

**Final Report: Market power and price responses in Swedish food markets: The case of coffee**

The purpose of this project was to analyse market power and pricing behaviour in the Swedish coffee market. The project consisted of two parts. The objective of the first one was to estimate a structural model that allows for product differentiation and test for market power. In addition to estimating price-cost margins, the model can make a distinction between three of sources market power: branding, the portfolio effect (firms sell many products), and pure market power, i.e., collusive behaviour. For various reasons, this part of the project has not been completed yet, but I'm working on it. One reason for the delay is that the data I planned to use, the Nielsen data, was less detailed than I and others at HUI expected (I can use the data because HUI has an agreement with Nielsen). The main challenge is that information at the store level is not available. All data supplied by Nielsen in Sweden is aggregated in some dimension, which is not the case in the US, for example. My impression is that this is due to an agreement between Nielsen and the Swedish food chains, who supply the raw data. Anyway, values and quantities are reported either by region, food chain, type of store, etc. Moreover, initially I got data for a bit more than one year. Since I need information on several markets to estimate demand for coffee, the cross-section and time dimensions were simply too small; there are only six regions. Fortunately I have managed to get more data from Nielsen over the years and I now have six years of weekly observations, which should be enough.

The objectives of the second part were to disentangle the relative importance of retailers (food chains) and manufacturers (roasters) in setting prices and to shed light on market power by analysing cost pass-through. Most studies on market power and pricing of consumer goods implicitly assume that manufacturers set prices, even though food chains might have market power. By analysing co-movements of prices with panel data it is possible to decompose the total variance and find out how much of the variance that is attributed to retailers and manufacturers. Nakamura (2008) carries out a similar analysis on US data for retail prices in general. To do the analysis, I use the Nielsen data, which includes practically all coffee products. The lack of store-level data made the analysis restrictive, but the results show clearly that retailers do not change prices independently, i.e., there is little co-movements of prices within the four major food chains (Durevall, 2015e). This does not preclude that they influence prices; after all, there are regular negotiations about prices between food chains and large roasters. Moreover, food chains set prices on their private labels.

I have analysed pass-through in various ways. In Durevall (2015c) I analyse how prices are transmitted from world market prices of green coffee beans to retail prices of ground coffee in the Swedish coffee market, via their impact on import and producer prices. I estimate reduced form dynamic models using monthly data for 2005-2014, a much longer period than most studies use. I mostly rely on data from Statistics Sweden, but use Nielsen data to calculate average retail prices for the period 2009-2015, since Statistics Sweden stopped publishing 'genomsnittspriser' some years ago. In contrast to most other studies, I cannot reject complete pass-through at any level of the chain, but adjustment to changes in bean prices are relatively slow and price-cost margins exhibit large swings. Since pass-through rates depend on the curvature of the demand function when there is imperfect competition, I also do a simple analysis of demand. My very tentative finding is that the demand curve is linear. Thus, if there were imperfect competition, pass-through should be about  $\frac{1}{2}$ . Since I cannot reject that it is 1, but certainly much larger than  $\frac{1}{2}$ , the market seems to be

competitive in the long run. Nevertheless, adjustment is slow, which might imply the exercise of market power in the short to medium run.

Durevall (2015d) focuses on market structure. Several studies in international economics find that firms with large market shares have low pass-through rates. And recently this finding has been complemented with analyses showing that vertical integration increases pass-through, given market share. I thus test if these findings apply to Swedish coffee market data. Since there are four large roasters, many small ones, and three dominating food chains with their own private labels, the Swedish market seems like a relevant market to analyse. The main finding is that roasters with large market share have higher and faster pass-through rates than roasters with small market shares, and that private labels (vertically integrated brands) have lower pass-through rates than branded products. These findings apply to the two dominating market segments, roasted and instant coffee, which account for 90% of the sales in value terms. The findings indicate that large roasters have less market power than theory predicts. A possible explanation is that bargaining plays a key role in determining prices: large roasters have the power to change their prices by regular negotiations with food chains, while small roasters have no market power vis-à-vis food chains. In addition, roasters of large brands mainly compete with each other.

In addition to the analysis based on variance decomposition, Durevall (2015e) estimates pass-through rates for conventional, Fairtrade coffee, and organic coffee, branded products, private labels, and for the four large roasters in the ground coffee market segment. It also analyses whether pass-through is slow or rapid, and whether it is symmetric or asymmetric. One finding is that pass-through from costs of green beans to retail prices are similar for conventional, Fairtrade coffee, organic coffee, and most private labels. Discount (very cheap) private label coffee, however, has a low pass-through rate, possibly because it functions as a loss-leader (though small quantities are sold). Moreover, the four large brands, which have about 80% of the market for ground coffee, have higher pass-through rates than other brands, and costs are transmitted to prices somewhat faster. In fact, there seems to be complete pass-through after about 12 months. This finding indicates that the large roasters do compete with each other, and it confirms the findings of the other studies.

Another finding is evidence of strong asymmetric temporary responses, over a year or so. Cost increases are passed on much faster than cost decreases, but over time adjustment to decreases catches up. Asymmetry is therefore likely to be a major reason for slow average adjustment, and should account for a large part of the stickiness in retail coffee prices. Further analysis is required to understand why there is asymmetric pass-through. One suggestion is that households are less sensitive to price increases than to price decreases. Another suggestion is that bargaining between roasters and food chains about prices lead to strong pressures from roasters to raise wholesale prices when costs increase, and less pressure from food chains to reduce them when costs decrease.

Durevall (2015a, 2015b) address the issue of market power from another angle by analysing premiums paid for Fairtrade coffee. Durevall (2015b) is a Swedish version of the paper, selected as one of the papers presented at the Swedish Economics National Conference in Umeå 2014 to be published in *Ekonomisk Debatt*. The paper had a relatively large media impact; it was on the front page of *GP* and mentioned in *SVD*, as well as in many other places. It also resulted in an invitation by Ljöfbergs Lila, which produces several Fairtrade coffees, where I spent a day (without being convinced that my results are wrong).

The papers depart from the fact that consumers pay a premium for Fairtrade coffee, presumably assuming that it mainly benefits poor coffee farmers. However, several reports claim that most of the premium accrues to actors in the consumer countries, such as roasters and retailers. In spite of this, there are few empirical studies, and their quality is doubtful. My paper analyses how the returns to Fairtrade are distributed among bean producer countries, roasters and retailers, and Fairtrade Sweden, using Nielsen data and detailed information about costs of production. The distribution depends on how much more costly it is to produce Fairtrade coffee compared to conventional coffee, given costs of beans and licences. Assuming the difference is 5 SEK per kg, which is on the high side, roasters and retailers get 61%, while producer countries, i.e., coffee farmers, cooperatives, middlemen, exporters and Fairtrade International, get 31%. The rest accrues to Fairtrade Sweden. These estimates are inexact, but there is strong evidence that Fairtrade retail prices are higher than the level attributable to the costs of Fairtrade beans and licences. The finding that margins are higher for Fairtrade coffee than conventional is an indication of market power. I have submitted Durevall (2015a) for publication, but I plan to boost it applying the structural model I'm working on to Fairtrade coffee. One question is how price elasticities differ between conventional and Fairtrade coffee.

The three papers on pass-through need some polishing and robustness checks. Moreover, the interpretation of the findings would benefit greatly from knowledge about the shape of the demand function and price elasticities. Since I'm modelling demand (with a discrete choice random coefficient model), as part of the estimation of a structural model for part one of the project, I will complete the papers when I'm done with the analysis of demand. The analyses of pass-through have also raised several interesting questions that I will address during 2016. I will therefore complement my final report during next year.

Dick Durevall

### **Papers**

Durevall, D. "Are Fairtrade Prices Fair? An Analysis of the Distribution of Returns in the Swedish Coffee Market" (2015a) HUI Working paper No 108

Durevall, D. "Är priserna på rättvisemärkt kaffe rättvisa?" (2015b) *Ekonomisk Debatt*, No. 1.

Durevall, D. "Pass-Through from World Market to Retail Prices in the Swedish Coffee Market" (2015c) mimeo, HUI and Dept. of Economics, University of Gothenburg.

Durevall, D. "Market structure and cost pass-through in the Swedish coffee market" (2015d) mimeo, HUI and Dept. of Economics, University of Gothenburg.

Durevall, D. "Price Determination in the Swedish Coffee Market" (2015e) mimeo, HUI and Dept. of Economics, University of Gothenburg.