

WHY DO AUTOMOBILE PRICES VARY IN EUROPE?

The European Commission has launched an assessment of the automobile distribution system in the European market. The current regulation of this system is set to expire in September 2002. According to the European Commissioner for Competition this system limits competition and restricts price convergence among Member States. Automobile producers, on the other hand, claim that taxation is one of the main causes of observed price spreads. An econometric analysis of data broken down by model provides new insights into these questions. It shows that there has been no convergence of prices excluding tax, since the implementation of the Single Market. Nevertheless, convergence is presently underway, but is being masked by the impact of currency fluctuations. Furthermore, greatly varying taxation across countries is an important factor leading to price dispersion.

■ Company Strategies in a Segmented Market

Since the Single Market came into force in January 1993, the fall in price disparities across Member States of the European Union (EU) has accelerated. However, price spreads (sometimes significant) for certain goods and services persist¹. This is especially the case for the European automobile market, which is linked to institutional and economic structures as well as agents' behaviour.

The distribution system in the European automobile market plays a determining role in prices. It is characterised by exclusiveness and selectivity –car-dealers only retail one brand in a particular area– which leads to geographic segmentation. Consumers (or their mandated intermediaries) can, in theory, get round this segmentation. But, in practice such circumvention is difficult, given that car-makers seek to prevent it. Volkswagen's attitude in 1994 is a case in point.

In the wake of the Italian lira's devaluation in 1994, car-makers including Volkswagen/Audi (VAG) maintained their prices in lira, in order to hold on to market share in Italy, and despite the squeeze on margins this implied. When calculated in a common currency, this "pricing to market" strategy led to lower prices in Italy, compared to the rest of Europe, especially Germany and Austria. The resulting price spreads encouraged parallel imports². VAG thus tried to limit cross-border purchases by putting substantial pressure on its Italian distributors. In 1998, the European Commission strongly sanctioned this obstacle to parallel trade, which VAG implemented by withholding sales³. But VAG's behaviour is not isolated. In particular, the "Peugeot/Eco-System" case created a precedent in the 1990s. Still, the VAG example is particularly interesting because it illustrates how currency fluctuations, linked to companies' strategic behaviour, can generate price heterogeneity.

1. DRI, de Ghellinck, Horack, Adler & Associates, *Analysis of Changes in Price Disparities in the EU Following the Launch of the Internal Market Programme*, 1996.

2. Possibilities for arbitrage (parallel trade) benefit buyers of up-market models more as arbitrage costs for such automobiles are lower (better information etc.). On average, it can be shown that price spreads are less important for expensive cars.

3. The European Commission decision relating to the application procedure of Article 85 of the EC Treaty was published 28 January 1998 (IV/35.733-VW), Official Journal, L 124, 25 April 1998. VAG was fined Ecu 102 million.

Price Spreads in 1999

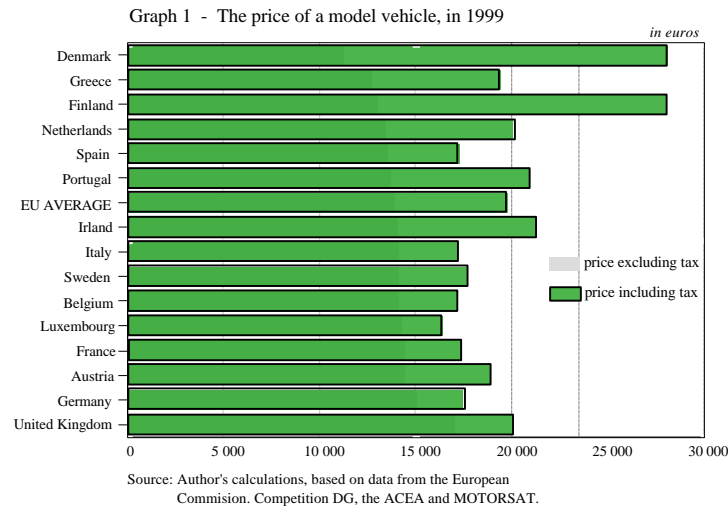
Highly detailed price data are available within the European Union. Part of this data is centralised by the Commission. To improve transparency, car producers have been obliged to provide the Commission, every half-year, with the prices of their most-popular models in each Member State. This database, which is complemented by data relating to car registrations in Member States⁴, by brand, along with technical characteristics on

of euro 14650 (about FF 96000), but the average French price is less than 4% above the European price.

The high prices observed in the United Kingdom solicit a number of comments. In response to complaints by British customers, car-makers retort that production costs are higher for right-hand drive vehicles. But, it is equally clear that this specificity reinforces the isolation of the British market. Apart from such microeconomic explanations that are specific to this industry, it

may also be asked whether the high price of cars in the United Kingdom is not linked to the high level of the pound. The sterling prices of imported vehicles are probably only little affected by the pound's appreciation, as foreign car-makers profit from the pound's rise to raise margins. In this case, the appreciation of the pound leads to an increase in prices when expressed in euros. This explanation is reinforced by the fact that the divergence between British prices and the European average has become apparent since 1995, concurrent with the rise in the pound.

Previously, British prices were close to the European average.



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models (available in the magazine *Revue Automobile*) have enabled the authors to compare prices within the Single Market.

The price of a model, sold in a given national market, at a given moment, depends on the characteristics of the model and on factors specific to the market in question. An econometric model of hedonic prices⁵ makes it possible to isolate specific national factors and to construct prices series for each country, for a model vehicle which has the average characteristics of a European vehicle.

It is thus to be noted that differences in prices, excluding tax, for a model vehicle were relatively important in 1999 (Graph 1). On average, the price of a vehicle, excluding tax, was 51 percent higher in the United Kingdom than in Denmark. This spread rises to 73% for the Renault Laguna. When these two countries are left out, however, average price spreads are far less. France is among the more expensive countries, with an average price

Convergence Disguised by Currency Fluctuations

In order to analyse systematically the evolution of price dispersion over time, the authors have calculated the variation coefficients of prices⁶, using half-yearly data. The coefficient –the standard deviation of average prices per country relative to the European average– grew by about 2 points in the years 1993 to 1999, which reflects a moderated divergence in observed prices (Graph 2). This divergence is not continuous. The period is characterised by phases of convergence (May 1995 through to May 1996), and divergence (May 1996 to November 1997). These episodes appear to be linked to currency fluctuations, especially to the phases of depreciation and appreciation by the lira and the pound. To cancel out the impact of these

4. ACEA (Association des Constructeurs Européens d'Automobile) and MOTORSAT.

5. See G. Gaulier and S. Haller, "The Convergence of Automobile Prices in the European Union: an Empirical Analysis for the Period 1993-1999", *CEPII Working Paper*, 2000, to be published.

6. Variation coefficients are calculated for the 10 countries included in the 1993 sample. Denmark, Greece, Austria, Finland and Sweden are excluded. In 1999, the variation coefficient estimated for the 15 Member States was 8.9%.

BOX - PRICE CONVERGENCE

The use of the concept of beta-convergence, which is commonly practised in studies on country growth, can provide evidence of catch-up of price series. The growth rates for prices from one half-year to the next are explained by their initial level, in a so-called beta-convergence equation:

$$\Delta \ln(P_{i,t}) = -0.11 \cdot \ln(P_{i,t-1}) + g_j \cdot \Delta \ln(ECU_{i,t}) + \text{résidu}_{i,t}$$

where $P_{i,t}$ is the average price in country i in half-year t . $ECU_{i,t}$ is the Ecu exchange rate for country i . The coefficients g_j (which are all statistically significant) of the exchange rate variation are specific to each country. The average of the coefficients is about -0.86. The convergence coefficient is significant at the 1% threshold. 82% of the variance in the growth of prices is explained by this equation.

The equation to calculate the lapse of time necessary to halve the price spreads between countries is:

$$(1 - 0.11)^x = 0.5 \text{ where } x \text{ is the lapse of time.}$$

disruptions (currency fluctuations or other) to worsen dispersion, then the speed of this convergence implies that the price spreads across Member States of the European Union have fallen by half in three years (Box).

The Influence of Taxation

A last point to be examined concerns the influence of taxation on the price spreads between countries. Taxes vary considerably from country to country, and hence stand out as an important factor in price dispersion, both for prices including tax, and for prices excluding tax.

It is to be noted that those countries which have the lowest prices excluding tax are also the countries with the highest taxes (VAT and sales tax - see Graph 1)⁸. This observation is not fortuitous: it can be shown that a tax rate exceeding 10% is accompanied by a price excluding tax which is

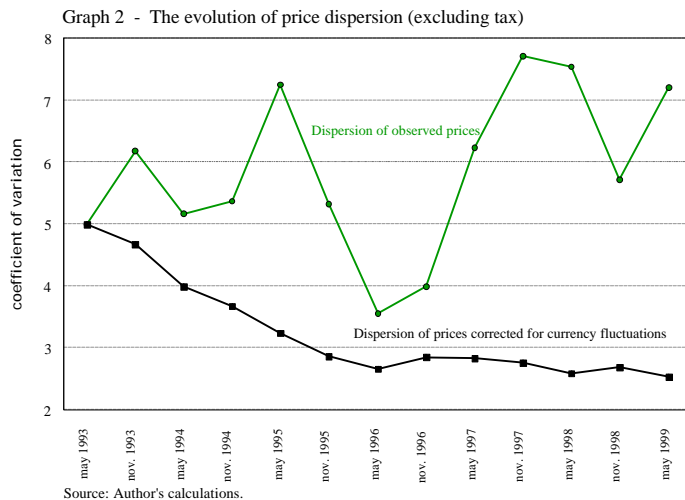
about 1% lower on average⁹. Car-makers tend to adopt low prices excluding tax for countries with high rates of taxation. They accept lower margins in order to maintain sales volume¹⁰.

Important spreads in tax rates lead to prices including VAT which vary considerably more than prices excluding tax, and these tax spreads change the ranking of the countries (see Graph 1). Thus, despite relatively low prices excluding VAT in Denmark and Finland, these two countries have the highest prices inclusive of tax in the EU.

Consumers are unable to arbitrate in favour of low-tax countries. Indeed, automobiles are exempted from the general VAT regime, with this tax being paid in the buyer's country of residence. This may explain the persistence of marked heterogeneity in tax systems.

Future Price Trends

The main factors which have been described here contribute to maintaining the relatively important dispersion of automobile prices, despite the convergence at work within the Single Market.



fluctuations, price series at constant exchange rates are used⁷. A convergence in prices thus becomes clearly apparent (Graph 2). If intra-European exchange rates had been stable, at their average level during the period, then the price dispersion of automobiles in Europe would have fallen by half.

The reduction in price dispersion, when currency fluctuations are ignored, is due to catch-up mechanisms: prices rise more when their initial levels were low. Such catch-up is borne out by an econometric test which demonstrates a rate of convergence of 11% (see Box), when currency fluctuations are ignored. If there are no

7. At the initial date (1st half of 1993), prices were converted into Ecu, using the average exchange rate throughout the whole period studied. These exchange rates were preferred to the current exchange rates prevailing in 1993, which were likely to stray from their equilibrium values (thus the pound was probably undervalued at that time). After this date, price changes are applied to constant exchange rates (for more information about the method used for estimating these price trends, see G. Gaulier and S. Haller, *op cit*).

8. Thus, the tax rate in Denmark varies between 130% and 205% depending on the model, whereas buyers in Germany, for example, only face a 16% VAT rate.

9. This result is obtained using a cross-section regression of prices against tax rates.

10. Countries with high rates of taxation are often small countries with no domestic producers. The policy of car-makers described here means that these countries benefit from relatively low import costs.

They are, however, all likely to change in the years to come. European tax harmonisation should lead to a fall in price spreads, even if tax homogenisation relating to cars is not possible independently of more general tax reform, which is known to be difficult. The single currency should lead to a fall in price dispersion for two reasons. First, it eliminates "pricing to market" possibilities and hence a strong cause for fluctuations expressed in a common currency. Then, it will encourage greater price comparability, which is likely to reinforce arbitrage mechanisms, and so convergence. Similarly, Internet will likely play a role in facilitating price comparisons and access to products in all markets. Lastly, the exemption regulation 1475/95, which authorises exclusive and selective distribution in Europe, expires in 2002,

and may not be renewed. At a conference organised by the ACEA on 11 May last, the European Commissioner for Competition M. Monti addressed car-makers on this matter. The Commission has set itself four objectives: to reinforce the independence of its distributors; to facilitate the direct supply of spare parts for repairs and maintenance; to create real competition in repairs; and to eliminate obstacles to parallel trade. If these objectives cannot be attained within the present regulatory framework, then it may not be renewed.

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