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Social Distancing and Risk Taking: Evidence from a Team Game Show

Abstract

We examine the risky choices of pairs of contestants in a popular radio game show in France. At one point during the COVID-19 pandemic the show, held in person, had to switch to an all-remote format. We find that such an exogenous change in social context affected risk-taking behavior. Remotely, pairs take far fewer risks when the stakes are high than in the flesh. This behavioral difference is consistent with prosocial behavior theories, which argue that the nature of social interactions influences risky choices. Our results suggest that working from home may reduce participation in profitable but risky team projects.

JEL-Codes: C930, D810, D910.

Keywords: COVID-19, social distancing, social pressure, decision making, risk.

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1 Introduction

Remote decision making became common during the COVID-19 pandemic, and this shift is expected to persist long after the pandemic ends (Barrero et al., 2021; Aksoy et al., 2022). There is today a broad trend toward online work arrangements (Agrawal et al., 2015). The scope for remote work is large. Dingel & Neiman (2020) estimate that 37% of jobs in the U.S. could be done entirely from home. In this context, it is important to ask how working in remote environments affects output and earnings. This paper investigates one channel—the willingness to take risks—through which the shift from in-person to remote work could affect output and earnings. We investigate this channel in a highly controlled context: the performance and participation of contestants in a popular game show. Created in 1958, the "1000 Euro Game" is the oldest radio game show in France.[1] At one point during the COVID-19 pandemic, the show, traditionally held in person, had to switch to an all-remote format due to social distancing constraints. This change allows us to examine the risky decisions of pairs of contestants performing the same task when the game is played remotely or in the flesh before an in-person audience. We find that remotely pairs take far fewer risks when the stakes are high than in the flesh.

The most important decision that pairs can make in this game is whether to play the final round, called the *Super Banco* (henceforward, the SB). To play, a pair has to give up the 500 euro prize it earned in the qualifying rounds for the chance to win a 1,000 euro prize by correctly answering a trivia question. The COVID-19 pandemic has not changed the structure of the game and the show has retained the same production team, show host, prizes, qualifying rounds and final round. However, the pandemic has changed the social context of the game. Prior to the home lockdowns during the COVID-19 emergency and when lockdowns were not in effect, the game was recorded in front of an audience ranging from 100 to 300 spectators. The audience encouraged contestants by chanting "su-per, su-per" while the players debated whether to take the risk of participating in the final round. When lockdowns were imposed in France at the height of the COVID-19 crisis, contestants had to perform remotely from their homes via smartphones.[2] Under these conditions, there was no in-person audience, and no eye contact was possible between the contestants or between them and the show host. They could still hear the shouts "su-per, su-per," but they knew they were

[1] The game, called "Jeu des 1000 euros", is broadcast by France Inter, a major French public radio channel and part of Radio France, a French public service radio broadcaster. Here, we follow a tradition that employs TV game shows for the study of decision making in risky choices (see e.g., Gertner, 1993; Metrick, 1995; Post et al., 2008; Antonovics et al., 2009).

[2] We traced the beginning of the COVID-19 crisis in France to President Emmanuel Macron's speech on March 12, 2020 (https://www.elysee.fr). See Section 2 for details.

a recording.

We find a 23 percentage point (p.p.) difference in risk-taking behavior in flesh and at a distance. In the flesh, 83% of the qualifying pairs choose to participate in the SB. In contrast, when playing remotely, only 60% of the pairs decide to play the SB. We also observe that the pairs' probability of winning depends negatively on their past performance, that is, the number of failed attempts, time to answer, and/or retaking questions in the qualifying rounds preceding SB. However, in-person pairs are less sensitive to past performance than remote pairs.

To understand our results on risk-taking decisions in different social contexts, we lay out a simple theoretical framework. Following Bénabou & Tirole (2006), we assume that a pair of contestants cares about their social image—i.e., the pair's utility depends on the audience's posterior expectations about them, conditional on the observation of their behavior. In theory, social pressure may have ambiguous effects. On the one hand, the social pressure exerted by the in-person audience may favor participation, while the pair responds to the audience's encouragement through a "gift of suspense and excitement".[3] On the other hand, social pressure may deter participation and harm performance if the pair is afraid or ashamed to fail in front of an in-person audience. We show that the risky decision to participate is also linked to the pairs' confidence in their ability to succeed, which depends on their past performance and the social context of the game. In-person shows may increase pairs' confidence in their ability to win through the ease of oral and visual communication between contestants. In contrast, remote shows may increase pairs' confidence due to the possibility of cheating by accessing external information.

Our framework delivers two simple predictions on the probability of participating in the final round given past performance. These performance-based participation probabilities are related to social image effects and pairs' confidence. First, keeping constant social image effects, a difference in confidence between in-person and remote pairs induces a monotonic difference in their performance-based participation probabilities. Second, keeping constant pair's confidence effects, a difference between in-person and remote pairs regarding their social image concern leads to nonuniform changes in their performance-based participation probabilities.

We estimate these two predictions using a dataset of 1,742 pairs of contestants. It is conceivable that the contestants selected to play in person and those selected to play remotely are not identical since the selection process differs for the two groups (as we explain below). However, we believe that pairs of contestants who make it to the final round are likely to be very similar. We have good measures of the ability of both the

[3]We thank Roland Bénabou for this gift of a nice expression.

in-person contestants and the remote contestants who survive to the final round since they answer many questions in the qualifying rounds that precede the SB. We find that remote pairs who qualify for the SB have on average a lower past performance. For instance, in the qualifying rounds, the contestants are allowed multiple attempts to answer each question for up to 30 seconds. Remote pairs had an average of 13 total failed attempts against 10 for in-person pairs. However, consistent with the hypothesis of common features of in-person and remote pairs, we do not find significant differences either in the final number of correct answers or in terms of earnings.[4]

All of the 1,342 remote and in-person pairs qualified for the penultimate round, called the *Banco*, decided to give up their gains to play for the 500 euro prize. In contrast, the decision to enter the final round is highly context-specific. However, the 23 p.p. average difference in the willingness to accept a larger all-or-nothing gamble could simply be attributable to the COVID-19 emergency itself. The global pandemic, by radically affecting sanitary and economic conditions, may have increased the contestants' risk aversion. Under this hypothesis, our results could be attributable not to the difference in social contexts but to the pandemic itself. To address this concern, we benefit from the fact that the in-person shows were resumed during the COVID-19 period from August 24, 2020, to November 27, 2020, and then from May 31, 2021, to July 1, 2022 (see Figure 1), allowing us to compare remote pairs to in-person pairs during the COVID-19 period. We find that remote pairs have a significantly lower likelihood of entering the SB than in-person pairs, both before and during the COVID-19 period. Overall, this test confirms that remote pairs behave differently toward risk than in-person pairs.

The social context of the game dramatically influences risky decisions as well as the success rate in the SB. We first investigate the role of confidence and social image concern in the decision to participate. As shown in the theory, the SB decision depends on the contestants' assessment of their future chances, which depends on their past performance. Failed attempts, despite being inconsequential, undermine the contestants' confidence. Given that the remote pairs that qualified for the SB have on average a lower past performance, they may have a lower average confidence. Conditioning on pair demographic characteristics and past performance, we find a smaller expected difference between in-person and remote pairs in the probability of participating in the SB: the average probability is 5 p.p. higher in the in-person format (versus 23

[4]This first result suggests that although the production team is concerned about it, cheating does not seem to be a widespread problem in the remote context. The production team asked the remote contestants to commit themselves on their honor not to consult the Internet or an encyclopedia and not to receive help from friends or family. The team also ensured that by the nature of their wording, the questions were not "googleable" in the time allotted to answer them (see the Online Appendix B for the transcripts of the shows).

p.p. without any control). This remaining difference could be explained, as noted, by the fact that, for the same past performance, in-person shows may increase pairs' confidence in their ability to win through the ease of oral and visual communication between contestants. Moreover, as our first prediction suggests, this difference in participation probability remains constant for any level of past performance.

Social image concerns matter, however. We capture their influence by interacting past performance variables with the social context of the game. The interactions capture the idea that for the same past performance, the remote pair would not participate while an in-person would participate. Conditioning on the same controls and the interactions, we find that, accounting for *both* social image and confidence differences, in-person pairs participate on average 17 p.p. more than remote pairs (versus 5 p.p. without any interaction). The in-person interactions with the audience and between the contestants could exert social pressure by encouraging low-performing pairs to enter the SB, whereas the same pairs would refrain from participating in the remote format. The in-person live audience does indeed press for the game to continue. At the time of decision making, face-to-face contact between contestants may also be relevant, especially if some prefer to continue playing.[5] Therefore, as our second prediction suggests, the profiles of participation probabilities between in-person and remote pairs diverge once we control for social image concerns.

We then investigate the influence of the social context on the success rate in the SB. In the raw data, 55% of in-person pairs win the Super-Banco versus 52% for remote pairs. This average difference becomes zero once we control for demographics and past performance levels. However, this difference in success is inverted once we account for social image concerns: remote pairs have an 11 percentage point higher success rate in the SB than in-person pairs. One explanation could be related to what psychologists call "choking under pressure" (Baumeister, 1984) and the fact that playing in front of a live audience is much more stressful.

Overall, we find evidence that remote pairs participate much less in the SB than in-person pairs. In doing so, remote pairs miss out on opportunities to win in expectation. This implication points to an apparent behavioral inconsistency: as the remote context appears more favorable for pairs to succeed in the SB, due to less social pressure, remote pairs should enter the SB in greater proportions. Our results suggest that the reasons for this paradox are confidence effects within pairs and social image concerns that provide in-person pairs with stronger incentives to participate in the SB.

We also examine the risky choices of contestants by gender. Women are much less

[5] We should also note the presence of the presenter. Although he is neutral during the Banco and SB decisions and simply mediates in cases of disagreement, his physical presence may be important.

represented than men (He et al., 2008; Jetter & Walker, 2018; van Dolder et al., 2020; Booth & Lee, 2021). Accordingly, 45% of pairs are male, 51% are mixed-gender and only 4% are female. Compared to mixed and female pairs, we find weak evidence that male pairs perform better in the SB than in the qualifying rounds, consistent with gendered behavioral responses to psychological pressure (Booth & Lee, 2021). The only notable difference between our results and the findings in the literature is on the decision to enter the different rounds of the game. It is well documented that men and women respond differently to risk (Eckel & Grossman, 2008; Croson & Gneezy, 2009; Bertrand, 2011). However, we find that female and mixed pairs are not more risk averse than male pairs: we find no gender differences in the probability of entering the different rounds of the game.

This paper is related to the literature on the effects of social pressure on consumption (Goldfarb et al., 2015) and charity (DellaVigna et al., 2012).[6] Our results complement those of papers investigating the role of social pressure via peer effects (Falk & Ichino, 2006; Mas & Moretti, 2009) or through the presence of crowds in sports.[7] Our results are also relevant given the broadening trend toward more online work arrangements (Agrawal et al., 2015; Dingel & Neiman, 2020). The impact of risk-taking on teamwork is a dimension that firms must consider when deciding on their remote work policies. Studies on teamwork before (Battiston et al., 2021; Dutcher, 2012; van der Meulen et al., 2019) or during the COVID-19 pandemic (DeFilippis et al., 2020; Yang et al., 2022) examine the effects of working from home on teamwork productivity.[8] They do not consider the potential impact of working from home on risk decisions. However, our results suggest that working from home may reduce involvement in profitable but risky team projects.[9]

The remainder of the paper is organized as follows. Section 2 discusses the data

[6] Goldfarb et al. (2015) show that consumers purchases depend on the social context. People may be less inhibited from buying non-standard items when purchasing on a screen rather than from a human to avoid negative social judgment. DellaVigna et al. (2012) suggest that social pressure is an important determinant of door-to-door giving. The social pressure interpretation is also consistent with the lack of donations via mail or Internet.

[7] Garicano et al. (2005) shows how professional soccer referees favor home teams to satisfy the crowds in the stadium. More recently, the COVID-19 pandemic has provided further evidence of social pressure by allowing researchers to exploit the lack of crowds in stadiums (see Endrich & Gesche, 2020; Bryson et al., 2021; Scoppa, 2021).

[8] A recent survey of over 2,000 UK working adults also suggests that online meetings are more efficient for smaller gatherings of 2 to 4 people while in-person meetings are preferred for gatherings of 10 or more. See Taneja, S., Mizen, P. and Bloom, N., (2022), "Comparing online to in-person meetings", VoxEU.org, 4 January 2022.

[9] The role of social pressure in a team project may come from the involvement of senior managers or the number of participants in a group discussion. Consider a meeting where a risky business decision is being made such as investing in a new production line. Participants may feel less pressure to take risks or support a risky project in a remote meeting than in a face-to-face meeting.

and the context of the game. Section 3 lays out a simple theoretical framework that guides our estimation. Section 4 presents and comments on the empirical results focusing primarily on SB contestants. Finally, section 5 concludes and derives some implications from our results.

2 Data and Context of the Game

The data used in this paper were taken from the "1000 Euro Game" broadcast between June 2011 and July 2022. There are 1,742 total games and 3,484 unique subjects. Created in 1958, this game is the oldest French radio quiz show that is still on air.[10] Traditionally, the show is recorded in person and travels around France during the year. Episodes are then broadcast a few days later. Of the in-person shows, 76% were recorded in urban areas, versus 24% in rural areas. At one point during the COVID-19 pandemic the show had to switch to an all-remote format. The remote episodes represent 5.5% of all shows. In this context, the radio shows were broadcast live and the contestants had to perform remotely from home with only audio contact.

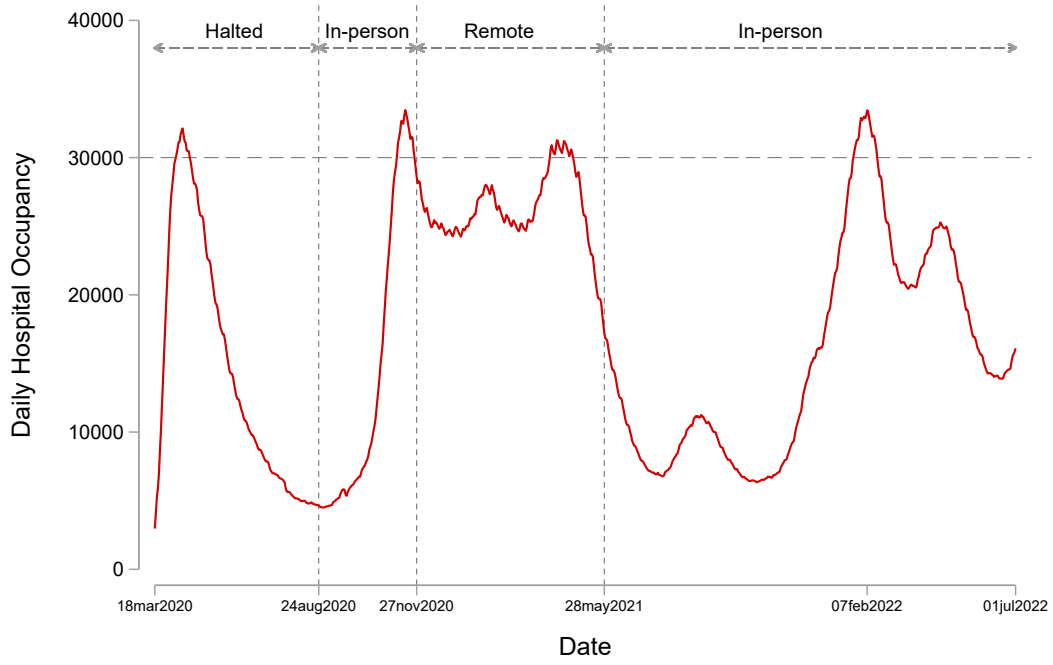
Our pre-COVID-19 period extends from June 20, 2011, to March 12, 2020, which corresponds to the date of President Emmanuel Macron's speech on the first wave of the COVID-19 crisis in France.[11] Due to home lockdowns, the game was halted from March 13, 2020, until the end of the season (typically in late June or early July). The show was resumed in person at the beginning of the following season, from August 24, 2020, to November 27, 2020. Then, it switched to remote from November 30, 2020, to May 28, 2021. Finally, in-person shows were resumed from May 31, 2021, to July 1, 2022 (our last collected show). These different phases of the COVID-19 era are depicted at the top of Figure 1. We also report the daily number of COVID-19 patients admitted to hospitals in France. This figure shows that 2 of the 4 peaks exceeding 30,000 daily hospitalizations occur within a period of in-person shows. Overall, the changes in the organization of the show induced by the COVID-19 pandemic allow us to compare the behavior of pairs in a remote context to that of pairs in a in-person setting during the pandemic in uncertain time and before the pandemic in more normal times.

Regardless of the social context, each show hosts two contestants who are randomly paired to form a team. They answer trivia questions about the humanities

[10] The data were collected from the France Inter website, where the episodes are available in podcast form (https://www.franceinter.fr/emissions/le-jeu-des-1000-euros).

[11] Three days later, "nonessential" public places were closed to the public and five days later, the first home lockdown began until May 11, 2020. France then experienced two more lockdowns due to the COVID-19 outbreak: from October 28, 2020, to December 14, 2020, and from April 3, 2021, to May 3, 2021.

Figure 1: Type of Shows and Covid-19 Hospitalizations in France



Notes: Due to home lockdowns, the game was halted from March 13, 2020, until the end of the season. The show was then resumed in person at the beginning of the following season, from August 24, 2020, to November 27, 2020. Then, it switched to remote from November 30, 2020, to May 28, 2021. Finally, in-person shows were resumed from May 31, 2021, to July 1, 2022 (our last collected show). The y-axis represents the daily number of COVID-19 patients admitted to hospitals in France. Official data collated by Our World in Data.

and social and natural sciences over a series of three rounds. The Online Appendix B presents transcripts of in-person and remote shows. All questions are sent in by listeners.[12] The production ranks the questions and groups them by difficulty. Then, the contestants choose the questions randomly in each group of difficulty. The game is organized into three rounds.

2.1 The Three Rounds of the Game

Table 1 presents the main descriptive statistics by game round.

[12]One exception is the "draft" question (see below). Listeners are incentivized to send in questions (by email or mail). If a contestant does not answer a question correctly, the listener who sent the question wins a cash prize depending on the difficulty of the question, i.e., 15 euros for the first three questions, 30 for the next two and 45 for the last one. In the next two rounds, the prize for each unanswered question is capped at 45 euros. See Appendix A.1 for descriptive statistics about senders.

Table 1: Descriptive Statistics for All Pairs by Round of the Game

	Mean (1)	Std. Dev. (2)	Min. (3)	Max. (4)
Pre-Banco (PB): 6 questions for 150 euros				
Number of pairs	1,742			
Proportion of pairs with:				
fewer than 5 answers	0.202	0.40		
5 answers	0.388	0.49		
6 answers	0.410	0.49		
Number of retake questions	1.581	1.16	0.00	5.00
Number of failed attempts	9.920	4.03	3.00	46.00
Gains in euros	123.10	28.33	15.00	150.00
Banco (B): 1 question for 500 euros				
Number of pairs	1,342			
Entry decision	1.000			
Response time in seconds	29.01	17.51	0.00	60.00
Success	0.713	0.45	0.00	1.00
Super Banco (SB): 1 question for 1,000 euros				
Number of pairs	957			
Entry decision	0.813	0.39	0.00	1.00
Success	0.549	0.50	0.00	1.00
Overall gain in euros	307.47	412.80	0.00	1,000.00

Notes: During the Pre-Banco, pairs have 30 seconds to respond correctly to each question. They can err as much as they want. For each question to which they fail to respond, they are offered a second chance. Contestants may enter the Banco in two cases: (1) if they answer all 6 questions correctly or (2) if they answer 5 questions plus a 'draft' question correctly. If they answer fewer than five questions correctly, the game ends, and they keep their earnings. The number of retake questions includes second chances and the draft question. Contestants have 1 minute to answer the Banco or the Super Banco by providing only one answer.

2.1.1 The Pre-Banco Round: 6 Questions for 150 Euros

In the first round, called the Pre-Banco round, the team or pair draws six questions to answer. The total prize money is an increasing function of the number of questions that are answered correctly and their difficulty: 15 euros for the first three, 30 for the next two and 45 for the last one, totaling 150 euros.

The contestants are allowed multiple attempts to answer each question for up to 30 seconds. Each question not answered correctly during the 30-second window is asked again, as a second chance, but then only one answer is allowed within 15 seconds. At the end of that round, there are three possibilities:

1. If the pair has answered fewer than five questions correctly, the game ends, and

the contestants keep their earnings. Table 1 indicates that 20% of the pairs answer fewer than five questions correctly (including on their second chance).

2. If the pair has correctly answered five questions (39% of the cases), they can leave with their earnings or try to answer a "draft" question that is made easier because three possible choices are provided (this is the only question that is not sent by listeners). If the contestants fail to answer the draft question correctly, the game ends, and the contestants keep their earnings. However, if they answer correctly, they are forced to enter the next round of the game (the banco).

3. If the pair has answered all six questions correctly (41% of the cases), they can decide to leave with their earnings (150 euros) or enter the next round. When they are making this decision, the audience or the soundtrack yells "ban-co, ban-co!" to encourage the contestants.

A total of 1,342 out of 1,742 pairs correctly answered 6 questions or 5 questions plus the draft question. Based on the total number of failed attempts (approximately 10 on average; see Table 1) and the number of retake questions (approximately 1.6 on average, which corresponds to second chances and the "draft" question), we can control for the past performance of contestants in the subsequent rounds.

The Banco Round: 1 Question for 500 Euros

This round consists of one question that is considered more difficult than those asked in the first round. Each pair is allowed only one attempt but with a minute to respond. Contestants can consult each other but it is not mandatory. The pairs take on average 29 seconds to answer (*Response time*). If their response is correct, which is the case for 71% of the pairs, the prize to be shared is 500 euros. If the response is incorrect, the pair loses all its earnings and leaves with a small gift such as a book.

Remarkably, as displayed in Table 1, *all* of the 1,342 qualified pairs decided to proceed to the second round, regardless of the risk involved and the social context, whether in-person or remote.

The Super Banco Round: 1 Question for 1,000 Euros.

The SB works like the Banco round, but the question is drawn from among the toughest questions sent in by listeners. This difficulty may explain why only 55% of the teams succeed in correctly answering the SB question correctly, while 71% correctly answer in the Banco round. Another explanation could be related to what psychologists call "choking under pressure" (Baumeister, 1984). High rewards can, in some cases, result in a decline in performance (Ariely et al., 2009; Dohmen, 2008). In a case

of success, the pair receives 1,000 euros. In a case of failure, the pair loses its entire 500 euro prize and leaves with a small gift. Entering the SB thus involves a better chance of winning than under a coin toss but includes the risk of losing previous gains.

Before participating in the SB (and the Banco), the contestants deliberate and can consult each other (see the Online Appendix B for the transcripts of the shows). However, in in-person shows, the exchanges between the contestants are unfortunately quite often inaudible. The decision to end the game is made during the jingle or off-mic. In remote shows, the contestants' communication is audible, and we can clearly hear their decision. In a case of disagreement, the host favors the contestant who wants to quit, and the game ends.[13]

Contrary to the Banco, the share of pairs who enter the SB and try to win the 1,000 euro prize depends on the social context. When the game is recorded in person, 83% of the pairs enter the SB. When the pairs play remotely, the interactions are virtual, and only 60% of pairs decide to participate in the SB.

2.2 The Contestants

The contestants are highly positively selected, with respect to both who applies and who is chosen to be on the show. We investigated how contestants are selected by the production team. Initially, contestants are screened on their ability to correctly answer trivia questions supplemented, if necessary, by a draw to break a tie. In person, the selection is made on site before the recording of the program itself. Remotely, the contestants had to submit an online preregistration form with a list of questions to be answered (see Appendix A.1 for more details).

As is often revealed in introductory small talk or in other conversations during the show, the contestants are passionate about the show. From these conversations, we are also able to construct some demographics, which are reported in Appendix Table A1. Half of the contestants are employed, and most are men (70%). Therefore, as in many game shows (He et al., 2008; Jetter & Walker, 2018; van Dolder et al., 2020; Booth & Lee, 2021), women are much less represented than men.

2.3 In-person versus Remote Shows

Our main interest lies in comparing in-person and remote pairs. A limitation of this comparison is that remote pairs are always mixed-gender. For this reason, in Table 2, we divide the three rounds of the show into different pair groups: male pairs (MM),

[13] See the Online Appendix B for an example, May 11, 2021.

Table 2: Descriptive Statistics on In-person vs. Remote Pairs

Means of:	In Person					Remote	
Gender of Pairs:	MM	FF	FM	Diff.		FM	Diff.
	(1)	(2)	(3)	(2)-(1)	(3)-(1)	(4)	(4)-(3)
Pre-Banco (PB): 6 questions for 150 euros							
Number of pairs	778	75	794			95	
Proportion of pairs with:							
fewer than 5 answers	0.207	0.213	0.191	0.006	-0.016	0.242	0.051
5 answers	0.391	0.360	0.389	-0.031	-0.002	0.379	-0.010
6 answers	0.402	0.427	0.419	0.024	0.017	0.379	-0.040
Gain in euros	122.969	122.000	123.873	-0.969	0.904	118.579	-5.294
Banco (B): 1 question for 500 euros							
Number of pairs	594	55	623			70	
Entry decision	1.000	1.000	1.000	0.000	0.000	1.000	0.000
Success	0.717	0.582	0.717	-0.135^{c}	0.000	0.743	0.025
Gain in euros	358.586	290.909	358.748	-67.677^{c}	0.162	371.429	12.681
Super Banco (SB): 1 question for 1,000 euros							
Number of pairs	425	32	447			52	
Entry decision	0.829	0.781	0.826	-0.047	-0.003	0.596	-0.229^{a}
Success	0.578	0.480	0.528	-0.098	-0.049	0.516	-0.012
Gain in euros	577.904	480.000	528.455	-97.904	-49.448	516.129	-12.326
Overall gain in euros	323.683	243.400	299.887	-80.283^{c}	-23.796	288.632	-11.255
Past performance measures of pairs qualified for the Super Banco							
# Retake questions (PB)	1.567	1.520	1.550	-0.047	-0.016	2.000	0.450^{a}
# Failed attempts (PB)	9.297	9.587	10.139	0.290	0.842^{a}	13.453	3.314^{a}
Response time (B)	27.615	31.550	28.369	3.935^{c}	0.754	44.497	16.128^{a}

Notes: Descriptive statistics between 2011 and 2021 on (1) male teams (MM), (2) female teams (FF), (3) mixed in-person teams (FM), (4) mixed remote teams (FM). Columns 1 to 4 show average values. The other columns report t-tests of the difference in means between different samples. ^{a} and ^{b} indicate significance at the 1% and 5% level, respectively. '#' is short for 'Number of'. Response time is given in seconds.

female pairs (FF) and mixed-gender pairs (FM). Interestingly, despite the differences in the numbers of observations between groups, most of the differences appear small and insignificant.

Comparing more specifically remote and in-person mixed-gender pairs (column 3 vs. column 4), we observe on average very similar proportions in their number of correct answers to the Pre-Banco questions and in their Banco or SB success rates. We observe, however, differences in their past performance. For instance, on average, remote pairs retake 2 questions in the Pre-Banco, in comparison to the 1.6 questions for in-person pairs. Remote pairs also fail 3 more attempts in total than in-person pairs in the Pre-Banco, while we observe no differences in their proportion of correct answers

or their earnings. Mixed-gender remote pairs are also 16 seconds slower in the Banco than in-person pairs. However, it should be mentioned that remote communication may slow down coordination between contestants relative to that in in-person shows, where communication may be instantaneous, for example, through eye contact. Therefore, the observed difference in response time between remote and in-person shows does not simply signal a difference in performance. However, we assume for both types of show, whether remote or in person, that a slower response time may signal lower performance.

Contestants face two difficult choices: whether to participate in the Banco and the Super Banco. The stakes are different, but the decision process is similar in the two cases: pairs must agree to participate. If they disagree, the game ends (see above). However, in-person and remote pairs communicate differently, as evidenced by the difference in response times and show transcripts (see Online Appendix B). Despite these differences in communication and coordination, all mixed pairs (and single-gender pairs) decide to participate in the Banco. A remarkable difference, however, relates to the participation of the remote mixed pairs in the SB, which is approximately 23 percentage points lower than that of the in-person mixed pairs. We propose a simple theoretical framework to explain the difference in participation in the SB when the stakes are highest.

3 A Simple Framework

We lay out a simple framework where the decision to participate in the SB is linked to social pressure that differs according to the social context. We index the two different contexts by $g \in \{I, R\}$, where I stands for in person (the pair competes in front of an audience) and R for remote (the pair competes from home with only audio contact).

Following Bénabou & Tirole (2006), we assume that a pair of contestants cares about their social image—i.e., that their utility depends on others' posterior expectations about them, conditional on the observation of their behavior. Formally, consider a pair j undertaking the visible action $a_j \in \{0, 1\}$, which is equal to one if the pair enters the final round and zero otherwise. We assume that participation is more socially desired by the audience than nonparticipation, regardless of the context $g \in \{I, R\}$. If contestants opt to participate, the game would be one round longer with one additional difficult quiz question. This explains why the audience encourages j by chanting "su-per, su-per!" while the pair weighs their risky decision on whether to participate in the final round. The main difference is that for the in-person reference group I, the pair is encouraged to participate by a live audience, while the encouragement of

group R is done virtually through a soundtrack. How the difference in social contexts I and R may affect participation is ambiguous. An in-person audience may increase the likelihood of a pair choosing to participate through social pressure. The pair can respond to the encouragement through a gift of suspense and excitement. However, social pressure may deter participation if the pair is afraid or ashamed to fail in front of an in-person audience.

Formally, pair j decides to participate in the SB if the corresponding expected utility, $V_{jg}(\ell_j)$, is greater than the utility of its winnings (500 euros), i.e.,

$$V_{jg}(\ell_j) \equiv p_{jg}(\ell_j)(U_j(1000) + b_j) + (1 - p_{jg}(\ell_j))(U_j(0) - c_j) + \mu_{jg}A_{jg}(\ell_j) \geq U_j(500),$$

where $U_j(w)$ is the pair j's utility from a monetary gain $w \in \{0, 500, 1000\}$, with $U_j' > 0$ and $U_j'' \leq 0$, $b_j \geq 0$ is their personal satisfaction from having correctly answered the SB question, $c_j \geq 0$ is their disutility from having failed, and $p_{jg}(\ell_j) \in [0, 1]$ is their perceived probability of winning. This probability depends on both the social context of the show ($g \in \{I, R\}$) and the pair's past performance ℓ_j, i.e., the number of failed attempts and retake questions in the previous rounds of the game, with $p_{jg}'(\ell_j) \leq 0$. We can indeed assume that the perceived probability of winning decreases with ℓ_j due to the pair's loss of confidence in its ability to correctly answer the challenging SB question when it has performed relatively poorly in the qualifying rounds.

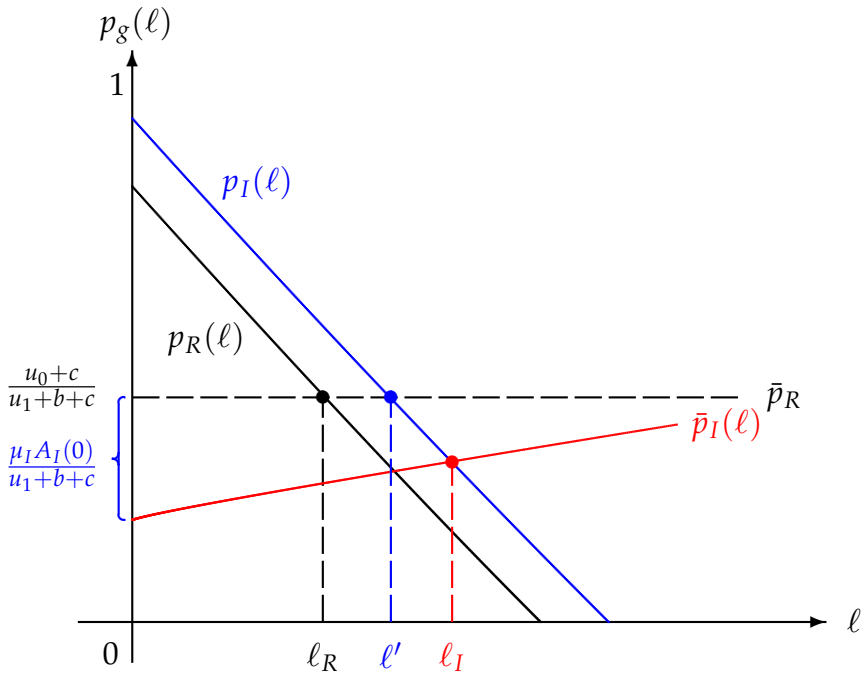
Finally, the term $\mu_{jg}A_{jg}(\ell_j)$ is the social image component of the utility from having agreed to participate in the SB. μ_{jg} corresponds to the weight that pair j assigns to this image, with $\mu_{jI} > \mu_{jR} \geq 0$ due to the potential impact of the in-person audience, and $A_{jg}(\ell_j)$ is their anticipation or expectation about that social image. The anticipation $A_{jg}(\ell_j)$ depends on the social context of the show (with $A_{jI}(\ell_j) \geq A_{jR}(\ell_j) \geq 0$) and on their past performance ℓ_j.

Denoting $u_{1j} \equiv U_j(1000) - U_j(0)$ and $u_{0j} \equiv U_j(500) - U_j(0)$, the condition $V_{jg}(\ell_j) \geq U_j(500)$ leads to

$$p_{jg}(\ell_j) \geq \frac{u_{0j} + c_j}{u_{1j} + b_j + c_j} - \frac{\mu_{jg}A_{jg}(\ell_j)}{u_{1j} + b_j + c_j}, \tag{1}$$

where the first term in the RHS (which is lower than 1) does not depend on the context of the show g. Hence, as $\mu_{jI} > \mu_{jR}$ and $A_{jI}(\ell_j) \geq A_{jR}(\ell_j)$, the RHS is lower during in-person shows than remote shows for a given pair j. Observe, however, that the perceived probability of winning, $p_{jg}(\ell_j)$, depends on the condition of the show and that we may either have $p_{jI}(\ell_j) \geq p_{jR}(\ell_j)$ or $p_{jI}(\ell_j) \leq p_{jR}(\ell_j)$. In the first case, for a given past performance, in-person shows increase pairs' confidence in their ability to win because of the ease of oral and visual communication between contestants.

Figure 2: Participation and Social Context



This makes participation in the SB more likely for in-person pairs. In the second case, for a given past performance, remote shows increase the pair's confidence due, for instance, to the possibility of cheating by accessing external information. This would make participation in the SB more likely for remote pairs.

A Graphical Illustration — Figure 2 illustrates this participation trade-off for a pair of contestants (whose index j is omitted). Lines $p_I(\ell)$ and $p_R(\ell)$ show that their perceived probability of winning decreases with their past performance ℓ regardless of the game context. The line $p_I(\ell)$ is here above $p_R(\ell)$, indicating that for any past performance level, the pair is more confident in its capability of winning in an in-person game than in a remote game. One potential reason for this is that the in-person game offers better tacit, face-to-face communication between contestants. This allows them to better assess their mutual confidence and, if necessary, to encourage each other to participate in the final round of the game.

Assuming, for the sake of clarity, that remote pairs are not concerned with their social image, i.e., $\mu_R A_R(\ell) = 0$, their limit probability of participating in the final round is constant, equal to $\bar{p}_R \equiv (u_0 + c)/(u_1 + b + c)$ for all ℓ. Graphically, it corresponds to the dashed horizontal line denoted $\bar{p}_R$. The pair participates in the SB during a

remote game if $p_R(\ell) > \bar{p}_R$, hence, if their past performance is lower than ℓ_R. If the in-person pairs are not concerned about their social image, their limit probability will also be equal to $\bar{p}_R$. However, better communication makes them more confident, and they participate in the SB if their past performance is lower than $\ell' > \ell_R$. In addition, because of the live audience, their social image is also relevant. Their limit probability levels are lower, as indicated by the curve $\bar{p}_I(\ell)$ located below the $\bar{p}_R$ line. They therefore participate in the SB as long as their past performance is below $\ell_I > \ell'$. The increasing curve $\bar{p}_I(\ell)$ indicates that the social image $A_I(\ell)$ decreases with ℓ. The difference between ℓ_R and ℓ_I can thus be decomposed into a pair or confidence effect (from ℓ_R to ℓ') and an audience or social image effect (from ℓ' to ℓ_I). The confidence effect leaves the probability threshold unchanged, at $\bar{p}_R$, while the social image effect decreases the probability threshold.

Model Implications — Figure 2 illustrates the participation decision of a given pair. We want to derive implications based on the heterogeneity between pairs in our dataset. For instance, differences in risk aversion between pairs, captured by the concavity of U_j, affect the participation probability in the SB and the threshold levels ℓ_R, ℓ' and ℓ_I. As a result, at a given performance level, some pairs participate in the SB while others do not.[14] By averaging over a cohort of pairs with the same past performance we end up with a participation probability. Factoring in all performances, we obtain a relationship between participation probabilities and past performances. These "performance-based participation probabilities" depend on the social context of the game: in-person vs. remote. The confidence and social image effects described in Figure 2 for a pair affect participation probabilities by generating a "confidence differential" and a "social image differential", i.e., differences in participation probabilities between the remote and in-person context for each past-performance level.

For the confidence differential, if we assume that the in-person game offers better tacit, face-to-face communication between contestants, all in-person pairs monotonically increase their participation relative to remote pairs. Conversely, if remote shows increase pairs' confidence due for instance to the possibility of cheating by accessing external information, all remote pairs monotonically increase their participation relative to in-person pairs. Hence, we can make the following prediction about how contestants interact within each pair:

[14] *Ceteris paribus*, an increase in the pair's risk aversion induces both a larger probability threshold $\bar{p}_R$ (u_0 decreases less than u_1) if $c + b$ is not too large and an increase in the social image term $\mu_I A_I(\ell)/(u_1 + b + c)$. Graphically, this corresponds to an upward shift of both the dashed horizontal line $\bar{p}_R$ and the $\bar{p}_I(\ell)$ curve and thus to a decrease in ℓ_R, ℓ' and ℓ_I

- **Prediction 1:** Keeping constant social image effects, a confidence differential between in-person and remote pairs induces a monotonic difference in their performance-based participation probabilities.

Regarding the social image differential between in-person and remote contexts, the induced effects on participation probabilities can be positive or negative depending on the past performance level. A pair may feel that the public considers it unwise to participate in the SB given their poor past performance, or, conversely, that the pair is too timorous not to take the risk to participate if their past performance is good. Hence, we can make the following prediction about how pairs interact with the audience:

- **Prediction 2:** Keeping constant pair's confidence effects, a social image differential between in-person and remote pairs leads to nonuniform changes in their performance-based participation probabilities.

From the Model to the Data — The decision to participate in the SB, a_{jg}, corresponds to the binomial model

$$a_{jg} = \begin{cases} 1 & \text{if } V_{jg}(\ell_j) \geq U_j(500) \\ 0 & \text{otherwise} \end{cases},$$

where U_j and the expected utility V_{jg} are not observable. As derived in our theoretical model, the comparison of U_j and V_{jg} leads to condition (1), which reveals that the pair's participation is driven by its perceived probability of finding the correct answer to the SB, $p_{jg}(\ell_j)$. This winning probability depends negatively on the pair's past performance ℓ_j. Therefore, the confidence level of the pair, represented by a latent variable C_j, must be high enough to induce participation in the final round. Condition (1) also shows that the social image related to the pair's decision, $\mu_{jg}A_{jg}(\ell_j)$, can play an important role, particularly during in-person shows. Importantly, the social image may depend on their performance, ℓ_j. Hence, the participation condition of a pair j can be expressed as

$$C_j = \beta X_j + \delta \mathbb{1}_{\{g=I\}} + \gamma L_j + \xi L_j . \mathbb{1}_{\{g=I\}} + \varepsilon_j \geq \bar{C}, \tag{2}$$

where $\bar{C}$ is some threshold level, X_j is a vector of observable pair characteristics such that both contestants are women or men (the benchmark group is of mixed-gender pairs), and both contestants are employed or unemployed (the benchmark group is a pair with one employed contestant and one unemployed contestant). $\mathbb{1}_{\{g=I\}}$ is an indicator variable that is equal to 1 for in-person shows and 0 for remote shows. L_j is

a vector of past performance measures, which avoids the potential endogeneity that could arise from using contemporary measures as regressors. As the impact of the social image on the pair's decision also depends on their past performance, we interact the past performance measures L_j with the context dummy variable $\mathbb{1}_{\{g=I\}}$. Finally, ε_j is an error term that captures the impact of all unobserved factors affecting the pair's choice. In the empirical section, we use logit models of the probability of participating in the SB or correctly answering the SB question to estimate the vector of parameters $(\beta, \delta, \gamma, \xi)$.

4 Empirical Results

In line with our theory, we focus our main empirical analysis on the pairs of contestants who have survived to the final round, henceforth dubbed "survivors". For them, we have better measures of performance ability because they answer more questions than those eliminated in earlier rounds. Before focusing the analysis on the survivors, we briefly present the results on the qualifying rounds (Pre-Banco and Banco).

4.1 Performance in the Qualifying Rounds

The Pre-Banco round results, shown in Appendix Table A2, indicate no significant differences in performance between demographic groups or between remote and in-person shows.[15]

The results on the Banco offer more interesting variation on which to comment. For example, remote pairs have a 7.6 percentage point greater chance of success in the Banco (column 5) when we control for past performance based on the number of retake questions and the number of failed attempts in the Pre-Banco. Intuitively, a higher number of retake questions or attempts in the Pre-Banco reduces the probability of success in the next round of the game. Moreover, gender differences are slightly more pronounced once we control for past performance. Female pairs have a lower chance of performing well at the Banco, compared to mixed-pairs (-0.166) and to male pairs (-0.153 = -0.166 + 0.013, with a p-value$<$0.01). We will comment on gender differences further on.

[15] See Table A3 for the odds ratio results.

4.2 The Super Banco Round: An Analysis of the Survivors

Probability of Participating in the Super Banco — Table 3 displays the results on the probability of survivor pairs participating in the SB. We estimate Equation (2) using the logit.[16] Here, we present the marginal effects and report odds ratio results in Appendix Table A4.[17] The error term is clustered at the type of show (remote, in-person urban, and in-person rural).

It is worth recalling that *all* 1,342 Pre-Banco qualifiers decided to proceed to the Banco regardless of the social context of the show, either in person or remotely (see Table 1). In sharp contrast, Table 3 documents that the social context influences risky decisions with higher financial stakes. The coefficient on remote shows, displayed in column 1, implies that a remote pair has a 0.23 average *lower* chance of entering the SB than an in-person pair. This significant difference, not observed in the Banco, is consistent with the descriptive statistics shown in Table 2.[18]

In column 2, we test the relevance of an alternative hypothesis to the role of the social context, specifically, that the global pandemic has changed contestants' perception of risk. The pandemic, by drastically affecting health and economic conditions, may have increased the risk aversion of contestants. Under this hypothesis, our results could be attributed not to the difference in social contexts but to the pandemic itself. We present a simple test to ensure that this concern does not affect our results. We benefit from the fact that not all shows went remote during the pandemic (see Figure 1). In-person shows were first resumed from August 24, 2020, to November 27, 2020, and then from May 31, 2021, to July 1, 2022 (the date of our last collected show), allowing us to compare in-person shows in and out of the COVID-19 period. The results of this simple test are presented in column 2, where the estimate of the dummy "Remote during COVID-19" indicates that a remote pair has a 0.272 (= 0.222 + 0.050) average *lower* chance of entering the SB than an in-person pair *during* the COVID-19 pandemic. This difference in chances is also depicted in Figure 3, where we report the probability of entering the Super Banco per season. The picture clearly shows a significant drop in the probability of entering the SB during COVID-19 when playing

[16] As a robustness check, we add a region fixed effect to accommodate the fact that in-person shows are recorded in different locations in France (north, south, west, and east). This addition does not affect our results but increases the complexity of the estimation procedure. First, we should mention the potential incidental parameter problem even if the number of regions does not necessarily increase with the number of observations. Second, the contestants may not originate from the region where the show is recorded. Finally, and most importantly, the introduction of the region fixed effect changes the point of comparison of the remote context, as only in-person shows are region specific.

[17] The odds ratio format allows us to report the coefficients of the different interaction terms.

[18] Using a linear probability model instead of a logit model yields the same difference of -0.23 (with a standard error of 0.001). The results are available upon request.

Table 3: Participation in the Super Banco

Dependent Variable	Probability of Participating in the Super Banco							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
In-Person	0		0		0		0	
	(.)		(.)		(.)		(.)	
Remote	-0.229[a]		-0.238[a]		-0.050[b]		-0.172[a]	
	(0.00)		(0.02)		(0.02)		(0.03)	
In-Person before COVID-19		0		0		0		0
		(.)		(.)		(.)		(.)
Remote during COVID-19		-0.222[a]		-0.229[a]		-0.037[c]		-0.161[a]
		(0.00)		(0.03)		(0.02)		(0.03)
In-Person during COVID-19		0.050[a]		0.049[a]		0.054[a]		0.056[a]
		(0.01)		(0.01)		(0.00)		(0.01)
Pair demographics:								
Both men			0.002	0.004	-0.007	-0.005	-0.006	-0.004
			(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)
Both women			-0.048	-0.046	-0.058	-0.055	-0.059	-0.053
			(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Both employed			0.002	0.002	-0.001	-0.001	-0.000	-0.004
			(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Both unemployed			-0.030	-0.029	-0.030	-0.030	-0.026	-0.027
			(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Past performance:								
# Retake questions (PB)					-0.065[a]	-0.064[a]	-0.069[a]	-0.072[a]
					(0.02)	(0.02)	(0.02)	(0.02)
# Failed attempts (PB)					-0.006[c]	-0.007[b]	-0.006[b]	-0.005[b]
					(0.00)	(0.00)	(0.00)	(0.00)
Response time (B)					-0.005[a]	-0.005[a]	-0.005[a]	-0.006[a]
					(0.00)	(0.00)	(0.00)	(0.00)
Past performance								
× *Remote*							Yes	
× *In-person COVID-19*								Yes
× *Remote COVID-19*								Yes
Observations	957	957	957	957	957	957	957	957

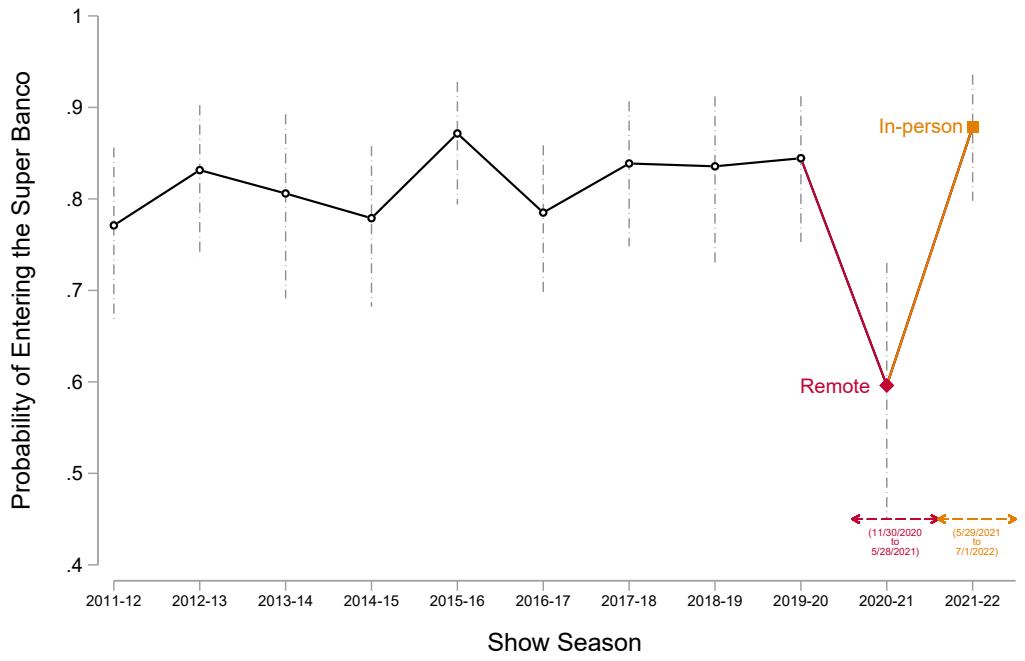
Notes: Marginal effects from logit regressions with covariates fixed at their means. The dependent variable is the probability to participate in the Super Banco. The reference group consists of in-person shows in the odd-numbered columns and in-person shows prior to the COVID-19 period in the even-numbered columns. '#' is short for 'Number of', 'PB' for Pre-Banco and 'B' for Banco. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level.

remotely.[19] On the other hand, the probability rebounds once the shows are back in

[19]Data are organized by season, from late August in year t to late June or early July in year $t+1$. There are a few exceptions. First, the 2011 season runs from June 20, 2011 (first show available online), to June 29, 2012. Second, due to home lockdowns, the 2019 season runs from August 26, 2019, to April 7, 2020. Third, the 2020 season includes only remote shows from November 30, 2020, through May 28, 2021. In-person shows for the 2020 season are reported in Table 3.

person during COVID-19 in the 2021 season. Overall, this test confirms that remote pairs behave differently toward risk than in-person pairs in and out of the COVID-19 period.

Figure 3: Average Probability of Participation in the Super Banco Per Season



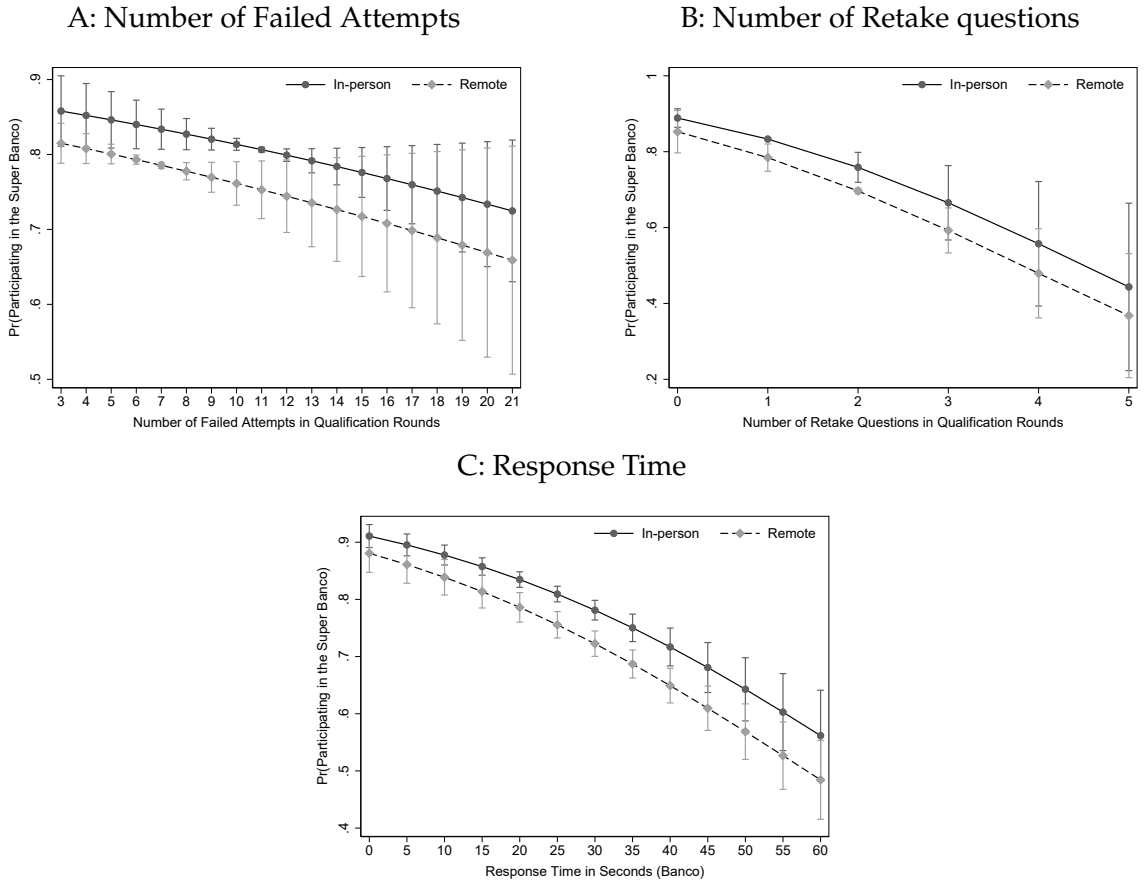
Notes: Average Probability of entering the Super Banco per season with 95% confidence intervals. We focus here on the pairs who have survived to the final round. Data are organized by season, from late August in year t to late June or early July in year $t+1$. There are a few exceptions. First, the 2011 season runs from June 20, 2011 (first show available online), to June 29, 2012. Second, due to home lockdowns, the 2019 season runs from August 26, 2019, to November 27, 2020. Third, the 2020 season includes only remote shows from November 30, 2020, through May 28, 2021. See Figure 1 for details about the type of shows during COVID-19.

Controlling for demographics and including the question type fixed effect in columns 3 and 4 barely affect the difference between the remote and in-person contexts. However, columns 5 and 6 show the importance of controlling for past performance measures. The higher the number of retake questions and attempts in the Pre-Banco and the longer the response time in the Banco, the lower is the pair's likelihood of entering the SB. Moreover, as the theory points out, the SB decision depends on the contestants' own assessment of their future chances, which itself depends on their past performance and confidence. Given that remote pairs qualified for the SB have on average a lower past performance (see Table 2), they may have a lower average confidence. As expected, conditioning on past performance in column 5, the magnitude of the marginal effect of the remote dummy is reduced: the average probability of entering

the SB is now 5 percentage points higher in the in-person format. This remaining difference could be explained by the fact that, for the same past performance, in-person shows may increase pairs' confidence in their ability to win through the ease of oral and visual communication between contestants.

The result in column 5 gives some support for our first theoretical prediction that a differential in confidence induces a monotonic difference in performance-based participation probabilities between remote and in-person pairs. This pattern is depicted in Figure 4, where the participation probabilities of remote pairs are monotonically lower for any level of past performance. However, the difference appears statistically significant only for average values of past performance (approximately 10 for the number of failed attempts, approximately 2 for the number of retake questions, and approximately 30 for the response time — see Table 1 for descriptive statistics).

Figure 4: Past Performance and Participation in the Super Banco: In Person vs. Remote



Notes: Probabilities of participation predicted from logit regression in column 3 of Table 3. Vertical bars represent 95% confidence intervals. In-person and remote pairs are compared with respect to past performance measures. For clarity, values greater than 3 for the number of retake questions were reassigned to 3, and values greater than 21 for the number of failed attempts were reassigned to 21, without changing the main message. See Table 1 for descriptive statistics.

The last two columns of Table 3 investigate our second theoretical prediction. Prediction 2 suggests that for a given performance, the participation probability in the remote and in-person contexts might be affected differently by social image concerns. The in-person interactions could exert social pressure by encouraging low-performing pairs to enter the SB, while the same pairs would refrain from participating in the remote format. In other words, social pressure may induce an in-person pair with, say, 5 failed attempts in the qualifying round to participate in the SB, while with the same number of failed attempts, the remote pair would not participate. To capture this idea, we interact in column 7 each measure of past performance with the remote dummy as in our Equation 2. These interactions that take into account *both* social image and confidence effects increase the magnitude of the difference: in-person pairs participate on average 17 p.p. more than remote pairs. The same result is observed in column 8.

Figure 5 displays the difference in participation probabilities regarding each measure of past performance and social context. As predicted by our theory, the participation probability profiles can take very different shapes. For example, the probability of entering the SB decreases less with the number of past attempts for in-person pairs than for remote pairs (Panel A). For a small number of failed attempts, remote and in-person pairs have roughly the same predicted probability of entering the SB, but at the average number of failed attempts of survivors (9.3), the in-person predicted probability is significantly higher. This difference is missed if we ignore the interactions, as shown in Figure 4. The same pattern holds if we focus on the number of retake questions (panel B) or the response time (panel C): not accounting for the interaction terms biases upward the predicted probabilities of remote pairs entering the SB.

It is interesting to note that remote contestants are insensitive to the response time, whereas in-person contestants are not (panel C). One potential explanation for this could be that in-person contestants are more sensitive to time pressure because of the physical presence of the ticking clock. In the in-person version of the show, the response time for each question is indicated by an assistant playing a tune on a glockenspiel near the host and the contestants. This instrument, with its unique sound, is quite audible.[20] We should also mention that at the mean response time of survivors (22.8), the predicted probability of entering SB is significantly lower for remote pairs.

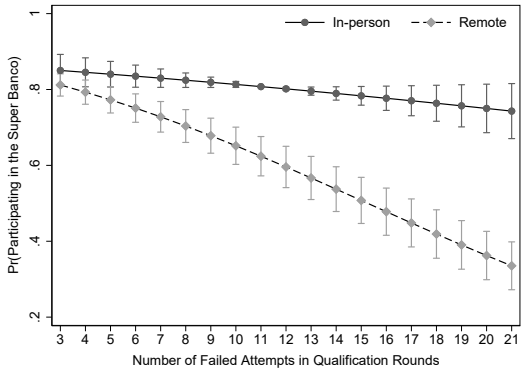
Probability of Winning the Super Banco — We study the probability of winning the SB prize of 1,000 euros in Table 4.[21] Beyond the variables reported in Equation (2) and discussed in Table 3, we also include a question type fixed effect to control for the

[20] A glockenspiel, which has become an emblem of the show, is a small metallophone with four hammers. See an illustration of this instrument in Figure 8.

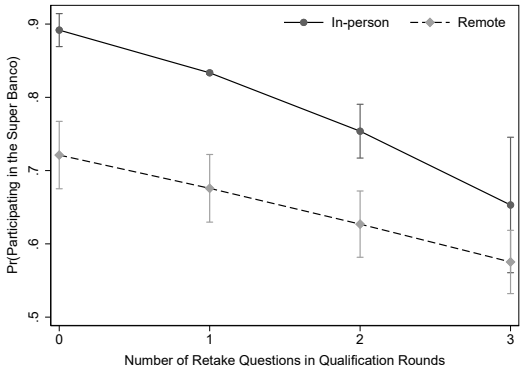
[21] See Table A5 for the odds ratio results.

Figure 5: Past Performance Measures: In Person vs. Remote

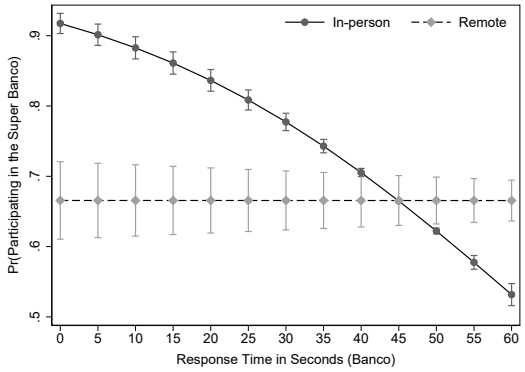
A: Number of Failed Attempts



B: Number of Retake Questions



C: Response Time



Notes: Probabilities predicted from logit regression in column 4 of Table 3. Vertical bars represent 95% confidence intervals. In-person vs. remote pairs are compared with respect to past performance measures. For clarity, values greater than 3 for the number of retake questions were reassigned to 3, and values greater than 21 for the number of attempts were reassigned to 21, without changing the main message. See Table 1 for descriptive statistics.

type of questions answered in the SB (arts, history and geography, sports and society, religion and languages).

The simple logit regression in column 1 of Table 4 displays a small negative impact of remote shows on the probability of succeeding in the SB: a 3.4 percentage point difference. This simple result, without any controls, is another indication that cheating in the remote case may not be very prevalent.[22] The negative difference between the remote and in-person shows becomes statistically insignificant when we additionally control for pair demographics (column 3) or past performance (column 5). However, column 7 again shows the importance of interacting past performance measures with the social context of the game. Capturing social image and confidence effects, the coefficient of the *Remote* dummy becomes positive and significant: Remote pairs have

[22]The production team has suspicions about only two cases (see https://mediateur.radiofrance.com).

Table 4: Performance in the Super Banco

	Probability of Winning 1,000 euros							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
In-Person	0		0		0		0	
	(.)		(.)		(.)		(.)	
Remote	-0.034[a]		-0.010		0.011		0.112[a]	
	(0.00)		(0.01)		(0.04)		(0.04)	
In-Person before COVID-19		0		0		0		0
		(.)		(.)		(.)		(.)
Remote during COVID-19		-0.040[a]		-0.015		0.002		0.102[b]
		(0.01)		(0.01)		(0.04)		(0.04)
In-Person during COVID-19		-0.038[a]		-0.030[a]		-0.042[a]		-0.044[b]
		(0.01)		(0.01)		(0.01)		(0.02)
Pair demographics:								
Both men			0.045	0.044	0.048[b]	0.047[b]	0.048[b]	0.042[c]
			(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Both women			-0.051	-0.052	-0.053[c]	-0.054[c]	-0.054[c]	-0.058[c]
			(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Both employed			0.059[a]	0.060[a]	0.056[a]	0.056[a]	0.056[a]	0.059[a]
			(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Both unemployed			0.056[b]	0.056[b]	0.054[b]	0.055[b]	0.052[c]	0.055[b]
			(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Past performance:								
# Retake questions (PB)					-0.051	-0.051	-0.049	-0.051
					(0.03)	(0.03)	(0.03)	(0.04)
# Failed attempts (PB)					0.001	0.002	0.001	0.002
					(0.00)	(0.00)	(0.00)	(0.00)
Response time (B)					-0.000	-0.000	-0.000	0.000
					(0.00)	(0.00)	(0.00)	(0.00)
Past performance								
× *Remote*	–	–	–	Yes	–	–	–	–
× *In-person COVID-19*	–	–	–	–	–	–	–	Yes
× *Remote COVID-19*	–	–	–	–	–	–	–	Yes
Observations	778	778	778	778	778	778	778	778

Notes: Marginal effects from logit regressions with covariates fixed at their means. The dependent variable is the probability to win the Super Banco. The reference group consists of in-person shows in the odd-numbered columns and in-person shows prior to the COVID-19 period in the even-numbered columns. '#' is short for 'Number of', 'PB' for Pre-Banco and 'B' for Banco. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is also included in all columns except in columns 1 and 5.

an 11 percentage point higher success rate in the SB than in-person pairs. This result is also confirmed if we focus on the COVID-19 period (column 8). The explanation could be related to what psychologists call "choking under pressure" (Baumeister, 1984) and the fact that playing in front of a live audience is much more stressful.

Overall, we find evidence that remote pairs participate much less in the SB than in-person pairs. A way to rationalize the difference in participation between the remote and in-person shows is to invoke the role of social image concerns and confidence, as discussed in our theoretical section. Social pressure may encourage in-person pairs with relatively weak past performance to enter the SB. Because of the audience's cheering, they may also regret their decision less if they lose or they may anticipate celebration with the audience if they win. In contrast, fewer remote survivor pairs enter the SB. In the absence of social pressure, as past performance declines, remote pairs decrease their participation.[23] In doing so, remote pairs miss out on opportunities to win in expectation. This implication points to an apparent behavioral inconsistency: as the remote context appears more favorable to succeed in the SB, due to less social pressure, remote pairs should enter the SB in greater proportions.

Gender Differences — We also examine the risky choices of contestants by gender.[24] Male pairs perform better than female pairs in the Pre-Banco, the Banco (see Table A2) and the Super Banco (see Table 3).[25] This result is consistent with gendered behavioral responses to psychological pressure (Booth & Lee, 2021). The only notable difference is in the decision to enter the different rounds of the game. It is well documented that men and women respond differently to risk (Eckel & Grossman, 2008; Croson & Gneezy, 2009; Bertrand, 2011). However, we find that female (and mixed-gender) pairs are *not* more risk averse than male pairs. From the difference between in-person and remote results, we may conjecture that the in-person interaction and the physical audience may encourage women to enter the final round of the game. However, we cannot rule out the fact that the lack of risk aversion is a result of the decision being made as a team and not individually. Nevertheless, experimental results suggest that the average group is *more* risk averse than the average individual in high-risk situations (Shupp & Williams, 2008). In contrast, our results underscore the role of social

[23] In Appendix A.5, we check that our results hold if we focus only on mixed-gender pairs (see Tables A6, A7, and A8).

[24] An interesting descriptive statistic is worth underlining when we focus our attention on the 889 mixed-gender pairs in the Pre-Banco. They respond correctly (before retaking any question) to 75% of the 5,334 (= 6*889) questions asked in the first round. We observe only a slight difference in gender: 48.2% of the correct answers are given by women versus 51.8 by men. Studying gender differences in the retake questions or in the two subsequent rounds is less meaningful because contestants must provide only one answer and mostly coordinate before giving their answer.

[25] Regarding the Pre-Banco, in column 2 of Table A2, the difference between the success rate of male and female pairs is 0.014 (or 1.4 p.p., with a standard error of 0.003) and significant with $\chi^2(1) = 27.07$, and $p = 0.035$. Regarding the Banco, in column 5 of Table A2, the difference between the success rate of male and female pairs is 0.014 (or 1.4 p.p., with a standard error of 0.003) and significant with $\chi^2(1) = 8.19$, and $p = 0.004$. Regarding the Super Banco, in column 7 of Table 3, the difference between the success rate of male and female pairs is 0.103 (or 10.3 p.p., with a standard error of 0.007) and significant with $\chi^2(1) = 215.45$, and $p = 0.000$.

pressure in encouraging women to enter the SB.

5 Discussion and Conclusion

In this paper, we find that on average, remote pairs take fewer risks than in-person pairs. Using a highly controlled context, we find a large difference in risk-taking behavior in the flesh and at a distance. In person, 83% of the qualifying pairs choose to participate in the final round. In contrast, when playing remotely, only 60% of the pairs decide to play the final round. In doing so, they miss out on opportunities because, in expectation, the decision to enter the final round is risky but beneficial. This result is in line with our theoretical predictions regarding the role of social pressure and confidence. Social pressure may encourage some in-person pairs with a past low performance, such as a relatively high number of past failed attempts, to enter the SB. In contrast, for the same number of past failed attempts, few remote pairs do not deem to enter the SB. However, once we account for social image and confidence effects, remote pairs perform relatively better in the SB. This result suggests that they could have entered the SB in greater proportions, demonstrating the strength of confidence effects and social image concerns on the behavior of the participants.

Our results on the remote versus in-person difference in risk-taking may have some implications for firms given the broader trend toward more online work arrangements (Agrawal et al., 2015). In a labor market context, the role of social pressure may come from the involvement of senior managers or the number of participants in a group discussion. Consider a meeting where a risky business decision is being made, such as investing in a new production line or developing a new product. Participants may feel less pressure to take risks or support a risky project in a remote meeting than in a face-to-face meeting. Additionally, consider a corporate or academic hiring committee. The hiring process involves costs and risks such that a remote or in-person committee may lead to a different recruitment.

Another implication may concern experimental economics. The web enables experimenters to target a larger number of participants with more diversity and to save time and money (Reips, 2000; Horton et al., 2011). Well-known lab experiments have also been replicated on the web (see Birnbaum, 2000; Horton et al., 2011). However, using the COVID-19 shock as a natural experiment, we find that differences in social environments can lead to differences in risk-taking behaviors. In particular, the role of social pressure may induce different outcomes in online and in-person experiments, especially those measuring risk aversion. For instance, the Hawthorne effect, which refers to a tendency in some individuals to alter their behavior in response to their

awareness of being observed, may be more prevalent in person than online.[26]

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[26] See Levitt & List (2011) for a discussion of the original Hawthorne effect.

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A Appendix

A.1 Details of the Game

Created in 1958, the "1000 Euros Game" is the oldest game in the French radio landscape. First known as the "100,000 Francs Per Day Game" (1958), the "1,000 New Francs Game" (1960)

then the "1,000 Francs game" until 2001, today, it is the "1000 Euros Game". Broadcast every day at lunchtime on France Inter, it is recorded everywhere in France. From the start, the game has moved from city to city. The official rules of the game are found on its website (in French): https://www.franceinter.fr/le-reglement. We summarize these rules in Section 2.

Selection — As mentioned in the text, contestants are highly positively selected, with respect to both who applies and who is chosen to be on the show. We have investigated how contestants are selected by the production team. Initially, contestants are screened on their ability to correctly answer trivia questions supplemented, if necessary, by a draw to break a tie. However, it is conceivable that the contestants selected to play in person and those selected to play remotely are not identical since the selection process differs for the two groups. In person, the selection is made on site before the shows are recorded. In Figure 6, we see the first step of a two-step selection process: the host asks the audience a few trivia questions.[27] The fastest responders are shortlisted for the second step and a new set of trivia questions. Then, the final number of selected contestants for the game depends on the number of shows recorded in a given city. In the case of 3 shows, 6 contestants from the second step are selected to take part in the "1000 Euros Game". Remotely, contestants submit a preregistration form with a list of questions to be answered.[28] Then, the selection team proceeds to the selection of contestants, without giving much details on the process itself. We should note that cheating during the online pre-selection is a possibility. Note however that contestants disclose their full name and city of residence (see the Online Appendix B for the transcripts of the shows), which may work for some people as an anti-cheating device. We also verified that they know the details of the game and do not appear as random participants. Let us also recall that we focus our main empirical analysis on the pairs of contestants who have survived to the final round. We believe that pairs of contestants who make it to the final round are likely to be very similar. In particular, we do not find significant differences between remote or in-person pairs either in the final number of correct answers or in terms of earnings (see Table 2).

In-person (and Remote) Audiences — During the recording phase, in-person shows welcome spectators (see Figure 7), whereas such a live audience is absent when contestants participate remotely (see Figure 8). The size of the in-person audience varies between 100 and 300 in relation to the number of inhabitants of the city hosting the show. In a recent interview quoted in a newspaper article in *La Dépêche*, the host of the show mentions 300 spectators.[29] Other sources mention lower average numbers.[30]

Radio Listeners — The program is very popular, with a conservatively estimated daily listenership of over one million. For example,

[27] The following video in French from 2008, presents the context of the selection, the host of the show asking questions, the contestants, the game room with the in-person audience and the general setting of the game: https://www.ina.fr/ina-eclaire-actu/video/i11096702/jeu-des-mille-euros-louis-bozon-et-concurrents-question-sur-le-billard.

[28] https://www.franceinter.fr/vie-quotidienne/participez-de-chez-vous-au-jeu-des-1000-euros.

[29] https://www.ladepeche.fr/article/2018/09/09/2865269-nicolas-stoufflet-secrets-jeu-1-000-euros.html

[30] This newspaper article, also in *La Dépêche* mentions 150 participants. https://www.ladepeche.fr/2021/11/30/superbanco-au-jeu-des-1-000-euros-9960589.php. See also Figure 7

Figure 6: In-person Contestant Selection

Source: Newspaper article in *Le Parisien* – https://www.leparisien.fr/yvelines-78/bonnelles-a-vibre-pour-le-jeu-des-1-000-eur-22-12-2019-8222946.php. Location: Bonnelles (40 km from Paris), Saturday, December 21, 2019. Photo caption: "Nicolas Stoufflet (the host of the game) had no trouble recruiting contestants for his game as the audience was as excited as ever to get on stage." ("*Nicolas Stoufflet n'a eu aucun mal à recruter des candidats pour son jeu parmi des spectateurs emballés comme jamais à l'idée de monter sur la scène*".)

1. In its November 13, 2021, edition, the national newspaper *Le Parisien* mentions 1.5 million daily listeners.[31] This number is also confirmed by Radio France, the parent company of France Inter, which is the broadcaster of the show.[32]

2. In its regional edition of January 18, 2000, the television program *France 3 Limoges*, mentions 1 to 1.2 million daily listeners and an average of 400 spectators during the recording phase.[33]

The show is also available as a podcast.[34]

Question Senders — Except the draft question, all questions are sent in by listeners. We identify the sender's gender based on their first names. In 10% of the cases, this is not possible, either because the sender is a group of persons, an organization such as a school, or the first

[31] "Sur France Inter, 'Le Jeu des 1000 euros' rassemble les générations depuis 1958" (On France Inter, 'the 1,000 euros game' gathers generations since 1958) – https://www.leparisien.fr/sur-france-inter-le-jeu-des-1-000-euros.

[32] https://www.radiofrance.com/les-editions/jeu/la-boite-du-jeu-des-1000-euros.

[33] See the video archive: 'Le Jeu des 1000 francs', where we can also observe part of the selection process – https://www.ina.fr/ina-eclaire-actu/video/lm00001256035/jeu-des-1000-francs.

[34] https://www.franceinter.fr/emissions/le-jeu-des-1000-euros.

name is not unambiguously male or female. In the remaining cases, 46% of senders are females and 54% are males.

Figure 7: In-person Audience

Source: *France Bleu* radio – https://www.francebleu.fr/loisirs/sortir/une-centaine-de-belfortains-ont-assiste-au-jeu-des-1000-euros-de-france-inter-1434113225. Location: Belfort, Friday, June 12, 2015. Photo caption: "A hundred spectators gathered in front of Nicolas Stoufflet, host of the 1,000 euros game." ("*Une centaine de spectateurs réunis devant Nicolas Stoufflet animateur du jeu des 1000 euros*".)

Figure 8: Remote Audience

Source: France Inter recording studio.

A.2 Contestant's Characteristics

Table A1: Contestant's Characteristics

	Mean (1)	Std. Dev. (2)	Minimum (3)	Maximum (4)
Male	0.702	0.46	0.00	1.00
Occupation:				
Employed	0.515	0.50	0.00	1.00
Unemployed	0.458	0.50	0.00	1.00
Undefined	0.027	0.16	0.00	1.00

Notes: 3,484 contestants. Time period: 2011 to 2022.

A.3 Performance in the Qualifying Rounds

Table A2: Performance in the Qualifying Rounds

Dependent Variable	First Round: Pre-Banco		Second Round: Banco		
	Log (Gains)		Probability of Winning 500 Euros		
	(1)	(2)	(3)	(4)	(5)
In-Person	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Remote	-0.052	-0.054	0.031[a]	0.025[a]	0.076[a]
	(0.02)	(0.02)	(0.01)	(0.00)	(0.00)
Pair demographics:					
Both men		-0.007[a]		-0.002	-0.013
		(0.00)		(0.01)	(0.01)
Both women		-0.021[a]		-0.139[c]	-0.166[a]
		(0.00)		(0.07)	(0.06)
Both employed		-0.020		0.027	0.024
		(0.02)		(0.02)	(0.02)
Both unemployed		-0.004		0.005	0.009
		(0.01)		(0.01)	(0.01)
Past performance in Pre-Banco:					
Number of retake questions					-0.064[a]
					(0.01)
Number of failed attempts					-0.011[a]
					(0.00)
Observations	1742	1742	1342	1342	1342

Notes: Columns 1 and 2: OLS estimates; the dependent variable is the euro earnings in the first round (in logs). Columns 3 to 5: marginal effects from logit regressions, with covariates fixed at their means; the dependent variable is the probability to answer correctly to the Banco question. The in-person shows represent the reference group. [a] and [c] indicate significance at the 1% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is included in all columns except in columns 1 and 3.

A.4 Odds Ratios

Table A3: Performance in the Banco – Odds Ratios

Dependent Variable	Second Round: Banco Probability of Winning 500 Euros		
	(1)	(2)	(3)
In-Person	0	0	0
	(.)	(.)	(.)
Remote	0.158[a]	0.128[a]	0.417[a]
	(0.03)	(0.02)	(0.02)
Pair demographics:			
Both men		-0.012	-0.064
		(0.03)	(0.05)
Both women		-0.617[b]	-0.740[a]
		(0.30)	(0.26)
Both employed		0.134	0.122
		(0.12)	(0.10)
Both unemployed		0.025	0.046
		(0.06)	(0.05)
Past performance in the Pre-Banco:			
Number of Retake questions			-0.317[a]
			(0.06)
Number of Failed attempts			-0.057[a]
			(0.02)
Observations	1342	1342	1342

Notes: Odds ratios of logit regressions. The dependent variable is the probability to answer correctly to the Banco. The in-person shows represent the reference group. A question type fixed effect is included in all columns. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is included in all columns except in column 1.

Table A4: Participation in the Super Banco – Odds Ratio

Dependent Variable	Probability of Participating in the Super Banco							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
In-Person	0		0		0		0	
	(.)		(.)		(.)		(.)	
Remote	0.312[a]		0.300[a]		0.723[b]		0.211[a]	
	(0.00)		(0.03)		(0.10)		(0.04)	
In-Person before COVID-19		0		0		0		0
		(.)		(.)		(.)		(.)
Remote during COVID-19		0.328[a]		0.317[a]		0.786[c]		0.212[a]
		(0.01)		(0.04)		(0.10)		(0.04)
In-Person during COVID-19		1.463[a]		1.457[a]		1.547[a]		1.036
		(0.08)		(0.09)		(0.06)		(0.06)
Pair demographics:	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Past performance:								
# Retake questions (PB)					0.630[a]	0.633[a]	0.603[a]	0.630[a]
					(0.09)	(0.09)	(0.08)	(0.08)
# Failed attempts (PB)					0.955[c]	0.953[c]	0.963[c]	0.958[b]
					(0.02)	(0.02)	(0.02)	(0.02)
Response time (B)					0.965[a]	0.964[a]	0.961[a]	0.958[a]
					(0.01)	(0.01)	(0.00)	(0.00)
Past performance × Remote:								
Remote							1.438[a]	
× # Retake questions (PB)							(0.18)	
Remote							0.922[a]	
× # Failed attempts (PB)							(0.02)	
Remote							1.042[a]	
× Response time (B)							(0.00)	
In-Person during COVID-19								0.615[a]
× # Retake questions (PB)								(0.03)
Remote during COVID-19								1.374[a]
× # Retake questions (PB)								(0.16)
In-Person during COVID-19								1.077[a]
× # Failed attempts (PB)								(0.03)
Remote during COVID-19								0.927[a]
× # Failed attempts (PB)								(0.02)
In-Person during COVID-19								1.013[c]
× Response time (B)								(0.01)
Remote during COVID-19								1.045[a]
× Response time (B)								(0.00)
Observations	957	957	957	957	957	957	957	957

Notes: Odds ratios from logit regressions. The dependent variable is the probability to participate in the Super Banco. The reference group consists of in-person shows in the odd-numbered columns and in-person shows prior to the COVID-19 period in the even-numbered columns. Estimates of pairs demographics (both men, both women, both employed, and both unemployed) are note reported but none are statistically significant. '#' is short for 'Number of', 'PB' for Pre-Banco and 'B' for Banco. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is included in all columns except in columns 1 and 5.

Table A5: Performance in the Super Banco – Odds Ratio

Dependent Variable	Performance in the Super Banco							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
In-Person	0		0		0		0	
	(.)		(.)		(.)		(.)	
Remote	0.872[a]		0.960		1.046		2.029[a]	
	(0.01)		(0.05)		(0.18)		(0.22)	
In-Person before COVID-19		0		0		0		0
		(.)		(.)		(.)		(.)
Remote during COVID-19		0.852[a]		0.941		1.009		2.421[a]
		(0.02)		(0.04)		(0.16)		(0.25)
In-Person during COVID-19		0.858[a]		0.886[a]		0.845[a]		2.582[a]
		(0.03)		(0.03)		(0.05)		(0.84)
Pair demographics:								
Both men			1.202	1.196	1.215[b]	1.207[b]	1.214[b]	1.188[c]
			(0.15)	(0.15)	(0.12)	(0.11)	(0.12)	(0.11)
Both women			0.815	0.813	0.807[c]	0.806[c]	0.806[c]	0.794[c]
			(0.13)	(0.12)	(0.10)	(0.10)	(0.10)	(0.11)
Both employed			1.272[a]	1.273[a]	1.256[a]	1.256[a]	1.253[a]	1.269[a]
			(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)
Both unemployed			1.255[b]	1.255[b]	1.246[b]	1.247[b]	1.235[c]	1.251[b]
			(0.11)	(0.11)	(0.13)	(0.13)	(0.14)	(0.14)
Past performance:								
# Retake questions (PB)					0.815	0.813	0.822	0.854
					(0.11)	(0.11)	(0.12)	(0.13)
# Failed attempts (PB)					1.005	1.006	1.003	1.009
					(0.02)	(0.02)	(0.02)	(0.02)
Response time (B)					0.999	0.999	1.001	1.006[a]
					(0.00)	(0.00)	(0.00)	(0.00)
Remote							0.935	
× # Retake questions (PB)							(0.11)	
Remote							1.051[a]	
× # Failed attempts (PB)							(0.01)	
Remote							0.972[a]	
× Response time (B)							(0.00)	
In-Person during COVID-19								0.739[a]
× # Retake questions (PB)								(0.05)
Remote during COVID-19								0.901
× # Retake questions (PB)								(0.12)
In-Person during COVID-19								0.976
× # Failed attempts (PB)								(0.03)
Remote during COVID-19								1.044[a]
× # Failed attempts (PB)								(0.01)
In-Person during COVID-19								0.974[a]
× Response time (B)								(0.01)
Remote during COVID-19								0.967[a]
× Response time (B)								(0.00)
Observations	778	778	778	778	778	778	778	778

Notes: Odds ratios from logit regressions. The dependent variable is the probability to win the Super Banco. The reference group consists of in-person shows in the odd-numbered columns and in-person shows prior to the COVID-19 period in the even-numbered columns. Estimates of pairs demographics (both men, both women, both employed, and both unemployed) are note reported but none are statistically significant. '#' is short for 'Number of', 'PB' for Pre-Banco and 'B' for Banco. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is also included in all columns except in columns 1 and 5.

A.5 Robustness Checks

Table A6: Mixed Pairs' Performance for 1st Round and Banco

Dependent Variable	First Round: Pre-Banco		Second Round: Banco		
	Log (Gains)		Probability of Winning 500 Euros		
	(1)	(2)	(3)	(4)	(5)
In-Person	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Remote	-0.057	-0.053^{c}	0.025^{a}	0.025^{b}	0.075^{a}
	(0.02)	(0.02)	(0.00)	(0.01)	(0.01)
Pair demographics:					
Both employed		-0.022		-0.020	-0.017
		(0.05)		(0.03)	(0.03)
Both unemployed		0.002		-0.061^{a}	-0.057^{a}
		(0.01)		(0.02)	(0.02)
Past performance:					
Number of retake questions (PB)					-0.069^{a}
					(0.01)
Number of failed attempts (PB)					-0.009^{c}
					(0.00)
Observations	889	889	693	693	693

Notes: Marginal effects of logit regressions. The dependent variable is the euro gains from the 1st round in columns 1 and 2, and the probability to answer correctly to the Banco in columns 3 to 5. The in-person shows represent the reference group. PB means Pre-Banco. ^{a}, ^{b} and ^{c} indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is included in all columns except in columns 1 and 3.

Table A7: Mixed Pairs' Participation in the Super Banco

Dependent Variable	Probability of Participating in the Super Banco							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
In-Person	0		0		0		0	
	(.)		(.)		(.)		(.)	
Remote	-0.229[a]		-0.193[a]		-0.064[c]		-0.147[a]	
	(0.02)		(0.01)		(0.04)		(0.02)	
In-Person before COVID-19		0		0		0		0
		(.)		(.)		(.)		(.)
Remote during COVID-19		-0.222[a]		-0.185[a]		-0.051		-0.136[a]
		(0.02)		(0.01)		(0.04)		(0.02)
In-Person during COVID-19		0.045[b]		0.051[a]		0.063[a]		0.070[a]
		(0.02)		(0.01)		(0.00)		(0.01)
Pair demographics:								
Both employed			0.030	0.032	0.023	0.026	0.023	0.024
			(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Both unemployed			-0.033	-0.030	-0.036	-0.032	-0.030	-0.029
			(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)
Past performance:								
# Retake questions (PB)					-0.063[b]	-0.062[b]	-0.071[a]	-0.070[a]
					(0.03)	(0.03)	(0.02)	(0.02)
# Failed attempts (PB)					-0.006[a]	-0.007[a]	-0.006[c]	-0.006[b]
					(0.00)	(0.00)	(0.00)	(0.00)
Response time (B)					-0.005[b]	-0.005[b]	-0.005[a]	-0.005[a]
					(0.00)	(0.00)	(0.00)	(0.00)
Past performance								
× *Remote*							Yes	
× *In-person COVID-19*								Yes
× *Remote COVID-19*								Yes
Observations	499	499	499	499	499	499	499	499

Notes: Marginal effects from logit regressions with covariates fixed at their means. The dependent variable is the probability to participate in the Super Banco. The reference group consists of in-person shows in the odd-numbered columns and in-person shows prior to the COVID-19 period in the even-numbered columns. '#' is short for 'Number of', 'PB' for Pre-Banco and 'B' for Banco. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level.

Table A8: Mixed Pairs' Performance in the Super Banco

	Probability of Winning 1,000 euros							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
In-Person	0		0		0		0	
	(.)		(.)		(.)		(.)	
Remote	-0.012		-0.013		-0.009		0.116[b]	
	(0.01)		(0.01)		(0.05)		(0.05)	
In-Person before COVID-19		0		0		0		0
		(.)		(.)		(.)		(.)
Remote during COVID-19		-0.026[a]		-0.024[a]		-0.027		0.097[b]
		(0.00)		(0.00)		(0.04)		(0.04)
In-Person during COVID-19		-0.082[a]		-0.066[c]		-0.072[b]		-0.069
		(0.03)		(0.03)		(0.04)		(0.05)
Both employed			0.122[a]	0.118[a]	0.119[a]	0.114[a]	0.119[a]	0.119[a]
			(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
Both unemployed			0.072[c]	0.069	0.070	0.067	0.065	0.065
			(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Past performance:								
# Retake questions (PB)					-0.031	-0.031	-0.028	-0.029
					(0.04)	(0.05)	(0.05)	(0.05)
# Failed attempts (PB)					-0.000	-0.000	-0.000	-0.000
					(0.01)	(0.01)	(0.01)	(0.01)
Response time (B)					0.000	0.001	0.001	0.001[c]
					(0.00)	(0.00)	(0.00)	(0.00)
Past performance								
× *Remote*	–	–	–	Yes	–	–	–	–
× *In-person COVID-19*	–	–	–	–	–	–	–	Yes
× *Remote COVID-19*	–	–	–	–	–	–	–	Yes
Observations	400	400	400	400	400	400	400	400

Notes: Marginal effects from logit regressions with covariates fixed at their means. The dependent variable is the probability to win the Super Banco. The reference group consists of in-person shows in the odd-numbered columns and in-person shows prior to the COVID-19 period in the even-numbered columns. '#' is short for 'Number of', 'PB' for Pre-Banco and 'B' for Banco. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively. The standard errors are clustered at the urban/rural/remote level. A question type fixed effect is also included in all columns except in columns 1 and 5.

Online Appendix

B Transcripts of Shows

B.1 An In-person Show with a Public Audience

We randomly selected a recent in-person show from before the COVID-19 pandemic. This show highlights a draft question, a successful Banco and a Super Banco.

In-person Show: May 10, 2019

- The pair of contestants: Guillaume (master student) and Jean-Claude (retired).[35]
- City where the show is held: Araches-la-Frasse, a commune in the Haute-Savoie department in the Auvergne-Rhone-Alpes region in southeastern France.

The pair fails a question on the pre-Banco and fails their second chance. However, because they answer 5 of the 6 Pre-Banco questions correctly, they are allowed to answer the "draft" question. By answering this question correctly, the pair must proceed to the Banco (see 2.1.1).

```
- Host: Guillaume Lamontagne and Jean-Claude Lacra, you can stop, but by passing
through the draft question, you can also try the...
- Audience: Banco, Banco, Banco...
```

We do not hear the discussion among the contestants about whether to answer the draft question and the opportunity to move on to the Banco if successful. The cheers of the audience drown out their discussion.

```
- Guillaume: Banco
- Audience: [Applause] Yeah
- Host: ... I need to ask you a retake question [first], and today we need to find
a name from a short excerpt of an interview with an actress, who is also a writer---
```

We hear an audio clip.

```
- Host: In this interview, she was reading an excerpt from one of her short
stories, gathered in a collection entitled Jamais plus. Is it Michèle Bernier,
Josiane Balasko or Zabou Breitman?
- Guillaume: It's Josiane Balasko!
- Host: Josiane Balasko!
```

The pair correctly answers the draft question and must proceed to the Banco.

```
- Host: Martine Vity lives in L'Etrat in the Rhône, and this is her question
that I am asking you, her Banco question. In which country are the Roman ruins
of Volubilis found?
```

The pair has one minute to answer the Banco. We do not know if they consult each other. After 30 seconds of one minute:

[35] We have done our best to spell all contestants' names correctly, but they may be misspelled.

- Guillaume: Morocco, I think.
- Jean-Claude: Should we give an answer?
- Guillaume: Morocco
- Host: ... You answered Morocco, and you won the Banco!
- Audience: Applause
- Host: ... I have an offer to make: would you like to try the...
- Audience: "Super, Super, Super,..."
- Host: And yes Volubilis, it is not very far from Meknes, Banco won and Super, maybe---or will you stop with the 500 euros?

We do not hear the discussion between the contestants about whether to participate in the Super Banco. The cheers of the audience drown out their discussion.

- Guillaume: We'll continue.
- Jean-Claude: Super!
- Host: You continue for the Super. The last question for 1,000 euros that I ask you---the question is sent by Françoise Porcher-Lebarse who lives in Saint-Martin-des-Champs in Finistère. Some French actors have shot [a film] with Alfred Hitchcock. In this film, four famous actors perform---Claude Jade, Philippe Noiret, Michel Piccoli and Danny Robin. What is the title of this movie? A spy movie.

The pair has one minute to respond to the Super Banco. We can hear them whispering, but their conversation is not discernible.

- Jean-Claude: Topaz
- Host: That is the American title, Topaz. But, you know the American name so the answer is correct, Topaz, and in French l'Etau; Alfred Hitchcock's movie with its French actors.
- Audience: [Applause] Bravo!
- Host: Congratulations, you have won the 1,000 euros of the Super Banco, Guillaume Lamontagne and Jean-Claude Lacra. Another gift: the book of Guillaume Gallienne and its CD.

B.2 Remote Shows with a Virtual Audience

We present three different transcripts for the remote shows. The first show is selected because it was run exactly two years after the above in-person show on May 10, 2021. It highlights a successful Super Banco. The second, on May 11, 2021, is an example of an unsuccessful Super Banco. The third, on May 13, 2021, is an example of an unsuccessful Banco (with a question about a Nobel in economics).

Remote Show: May 10, 2021 – Correct Answer to the Super Banco

- The pair of contestants: Laura (medical biologist) and Claude (retired).[36]
- The show is held remotely, but Laura is living in L'Isle-Adam, a commune in the Val-d'Oise department in Ile-de-France in northern France, and Claude is living in Nantua, a commune in the Ain department in the Auvergne-Rhone-Alpes region in southeastern France.

[36] In some shows, contestants' last names are not disclosed.

The pair correctly answers the 6 questions in the Pre-Banco as well as the Banco question. Now, they have the opportunity to participate in the Super Banco.

```
Host: Do you want to stop here or try the 1,000 euros of the Super Banco?
Virtual audience: Super, Super, Super!
Claude: Great.
Laura: Oh yes, Super.
Host: Without hesitation?
Laura: Without hesitation!
Claude: Without hesitation!
Host: You are players, players without limits!
Host: The Super Banco [question] is from Sophie Dufour in Six-Fours in the Var.
What is the name of a scholar of the Middle Ages and Middle East who distinguished
himself in medicine, philosophy and many other sciences, such as astronomy,
psychology and alchemy and in tribute to this character a hospital
in Ile de France bears his name?
Laura: It is the hospital of Bobigny.
Claude: It's Avicenne, right?
Laura: Ah yes, Avicenne is not a bad guess!
Claude: Avicenne or Averroes, I think, I had both in mind.
Laura: No it's the Avicenne Hospital in Bobigny.
Claude: It's the Avicenne Hospital.
Laura: Yes, yes.
Host: A scientist from the Middle Ages and the Middle East who distinguished
himself in medicine, philosophy, astronomy, psychology and alchemy and in homage
a hospital in the Ile de France is named after him. What is the name in question?
Laura: Well, I agree, Avicenne.
Claude: So Avicenne.
Host: ... And you tell us?
Claude: Avicenne.
Laura: Avicenne.
Host: ... You won the Super Banco and the book L'intelligence du Vivant ....
```

Remote Show: May 11, 2021 – Stopping after the Banco

- The show is held remotely, but Françoise lives in Saint-Céré, a commune in the Lot department, southern France, and Claude lives in Le Plessis-Sainte-Opportune, a commune in the Eure department in Normandy in northern France.

The pair correctly answers 4 out of the 6 questions in the Pre-Banco, their second chances and the Banco question. Now, they have the opportunity to participate in the Super Banco.

```
Virtual audience: Super, Super, Super!
Sébastien: I don't know what you think, Françoise, well, Super, I'm up for
the Super.
Françoise: I'm not really up for it because I'm not skilled enough, maybe,
but if you feel up to it, yes, but I'm not so much.
Sébastien: It's a bit of a double or nothing situation, in some areas...
Host: So, I'm somewhat of a referee in this kind of situation where the two
candidates are not quite on the same page, I tend to say let us give the bonus
```

to the person who wants to stop, out of caution, we can make it safe.
You know what I mean, but do you agree, Sébastien?
Sébastien: Yes, if Françoise wishes it.

The pair decides not to participate in the Super Banco and keeps their Banco prize of 500 euros.

Remote Show: May 13, 2021 – Incorrect Answer to the Banco Question (about a Nobel in Economics!) The pair correctly answers the 6 questions in the Pre-Banco. Now, they have the opportunity to participate in the Banco.

Host: You, Fabienne Bosquet and Marius Millot, have answered all the questions, which authorizes you directly to try to win the 500 euros of the...
Virtual Audience: Banco, Banco, Banco!
Host: Banco?
Fabienne: Yes, Banco, I agree ... Marius...?
Marius: Absolutely!
Host: We agree in Corsica and in California---let's try the Banco!
Host: A question from Willy Marcou from Corbas in the Lyon metropolis. We now need the name of a character, a personality, an American economist...
Fabienne: Oops!
Host: ... an American economist who played a major role internationally in the field of investment and financial markets, in budgetary and monetary policies. He received the Nobel Prize in Economics or rather the Bank of Sweden Prize in Economics in the early eighties, and his name is well known around financial markets. One answer, discussion between you.
Fabienne: Oops!
Marius: Economics is not my forte. The only one that comes to me like that would be Keynes because we talk a lot about Keynesian policies ...
Fabienne: I have never heard of Keynes, so I can't ... 1980s...
Host: Who is this economic specialist, this personality who has played a great role on the international scene?
Fabienne: Who received the Nobel Prize?
Host: Yes, the Nobel Prize in Economics, to put it simply, the Bank of Sweden's prize in economics at the very beginning of the 1980s, and we often talk about this man because we still associate his name with an idea today.

[The contestants are silent.]

Host: 10 seconds' attention and we come to the end of the minute.

[The contestants are silent.]

Fabienne: I don't have any idea; we'll say what you propose, Marius.
Marius: Yes, without enthusiasm: Keynes.
Host: And he was a Keynesian, this economic specialist, but it was James Tobin.
Marius: Ah, the Tobin tax.
Host: Yes, we often quote this idea of a Tobin tax on international monetary transactions. James Tobin, who received the Nobel Prize in Economics, again the

exact title is the Swedish Bank Prize in Economics, in 1981.
Host: Willy Marcou from Corbas near Lyon wins 45 euros. For you two, Fabienne and Marius, the radio receiver France Inter ... another gift: the book of Fabienne Chauvière, L'intelligence du Vivant ....