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The Sound of Others: Surprising Evidence of Conformist Behavior

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ABSTRACT

The Sound of Others:
Surprising Evidence of Conformist Behavior[*]

It has been shown that subjects tend to follow others' behavior even when the external signals are uninformative. In this paper we go one step further, showing that conformism occurs even when the choices of others are not even presented to the subjects, but just indirectly perceived. We use the "Click" version of the Bomb Risk Elicitation Task, in which subjects can infer the behavior of others only from the mass of clicks heard. This signal is payoff-irrelevant and largely uninformative about the actual choices of the other participants. Moreover, it is never mentioned in the instructions and therefore it must be spontaneously (and possibly unconsciously) perceived in order to be used. We control the exposure of subjects to clicks by implementing treatments with and without earmuffs. Moreover, we test whether the introduction of a minimal form of commonality, i.e., facing a common rather than individual resolution of uncertainty, makes conformism more likely to emerge. We find strong evidence of conformist behavior even in such an adverse environment. Simply hearing the others clicking affects subjects' behavior. Introducing a common random draw results in a further dramatic shift of the average choices, in particular by women.

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1. Introduction

Conformity has extensively been studied in social psychology since Asch's experiments in the 1950s concerning the desire to fit in a group (Asch, 1951, 1952, 1955, 1956). Conformity has since then been used meaning different things, e.g., the tendency to adhere to a social role (Eagly and Crowley, 1986; Haney et al., 1973a,b), or to social norms (Bicchieri and Xiao, 2009, among others).

In the psychology literature most of the forms of conformist behavior have been traced back to preferences, i.e., to an intrinsic taste in adapting one's behavior to follow an external reference. The economics literature has instead focused more on the informational content of imitating others: a person may look to others' behavior for guidance when lacking knowledge, absent any specific preference to act like others. Among others, Anderson and Holt (1997); Banerjee (1992); Bikhchandani et al. (1992, 1998) built and tested the concepts of herd behavior and information cascades, which show how rational subjects with no conformist preferences might end up disregarding private information and follow the behavior of others. Hence conforming to the others might both represent rational behavior *or* be the result of intrinsic preferences.

Conformist behavior has been empirically observed in choice situations in which subjects are given a private and a public signal, and hence decide on their own or imitate others. Conformist behavior arises even in contexts in which the information content of the public signal is inferior, fuzzier or less grounded than the one emanating from the private signal. (see the experimental evidence of, among others, Anderson and Holt, 1997; Hung and Plott, 2001; Quiamzade and L'Huillier, 2009; Ziegelmeyer et al., 2010). The experimental designs employed in the experimental economics literature, however, are not well equipped to disentangle the two sources of herd behavior, preferences and rational imitation. Even when observing conformism in a design in which the public signal has low or no information content, these designs cannot tell apart whether the subjects chose to conform out of an incorrect belief in the informativeness of the public signal, or rather because they simply like to do so.

Thni and Gchter (2015) interpret the results of a gift exchange game as consistent with conformity. Bardsley and Sausgruber (2005) use a public good design to show that conformity explains part of the observed crowding-in. In both papers, although payoff-irrelevant, the behavior of others may still be imitated because of its alleged informational content to-

wards finding one's best reply. Goeree and Yariv (2015) present an experiment in which subjects must choose between two sources of information: the history of other subjects' past course of actions, that is strictly uninformative, and an informative private signal. Goeree and Yariv (2015) show that a large fraction of subjects still choose to observe the public rather than the private signal. Conformist behavior is observed even more frequently under a common fate condition, in which the choice is not individual, but is rather decided by majority rule, determining equal payoffs for all the participants. Since in their experiment subjects choose an uninformative public signal, the results of Goeree and Yariv (2015) lend support to the explanation of conformity based on preferences.

In this paper we aim at identifying the minimal conditions necessary to observe conformist behavior. We follow Goeree and Yariv (2015) by setting up a design with a completely uninformative source of information. We depart from them by subtracting all focality from the source of information: the signal is noisy, unreliable, not pointed out to subjects and possibly not even perceived as a signal by them.

We administer to the subjects the Bomb Risk Elicitation Task (Crosetto and Filippin, 2013), an individual risk elicitation measure. Participants see a screen composed of 100 boxes and must collect them by clicking once per box. They earn money for each collected box but lose all earnings in case they collect a bomb that is hidden in one of the boxes. The task is performed and paid in isolated cubicles, with no interaction with the other participants in the experiment other than sitting in the same room and *hearing the others click*.

The noise generated by the other participants is an uninformative signal, is orthogonal to individual payoffs and constitutes an extremely imprecise proxy of the other subjects' choice. Moreover, we minimize its focality by never mentioning it in the experimental instructions. This is different from almost all previous studies in the economics literature, in which the other subjects' decisions, informative or not, are explicitly shown to the subjects, or at least explicitly presented as being accessible.[1] In contrast, in our experiment what the subjects can spontaneously (and possibly unconsciously) use as a signal is only the sound of the clicks in the experimental laboratory.

We manipulate by treatment both the presence of the signal and what subject have in common, in order to identify under which circumstances conformity emerges. We start from

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[1]Studying cheating conformity Fosgaard et al. (2013) show that subjects' behavior is affected both by the awareness that cheating is an option and by knowing that other participants cheated.

the assumption that there is no reason to exhibit a taste to follow others in a perfectly isolated society. In the *Isolated* condition we remove the noisy signal by making subjects wear acoustic earmuffs, that shield subjects from the noise generated by the clicks. Moreover, the position of the bomb is determined by random draw at the individual level. The subjects are in all respects isolated in their cubicles, and the only thing they have in common is sitting in the same room. In the *Idiosyncratic Risk* treatment we simply remove the earmuffs, everything else being the same, in particular the resolution of uncertainty at the individual level. In the *Correlated Risk* treatment we introduce a weak form of commonality by imposing the resolution of uncertainty at the aggregate level. This means that the position of the bomb is the same for everyone. As explained in detail in Section 2, this treatment still keeps payoffs determined at the individual level. Subjects are paid according to how their private choice compares to the common random event.

Results lend strong support to the existence of conformist behavior: subjects tend to follow others even when the signal is uninformative, noisy, not focal and possibly only unconsciously observed. Rather surprisingly, significant though small differences in the aggregate behavior emerge already in the *Idiosyncratic Risk* condition, where subjects have nothing in common except for being in the same room hearing each other performing the same task. Despite the absence of any interaction, any interdependence, any hierarchy, and even any temporal sequence in the decisions across subjects, the average number of boxes collected is significantly higher than in the baseline condition. The small commonality implied by the introduction of the *Correlated Risk* has further dramatic effects in the average choice. The observed pattern of decisions in this treatment leaves less than 30% of the subjects within the risk averse domain, a result that up to our knowledge has never been observed in an incentivized risk elicitation task in the lab. Interestingly, the bulk of this effect is driven by females.

The paper is organized as follows. In Section 2 and 3 we illustrate the design and procedure of our experiment, respectively. Section 4 presents our findings, while Section 5 summarizes and concludes.

2. Experimental Design

Our treatments are all built on the "Click" version of Bomb Risk Elicitation Task (BRET) introduced in Filippin and Crosetto (2015). Subjects face a 10×10 square in which each

numbered cell represents a box. They are told that 99 boxes are empty, while one contains a time bomb programmed to explode at the end of the task, i.e., *after* choices have been made. Below the field of boxes there are a "Collect" and a "Stop" button. Each time that the subjects clicks on "Collect", one box is collected in numerical order. When the desired stopping point has been reached subjects press "Stop" and once the choice has been confirmed the task is over. A screenshot of the task after 22 boxes have been collected is reported in Figure 1.
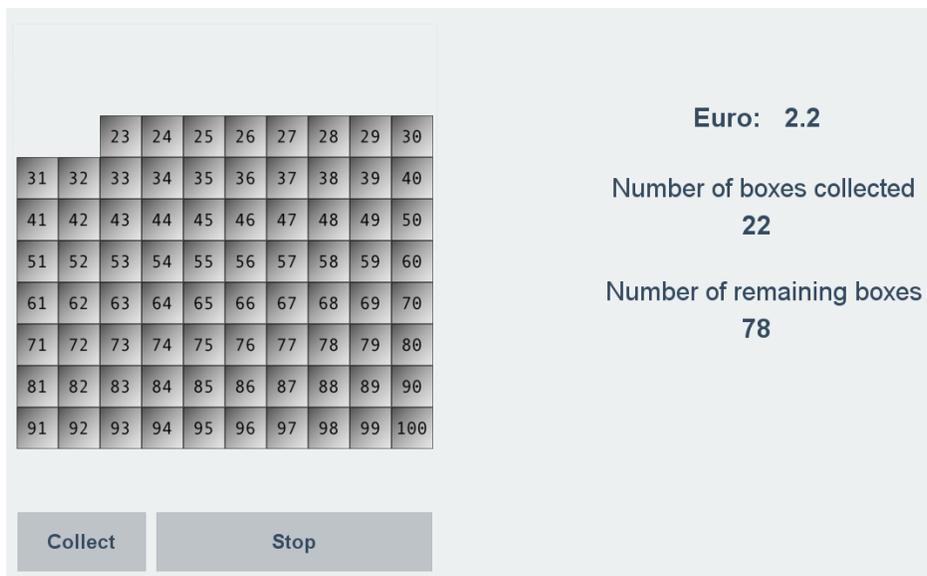
Figure 1: The BRET interface after 22 clicks

The position of the time bomb $b \in [1, 100]$ is randomly determined after the choice is made by means of a draw from a uniform distribution over the support $[1, 100]$. Calling k the number of boxes collected, if $k_i^* \geq b$ it means that subject i collected the bomb, which by exploding wipes out the subject's earnings. In contrast, if $k_i^* < b$, subject i leaves the minefield without the bomb and receives 10 euro cents for each box collected. The metaphor of the time bomb allows to implement a choice in strategy method, avoiding the truncation of the data that would otherwise happen in case of a real-time notification like for instance in the Balloon Task (Lejuez et al., 2002).

Subjects' decision can be formalized as the choice of their favorite among the set $\mathcal{L}$ of 101 lotteries fully described both in terms of probabilities and outcomes by the stopping point $k \in [0, 100]$:

$$\mathcal{L} = \begin{cases} 0 & \frac{k}{100} \\[2ex] 0.1k & \frac{100-k}{100} \end{cases}.$$

The parameter k summarizes the trade-off between the amount of money that can be earned and the likelihood of obtaining it. The degree of measured risk aversion negatively correlates with the choice of k and a risk-neutral subject should choose $k = 50$.

Several features of the BRET set it apart from the tasks used in the literature on information cascades and conformity. The BRET allows us to test for the presence of imitation in a setting where there should be even *less* of it with respect to traditional tasks. In fact, the BRET operates in a context without strategic interaction and explicit informational connections. On the one hand, there is no coordination, no interaction or any form of interdependence among subjects as there is no payoff externality. On the other hand, there is no hierarchy and no temporal sequence in the decisions of the participants, who cannot communicate. Moreover, the choice is completely anonymous and the payment is made privately.

In the BRET the fundamentals are merely individual preferences and individual payoffs. The 'Click' version of the BRET, however, potentially features a peculiar spillover across subjects: the amount, velocity and volume of clicks that can be heard in the laboratory. The clicks have no informational content toward the resolution of uncertainty, as the position of the bomb will be determined after the choices. The sound of others is merely suggestive of the choices (and hence of the preferences) of the other participants. Such a signal is also inaccurate. In fact, subjects do not need to start the task at the same time, and they are allowed to proceed at the speed they prefer in collecting the boxes. Hearing someone clicking does not tell at which stage of the task (s)he is. Given these considerations, the BRET looks like an inhospitable environment to observe conformist behavior, which can only rely upon hearing the others clicking, a possibility that is not even mentioned during the whole experiment.

Building on this basic task, we manipulate *a*) the degree of isolation vs. exposure of the subjects to the sound of others by imposing (or not) the use of earmuffs during the task, and *b*) the commonality of the risk faced by performing individual or common random draws of the position of the bomb.

2.1. Isolating subjects from the sound of others: 'Isolated'

This treatment acts as our baseline. It replicates a situation of perfect isolation of the subjects when making their choice as if they came individually to the laboratory. The assumption is that there is no reason to exhibit a taste to follow others in a perfectly isolated society.

We achieve this goal introducing noise-reducing earmuffs that shield all clicking sounds coming from neighboring cubicles. Subjects were asked to wear the earmuffs just after the instructions were read and to keep them on for the duration of the task.

Isolation from the others also requires facing idiosyncratic risk. At the end of the experiment an experimenter walked individually to each cubicle with two ten-sided dice in order to determine the position of the bomb.[2] The experimenter rolled the dice to determine the position of the bomb separately and privately for each participant.

2.2. Hearing others: 'Idiosyncratic Risk'

In the *Idiosyncratic Risk* treatment we do not make use of earmuffs. That is, at the moment of choice, subjects can hear the other subjects clicking. About 30 subjects participated in each session, and therefore the amount of clicking was noticeable and could be distinctly heard all over the laboratory.

The absence of earmuffs lets subjects receive a noisy signal of the behavior of others. Increasing levels of risk aversion imply a lower average k and therefore translate into a less intense and shorter cloud of clicks. However, subjects do not need to start at the same time and they can proceed at the speed they prefer. Hence, it is fairly impossible to derive meaningful insights about the risk choices of others.

The sound of others is completely uninformative of the outcome of the task, which is determined after the choices have been made following the same procedures of the *Isolated* treatment, i.e. determining the position of the bomb separately for each subject.

2.3. All in the same boat: 'Correlated Risk'

In the *Correlated Risk* subjects wear no earmuffs, as in the *Idiosyncratic Risk* treatment, but the resolution of uncertainty is done once and for the whole laboratory – meaning that the position of the bomb is drawn once and it applies to each and every subject in the session.

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[2]One ten-sided die featured printed numbers from 00 to 90, in intervals of 10, and was used to determine the tens; the other had sides ranging from 0 to 9, and was used to determine the units. 100 was obtained by the result 00 - 0.

In order to enhance transparency, we use a slightly different randomization device in this treatment. Subjects are asked to stand up so that they can see the front of the laboratory, where the experimenter's desk is located. A chip is then drawn from an urn containing 100 chips, numbered from 1 to 100, and shown to the subjects. To further enhance accountability and transparency the subjects are told that they can stay at the end of the experiment to verify that the urn actually contains all the 100 chips and no others.

3. Procedures

The experiment was run from April 2012 to January 2013 in the laboratory of the Max Planck Institute of Economics in Jena, Germany.[3] We implemented a one-shot, pure between-subjects design. The sample includes mainly students from the Friedrich Schiller University Jena, Germany. 90 subjects took part to the *Isolated*, 58 to *Idiosyncratic risk*, and 89 to *Correlated Risk* treatments, for a total of 237 subjects distributed over 8 sessions, each lasting about half an hour. Three subjects, one in *Isolated* and two in *Correlated Risk* submitted dominated choices, i.e., stopped at 0 or 100 boxes, and were excluded from the analysis.

The experiment was computerized. The experimental software was programmed in Python (van Rossum, 1995). The experiment was incentivized. Earnings in the task (obtained on top of the show-up fee of 2.5 euro) ranged from 0 to 7.8 euros, with an average of 4.5 euro.[4]

Upon entering the lab, subjects were randomly assigned to a computer. In the *Isolated* treatment subjects found noise-reducing earmuffs on their desk. Instructions were displayed on the screen and read aloud.[5] After all questions had been individually addressed, subjects in the *Isolated* treatment were asked to wear the earmuffs. Then, all subjects went through a trial period in order familiarize themselves with the task. At the end of the trial period, however, there was no draw of the bomb's position in order to avoid any carryover effect in the incentivized task. The paying task was then played one-shot.

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[3]The first treatment run was indeed the *Correlated Risk* condition in April 2012, with the initial idea of testing for illusion of control. A careful examination of the design convinced us, though, that the effect of hearing the others click acted as a confound and needed to be analyzed separately. We then devised the *Isolated* and *Idiosyncratic Risk* treatments toward this goal. The analysis of illusion of control was instead ran with other treatments featuring earmuffs across the board, and is reported in a companion paper (Filippin and Crosetto, 2015).

[4]The average is lower than what would be implied by risk neutrality because draws were largely unlucky in the *Correlated Risk* treatment, leading to a mass of low payoffs in this treatment.

[5]The English translation of the original German instructions is available in Appendix A.

Subjects were then asked to fill a questionnaire containing demographic information (age, gender), the SOEP risk question,[6] and a self-reported measure of the perceived task difficulty on a Likert scale from 0 (easy) to 10 (hard).

Just before leaving the lab the subjects were paid in cash individually and privately, according to their choices and the position of the bomb, determined following the procedures explained in Section 2.

4. Results

Results show a strong influence of the (inferred) behavior of others on subjects' choices. We observe an inclination to conform to the (perceived) choice of others even in our framework in which the only external reference is the inaccurate proxy represented by the sound of the clicks in the lab. Results by treatment are summarized in Table 1. While in the *Isolated* treatment the average choice is virtually identical to the original results in the BRET (Crosetto and Filippin, 2013), subjects collect more boxes when exposed to the sound of others. In the *Idiosyncratic Risk* treatment the difference as compared to the baseline *Isolated* condition is not huge, but still weakly significant (Mann-Whitney, p-value = 0.0669) and with a small effect size (Cohen's $d = 0.296$). This result is rather surprising, since in the *Idiosyncratic Risk* treatment subjects do not share anything, they only hear the sound of others. Such a difference should not be overemphasized, however, as average choices higher than 47 have already been observed in the BRET.[7]

treatment	Stopping point		SOEP	
	mean	*st.dev*	*mean*	*st.dev*
Isolated	47.13	12.53	4.88	1.95
Idiosyncratic Risk	50.69	11.34	5.00	1.73
Correlated Risk	56.54	15.29	5.64	1.90

Table 1: Number of boxes collected and SOEP self-reported risk attitudes, by treatment

There is instead no doubt about the effect of the sound of others when a small commonality is introduced in the laboratory. Even though payoffs are still determined by individual

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[6]The SOEP is the German Socio-Economic Panel (Wagner et al., 2007). The general risk question asks, on a $0 - 10$ scale: "How do you see yourself: are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?" Dohmen et al. (2011) find that self-reported answers to this question significantly correlate with incentivized lottery schemes, although the fraction of variance explained is quite low (about 6%).

[7]For instance, a replication of the BRET in Filippin and Crosetto (2015) displays an average choice around 49.

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choices, sharing the same resolution of uncertainty is enough to boost the inclination to conform to the other participants. Choices in the *Correlated Risk* treatment are significantly different both from *Idiosyncratic Risk* (Mann-Whitney, p-value $= 0.033$, with a medium effect size, Cohen's $d = 0.425$) and *a fortiori* from *Isolated* (Mann-Whitney, p-value < 0.001, with a larger effect size, Cohen's $d = 0.677$). The difference in the behavior can be appreciated even looking at Figure 2, which reports kernel density estimations of the distribution of choices in the three treatments. Note, in particular, the considerably thicker density of choices in the right tail of the distribution in the *Correlated Risk* treatment.[8]
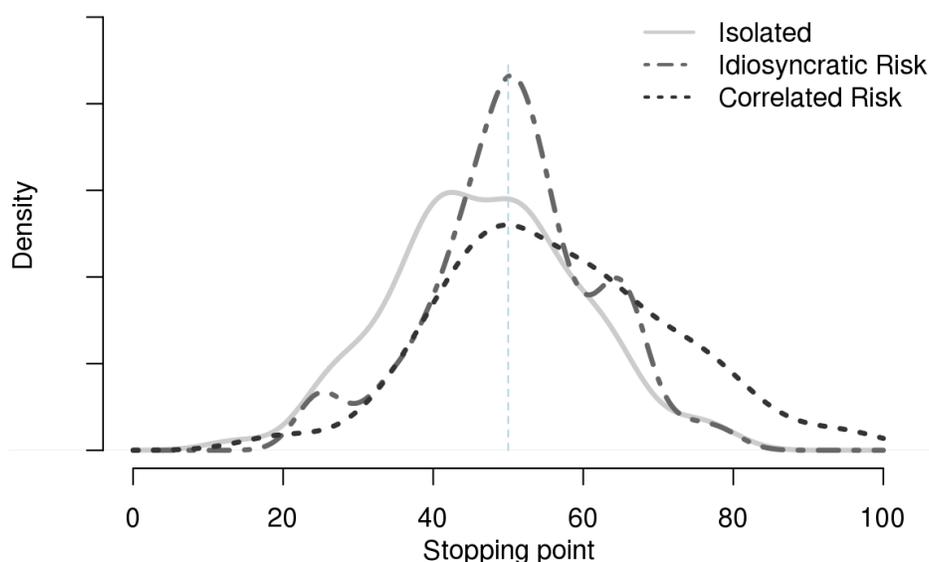

Figure 2: Kernel density estimation of choices, by treatment

One possible interpretation of this result is that if subjects know that they will be together in good or bad luck, they are remarkably more likely to follow what the others are doing, even though the signal is imprecise and uninformative. The cloud of clicks tells subjects that the other participants are still collecting boxes, and this triggers a more risk seeking behavior, which in turns makes the cloud of clicks last longer, and so on. The overall effect is impressive, with the average choice in the *Correlated Risk* treatment (56.5) falling well into the risk loving domain. To give an intuition of the magnitude of the effect, the observed pattern of decisions implies that less than 30% of the subjects are risk averse, a result that up

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[8]Choices are significantly different in distribution over all possible pairwise combination of treatments (Kolmogorov-Smirnov test of equality of distribution functions, all p-values ≤ 0.046).

to our knowledge has never been observed in an incentivized risk elicitation task in the lab.

Table 1 shows that subjects in the *Correlated Risk* also report a more risk seeking behavior in the SOEP answers. Despite the random assignment to the treatments, this evidence suggests that the results above might at least in part be explained by different risk attitudes. Indeed, equality in median of SOEP answers across the three treatments is rejected (Kruskal-Wallis p-value = 0.0153), because *Correlated Risk* differs from both *Idiosyncratic Risk* (Mann-Whitney, p-value = 0.020) and *Isolated* (Mann-Whitney, p-value < 0.010). Moreover, the number of boxes collected correlates positively and significantly with the self-reported SOEP measure in the pooled sample ($r = 0.292$, p-value < 0.001). In each treatment separately, the correlation is significant in *Isolated* ($r = 0.327$, p-value = 0.002) and in *Idiosyncratic Risk* ($r = 0.460$, p-value < 0.001), but not in *Correlated Risk* ($r = 0.103$, p-value = 0.343). In any case, subjects in the *Correlated Risk* treatment self-reported a higher risk tolerance and this might have influenced the results. To control for this possibility we report in Table 2 the results of a multivariate regression analysis.

	(1) Stopping point		(2) Stopping point	
Constant	45.54	(1.67)	42.83	(1.60)
Correlated Risk	8.221 ***	(4.12)	-0.012	(-0.00)
Idiosyncratic Risk	3.061	(1.37)	2.197	(0.67)
SOEP	1.894 ***	(4.15)	2.037 ***	(4.56)
female	3.701 *	(2.02)	-1.740	(-0.62)
age	-1.262	(-0.59)	-0.835	(-0.40)
age²	0.035	(0.84)	0.026	(0.64)
complexity	0.079	(0.24)	0.211	(0.64)
Correlated Risk×female			13.56 ***	(3.47)
Idiosyncratic Risk×female			1.075	(0.25)
N	234		234	

t statistics in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: Multivariate regression analysis

Column 1 includes a dummy for each treatment (*Isolated* acts as baseline and is omitted) plus controls for self reported risk aversion (SOEP), perceived complexity of the task, age and gender. The SOEP coefficient is sizable and highly significant, but it does not explain

the core of the results. In fact, the coefficient of the *Correlated Risk* dummy indicates that the effect of the sound of others under common resolution of uncertainty survives intact the introduction of the battery of controls. In contrast, the *Idiosyncratic Risk* dummy remains positive but does not reach traditional significance levels. Among the other control variables, only gender displays significant results although with a reversed sign as compared to what could be expected.[9]

Column 2 interacts the treatment dummies with gender, showing two interesting things. First, the gender differences observed in Column 1 are entirely driven by the *Correlated Risk* treatment. Second, the whole effect of conformist behavior seems to be driven by females. In fact, the coefficient of *Correlated Risk* drops to zero. This result is rather surprising given the literature on this topic. In fact, the existence of gender differences in conformity is controversial (see Cialdini and Trost, 1998, and references therein). Women tend to be more susceptible to social influence than men, but mainly in face-to-face public interactions, and the size of the gender effect is usually small.

5. Conclusion

Conformist behavior – acting like others – can be due to both an intrinsic preference to conform or to the rational use of information implicit in other people's choices. The psychology literature has traditionally focused on the former. Experiment in economics usually emphasize information cascades, but a recent contribution has shown that conformism must at least partly be ascribed to preferences. Evidence in the literature has been gathered from experiments in which subjects must make a guess or a choice once explicitly exposed to the observation of other player's behavior.

In this paper we go one step further and show that conformism affects behavior even in a context in which the choices of others are not even presented to the subjects, besides being uninformative and orthogonal to payoffs. We expose subjects to the "Click" version of the Bomb Risk Elicitation Task (BRET), in which subjects have to click to collect every box. The task is carried out and paid individually, and therefore any information about the choices of others should be irrelevant to a rational decision maker. Moreover, the only indirect way to guess what the others are doing is to infer their choice from the mass and

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[9]Filippin and Crosetto (2014) show that females are commonly found to be more risk averse than males using other tasks, but not the BRET.

volume of clicks that can be heard in the laboratory. This signal is clearly fuzzy and largely uninformative. Moreover, the existence of this signal is never mentioned in the instruction, besides being payoff-irrelevant, and must be spontaneoulsy (and possibly unconsciously) perceived in order to be effective. Such an environment should also eliminate any kind of experimenter demand effect.

We control the exposure of subjects to the sound of others by implementing treatments with and without earmuffs. Moreover, we test whether the introduction of a minimal form of commonality makes a conformist behavior more likely to emerge. Towards this goal we manipulate the resolution of uncertainty with individual *vs.* collective random draws. In all cases the choices and the payoffs are individually determined, but in the latter the move by nature is the same for all participants.

We find strong evidence of conformism even in such an adverse environment. Letting subjects hear the clicks of others is enough to observe (weakly significant) more risk-loving choices with respect to the acoustically isolated baseline condition. The cloud of clicks tells subjects that the other participants are still collecting boxes. By conforming to the behavior of others, subjects go on collecting boxes and this translates into a more risk seeking behavior. Introducing a mild degree of commonality by performing a common rather than personalized random draw results in a further dramatic shift towards risk-loving behavior, in particular by women.

Our results have both practical and theoretical implications. On the practical side, our results warn that hearing the other subjects might create a confound in the experimental results. While not relevant in all experimental settings, the presence of bandwagon effects due to sounds might affect results in experiments characterized by quickly repeated choices, particularly if the timing of choices is crucial, such as Dutch auctions, or in the continuous-time versions of strategic games that have recently been gaining popularity (Bigoni et al., 2015; Friedman and Oprea, 2012). On the theoretical side, we show that conformism affects decisions even in contexts in which it would ex-ante be deemed unlikely, and in subtler and more pervasive ways than economists had previously thought. Conformism appears even when the signal from the behavior of others is fuzzy, uninformative, and possibly only unconsciously perceived.

Our interpretation of the results of this experiment is that preferences might be characterized by large zones of indifference, at least in presence of almost continuous choices under incentives in the order of magnitude of those usually implemented in lab experi-

ments. In such a framework subjects might use imitation as a tie-breaking device: a simple heuristic *'when in doubt, do as the others do'* might help rationalize the bandwagon effect observed. For this reason we also prefer not to emphasize the relation between conformity and risk attitude, which is the domain of choices adopted in the experiment. We believe that a similar relationship is likely to emerge in other domains, too. This tendency to imitate becomes stronger when subjects have something in common, even though payoffs depend on individual choices. Feeling that they are all in the same boat with respect to fortune makes subjects, and especially women, even more inclined to break the tie in their preferences by following the choices of others.

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Appendix A. Instructions

Welcome screen

You are about to participate in an experiment in which following the instructions carefully, making good decisions, and with a bit of luck, you can earn money. Different participants may earn different amounts according to their choices. For your participation in the experiment you will earn an additional show-up fee of 2.5 Euro. All the monetary values during the experiment are expressed in Euro cents.

Procedure Screen

The experiment consists of 4 stages in the following order:

1. An *Instruction Stage* that we are currently going through.

2. A *Decision Stage*, in which you will make decisions and answer questions relevant to your final payoff.

3. A *Questionnaire*, in which you will be asked a few questions not related to your final payoff.

4. A *Feedback Stage*, in which your earnings from the experiment will be privately determined. You will not be given any feedback on the monetary outcome of your decisions before the Feedback Stage.

Task instructions screen

On your screen you will see a field composed of boxes numbered 1 through 100. Your task is to decide on the number of boxes to collect out of 100 such boxes. You earn 10 Euro cents for each box collected. At any moment you can see the amount earned up to that point. Such earnings are only potential, however, because exactly one of these 100 boxes contains a time bomb, that if collected destroys all the boxes collected. You do not know the bombs location. You only know that it is equally likely to be in any of the 100 boxes. Moreover, even if you collect the time bomb, you will not know it until the end of the experiment.

In order to collect each box you have to click once the Collect' button that you will see on the screen. Boxes are collected starting from the top left corner and following the numerical order until you decide to stop collecting and hit the Stop button when the number corresponds to how many boxes you want to collect. Once collected, each box disappears from the screen. At the end of the experiment, after answering some questions and filling out a short questionnaire, the number of the box containing the bomb will be randomly determined.

* * *

[Earmuffs, Idiosyncratic Risk] An experimenter will come at your desk with two 10-sided dice. One will be used to determine the tens, the other the units. After letting you check that the dice are regular, the experimenter will roll them to determine the position of the bomb between 1 and 100.

[Correlated Risk] The position of the Bomb will be determined by rolling two 10-sided dice. One will be used to determine the tens, the other the units. At the end of the experiment we will ask one of you to come to the front and randomly determine the position of the bomb, by drawing a chip from an urn containing 100 chips, numbered from 1 to 100.

* * *

If the number of the box in which the bomb is located is higher than the number of boxes you collected, you do not collect the bomb and you earn 10 Euro cents for each collected box. If the number of the box in which the bomb is located is lower than or equal to the number of boxes you collected, you do collect the bomb and you earn zero.

We will now start with a trial round. After the trial round, we will begin the payoff-relevant task.

Earmuffs screen

[Earmuffs] Now if everything is clear please wear the earmuffs you see on your desk. You will be notified in another screen later when you have to remove them.

Decision screen

Please choose the number of boxes to collect.

In order to collect each box you have to click once the Collect' button.

Boxes are collected starting from the top left corner and following the numerical order. When the number corresponds to how many boxes you want to collect hit the Stop button. Then confirm your choice by clicking on Confirm.