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Core equivalence with differentiated commodities*

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Abstract

This paper presents improved core equivalence results for atomless economies with differentiated commodities in the framework of Ostroy and Zame (1994). Commodity bundles are elements of the space $M(K)$ of signed Borel measures on a compact space K of commodity characteristics. Ostroy and Zame provide two sufficient conditions for core equivalence: It is sufficient that markets are "physically thick", so that there are many suppliers of every commodity, or that markets are "economically thick", so that consumers are sufficiently willing to substitute commodities with a similar composition for each other. The sufficient conditions in Ostroy and Zame (1994) all imply that there are "many more agents than commodities," an idea of Aumann that was formalized and discussed in Tourky and Yannelis (2001) and Greinecker and Podczeck (2016). We generalize the framework in Ostroy and Zame (1994) and weaken their sufficient conditions to not imply the presence of "many more agents than commodities." In particular, we drop the requirement that K is metrizable from the basic model, the requirement of an uniform bound on endowments from the condition of "physically thick markets" and the requirement that preferences are weak*-continuous from the condition of "economically thick markets". Core equivalence still holds, showing that "many more agents than commodities" are not needed for core equivalence in models of commodity differentiation.

Keywords: Core equivalence, differentiated commodities, thick markets

JEL classification numbers: C62, C71, D41, D50

1 Introduction

In his celebrated core equivalence theorem, Aumann (1964) showed that with a large number of insignificant agents the core of an exchange economy with a finite-dimensional commodity space coincides with the set of

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