

Lottery-Based Payment Mechanism for Microtasks

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Abstract

We propose using lotteries as an alternative payment mechanism through which to incentivize and recruit workers to microtasking. We present initial findings gained via experiments on Amazon Mechanical Turk and focus on discussing the benefits and potential pitfalls in employing a lottery-based payment mechanism for microtasking.

lottery-based Payment Mechanism

Over the last few years, paid microtasking, where workers complete small tasks for pennies at a time, has emerged as an alternate source of income for many people around the world. We introduce a alternative: lottery-based payments. In this payment mechanism, workers earn lottery tickets by completing microtasks. Each successfully completed task earns a ticket, hence completing more tasks gets them more tickets, thereby increasing their chance of winning. Payments may be monetary, or other material rewards such as tickets to music concerts or sport events, T-shirts, monthly bus passes and so on. In general, we assume an internal lottery is held solely amongst workers, though this need not be the case.

Potential Benefits

Studies have shown that a dominant fraction of crowd workers on microtasking platforms have a different primary job and participate in crowdsourcing to earn extra spending money, or for non-monetary intrinsic motivations such as beating boredom or contributing to scientific research [Stoddart]. Since regular wages are not the sole, or even primary, concern for many crowd workers, alternatives to the usual pay mechanism may be more appealing to such workers.

Lotteries provide both financial (*extrinsic*) incentives in addition to thrill or excitement (*intrinsic* incentives). lottery-based microtasking could become a new manifestation of internet-based lotteries [Zhou-Tan] where instead of asking people to purchase a ticket with *money*, we ask them to purchase a ticket by *completing microtasks*. Alternately, lottery-based microtasking could supplement existing microtasking platforms by allowing tickets to be given in addition of payments, in lieu of payments or to reward good performance.

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Participants retain their thrill of potentially winning a lottery without risking their base pay.

While we want to leverage the perennial appeal of lotteries, we also highlight that requesters can also benefit from such a mechanism. Lottery-based payments give requesters additional flexibility through which to control the cost of crowdsourcing. Total award money is in complete discretion of requesters and does not depend on the number of tasks involved. Additionally, the probability distribution of winners can be selected in order to ensure that the requester always pays out a constant amount, avoiding any randomness expenses. Lastly, benefits may extend to quality and not just cost. Preliminary findings show more accurate behavior on lottery-based tasks, and one can disqualify inaccurate workers from winning the lottery, hence further incentivizing good behavior.

Proof of Concept

As a proof of concept we conducted a survey and an experiment on Amazon Mechanical Turk (AMT) in order to establish qualitative and quantitative evidence for implementing lottery-based payment mechanisms. While the results are not conclusive, they show promise and suggest further exploration is warranted. We give a brief description of findings below, please see supporting materials for in-depth results.

We conducted a small scale survey of AMT workers to qualitatively determine if crowd workers would be receptive to lottery-based payment mechanisms. Nearly one-third of the participants preferred some form of lottery-based payments over traditional fixed payments. A variety of scenarios were proposed in the survey with varying prize values and odds of winning. Small payments with high odds were generally preferred over high payments with low odds, which are in turn preferred over medium winnings with medium odds.

Additionally, we designed and developed a set of AMT tasks that allowed for lottery-based payments. The task was to digitize 5 pieces of scrambled text (similar to CAPTCHA¹) with 10-12 randomly generated characters. We compared the accuracy and timeliness of tasks completed under four scenarios: 1) tasks pay one cent, 2) tasks

¹<http://www.captcha.net/>

pay two cents, 3) tasks pay one cent plus a ticket that wins one dollar with 1/100 odds, 3) tasks pay one cent plus a ticket that wins ten dollars with 1/1000 odds. After completing a task successfully, a worker was given a lottery ticket number and a time and date at which the draw would occur. Instead of generating the winning number ourselves, we used the winning Daily-3 number from the California State Lottery System² in order to increase the transparency and trustworthiness of the mechanism. The lottery winnings were paid out as bonuses. Preliminary results indicated that lottery-based payment mechanisms are more accurate than other forms of payments though teasing out exactly why this may be the case will require further studies. We also observed that workers spent more time on lottery tasks than on traditional pay tasks.

Discussion

While initial explorations showed promise, several important aspects must be considered.

Trust: Trusting requesters has always been a pertinent issue in microtasking platforms where workers get paid at the requester's discretion. In the proposed scenario, this problem is exacerbated since the worker must believe that requesters are *honestly* conducting lotteries, and not simply claiming to do so. While implementing this on a platform level may alleviate some issues, no such system currently exists. Hence, we piggybacked on the California State Lottery System in order to make winning number generation public. Furthermore, we attempted to bring as much transparency as possible by informing workers a-priori about how the numbers are generated, and ex-facto about winning workers.

Legality and Ethics: Crowdsourcing in general has raised a number of questions regarding fair wage payment for crowd workers. Concerns about average hourly pay (which some studies show hover around \$1.5-2 for a large fraction of tasks) could be significantly below minimum wage [reference](#). Lottery-based mechanisms cannot do much to alleviate this concern. Moreover, lotteries have had their share of criticisms since they bring a factors of chance into wages and prevents the society from being entirely meritocratic. Additionally, gambling addiction is a significant concern. However, one benefit of the proposed mechanism is that people need not spend their money to play, but rather can complete small tasks with previously unproductive time. Despite this fact, full legal and ethical implication must be explored.

Incentives and Sustainability: The qualitative survey described in the previous section emphasized the importance of setting the effective lottery parameters both in terms of amount and odds. Psychological studies show that different personality types have different affinity or aversion to risk [Rogers]. For lottery-based payment mechanisms to be sustainable they must appeal to a large fraction of participants, and not generate too much churn from repeated losses. Much work is required with this regard.

²<http://www.calottery.com/play/draw-games/daily-3>

Future Work

We intend to perform large scale experiments to validate benefits and potential for adoption of the proposed lottery-based incentive mechanism for various kinds of microtasks. One important direction is to develop a variety of lottery mechanisms where workers can select from different winnings/odds ratios, possibly as an opt-in mechanism.

References

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