**Literature on food retailing (27/07/2016)**

**Gonzalez and Miles (WP) - Price Dispersion and Supermarket Heterogeneity in Spanish Food Retailing**

"In this paper we have analyzed the existence and characteristics of price dispersion in different regional markets in Spain and its persistence over time; we have also measured the extent to which search cost and vertical product differentiation contribute to price dispersion. With this aim we estimate the consumer search cost model developed by Wildenbeest (2011) following the non sequential search model of Burdett and Judd (1983).

Quantifying search costs has implications for competition policy because it can affect market competitiveness even more than market structure (Waterson, 2003). In fact, consumer information about prices is a necessary condition for markets to be truly competitive. If consumers do not search at all about prices, then the monopoly price would prevail in equilibrium (Diamond, 1971) shows; however, markets where some consumers search once and others search twice or more, price dispersion will be an equilibrium (Burdett and Judd, 1983). Regulations that aim to promote competition must account for the distortions due to informational restrictions. Thus Stahl (1989) shows that, in the presence of search costs, firm entry need not necessarily improve welfare. Similarly, Lach and Moraga-González (2012) find that consumer surplus always (albeit weakly) decreases with increased competition. Furthermore, Competition Policy might also be aware of those firms’ practices that aim of obfuscating consumers (Ellison and Ellison, 2009).

Our main results can be summarized as follows: First, price dispersion across supermarkets is persistent and differs across product categories; also remains even after we control for store heterogeneity. Second, we find that supermarkets employ heterogeneous pricing strategies. For example, Auchan and El Corte Inglés are the chains at which prices change with highest frequency. In particular, the prices for half of the products sold by Auchan changed more than five times in six months. The signs of these changes are fairly balanced (both positive and negative), which is consistent with the phenomenon of periodic sales. The size of a price change is small: half of them are less than 5% in absolute terms. Third, all the studied supermarkets (except Auchan) tend to maintain the same prices at their different locations. This result confirms that supermarkets differ in their pricing strategies and that prices are usually determined at the chain level. The sole exception is again Auchan, a chain whose individual stores that set their own prices. Fourth, after comparing the prices for a homogeneous basket containing the 23 most popular products, we find that Auchan always has the lowest price despite frequently changing prices. Price ranking positions of the other supermarkets changed quite often."

**Dubois and Perrone (WP) - Price Dispersion and Informational Frictions: Evidence from Supermarket Purchases**

"Price dispersion is an important characteristic of the French food market. Price dispersion is also persistent over time, with stores frequently changing positions in the price ranking, implying that it is difficult for consumers to be perfectly informed about prices in every period. We find empirical evidence consistent with a demand model with imperfectly informed consumers who need to engage in costly search to find the available deals. We show that consumers with a high opportunity cost of time search less and pay higher prices on average. Moreover, the number of stores that a household visits in a certain week, which can be seen as a proxy for search activity, is negatively correlated with prices.

We develop an empirical strategy to estimate the magnitude and distribution of sequential search costs. Products are vertically differentiated, and consumer tastes are heterogeneous. We identify the search cost distribution without having to make any restriction on the drawing probabilities of stores. The drawing probabilities are recovered from the data and are heterogeneous across time, store chain, and household type.

The results of the structural estimation show that search costs for the products considered (beer, coffee, cola, and whisky) are high and that the majority of consumers do not search much.There is also indication that urban consumers tend to search more than rural consumers, which is likely related to higher store density in urban areas, which decreases the cost of visiting multiple stores. Price elasticity measures show that the perfect information model yields biased elasticities. The magnitude of the bias is large, and its direction depends on the product. This is in line with Koulayev (2014).s results. Further note that previous literature reports both overestimation (Sovinsky, 2008) and underestimation (De los Santos, Hortaçsu and Wildenbeest, 2012, Honka, 2014) of the imperfect information measures."

**Turolla (201?) - Spatial competition in the French supermarket industry**

This paper addresses the issue of the French grocery retail sector’s competitive intensity. I develop and estimate a structural model of demand in which households have preferences over both store characteristics and geographic proximity. The methodology combines previous contributions of the literature on discrete choice models of demand among spatially differentiated firms and an original approach to determine the household-specific shopping basket. In addition, the paper extends the existing literature devoted to appraising retailers’ market power by accounting for the store’s ability to set its prices according to the local market structure. As shown by recent inquiries, “price flexing” is a key feature of the business strategy applied by French retail chains and consequently, an important dimension of a store’s market power. Using the estimated parameters of the demand model, I recover the stores’ price-cost margin under alternative pricing strategies, which differ by the degree of cooperation across stores while fitting into this framework. I then select the preferred pricing model by applying a non-nested testing procedure.

The model is estimated for a French metropolitan area using a cross-sectional household survey containing detailed information on the stores visited for the main food product categories. The results show that the stores set prices according to the most competitive scenario. This finding rules out any collusive behavior as a cause of local monopoly power. The average estimated level of profitability exhibits no signs of low degree competition in this market. However, a closer look at the results shows important differences among the stores. These differences indicate that a significant proportion of large grocery stores exert excessive market power. In practice, these stores take advantage of a weakly competitive environment to distort their offer and increase their margin. For instance, I find that the stores that compete with, at most, three rivals within 5 km set their margin six percentage points higher on average than other stores. Although the survey is based on data covering a single market area, I have good confidence that the findings can be extended to France because of its lower degree of concentration compared with other market areas (see Table 1).

Together, the results contribute to the debate on the level of competition in the French grocery retailing sector. I provide new empirical evidence on the existence of market areas with a low degree of competition based on the low density of the stores combined with a high disutility to travel expressed by the consumers in the area. The counterfactual experiments show that by promoting the entry of a new competitor, one significantly improves the consumer welfare and almost always decreases the price levels of foodstuffs. More generally, the simulations speak in favor of a relaxation of the regulation at the market entrance.

**Alain et al (2016?) -The impact of retail mergers on food prices: evidence from France**

"In this paper we take advantage of nationally decided retailer merger that impacted local markets differentially depending on the pre existing set of retail competition to estimate the effect of a merger of two competing retailers on the prices of its competitors. We find that prices of competing firms in areas where the merger occurred (treated group) increased significantly relative to the control areas where existing firms were not affected by a merger. In fact, our findings suggest that the merger significantly raised the competitors' prices. These results are consistent with a combination of possible coordinated effects and a decrease in differentiation (as competing prices increased). We are not only able to estimate the average price response of retailers when faced with the merger relative to a counterfactual of retailers not facing a merger, but we are also able to investigate possible economic forces behind the price responses we see. We break up the global raise in outsider's price effect into a local concentration effect, a pure rebranding effect and a differentiation effect. The local concentration effect appears whenever a treated outsider faces a variation of concentration (HHI) in its market. Our main result is that indeed, a change in local concentration explains a large part of the treated outsider's price raise. Second, we were able to identify a differentiation effect which appears as a result of rebranding and imply a drop in the total number of retail brands in a treated market. In that case, outsiders are facing a decrease in retail differentiation and we show again that this effect explains part of the outsider's price rise in the treated. Finally we have isolated a pure rebranding effect, which appears in markets where one of the merging firm rebrands after the merger, but where no store of the other merging group operates (to avoid any local concentration effect), and where no store of this new brand was operating before the merger (to avoid a resulting drop in the notal number of chain brands). In contrast, this pure rebranding effect does not explain significantly the treated outsider's price increase."

**Biscourp, Boutin and Verge (2013) - The Effects of Retail Regulations on Prices: Evidence from the Loi Galland**

"Using a unique data set on retail prices for a large number of products, collected in a large and representative sample of grocery stores, this article provides an empirical evaluation of the effects of the 1996 below-cost pricing regulation (Loi Galland). We find evidence supporting the claim that the Loi Galland effectively led a substantial reduction in (if not the elimination of) intra-brand competition and is likely to have been partially responsible for the sharp increase of grocery retail prices observed after 1997. We provide three different empirical tests. Firstly, we look at the correlation between retail prices and the level of concentration on the various local markets. We find that retail prices were initially significantly lower in less concentrated markets. Before the implementation of the Loi Galland, the magnitude of the correlation is also consistent with previous analysis conducted on the same sector in other European countries, prices in more concentrated areas (in the upper quartile) being about 1.4% higher than in less concentrated areas (lower quartile). The new legislation led to a sharp drop in this correlation – price in more concentrated areas being only 0.6% higher – confirming that retail chains were no longer competing fiercely. This attenuation in the link between retail prices and local competition is also larger for branded products than for store brands, as predicted by the theoretical analysis of the legislation. Secondly, we find a significant reduction in the price dispersion of branded products relative to store brands, consistent with the fact that only branded products were directly affected by the Loi Galland, store brands being only indirectly affected through strategic complementarity between prices. Finally, we find evidence that some price convergence has been taking place across stores after the Loi Galland. Although this kind of evidence is always difficult to establish, our results are robust to various specifications.

Overall, our results appear to be qualitatively extremely robust to various approaches and specifications. We argued that the outcomes tested empirically could not have been generated by cost shocks, demand shocks, or by the change in planning regulations. Therefore, our empirical tests support the idea that the Loi Galland has allowed some manufacturers to impose de facto industry-wide price floors."

**Bonnet and Dubois (2010) - Inference on vertical contracts between manufacturers and retailers allowing for nonlinear pricing and resale price maintenance**

In this article, we present an empirical investigation of a structural model taking into account two-part tariff contracts in vertical relationships between manufacturers and retailers in the supermarket industry. This article’s contribution is allowing for estimation of a structural model of nonlinear two-part tariff contracts with or without resale price maintenance. The methodology developed allows different vertical contracting models to be tested in a context of oligopoly at both upstream and downstream levels. For this purpose, as in Rey and Verge (2004), a game is adopted where upstream firms play first and can make take-it-or-leave-it offers to downstream firms. We are then able to recover total price-cost margins in this nonlinear contracting model after estimating demand parameters. Testing was then conducted between the different models using exogenous variables that are supposed to shift the marginal cost of production and distribution. This methodology was applied to study the market for retailing bottled water in France. Our empirical analysis implies that manufacturers and retailers would use nonlinear pricing contracts and in particular two-part tariff contracts with resale price maintenance. We interpret the results under the hypothesis that the Galland Act introduced in 1996, which required retailers not to resell under the wholesale price, probably gave manufacturers the power to impose RPM by choosing their wholesale price. Simulating the two-part tariffs without RPM, we find that consumer surplus would increase by 0.8%. This simulation suggests that removing the Galland Act in 2006 should have had beneficial effects on prices for consumers.

**Zhao (2006) - Price Dispersion in the Grocery Market**

“This paper provides an exploratory study on price dispersion in the grocery market and empirically investigates some of the potential sources of price dispersion across stores, across UPCs within a category, and over time for a certain brand. This study found support for the positive correlation between search costs and price dispersion on all three dimensions. There is also some evidence of competitive price discrimination across stores, across brands within a category, and over time for a certain brand. Some positive correlation is also found for the heterogeneity in the consumer pool and price dispersion across stores and over time.

Anecdotal evidence suggests that price dispersion is important in the grocery market. We often observe price dispersion across stores, across brands within a category, and over time in the grocery market. There are some studies in the marketing literature that look at the grocery market, but few pertain to price dispersion in the grocery market. Price dispersion itself is price dis- crimination that is important to understand. The fact that different product categories are sold in the grocery market allows us to check different levels of price dispersion across categories. The rich data set, which includes consumer purchase history and demographics as well as store prices for various brands over a long period of time, allows us to study the three dimensions of price dispersion. By understanding some of the sources of price dispersion in the grocery market, marketing managers may be able to make better decisions on marketing strategies. For example, if the prices for the same product are different between two grocery stores and if the manager at the high-price store understands that the price difference is due to consumer search costs instead of competition, then he or she does not need to lower the price for that product at his or her store to match the competitor’s price.

The analysis presented here makes it possible for us to study some of the sources of price dispersion in a market in which both firms’ and consumers’ decision-making processes are rather complicated. In this process, consumers incur search costs, and firms need to take into account consumers’ search costs when making pricing decisions. Consumers also need to make decisions on where to search and how much information to gather. Moreover, the information consumers have gained from previous shopping experiences may still play a role, so that this is a dynamic process for consumers. A structural model in this context may require too many strong assumptions about firm and consumer behavior.

In conclusion, this is the first paper that empirically studies three dimensions of price dispersion in the grocery market. The study documents the existence of significant price dispersion across stores, over time, and across brands within a category in a store in the grocery market. Normalized price dispersion is greater when search costs are higher, competition is more intense, and consumer heterogeneity is greater.”

**Lach (2002) Existence and persistence price dispersion: an empirical analysis**

This paper measured and analyzed the price dispersion of four homogeneous goods across stores in Israel over a period of 48 months (1993-1996). The main finding is that price dispersion prevails after controlling for observed and unobserved product heterogeneity. The cross-sectional price distribution is quite stable over time, but this stability masks an intensive process of stores' repositioning within the cross-sectional distribution; there is substantial intra-distribution mobility. This finding is consistent with Varian's (1980) argument about the need for "sales" (randomized prices) when consumers search rationally for the lowest price. Is the existence of price dispersion a reflection of strategic behavior or is it driven by stores' heterogeneity? As previously observed, price dispersion prevails even after controlling for product heterogeneity. Thus, heterogeneity cannot be the only reason for the observed dispersion. Of course, it may still be unobserved (and uncontrolled for) heterogeneity that is driving this result. But time-invariant heterogeneity has been controlled for, and, even if it were not, this type of heterogeneity cannot generate the observed intra-distribution dynamics. In principle, time-varying heterogeneity can account for both cross-sectional price dispersion and intra distribution dynamics. For example, prices may respond to the arrival of store-specific (idiosyncratic) shocks, a component of the epsilon its in equation( 1). The problem with this interpretation is that we would need a lot of idiosyncratic" large" shocks arriving every month to destroy the inter-temporal rank correlation. It is difficult to believe that this is happening at the level of the individual store. Thus, again, heterogeneity alone cannot be the whole story. Indeed, although it is tempting to interpret the evidence of intra-distribution mobility as reflecting some form of strategic interaction, this is not entirely warranted by the paper's results. To say something about this, additional empirical research is required.

**Bertrand and Kramarz (2002) - Does entry regulation hinder job creation**

Our findings suggest that the zoning regulation introduced in France in the early 1970s to restrain the development of large retail stores has had a negative impact on employment. The slow employment growth witnessed in the French retail sector over the last two or three decades may therefore not only be the result of labor market rigidities. Instead, barriers to entry and high levels of concentration among large retail chains may also have played a significant role. Although the results in this paper are specific to the retail trade sector in France, we believe that the lesson we learned is of much more general interest. Specifically, countries fighting sluggish rates of job creation may be misguided in thinking that their employment problem will be fully solved once they reform their labor markets. Instead, elimination of entry regulation and other forms of product market restrictions may provide an additional mechanism to bolster employment growth.

This lesson is, we believe, especially relevant when one considers the political economy of reforms. Labor market deregulation has proved to be extremely difficult to implement in continental Europe. Labor market reforms are perceived as a direct threat by most incumbent workers and rarely receive the support of a majority of voters. Product market reforms, on the other hand, may not carry such strong negative connotation in the public opinion and may therefore be easier to introduce.

We hope to extend this paper in several directions in the future. First, a careful and systematic study of profitability margins in the retail industry in the United States and European countries would complement the evidence we have put together so far. Second, while we have focused on the retail industry, product market restrictions have been placed in other industrial sectors and deserve as much scrutiny. Finally, while we have shown that product market regulation affects job creation, it is not the only relevant form of non labor market distortions. For example, financial markets also operate under many more constraints in Europe than in the United States. Studying whether such capital market regulations have also hindered firm creation and employment growth is another priority for future research.

**Computation of price residuals**

Dubois and Perronne (2015 WP) refer in p7 to Lach (2002), Zhao (2006) and Sorensen (2000). Note that residual prices assume that final log prices are linear combination of store FE, product FE and the price of the homogeneous product and can thus be biased

**Stats des and regressions todo**

**Store level regression**

* Price residuals without log specification (compute price residual etc.)
* Hedonic price regression (select a few, brand effects)
* Store level dispersion regression (how?)

**Pair dispersion?**

* Discussion on differentiation
* Sub group(s): distance vs rank reversals (dynamic and static?
* (Could use 2013 data?)

Market dispersion?

* Stats des ? Which to present?
* Regression:

Dynamic? Only two periods with enough data a priori…