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Journal of Economic Theory 166 (2016) 282–303

JOURNAL OF
Economic
Theory

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Gale–Nikaido–Debreu and Milgrom–Shannon: Communal interactions with endogenous community structures [☆]

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Received 12 June 2014; final version received 12 August 2016; accepted 7 September 2016

Available online 16 September 2016

Abstract

This paper examines Nash jurisdictional stability in a model with a continuum of agents whose characteristics are distributed over a unidimensional interval. Communal benefits and costs of each individual depend on her identity and the composition of the community which she belongs to. Since the framework is too general to yield an existence of Nash equilibrium, we introduce the essentiality of membership in one of the communities for all individuals. We highlight the Border Indifference Property (BIP), when all individuals located on a border between two adjacent jurisdictions are indifferent about joining either of them and show that BIP is a necessary condition for yielding a Nash equilibrium. We invoke the celebrated Gale–Nikaido–Debreu Lemma to guarantee the existence of a partition that satisfies BIP. We then proceed to demonstrate that BIP is not sufficient to yield a Nash equilibrium. The equilibrium existence under BIP is rescued when we use the Milgrom–Shannon monotone comparative statics conditions.

[☆] The authors wish to acknowledge the support of the Ministry of Education and Science of the Russian Federation, grant #14.U04.31.0002, administered through the NES Center for Study of Diversity and Social Interactions. The work of the first author is partially supported by the Russian Government Program of Competitive Growth of Kazan Federal University. The authors are grateful to the Associate Editor and the anonymous referees whose very valuable comments, suggestions and criticism have allowed us to substantially improve the scope of our results and the exposition of the paper. The authors wish to thank Michel Le Breton, whose contribution at the earlier stages of the project deserves more than a short footnote.

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