

A PROFIT-CENTER GAME WITH INCOMPLETE INFORMATION

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Abstract

Profit centers in a firm in multidivisional form agree in the *ex ante* stage upon a plan about their joint production and profit imputation. The plan is executed in the subsequent two periods of the *interim* stage. In the first *interim* period, each center has its private information, but a part of its information is revealed to the other centers through its action. Based on the information endogenously pooled this way, the centers take another round of actions in the second *interim* period. A *core plan* is defined as a Bayesian incentive-compatible plan of the grand coalition of profit centers, upon which no coalition can improve using its Bayesian incentive-compatible plan. A core plan is called *full-information revealing* if each center fully reveals its private information in the first period. Three existence theorems for a full-information revealing core plan are established. The first two theorems impose alternative conditions on returns to scale: (1) the neoclassical convex technology, and (2) increasing returns to scale. In case (2), a stronger condition than Scarf's distributiveness is imposed on the total production set. The third theorem is based on a specific supplier-customer relationship among the divisions.

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