



Social preferences? Google Answers! ☆



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ABSTRACT

We analyse pricing, effort and tipping decisions at the online service 'Google Answers'. Users set a price for the answer to their question ex ante, and they can additionally tip the researcher who provided the answer ex post.

A positive wage-effort relationship is frequently found in laboratory gift-exchange games, yet field evidence for reciprocity in two-stage settings (wage, effort) is mixed. Our field data confirms lab findings for the three-stage design (wage, effort, bonus). Tipping is motivated by reciprocity, but also by reputation concerns among frequent users. Moreover, researchers seem to adjust their effort based on the user's previous tipping behaviour. An efficient sorting takes place when sufficient tip history is available.

In addition, we analyse how tipping is adopted when the behavioural default is not to tip and suggest estimates for reciprocal and selfish (strategic and myopic) user types.

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1. Introduction

While laboratory experiments provide plenty of empirical evidence of individuals who consistently make voluntary payments, it is not yet clear what the precise drivers of pro-social behaviour¹ are and whether they also pertain in real life environments. This external validity of the lab results is far less studied and merits more attention. Can we observe the behaviour found in the lab as well in real life contexts and what are the underlying motivations of the occurring voluntary payments?

For this purpose, we collected field data at 'Google Answers'.² In this online service (a sub-service of Google) users post questions and set a fixed price for the answer. A Google Answers researcher (GAR) works on a question and returns an

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¹ Approaches that take the psychological underpinnings of economic behaviour better into account, namely social preferences models, have been developed in order to explain pro-social behaviour. See [Camerer \(2003\)](#), [Fehr and Schmidt \(2003\)](#) or [DellaVigna \(2009\)](#) for overviews.

² Our data set covers all questions asked at Google Answers which started in April 2002 and ended in December 2006. The data set contains 146,656 questions, of which 57,651 have been answered. The average price for an answer is more than \$20. Google Answers researchers (GARs) may best be described as freelancers. Answering questions can be a serious occupation and source of income as some GARs have answered more than 1,000 questions.

answer to the user who can optionally give a tip to the GAR. This data set allows us to analyse pricing, effort and tipping decisions in a real life labour market. In particular, we focus on the underlying drivers for voluntary payments and the effects of such a design on effort levels and efficiency. In a simple model we consider two possible motivations for the tipping of users and test empirically to what extent they drive the behaviour at Google Answers. Social preferences can motivate users to leave a tip. We specifically consider concerns for reciprocity following the theory of sequential reciprocity of [Dufwenberg and Kirchsteiger \(2004\)](#). Moreover, reputation concerns can motivate frequent users to leave a tip. Self-interested users may decide to imitate reciprocal ones in order to attract high effort answers. We model this strategic tipping out of reputation concerns as a Bayesian updating process in the style of the literature pioneered by [Kreps et al. \(1982\)](#).

The Google Answers environment resembles a gift-exchange game, specifically a three-stage design: 1) principal sets wage, 2) agent chooses effort level, 3) principal decides on bonus/tip. Hence, our study enables us to check the external validity of the results of related lab experiments. [Fehr et al. \(1997\)](#) and [Fehr et al. \(2007\)](#) employ such a three-stage design in order to study labour relations between firms and workers in the lab.³ Several other studies test a gift-exchange labour market context in the field, for instance [List \(2006\)](#), [Gneezy and List \(2006\)](#), [Kube et al. \(2006\)](#), [Maréchal and Thöni \(2007\)](#), [Bellemare and Shearer \(2009\)](#) and [Hennig-Schmidt et al. \(2010\)](#). They all focus on a two-stage design (i.e., principal sets wage, agent chooses effort level) and results with respect to a positive wage–effort relationship are mixed. Our study is also related to [Gächter and Falk \(2002\)](#) who study the interaction effects of reciprocity and repeated game incentives.

Our real life findings are distinctly in favour of reciprocity and reputation. In line with the existing experimental evidence, the tendency to tip is positively correlated with effort and a user's total number of questions posted. Furthermore, our rich data set allows for an in-depth analysis of the underlying mechanisms behind the interplay of reciprocity and reputation as well as its consequences for contract design. We test whether GARs take the past tipping behaviour of users into account and put more effort into the answer, if the user has frequently tipped before. We also analyse overall efficiency, that is, whether the repeated bonus design that allows for tips results in higher effort and adequate GAR compensation for the extra effort via the tip. In addition, we shed some light on the adoption process of tipping and estimate the fractions of genuine reciprocators and imitators in the sample population. Finally, we discuss implications of our findings for the online world.

Other studies using Google Answers data exist, but they focus on GARs. [Rafaeli et al. \(2007\)](#) and [Raban \(2008\)](#) focus on the social incentives for GARs to work on an answer. [Harper et al. \(2008\)](#) investigate predictors of answer quality. [Chen et al. \(2010\)](#) find that GARs with a higher reputation provide significantly better answers. [Edelman \(2012\)](#) analyses labour market aspects like GARs' experience, on-the-job training and specialisation. Instead, we analyse the data from both GAR and user perspective. In addition, we use all data from Google Answers in contrast to previous studies. Two features make the complete data set particularly compelling. First, the service started without the possibility of leaving a tip. This option was only introduced six months after the start or roughly 10% into the data. It provides an opportunity to analyse the adoption process of tipping. Second, Google Answers closed in 2006. This was announced briefly before no more new questions were allowed and we analyse the effect of this news on tipping behaviour.

In the following section we describe the pitch of our field study – the online service Google Answers. Section 3 develops a simple model of the user-GAR interaction and derives testable hypotheses. Section 4 describes our data set, while Section 5 analyses it. Section 6 concludes.

2. The online service Google Answers

The web-based service Google Answers (<http://answers.google.com/>) complements Google's well-known standard search tool. It offers the assistance of expert online searchers to users who are willing to pay for this. Google Answers users ask questions and Google Answers researchers (GARs henceforth) try to answer them in return for a fixed price and a possible tip. Google Answers can be seen as a fee-based expert service in contrast to community-based services like Yahoo! Answers (a free answer service where users both ask and answer questions). According to Google GARs are screened to ensure they are expert searchers with excellent communication skills. The focus is on quality provided by paid, freelancing experts.⁴

After registering with the service users can post a question to Google Answers and specify how much they are willing to pay for an answer. Users can price their question anywhere between \$2 and \$200. In addition a non-refundable listing fee of \$.50 applies for each question. There is a pool of roughly 500 GARs who have the possibility to answer. Once one of them decides to search for an answer, a question will get 'locked' (for 4 hours if the price is below \$100, for 8 hours if above). This means a question is actively worked on by a GAR and no other GAR can answer it in that time. The GAR will try to

³ [Fehr et al. \(1997\)](#) analyse a simple labour market with firms, workers and excess supply of workers. Three different contracts are simulated in experiments. While contract terms were exogenously enforced in the first treatment, workers were able to reciprocate in the second and both firms and workers were able to reciprocate in the third treatment. Effort levels of workers were significantly higher in the last (strong reciprocity) treatment and a contract that gives the opportunity for mutual reciprocity was found to improve efficiency. They also find a significant positive correlation between workers' effort and the firms' reaction (reward or punishment). Based on [Rabin \(1993\)](#) they explain the observed behaviour with reciprocity concerns.

⁴ Google Answers closed in 2006. It is a natural question – although not central to our analysis – why the service was stopped and why Yahoo! Answers had been more popular in terms of question volume. There is no official explanation by Google, but the topic has been discussed in length online, probably best accessible at <http://uclue.com/?xq=2452>. Important for the purpose of this study is that the closing of Google Answers cannot be regarded as a failure of the service. Google Answers and Yahoo! Answers are similar at surface but hardly comparable (users receive researched facts at Google Answers, while they basically get opinions by peers at Yahoo! Answers). See also [Harper et al. \(2008\)](#).

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