



Short-term break in the French love for diesel?

Laurent Hivert*

Université Paris-Est, IFSTTAR, DEST, F-93166 Noisy-le-Grand, France

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ABSTRACT

From 1980 to 1995, France was the first European country in which diesel cars became more popular than petrol cars. In addition to offering improved performance, this preference was notably due to a much cheaper cost of use, in line with the taxation on both fuel types. But the advantage of diesel technology does not clearly seem to extend to energy and CO₂ savings. In this paper, French trends over the last 15 years and latest annual available statistics about both diesel car ownership and use are analysed, on the basis of the “ParcAuto” panel data source. The results notably show that, from the moment the gap between fuel prices was reduced, the annual mileage amounts of diesel cars have fallen faster than those of petrol cars. A specific section summarizes the results of our work on the behaviour of French households who chose to replace their petrol car with a diesel. Detailed examination of these switching behaviours, involving a complex set of variables, confirms that there are increases in driving associated with “new diesel motorists”. The final section of this paper briefly discusses recent evolutions of fuel expenditures.

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0. Introduction

Home to some of the leading manufacturers in the diesel car market and a very responsive consumer group, France makes an interesting case study of the overall impacts of dieselization, as detailed by Hivert (1997, 1999) and Cerri and Hivert (2004).

In Europe, diesel cars have become more popular than petrol cars in the new vehicle market (from 22% in 1997, diesel cars reached 53% in 2007 for all EU15+Norway and Switzerland¹; after a stable 2008 year, Diesel fell by nearly 7 points in 2009)

Abbreviations: ACEA, European Automobile Manufacturers' Association; ADEME, French Agency for Environment and Energy Management; AIE, for International Energy Agency; CAE, Council of Economic Analysis, advisory experts council attached to Prime Minister; CCFA, French Car Manufacturers Committee; CCTN, National Commission of Transport Accounts; CPDP, Professional Committee of Oil; DEST, Department of Economics and Sociology of Transports; DRAST, Research Direction of the Ministry of Transport; DSCR, French Department of Road Safety of the Ministry of Transport; EU, European Union; FFSA, French Federation of Insurance Companies; goe, grams of oil equivalent, 41.87 kJ; IEA, International Energy Agency; IFSTTAR, French Institute of Science and Technology for Transport, Development and Networks; INRETS, French National Institute for Transport and Safety Research, former name of IFSTTAR; INSEE, National Statistics Institute; MIES, Interdepartmental Mission on greenhouse effect; MEEDDM, former name of Ministry of Environment, Sustainable Development, Transport and Housing (MEEDTL); SOeS, Statistics Department of the Ministry of Transport; TIPP, inner tax on petroleum products; TNS-Sofres, *Société Française d'Etudes par Sondages*, a French polling institute from Taylor-Nelson-Sofres group.

* Tel.: +33 1 45 92 55 95; fax: +33 1 45 92 55 01.

E-mail address: laurent.hivert@ifsttar.fr

¹ The EU15 comprised the following 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK (member countries in the European Union prior to the accession of ten candidate countries on 1 May 2004). CCFA used to

while in the total passenger car fleet the share of diesel has continued to rise and amounted to 34% of the entire stock in 2009 (up by 2 points for the 7th consecutive year).

In the specific context of France, some figures (according to CCFA, see abbreviations in the beginning of the article) illustrate the unique dynamics of market and fleet dieselization: in the middle of the first decade 2000, diesel cars have already exceeded 1/2 of the stock and 3/4 of the new vehicle market, and reached 2/3 of the car miles driven. The latest values are as follows: more than 56% of the stock in 2009 (vs. 14% in 1989 and 36% in 1999), 78% of the new car market in 2008 before falling back to 71% in 2009 (vs. 30% in 1989 and 45% in 1999). Concerning car use, diesel cars have delivered more than 70% of the kilometres driven in 2009 (vs. 22% in 1989 and 48% in 1999).

The dynamics of this dieselization phenomenon finally had major consequences (a) on overall traffic growth, (b) on the fuel demand and, finally (c) on households' mobility behaviours.

This article aims to shed light on recent developments regarding the diesel, putting the latest figures into perspective with the long-term trends. As this national craze seems to be strongly correlated with a much lower cost of use (see also Section 5), we present the overview summary of the past and current trends in prices and fuel taxes in France in the box below.

Diesel cars were clearly seen as an “advantage” as their quality and performance (and much cheaper cost of use) surpassed petrol cars. Did this diesel advantage extend to energy or CO₂ savings?

(footnote continued)

publish statistics for 17 European countries (EU15+Norway and Switzerland); while ACEA adds Iceland to this set and uses for it the name of “Western Europe”.

The stock of diesel cars maintains a small advantage over petrol cars when unit consumption (energy use/km) is counted but almost no advantage regarding CO₂ emissions. New vehicle test data show somewhat more advantage to diesel cars, but these appear to count less in on-road averages.

And overall, according to our taxation system on fuels, diesel cars are much more driven than petrol cars. The fact that diesel cars are nevertheless driven significantly more than petrol cars could be partly explained by selection effects among those drivers who had chosen diesel cars, although these effects appear to have diminished in recent years as diesel cars found their way into lower income strata and among families who already had a diesel car or had little need for long distance driving. Diesel cars are also younger on average than petrol cars, and more recent cars are significantly more driven than older cars in every country.

Interestingly, both diesel and petrol fuel prices have been converging since 1998 as diesel tax has been raised (see box below). This appears to be one major reason why diesel car annual mileage has fallen faster than that of petrol cars in recent years in France. So far, however, the narrowing of the price gap between petrol and diesel has not widened the diesel advantage in fuel use or CO₂ emissions.

The French case confirms the lack of any strong sign of fuel or CO₂ savings in the overview of the eight countries studied by Schipper and Fulton (2009): Austria, Belgium, France, Germany, Italy, the Netherlands, Spain and the UK. Detailed examination of the behaviour of those switching from petrol to diesel confirms that there are increases in driving associated with “new dieselists” (Hivert, 1999). Analysis of subsets of diesel owners and drivers shows that the comparison of diesel with petrol involves a complex set of variables. Would diesel have been so popular if its price had not been well below that of petrol until recently? How much would these “new dieselists” have driven if they had not switched, i.e. if there had been no recourse to low cost diesel?

Some highlights of past trends in fuel prices and fuel taxation in France

In France until 1998, successive governments have maintained the price of diesel lower than that of unleaded 95, with the application of fuel taxation reduced by 30%, while producer prices (excluding VAT) of these two fuels were essentially the same.

In 1998, according to the recommendation of “Council of Economic Analysis” (CAE experts report, Liégiez et al., 1998), the government decided to progressively reduce the gap between the prices of both fuel types, in order to move closer to the average difference observed elsewhere in Europe, increasing the tax on diesel (for a “green tax”) of 7 cents (1 cent 2010) per year until 2006, but this measure was eventually applied for 1999 only.

Between 2000 and 2002, a system for varying the inner tax on petroleum products (“floating TIPP”) was introduced by the same government: the idea was to reduce the tax in times of rising oil prices and to increase it in times of decline, in order to smooth the final fuel prices. The next government soon abandoned the system, because the oil price upward trend resulted in a significant loss for the national budget.

From 2004, this government decided to increase the TIPP by 3 cents. Since then, further increases in the TIPP also contributed to the rise of diesel fuel price.

More recently from 2007, with France’s *Grenelle Environnement* (“Environment Round Table”), this tax on energy was considered insufficient, hence the proposals to introduce a carbon tax and a specific tax on the most polluting cars, the eco-tax concerning car acquisition and not car use. See also government incentives and bonus for acquisition/replacement in Section 2.

Concurrently, while it has taken market share to diesel in both the Netherlands and Italy, the market for LPG vehicles, yet now available and for a low cost of use, does not significantly develop in France, probably because of the lack of fuelling stations, the cost of installation on vehicles but also because a very bad image after several explosions (and therefore also to the fact that some car parks do not accept these vehicles).

1. Data source: the French “ParcAuto” survey and database

The results presented in this paper are mainly based on a nationwide annual household survey, devised for the purposes of the description of the behaviours regarding both car ownership and car use. The “ParcAuto” (for Car Fleet) survey is a postal survey designed by IFSTTAR and TNS-Sofres (a French private polling institute), funded by ADEME, CCFA, IFSTTAR and DSCR (see abbreviations) and conducted among a large TNS-Sofres panel sample.

For each annual wave, 10,000 volunteer panellists are requested in January to fill a self-administered questionnaire in order to describe every vehicle (up to a maximum of three) their household owns (including private cars and light utility vehicles) and the use (mileage and fuel consumption) they have undertaken using this available fleet over the past year. It means that data on car ownership and on the characteristics of vehicles are those at the end of year t , collected in January $t+1$, while those on car use concern the whole year t . The resulting sample includes 6000–7000 respondents, of which, because of a theoretical annual renewal rate of the sample, about 3/4 had already responded the year before (even if having moved).

Data files are available at IFSTTAR for all waves since the mid-80s and this survey is still ongoing (Hivert and Wingert, 2009). For a short description of data, see also Papon and Hivert (2008) or Kalinowska (2005). The observations used in this paper cover the period between 1995 and 2009. This annual survey provides a unique continuous observation tool of the national car market and fleet and of the households’ behaviour. It reveals the dynamics of car ownership and use with cross-section global indicators, but moreover with longitudinal analyses on the panel database maintained at IFSTTAR, using disaggregated pairing of households’ observations present in consecutive waves of the panel survey, as in “new dieselists” research described in Section 4.

2. New car sales and ownership

Rapidly expanding sales after 1982 propelled the French fleet of diesel cars into all segments of society. With fuel price advantages over petrol that only recently diminished, more and more households became “new dieselists”, i.e. opted for a diesel car after previously owning a petrol one, with major consequences on the traffic and on the fuel demand growth as well as on the households mobility behaviour. From the experience of over 25 years of “dieselization”, however, one can hardly conclude that the French experience resulted in major energy savings. As foreseen in Hivert (1999) and underlined in Schipper and Fulton (2009), diesel ceased to be a French exception in Europe by the middle/end of the nineties: as from 1997, Austria (53%), Belgium (50%) and Spain (42%) have seen even larger shares of diesel cars in the new car national markets than France (42%), while the share, for the 17 European countries (see footnote 1) in Fig. 1, remained almost constant (22%).

The decade commencing with the new millennium has also seen the diesel share substantially increase in other countries. The reasons of these increases could be multiple and complex, involving (but not only) national prices and taxation systems on car purchase, ownership and use.

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