Motivating Supplier Social Responsibility under Incomplete Visibility

Social responsibility (SR) has become a critical strategic issue for many firms due to an increasing number of consumers taking it into consideration when making their purchase decisions (Cone Communications, 2013). Despite this, a recent study by The Sustainability Consortium found that over three quarters of the 1,700 companies surveyed lacked full visibility into the SR practices of their supply chains (The Sustainability Consortium 2016). Furthermore, improving visibility into a supply chain can be costly and time-consuming (Doorey 2011). As a result, companies often exert effort to help improve suppliers’ SR practices without full visibility. In this paper, we study how a manufacturer (she) can motivate a supplier (he) to improve his SR practices when these practices (1) cannot be perfectly observed by the manufacturer and (2) can positively or negatively impact demand. To capture the extent to which consumer demand can impact the manufacturer’s and the supplier’s decisions, we incorporate the potential for SR information to be disclosed to consumers either by an external third party (e.g., an NGO) or directly by the manufacturer.

In our setting, the supplier is the only party that can directly improve SR practices in the supply chain; the manufacturer can only reduce the supplier’s cost of SR by investing in his capabilities, e.g., through training. The manufacturer has a prior belief about the supplier’s current level of SR and observes a signal about this level. How likely the signal is correct or not (i.e., whether it reflects the true level of SR) depends on the manufacturer’s level of visibility into her supplier’s practices.

We analyze two scenarios: (i) the manufacturer does not disclose SR information (No-Disclosure scenario); and (ii) the manufacturer voluntarily discloses SR information to consumers based on the information available to her (Disclosure scenario). In the latter case, the manufacturer can increase her demand by disclosing, but she may also incur a penalty if she overstates the supplier’s practices.

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1 For example, Nike “provides training to enhance managerial capability and to educate on the importance and value of workers” (https://help-en-us.nike.com/app/answer/article/supply-chain/a_id/20878/country/us).
level of SR. Within the literature there exists a growing interest in firms’ visibility into their supply chains and the disclosure of SR information to consumers (Kalkanci and Plambeck 2015, Chen and Lee 2016, Lewis et al. 2016). We contribute to this stream of research by examining how a firm’s incomplete visibility into a supplier’s SR practices impacts her decisions to invest in the supplier’s capabilities and to disclose information to consumers.

The sequence of events for our game-theoretic model is as follows. For the No-Disclosure scenario: (1) The manufacturer observes the signal and chooses how much to invest in the supplier’s capabilities; (2) The supplier selects his final level of SR; (3) With a given probability, the (exogenous) third party observes the final level of SR and communicates it to the consumers; (4) Finally, demand is realized. In the Disclosure scenario, we include an additional step between steps (2) and (3) in which the manufacturer also selects a level of SR to disclose to consumers, based on the information available to her. In addition, the manufacturer incurs a penalty if the SR information she discloses is lower than the level of SR communicated by the third party.

We find that in the No-Disclosure scenario, the manufacturer’s optimal investment can be defined with a threshold policy. If the signal observed by the manufacturer indicates a level of SR that is below (above) the threshold, then the manufacturer makes a large (small) investment in the supplier’s capabilities. The difference between the large and the small investments increases with the manufacturer’s visibility into her supplier’s practices. Furthermore, the manufacturer prefers the large investment for a wider range of signals as the risk of third-party scrutiny increases.

In the Disclosure scenario, when the manufacturer discloses SR information, she may overstate (understate) it with respect to her best estimate of the final level of SR (i.e., based on the observed signal) if this estimate is low (high). As her visibility increases, the chance of over- or understating the level of SR decreases. The manufacturer’s optimal investment in the supplier can again be
defined with a threshold policy. However, due to the added risk of incurring a penalty if the SR information disclosed to consumers is incorrect, the manufacturer’s level of investment is always greater in the Disclosure scenario than in the No-Disclosure scenario for any observed signal.

Finally, if choosing between disclosing and not disclosing, the manufacturer is most likely to prefer not disclosing when the observed signal suggests that the supplier’s SR level is neither too high nor too low. This is even though the supplier always has a greater incentive to improve his SR practices when the manufacturer chooses to disclose. Relatedly, while an increase in visibility or third-party scrutiny is more likely to have a positive impact on the supplier’s SR practices, it may cause the manufacturer to choose not to disclose, hence hurting the eventual level of SR.

Establishing socially responsible practices in a supply chain is a difficult task. This is particularly true given the lack of visibility many firms have into their suppliers’ practices. Our results illustrate (1) how a firm should tailor her investments in a supplier’s capabilities according to her level of visibility and (2) when the potential disclosure of SR information to consumers (either by a third party or the firm) can positively or negatively impact the SR performance of a supply chain.

References
Kalkanci, B., E.L. Plambeck. 2015. Measuring and improving supplier responsibility under voluntary vs. mandatory disclosure. Working paper, Georgia Institute of Technology, Atlanta, GA.