemic could have also affected core determinants of human behavior.

The existing evidence is, however, inconclusive. Some studies report no effects, while others find significant changes but with mixed signs (some positive, others negative).[3] Most of these studies use data from young individuals (usually undergraduate students) interviewed shortly after the onset of the pandemic. These features limit our ability to understand the broader impact of the pandemic and its heterogeneous effects, especially among older cohorts. Moreover, they are not informative of medium to long-term effects of the pandemic, only of its impact in the early months.

This paper examines the impact of the COVID-19 pandemic on risk and time preferences. We address data limitations of previous studies by using a longitudinal dataset of cab drivers in Lima (Peru) interviewed before the pandemic and almost a year after its onset (January 2021). Our sample encompasses a wide range of ages (from early 20s to late 60s), so we can examine in detail heterogeneous effects by age. The time of the survey also allow us to gain

[1] For a review of the literature on stability of preferences see Chuang and Schechter (2015), Schildberg-Hörisch (2018), Voors et al. (2012), Hanaoka et al. (2018), Brown et al. (2019), Jakiela and Ozier (2019), Malmendier and Nagel (2011), Carvalho et al. (2016), Akesaka (2019), Aragón et al. (2020) and references therein.

[2] For a survey on the literature on the socioeconomic impact of the COVID-19 pandemic see Brodeur et al. (2021).

[3] For a summary of recent empirical findings see Ikeda et al. (2020), Drichoutis and Nayga (2021) Lohmann et al. (2020), Harrison et al. (2022) and references therein.

some insights on the potentially long-lasting effects on preference purged from the initial shock of the pandemic.

Our empirical analysis relies on survey measures of risk and time preferences. These measures are constructed using the same methodology as the Global Preference Survey (Falk et al., 2018), an experimentally validated survey method. Our identification strategy exploits the panel data dimension by examining changes in measures of preferences for a given individual over time, such as in Hanaoka et al. (2018).

We find evidence of a significant increase in risk tolerance and patience. The magnitude of the change is, on average, around 0.15-0.20 standard deviations. The effects are heterogeneous and increase with age. For individuals 50 years and older, the magnitude of the effect is quite large (around 0.40-0.48 standard deviation), while for younger cohorts (30-40 years old) the effect is much smaller (around 0.15-0.17) and statistically insignificant. Moreover, the change in preferences among older cohorts seems to be a more widespread phenomenon not linked to having suffered an actual shock (such as illness, death of relatives or loss of employment). In contrast, among younger cohorts, the effects are explained by individuals directly suffering a negative health shock. These heterogeneous results have not been documented before, but they are consistent with older people being more exposed to the COVID-19 shock.

The pattern of results is qualitatively similar to the effect of natural disasters (such as earthquakes and hurricanes) on economic preferences documented in several studies (Eckel et al., 2009; Callen, 2015; Kahsay and Osberghaus, 2018; Hanaoka et al., 2018). These studies also show an increase in risk-taking and patience in people who have been exposed to catastrophic events. These papers explain their findings as driven by the primacy of negative emotions triggered by traumatic or stressful experiences (Loewenstein et al., 2001; Lerner and Keltner, 2001). We do find evidence of a change in individuals' self-reported emotional state (e.g. increase in anxiety). However, this phenomenon does not seem to

explain the observed change in preferences.

2 Methods

Data We use data from a baseline and follow-up survey collected by the research team in Lima metropolitan area before and after the onset of the COVID-19 pandemic. The baseline survey was collected in May 2019 using in-person interviews from a sample of, randomly-selected, cab drivers (n=2,377). We conducted a follow-up phone survey in January 2021. The follow-up survey re-interviewed around half of the original participants (n=1,281). The survey was collected as part of a randomized control trial on the effect of a savings product. To avoid confounding our results with this intervention, we focus on the control group sample.

Our final dataset consists of 416 individuals, mostly men, for which we have both baseline and follow-up data (see Table 1 for summary statistics). The use of longitudinal data reduces concerns that our findings reflect changes in sample composition (i.e., attrition bias). However, the potential selective attrition implies that our results might not be representative of the original population.

Measuring economic preferences We construct survey-based measures of risk-taking and patience at individual level. We follow the same methodology as the Global Preference Survey (GPS), an experimentally validated survey dataset of economic preferences (Falk et al., 2018).

This methodology elicits an individual's preferences by combining two survey items: (1) a sequence of hypothetical choices between a fixed lottery and varying sure payments (or between immediate and delayed financial rewards in the case of time preferences), and (2) self-assessment of the respondent's willingness to take risks (or wait).[4] The two survey items

[4]See Appendix A for details on the survey questions. For additional information on the survey methodology and validity see Falk et al. (2016) and Falk et al. (2018).

Table 1: Summary statistics

	All	Age group	
		Under 50	Over 50
A. Sociodemographic characteristics			
Is female (%)	3.1	2.9	4.0
Age	39.8	36.0	57.2
Complete tertiary education (%)	47.1	45.2	56.0
Is studying (%)	12.5	14.7	2.7
In a relationship (%)	65.6	63.6	74.7
Number of children	1.2	1.2	1.4
Suffers chronic disease (%)	9.4	8.2	14.7
Does not have health insurance (%)	47.4	51.3	29.3
B. Self-reported shock to HH member in last 12 months			
Suffered (mild) COVID-19	11.5	12.0	9.3
Serious illness, accident or death	13.7	12.9	17.3
Negative income shocks	58.9	58.9	58.7
Victim of theft or burglary	6.5	6.5	6.7
No. obs.	416	341	75

Notes: Variables in Panel A from baseline survey in May 2019. Variables in Panel B collected in follow-up survey in January 2021.

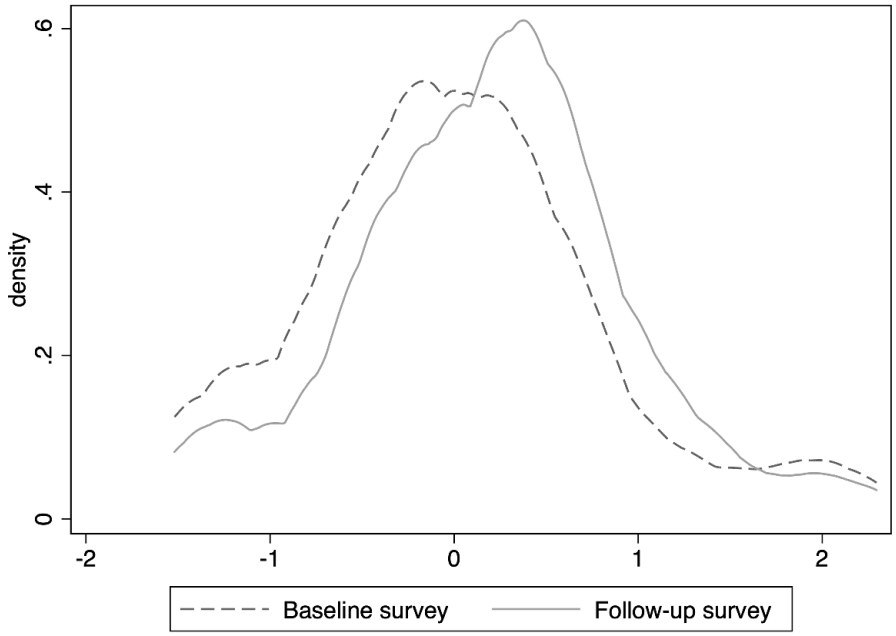
are combined in an index by taking a weighted average of the normalized values (z-scores).[5] The z-scores are obtained using the mean and standard deviation in the baseline period.

Figure 1 displays the distributions of our two measures of economic preferences in both the baseline and follow-up periods. We observe a rightward shift for both distributions. This observation suggests an increase in risk-taking and patience.

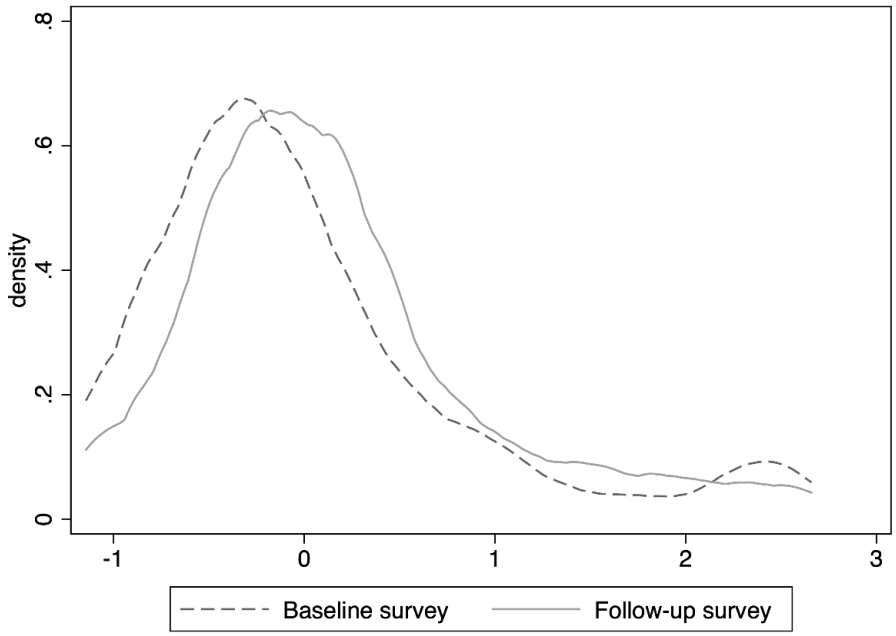
Identification strategy We estimate the impact of the COVID-19 pandemic by comparing the preferences of a given individual after the onset of the pandemic to her preferences in an earlier period. Formally, we estimate the following first-difference panel data model:

[5]We use same weights as the GPS, i.e., 0.2884815 for the self-assessment question.

Figure 1: Distribution of measures of economic preferences



(a) Risk-taking index



(b) Patience index

$$\Delta y_i = \alpha + \beta X_i + \epsilon_i, \tag{1}$$

where $\Delta y_i = y_{i,t} - y_{i,t-1}$ is the change in the measure of preference y (risk-taking or patience) of individual i, between the baseline $(t-1)$ and follow-up (t) periods. X_i is a set of indicators of age group and having experienced a negative shock in last 12 months.

Given that we only have two periods, our approach is equivalent to a panel data model with individual fixed effect: $y_{it} = \alpha P_t + \beta(X_i \times P_t) + c + \eta_i + \varepsilon_{it}$, where c is a constant, $P_t = 1$ is an indicator of being in the follow-up period (after the pandemic onset), and η_i is an individual fixed effect. A similar approach has been used in other studies on the stability of preferences using longitudinal data, such as Hanaoka et al. (2018). Using within-individual variation reduces concerns of biases due to the presence of time-invariant omitted variables or changes in sample composition.

The parameters of interest in our baseline specification are α and β. The constant (α) captures the average change in preferences over time while β identifies heterogeneous impacts. Note that if X_i is correlated to an individual's exposure to the pandemic shock (like in the case of age), β can also be interpreted as a difference-in-difference estimate.[6]

3 Results

Table 2 displays our main results. We observe that, on average, there was a significant increase in both risk-taking and patience (columns 1 and 3). The magnitude of this change is around 0.15 to 0.19 standard deviations. The effects are heterogeneous and increase by age (column 2 and 4). For instance, among individuals 50 year and older, the measure of preferences increase by 0.40-0.48 standard deviations. In contrast, the impact on younger

[6] In that case, X_i could be interpreted as an indicator of being in the treated group, while P_t would be the treatment variable.

cohorts is much smaller (around 0.15-0.17 standard deviations for 30-50 years old), and statistically insignificant.

These heterogeneous results have not been documented before. However, they are consistent with older cohorts being more exposed to the COVID-19 shock due to their larger risk of severe illness and death. Moreover, they could explain the lack of significant effects reported in studies using samples of young undergraduate students and professionals (Angrisani et al., 2020; Lohmann et al., 2020; Harrison et al., 2022; Drichoutis and Nayga, 2021).

Table 2: Effect on economic preferences

	Δ risk-taking index		Δ patience index	
	(1)	(2)	(3)	(4)
Constant	0.190***	0.015	0.153***	-0.057
	(0.049)	(0.134)	(0.052)	(0.149)
Age 30-40		0.163		0.180
		(0.153)		(0.169)
Age 40-50		0.147		0.193
		(0.168)		(0.182)
Age 50+		0.390**		0.483***
		(0.167)		(0.183)
Observations	416	416	416	416
R-squared	0.000	0.014	0.000	0.019

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%.

Our baseline analysis has two important limitations. First, since our identification strategy exploits time-variation, our results could simply reflect the impact of other, time-varying, confounders not the effect of the COVID-19 pandemic. While we cannot rule out that possibility, the findings in columns 2 and 4 partially reduce this concern. Note that, under the assumption that COVID-19 affected older individuals more severely, we can use younger cohorts as a control group. In that case, the results can be interpreted as difference-in-difference

estimates of the effect of the pandemic on the older cohort.

Second, our estimates bundle the impact of changes in background risks (such as perceived greater risk of illness and death) with actual life events (i.e., having experienced severe illness or death of a relative). Both could affect our measures of economic preferences albeit the mechanisms would be different.

To disentangle these two channels, we collect additional information on life events experienced by the individual or a household member in the last year. These events include negative health and income shocks, like having suffered serious illness, death of a household member, or reduction of income or working hours.[7] We then replicate our baseline specification (1) adding these indicators of having experienced a life event as an additional covariate, and splitting the sample by age group.

Our results depict a richer picture of the impacts of the pandemic (see Table 3). Among the younger cohort (less than 50 years) the increase in risk-taking and patience occurs only if the individual has suffered a serious health shock (columns 1 and 2). In contrast, among the older cohort (50 years and more), there is an overall change in preferences regardless of having experienced a negative shock (columns 3 and 4). Interestingly, the magnitude of the effect (when it occurs) is comparable between both groups.

These results suggest that the pandemic has affected individuals' preferences by different channels. Among older cohorts, the effect seems to be driven by a change in the environment, while for younger cohorts the channel is more direct: having suffered a negative health shock. Interestingly, exposure to a negative income shock do not seem to have a systematic effect on preferences.

Negative emotions Previous studies on the effect of natural disasters on preferences document similar increases in risk-taking and patience. Several of these studies favor a

[7]See Table 1 for more information on the incidence of life events.

Table 3: Impact of life events on economic preferences

	Sample: age < 50		Sample: age ≥ 50	
	Δ risk-taking	Δ patience	Δ risk-taking	Δ patience
	(1)	(2)	(4)	(5)
Constant	0.051	0.042	0.569***	0.627***
	(0.088)	(0.094)	(0.167)	(0.191)
HH member suffered	0.043	0.115	-0.227	-0.259
(mild) COVID-19	(0.167)	(0.172)	(0.251)	(0.234)
Illness, serious accident	0.486***	0.548***	-0.413	-0.565*
or death of HH member	(0.184)	(0.192)	(0.305)	(0.320)
Negative income shock	0.039	-0.054	-0.110	-0.131
	(0.118)	(0.124)	(0.226)	(0.242)
HH member victim	0.006	-0.031	-0.095	-0.035
of theft or burglary	(0.173)	(0.149)	(0.355)	(0.269)
Observations	341	341	75	75
R-squared	0.027	0.030	0.045	0.066

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. HH=household. Negative income shock is an indicator of having experienced any of the following events: losing job, closure or bankruptcy of family business, reduction in labour income or working hours, and reduction of income from other sources.

psychological explanation of this phenomenon (Eckel et al., 2009; Callen, 2015; Kahsay and Osberghaus, 2018; Hanaoka et al., 2018). The argument is that economic preferences are driven, at least in part, by psychological factors. Thus, traumatic or stressful events (like a pandemic) could trigger negative emotions that, in turn, affect economic preferences.

To explore this explanation, we collected two (self-reported) measures of a individual's emotional state: happiness and anxiety.[8] We construct indices of happiness and anxiety normalizing the variables using the baseline mean and standard deviation, and assess its change over time.

[8]individuals are asked: "IN the scale from 0-10 how happy (anxious) were you yesterday?". These measures were collected in the baseline and follow-up survey.

We find evidence of a sizable increase (around 1.3 standard deviation) in the measure of anxiety, but no sizable impact on the happiness index (see columns 1 and 2 in Table 4). This finding is consistent with the COVID-19 pandemic being a traumatic event that increased negative emotions.

Two pieces of evidence, however, suggest that this explanation is unlikely to account for our findings. First, there is no differential impact on anxiety by age. This result contrasts with the observed greater impact of the pandemic on risk and time preferences of older individuals. Second, our baseline results (both in terms of magnitude and statistic significance) are unaffected by including measures of happiness and anxiety as additional controls (columns 3 and 4).

An alternative explanation is based on prospect theory. The starting point is the assumption that individuals are risk adverse when considering gains, but risk-loving when considering losses. In that case, a shift of the reference point would affect observed risk attitudes. In particular, individuals would adopt more risk-adverse attitudes after a gain, but more risk-loving after a loss.

This argument has been used to explained the increase in risk-tolerance after catastrophic events such as floods or earthquakes (Page et al., 2014; Li et al., 2011). Recently, Ikeda et al. (2020) find evidence supportive of this hypothesis in the context of the onset of the COVID-19 pandemic in Japan. We are, however, unable to explore this hypothesis in our context due to data limitations.[9]

[9]The GPS methodology elicits risk preferences by offering individuals choices only over positive payoffs (i.e., in the gain domain). Thus, it is not informative of their attitude towards losses.

Table 4: Effect on self-reported happiness and anxiety

	Emotional state		Economic preferences	
	Δ happiness index	Δ anxiety index	Δ risk-taking index	Δ patience index
	(1)	(2)	(3)	(4)
Constant	-0.117	1.337***	-0.049	-0.133
	(0.141)	(0.189)	(0.139)	(0.159)
Age 30-40	0.071	-0.361	0.181	0.202
	(0.161)	(0.225)	(0.152)	(0.169)
Age 40-50	-0.041	0.014	0.145	0.191
	(0.176)	(0.232)	(0.167)	(0.179)
Age 50+	0.053	0.134	0.385**	0.478***
	(0.189)	(0.246)	(0.165)	(0.180)
Δ happiness index			-0.026	-0.038
			(0.048)	(0.053)
Δ anxiety index			0.046	0.053*
			(0.031)	(0.032)
Observations	416	416	416	416
R-squared	0.002	0.019	0.019	0.026

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. HH=household.

4 Conclusion

This paper documents an increase in risk-taking and patience due to the COVID-19 pandemic in Peru. Consistent with older cohorts being at greater risk of severe illness and death, we find that the change in economic preferences is larger among individuals aged 50 and older. Our paper contributes to a body of evidence examining the socioeconomic impacts of the pandemic. Several studies have already shown that there is a significant impact on labour outcomes, health, and inequality. Our findings suggest that it can also influence core

determinants of human behaviour.

There are at least two unresolved issues that warrant further investigation. First, it is unclear what is causing the shift in preferences. Similar findings in the context of natural disasters are typically explained as the result of an intensification of negative emotions. However, our findings do not appear to be influenced by psychological factors. Second, studies conducted in other contexts produce qualitatively different results (such as no change in preferences or increase in risk aversion). These contrasting findings could be driven by differences in individual characteristics of the study group (such as age or occupation), but could also reflect countries' idiosyncratic exposure and policy responses to the pandemic.

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ONLINE APPENDIX

A Survey questions

N	Question		Details
Module I: Risk Aversion			
1	Below, I will introduce you to five different situations. In each situation you will have to choose between two options: [1] receive a secure payment of a certain amount of money and [2] play a lottery (or raffle) in which you will have the same odds of getting S/ 300, and of getting nothing. I will introduce you to five different situations: (Unique answer for each sub-question)		
1.1	What would you prefer, a lottery, with a 50% chance of receiving 300 Soles and a 50% chance of receiving nothing, or a secure payment of 160 Soles?	1	50% chance lottery (Go to question 1.17)
		2	Secure payment (Go to question 1.2)
1.2	Would you rather have a 50% chance of winning, or receive a secure payment of 80 Soles?	1	50% chance lottery (Go to question 1.10)
		2	Secure payment (Go to question 1.3)
1.3	Would you rather have a 50% chance of winning, or receive a secure payment of 40 Soles?	1	50% chance lottery (Go to question 1.4)
		2	Secure payment (Go to question 1.7)
1.4	Would you rather have a 50% chance of winning, or receive a secure payment of 60 Soles?	1	50% chance lottery (Go to question 1.5)
		2	Secure payment (Go to question 1.6)
1.5	Would you rather have a 50% chance of winning, or receive a secure payment of 70 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.6	Would you rather have a 50% chance of winning, or receive a secure payment of 50 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.7	Would you rather have a 50% chance of winning, or receive a secure payment of 20 Soles?	1	50% chance lottery (Go to question 1.8)
		2	Secure payment (Go to question 1.9)
1.8	Would you rather have a 50% chance of winning, or receive a secure payment of 30 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.9	Would you rather have a 50% chance of winning, or receive a secure payment of 10 Soles?	1	50% chance lottery (Go to question 2)

N	Question	Details	
		2	Secure payment (Go to question 2)
1.10	Would you rather have a 50% chance of winning, or receive a secure payment of 120 Soles?	1	50% chance lottery (Go to question 1.14)
		2	Secure payment (Go to question 1.11)
1.11	Would you rather have a 50% chance of winning, or receive a secure payment of 100 Soles?	1	50% chance lottery (Go to question 1.13)
		2	Secure payment (Go to question 1.12)
1.12	Would you rather have a 50% chance of winning, or receive a secure payment of 90 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.13	Would you rather have a 50% chance of winning, or receive a secure payment of 110 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.14	Would you rather have a 50% chance of winning, or receive a secure payment of 140 Soles?	1	50% chance lottery (Go to question 1.15)
		2	Secure payment (Go to question 1.16)
1.15	Would you rather have a 50% chance of winning, or receive a secure payment of 150 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.16	Would you rather have a 50% chance of winning, or receive a secure payment of 130 Soles?	1	50% chance lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.17	Would you rather have a 50% chance of winning, or receive a secure payment of 240 Soles?	1	50% chance lottery (Go to question 1.25)
		2	Secure payment (Go to question 1.18)
1.18	Would you rather have a 50% chance of winning, or receive a secure payment of 200 Soles?	1	50% chance lottery (Go to question 1.22)
		2	Secure payment (Go to question 1.19)
1.19	Would you rather have a 50% chance of winning, or receive a secure payment of 180 Soles?	1	50% chance lottery (Go to question 1.20)
		2	Secure payment (Go to question 1.21)
1.20	Would you rather have a 50% chance of winning, or receive a secure payment of 190 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.21	Would you rather have a 50% chance of winning, or receive a secure payment of 170 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.22	Would you rather have a 50% chance of winning, or receive a secure payment of 220 Soles?	1	50% probability lottery (Go to question 1.23)

N	Question	Details	
		2	Secure payment (Go to question 1.24)
1.23	Would you rather have a 50% chance of winning, or receive a secure payment of 230 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.24	Would you rather have a 50% chance of winning, or receive a secure payment of 210 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.25	Would you rather have a 50% chance of winning, or receive a secure payment of 280 Soles?	1	50% probability lottery (Go to question 1.29)
		2	Secure payment (Go to question 1.26)
1.26	Would you rather have a 50% chance of winning, or receive a secure payment of 260 Soles?	1	50% probability lottery (Go to question 1.27)
		2	Secure payment (Go to question 1.28)
1.27	Would you rather have a 50% chance of winning, or receive a secure payment of 270 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.28	Would you rather have a 50% chance of winning, or receive a secure payment of 250 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.29	Would you rather have a 50% chance of winning, or receive a secure payment of 300 Soles?	1	50% probability lottery (Go to question 1.31)
		2	Secure payment (Go to question 1.30)
1.30	Would you rather have a 50% chance of winning, or receive a secure payment of 290 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
1.31	Would you rather have a 50% chance of winning, or receive a secure payment of 310 Soles?	1	50% probability lottery (Go to question 2)
		2	Secure payment (Go to question 2)
2	On a scale of 0 to 10, where 0 means "not willing to take risks at all" and 10 means "very willing to take risks", please tell me, in general? how willing or unwilling are you to take risks? You can use any number between 0 and 10 to indicate where you are on the scale, using 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10. [Note: If the driver indicates Don't Know or No Answer, enter "-9999".]	0	Not willing to take risks at all
		1	
		2	
		3	
		4	
		5	Is indifferent
		6	
		7	
		8	
		9	
		10	Willing to take risks
Module II: Time Preferences			
3	Suppose you are given the choice between receiving a payment today or a payment in 12 months. I am now going to present you with five situations. Payment today is the same for all situations. Payment within 12 months is different for each case. For each of these situations we would like to know which one you prefer. Please assume that there is no inflation, that is, future prices will be the same as current prices. (Single answer for each sub-question)		

N	Question	Details	
3.1	Please consider the following: Would you prefer to receive 100 soles today or 154 soles in 12 months?	1	Today (Go to question 3.17)
		2	Within 12 months (Go to question 3.2)
3.2	Would you prefer to receive 100 soles today or 125 soles in 12 months?	1	Today (Go to question 3.10)
		2	Within 12 months (Go to question 3.3)
3.3	Would you prefer to receive 100 soles today or 112 soles in 12 months?	1	Today (Go to question 3.7)
		2	Within 12 months (Go to question 3.4)
3.4	Would you prefer to receive 100 soles today or 106 soles in 12 months?	1	Today (Go to question 3.6)
		2	Within 12 months (Go to question 3.5)
3.5	Would you prefer to receive 100 soles today or 103 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.6	Would you prefer to receive 100 soles today or 109 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.7	Would you prefer to receive 100 soles today or 119 soles in 12 months?	1	Today (Go to question 3.8)
		2	Within 12 months (Go to question 3.9)
3.8	Would you prefer to receive 100 soles today or 122 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.9	Would you prefer to receive 100 soles today or 116 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.10	Would you prefer to receive 100 soles today or 139 soles in 12 months?	1	Today (Go to question 3.14)
		2	Within 12 months (Go to question 3.11)
3.11	Would you prefer to receive 100 soles today or 132 soles in 12 months?	1	Today (Go to question 3.13)
		2	Within 12 months (Go to question 3.12)
3.12	Would you prefer to receive 100 soles today or 129 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)

N	Question	Details	
3.13	Would you prefer to receive 100 soles today or 136 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.14	Would you prefer to receive 100 soles today or 146 soles in 12 months?	1	Today (Go to question 3.16)
		2	Within 12 months (Go to question 3.15)
3.15	Would you prefer to receive 100 soles today or 143 soles in 12 months?	1	Today (Go to question 3)
		2	Within 12 months (Go to question 4)
3.16	Would you prefer to receive 100 soles today or 150 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.17	Would you prefer to receive 100 soles today or 185 soles in 12 months?	1	Today (Go to question 3.18)
		2	Within 12 months (Go to question 3.25)
3.18	Would you prefer to receive 100 soles today or 202 soles in 12 months?	1	Today (Go to question 3.22)
		2	Within 12 months (Go to question 3.19)
3.19	Would you prefer to receive 100 soles today or 193 soles in 12 months?	1	Today (Go to question 3.20)
		2	Within 12 months (Go to question 3.21)
3.20	Would you prefer to receive 100 soles today or 197 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.21	Would you prefer to receive 100 soles today or 189 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.22	Would you prefer to receive 100 soles today or 210 soles in 12 months?	1	Today (Go to question 3.23)
		2	Within 12 months (Go to question 3.24)
3.23	Would you prefer to receive 100 soles today or 215 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.24	Would you prefer to receive 100 soles today or 206 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.25	Would you prefer to receive 100 soles today or 169 soles in 12 months?	1	Today (Go to question 3.29)
		2	Within 12 months (Go to question 3.26)

N	Question	Details	
3.26	Would you prefer to receive 100 soles today or 161 soles in 12 months?	1	Today (Go to question 3.28)
		2	Within 12 months (Go to question 3.27)
3.27	Would you prefer to receive 100 soles today or 158 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.28	Would you prefer to receive 100 soles today or 165 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.29	Would you prefer to receive 100 soles today or 177 soles in 12 months?	1	Today (Go to question 3.31)
		2	Within 12 months (Go to question 3.30)
3.30	Would you prefer to receive 100 soles today or 173 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
3.31	Would you prefer to receive 100 soles today or 181 soles in 12 months?	1	Today (Go to question 4)
		2	Within 12 months (Go to question 4)
4	Consider a scale from 0 to 10, where 0 means "not willing to wait for higher benefits" and 10 means "very willing to wait for higher benefits." Now, tell me in general, how willing would you be to give up something that is beneficial to you today, so that you benefit more from it in the future? You can use any number between 0 and 10 to indicate how willing you would be. Use the values of 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10. [Note: If the driver indicates Don't Know or Doesn't Respond, enter "-9999".]	0	Not willing to wait at all
		1	
		2	
		3	
		4	
		5	Is indifferent
		6	
		7	
		8	
		9	
		10	Willing to wait