Endogenous market segmentation with heterogeneous agents

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Summary. An explanation is provided for the evolution of segmented markets, giving intertemporal outcome results. Large traders operating in a pairwise exchange market prefer to meet other similar traders, because this enables them to trade their endowments in a smaller number of encounters. Large and small traders, however, cannot be distinguished a priori, and the existence of the small traders imposes a negative externality on the large traders. We show that, under conditions which are not very restrictive, establishing a separate market (perhaps with an entry fee) designated for the large traders induces the two types of traders to segment themselves. However, this segmentation is not necessarily welfare improving.

Keywords and Phrases: Market segmentation, Intermediation, Heterogeneous agents.

JEL Classification Numbers: D40, G20.

1 Introduction

It is a commonly observed phenomenon that markets for the same commodity or service are segmented into distinct submarkets, even if the goods or services are identical and can be traded at a uniform price. This phenomenon can be explained by the cost savings associated with transacting in large quantities of the good or service. Large traders operating in a pairwise exchange market prefer to meet other similar traders, because this enables them to trade their endowments in a smaller number of encounters. Large and small traders, however, cannot be distinguished a priori, and the existence of the small traders imposes a negative externality on the large traders. We show that, under conditions which are not very restrictive, establishing a separate market (perhaps with an entry fee) designated for the large traders induces the two types of traders to segment themselves. However, this segmentation is not necessarily welfare improving.
In some markets, this segmentation is attained by physical separation of the types. Thus wholesalers and distributors often locate in areas not frequented by retail buyers and sellers. In other instances, large traders voluntarily decline small trades, effecting segmentation. For example, distributors and large retail chains buy large consignments of many goods directly from manufacturers, but smaller retailers buy from distributors.

This paper presents a model of endogenous segmentation in a market with a heterogeneous population of traders. By separating different types of agents, the segmented structure reduces the search and waiting costs incurred by some agents. Under some conditions, segmentation is attained by large traders voluntarily declining small trades; under other conditions, segmentation requires physical separation. In still other situations, segmentation may not occur at all.

Pagano [8] addresses a similar issue, and shows that different-sized traders may separate themselves between a segment that searches directly for trading partners and a segment that uses the services of an intermediary. In a model rather different in context and spirit, Alvarez et al. [1] obtain endogenous segmentation of agents in a market with nonconvex trading costs and ex post heterogeneous agents. Bose and Pingle [2] show that an intermediary can segment the market between strong and weak bargainers, while Bose [3] shows that a similar partition can arise when the heterogeneity is in degrees of patience.

Our main focus is on the case where large and small traders are segmented by physical separation, with costly entry into the large market segment. This segment may have the appearance of an organized market. In medieval times, large traders paid a fee for the privilege of trading in organized markets held under the protection of powerful lords, which reduced the risk of robbery and brigandage. Smaller agents may well have preferred to accept the higher risk (or search cost) of trading outside.

In contemporary markets, small transactions in financial assets are often executed on the “street” or over-the-counter, while large transactions are conducted on the floor of the exchange. Only the larger traders undertake the cost of acquiring membership of the exchange.

Two characteristics of this segmentation are significant, and are shared by the model in this paper. First, the mechanism which separates the types (the “market-maker”) need not possess any private information on the agents, nor does it have a technological advantage in executing trades. Secondly, separation is effected by a specific price charged for entering the market. Segmentation is not attained if the price charged is too low. Thus the profit from this kind of intermediation is not subject to competitive erosion. This is an explanation for market-making which is different from other extant explanations. However, the market for market-making is not explicitly discussed in this paper.

In the model, agents arrive in the market with some amount of a homogeneous good to trade. The need for exchange is driven by a taboo that an individual agent cannot consume the unit he has himself produced. Without complicating the model, this device (due to Diamond [7]) introduces the need for exchange in a one-commodity model. Since the agents exchange different units of the same good, the assumption in exchange is assumed to be unity. This need not be the case under all modeling assumptions.