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France's missed rendezvous with carbon-energy taxation

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CARBON-ENERGY TAXATION IS LIMITED BY ISSUES OF SOCIAL AND POLITICAL ACCEPTABILITY

Despite the existing theoretical consensus on the economic and environmental rationales of carbon-energy taxation, its implementation and/or outcomes are still limited by problems of political and social acceptability. Indeed, many failed carbon-energy taxes initiatives, among which France's climate-energy contribution, stem from the lack of support of the public and politicians alike: while the former opposes increased taxation as a means to implement climate policy, the latter doubt the effectiveness of the fiscal instrument.

BARRIERS TO AN INCREASED ACCEPTANCE ARE COGNITIVE, TECHNICAL AND POLITICAL

The constraints to the effective implementation of carbon-energy taxation are primarily cognitive, as linked to how policy-makers traditionally conceive taxation (budgetary *vs*. incentive). The low acceptance of carbon-energy taxation is also due to political decisions on the technical design of the instrument: in the case of France, the modalities concerning the tax base and the recycling mechanism agreed on by the government, while aiming at improving its political feasibility, paved the way for never-ending debates on equity and fairness and eventually worsened the tax's social acceptability. Finally, political factors such as administrative conflicts and a poor political marketing played a substantial role in the French project's low acceptance and final policy failure.

PATHS TO IMPROVE CARBON-ENERGY TAXATION'S ACCEPTABILITY

In order to receive more support for environmental taxes, carbon-energy taxation should be designed and implemented within a global fiscal reform encompassing various aspects, i.e. shifting the tax burden from labour to pollution, removing environmentally harmful subsidies, limiting exemptions, redistributing revenues from high to low income households, and developing public investments in transports and R&D. Disseminating information is also an essential factor in building acceptance. Multi-year consultation processes such as green tax commissions must therefore be implemented so as to achieve a better communication of scientific and technical knowledge.

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1. INTRODUCTION

If emissions trading schemes and environmental taxes have, over the last two decades, supplemented traditional command-and-control instruments in the 'toolbox' of national measures available to steer climate policy objectives, their implementation remains limited by problems of political and social acceptability (Dresner et al., 2006; Lévêque et al., 2006; Gaunt et al. 2007; Kallbekken et al., 2011). Indeed, while opinion polls indicate that the public strongly supports the purpose of climate policies, they oppose increased taxation as a means to implement it (Kallbekken et al., 2011). In contrast, politicians are increasingly receptive to taxation as a means to address the climate challenge; yet, many of them remain sceptical regarding its effectiveness[1]. Why does carbon-energy taxation meet with such opposition and/or scepticism is the question we intend to address in this paper.

Taking the French stillborn carbon tax as an example, this paper aims at outlining the key policy features to make carbon-energy taxation acceptable and guarantee its effective implementation. By examining the political controversies raised by the French carbon tax project, we hope to contribute to the body of knowledge on the political and social difficulties of introducing economic-incentive instruments to achieve environmental policy objectives. In order to meet this aim, we carried out a series of semi-structured interviews of policy-makers, politicians and experts to reveal the perceptions of the political and administrative elite of the tax instrument and the policy failure. Our research is particularly innovative as the majority of the existing work on social and political acceptability of carbon-energy taxation has primarily been realized through large-scale surveys of randomly selected citizens or businesses representatives (Dresner et al., 2006; Lévêque et al., 2006; Steg et al., 2006; Gaunt et al., 2007; Kallbekken et al., 2011).

In this paper we find that the constraints to the effective implementation of carbon-energy taxation are primarily cognitive, as linked to how policy-makers traditionally conceive taxation (budgetary vs. incentive). We also show that the low acceptance of carbon-energy taxation is partly due to political decisions on the technical design of the instrument: in the case of France, the modalities concerning the tax base and the recycling mechanism agreed on by the government, while aiming at improving its political feasibility, paved the way for never-ending debates on equity and fairness and eventually worsened the tax's social acceptability. Finally, the paper reveals the influence of political factors such as administrative conflicts and a poor political marketing in France's carbon taxation's low acceptance and final policy failure.

After a non-exhaustive review of the literature on the factors favouring political opposition to Pigouvian taxes (Section 2), we provide a quick description of the French carbon tax project and decision-making process (Section 3). In Section 4 we detail our methodology, before presenting our results in Section 5. Finally, by way of conclusion, Section 6 provides policy prescriptions that are likely to facilitate social and political acceptance of carbon-energy taxation, so as to contribute to the building of effective environmental and fiscal governance.

2. OPPOSITION TO PIGOUVIAN TAXES: A LITERATURE REVIEW

The idea of environmental taxation was first developed by the British economist Arthur C. Pigou in *The Economics of Welfare* (1920). While a Ramsey tax aims primarily at raising State revenues, a Pigouvian tax is levied on market activities to internalise the cost of negative externalities such

1. In France for instance, if the two thirds of deputies and senators are in favour of the introduction of a carbon tax, half of them considers it as 'poorly efficient' or 'not at all efficient' in abating CO2 emissions (Boy, 2010).

as environmental pollution. A tax on carbon emissions is thus an environmental tax levied on the carbon content of fuels. When integrated in a wider fiscal package, the rationale for carbon-energy taxation is both environmental and economic: it is dubbed the double dividend. On the one hand, carbon-energy taxes depress the demand for energy, prompting substitution of carbon fuels by low-carbon or carbon-neutral fuels that may be taxed at lower rates or subsidized. On the other hand, and in addition to pollution abatement, carbon-energy taxes can generate a second dividend, whereby the recycling of tax revenues towards the reduction of payroll taxes on labour may have a positive impact on employment and economic growth (Hourcade, 1996).

Finland (1990), Sweden (1990), Norway (1991) and Denmark (1992) have been frontrunners in implementing taxes to curb CO2 emissions. In these countries, carbon-energy taxes were combined with policies aiming at reducing income taxes, and were therefore integrated in revenue-neutral tax shifting packages. The Scandinavian countries were followed by the Netherlands (1996), Slovenia (1997), Germany (1998), the United Kingdom (2000) and more recently Ireland (2010). While the UK introduced a specific climate change levy on fossil fuels, Germany increased more broadly its energy taxes as part of an environmental tax reform (ETR). Following the implementation of ETRs, carbon-energy taxes comprise 4.5% to 6.8% of total taxes in these countries, amounting to 1.8% to 2.6% of GDP (European Commission, 2011). Many different ex-post studies (Agnolucci, 2009; Andersen, 2004; Andersen et al., 2007; Andersen, 2010; Barker, 2007; Swedish Environmental Protection Agency, 2007) show reductions in greenhouse gas emissions consequently to the implementation of ETR, with the largest reductions occurring in countries with the highest tax rates and with global policy packages such as Sweden, Finland and Denmark. Besides, the assessment of carbon-energy taxation's macroeconomic implications through modelling indicates that ETR-countries did not experience marked impacts on economic growth (COMETR Project, 2007).

Yet, many failed carbon-energy taxes initiatives, such as the tax on energy in the United States in 1993, the "taxe générale sur les activités polluantes" (TGAP) in France in 2000, a tax on fossil fuels in Switzerland in 2000, the road pricing in Edinburgh in 2005, and finally the French carbon tax in 2010, demonstrate that the introduction of unilateral carbon-energy taxes faces substantial impediments linked to political and social acceptance.

There is a large body of literature examining the drivers for and constraints to acceptability of Pigouvian economic-incentive instruments such as carbon-energy taxation. Very few studies are based on a theoretical model (Stern et al., 1993; Rienstra et al., 1999; Schade and Schlag, 2003): indeed, most papers focusing on identifying which factors influence support for taxation stem from exploratory studies based on large-scale surveys and focus group interviews. Such empirical papers show consistent results and pave the way for a typology of determining factors of acceptability.

2.1. Cognitive and behavioural barriers

Barriers to the implementation of carbon-energy taxes are primarily cognitive and behavioural.

First of all – and irrespectively of the good that is taxed, the economics and psychology literature has shown that framing matters: tax aversion naturally stems from the "t-word". Comparative studies from Dresner et al. (2006) found indeed that "tax" is often a negatively connoted word and that the name of the policy had therefore implications for public perceptions and acceptance. Similarly, McCaffery and Baron (2003) tested the importance of labels in a survey on taxation and found that "calling something a 'tax' affects people's attitude toward it". Kallbekken et al. (2010) conducted an experiment that aimed at comparing environmental tax schemes with different revenue redistribution options. They reported no significant differences in popularity between the schemes due to a surprisingly large share of votes against taxation; what's more, almost half of the voters came down against tax schemes that would have been to their own material benefit and that would also have increased overall welfare.

Consequently to this general tax aversion, people do not differentiate a Pigouvian tax, whose primary objective is to reduce activities that have negative externalities, from a Ramsey tax, whose primary objective is to raise revenue. In relation to ETR, people do not seem to understand its potential double rationale, environmental and economic. Dresner et al. (2006) found that both the general public and business hold "a view of taxes solely as a means of raising revenue, rather than in terms of their incentive effects". They further argue that "many people could not understand that a tax on energy would have benefits for the environment even if the revenues went to labour tax reductions [as] people had no conception that the *relative* cost of different things would change as a consequence of a tax shift".

Also, increased understanding of the rationale for Pigouvian taxes does not translate into greater support, as people do not believe in their effectiveness. Several studies indeed argue that the perceived efficiency of measures is an important factor in shaping public acceptance of a policy instrument (Rienstra et al., 1999; Schade and Schlag, 2003; Gaunt et al., 2007). With regards to energy, people do not believe that the price elasticity of the taxed good is very high, which simply means that the change in relative cost of the taxed good would not influence the level of demand for such good. In its analysis of the rejection of the Edinburgh road user charge (RUC), Gaunt et al. found that seven Edinburghers out of ten were "unconvinced that the scheme would have achieved its dual objectives of reducing congestion and improving public transport".

Besides, and as regards behavioural factors, the most important determinant to the acceptability of – in particular – carbon-energy taxation appears to be car use. Indeed, both carbon and RUC receive more opposition among car owners, on behalf that charging is perceived as an infringement to the basic right of mobility and to freedom (Kallbekken and Aasen, 2010; Gaunt et al., 2007; Jakobsson et al., 2000).

Because the general perception is that energy consumption cannot be significantly reduced through taxation if there are no environmentally friendly alternatives, people tend to have a strong preference for other policy instruments such as command-and-control measures. The lack of acceptability of carbon-energy taxation stems from the fact that regulatory instruments are perceived as having visible benefits to the environment as well as no direct cost for stakeholders. Yet, in spite of their long term benefits, norms have immediate costs that will be passed on to the consumer through a general increase of production costs and therefore, prices (Combet et al., 2009).

2.2. Political and technical barriers

The prevalence of cognitive and behavioural barriers to the acceptability of Pigouvian taxes depends on other determining factors: political and technical ones. The above-mentioned barriers can either be strengthened or weakened according to how the policy process is managed by political actors and to how the policy tool is designed.

Regarding political determinants, many studies highlight the importance of trust in government in the level of acceptability of environmental taxation. Summarizing several country studies on impediments to ETR, Clinch et al. (2006) concluded that "lack of trust in government was considered a key impediment in all countries", especially when it came to the use of the revenues raised through taxation. Dresner et al. (2006) identified three levels of distrust: (i) distrust of the government and politicians in general; (ii) distrust of tax policies; and (iii) distrust of government intentions regarding ETR[2].

Also, the support of key politicians as figureheads around which public support can coalesce is critical to any successful Pigouvian tax (Schade and Schlag, 2003; PRoGR€SS[3], 2004). Other studies finally stress the importance of the communication process and the political marketing, which can be seen as a factor influencing the level of acceptance of environmental taxation (Dresner et al., 2006).

Technical features of future tax projects may influence the perceived impacts to self, the perceived effectiveness of the tool and therefore its acceptability. Here, fairness is a key issue; the perceived degree of fairness depends on the revenue recycling mechanism contemplated by the government.

Without revenue recycling, environmental taxation, and particularly carbon-energy taxation, is regressive: energy being a necessary commodity, its taxation falls proportionately more on the poor because low-income households spend a larger fraction of their available income on energy than high-income households do (Baranzini et al., 2000). Depending on the fiscal revenues' recycling, regressive effects may be offset. Basically, three options of revenue recycling can be contemplated. First, revenues from carbon-energy taxes can be used to decrease other taxes (labour taxes, income taxation, housing benefits or other social benefits) so that the government budgetary position is unchanged and the overall tax burden remains the same (i.e. revenue-neutral ETR). Such option should be accompanied by a complementary redistribution policy that targets the social groups that do not benefit directly from such tax cuts, such as pensioners and the unemployed (*ibid.*). The second option consists in providing a lump-sum redistribution of fiscal revenues to households; such option would correct for distributional impacts

2. They further report that perceptions expressed through surveys and focus groups included that: "ETR was just a way to raise more money; the name was chosen to make people think that it was for the environment, but really it was just a way to trick people; if taxes were raised in one area then you could be sure that the lowering in another area would not really match it".
3. More information on the PRoGR€SS project on http://www.progress-project.org/

because the lowest incomes will receive a higher amount, compared to their income, than highest-income households (*ibid.*). Third, the tax's fiscal revenues can be "earmarked" or "hypothecated", i.e. allocated in advance to finance specific environmental programmes such as environmental funds and projects, training or outreach activities, or research and development activities (Dresner et al., 2006). However, if not combined with compensation measures, option 3 may not offset the short-term regressive effects of carbon-energy taxation.

Not surprisingly, numerous studies find that support for carbon-energy taxes increases if revenues are earmarked (Dresner et al., 2006; Hsu et al., 2008; Schade and Schlag, 2003; Schuitema and Steg, 2008; Steg et al., 2006; Thalmann, 2004). Using a choice experiment design, Saelen and Kallbekken (2010) even estimate that with earmarking, the majority of the people would prefer to increase the tax rate by about 20%.

Finally, the tax rate and base may also influence the level of acceptance of the tax instrument, though less significantly than the revenue recycling mechanism. As expected, public opposition to taxes is reduced in accordance with a lower level of charge (Harrington et al., 2001; Cain et al., 2002; Jaensirisak et al., 2005). Also, according to the energy context, a tax base excluding specific types of energy can result in a higher acceptance.

3. THE RISE AND FALL OF THE FRENCH CARBON TAX PROJECT (2007-2010)

After the main candidates to the Presidential elections signed in January 2007 the Ecological Pact[4], which aimed at placing ecology at the centre of the political agenda, the newly elected president Nicolas Sarkozy implemented during the summer of 2007 a deliberative process, called the *Grenelle Environnement*, which objective was to define the key points of the future French environmental public policy. In October, during the final negotiations roundtables, Nicolas Sarkozy agreed on studying the implementation of a "carbon-energy contribution"[5]. A year later, while the price of the barrel of oil beat new records as it nearly reached US$ 140, Secretary of State for Ecology, Nathalie Kosciusko-Morizet, announced the postponement of the carbon tax reform. Ultimately, in July 2009, the French Government convened a commission of experts involving civil servants, economists, employers and unions' representatives, and chaired by former Prime Minister Michel Rocard, to design the practical modalities of the future economic-incentive instrument, i.e. the tax base and rate and the revenue recycling mechanism. In the meantime, President Sarkozy had announced the suppression of the "taxe professionnelle"[6], and the French Green Party, *Europe Ecologie*, had scored 15.82% to the June European elections. A consensus was reached and the experts returned their report in August: they recommended a rate of €32 per ton of CO_2, a mixed carbon-energy base, the exclusion from the tax of the firms included in the European Union Emissions Trading Scheme (EU-ETS), and no exoneration. Also, the tax revenue use was to be defined through further negotiations (Rocard, 2009).

Nicolas Sarkozy finally arbitrated in September. The tax rate was to be set at €17 per ton of CO_2, for both political and legal reasons, as it was argued that households should not pay more than the firms engaged in the European cap-and-trade market. The tax base included fossil fuel consumption for heating buildings and gasoline consumed by personal road transportation. Industrial firms under EU-ETS were excluded from the tax base; electricity was therefore exempted from the domestic tax. Reduced tax rates were also contemplated for energy-intensive and internationally-exposed sectors, such as agriculture and fisheries, which were to be charged at only 25% of the initial rate. Road and shipping transports were exempted. Concerning the use of the carbon tax's fiscal revenues, two recycling mechanisms

4. For more information on the content of the Ecological Pact, see http://www.fondation-nature-homme.org/extras/archives-pacte/presidentiel.php

5. This was not the first attempt of a French government to implement carbon-energy taxation: in 1999, the left-wing government led by Lionel Jospin planned to adopt the "Taxe générale sur les activités polluantes" (TGAP), whose purpose was to unify and simplify a set of existing fees (on industrial and domestic wastes, atmospheric pollution, oil and noise) and to implement new taxes (on detergents, gravel extraction and energy). The latter was due to affect industrial consumption; its revenues would have been recycled to the reduction in social contributions. However, the Constitutional Council, France's highest law body, decided to cancel the article related to the tax on behalf of an inadequacy of the tax base (it included electricity, which in France comes mostly from nuclear energy) to its purpose (the tax aimed at reducing greenhouse gas emissions). For more information on the TGAP failure, see Deroubaix and Lévêque (2006).

6. The « Taxe professionnelle » was levied each year on businesses by local authorities ("mairies"); its revenues helped finance the communes, departments and regions, as well as chambers of trade and industry. On February 5th 2009, Sarkozy announced its suppression and the possible compensation of its revenues through the implementation of tax on carbon.

were contemplated by the government. The part of the revenues stemming from firms, reaching €2 billion, would have been compensated with the suppression of the "taxe professionnelle". As for the fiscal revenues stemming from households, amounting €2.5 billion, the French Government agreed on a direct and ex-post financial compensation to households – either an income tax rebate or a 'green cheque' for non-taxpayers – to counter the socially regressive effects of the tax; such compensation was to be based on households' income, composition and residential situation.

Table 1. French carbon tax applicable to different types of fuels

	Carbon tax
Gasoline (Euro cents/L)	4,11
Diesel (Euro cents/L)	4,52
Professional diesel (Euro cents/L)	4,52
Home heating oil (Euro cents/L)	4,52
Natural gas (Euro cents/kWh)	0,31

Source: General directorate of Treasury, French Ministry of finances, 2009

The project, which was incorporated into the Financial Bill for 2010, was presented to the National Assembly and the Senate in autumn 2009. After the addition of other total or partial exemptions, particularly for households using district heating networks or domestic coal, for firms producing lucerne, as well as for disabled persons and overseas departments[7], the carbon tax project was finally adopted by Parliament on December 18th. However, shortly after its adoption, 120 green and left-wing MPs seized the Constitutional Council, claiming the compensation for households created a rupture of the principle of tax equality, which has had a constitutional value since 1973. On December 29th, the Constitutional Council ultimately invalidated the whole carbon tax project for two motives. First, means did not match the goals, as the multiple reduced rates, deferred taxation, partial and total exemptions resulted in the exclusion of 93% of CO_2 emissions from the tax base. Second, individuals suffered from unequal treatment before tax payment, as the project was placing a disproportionately heavy burden on ordinary households, while exonerating the biggest polluters[8]. In January 2010, the government began to work on a new carbon tax project so as to answer to the Constitutional Council's demands. However, in the midst of the gruelling defeat of the majority's party (UMP) to the March regional elections, the government finally announced the postponement of the project to the European level. According to an Ipsos poll[9], 69% of French citizens approved the withdrawal of the carbon tax project, corroborating the overall low acceptance of the policy instrument.

4. METHODOLOGY

The policy process was investigated with two types of conceptual tools. As a first step, we reviewed and analysed official documents, including financial laws, executive reports and minutes of legislative debates. In a second step, we proceeded with a questionnaire of the French political and administrative elite: indeed, between February 2011 and February 2012, we completed 60 semi-structured interviews with high-level civil servants from the Ministries for Ecology, Finances, Agriculture, Foreign Affairs and from the President's and Prime Minister's cabinets, with MPs of various political affiliations, and with experts that had been involved in the tax commission.

Interviewees were selected according to two main criteria: the degree of implication in policy-making and the level of decision (cabinet, direction or service – this criterion being applicable to civil servants only). Two groups of actors were therefore constituted: a first group ("insiders group") gathered civil servants, MPs and experts who were directly involved in the policy-making process, while a second group ("outsiders group") was composed by randomly selected civil servants and MPs, whose positions were sometimes completely irrelevant to climate change policy. Such a method aimed at meeting two objectives. On the one hand, the "insiders group" allowed us to rebuild the carbon tax policy process through the confrontation of discourses. On the other hand, the "outsiders group" enabled us to reveal the perceptions of the carbon tax instrument stemming from non-specialized actors, a vision which could be representative of the French political sphere.

The interviews allowed us to bring out a series of perceived barriers to the implementation of carbon-energy taxation, classified into cognitive, political, economic and technical. We elaborated a code system, which we used to scrutinize the

7. The latter would have run until June 30th 2010.

8. If the EU-ETS firms receive an incentive to cut CO_2 emissions even with grandfathered permits, the over-allocation of quotas that characterized the first national allocation plans allowed the firms to make windfall profits. Such a situation has all the more prompted the Constitutional Council to invalidate the project.

9. http://www.ipsos.fr/ipsos-public-affairs/actualites/francais-approuvent-suppression-taxe-carbone

collected texts[10]. The main interest of our approach lies in revealing patterns of perceptions by cross-coding perceived obstacles with: (i) types of actors; (ii) ministries; (iii) levels of decision, and (iv) political affiliation (for MPs only)[11].

5. RESULTS

The carbon tax's one-year policy process, enriched with upstream macroeconomic expertise and a multi-actor consultation which achieved a global consensus, resulted in a grossly compromised tax design which was weak in terms of expected environmental and economic outcomes, and which was considered as unfair, technocratic and unconstitutional. Beyond the constitutional censure, and in light of the framework previously detailed, why has the carbon tax project, as designed by the government, failed?

5.1. Cognitive barriers: perceptions of climate change and of the fiscal instrument

Impediments are primarily cognitive, and associated with policy-makers' perceptions of the policy issue (climate change) and of the effectiveness of its contemplated solution (fiscal instrument).

According to economics, climate is one of the rare – if not unique – global public goods, in a sense that averting the risk of global climate change by adopting an international agreement would indeed secure inter-generational as well as spatially widespread benefits[12]. However, because of these very characteristics, combined with non-rivalry and non-excludability, climate as a global public good provides strong disincentives to engage in ambitious mitigation policies at national level, i.e. free-riders and carbon leakage. Indeed, the benefits of curbing emissions being unpredictable, unevenly distributed and distant in the future, the production of a safer climate generates strong free-riding incentives, which arise when countries that benefit from global emissions abatement do not contribute toward its provision. Also, when a country unilaterally decides to cooperate to the provision of the climate public good by engaging into a strong domestic policy, adverse effects such as carbon leakage may occur and cancel the benefits of such policy[13]. The policy challenge raised by the global aspect of climate change led some French policy-makers and MPs to conceive the domestic carbon tax instrument solely as an additional constraint on the French economy. Many civil servants and politicians indeed feared that strong domestic measures would paradoxically lead to poorly effective climate policies, as industries, and therefore employment and emissions, would simply migrate to other countries. Many of them consequently approved the adjournment of the project to the European level: on this respect, a civil servant from the Ministry for Agriculture claimed that:

"Such measure had no sense in being implemented at national level as it would have had no major impact on global emissions at the end".

Besides, policy-makers' perception of the fiscal tool did not help in overcoming the initial defiance[14] of French citizens with regards to the purpose of the tax. Indeed, except for a small number of economists and civil servants in charge of economic studies, the French administration, as well as senators and deputies, did not fully grasp the incentive aspect of the carbon tax. Most of the directions of the Finance Ministry – with the notable exception of the Service for Public Policies within the Department for Treasury – as well as the Prime Minister's cabinet[15], traditionally contemplate a tax instrument as a way to raise State revenues, i.e. a Ramsey tax. So, when Nicolas Sarkozy announced the suppression of the "taxe professionnelle" early in February 2009, such administrations, facing a future €8 billion budgetary deficit, started to support the carbon tax project. Therefore, the conversion of the French administration and MPs to Pigouvian taxes still remains superficial, as in the case of the carbon tax, the initial rationale for its implementation was financial rather than environmental (as previously mentioned, the revenue

10. The interviews' content is coded with a qualitative data analysis software, MaxQDA.
11. As text coding is still in process, the quantitative results stemming from cross-coding are not available yet. Therefore, the argumentation developed in this paper is mainly illustrated with qualitative data (relevant quotes).
12. According to Inge Kaul, Isabelle Grunberg and Marc A. Stern in *Global public goods: international cooperation in the 21st Century* (1999), global public goods are "goods whose benefits reach across borders, generations and population groups".
13. Leakage arises when carbon abatement policies by cooperating countries shift comparative advantage in carbon-intensive goods towards non-cooperating countries; this situation results in an increase of the production of such goods in these latter countries, as well as an increase in their greenhouse gas emissions (Stavins, 1997).
14. France is frequently referred to as a "defiance society", as French show greater distrust in their fellow citizens, their government and the market than citizens from other countries do (Algan and Cahuc, 2007).
15. One interviewee referred to the Prime Minister as a "Budget Minister a".

recycling option – the lump-sum allowance – was only agreed on by September 2009). On this matter, an ex-civil servant of the Ministry for Ecology reports that:

"Bercy [i.e. the Finance Ministry, in reference to the place where the Ministry is located in Paris] is always reluctant to propositions of new tax concepts stemming from other administrations for essentially two reasons: first, they want to be the only administration in charge of the tax system, and second, in their conception, a tax aims primarily at powering the State general budget. Bercy wants to maintain a full control on the conception of tax instruments. It might seem anecdotic but, in the administrative daily routine, it creates unexpected blockings. Besides, it seems to me that sustainable development is a concept that has not yet been assimilated by the Finance Ministry: mocking ecology by saying it ruins the country is part of the mentality of this administration."

An ex-civil servant from the Finance Ministry confirms such conception, when arguing that:

"The goal of [this administration] is to limit public expenditure; thus, it always opposes to new policy measures that would threaten the budget balance. High-civil servants working in this administration are paid to apply this principle".

At a rate of €17 per ton of carbon dioxide, the carbon tax would have raised €4.5 billion per year. With the suppression of the "taxe professionnelle" (- €8 billion), the loss of revenues for the State still amounted to €6 billion, as the fiscal revenues stemming from households (€2.5 billion) were to be entirely compensated. In the end, some civil servants and many MPs were not convinced of the carbon tax's effectiveness and utility, as they perceived its rationale as being neither budgetary nor environmental.

5.2. Technical barriers: perceptions of the tax base and revenue recycling mechanism

Barriers were technical as well, as the tax modalities decided by the French government further decreased the acceptability of the instrument.

As mentioned above, the tax base only included 7% of CO_2 industrial emissions. The exclusion of EU-ETS firms from the tax base and the multiplication of exemptions and decreased or deferred rates, while improving the tax's political feasibility, clearly worsened its social acceptability, as in the end the tax's burden was mostly weighing on households. French citizens thus became suspicious that the carbon tax was in fact a present of the Government to big businesses on the back of households. On this issue, an expert further argues that the link between the introduction of the carbon tax and the suppression of the "taxe professionnelle" was detrimental to the acceptability of the former because in public opinion's perception, "households were paying the lowering of the tax burden on businesses through an increase of fuel prices".

As for the revenue recycling mechanism, Nicolas Sarkozy arbitrated in favour of a lump-sum allowance so as to increase the tax's social acceptability. Yet, because the identification of the most impacted stakeholders is difficult, energy vulnerability depending on multiple social, geographic and technical variables (i.e. income, household composition, place of residence, energy source, housing type, etc.), the compensation mechanism became highly technical. The measure was therefore perceived as technocratic and disconnected from the everyday life of most citizens. What's more, the lump-sum argument caused confusion and eventually increased the negative attitude towards carbon-energy taxation; households could not see the point of taxing to compensate in the end. A high-level civil servant from the Ministry of Ecology stresses that:

"Besides causing confusion, "the lump-sum completely ousted the initial carbon tax rationale and objectives from the public debate".

Citizens' lack of understanding of such a complex and confusing mechanism eventually increased their lack of trust that the government would not do what it promised with the revenues: as a result, the carbon tax was perceived as a way to provide the government with new financial resources in an age of budgetary constraints on behalf of environmental objectives.

5.3. Political barriers: administrative conflicts and miscommunications

Impediments to an improved acceptability were finally political.

Ministries design policy tools according to their own cognitive framework and its associated arguments: when such frameworks are in opposition, the acceptability of the policy is hindered. The design of the carbon tax remained controversial between the administrations in charge of the project, i.e. the Ministry for Ecology and the Finance Ministry. Conflicts became salient during the negotiations on the recycling mechanism, as three visions were in contradiction. First, the Ministry for Ecology pleaded for a lump-sum to households to increase the tax's acceptability; its position consisted in implementing the tax whatever its environmental and fiscal performance, considering that, once implemented, the design could be

improved. Second, the ETR-convinced directions of the Finance Ministry wanted to implement the tax with an optimal design in terms of expected environmental and macroeconomic outcomes; they therefore favoured the decrease of social contributions for the tax's fiscal revenues recycling mechanism and no financial compensation. And third, the rationale of the budgetary directions of the Finance Ministry being the limitation of public expenditure, they considered hardly conceivable to implement a tax with no revenue and providing disincentives to consumption, and thus strongly opposed to the lump-sum.

Such conflicts led to miscommunications, which took form of contradictory statements in the press. In an interview to the *Figaro* newspaper (7/7/2009)[16], the now former Minister for the Budget, Eric Woerth, radically opposed to households' offsetting tax breaks:

"Nothing has been arbitrated yet on the carbon tax. Such policy measure must aim at modifying our behaviours and at diverting us from the consumption of high-carbon goods. But does it mean we should grant offsets? That's another question. Jean-Louis Borloo [now former Minister for the Ecology] suggested we take back the idea of an ecologist association [i.e. the 'green cheque']. As far as I am concerned, I am not in favour of distributing new cheques, whether they are green or not: the State has been distributing cheques for more than thirty years now and we are the country that most redistributes, €500 billion per year!"

Three days earlier, the Minister for the Ecology, Jean-Louis Borloo, had declared its support to the implementation of a lump-sum allowance in the *Journal du Dimanche*[17].

Such a confusing political marketing was coupled to the lack of support of key politicians: many high-level civil servants indeed decried the lack of support from the very Minister for the Ecology, who was entangled in its own political agenda (with the cabinet reshuffle coming in early 2010, he was foreseen as the next potential Prime Minister). The political aspects characterizing the carbon tax decision-making process, i.e. administrative conflicts, miscommunication and lack of political support, undoubtedly contributed to the project's low acceptance and ultimate abandonment.

16. http://www.lefigaro.fr/economie/2009/07/06/04001-20090706ARTFIG00499-woerth-je-ne-suis-pas-favorable-a-de-nouveaux-cheques-verts-ou-pas-.php

17. http://www.lejdd.fr/Politique/Actualite/Borloo-L-Etat-rendra-tout-aux-Francais-16399/

6. DISCUSSION AND RESEARCH IMPLICATIONS

If a theoretical consensus exists on the environmental and economic rationales for implementing carbon-energy taxation, its political delivery – as France's example attested it – remains limited due to acceptability issues. In this paper we have developed an empirical-based framework of the impediments to carbon-energy taxation through the investigation of French policy-makers' perceptions of the carbon tax decision-making process. We found that, because of cognitive, technical and political barriers, policy-makers have rather fuelled the overall low acceptance of the project than they have smoothed it out.

Yet, our results show several limitations, which pave the way for further investigative research. A geographical limitation first, due to the peculiarity of France's energy mix: indeed, energy prices – particularly electricity – are up to 30% lower than the average price in the EU-27, mostly because of France's nuclear-based energy production. As a result, energy tax aversion in France is noticeably higher than in other countries. Therefore, our research would gain substantial strength if the results were compared to carbon-energy taxes initiatives in countries with oil-dependent energy contexts and thus higher energy prices, such as Denmark or Germany. Also, further comparative research on other failed attempts to introduce carbon-energy taxes should be contemplated to determine the true scope of the results set out in this paper.

The second limitation of our research is related to the policy tool which we discussed in this paper: indeed, additional studies on other types of economic-incentive instruments, such as emissions trading, should be undertaken to determine the extent to which France's policy failure is due to the tax instrument.

A final limitation concerns the sample of interviewed actors. Our research lacks crucial testimonies from high-level decision-makers, such as the Ministry for Ecology and the Ministry of Finances' cabinet directors, and the Secretary of State for Ecology. Also, quantitative results would be a valuable add to our research; yet, because the interviewees sample lacks representativeness (it has been particularly difficult to access to a sufficient number of civil servants from the Ministry of Finances), such a quantitative approach would lack legitimacy. Further surveys, based on a structured questionnaire, would therefore be needed to draw a quantitative socio-political analysis of the perceptions of France's political elite as regards to the use of taxes to steer climate policy objectives.

Table 2. Interviewees: insiders and outsiders

		Policy-making process		Experts Commission	
		Insider	Outsider	Insider	Outsider
Civil servants	Ecology	Jean-Christophe Boccon-Gibod Dominique Bureau Emeric Burin des Roziers Pierre-Franck Chevet Daniel Delalande Thierry Kalfon Jean-Christian Le Meur Françoise Maurel Benoît Mélonio Michèle Pappalardo	Loïc Charbonnier Raymond Cointe Béatrice Delemasure Patrick Gandil Jean-Bernard Kovarik Claude Martinand Benoît Piguet Arnaud Tomasi	Dominique Bureau Françoise Maurel	
	Finances	Xavier Bonnet Benjamin Frémaux Henri Lamotte Frédéric Lehmann Marc Wolf		Henri Lamotte	
	Agriculture	Elodie Galko Nathanaël Pingault Eric Giry	Christian Jacquot Philippe Mauguin		
	Foreign Affairs		Christian Masset Philippe Thiébaud		
	Prime Minister's cabinet	Thierry-Xavier Girardot Jean-François Monteils	Matthieu Chabanel		
	Presidency's cabinet	Matthieu Louvot Boris Ravignon	Benjamin Gallezot		
MPs	Green	Dominique Voynet			
	Left-wing	Jean Launay Philippe Tourtelier Martine Billard Jean-Jacques Mirassou			
	Right-wing	Gilles Carrez Fabienne Keller Jean-Pierre Giran Elisabeth Lamure		Gilles Carrez Fabienne Keller	
Experts		Gaël Calonnec Franck Jésus	Edward Arkwright Henri Catz Laurence Rossignol	Michel Rocard Jean-Pierre Bompard Gaby Bonnand Christian De Perthuis Matthieu Glachant Olivier Godard Jean-Charles Hourcade Mathilde Lemoine	
Constitutional Council members		Renaud Denoix-de-Saint-Marc Marc Guillaume			

Despite these limitations, our research allows us to bring out several policy prescriptions.

7. CONCLUSIONS AND POLICY IMPLICATIONS

Nowadays, carbon-energy taxation is once again absent from France's public and political debate. Yet, in view of the financial crisis, it is likely that the introduction of such a tool will be considered again. The present trend consisting in increasing the level of compulsory levies, motivated by the control of an increasing deficit, represents an opportunity to completely rethink taxation on a fairer and more ecological basis. So, how can policy-makers improve carbon-energy taxation's acceptability? In order to receive more support for environmental taxes, policy-makers should act both on the policy content and form.

First of all, carbon-energy taxation must be designed and implemented within a global fiscal reform encompassing three aspects. Such global reform must consist in an environmental fiscal reform, which would both shift the tax burden from labour to pollution and remove environmentally

harmful subsidies. Such reform must be sustainable, i.e. the tax rate's evolution should be transparent for the next five years, so as to provide stakeholders with the essential stability and predictability to carry out low-carbon investments. Concerning the tax base, limiting exemptions as much as possible is a key to perceived equity and therefore acceptability. Redistribution of fiscal revenues from high to low income households is also crucial in improving fairness: a comprehensive redistribution mechanism must be created so as to protect the most vulnerable stakeholders – i.e. those who are not in the tax system and would not benefit from a reduction in labour tax – from the regressive effects of carbon-energy taxation. Finally, such global reform must include accompanying policies: vigorous public investments in transports, renewable energy, and research and development should be pursued to develop low-carbon production and consumption modes, and tax rebates should be granted to facilitate their access.

Secondly, disseminating information is an essential factor in building acceptance. Multi-year consultation processes such as green tax commissions must therefore be implemented so as to achieve a better communication of scientific and technical knowledge. The mission of such green tax commissions should be threefold: it should design the project, sell it to public opinion and assess the tax's overall environmental, economic and social performance after its implementation. When concluding their analysis of the 2000 TGAP's failure, José-Frédéric Deroubaix and François Lévêque stressed that fair public debate procedures in the taxation field were urgently needed. Twelve years later, it seems that such a conclusion remains relevant.

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