

# Core allocations in a mixed economy of Arrow-Debreu type

Valery A. Vasil'ev

Sobolev Institute of Mathematics,  
4, Acad. Koptuyug avenue, 630090 Novosibirsk, Russia,

Novosibirsk State University,  
2, Pirogova str., 630090 Novosibirsk, Russia,

`vasilev@math.nsc.ru`

This paper investigates coalitional stability of the equilibrium allocations in a mixed economy of Arrow-Debreu type. A notion of fuzzy domination in a mixed environment will be given, and coincidence of the fuzzy core and equilibrium allocations will be shown to hold under rather ordinary conditions.

An important feature of the mixed economic system under consideration is that two different regulation mechanisms function jointly: central planning and flexible market prices. Thus, this model is characterized by the presence of dual markets. In the first market, prices are stable and the allocation of commodities is determined by rationing schemes and government orders. In the second market, prices are flexible and are formed by the standard mechanism of equating demand and supply. We assume that the excess of any commodity purchased in the first market may be resold by any economic agent at flexible market prices.

To introduce an appropriate notions of ordinary and fuzzy domination in a mixed economic system we have to take into account both the above mentioned presence of fixed prices for rationed commodities and the multiplicity of types of coalition stability of equilibrium allocations, which correspond to different types of flexible prices in the second market. A universal way to overcome the difficulties indicated is based on the use of a piecewise linear approximation of nonlinear income functions and leads to the formation of several types of cores which characterize all possible variants of coalition stability. The result is that the testing of the famous Edgeworth's core equivalence conjecture reduces to analyzing the asymptotic behavior of each core individually. Besides this general setting, we pay strong attention to special classes of mixed economic systems that admit a global linearization of the budget constraints. This fact allows us to limit our considerations to a unique type of coalition stability for all equilibrium allocations. To provide the possibility of linearization "in the large", we introduce rather natural assumption of willingness to buy at the second market. This assumption seems to be quite important in some applications of the mixed economy theory. And, together with some technical requirements, this assumption guarantees the coincidence of fuzzy core and equilibrium allocations of the mixed economy under consideration.

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