MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

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General Commission for sustainable development,
French Ministry for Ecological Transition

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FRENCH CONVERSION PREMIUM OF 2019

Ex-post socio-economic analysis

International Conference on mobility Challenges, Ecole centrale-supélec université Paris Saclay

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Summary

1. **Introduction** – Presentation of the French conversion premium mechanism, statistics
2. **Methodology and assumptions**
3. **Key achievements** – Socio-economic and user performance

1. INTRODUCTION :
Presentation of the French conversion premium mechanism, statistics

One word about our office

Ministry of Ecological Transition

Many directions, one is:

Housing Transport Biodiversity

General Commission for sustainable development *-> data production & studies/knowledge/evaluation*

Green and Solidarity Economy Service

Economy and evaluation

Our office: energy and solidarity transition

Macro part: macro models, long term evaluation, carbon tarification

Micro part: mainly a microsimulation model (energy bills [housing and transport], energy check, index of energetic precarity, etc.)

Other subjects: tertiary sector, evaluation of aids device on housing and transport, etc.

Impact Evaluation in France

- **Culturally**, in France: **very few impact of evaluation studies**

(lack of data and quality of data, *ex ante/ex post* evaluation…)

But it's changing **last two decades** because of…

- **Growing demand** concerning efficacity of public policies (justify the cost borne by taxpayer, efficient allocation of ressources,…)
- Development of **new empirical methods and data**
- *Law of 2008* : impact studies became constitutionnal

Efficiency of public policies / democratic requirement

-> Conversion premium as an example : i) administrative *ex post* evaluation ii) cost-benefit analysis

French conversion premium - *objectives*

- **Objective of the measure :** accelerate the Energy transition of the automobile fleet by providing a financial incentive for households and enterprises
  - ➢ Replacement of **older vehicles (polluting vehicles)**
  - ➢ It complements existing bonus/penalty policy

- **Environmental & social objectives**

French conversion premium – *background*

2015

- Creation of the conversion premium policy

2018

- Expansion of the allocation's terms
- 330 000 attributions

2019

- Improved targeting of beneficiaries
- 250 000 attributions

What are the challenges ?

- ***Cost-benefit analysis :***

➢ **Environmental benefits** : (CO2, fine particles, Nox)

➢ **User benefits** (including all taxes) : gains in fuel consumption, gains in maintenance costs, extra cost due to the anticipation of the purchase of a new and more efficient vehicle

➢ **Socio-economic assessment** : environmental assessment + user assessment (without taxes)

- **Issues raised :**

➢ Particular structure of beneficiairies

➢ Building an effective conterfactual

➢ User point of view/ collectivity point of view

Database used for the study

- **<u>Comprehensive and administrative</u>** data from the ASP (Agence de service et de paiement)

➢ **Gives information** about :

- Vehicule scrapped
- Vehicule purchased
- Beneficiairies

➢ **Create information** based on assumptions …

- Vehicle purchased : *lifetime, maintenance costs*, *NOx emissions and fine particles*…
- Vehicle scrapped : *consumption, holding period, household's annual mileage, v*ehicle's circulation zone

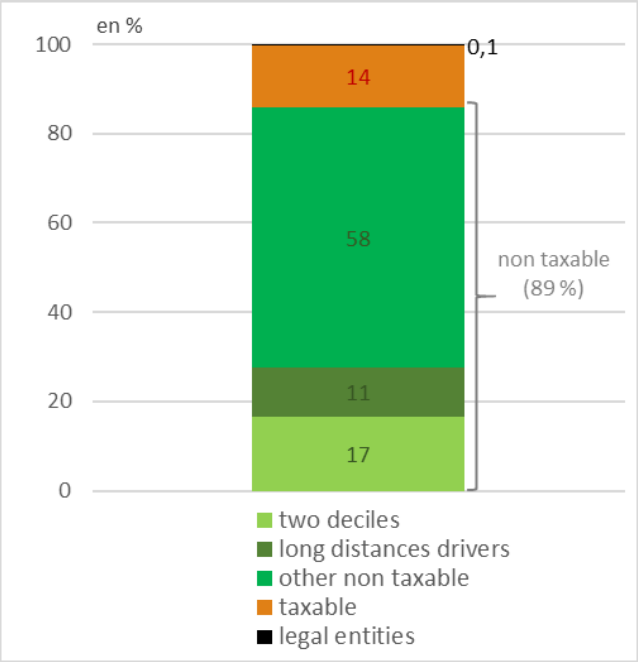
➢ And **other data** (Insee, SDES, Citepa, etc.)

- Emissions, consumption, price, discount rate, maintenance costs, price elasticity, etc.

Beneficiaries' and scrapped vehicles' characteristics

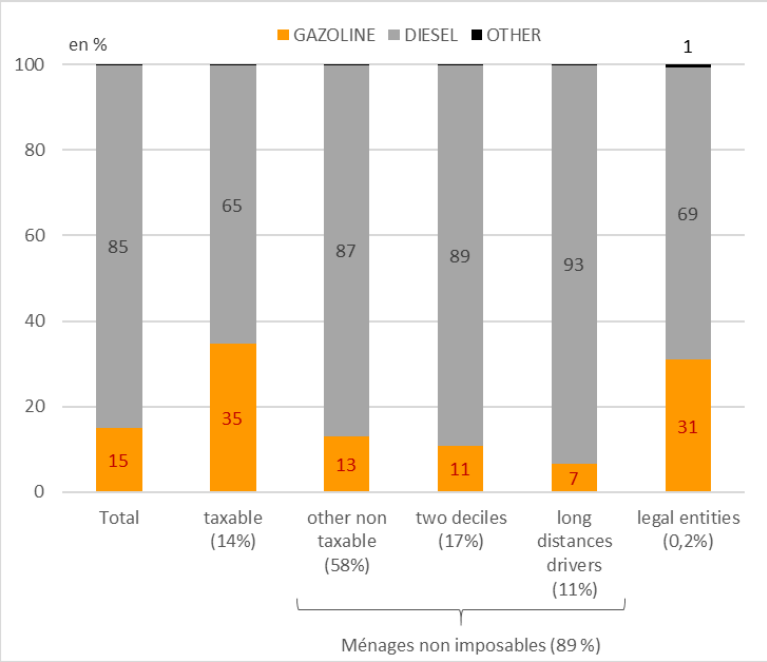
- Mainly **non-taxable** households

Specification of beneficiaries



- Mainly **diesel** vehicles :

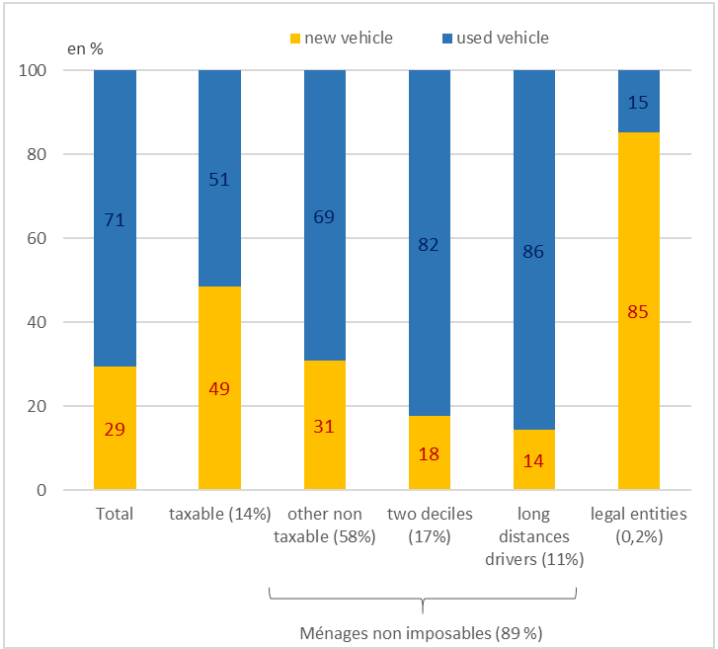
85 % of the scrapped vehicles are **diesel**



Characteristics of purchased vehicles

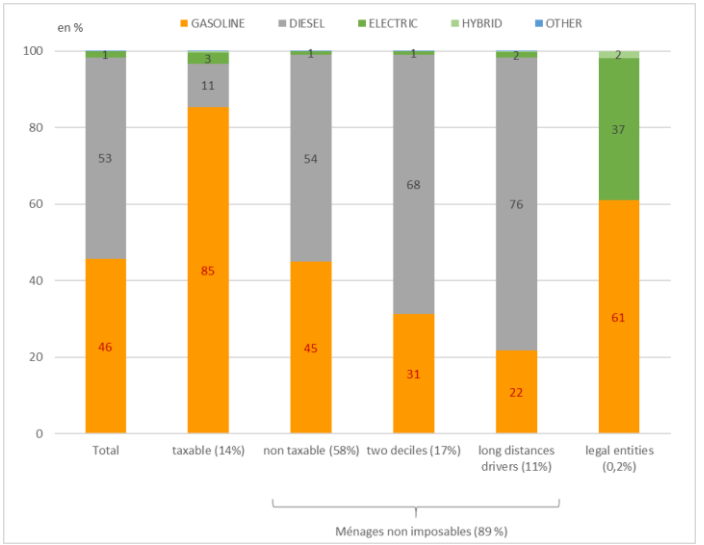
- Purchased vehicles are mostly **secondhand** vehicles:

70 % **secondhand** vehicles



- Purchased vehicles are mostly **diesel and gasoline :**

53 % **diesel**, 46 % **gasoline**



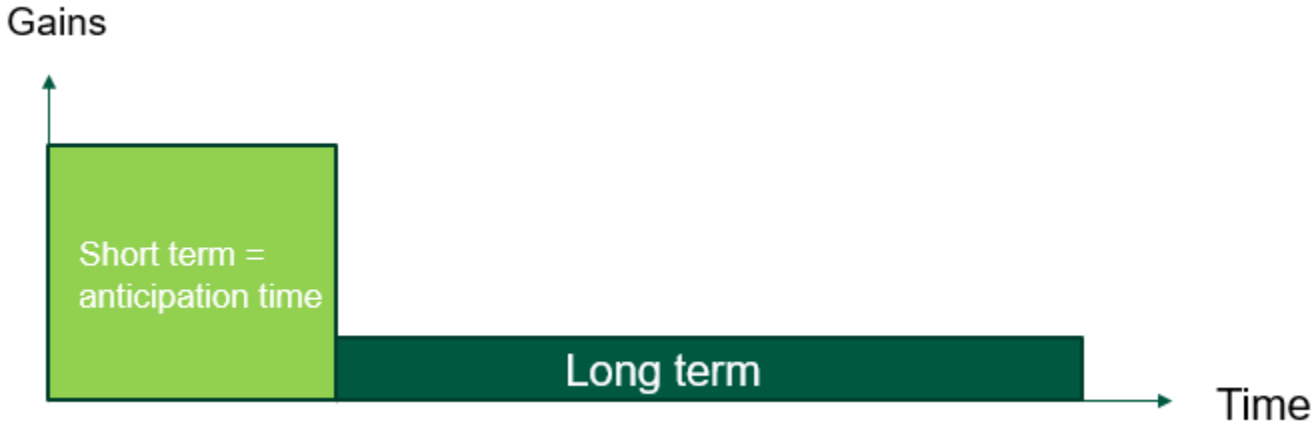
2. Methodology and assumptions

Main assumption based on behaviour

- The premium **modifies household behaviour** :

Reactions	Assumptions
They replace older vehicle earlier	***anticipation time***
They buy a new more efficient vehicle	***counterfactual vehicle consumption***
They buy a more expensive (excluding premium)	***additional cost***

Time window of analysis



Vehicle scrapped vs new vehicle

→gains in CO2, Nox, fine particule, consumption, etc

New vehicle vs conterfactual vehicle

→gains in CO2, annual consumption

Vehicle counterfactual

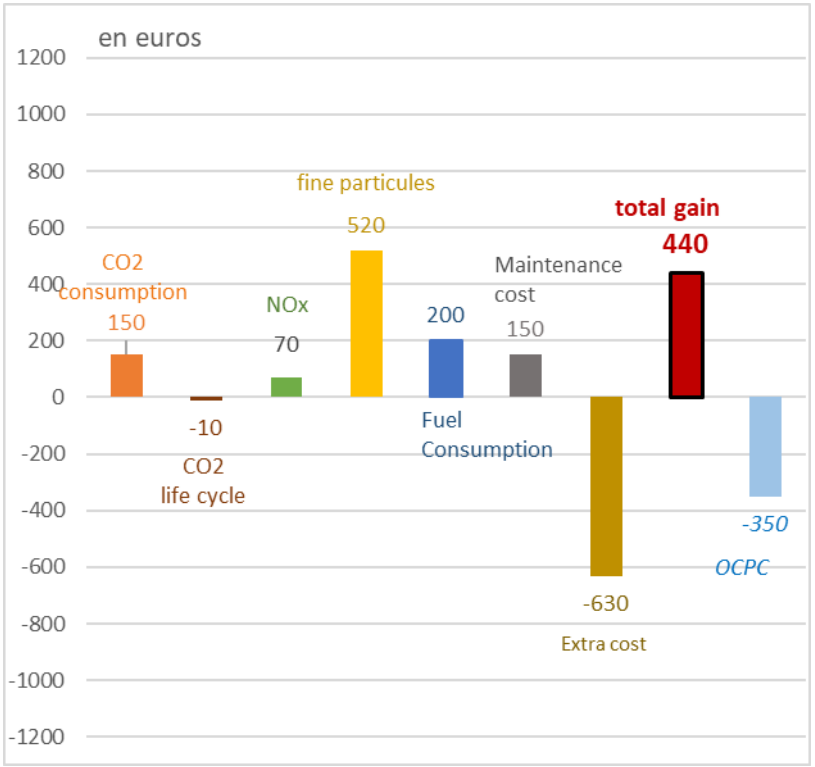
- What is it ? For the user, the society…

Different cases	Assumption = conterfactual emissions
Purchase of a new vehicle	counterfactual emissions = average emission of new vehicles GO/ES (SDES) * cale ParcAuto revenu (Kantar Sofres)
Purchase of a second hand vehicle : - Vehicle « entering » = vehicle « at the top » of the purchase resale chain - the premium has an influence on the purchase behaviour beyond the only purchase allowed by the subsidy - The new vehicle entering in the fleet have the same characteristics as the purchased vehicule thanks to the subsidy	This vehicle conterfactual is the **same as the Case A**

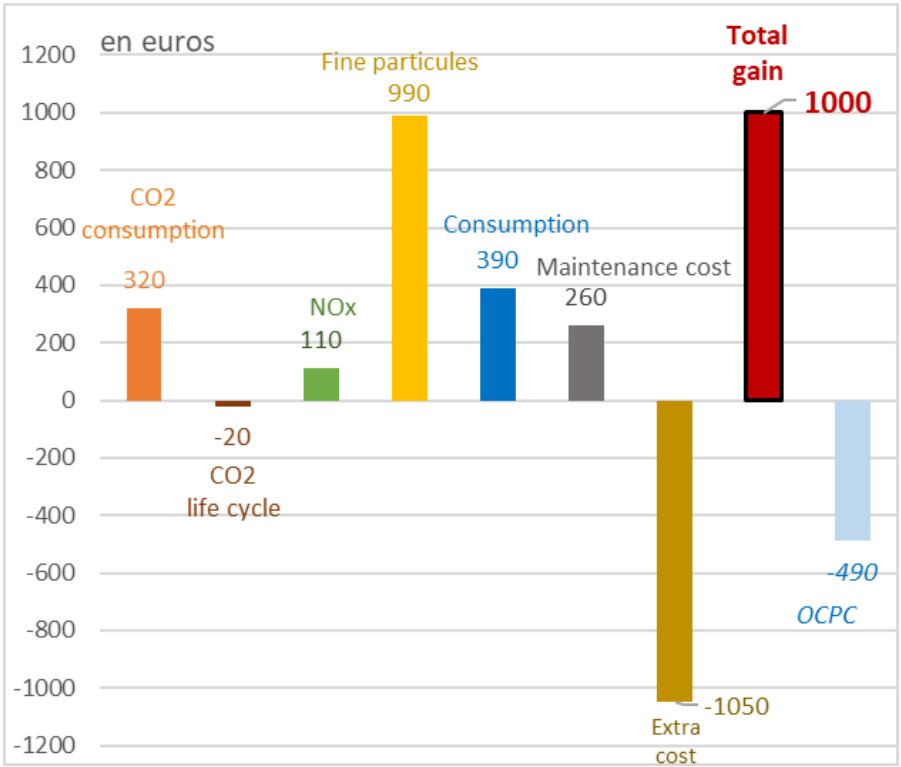
3. **Key achievements** – Socio-economic and user performance

Average socio-economic assessment by vehicle

2018 scale

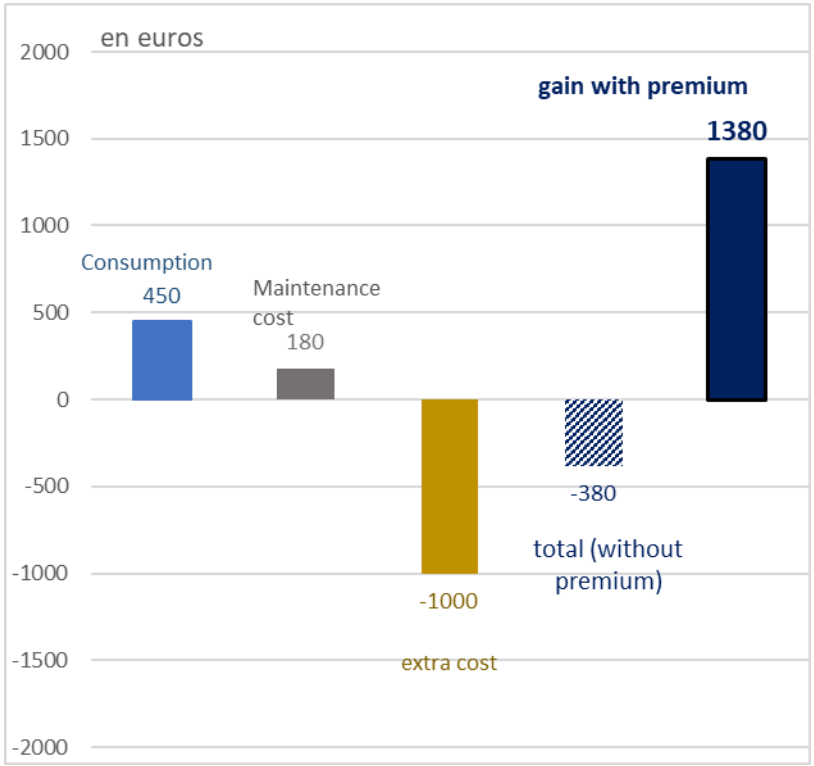


2019 scale

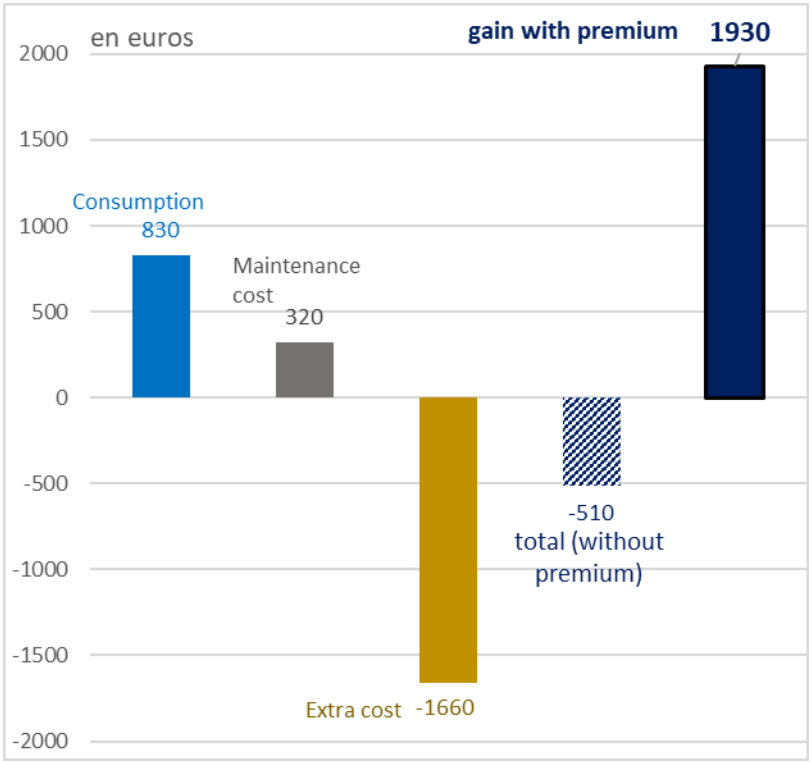


Average user assessment by vehicle

2018 scale

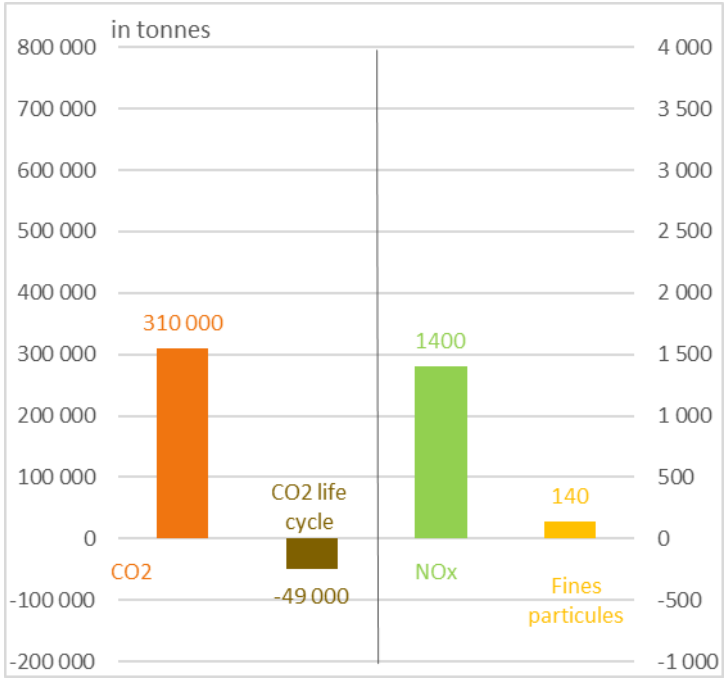


2019 scale

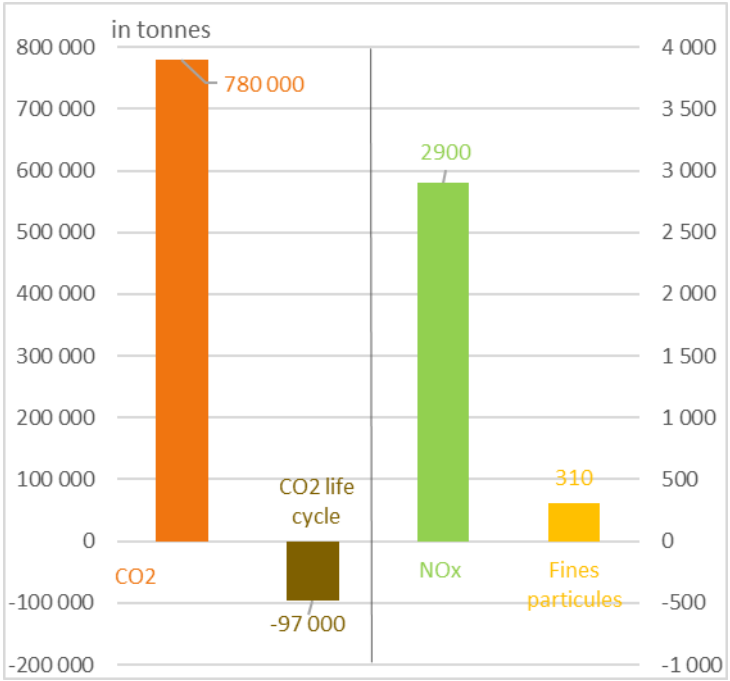


Environmental benefits

2018 scale



2019 scale

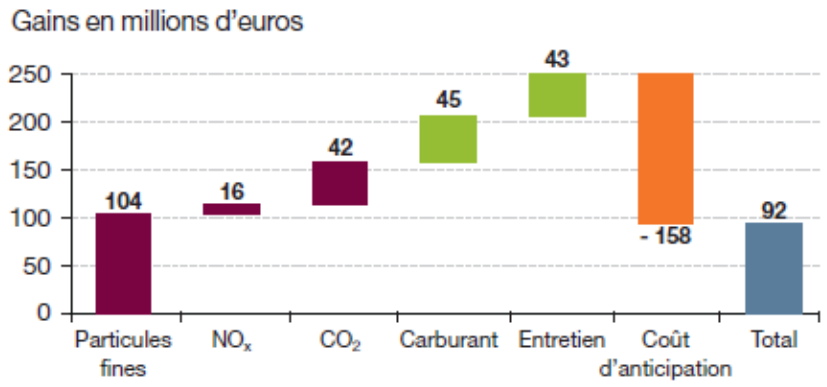


French conversion premium of 2020 …

- Conversion premium became a tool for **recovery plan** :

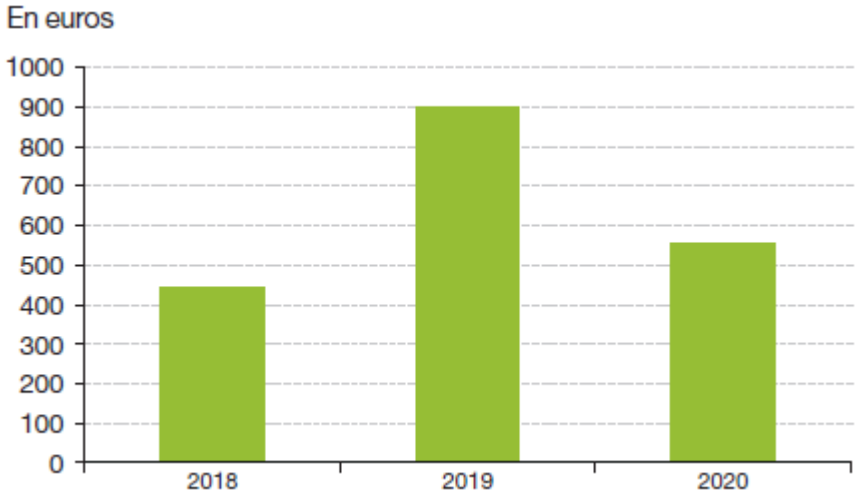
→stimulate demand in the automotive industry (bonus revaluation, expansion of elegibility terms)

- Total **socio economic** assessment



Source : *Calculs CGDD*

Comparison between scales :



Thank you for listening…

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bibliography

Links if you are more interested :

- Mathilde Clément, Mathilde NIAY – « Prime à la conversion des véhicules particuliers en 2019 »

https://www.actu-environnement.com/media/pdf/news-34355-prime-vehicule-2018.pdf

- Xavier d'Haultfoeuille, Isis Durrmeyer, Philippe Février - « Le coût du Bonus/Malus écologique : que pouvait-on prédire ? »

https://www.cairn.info/revue-economique-2011-3-page-491.htm

→elasticity for anticipation time assumption

- Site du SDES :

https://www.statistiques.developpement-durable.gouv.fr/

Contact :

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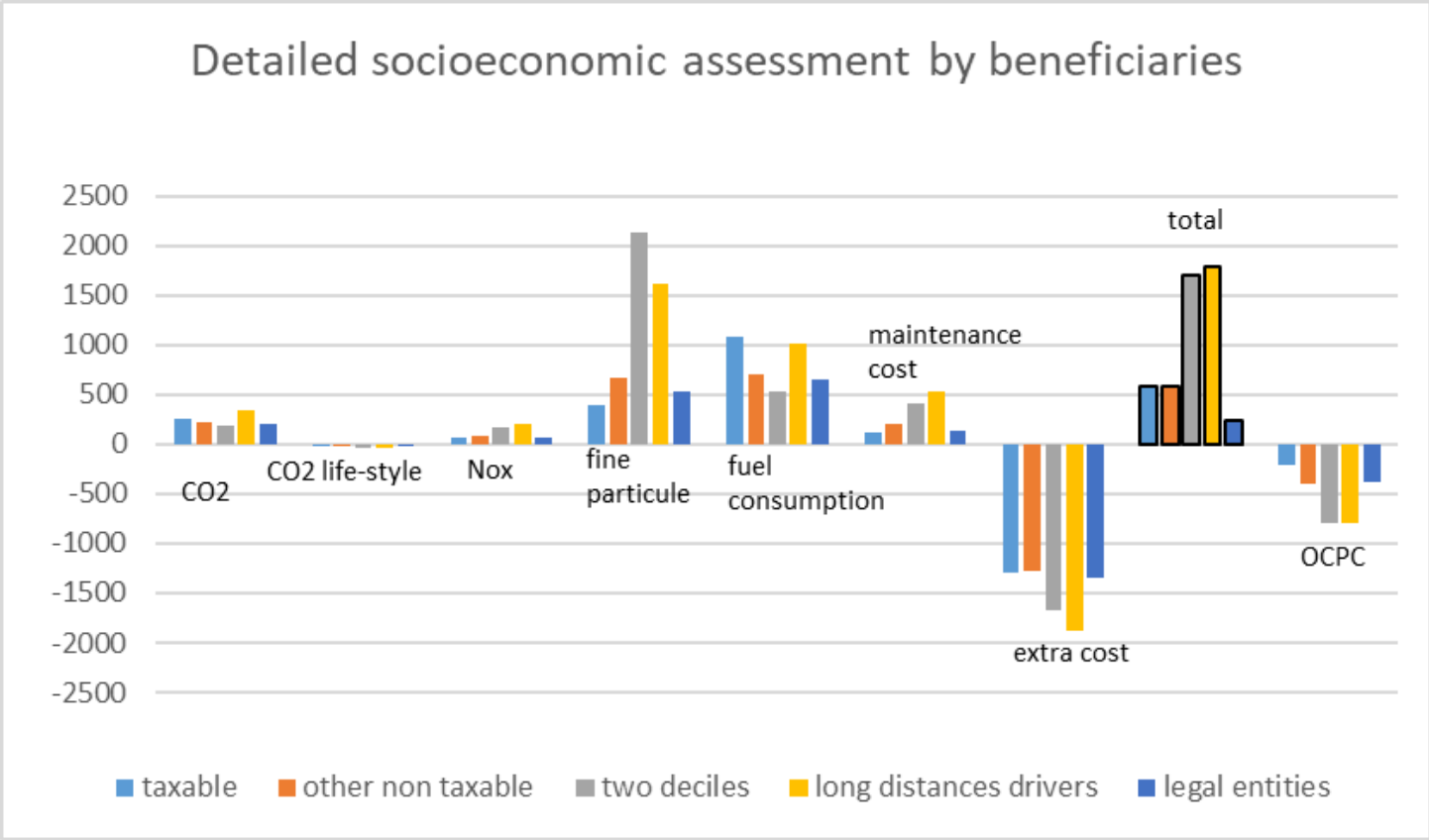
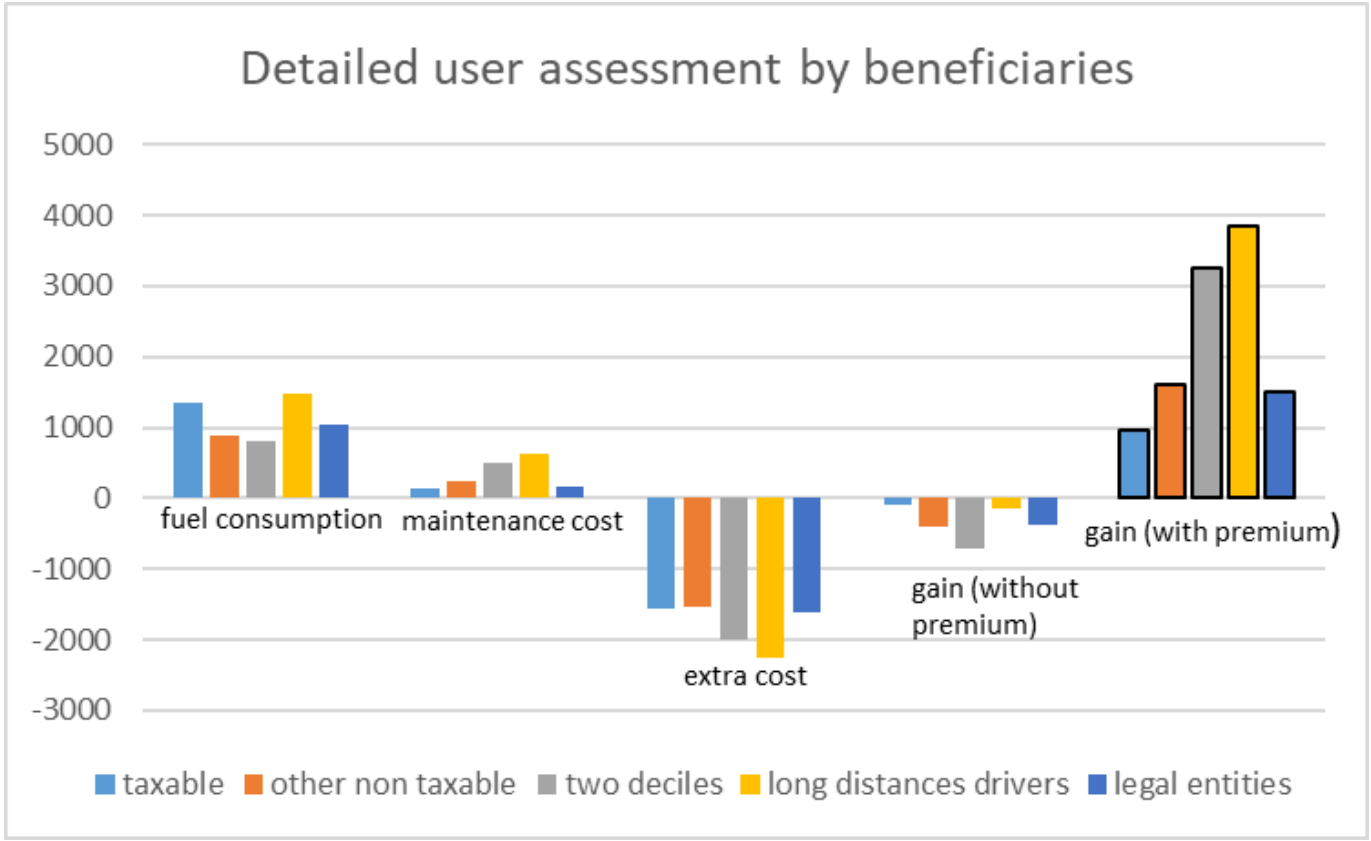
ANNEX

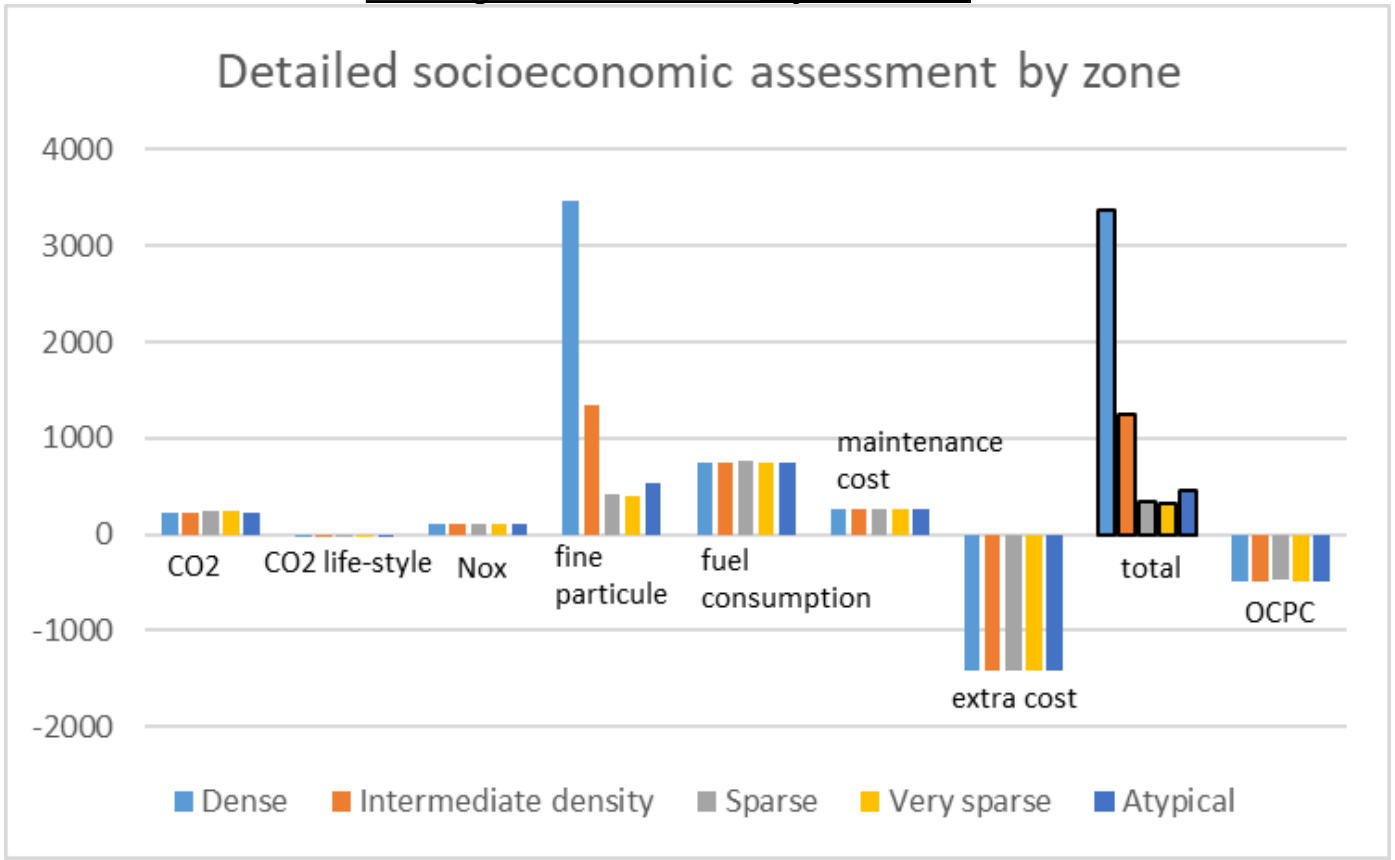
Average assessments by vehicle :



Average assessments by vehicle :



Average assessments by vehicle :



- $\frac{d_i}{d'_i} - 1 = |-\frac{p_i}{PA_i}| \times e_{I/NI}$

$\Longrightarrow \mathrm{d}_i = (1 + |-\frac{p_i}{PA_i}| \times e_{I/NI}) \times d'_i$ et $\mathrm{A} = d_i - d'_i$ (durée d'anticipation)

$\Longrightarrow \mathrm{A} = \mathrm{d}'_i(1 + |-\frac{p_i}{PA_i}| \times e_{I/NI} - 1)$

$\boxed{\Longrightarrow \mathrm{A} = \mathrm{d}'_i \times |-\frac{p_i}{PA_i}| \times e_{I/NI}}$