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Price Differences in the EC Car Market Some Further Results

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ABSTRACT. – We show that price differences across EC countries have seriously decreased in 1986-87 compared with 1983-84. It is however difficult to assess whether this evolution is due to exchange rate variations going "in the right direction" or to voluntary decisions made by producers to comply with EC regulations.

We also show that exchange rate and production cost variations do not seem to be transmitted to export prices; exporters merely follow prices set by domestic producers.

Différences de prix sur le marché automobile de la C.E.E. Quelques nouveaux résultats

RÉSUMÉ. – Nous montrons que les différences de prix entre pays de la CEE on fortement diminué entre 1983-1984 et 1986-1987. Il est cependant difficile de dire si cette évolution est due aux taux de change qui ont varié « dans le bon sens » ou s'il s'agit de décisions prises par les producteurs se pliant aux règles de la CEE.

Nous montrons aussi que les variations des taux de change et des coûts de production ne semblent pas être transmises par les producteurs dans leurs prix à l'exportation; les exportateurs semblent plutôt s'aligner sur les prix pratiqués par les producteurs nationaux.

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1 Introduction

In the early 1980's, the European car industry was characterized by substantial price differences across EC countries. This had been first pointed out by the European Bureau of Consumers Unions (BEUC), and further analyzed in a paper by MERTENS and GINSBURGH [1985], who show that in 1983, before tax price differentials for a standardized car, could be as large as 45% between two EC countries (Belgium and the United Kingdom).

In June 1983, the Commission issued a draft regulation [1] suggesting that the exemption of art. 85 of the Treaty should not apply anymore to those producers who would, in two different countries, recommend prices differing by more than 12% during at least six months. This regulation was adopted in December 1984, [2] after lenghty discussions between producers and the Commission. It came into effect on July 1st, 1985 and is supposed to last until June 30, 1995; "1992" will thus probably have little effects on the car market.

In this paper, we consider two problems. First, we try to evaluate whether price differences across countries have decreased; the answer to this question will turn out to be positive; but we cannot decide, on the basis of the data, whether this is simply the consequence of exchange rates going "in the right direction", and whether, the same would have happened, had exchange rate variations been different. In other words, we are not able to say that price convergence is the consequence of EC Regulations.

Our second concern is exchange rates and cost absorption by exporters. Here the answer is that exchange rate variations do not seem to be transmitted; cost variations are a little more. But the main determinant for price variations of imported cars are price variations of domestics cars. Domestic producers seems to play the role of price leaders, while importers adjust their prices on the former. See KIRMAN and SCHUELLER [1988] for a theoretical model embodying such an assumption.

In Section 2, we briefly describe the methodology followed by Mertens and Ginsburgh, and extend it to deal with what we want to do in this paper. Section 3 is devoted to the results of our computations, while Section 4 draws some conclusions.

1. Draft Commission Regulation on the application of Article 85 (3) of the Treaty to certain categories of motor vehicle distribution and servicing agreements, *Official Journal of the European Communities* n° C 165/2, 24.6.83.
2. Règlement (CEE) n° 123/85 de la Commission du 12.12.1984 concernant l'application de l'article 85 (3) du Traité CEE à des catégories d'accords de distribution et de service de vente et d'après-vente de véhicules automobiles, *Journal Officiel des Communautés Européennes* n° L 15/16, 18.1.85. See also Communication de la Commission concernant son règlement (CEE) n° 123/85 du 12.12.1984, *Journal Officiel des Communautés Européennes* n° C 17/4, 18.1.85.

2 Methodology

In their paper, Mertens and Ginsburgh (MG) suggest the following idea. Let $p_{ik,j}$ represent the price of a specific car j ($j=1, 2, \ldots, J$) sold in country k ($k=1, 2, \ldots, K$), by a producer located in country i ($i=1, 2, \ldots, I$); [3] this price can be thought of as being generated by the following process:

$$\log p_{ik,j} = \pi + \pi_{i.} + \pi_{.k} + \text{other effects} + e_{ik,j} \quad (1)$$

In (1), $\pi_{i.}$ is a "country of origin" effect, $\pi_{.k}$ a "country of destination" effect, while price variations which are neither due to the country of origin, nor to the country of destination are included as "other effects"; $e_{ik,j}$ is an error term. Of course, to estimate (1), some normalization has to be adopted (like in the other equations to come) to avoid linear dependence of the various intercept terms. If, like in MG, observations consist of various makes at a specific date, "other effects" represent, among other things, qualities or technical characteristics of the car; (1) can then be written:

$$\log p_{ik,j} = \pi + \pi_{i.} + \pi_{.k} + \Sigma_l \beta_l x_{lik,j} + e_{ik,j} \quad (2)$$

In (2), the $x_{lik,j}$ are observed qualities ($l=1, 2, \ldots, L$) of a specific car priced $p_{ik,j}$. Note that the β_l coefficients are common to all origins and destinations. [4]This regression equation makes it very easy to test for "country of origin" effects (which MG attribute to differentiation, not included in the various qualities, for instance "German quality") and the "country of destination" effects, attributed to discriminating practices.

Indeed, the first boils down to testing $\pi_{i.}=0$ for all i, the second to testing $\pi_{.k}=0$ for all k. MG found that the second hypothesis is strongly rejected, which led them to conclude that prices for a standardized car differed substantially across countries. [5]

It is easy to extend this approach to include time. Assume that our observations cover the years $t=1, 2, \ldots, T$. Then, ignoring the differentiation effects (which we ignore here for simplicity, and which is small compared to the "discrimination" effect, anyway) and assuming again that the β_i

3. For a domestic producer, $k=i$.
4. This is, in the MG paper, the result of a tested hypothesis.
5. Note that GUAL [1987] attributes these price differences to differences in taxation rates and Japanese voluntary export restraints; it is nevertheless useful to notice that the largest price difference is observed between Belgium and the UK, where VAT rates are almost equal; in Belgium, however, Japanese imports are "free" and reach 24.5% in 1983, while in the UK, a restraint seems to operate and restricts the Japanese share to some 12%. Though we are now less convinced that these price differences are the consequence of discriminating pratices in the usual sense, for simplicity, we keep using the word "discrimination",

coefficients are common, (2) can be written:

$$(3) \qquad \log p_{ikt,\,j} = \pi + \pi_{.k.} + \pi_{..t} + \pi_{.kt} + \Sigma_l \beta_l x_{likt,\,j} + e_{ikt,\,j}$$

Now, $\pi_{.k.}$ is a "country of destination" effect, $\pi_{..t}$ a "time" effect and $\pi_{.kt}$ a combined effect of destination and time. It is easy to see that $\pi_{..t}$ and $\pi_{.kt} = 0$ for all k and t, means that prices have not changed over time. If $\pi_{.kt} = 0$ for all k, t, it is price differentials which have remained constant over time; finally, if the various $\pi_{.kt}$ are different from zero, price variations were different in the various importing countries (w.r.t. Belgium as the base country). Again, all this can easiliy be tested.

Evidently, in (2) as well as in (3), all prices have to be expressed in some common currency, for instance, the ECU. Exchange rate variations over time have of course no effect on (2), but they will on the coefficients of (3); this makes it impossible to disentangle the consequences of exchange rate variations from those of voluntary efforts made by producers to decrease discrimination. The basic question to answer is thus: what would producers have done, had exchange rates remained constant?

To make this clear, consider the following case. In 1983, the price difference for a standardized car between Germany and the United Kingdom was 20%; since 1983, the pound lost over 20% w.r.t. the mark. Assume then, that in 1987, we observe German and British prices to be equal. We can of course argue that price discrimination has vanished, but we cannot tell whether this is merely the consequence of exchange rate variations, and whether, had there been no such variations, prices would nevertheless have become equal. Probably this is asking too much from the data, and anyway, given what happened with exchange rates, there was no reason for producers to feel concerned by the EC Regulation.

To deal with our second point – exchange rate and cost absorption –, we consider equation (4), which is similar to (3), except that all observations belong to a specific (importing) country k (to make this clear, we drop index k, but reintroduce the country of origin index i):

$$(4) \qquad \log p_{it,\,j} = \pi + \pi_{i.} + \pi_{.t} + \pi_{it} + \Sigma_l \beta_l x_{lit,\,j} + e_{it,\,j}.$$

In (4), prices can be expressed in the currency of country k, so that the $\pi_{i.}$, $\pi_{.t}$ and π_{it} coefficients will capture the effects of exchange rate variations, inasmuch these are passed onto the importing country's prices. This will enable us to check whether and to what extent exporters absorb cost and exchange rate variations, whether they simply adjust their prices to those of domestic producers, or whether none of these pricing policies is followed.

We will use two different methods to do that; in the first, we simply run tests on subsets of the coefficients of (4); in the second, we construct price indices on the basis of (4) and use these in an equation in which we regress them on exchange rates, costs and other variables.

3 Results

Our study covers the same five countries as MERTENS-GINSBURGH [1985]: Belgium, France, Germany, Italy and the United Kingdom. For each country, we have collected pre-tax prices posted in August, as well as technical characteristics for 120 makes for the years 1984 to 1987. [6] Our sample contains thus 2,400 observations (5 countries × 120 makes × 4 years). When needed, average annual exchange rates have been used.

Equations (3)-(4) implicitly assume that the contribution of technical characteristics (the x_l variables) is the same, irrespective of the country of origin, the country of destination and the year. This hypothesis had been carefully tested by MG, and could not be rejected; the testing was again carried out here, and by and large, with a few non-systematic exceptions, led us to the same result. [7] We will thus only report on results computed under this assumption.

Our first result deals with equation (3), obtained by pooling the 2,400 observations; all prices are expressed in ECU's using average annual exchange rates. The equation is as follows:

$$\log p = \underset{(137.0)}{5.8256} + \underset{(27.4)}{0.00024}\, CAP + \underset{(23.5)}{0.0025}\, L + \underset{(44.1)}{0.0092}\, SP$$
$$+ \underset{(10.6)}{0.116}\, \mathrm{DIE} + \text{intercept terms};\ R^2 = 0.911;\ n = 2{,}400$$

where CAP stands for engine capacity, L for length, SP for speed, while DIE is a dummy variable which takes the value 1 for Diesel engines and zero otherwise. The various intercept terms are dealt with in Table 1 below. The fit is excellent, and the coefficients affecting the characteristics variables are highly significantly different from zero, as can be seen from the *t*-values, reported under each coefficient. [8]

The loglinear form of the equation makes it particularly easy to compute "characteristics free" price indexes, based on the various intercept terms of the equation. [9] These indexes are reproduced in Table 1.

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6. Data come from *Le Moniteur de l'Automobile* (Belgium), *L'Auto-Journal* (France), *Deutsche Auto Zeitung* (Germany), *Gente Motori* (Italy) and *Autocar* (United Kingdom).
7. We do not report the results of the tests, but from Table A in the Appendix, it can be checked that these coefficients are very close to each other. Y. Mertens, who worked with many more years and countries in his dissertation at the London Scool of Economics reaches the same conclusion.
8. Very good adjustments always seem to be obtained in hedonic regressions for cars; the good fit here is by no means exceptional, though the *t*-values could be somewhat overestimated in case of heteroskedasticity, for which no test was run. Again, this did not seem to be a serious problem in the simpler model estimated by MERTENS and GINSBURGH [1985].
9. See e. g. MERTENS and GINSBURGH [1985], p. 155-56.

TABLE 1

Price indexes (Belgium = 100)

Year	Belgium	France	Germany	Italy	U.K.
1983 [+]	100	117	123	132	144
1984.	100	113**	109**	124**	129**
1985.	100	112^{ns}	107^{ns}	120^{ns}	134^{ns}
1986.	100	108*	105^{ns}	118*	111**
1987.	100	110^{ns}	109^{ns}	116*	114**

[+] Taken from MERTENS and GINSBURGH [1985].

ns, * and ** respectively mean non-significantly, significantly (t-value over 1.64 at the 5% level) and strongly significantly (t-value over 2.57 at the 5% level) different from 0. See however the text for the interpretation.

The index numbers in Table 1 should be understood as follows. To make cross country comparisons easy, Belgium is, for every year, taken as the base country; the indexes for 1983 are probably not entirely comparable to the others, since they are based on a different sample (100 observations instead of 120) and the characteristics variables are not exactly the same. [10] Next to each number there is an indication on the standard deviation of the regression coefficient, which should be understood as follows. For the year 1984, the test is with respect to the Belgian price level; it indicates that in 1984, there were strong differences in the price levels. For the other years, the tests are with respect to Belgium; thus, for France and Germany, they show that in 1985, 1986 and 1987 prices differentials were not significantly different from what they were in 1984; this is not the case for Italy and the United Kingdom, where the decrease of the price differential is statistically significant.

The results seem thus to indicate that, certainly since 1983, and even since 1984, price levels in the various countries under scrutiny, have significantly converged, though they remain, in some cases, above the 12% level imposed by the European Commission.

There are, however, two important remarks to be made. The first one concerns absolute price movements: relative prices might have converged because British prices dropped, or because Belgian prices increased; it is thus important to see what happened over time in each market. This is illustrated in Table 2, which clearly shows that prices, expressed in domestic currency (first row for each year), have increased very sharply in all countries concerned. This is in line with a conclusion reached by DAVIDSON et al. [1989], who show that the type of price constraint imposed by the EC on intercountry price differences is likely to generate a general price increase; the argument is easy to understand: take a producer whose optimal unconstrained solution is to sell at different prices in two countries; to relax, at least partially, a constraint on relative price differences, it may be in the

10. Mertens and Ginsburgh use power/weight instead of speed.

producer's interest to increase prices in both countries, if price elasticities are not too high. This can of course not happen if contraints were imposed on absolute prices instead of relative prices.

TABLE 2

Price Indexes [D] ***(1984 = 100)***

Year	Belgium	France	Germany	Italy	U.K.
1984.	100	100	100	100	100
1985.	106	106	104	110	107
	107	107	105	103	111
1986.	115	114	107	119	118
	119	114	114	113	103
1987.	116	120	112	123	127
	122	119	121	114	108

* First row in domestic currency; second in Ecu's.

The second remark is concerned with the observation that prices measured in ECU's (second row for each year in Table 2) have decreased precisely in the two countries which have undergone currency depreciations: the Italian lira lost over 8% between 1984 and 1987, the pound, 15%. The apparent convergence of prices, stressed by the results of Table 1, may thus simply be the consequence of exchange rate movements, as had been already pointed out earlier. And indeed, when comparing the development of prices, in domestic currencies (*i.e.* at constant exchange rates), then, with the exception of Germany, prices do diverge even more in 1987 than in 1984.

Let us now turn to the problem of absorption. We first carefully state the regression equation equation set up for each market, before describing the results. It is basically equation (4), but with a specific normalization. Dropping the domestic market index (since the regression is run on data concerning one single market), it can be written as follows:

$$(5)\quad \log p_j = \pi_{..} + \pi_{.1} y_{.1j} + \pi_{.2} y_{.2j} + \pi_{.3} y_{.3j} + \sum_{i \neq 0} (\pi_{i.} y_{i.j} + \pi_{i1} y_{i1j} + \pi_{i2} y_{i2j} + \pi_{i3} y_{i3j}) + \sum_{l} \beta_l x_{lj} + e_j$$

where $y_{.tj} = 1$ when observation j belongs to year $t = 1985$, 1986, 1987 and 0 otherwise, $y_{i.j} = 1$ when car (observation) j originates from country $i \neq 0$ (when $i = 0$, the car is a domestic good) and 0 otherwise and $y_{itj} = 1$ when car j is imported from country $i \neq 0$ in year $t \neq 1984$, and 0 otherwise. The detailed results of these regressions appear in Table A of the Appendix. Table 3 gives index numbers constructed on the basis of Table A. [11]

To interpret these coefficients, let us take the example of France; under the subheading "France", in bold characters, one finds the development of

11. These index numbers are obtained as follows: for the domestic producer, the index is given by $\exp(\pi_{..} + \pi_{.t})$ for year t ($\exp(\pi_{..})$ for 1984); for imports the index is equal to $\exp(\pi_{i.} + \pi_{it})$ for year t ($\exp(\pi_{i.})$ for 1984).

TABLE 3

Price Indexes (domestic producer*, 1984 = 100)

	1984	1985	1986	1987
Belgium*				
France	94	88	90	86
Germany	**100**	**110**	**118**	**122**
Italy	96	96	92	91
U. Kingdom	86	79	84	91
France				
France	**100**	**104**	**110**	**117**
Germany	105	110	116	117
Italy	98	101	101	96
U. Kingdom	92	92	91	100
Germany				
France	98	93	95	92
Germany	**100**	**106**	**108**	**115**
Italy	99	101	98	93
U. Kingdom	87	84	87	98
Italy				
France	89	91	97	97
Germany	92	99	106	111
Italy	**100**	**102**	**109**	**112**
U. Kingdom	77	75	91	99
United Kingdom				
France	103	100	105	93
Germany	111	114	116	112
Italy	99	100	102	94
U. Kingdom	**100**	**107**	**115**	**132**

* Since there is no domestic producer in Belgium, Germany is taken as basis.

prices of domestic (*i.e.* French) cars; thus between 1984 and 1987, the price of an "average" domestic car has increased with 17%. The other rows give the price of an imported cars w. r. t. the price of a domestic car; for instance, in 1984, a German car was 5% more expensive than a French car; in 1986, it turns out to be 16% more expensive; likewise, British cars, which were in 1984, 8% cheaper, cost the same as domestic cars in 1987.

The way these regressions were run gives thus the possibility of testing whether the development of prices of foreign cars in, say France, has been significantly different from the development of French cars' prices. One simply tests $H_0 : \pi_{i1} = \pi_{i2} = \pi_{i3}$ for a specific importer $i (i \neq 0)$. The results of these analyses of variance are reproduced in Table 4, each column of which gives the values of the F-statistic with 3 and 456 d. f. in a specific country, with respect to imports from other countries.

As can be checked from Table 4, H_0 is rejected in two cases only (the critical F-value is 2.62 at the usual 5% level): German and British car prices in Italy have followed a pattern which is significantly different from the price pattern of domestic cars; in all other cases, we cannot reject the hypothesis that import prices have merely followed domestic prices (or vice versa). Note, however, that the power of this test is probably low and that the conclusion is far from certain.

TABLE 4

Analyses of Variance (F-statistics)

	Belgium	France	Germany	Italy	U. Kingdom
France	1.1	–	0.6	1.5	2.1
Germany	–	2.2	–	6.7	0.3
Italy	0.6	0.4	0.8	–	0.7
U. Kingdom	0.5	0.3	0.8	3.9	–

To get a different view of export pricing pratices, we constructed [12] price indexes ψ_{ikt} based on equations given in Table A of the Appendix. These were then used as dependent variables in the following regression equation:

$$(6)\quad \Delta\psi_{ikt} = \underset{(>0)}{\alpha_0}\,\Delta ER_{ikt} + \underset{(>0)}{\alpha_1}\,\Delta ER_{ik,t-1} + \underset{(>0)}{\beta_0}\,\Delta C_{it} + \underset{(>0)}{\beta_1}\,\Delta C_{i,t-1} + \underset{(>0)}{\gamma}\,\Delta\psi_{kkt} + \underset{(<0)}{\delta_0}\,(\psi_{ik,t-1} - \psi_{kk,t-1}) + \underset{?}{\lambda_i} + \underset{?}{\mu_k} + e_{ikt}.$$

In equation (6), Δ stands for percentage changes between t and $t-1$; this implies that (6) is computed on the basis of 48 "observations" (exports from F, G, I and the UK to B, F, G, I, and the UK for three time intervals); the variables have the following meaning: $\Delta\psi_{ikt}$ is the variation of the price index of exports from i to k in year t, while ψ_{kkt} is the variation of the index for home produced cars, ΔER_{ikt} is the variation of the exchange rate between countries i and k; ΔC_{it} is the variation of the wage rate in the metal products industry of the exporting country; [13] the $(\psi_{ikt} - \psi_{kkt})$ term measures the price differential between imports from i and domestic cars' prices; λ_i and μ_k represent country of origin and country of destination fixed effects; finally, e_{ikt} is a random error.

As can be noticed, the equation contains all variables lagged one year, except for $\Delta\psi_{kkt}$, since this would have required to drop too many observations. The expected signs appear under the various coefficients: an increase in the foreign currency and in foreign production costs is expected to increase prices in the importing country (if not totally absorbed); an increase of domestic cars' prices will probably be followed by importers (or vice-versa); finally, large price differences between foreign and home produced cars are not sustainable for too long and one can expect a tendency for prices not to depart too much from each other; this is hopefully captured

12. The computation is made along the same lines as the previous one. See footnote 11.
13. There are two (unfortunately unavoidable) problems in using wages of the exporting country to represent production costs. The first is that clearly wages are far from being the only component of costs, especially at a time where the car industry became more capital intensive. The second problem is due to the fact that what is called here "country of origin" does not necessarily correspond to the country in which the car is produced; in our study, the country of origin of, say, a Renault is France, while it may well be that this specific make is produced in Belgium. Since it is impossible on the basis of available data to trace with precision in which country a car exported to another country is produced, we were forced to make the very rough approximation refered to earlier.

by the $(\psi_{ik,t-1} - \psi_{kk,t-1})$ "catchover" variables, the coefficient of which should therefore be negative.

Table 5 contains some typical estimation results. As can immediately be seen, exchange rate variations carry the wrong sign in all the equations in which they are present; but since the coefficients are significantly different from zero, dropping these variables from the equation deteriorates the fit, as is seen in equations (2) and (3) of Table 5. In equation (1) however, it is interesting to note that the coefficients of the origin dummies are negative for countries which devalued and positive for Germany; omitting these dummies, like in equation (4) does not fundamentally alter the results.

The most robust result is the positive sign for the variation of domestic prices $\Delta\psi_{kkt}$ and the negative sign for the catchover effect $(\psi_{ik,t-1} - \psi_{kk,t-1})$; this gives some plausibility to the assertion that domestic producers act as price leaders, or at least, that import and domestic producers' prices vary together, which is also the main conclusion derived from equation (5) and Table 3.

It seems clear that, from our results, very little, if anything, can be said about costs' and exchange rates' absorption; this is probably due to the fact that we used prices posted in the importing country and measured in the importing country's currency; using export prices expressed in the exporting country's currency would certainly lead to more conclusive results; this would however need information which firms are probably not willing to make available; it may be worth trying to use unit values found in international trade statistics, as has been done recently by KNETTER [1989].

4 Concluding comments

The results of the paper lead to three conclusions.

First, there is no doubt that price differentials between the five countries under consideration have seriously decreased, since exchange rate variations between 1983 and 1987 went into the "right" direction: prices expressed in Ecu's were highest in Italy and the United Kingdom in 1983, and both currencies lost against the Ecu since. It will be interesting to see what happens to prices if the pound and the Italian lira go up again.

The question which can hardly be answered is whether this convergence would have happened in the absence of these "favorable" exchange rate movements.

Our second conclusion is concerned with the fact that prices increased in all the countries under review, and that this increase is larger, and, in some cases (France and the UK) much larger than the increase of the consumer price index.

TABLE 5

Behavior of Prices

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔER_t .	−0.39	–	–	−0.23	−0.12	−0.27	−0.29
	(−3.7)	–	–	(−1.9)	(−1.0)	(−2.1)	(−2.3)
ΔER_{t-1}	−0.64	–	–	−0.32	−2.18	−0.20	−0.17
	(−5.0)	–	–	(−2.6)	(−1.8)	(−1.6)	(−1.5)
AC_t	−1.03	−1.12		−0.36	−0.74	−0.13	–
	(−3.4)	(−2.9)	–	(−1.0)	(−1.8)	(−0.4)	–
ΔC_{t-1}	1.59	0.67	−0.48	0.24	0.82	0.34	–
	(3.5)	(1.3)	(−0.1)	(0.6)	(1.7)	(0.6)	–
$\Delta\psi_{kkt}$	1.07	0.30	0.15	0.55	0.92	−0.18	−0.23
	(4.3)	(1.2)	(0.6)	(1.8)	(4.4)	(−0.8)	(−1.1)
$(\psi_{ik}-\psi_{kk})_{t-1}$	−0.62	−0.35	−0.28	−0.17	0.26	–	–
	(−4.0)	(−1.9)	(−1.4)	(−0.9)	(1.4)	–	–
Origin dummies							
France	−12.9	0.3	1.3	–	–	3.0	4.5
	(−3.4)	(0.1)	(0.3)	–	–	(0.8)	(1.8)
Germany	0.7	8.9	7.1	–	–	9.0	9.9
	(0.3)	(2.9)	(2.2)	–	–	(2.6)	(3.8)
Italy	−16.0	13.8	3.8	–	–	0.1	4.5
	(−1.6)	(1.4)	(0.4)	–	–	(0.0)	(1.7)
UK	−13.0	10.2	8.0	–	–	5.5	8.0
	(−2.1)	(2.0)	(1.4)	–	–	(0.9)	(2.9)
Destin. dummies							
France	6.3	2.5	2.0	6.6	–	0.7	0.5
	(3.3)	(1.1)	(0.8)	(2.2)	–	(0.3)	(0.2)
Germany	2.4	0.9	0.4	1.6	–	−1.0	−1.0
	(1.3)	(0.4)	(0.2)	(0.4)	–	(−0.5)	(−0.5)
Italy	17.4	8.2	7.1	11.6	–	4.1	3.8
	(6.1)	(2.9)	(2.3)	(4.8)	–	(1.5)	(1.4)
UK	10.7	3.6	3.8	8.5	–	6.1	5.7
	(4.5)	(1.5)	(1.5)	(2.3)	–	(2.1)	(2.1)
R^2	0.70	0.48	0.36	0.34	0.00	0.39	0.39

Finally, it seems plausible that import prices and domestic prices develop in parallel, but it is impossible to claim, with the data at hand, whether this is the result of a Stackelberg leader follower game (the leader being the domestic producer, the importers being the followers), or whether prices are the outcome of some other oligopolistic equilibrium concept.

APPENDIX

TABLE A

Regressions per Country

Variable	Belgium*	France	Germany	Italy	U.K.
Constant	5.90	6.19	6.14	6.49	6.25
	(56.6)	(63.6)	(71.1)	(73.1)	(67.7)
E. Capacity	0.0003	0.0003	0.0003	0.0003	0.0003
	(12.2)	(14.0)	(14.3)	(14.5)	(12.5)
Length	0.002	0.002	0.002	0.002	0.002
	(9.2)	(8.9)	(10.2)	(9.0)	(9.7)
Speed	0.009	0.008	0.008	0.008	0.009
	(19.0)	(17.2)	(19.5)	(17.5)	(19.5)
Diesel	0.118	0.046	0.060	0.067	0.093
	(4.7)	(1.9)	(2.7)	(2.9)	(3.8)
π_F	−0.061	...	−0.024	−0.119	0.033
	(−1.6)	...	(−0.7)	(−3.2)	(0.8)
π_{F1}	−0.063	0.039	−0.043	0.029	−0.034
	(−1.2)	(1.3)	(−1.0)	(0.6)	(−0.6)
π_{F2}	−0.041	0.097	−0.028	0.089	0.017
	(−0.8)	(3.1)	(−0.6)	(1.7)	(0.3)
π_{F3}	−0.093	0.161	−0.058	0.085	−0.104
	(−1.8)	(5.4)	(−1.3)	(1.7)	(−1.9)
π_G	...	0.053	...	−0.088	0.108
	...	(1.6)	...	(−2.7)	(2.9)
π_{G1}	0.098	0.047	0.056	0.082	0.022
	(3.1)	(1.1)	(2.2)	(1.8)	(0.4)
π_{G2}	0.166	0.093	0.081	0.145	0.040
	(5.0)	(2.1)	(3.2)	(3.2)	(0.8)
π_{G3}	0.200	0.104	0.144	0.194	0.008
	(5.7)	(2.3)	(5.5)	(4.2)	(0.2)
π_I	−0.038	−0.019	−0.104	...	−0.014
	(−0.9)	(−0.4)	(−0.4)	...	(−0.3)
π_{I1}	−0.000	0.026	0.021	0.010	0.019
	(−0.0)	(0.5)	(0.4)	(0.0)	(0.3)
π_{I2}	−0.046	0.026	−0.004	0.082	0.033
	(−0.8)	(0.5)	(−0.1)	(2.5)	(0.5)
π_{I3}	−0.062	−0.023	−0.056	0.110	−0.050
	(−1.0)	(−0.4)	(−1.1)	(3.3)	(−0.8)
π_{UK}	−0.147	−0.083	−0.138	−0.258	...
	(−2.5)	(−1.4)	(−2.7)	(−4.6)	...
π_{UK1}	−0.086	−0.001	−0.031	−0.034	0.063
	(−0.9)	(−0.0)	(−0.4)	(−0.4)	(1.6)
π_{UK2}	−0.025	−0.007	−0.006	0.162	0.138
	(−0.3)	(−0.1)	(−0.1)	(2.2)	(3.2)
π_{UK3}	0.048	0.081	0.118	0.250	0.282
	(0.4)	(0.8)	(1.3)	(2.5)	(6.9)
π_{Oth}	−0.120	−0.103	−0.093	−0.203	−0.050
	(−3.2)	(−1.9)	(−2.3)	(−3.9)	(−1.1)
π_{Oth1}	−0.057	0.024	−0.011	0.067	0.005
	(−1.1)	(0.3)	(−0.2)	(0.9)	(0.1)
π_{Oth2}	−0.036	0.144	0.039	0.236	0.101
	(−0.7)	(1.9)	(0.7)	(3.5)	(1.4)
π_{Oth3}	−0.035	0.093	0.046	0.236	−0.005
	(−0.7)	(1.3)	(0.8)	(3.3)	(−0.1)
R^2	0.925	0.923	0.931	0.919	0.919

* There is no domestic producer in B. G has been chosen as basis.

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