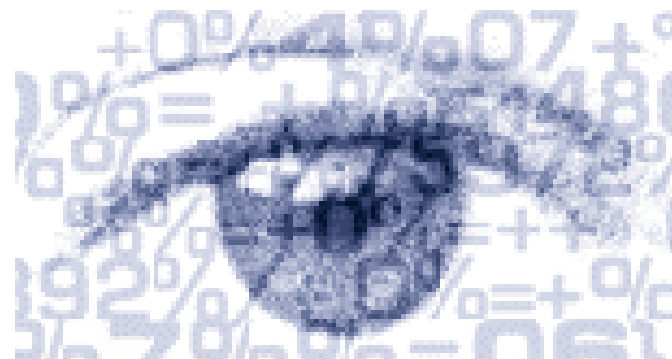




# The French traffic and fuel balance of road vehicles

Sylvie Mabile,  
Ministry of Transport,  
SESP/ST3



# Road traffic and fuel balance : a coherent set of estimates

Principle : an iterative process

I From fleet to traffic

II From traffic to fuel consumption

III The balance (deliveries, consumptions)

A multiple partners agreement, based on various  
data sources

Outlook : use of additional administrative data ?  
(the technical inspections files, the new registration  
system, decentralization issue...)

# An iterative process

- I Estimation of road traffic from direct (partial) or indirect sources
- II Estimation of total consumptions
- II Confrontation of fuel consumptions and deliveries (estimation of statistical adjustment)
  - => *return on initial hypothesis, if the gap is not explained*
  - => *traffics of light and heavy vehicles are jointly estimated*

# A double formula

*I – From fleet to traffic*

*(for vehicles registered in France only) :*

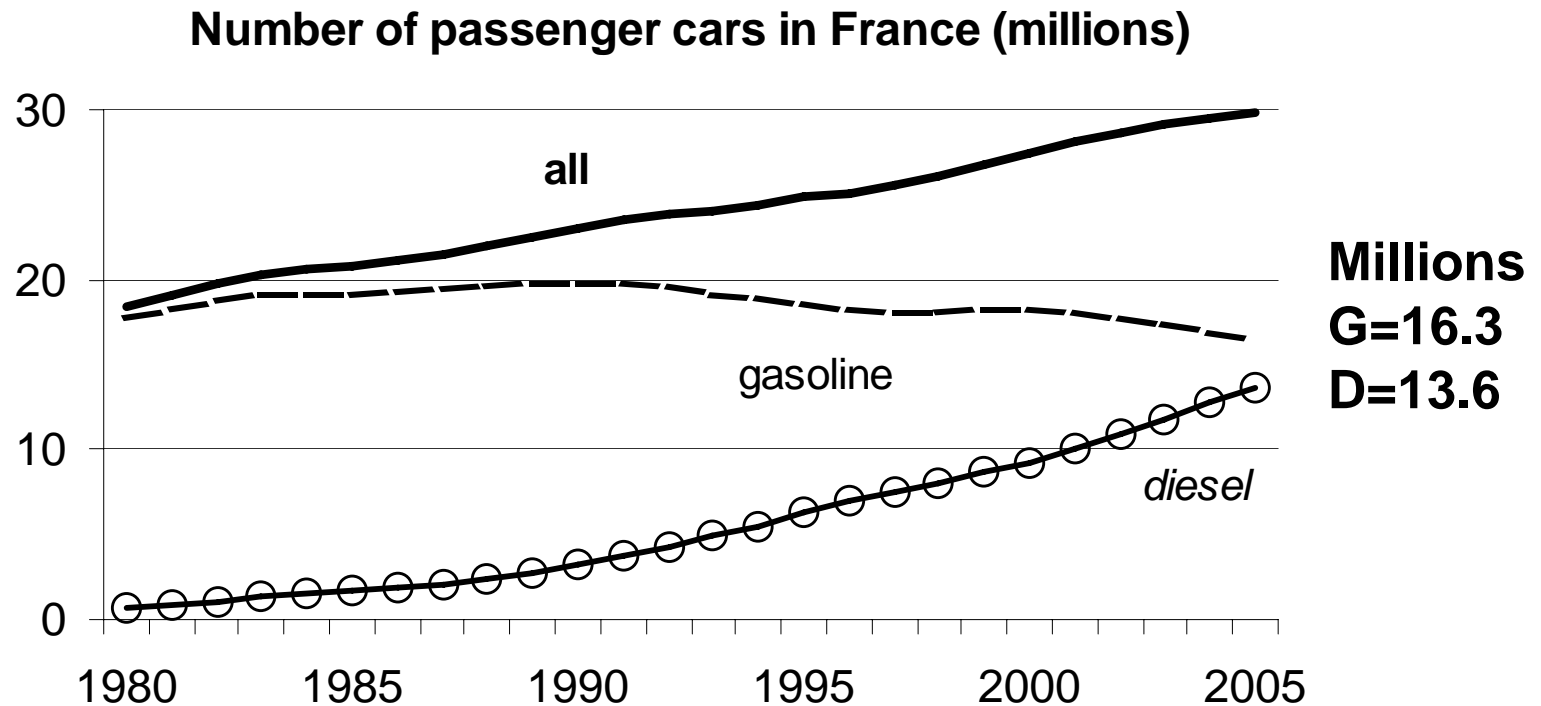
**Traffic (vehicles-kilometres) =**  
Fleet x annual average mileage

*II - From traffic to fuel consumption*

*(for all vehicles, foreign vehicles included) :*

**Total consumption in France (m<sup>3</sup>) =**  
Traffic x unit consumption ( litres/ 100 km)

# Fleet : 7/10 new private cars in 2004 have a Diesel motorisation (\*)



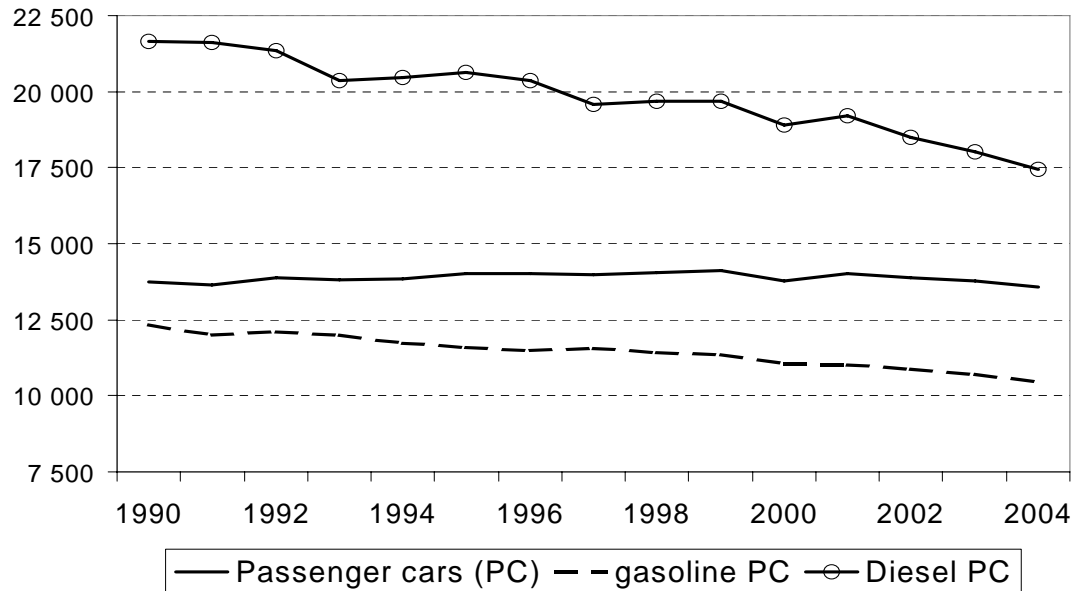
Source : CCFA

\* About 2 millions new cars were registered :  
Diesel = 1.4 million; gasoline = 0.6 million

# I-A Data sources to estimate the fleet in use

- A national registry of vehicles (FCA) : all types of vehicles (passenger cars, light duty vehicles, lorries, coaches, buses, motorcycles, trailers, ...) except for special vehicles (agricultural tractors, special purpose...)
- Traditionally combined with administrative data sources (from taxes)
- But in 2000 : the main tax on private cars ('vignette automobile') is suppressed
- Hypothesis are made on the vehicle lifetimes to correct the (positive) bias of FCA dataset

# I-B Average annual mileages for passenger cars in France (km)



Two main household surveys :

‘SECODIP’: continuous, reporting sheets every two weeks  
(3300 cars)

‘SOFRES’ : annual survey (10 000 households, postal)

# I-C Estimating total traffic

- Total traffic : centralised counts on the national network only (SIREDO stations cover 40% of total road traffic)
- Large surveys for base years (1994, 2007)
- Evolutions for French registered vehicles:
  - for passenger cars : surveys (mainly SOFRES)
  - heavy goods vehicles = European survey (permanent)
  - coaches : annual survey and direct sources (until 2005)
  - light commercial vehicles, special purpose road vehicles : survey every 4 or 5 years
  - motorcycles???
- Foreign vehicles : indirect estimations  
(data on tourism, EMCT databases, customs...)



# SIREDO count stations :

a traffic index automatically computed

**2000 stations (of all types) are installed on the national road network (35 000 km), of which :**

■ **1700 « longueurs » (length) stations :**

Traffic flows are recorded into 3 categories, depending on the length of the vehicles

■ **510 « silhouettes » (shape) stations :**

Traffic flows are recorded into 14 categories, depending on the shape of the vehicles

■ **170 « charges » (load) stations :**

Traffic flows are recorded into 12 categories, depending on the gross vehicle weights (computed from axles load and shapes)

# Traffic by type of road network (in 2004)

Type of network :	Traffic (G v-km)	%
Conceded motorways (toll)	76,1	14
Other motorways (free)	45,3	8
National roads	96,2	17
<b>Total national network</b>	<b>217,6</b>	<b>39</b>
Regional, local and urban roads *	342,2	61
<b>Total</b>	<b>559,9</b>	<b>100</b>

Evolution of traffic on national roads is measured (traffic index)

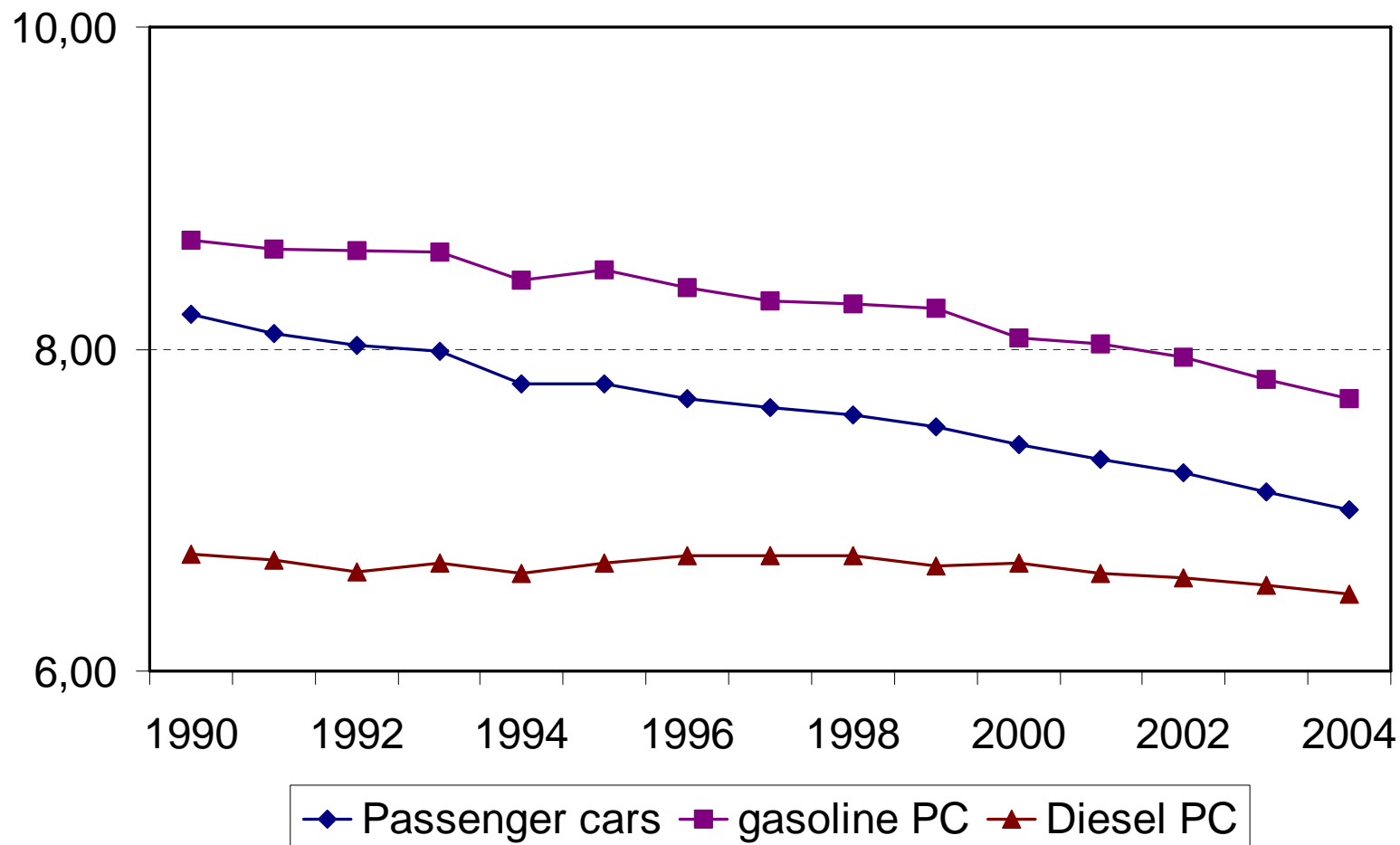
\*Traffic on local road network is computed ( = total – national)

# II. From traffic to fuel consumption

Data sources to estimate unit fuel consumptions (litres /100 km, French registered vehicles) :

- gasoline or diesel passenger cars : mainly SECODIP panel (control : SOFRES panel)
- Motorcycles (gasoline) : ??
- Heavy vehicles (diesel) :
  - trucks : consumption from permanent (European) survey
  - coaches : annual panel survey (until 2005)
  - light commercial vehicles : survey every 4 or 5 years;
  - special purpose road vehicles : survey, not on a regular basis

# II-A Passenger cars unit fuel consumptions (l/100km)



# II-B Total fuel consumptions

- *Light or heavy French vehicles* : formula (II)
- *Foreign vehicles* :  
no direct information; evolutions of unit consumptions are assumed to be similar to French vehicles, by type of vehicles); “transit” surveys for heavy vehicles in 1999, 2004 (next results for 2004 in 2005-2006)
- *Statistical adjustment* : estimations (evolution of fuel prices in France and in foreign countries, data on tourism, short term data for heavy good vehicles from ECMT...)

# Total fuel consumption, by type of vehicles (on French territory)

in 2004	Veh. (1000)	km. per veh.	Traffic (G v-km)	U.Cons. (L / 100 km)	Cons. (1000 m <sup>3</sup> )
<b>French standard vehicles, of which</b>	<b>35 834</b>	<b>14 593</b>	<b>522,9</b>	<b>9,1</b>	<b>47 520</b>
- PC (gasoline)	16 571	10 488	173,7	7,7	14 302
- PC (Diesel)	13 160	17 442	229,5	6,5	14 460
- LCV (Diesel)	4 408	18 338	80,8	9,5	7 529
- HCV (Diesel)	557	49 261	27,4	36,5	9 683
<b>Total</b>	<b>-</b>	<b>-</b>	<b>559,8</b>	<b>-</b>	<b>54 180(*)</b>

**(\*) total consumption include : foreign vehicles = 4 479 (8 %) ; statistical adjustment, sales at frontiers and miscellaneous : 2 181 (4 %)**

# III The fuel balance

Total Consumption (on territory)

– fuel deliveries

=

frontier balance (1)

+ statistical adjustment

*(1) Fuel bought abroad (for traffic in France)*

*– fuel bought in France (for traffic abroad)*

# Main results for passenger cars (PC) in 2004

- French PC = 72% of vehicle-kilometres,  
and 53% of all total consumption in m<sup>3</sup> (all vehicles)
- Total traffic : globally stable (- 0.2%) (+0.5% overall)
- Unit consumption : 7.0 l /100 km (- 1,6% )
- Total fuel consumption : 28.8 M m<sup>3</sup> (- 1,8 %) :
  - **gasoline 14.3 M m<sup>3</sup> (- 6,5%)**
  - **diesel 14.5 M m<sup>3</sup> (+ 2,8%)**

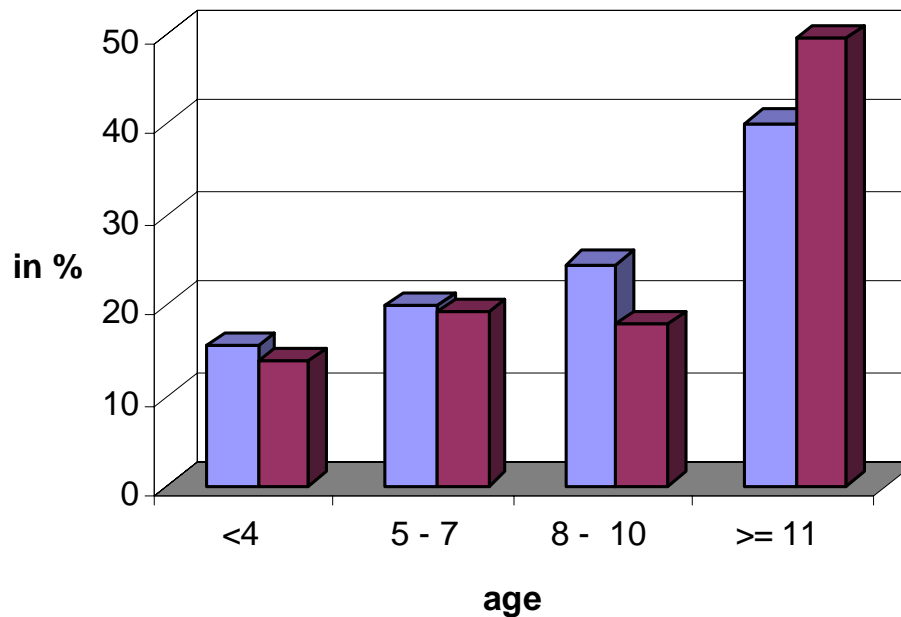


# Outlook

- New base year needed (last detailed data on traffics = 1994; next survey in 2007)
- The new registration system : a unique ID number for each vehicle
- ... but not before 2007 (2008?)
- Testing the inspection visits files ('UTAC')

# Inspection visits : before the 4<sup>th</sup> anniversary, and every 2 years thereafter

Technical controls in 2003, by age of vehicles



■ passenger cars (12,9 millions controls)

■ light duty vehicles (1,9 million controls)

**Average  
fail rate  
at first visit:  
20%**

**Under 4 years:  
6.7%**

**Over 10 years:  
27.4%**

**Quality of km  
variable not  
tested yet**

# Results on the internet :

<http://www.statistiques.equipement.gouv.fr/>

/Transport

/Données d'ensemble (rapport 2004)

