On the Core of a Wicksellian Transfer Game: Monopolistic vs. Monopsonistic Returns

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A *Wicksellian transfer game* is a game composed of three types of players having heterogeneous tastes and heterogeneously endowed commodities among them. In the tradition of economic theory, such a game situation has been considered to represent typical market conditions when traders face transactions among them. Jevons used the phrase of *"double coincidence of wants"* to emphasize that the "difficulty in barter is to find two persons whose disposable possessions mutually suit each other's wants." Wickesell in his book described a triangle of trades, which has come to be known as a *Wicksellian triangle*, where each of three traders faces the absence of double coincidence of wants and between any two of the traders one of them has a desire for the commodity another trader possesses so that bilateral exchanges do not take place between any two of the traders. The absence of double coincidence of wants induces incentives for traders to exchange commodities through a third party for the purpose of obtaining what they need or want. A Wicksellian triangle among players is a way to describe these incentives and leads to endogenous creation of a circulation or a transfer of commodities that each player owns.

In this paper we examine the nature of these transfers of commodities resulting from a Wicksellian game. The purpose of the paper is to elucidate conditions for a solution of the game to satisfy without a specification of an institutional framework under which transfers of commodities take place. Although the Nash equilibrium of a Wicksellian transfer game can be defined, there is a unique Nash equilibrium that results in no transfers nor trading of commodities among the players as a consequence of absence of binding institutional constraints on transfers. For this reason, we are concerned in this paper with the solution concept of the core of the game.

This paper is organized as follows: In Section 2, we describe a basic Wicksellian transfer game, where three players forming a Wicksellian triangle are classified as three types. Subsequently, we take note of the set of all core transfers and a unique competitive equilibrium solution as a bench mark of our analysis in the succeeding sections. In Section 3, the basic Wicksellian transfer game is extended to include an additional player of a particular type, say, type 2 player. It creates one other Wiksellian triangle to enlarge opportunity for transfers of commodities. One expects that an increase in the number of type 2 players will induce a qualitative change in possible distribution of commodities among players. In the basic transfer game all the players are both, so to speak, 'monopsony' and 'monopoly' vis-à-vis other players. However, in an extended transfer game, type 2 players face a competition within players of the same type, whereas type 1 and type 3 players continue to enjoy their 'monopsonistic' or 'monopolistic' returns as in the basic transfer game. The comparison of its set of core transfers with that of the bench-mark case shows how an unequal distribution of returns is produced.

Finally, in Section 4 a Wicksellian transfer game with competing players of a same type presented in Section 3, is extended to a general case of n players of a same type participating in Wicksellian triangles. We show how the increase of a type of players gives an impact on the other two players.