Increased Transparency in Procurement: The Role of Peer-Effects

As part of recent initiatives oriented to increase operational transparency, several organizations (such as nonprofits and government agencies) have launched websites to make information regarding procurement transactions (selected suppliers and prices paid) visible to various parties within the organization, including other employees not involved in the transaction. The objective of this work is to understand, both theoretically and experimentally, the impact of increased transparency on the employees’ purchasing decisions. In particular, we are interested in understating the impact of publicizing procurement information in settings where the purchasing decisions are delegated to individual employees, as opposed to being centrally managed by the organization. Delegation is a common practice for small or hard-to-standardize purchases, in which the employee is better informed about his own needs. Examples include employees booking their own air tickets and hotels for business travel purposes or choosing which work computer to buy. In these cases, however, the incentives of the employees and the organization might not be fully aligned: while organizations typically care about price and quality, employees’ preferences may be influenced by personal considerations – business travelers might prefer to choose airlines for which they obtain reward points for personal use, even when there are alternatives at a cheaper price.

Disclosing information about others’ purchasing decisions could reduce or exacerbate this misalignment, as social comparison (peer effects) may come into play. Moreover, mechanisms to mitigate the misalignment are typically unavailable: individuals’ needs are idiosyncratic, making punishment and/or monitoring unfeasible. Hence, understanding the impact of increased transparency on purchasing decisions is particularly important in this setting.

Model: We consider a stylized model with an organization consisting of a director and two employees (whose wages are identical and determined by the director). The director delegates the supplier selection when purchasing two items to the employees: each employee must choose one item to be paid by the organization, and their decision can be neither overruled nor punished by the director. To isolate the
impact of transparency on buyers’ behavior, we assume that the suppliers offer identical items whose prices are exogenously given. The price for one of the suppliers is fixed; the other supplier, whose price is randomly determined, is always more expensive. Purchasing from the expensive supplier provides an extra personal benefit to the employees (e.g. purchasing a flight from the preferred alliance). Employees know the price realizations before making their choices, and care about their monetary payoff (wage received plus a personal benefit if they purchase the expensive option) and have social preferences. The latter include: (1) reciprocity towards the employer; (2) income inequality aversion, capturing the desire to avoid unequal payoffs relative to their peers.

To understand the effects of transparency, we compare the employees’ and director’s actions in a setting where employees cannot observe each other’s choices (baseline) to a setting where employees make their decision sequentially, and the second employee can observe the first employee’s supplier choice before making his decision (web). We assume that income inequality aversion is only present when an employee can observe his peer’s decisions. We show that, in both settings, the probability that an employee chooses the expensive supplier is decreasing in the price difference between suppliers, in the wage offered by the director, and in how much the employee cares about reciprocity. In addition, our model predicts that there exists a spill-over region where an employee is more likely to choose the expensive supplier when he observes that his peer did so than in the baseline. This region arises for intermediate price differences between the two suppliers and the change in probability is proportional to the employee’s degree of disadvantageous income inequality aversion. Finally, our model predicts no change on the observed employees relative to the baseline.

**Experiment:** We design a laboratory experiment to test whether and how peer-effects derived from the introduction of the web affect the employees’ purchasing behavior. To test our theoretical predictions, we design a procurement game that replicates the setting described above. We conduct a baseline treatment where both employees choose a supplier simultaneously, and a peer treatment in which both employees
choose a supplier sequentially and the second employee observes the choice of the first one before making his decision.

Three main results arise from our experiment. First, we confirm that the probability of choosing the expensive supplier is decreasing both in wage and the price difference between the suppliers. In addition, we observe that more reciprocal subjects (as per an additional metric elicited in the experiment) are less likely to choose the expensive supplier. Second, we observe that employees are more likely to choose the expensive supplier after observing their peer did so than in the baseline treatment. In contrast, observing that the peer chose the least expensive supplier has no impact on the second employee’s choice. These negative spillover effects are predicted in our theoretical model as a result of subjects’ disadvantageous income inequality aversion and are consistent with previous literature in a related gift-exchange game. Third, we find that those employees whose decisions are observed by others are less likely to choose the most expensive supplier compared to the baseline. The differences are significant when wages are low and among non-reciprocal employees, suggesting that concerns about reciprocity are not the main mechanism driving this behavior. We propose an alternative explanation based on preferences for compliance with social norms. To test it, we conduct two social norm elicitation treatments to measure the appropriateness of choosing the expensive supplier in the baseline and web scenarios. The results show that the behavior of observed subjects in the procurement game is consistent with what is perceived to be socially appropriate in the norm elicitation treatments.

**Managerial implications:** Our results suggest that initiatives to increase transparency must be carefully designed to account for the presence of peer-effects. Specifically, the fact the employees’ actions can be observed by their peers should be emphasized over the fact that their peers’ actions are available for them to see before making their own decision. In addition, by highlighting and reinforcing the social inappropriateness of choosing the expensive supplier, the platform could further reduce the bias towards higher spending.