1016-91-261 **Xin Chen** and **Jiawei Zhang*** (jzhang@stern.nyu.edu). *A Stochastic Programming Approach to Inventory Centralization Games.*

A class of cooperative games arising from inventory centralization are studied in this paper. The optimization problems corresponding to the inventory games are formulated as stochastic programs. We observe that the strong duality of stochastic linear programming not only directly leads to a series of recent results concerning the non-emptiness of the cores of such games, but also suggests a way to find an element in the core. We further construct a dual for the well-known newsvendor problem with concave ordering cost and prove a strong duality result for this non-convex minimization problem. This new duality result immediately implies that the corresponding game has a non-empty core. Finally, we prove that it is NP-hard to determine whether a given allocation is in the core for the inventory games even in a very simple setting. (Received February 13, 2006)