Distant Procurement Problem: A Contract to Share Inventory Risk

Abstract

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Procurement of manufactured goods and sub-assemblies from distant markets is not a recent phenomenon. Countries with significantly lower labor costs have been providing new opportunities for the large firms of the developed countries for decades. Although it makes higher margins possible for the big brand owners in the domestic and global retail markets, there are obvious risks such as the ones about quality and on-time delivery. Moreover, with significantly high lead times, insufficient information about the distant manufacturers, relatively low responsiveness of the resulting supply channel and the absence of many other conveniences that exists in the domestic procurement options, long distance procurement decisions require longer term planning under more constraints than those of the latter. Yet, in many industries, most manufacturing operations have already shifted abroad... The procured item usually has highly perishable characteristics; given significant lead times due to design, set up, manufacturing and shipment, there is practically a single batch of ordering opportunity from a distant source. There is usually a convenience market option, a spot market in some settings, as well, which the supply deficit can be mitigated from. However, because of higher labor costs, shorter notice, diseconomy of scale, lower bargaining power due to the urgency of the situation, such options are not advantageous in cost as much as they are in lead time especially if employed soon before or during the retailing season. We consider an alternative contract to the basic wholesale contract with a distant supplier; the winner of the initial auction, where the ownership of the goods and hence the inventory risk is slightly altered. We characterize the two different types of responses of the buyer to the winning wholesale price and demonstrate that the buyer always benefits from this scheme. We also show the cases when the supplier is also relatively better off and discuss more general schemes that further improve the procurement portfolio of the buyer.