

SOURCING AND PROCUREMENT COST ALLOCATION IN MULTI-DIVISION FIRMS

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ABSTRACT

As firms increasingly focus on their core competencies and outsource products from external vendors, procurement has become a vital function and managers are examining their sourcing and procurement activities for opportunities to gain competitive advantage. In large firms with multiple divisions, managers of Central Purchasing Organizations (CPOs) have begun adopting a center-led sourcing approach that allows firms to centralize strategic sourcing activities, while still permitting decentralized execution by divisions, allowing the firm to leverage large purchase volumes to not only ensure better price and delivery terms, but also trigger volume discounts with vendors. This new center-led procurement environment has brought new decision requirements. How can a CPO select vendors for each division's requirements to minimize the firm's total procurement cost and simultaneously develop a fair and alignment-inducing mechanism to allocate the costs (and savings) of company-wide procurement to the divisions. We model this sourcing and procurement cost allocation (SPC) decision problem facing CPOs of large firms as a mixed-integer optimization problem. This model is flexible and permits us to incorporate and examine alternative divisional participation schemes and commonly-used ways to ensure fair cost allocation.

Although the SPC problem is NP-hard, our analysis is able to characterize important aspects of the optimal solution to reveal that (a) the CPO could incur a potentially significant cost in ensuring fair allocation of cost savings, (b) selecting vendors first and then setting appropriate transfer prices (in a sequential rather than simultaneous manner) could result in large deficits for the CPO, and (c) of two schemes in use in industry, one scheme of fairness or participation does not uniformly dominate another. Together, these results highlight the importance of studying the SPC problem and understanding the relative impact of the various choices that CPOs have in organizing multi-division procurement.

Keywords: Procurement, Cost allocation, Applied optimization