

Report on "A Micro-econometric Approach to Geographic Market Definition in Local Retail Markets: Demand Side Considerations" by Walter Beckert

This paper proposes an empirically implementable framework for the definition of local retail markets necessary in antitrust cases. The basis is a demand model that captures the trade-off between the distances of a consumer's home to his or her shopping facilities and the prices charged there. Demand is modeled within a multi-nominal discrete choice model. The coefficients of the estimated model are allowed to be consumer specific and compared to those from a model with coefficients constant across consumers. A rich data set, which also includes information on distances between consumers' homes and their shopping facilities, is used for the estimations. Arc own and cross price elasticities are estimated using data on UK households.

I consider the paper to be a very interesting contribution, but have some questions and remarks which the author may clarify or comment on.

1. The paper consists of two main parts. Chapter 2 describes the empirically implementable framework for the definition of local retail markets and chapters 4-6 describes demand estimations necessary for the framework. Both parts are very interesting contributions, but in the end the framework and the estimation results are not put together and no geographic market definition is provided. In principle, it should be possible to use the estimated elasticities and the first-order conditions of the model in chapter 2 to calculate price cost margins and thus back out marginal cost.

2. The ratio of the difference between monopoly profits and empirically observable profits and the difference of the monopoly profits and the competitive profits is used as a measure of the intensity of local competition. It would be interesting to know how this ratio depends on the number of firms in the market. Is there a critical value that helps to decide whether for example, a merger should be allowed or not. Or put differently, is 0.5 a high value or a low value? Is it possible to give a test whether a value is significantly different from one or from zero?

3. The MNNL model is argued not to rely on severe distributional assumptions or functional form restrictions. This is a contradiction to the assumption that the error term is from a type I extreme value distribution. Assuming a type I extreme value distribution is like assuming a functional form when estimating the demand for a homogenous good. Random coefficients are also based on a distributional assumption, i.e., the distribution of the coefficients is a log-normal distribution.

4. As far as I read the empirical model, there are two features that distinguish the MMNL model from the MNL model. First, as the MMNL model is a random coefficient model we should get an estimated mean and an estimated variance for each variable. I think, it would be helpful to show the estimated variances and their standard errors also in the tables with the estimation results. Second, in the MMNL model there are also interaction terms. Therefore, it is not easy to say from which feature the differences between the estimated coefficients of the two models come from. I would therefore suggest to estimate the MNL model also with interaction terms.

5. Some comments and questions concerning the estimation results:

i) How is the adjusted  $R^2$  calculated? Like a pseudo  $R^2$ , i.e.,  $1 - L/L(0)$ , where  $L$  is the log-

likelihood of the full model and  $L(0)$  is the log-likelihood with only an intercept?

ii) Price index: It could be that the constructed price index does not capture consumers' choices. If consumers go for particular discounts in a grocery shop and do not look at the overall price index in this shop, then the estimated coefficient of the overall price index may not capture the true demand elasticity.

iii) Arc elasticities of demand are estimated to be smaller than one (in absolute values): How about "true" elasticities? If demand is also inelastic, each fascia does not seem to maximize profits and it seems to be a market of its own.

iv) For some fascias, the sum of cross price elasticities is larger than the own price elasticity (in absolute value). Economic theory usually does not predict such results.

v) Table 6: Are elasticities or arc elasticities depicted? To compare the results of the MNL model with the results from the MNNL model arc elasticities would be more convenient for the reader. It could also be that these are arc elasticities, but only the header tells otherwise.

vi) Larger households are more sensitive to price: Larger households have a higher probability that someone within the household commutes to work and does the shopping on the way to or back from work.

vii) In Tables 3 and 9 the estimated coefficients of price are negative in the MNL model and positive in the MMNL model. What is the reason for that?

viii) The estimated standard errors of the dummy variables for fascias in the MNL model are large and of similar size. Is there an explanation?

6. The paper needs some editing.

i) There is a comment "see product list in last e-mail" that does not belong to the paper.

ii) A companion paper is mentioned without being cited. This paper is however important as it provides additional information on how the price index is constructed.

iii) Fixed costs as well as fascias are denoted by  $f$ .

iv) Abbreviations should be explained when using them for the first time.

v) There are several typos.

vi) The layout of the tables could be improved by adding a caption and a note providing the necessary information on what is depicted in the table. It would also be helpful, if there is some space between text and the tables.