

Comparing data gathered in an online and a laboratory experiment using the Trustlab platform

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Abstract

This paper compares the results of an experiment conducted both in the laboratory and online with participants recruited from the same subject pool using the Trustlab platform. This platform has been used to obtain incentivized and internationally comparable behavioral economics measures of altruism, cooperation, reciprocity, trust, and

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trustworthiness, employing representative samples in many countries. We find little significant difference between the results from sessions conducted in the laboratory and online. While the existing literature shows that the choice between laboratory and online experiments can cause differences in results in some cases, our findings support the hypothesis that they do not cause differences in the behavioral economics measures when using the Trustlab platform.

Keywords: dictator game, trust game, public goods game

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1. Introduction

The current COVID-19 pandemic has promoted many changes in society, with many activities, including business meetings and university lectures, now done online. Research employing the method of experimental economics is no exception, with many researchers now conducting experiments, hitherto done only in a laboratory prior to the pandemic, online.

Another important reason for conducting online experiments is that it is less costly to conduct artefactual field experiments (in the terminology of Harrison and List (2004)) with a nonstandard subject pool (say, a national representative pool rather than the standard students subject pool in the conventional laboratory experiment).

A natural concern of running experiments online instead of in a laboratory is whether doing so will have a significant impact on the results. We may be particularly concerned about researchers losing control in terms of the information to which participants have access and participants being more easily distracted during online experiments compared with in-laboratory experiments. To address this concern, we report the results of an identical experiment conducted in both laboratory and online settings with participants recruited from

the same subject pool.

Few extant studies compare the behavior observed in experiments conducted online and in a laboratory using participants recruited from the same subject pool. The results are already mixed, as we explain in detail in the following section. Some find no significant differences between online and laboratory sessions, while others expose significant differences. We suggest this shows that online and laboratory experiments can provide differences in results, but that this depends on the experiment and the platform used to conduct it. Therefore, it is important to examine whether online and laboratory experiments account for differences in results for different experiments and dissimilar platforms.

This paper focuses on behavioral economics measures of altruism, cooperation, reciprocity, trust, and trustworthiness in dictator, public goods, and trust game experiments using the Japanese version of the OECD’s Trustlab project platform (see, Murtin et al., 2018). The Trustlab platform has already been used to collect data on these behavioral economics measures through incentivized online experiments together with other data, such as preferences for redistribution, trust in government, and attitudes towards migrants, through non-incentivized questionnaires.

Our data reveals that there is little significant difference between the results from sessions conducted in the laboratory and online for four incentivized tasks. This supports our hypothesis that laboratory and online experiments do not cause differences in results for the behavioral economics measures to these same tasks in the Trustlab platform.

2. Experiment

The experiments are conducted using the platform for the Japanese version of the OECD’s Trustlab project (see Murtin et al., 2018), which is programmed using oTree.

The platform contains four tasks with monetary incentives as well as a non-incentivized

questionnaire. The four incentivized tasks are for the trust game, the public goods game, the dictator game, and a risky lottery choice, implemented in order before the non-incentivized questionnaire. The game tasks employ the strategy described below.

After the experiment, one of the four tasks is assigned randomly (conditional that the required number of participants can be assigned to form a group) to participants to compute their reward. Participants received, in addition to the participation fee of 500 JPY, the amount based on their own decisions as well as the decisions of others in their randomly formed group (or pair). The payment was in cash for the laboratory experiment and in the form of an Amazon Gift Card (e-mail version) for the online experiment. Participants were informed of the method of payment as well as the amount of the participation fee when registering for the experiment.

3. Result

Laboratory experiments were conducted between November 17 and 20, 2020. A total of 84 students participated in over four sessions.

The online experiment was conducted on December 7, 2020. A total of 116 students participated. As with the laboratory experiments, participants were asked to register to participate in the experiment. On the day of the experiment, however, each participant received a customized link via e-mail and participated in the experiment individually by clicking the link.

Below, we report the results of the three tasks, namely, the dictator, trust, and public goods games, with monetary incentives. We employ a 5% significance level. Based on the data gathered in these three games, we construct measures of altruism, cooperation, reciprocity, trust, trustworthiness, and trustworthiness².

Figure 1 reports the distributions of, for both the online and laboratory samples (shown

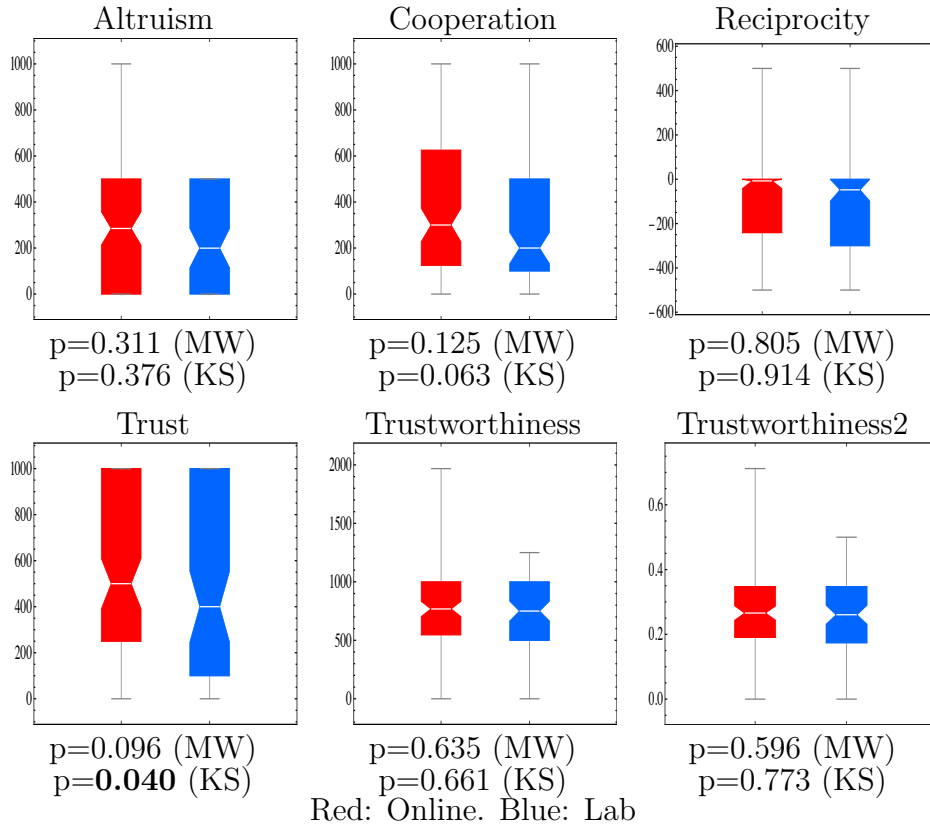


Figure 1: Distributions of behavioral measures

in red and blue, respectively), altruism, cooperation, reciprocity, trust, trustworthiness, and trustworthiness2. All reported are p-values for two-tailed Mann–Whitney (MW) and Kolmogorov–Smirnov (KS) tests. As shown, only the distribution of trust (but not the median) is significantly different between the two samples at the 5 % level ($p=0.040$ for the KS test). This is a multiple test problem for a set of 6 hypotheses. With the Bonferooni correction nor the Holm correction, we do not reject the null hypothesis even for the KS test. Thus, we have little evidence for significant difference.

4. Concluding remarks

With the current COVID-19 pandemic, many applied researchers, including ourselves, have begun conducting experiments online instead of in the laboratory. Because online experiments are new, some may be concerned about the possible impact of experimenters losing control on the information participants can access or participants being more easily distracted during online experiments than laboratory experiments. Some of the literature has addressed these concerns by reporting the results of experiment conducted in both the laboratory and online with participants recruited from the same subject pool. Because existing results are mixed, we believe that whether laboratory and online experiments provide differences in results depends on variation in the experimental tasks and changes in platforms.

To investigate this further, this paper focused on the behavioral economics measures in trust, public goods, and dictator games using the Trustlab platform. Our data revealed that there is little significant difference between the results from sessions conducted in the laboratory and online. Thus, the abovementioned concerns do not appear to cause any major problems for these experiments when using the Trustlab platform.

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