

# Carbon taxation in France: a failure compared with experience elsewhere in Europe? The case of road freight transport

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## Abstract

**Introduction** The French carbon tax was introduced as part of the 2010 Draft Finance Act in the form of a Climate and Energy Tax (Contribution Climat-Energie - CCE), and was then withdrawn. Without going into the political reasons for its withdrawal, this paper will examine how effective it could have been from the environmental and economic standpoints, in particular as carbon taxation has been successfully introduced in other European countries.

**Methods** Taking the example of road freight transport, which is specifically targeted by the legislation, we shall refer to European examples, forecasts made by experts (on the basis of a variety of simulations using macroeconomic models, or the recommendations of the Rocard Commission), and the statements of French stakeholders (shippers, hauliers, federations,...).

**Conclusion** Was the abandonment of the carbon tax justified after its rejection by the majority of the stakeholders on the grounds that it would undermine their competitiveness and impose an excessive tax burden on the sector?

**Keywords** Freight road transport · Carbon taxation · European comparison · Climate change mitigation policy

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According to CDC Climate research, “the amount of carbon absorbed [by the atmosphere] has increased by almost 30 % compared to the pre-industrial era” ([7], p 4). This has led to an increase in average global temperature of approximately 1°C over a century (with a large number of extreme weather events, the pollution peaks that have occurred in cities all over the world, and numerous incidents of oil dumping which destroy marine fauna). These challenges are gradually leading global institutions, at European and national levels in particular, to make ambitious commitments to reducing greenhouse gas emissions.

During the Cancun conference in December 2010, international climate negotiations, based on the founding text that consists of the United Nations framework agreement on climate change which was signed in Rio in 1992,<sup>1</sup> validated the continuation and extension of the use of the market tools that were set up by the Kyoto Protocol, without deciding on a precise *modus operandi* after 2013.<sup>2</sup> The Kyoto Protocol, which was signed in 1997, for the first time committed 39 developed countries to reducing their greenhouse gas emissions between 2008 and 2012 by 5 % compared with the 1990 baseline. The European Commission introduced a community quota trading system as the principle means of achieving this goal.

It is, of course, true that the Cancun negotiations confirmed the recent realization by developing countries of the severity of climate risk and the Obama administration’s determination to find ways to combat emissions. But the fact that emissions continue to rise in many countries and

<sup>1</sup> which recognized the principles of precaution, of common but differentiated responsibility, and the right to economic development.

<sup>2</sup> This conference also ratified the Copenhagen Accord signed in 2009 by a sub-group of 28 heads of state outside the framework convention. In particular, this accord made a distinction between developed and developing countries.

the undemanding agreements that were signed at the Copenhagen and Cancun conferences show that much still remains to be done.

At a strictly European level, the community quota trading system is symbolic of the battle against CO<sub>2</sub> emissions. In practice, however, it is not without its disadvantages. It could be effective in the case of electricity production, which is a concentrated sector with a small number of large companies, but for other sectors, such as road freight transport where there are a large number of predominantly small actors, taxation is more effective. Furthermore, as Roger Guesnerie has pointed out, if firms prefer the quotas to taxation, it is because it is easier to negotiate some free quotas than an exemption from taxation (particularly if the tax is paid in advance). This economist has stated that it was largely through chance that a quota market was chosen in preference to taxation and given a list of reasons why a harmonized carbon tax should have been preferred to a quota system, one argument being that in the case of the latter markets are more sensitive to speculation [13]. The financial and economic crisis has confirmed Guesnerie's point of view, and make one inclined to prefer a carbon tax.

Several European countries, namely Denmark, Finland, Norway, Sweden and the United Kingdom<sup>3</sup> have already experimented with a carbon emissions tax. France was engaged on this path and was due to introduce the so-called Climate and Energy Tax (Contribution Climat-Energie - CCE), in its draft budget for 2010, but however drew back.

This paper will consider the basis and consequences of this French decision, which we will compare to the example set by the success of other European countries, such as Sweden. Initially, the CCE was liable to be revised after it was criticized by the Constitutional Council on the grounds that it contained too many exemptions, and it was finally withdrawn by the French government. The Prime Minister justified this on the grounds that “a decision must be taken jointly with the other countries of Europe or our competitiveness deficit will be increased further” (quoted in *Le Monde* on 24 March 2010).

In what follows we shall examine this justification and the withdrawal of the carbon tax in France. Should the tax have been saved or was it right to abandon the idea? The example of road freight transport, which crystallizes the debate about policies to combat carbon emissions, will provide us with some answers to these questions.

In Section 1 we will demonstrate that the French draft act, which came to nothing, was perhaps poorly constructed and less ambitious compared to legislation elsewhere in Europe.

Section 2 will focus on the reasons for the withdrawal of the carbon tax, namely that it would make firms less competitive. In order to examine this idea we will consider the

road haulage industry, which is one of the sectors of industry that generates the most pollution.

While it is very difficult to obtain separate data on the European road haulage industry, we do know that transport as a whole accounted for 23.3 % of CO<sub>2</sub> emissions in the EU in 2008 according to the European Environment Agency (June 2010), which puts it in second place after electricity production (32.1 %), which is covered by the quota market.

This percentage is even higher in France, where transport is responsible for 33.2 % of CO<sub>2</sub> emissions. Moreover, the road freight transport sector was specifically targeted by the CCE which subjected it to a double tax.

## 1 A proposal that came to nothing

In order to shed light on the form the carbon tax took for road freight transport in the 2010 draft budget and the problems which it raised, we will need to look at the draft legislation as a whole.

Although there is a community system of quotas, the Kyoto goals differ from one country to another. France, for example, is committed to achieving 1990 levels between 2008 and 2012 while Sweden hopes to achieve a four percentage point reduction.

Likewise, there are many points of difference between the draft legislation for the French carbon tax and the carbon taxes that exist in the rest of Europe. In our view, the French draft legislation is less attractive than the taxes that have been introduced in Sweden and Denmark, for example, which are part of a more comprehensive system of environmental taxation. This is no doubt part of the reason for the withdrawal of the French proposal.

Our purpose in comparing the French proposal for a carbon tax with European carbon taxes is to reveal the different ends pursued when developing carbon taxation.

The French preparatory report that dealt with the carbon tax (the report of the Conference of Experts and the Climate and Energy Tax Roundtable, chaired by Michel Rocard in 2009), stated that France should follow the example of Sweden, which it described using such terms as “reference”, “successful example” and “positive verdict” ([26], p.6,45,75).

In 1991, after several years of consideration, Sweden introduced a tax on carbon emissions. According to the Swedish Environmental Protection Agency, “the most obvious effect of the carbon tax has been an increased use of biomass boilers in the Swedish district heating system” ([17] p.7). The effect continued with “the development of the methods of biomass extraction” (idem, p. 11). Apart from the incentive to use alternative energies, the Swedish Ministry has stated that in 1995 CO<sub>2</sub> emissions were 15 % lower than they would have been with no tax reform and estimated the reduction for 2000 at 20–25 %. It is easy to see why

<sup>3</sup> The Climate Change Levy is more of an energy tax than a carbon tax.

Sweden was used as a reference during the years of consideration which preceded the French CCE. Denmark, Finland, the United Kingdom and Germany, which have pursued the same policy, also each provide grounds for introducing a carbon emissions tax.

Furthermore, the Rocard report, which was commissioned by the French government to prepare the CCE explained that “in the absence of new measures, primary energy consumption in France will increase by approximately 0.8 % per year in the period 2006–2020, while it would fall by 0.3 % per year if the first measures advocated by the Grenelle Environment Summit were to be implemented” [26].

But the proposals made by these experts, who attempted to measure the possible economic and social impacts of the new taxation, its environmental benefits (1.2) and optimum level (1.1), were considerably diluted in the 2010 draft budget. In addition, that part of the law that dealt with the road haulage sector seems curiously constructed (1.3).

### 1.1 The conditions that apply to the level of the carbon tax

The carbon tax, which is defined in the Rocard Report as a price signal sent to firms and households, is a Pigouvian tax that maximizes collective well-being by ensuring that pollution is paid for at the marginal cost of the damage it inflicts on society.

To pave the way for the carbon tax France, the Quinet Commission [25] attempted to determine the value of carbon and the Rocard Commission proposed that the solutions that were the most advantageous for France should be adopted. The work of these commissions was based on the use of macroeconomic simulation models and European examples such as Denmark and Sweden which were given reference status.

When asked to specify the price of a tonne of carbon, the Quinet Commission proposed what they referred to as an administrative value, on the grounds that the recommended monetary value was not derived directly from observations of market prices but resulted from a government decision based on a concerted evaluation of French and European commitment to combating climate change. The administrative value of carbon was defined on the basis of a long-term cost-effectiveness analysis which took account of the discounting rate [25]. More precisely, it would be fixed at €100 per tonne in 2030 and as a result of an annual rate of increase of 4 % would increase to €200 in 2050. This gives a starting value of €45 in 2010. “However, on the grounds of acceptability and continuity with previous decisions, the Quinet Commission finally proposed the lower value of €32. Based on the latter value, the CCE applied to the previously-adopted tax base would have generated tax revenues of €8.3 billion in 2007, 4.3 billion of which would be obtained from households (i.e. 0.7 % of their average

consumption budget) and approximately €3.75 billion from firms (i.e. 1 % of their added value in the case of industry and 1.7 % in the case of transport)” ([26], p. 25).

In spite of the experts’ forecasts, the French government set the tax at €17. However, according to the Rocard Commission: “starting at a level of €32 per tonne of CO<sub>2</sub> on the grounds of acceptability would probably not cast doubt on the credibility of this commitment. But this would not be the case if the starting level was too far below this, as the credibility of raising its level to an appropriate level in the medium term would be doubtful” ([26], p. 63).

This has been confirmed by CIRED (International Environment and Development Research Group) which built models to simulate the impact of the tax. Their forecasts have shown that in the case of a tax of about €20, whatever system was selected, the situation with regard to jobs and total consumption would deteriorate, increasing the net deficit in the public accounts, which would remove any margin of manoeuvre for financing accompanying measures and even make it necessary to reduce social transfers [5].

In Sweden, the tax was initially fixed at €27 per tonne, and then gradually increased to €101 in 2007. Sweden was therefore in line with the recommendations of the French experts. France could therefore be criticized for failing to follow this example, but it should not be forgotten that Sweden is an exceptional case in this regard. Most of the European countries that had already introduced a carbon tax had also favoured acceptability and set the tax at relatively low levels compared to that recommended by the Quinet and Rocard Commissions. Thus, as shown in Table 1, the starting rate of the Finnish tax was €1.2 in 1990, rising to €20 today. The average level of the tax was €12.5 in Denmark. The only countries that comply with the ideal level are Norway (with a level of approximately €50) and Sweden (currently €108). Sweden is the only European country that increases its carbon tax every year, the idea being gradually to replace taxes that pertain to work with environmental taxes. As can be seen in the Table below, every country has chosen a specific way of allocating the tax, the most interesting probably being that adopted by Denmark in which the level of the tax is varied according to the firm’s level of emissions.

Although there is a large difference between the French level of €17 for the carbon tax and the Swedish level of €108, France could very easily have introduced a low level tax and then raised it later.

### 1.2 The compensation principle

In addition to the level of the tax, the nature of the compensation principle that is applied is of fundamental importance in order to avoid reducing purchasing power or the competitiveness of economic actors.

**Table 1** The level and terms of the carbon tax in Europe. Source (Harnay, Reme, 2012)

Level of the tax	Initial level	Current level
Sweden	€27 in 1991	€108 in 2010
Denmark	Variable tax that depends on the firm's level of emissions, about €12.50 in 2009	
Finland	€1.20 in 1990 applied solely to transport and heating	€20 in 2011
Germany	No specific price allocated to CO <sub>2</sub> , introduction of an ecotax of 12.28 Euro cents per litre of fuel and 2 Euro cents per kWh in 1999	
United Kingdom	The Climate Change Levy is applied to industry and commerce, but not households and only and not to coal. In 2011 the Levy stood at 0.485p/kWh for electricity, 0.167p/kWh for gas and 0.07p/kWh for petrol.	
Norway	In 1991, a maximum of approximately \$40 per tonne	Varies between \$15 and \$61 according to the carbon content of the firm's emissions and the sector. Manufacturing is largely exempted but Norway considers that the tax covers 64 % of emissions.
Proposal for France	Addition of a strictly applied carbon tax of €17 per tonne of CO <sub>2</sub> in 2010	€100 in 2030

There were several possibilities with regard to the compensation process. For example, the tax could be refunded by green cheques, tax credits, direct partial refunding, or the reduction of certain social security contributions, etc.

The French government settled on refunding by green cheques. This is an exceptional measure at European level, and was adopted in spite of the doubts expressed by experts, as can be seen in Table 2.

The experts at CIRED have shown that refunds by cheque would prevent the development of a “virtuous circle” which could initiate a recovery in the public finances. This is, in fact, what is usually referred to as a double dividend: apart from environmental benefits, the CCE could have positive economic impacts.

Their macroeconomic models simulated the impact of a carbon tax on a variety of economic indicators (GDP, debt/GDP, household consumption, unemployment, etc.). According to them, in the long term, the double dividend would hardly seem achievable:

The central issue is the tension between the short and long terms: the idea of a carbon tax was put forward in order to assist a revolution in our energy systems over two to three decades, but it is its immediate impacts which are potentially negative for consumers and industry. (...) Our simulation of the short-term effect of a €17 of €32 recycled tax under this extreme hypothesis reveals, if all revenues are recycled by means of green cheques, GDP losses of between 0.13 % and 0.25 %, accompanied by fairly similar job losses. (...) Taxing firms will increase their production costs,

which will propagate from one sector to another, ultimately to be paid by consumers. But the amount they will pay is greater than might be thought simply because the propagation costs from one sector to another lead to a general increase in prices and the cheque received by consumers will not compensate for this. In addition, the loss of competitiveness will lead to an increase in unemployment and a reduction in average incomes ([5], p12).

To maximise the double dividend, CCE must be considered as the first stage in the implementation of a genuine carbon taxation system. This would require a reform of the taxation system which reduced employers' contributions in order to increase environmental taxation. This would stimulate recruitment: “beyond a certain level, a carbon tax would automatically lead to a large-scale restructuring of mandatory levies. (...) It is by seeing the carbon tax as going hand in hand with a transformation of the entire system of mandatory levies that we will enable citizens and firms to face new challenges” ([5], p. 10).

The Rocard Commission envisaged other possibilities, pointing out that the benefits of the tax would be increased if a reduction in social security contributions was preferred to refunding by cheque. However it also stressed that this would require a modification of the French taxation system.

This the French CCE did not do, but other European countries such as Sweden, Denmark and Finland have undertaken a stage by stage reform of their taxation system. As early as 1924, Sweden, for example, had an energy tax on petrol which it extended to diesel oil in 1937. In 1957 an

**Table 2** The compensation principle and energy taxation in European countries. Source (Hamay, Reme, 2012)

Country	Compensation principle	Taxation system
Sweden	Reduction in the original energy tax, income tax for households and some social contributions on work.	The carbon tax is part of a system that includes 3 other taxes (sulphur, nitrogen, energy).
Denmark	Income tax reduction and taxes on work	A tax on petrol, coal, electricity and sulphur
Finland	Reduction in income tax and employers' contributions for work	An energy tax and a tax on oil products
Germany	Reduction in employees' and employers' contributions particularly for pensions	Tax on oil products, tax on heavy, and light fuel oil, natural oils, and electricity (but not coal)
United Kingdom	Reduction in employers' contributions for work	Very high tax on oil products and a tax on electricity
Proposal for France	Tax credits or green cheques	Tax on oil products for some sectors such as road freight transport, and on natural gas, electricity and coal (at a lower level).

energy tax on fossil fuels that was limited to mineral oils and coal was added, and the system was then extended again to include LPG in 1964 and natural gas in 1985. The levels of these energy taxes have been constantly increased since to reach a maximum level in 1990 (it was increased from 25 SEK/m<sup>3</sup> to 960 SEK/m<sup>3</sup> in 1990).

The second stage was a major reform in the early 1990s. Sweden started to overhaul its tax system, introducing three additional taxes (on carbon, sulphur and nitrogen emissions) and lowering the energy tax described above, income tax for households and some social contributions for work ([27], p. 50). “The introduction of the CO<sub>2</sub> tax in 1991 was primarily aimed at cutting high income taxes. The reduction in income taxes amounted to a loss equivalent to approximately 4.6 % of the GDP in that year,” ([27], p. 51).

Finally, in 2001 the process entered a new phase which involved an additional increase in the carbon tax and a further reduction in income tax. According to the Swedish Ministry of the Environment, “the CO<sub>2</sub> tax constitutes the most significant part of the excise duties levied on energy. In 2005, the CO<sub>2</sub> tax constituted more than three-quarters of the total tax on fossil fuel consumption” ([28] p. 191,192). The idea was “to secure a reliable supply of energy and electricity while meeting national and international commitments to reduce emissions. The electricity generation mix in Sweden differs from the situation in neighbouring countries as Sweden relies heavily on hydropower and nuclear power” (Idem).

According to the Swedish Ministry of the Environment, the success of the tax is very much linked to this reform of the taxation system.

In most European countries, the carbon tax has been integrated within a complete overhaul of the taxation system, although there are differences between each country. The selected modes of compensation, and the exonerations that are granted reveal different and complex philosophies. Some countries, such as Sweden, prefer to grant exemptions to industry, others like the United Kingdom prefer to favour

private individuals), or the classify firms as “major energy consumers to be exempted” (in this case Germany uses statistical categories and the United Kingdom considers whether the company comes under the Climate Change Agreement). Be this as it may, each country seems to have implemented the most favourable conditions for obtaining a double dividend while at the same time protecting the competitiveness of its national industries. Sweden and Finland favoured compensation based on a reduction of taxation on incomes or companies. Denmark and the United Kingdom have been even more encouraging by reducing employers' social security contributions, and Germany and the Netherlands have combined the two approaches.

The great majority of European countries that have introduced a carbon tax (or a similar levy) have decided to introduce compensation through a reduction in taxation on work, thus initiating a process of genuine fiscal reform. The proposed French legislation was quite different. It was a minimalist tax with a low level and compensation that was unlikely to have impacts. According to an OECD study performed by Stéphanie Jamet, the carbon tax is part of an overhauled taxation system in Sweden while “in France, the carbon tax was presented as an additional tax, which doubtless played a part to its failure” ([16], p. 7). In fact, from the macroeconomic and environmental standpoints the tax would seem to have little to recommend it.

### 1.3 The carbon tax applied to the French road haulage industry: an inept proposal

According to the Rocard Report, carbon taxation in the transport sector could have been extremely beneficial “as demonstrated by the TIPP (Domestic Tax on Oil Products) which has meant that fuel consumption in France is three times lower than in the United States” ([26], p.6). Although the comparison did not take account of geographical and economic differences between the two countries, the experts in the Rocard Commission stated that it “highlights the

effectiveness of fiscal incentives”. The road hauliers’ associations did not, however, see it quite in this way. It is true that the fiscal compensation mechanisms for the tax which were proposed to the road haulage industry were at the very least open to criticism on the grounds of their complexity and the large number of modifications they underwent.

### 1.3.1 The first draft of 2 September 2009

In the first draft of the 2010 Budget Framework Act, which was presented in September 2009, details of the implementation of the carbon tax were given in Article 5 which concerned the combined implementation of the CCE<sup>4</sup> and the General Tax on Polluting Activities (TGAP).

The CCE was to be levied on commercial vehicles of over 7.5 tonnes travelling in France and would amount to an increase in the price of diesel of 4.52 centimes per litre for road haulage firms, which would then be passed on (as far as possible) to shippers. The proposed refunding procedure was a reduction in the TIPP from €39.19 to € 34.67.

The bill also explained that commercial vehicles of over 7.5 tonnes would be subject to a second levy, the General Tax on Polluting Activities (TGAP), which would be equal to the product of the volume of fuel consumed and the level of the carbon tax, i.e. €0.452. This means that the General Tax on Polluting Activities, which has existed since 1999 for a limited number of activities such as waste storage and disposal, aircraft take-offs from airfields that are open to the public etc., would be extended to the road haulage industry.

The mechanism described in the Draft Act was therefore fairly complex and involved interdependency between the three taxes (the TGAP, TIPP and CCE). It would not be possible for both the TGAP and the CCE to be refunded. The system could not therefore be completely neutral from the fiscal standpoint. In response to this most unusual treatment, the federations of shippers and hauliers (TLF, FNTR, UNOSTRA, GFI, UIC, FIM, FCD, CGI, AUTF) formed an “anti-TGAP action group” which highlighted the contradictions within this double tax which was poorly compensated for by the reduction of a third. The unanimity among the members of this action group (carriers, the mass retail sector, shippers from the SME sector, etc.) should be highlighted.

Apart from the fact that the road haulage industry was subjected to a double tax while the rest of the economy was only subjected to a single one, the action group in particular questioned the process of partial refunding on the grounds that “the lowering of the lowest rate of the TIPP which is used for the partial refunding of the carbon tax... does not

comply with community law (Energy Directive of 27 October 2003), which raises some doubts about whether the carbon tax would be refunded for 2010 and even greater ones for later years” (communiqué from the anti-TGAP action group, October 2009). It is true that the European Union had not ratified the possibility of a continual reduction in the TIPP.

### 1.3.2 An amendment to Article 5, on 27<sup>th</sup> October 2009

After several months of negotiations after the first announcement about Article 5, another measure was passed by Parliament which proposed to abolish the double tax procedure. The amendment overturned the introduction of a TGAP for transport and proposed a single carbon tax with partial refunding at a level of 36 %. The French Finance Ministry described this as “the gradual application of the carbon tax which in 2010 will lead to an increase in the refunding of the current TIPP to a level of 36 % of the carbon tax paid for in the diesel oil that is consumed. The rate of refunding will therefore change from € 39.19 to € 37.59 per hectolitre.” The refunding procedure would therefore remain the same, involving a reduction in the TIPP.

This new measure was still rejected by the federations of road hauliers,<sup>5</sup> as the level of refunding was far lower than the 75 % granted to agriculture and fishing and the exemption granted to heavy industry as a result of the quota system.<sup>6</sup>

### 1.3.3 A comprehensive compensatory budget in December 2009

Last, in December 2009 doubtless in order to prevent a road haulier’s strike during the Christmas and New Year period and compensate for the future salary concessions demanded by the drivers’ unions, the Secretary of State for Transport proposed a partial exemption from the tax, amounting to about €100 million out of a total tax take estimated at €400 million by the road haulage industry employers’ associations.

The terms under which the carbon tax was implemented and refunded were thus changing continually during 2009 under the influence of various bodies representing drivers, haulage companies and shippers. In January 2010, the road haulage industry was therefore expected to pay the CCE, of which 36 % was to be refunded, and receive an additional

<sup>4</sup> The Article is available at: <http://www.performance-publique.gouv.fr/fileadmin/medias/documents/ressources/PLF2010/PLF-2010.pdf>

<sup>5</sup> Only the OTRE, the organization of European road hauliers, wished to maintain the double tax, considering in particular that the TGAP provided a means of taxing foreign firms, whereas the other federations took the view that it encouraged delocalization.

<sup>6</sup> The federations in question still criticized the fact that : “this amendment ignores vehicles of less than 7.5 tonnes (...): as these have no right to a refund of the TIPP, they do not benefit from the tax reduction” (idem).

fixed sum of €100 million. The climate was more one of negotiations and adjustment as a result of a power struggle than the imposition of a tax that is refunded via reductions in national insurance contributions in order to obtain an economic dividend, as recommended in the Rocard Report.

Table 3 below summarizes articles 5, 6 and 7 of the 2010 draft budget and their amendments.

There is no doubt that the French government was very inept when drafting the proposals for the 2010 Finance Act.

One can nevertheless ask whether adjustments could have enabled it to provide a useful price signal for modifying behaviours and reducing emissions [14].

## 2 The example of the road haulage sector: could the carbon tax have reduced CO<sub>2</sub> emissions?

The case of the road haulage industry is particularly informative with regard to the issues surrounding the introduction of carbon taxation. As it is perceived as one of the sectors which pollute the most, and stigmatized as such, it was explicitly targeted by the French CCE

The experts who were given the task of preparing the draft legislation recommended giving the road haulage industry preferential treatment.

For its simulation concerning the transport sector, CIRED decided to start with a tax of €100 per tonne. The simulation showed that this would increase the sector's costs. The economists who carried out this work concluded that road haulage needed specific measures:

The industries which are carbon intensive and vulnerable are above all liable to suffer as a result of the reform due to a reduction in their margins. In the case of a unilateral measure, in a world where capital circulates freely, the scale of the reduction in their profits may threaten their immediate survival, or at least their modernization, including their ability to reinvest in low carbon technologies. Rather than exempting them from the tax, the solution is to grant them an allowance based on their carbon use and their capital intensity ([6] p. 4).

In Sweden, transport is also perceived as being dependent on the use of fossil fuel. In the preparation for the 2008 budget, which increased the taxation on carbon and diesel oil, it is, for example, described as “responsible for 30 % of emissions”.

However, Sweden does not seem to consider the road haulage industry to be a particularly vulnerable sector.

The experience of various European countries is now sufficient to allow us to assess the interest of the carbon tax in the case of the road haulage industry.

In France, the federations of road hauliers were strongly opposed to the tax and formed a defence committee. Were

they right? We can ask whether the French road haulage industry constitutes a specific case. Is it, for example, already sufficiently taxed to reduce CO<sub>2</sub> emissions? (2.1) Would the competitiveness of the French road haulage industry be particularly affected? (2.2) Was the rejection of the CEE in France justified on the grounds that its high implementation cost would be responsible for a degree of inefficiency (2.3)?

### 2.1 Road haulage: a sector that has made considerable efforts with regard to the environment

The table 4 below shows that while CO<sub>2</sub> emissions from road transport rose by 14.7 % between 1990 and 2000 they have decreased since 2005. This is doubtless due to the considerable efforts made by the road haulage sector since 2005.

The introduction of technical standards for HGVs has been an extremely effective measure. The successive introduction from 1988 of the Euro standards 0, I, II, III and IV culminating in 2009 with Euro Standard V – which limits hydrocarbon emissions to 0.13 g/kWh, carbon monoxide emissions to 1.5 g/tonne-kilometre, nitrogen oxide emissions to 0.4 g/tonne kilometre – has reduced sulphur emissions by 99 % (source FNTR – National Federation of Road Hauliers [12]), carbon monoxide emissions by 64 % – idem), nitrogen oxide emissions by 49 % and particulate emissions by 61 % since 1990 [8]. According to ADEME (the French Environment and Energy Management Agency), the French fleet has made enormous progress as regards pollution: an HGV with a total authorized loaded weight of 40 tonnes consumed 34 litres per 100 km in 2010, compared with 50 litres in 1970.

Furthermore the increase in the number of vehicle kilometres (apart from in 2009 because of the economic crisis) shows that the amount of activity has not diminished since the 1990s, as can be seen from Table 5. There seems therefore to have been a real reduction in pollution.

The Domestic Tax on Oil Products (TIPP) targets the use of oil as a motor fuel and is collected according to the amounts used. Its level depends on the nature of the oil product.<sup>7</sup> After refunding,<sup>8</sup> the level of the TIPP is €39.19 per hectolitre. According to MEEDDAT [18, 19], “it accounts for 11.1 % of the total cost of transport” and sets out to achieve a reduction in the use of oil products and more economical fuel use. Therefore, the TIPP is already an indirect tax on CO<sub>2</sub> emissions because, as stated by ADEME, “burning a litre of diesel oil leads to the emission of 2.662 kg of CO<sub>2</sub>”.

<sup>7</sup> For example, it is higher on premium grade petrol (€0.6069 per litre) than diesel oil (€0.4284 per litre).

<sup>8</sup> This tax is partially refunded by the customs office to which the firm makes a declaration (approximately €2.5 to €3.5 per hectolitre).

**Table 3** The French draft legislation on the carbon tax and its amendment. Source (Harnay, Reme, 2012)

Sector	Application	Compensation
Road haulage industry	Carbon tax and TGAP	Reduction in the TIPP from €39.19 to €34.67 per hectolitre, no compensation in the case of the TGAP
• First draft	Carbon tax	The reduction in the TIPP made it possible to refund 35 % of the carbon tax
• Amendment	Carbon tax	A payment of €100 million
• Second amendment		
Agriculture	Gradual introduction of a carbon tax over a five year period	A direct credit of 75 %
Manufacturing	Exemption of those subjected to quotas, application in full for those not.	
Households	Carbon Tax	Green cheques or tax credits (the sums of €46 for a single person, €92€ for a jointly taxed couple, were increased to €61 and €122 respectively for tax payers living in a municipality that lies outside the zone covered by urban public transport).

Another tax, the mileage tax on commercial vehicles weighing over 3.5 tonnes (which has recently been renamed the “green tax”), was proposed in 2009 for implementation in 2011. Its level varies between 2.5 and 20 centimes per kilometre, depending on the vehicle’s EURO class. It would apply to a network of 10,000 km of non conceded roads, and a few routes on the French road network. Like the CCE and the TIPP, this tax aims to encourage modal transfers.<sup>9</sup> It was trialled in Alsace in 2010 and met with strong opposition from road hauliers who perceived it as a way for the government to recover revenue it had lost as a result of the privatization of motorways. In particular, the tax was criticized as unfair to some regions (such as Brittany where the network is almost free) which would be highly taxed, as well as to French hauliers as foreign trucks use motorways more. In this case too, the French government retreated and on 19 April 2010, the Minister for Transport delayed the implementation of this mileage tax for HGVs until the second half of 2012 on the grounds of its technical complexity. This was in spite of the fact that the tax was expected to bring about a reduction in CO<sub>2</sub> emissions of between 350 and 500 thousand tonnes.

According to the Comité National Routier (CNR), taxes that are linked to energy consumption (i.e. currently only the TIPP) account for a large proportion of road haulage firms’ costs. In the case of a 40 tonne articulated vehicle combination carrying various types of freight, the CNR cost

reference for long distance transport breaks down as follows [11]:

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Diesel oil exclusive of tax	11.3 %
TIPP	11.1 %
Axle tax	0.4 %
Tolls	5.7
Maintenance	8.4 %
Equipment	13.2 %
Wages and social charges	29.4 %
Travel expenses	6.4 %
Fixed charges	14.1 %

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It is therefore the TIPP which leads hauliers to argue that they already pay a pollution tax. But although there is only one oil tax, it represents a significant percentage of the costs borne by the road haulage industry.<sup>10</sup>

In addition, according to ADEME, the French TIPP is “equivalent to a tax of €265 per tonne of CO<sub>2</sub> on premium

<sup>9</sup> The revenue from this green tax has been evaluated by the Ministry of Infrastructure at €860 million. This sum should be used to finance infrastructure the nature of which is not specified, except that it should be compatible with the policy of modal transfer away from the road.

<sup>10</sup> We should also mention other measures which combat CO<sub>2</sub> emissions. The “CO<sub>2</sub> charter” brought in by the MEEDDAT in 2007 in order to meet the country’s undertakings under the Kyoto protocol, i.e. not to emit more greenhouse gases in 2012 than in 1990. It had been signed by 10 road haulage companies in 2008 (including Chronopost, Geodis and Dentressangle), but has been signed by many more companies since the abandonment of the carbon tax, as though road haulage firms felt that they ought to choose their manner of participating in carbon emissions reductions themselves.

The energy savings certificates that were introduced in 2005 make it compulsory to make energy savings during a given period or face a fine (energy savings could be made by using special tyres, training drivers in economically driving techniques, using environmentally-friendly materials in road haulage company premises, etc.). They attracted relatively little participation, and according to the Ministry, the road haulage industry accounted for only 0.3 % of certificate holders, most of the firms involved belonging to the construction sector.

grade unleaded petrol and €158 per tonne of CO<sub>2</sub> on diesel” ([2], p. 2).

More generally, ADEME estimates that “overall, in France, the level of carbon taxation is higher than the European average: the implicit tax on one tonne of carbon in France stands at €64, while the European average is €47” ([2], p. 1). This argument gives the impression that there is no point in making the users of petroleum fuels pay an additional tax.<sup>11</sup>

However, a closer examination of ADEME’s work shows that this would be an over-hasty conclusion. The agency also states that “as a percentage of GDP, the level of French energy taxation is one of the lowest in Europe. According to Eurostat, in 2006, French excise duties levied on energy stood at 1.35 % of GDP and 2.7 % of public expenditure, compared with 1.5 % and 3.3 % respectively in the 25-member European Union” ([2], p. 4) as shown in Graph 1:

The introduction of a Climate and Energy Tax would allow France to reach the average in the rest of Europe average (idem),<sup>12</sup> in particular countries such as the United Kingdom, Germany, Denmark and Sweden who introduced carbon taxes in the 1990s and 2000s.

Of course, the road haulage industry is already taxed in France, in particular via the TIPP, but the amount has to be put in relation to national GDP.

The taxation that is applied to the road haulage industry also has to be put in comparison to many other European countries such as Sweden, where we have seen above the number of energy taxes that are levied on firms and households.

If we take the case of Sweden which has an equivalent of the French TIPP, the petrol tax was the first energy tax to be introduced, in the 1920s, at a rate of 0.05 SEK per litre. This is now included in the 1991 system by means of the four taxes we have described above. According to Speck,

<sup>11</sup> The conclusions are not unequivocal even for experts. For example, the Rocard report states the following: “Some take the view that part of existing taxation should be considered already to take account of the cost of CO<sub>2</sub> emissions. The CCE should therefore not be added to existing taxation, existing taxation should simply be redeployed with reference to the different types of external effects for different types of transport, trips and (...) vehicles. Others consider that when these externalities are analyzed, it is apparent that, overall, the amount allowed for them is approximately €9 billion too little— particularly in the case of urban transport. Furthermore, the transport sector must participate in the large emissions reductions that will have to be made between now and 2020 and 2050” ([25] p. 26).

<sup>12</sup> ADEME considers that this is largely explained by the fact that “France has a relatively high rate of taxation for motor fuel, while fossil products that are used as heating fuel are taxed at a low rate. For example, the CO<sub>2</sub> that is produced by burning petrol is taxed at a high rate (€265 per tonne while the average for the 27-member EU is €214). However, a low rate of taxation is applied to heavy fuel oil (€6 per tonne, compared to an average figure of €15) and the rate of tax in France for domestic fuel oil is half the European average domestic fuel oil” ([2], p. 1).

“Companies are not given a rebate on the CO<sub>2</sub> tax when the fuel is used for transportation purposes” ([28] p. 197). It follows that unleaded premium petrol, premium petrol and diesel oil are taxed at the rates set out in Table 6 drawn up by Speck (idem p. 197) which summarizes a large body of data provided by the IAE:

The road haulage industry does not, therefore, receive special treatment in Sweden with regard to the carbon tax even though it is responsible for 24 % of total energy consumption (IAE, 2008). In Sweden “reducing the emissions by 15 % from 2005 to 2025 is seen as possible, even after increases in freight transport volumes” (idem). However, other sectors benefit from a lower rate (21 % of that applied to consumers), and heavy industry which is subject to the quota pays an even lower rate (15 %), as can be seen in Table 7:

The road haulage industry is not more protected with respect to carbon taxation in Sweden than in France. It is manufacturing which benefits from rebates. In Finland, the carbon tax is only levied on transport and heating, so the question of exemptions for transport does not arise. Are there any other reasons for protecting the road transport industry from a carbon tax in France?

## 2.2 Rejection on the grounds that the tax would harm the competitiveness of French firms compared to European ones?

While the political context in terms of regional elections and the decision of the Constitutional Council was unfavourable to the introduction of the CCE in France, the most frequently quoted reason for rejecting it was that it would harm the competitiveness of French firms. This argument was also directly stated in all European countries. The Danish author Mikael Skou Andersen and the British author Paul Ekins have produced an analysis of the different carbon emissions taxes in the European community, attempting to evaluate their impact on the productivity and competitiveness of firms in a book entitled *Carbon Energy Taxation: Lessons from Europe*.

According to Andersen and Ekins, it is obvious that the introduction of a new tax may impair the competitiveness of the affected companies, although it is necessary to take account of the economic and regulatory context in which they operate: “There is no doubt that carbon energy taxes can have an impact on the competitiveness of energy intensive industries, although competitiveness is dependent on factors other than just carbon energy taxes. First, (...) energy import prices and transmission and distribution tariffs (natural gas and electricity) as well as exchange rate variations have some significance in this discussion. Secondly, non-price factors such as production methods, infrastructure and education are also important. Thirdly and finally, the energy

**Table 4** CO<sub>2</sub> emissions from transport in France (including overseas Départements, Mt CO<sub>2</sub>). Source CITEPA, Juin 2009

Transport mode	1990	2000	2003	2004	2005	2006	2007	1990 /2007
Air	4.2	6.2	5.1	5.1	5.0	4.7	4.6	+7 %
Road	110.7	127.0	130.8	131.0	129.5	128.8	127.4	+15 %
Rail	1.1	10.8	0.7	0.7	0.5	0.6	0.5	−47 %
Sea	1.7	1.6	2.4	2.5	2.6	2.7	3.0	+77 %
Other	0.2	0.5	0.7	0.8	1.0	0.6	0.6	*2.6
Total	117.9	136.0	139.6	140.1	138.6	137.4	136.0	+15 %

tax burden versus the recycling measure introduced as part of an environmental tax reform is a significant factor” ([3], p. 49).

But these authors also mentioned Porter’s hypothesis which maintains that if an environmental tax impairs the competitiveness of firms in the short term, it can nevertheless still have positive economic impacts: “high national environmental standards will encourage domestic industries to innovate and hence improve competitiveness, in particular when the regulatory standards anticipate requirements that will spread internationally (Porter 1990)” in ([3], p. 100).

In fact, this hypothesis suggests that an increase in the price of the input used to fix the tax will encourage firms to replace this input with others which consume less energy or to innovate in order to minimize the use of the input in question. And “this may stimulate growth either because demand for the specific industrial products increases, or because initiatives help to create a strong green image, which improves general economic conditions for the firm (...) but this is difficult to observe and measure” [4] p. 104).

In an attempt to test “Porter’s hypothesis”, Andersen, Enevoldsen and Ryelund studied a panel of 56 industrial sectors – which did not include transport – in Europe in the period 1990–2003. To this end, they used unit energy cost and the cost of labour as competitiveness indicators. They concluded that an increase in energy prices led to only a very slight increase in these two types of costs, and the competitiveness of firms was affected even less ([4], p. 115).

Andersen and Ekins’ study makes considerable use of the results given by the E3ME (Energy-Environment Economy model for Europe) developed by the consultancy Cambridge Econometrics which sets out to compare the long- and short-

term impacts of the carbon tax on the European economy. This model is very complex because it must take account of a high degree of diversity within Europe: all countries have not made the same decisions with regard to the level of the tax, the industries it targets and the compensation mechanism that is applied. In some countries, the introduction of the tax led to an overhaul of the entire tax system, in the case of others it replaced an existing tax, etc. One quality of the model is that it is multisectoral and dynamic - it functions as an input/output model constructed using Eurostat and OECD databases.

The authors nevertheless highlight that the introduction of a carbon tax leads to:

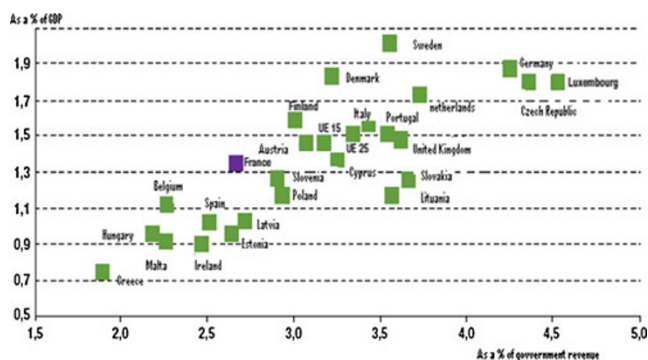
- a reduction in fuel demand: this is very high in the case of Sweden and Finland, but lower in the case of the others
- a reduction in CO<sub>2</sub> emissions which almost completely mirrors the reduction in fuel demand,
- a rise in GDP in the long term.
- an increase in the number of jobs in the case where employers’ contributions are lowered as a compensation mechanism, i.e. in Denmark and Germany. Surprisingly, the model also predicts an increase in the number of jobs in Sweden where this decision was not made, no doubt due to the increase in GDP which is forecast in the long term.

Next, in order to measure the impact on productivity, the authors of the study examined imports and exports:

- for exports, the tax appears to have little effect except in the case of Denmark and the Netherlands where they

**Table 5** Freight transport traffic (Mtkm). Source sitram, SOES

Transport mode	1990	2001	2003	2004	2005	2006	2007	2009
Rail	28,958	29,874	27,795	26,572	23,518	24,569	25,192	22,571
Waterways	4,267	3,594	4,021	4,163	4,640	4,645	4,377	4,783
Road (third party)	70,058	138,255	139,431	148,858	147,214	150,843	161,471	128,710
Route (own account)	27,962	30,401	31,726	30,386	30,233	31,989	30,036	27,344
Total for metropolitan France	131,245	202,124	202,973	209,979	205,605	212,046	221,076	183,408



**Graph 1** Energy taxation as a percentage of GDP and government revenue (2006) Source: ADEME and Eurostat 2009

would increase due to a reduction in employers' contribution.

- for imports, the simulation shows an increase which is clear in the case of Sweden, but less so for other countries.

It should be noted that the study included little simulation on road freight transport as such. For this sector, the authors forecast a slight increase in prices in the case of Finland and a short-term rise followed by a longer-term price reduction in the case of Sweden.

It is therefore difficult to reach a definitive conclusion as regards the road haulage industry. In France, the simulations conducted by the CIRED team with regard to road transport do not give a better estimate of the changes in competitiveness which would have resulted from the CCE. Based on a

level of taxation of €100 per tonne and the economic conditions which pertained in 2004, the hypotheses used in the simulation are too far removed from the current economic situation.

In order to assess whether the competitiveness of road haulage firms has been affected, we finally only have partial answers based on estimates of economic aggregates made by various institutions and the statements of carriers.

Nobody can deny the difficulties that the French and global economies have faced since 2008. According to the OECD, French GDP has risen more slowly since 2008, and GDP even fell in the second quarter of that year (−1.5 % in the third and fourth quarters), although it started to rise again in the second quarter of 2009 (OECD, 17 February 2010). GDPs have been falling in a similar way all over the world (with highest drop being 6.12 % in the second quarter of 2009 in Sweden according to the OECD, 29 July 2010). The competitiveness of other European countries is therefore suffering as much as France's.

The study conducted by the Ministry of the crisis and competition within the European road haulage industry in 2008 provides us with some partial answers in this area. This analysis concluded that “the French road haulage industry carries half a percentage point less of all European freight” and road haulage activity in Metropolitan France has fallen by 5 % “much more than the average for national carriers (1.9 %).” According to the Comité National Routier, in 2010, French carriers are “the least active as regards cabotage activities in Western Europe. The volume of cabotage has significantly fallen in the last five years for Belgian and

**Table 6** Rates of tax for transport fuels in Sweden (Euro cents/litre)

		1985	1990	1996	2000	2002	2005
Unleaded petrol 1	Energy tax		39.62	38.76	42.75	34.49	31.59
	CO <sub>2</sub> tax			10.10	10.18	15.94	23.58
	Total tax			48.86	52.93	50.43	55.18
Unleaded petrol 2	Energy tax		39.62	39.46	43.10	34.82	31.93
	CO <sub>2</sub> tax			10.10	10.18	15.94	23.58
	Total tax			49.56	53.28	50.76	55.51
Other petrol leaded	Energy tax	35.73	42.02	45.80	50.56	41.92	39.38
	CO <sub>2</sub> tax			10.10	10.18	15.94	23.58
	Total tax			55.90	60.74	57.85	62.97
Diesel 1 <sup>a</sup>	Energy tax	6.29	12.77	17.38	22.02	14.41	11.57
	CO <sub>2</sub> tax	6.29	12.77	12.33	12.55	19.65	29.04
	Total tax			29.71	34.58	34.06	40.60
Diesel 2	Energy tax	6.29	12.77	19.73	24.75	17.03	14.24
	CO <sub>2</sub> tax	6.29	12.77	12.33	12.55	19.65	29.04
	Total tax			32.06	37.30	36.68	43.27
Diesel 3	Energy tax	6.29	12.77	22.90	28.18	20.41	17.80
	CO <sub>2</sub> tax	6.29	12.77	12.33	12.55	19.65	29.04
	Total tax			35.23	40.73	40.06	46.83

<sup>a</sup>The distinction between the three types of diesel were made by the Swedish authorities on the basis of environmental characteristics such as the fuel's sulphur content

**Table 7** Exemptions from the energy taxation as at 1 January 2007. Source: IEA, 2008 [15]

Sector	Payable share of CO <sub>2</sub> tax, %	Payable share of excise tax, %
Services and households	100	100
Heat production	100	0
Heat in industrial processes	21	0
Heat production in highly efficient combined heat and power plants	21	0
Industrial boilers	21	0
Manufacturing	21	0
Farming, aquaculture, forestry	21	0
Horticulture	21	0
Electricity production	0	0

French hauliers, while those from Germany, Luxembourg, Spain and Italy have increased their cabotage activities” [10]. It is true that in the last ten years, the competitiveness of the French haulage industry seems to be falling compared with the rest of Europe [1] but the global economic crisis can hardly be blamed for this state of affairs. “In 2003, cabotage activities conducted by French hauliers amounted to 14.4 % of the cabotage activities conducted by foreign hauliers in France. In 2008, this level had fallen to 7.6 %” ([10]). The French road haulage sector seems to have been weak for many years [9].

In a study conducted in September 2009, the Industrial Vehicle Observatory (Observatoire du Véhicule Industriel – OVI) concluded that “French road haulage [...] should beware of competition from aggressive European road hauliers, in particular from Eastern and Southern Europe” ([24], p 8). In the view of the OVI, the danger is still present, and is mainly due to the taxation system: “new taxes will cause problems for road transport (road charges for HGVs, carbon taxation)”.

### 2.3 A questioning of the incentive principle

In France, while it would no doubt have been better to devise a system that was less complex and more equitable, the most important questions concern its efficiency. In our view, the taxation system that applies to the road haulage industry and the sector-based application of the carbon tax do not constitute convincing arguments for its withdrawal.

The goals derived from the Grenelle Environment Summit and enshrined in the Act of 3rd August 2009 are as follows: “it is a priority to develop the use of river transport, rail transport and maritime transport, in particular short sea transport. The aim is to increase the modal share of non-road and non-air transport from 14

to 25 % by 2022.” Could we expect the Climate and Energy Tax (CCE) to bring this about?

Accurate simulation in this area is impossible. But the forecasts are not very optimistic because of cultural traditions, economic constraints, the flexibility of road transport and geographic inequalities between regions. The example of the mileage tax shows this well: the request was made to modulate this tax for Brittany, partly because modal transfer is virtually impossible. Neither rail transport nor river transport could take the place of road transport, at least not in the immediate future.

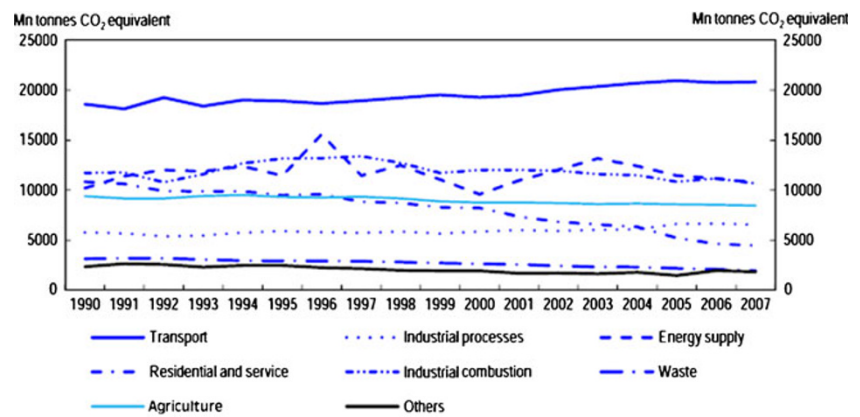
The expectations of shippers appear to confirm the limits of future modal transfer. A survey conducted in 2009 by the Regional Observatory of the Economy and the Region (Observatoire Régional de l’Économie et des Territoires) at the Nord-Pas de Calais Chamber of Commerce and Industry polled 5,500 regional firms in the industrial, construction, wholesale trading, retail distribution and logistics sectors on their forecasts regarding modal choice [21]. Today, road transport is the principal mode used by these shippers and only 11 % of them use river transport or rail transport in addition or as an alternative to it. When listing the benefits of road transport compared to another mode, the surveyed shippers only put price in fourth position, after speed, responsiveness and reliability. Therefore, with or without the tax, 71 % of the respondents do not envisage changing the transport mode they use [24]. They would simply group their consignments together more and use foreign hauliers. The president of the Freight Transport Users Association (AUTF) confirmed the answers given by the firms in question: “Straightforward taxation will not at all make shippers move away from road transport. (...) Any company would be willing to switch to other modes if all those involved in its sector (suppliers, competitors and clients) operated in a fully integrated system. (...) For this to happen, all the States in the world would have to impose taxation on non-renewable energies” ([22] and [23]).

In Sweden, although the Ministry is very pleased about the success of the tax, it has actually had much more impact on households than firms. It has not therefore been a total success. According to Johansson, it has had a smaller effect on the behaviour of firms because “a lower level of tax applies to industry than to households and for many industrial firms, energy costs account for a relatively small proportion of their total costs and are not therefore a high priority” ([20] p. 2)

Furthermore, according to an OECD study by Stephanie JAMET, while it is true that CO<sub>2</sub> emissions have fallen in Sweden as a result of the carbon tax in the energy supply and waste sectors “they have continued to increase in the transport sector” ([16], p. 9) as shown by Graphs 2 and 3:

This increase is partly due to the increase in the volume of transport activities. Eurostat data report that freight

**Graph 2** GHG emissions by sector in Sweden, 1990 to 2008 (Swedish Ministry of the Environment, 2009)



transport in Sweden (by rail, road and waterways) increased by 17 % in tonne-kilometre terms between 2000 and 2008. Passenger transport increased little over the same period. This puts the increase in total greenhouse gas emissions into perspective. However, the modal shares of rail road and waterways transport have hardly changed in 11 years, remaining at around 65 % for the road. The carbon tax has therefore not encouraged modal transfers.

Of course, the carbon tax may of course have had an impact, but only a minor one. Although we are unable to break down the data for road transport, the fact that the Swedish Ministry of the Environment has reached these conclusions shows the very high cost of reducing transport sector CO<sub>2</sub> emissions in relation to the modest environmental gains. The question of how effective it would be with regard to the French road haulage sector therefore remains completely unresolved.

In Germany, the implementation of the carbon tax does not seem to have been particularly successful. Not many

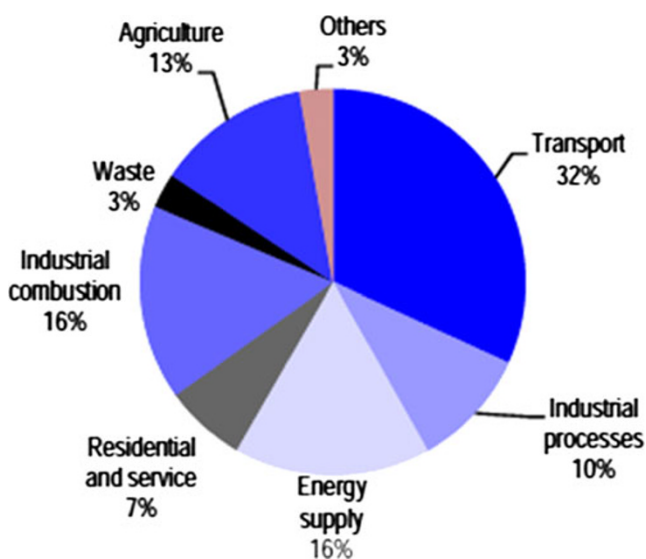
figures are available for us to judge its relative effectiveness, as the Environment Ministry prefers to say nothing. In 2003, the Minister simply mentioned that diesel oil accounted for a larger share of total fuel consumption than previously and that there had been no change in the volume of road traffic as a result of the tax.

No doubt as a consequence of the expected relative efficiency of the carbon tax, the unfavourable treatment meted out to the road haulage industry and the major disparities with the recommendations of the Rocard Report, the introduction of the new carbon taxation was little understood by the road haulage sector as a whole.

It even seemed that the French road haulage industry was being treated unfairly in comparison to agriculture and heavy industry. Should the industry have been considered as a particularly fragile sector that merited exemption as has been the case with other sectors in Europe?

Sweden, for example, protects its industry with a lower level of carbon tax and applies discretionary compensation to those firms for which the tax would amount to a high percentage of sales (there are only a few of these). Germany and the United Kingdom exonerate some highly energy intensive firms from the tax; the first by statistical selection on the basis of voluntary reduction agreements, the second via the EU Integrated Pollution and Prevention Control Directive ([3], p. 48).

In France, the Constitutional Council finally condemned the CCE on 29 December 2009, mainly on the grounds of the excessive exemptions granted to heavy industry: “thermal power stations that produce electricity, the emissions of the 1018 most polluting industrial sites such as refineries, cement factories, coking plants, glass factories, the energy intensive parts of the chemical industry, etc. are completely exonerated from the CCE” (Décision du Conseil Constitutionnel, Article 80). The Constitutional Council noted that although these industries are subjected to the quota market, quotas will continue to be distributed free of charge until 2013. In the Council’s view, the draft legislation on the Climate and Energy Tax was presented in such a way that



**Graph 3** Share of GHG emissions in Sweden by sector in 2007 (Swedish Ministry of the Environment, 2009)

“93 % of industrial carbon dioxide emissions other than those from fuel will be completely exempted from the carbon contribution” (Article 82).

### 3 Conclusion

Since the 1990s, a number of European countries have decided to introduce a carbon tax. The success of the tax is difficult to estimate and the verdict one reaches depends on the point of view one adopts. For those countries which envisaged fiscal reform with a reduction in employers' contributions, the tax represents a not insignificant step towards carbon-based taxation and the fiscal reform has been a success. With regard to changing behaviours, the carbon tax seems to have acted as a disincentive to household consumption of goods that use carbon and to have encouraged innovation in some sectors (for example the case of biomass in Sweden). However, it is not possible to draw genuinely positive conclusions with regard to road freight transport either in terms of modal transfer or traffic reductions.

In recent years, the road transport sector has become cleaner throughout Europe as a result of the improvement of vehicle technologies and awareness of green driving practices. But the carbon tax does not seem to have had a decisive impact on the development of transport modes that provide an alternative to the road. Has it, however, adversely affected the competitiveness of the firms in the sector? Here too, it is difficult to reach a conclusion based on the estimations that have been made for European countries. Nevertheless, it is the fear of a reduction in their competitiveness that French road hauliers have expressed through their federations.

It must be said that the carbon tax as it was proposed in the French 2010 Draft Finance Act for road freight transport rightly raised doubts within the sector. As we have seen, its level was much lower than the “environmentally efficient” level recommended by the Quinet and Rocard Commissions and the simulations conducted by the DGTPE and the CIREN. The refunding mechanisms (through tax credits, green cheques, direct partial refunding without a reduction in other levies) also gave the impression that the expected economic results (the double dividend) could not reach those in the aforementioned simulations. Last, inequalities with regard to this tax for carriers with vehicles of less than 3.5 tonnes, for some sectors as opposed to others (such as agriculture and fishing which benefited from high rates of refunding or heavy industry which would be exempt because of quotas) infringe the principle of equity with regard to taxation. These are without doubt the reasons responsible for its deferment, modification or withdrawal.

Moreover, the carbon tax was proposed during an economic crisis which had a major impact on the French road

haulage industry and experts were concerned about the reduction in the competitiveness of French carriers. This has been extensively analyzed in the CNR studies, the report by Claude Abraham [1]. These studies see the issue of competitiveness as taking a specific form in France, as France is subjected to particularly severe competition, as it is one of the countries in Europe, if not the country in Europe, in which foreign hauliers are the most active. In particular, the Act of 1 May 2009 extended road cabotage allowing seven new countries from Eastern Europe to operate within France, namely Poland, Hungary, the Czech Republic, Slovakia, Latvia, Lithuania and Estonia.

If there were to be a carbon tax in France, we therefore consider that it would be necessary to take the full measure of the accompanying fiscal reforms by proposing a higher level of the tax, and privileging a compensation processes based on the reduction of others taxes (on labor for example).

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