

Title:**A Risk-Sharing Pricing Contract in B2B Service Supply Chains: An Application to Healthcare.****Abstract:**

Motivated by healthcare applications, we study a common service business-to-business supply chain consisting of a service provider and a service requester. The changes in the healthcare reimbursement system have created new opportunities for different business interactions in the industry. Specifically, the requester purchases service transactions from the provider for a contractually pre-specified fee as part of its own supply chain. A major source of uncertainty is the demand that the requester is experiencing. Unlike traditional product supply chains, the firms have opposing risks with respect to demand and payment. We leverage this insight to design a conceptually simple two price contract, and analyze it within a game theory framework.

Our contract promotes risk sharing. Moreover, although the problem is non-convex, we can characterize the unique equilibrium contract for general demand distributions, and a family of utility functions that capture firms' different risk behaviors. At equilibrium, the two price contract has two desirable properties: (1) it allows for risk reduction (measured by CVaR) to the two firms, and (2) it reduces the uncertainty in the overall payments.

Finally, the two price contract is also optimal among volume-base discounts contracts, hence, there is no need for considering more complicated contracts.

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