

A SECTOR BASED ASSESSMENT
OF EXTERNAL COSTS FOR
A TAX REFORM IN ITALY

Polluters Make Others Pay

(Part 2)

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Pubblichiamo la seconda parte dell'articolo, presentato alla 17ª edizione della Conferenza Globale sulla Tassazione Ambientale (GCET 17) di Groningen (22 e 23 settembre 2016).

La prima parte, pubblicata sul numero 1/2017, presentava la stima dei costi sanitari e ambientali attribuibili ai singoli settori dell'economia nazionale; questa seconda illustra il confronto fra i costi esterni e le tasse ambientali già pagate dagli stessi, evidenziando enormi problemi di equità, sia ambientale che distributiva, dell'attuale regime di imposizione fiscale energetico-ambientale in Italia.

La riforma della fiscalità ambientale potrebbe aiutare a ridurre la tassazione sui redditi da lavoro senza ridurre il gettito complessivo. L'articolo evidenzia un'ampia gamma di opzioni, che vanno dalla progressiva riduzione dei sussidi dannosi per l'ambiente - recentemente messi in evidenza dal Catalogo realizzato dal ministero dell'Ambiente col supporto dell'Unità di Assistenza Tecnica Sogesid - all'applicazione di una carbon tax nei settori non-ETS e alle importazioni dai Paesi non-UE, ad un maggior utilizzo delle imposte su specifici inquinanti.

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THE FISCAL POLICY CONTEXT

According to last data provided by Istat – the National Statistical Institute – the fiscal pressure in Italy is officially at 43.6 percent of GDP, 4.6 points (+12 percent) above average EU level; taking into account the incidence of shadow economy on GDP formation, the Court of Public Accounts estimated that the real fiscal pressure on formal activities in Italy should be considered at 53 percent. Despite the high taxation context, environmental taxes, which

presently contribute to only 7.8 percent of fiscal revenues in 2015 (3.4 percent of GDP), can still play a major role; indeed a strengthening of environmental taxes could help the Government in achieving three longstanding goals: easing taxes on labor, reducing tax evasion and funding innovation-based industrial policies targeted to the achievement of more and more ambitious climate change mitigation goals. As it will be shown in details in the following sections, to provide such a contribute the present environmental tax regime should be deeply reformed consistently with the Polluters Pays Principle, either

through the introduction of pollution based taxes, either through the identification and removal of “hidden” tax allowances provided to the most polluting sectors.

In early 2014, a Government Delegation Act on taxation (Law n. 23/2014, *Provisions for a fairer, transparent and growth-oriented tax system*) attempted to enact, *inter alia*, a specific reform of environmental taxation, with the primary tasks of allowing the reduction of tax burden on labor and of boosting growth through investments in the green technologies. In the one and a half year slot available for the approval of the needed Legislative Decrees, the Government enacted many Decrees but it did not advance provisions on environmental taxation. This was mainly due to the fact that the Delegation Act issued by the Parliament strictly linked the national reform to the approval of the Commission proposal to reform Directive 2003/96/EC on energy taxation, a step that has not taken place. As known, Juncker, the new president of the European Commission, renounced to the fuel tax harmonization reform in the EU, leaving full powers for national improvements to Member States.

During 2015 very important international agreements for increasing efforts on sustainable development, such as UN Agenda 2030 and Paris

COP21, have been reached. At national level, an important Environmental Act has been approved (Law n. 221/2015), that contains important provisions to revive public action on sustainable development and green economy, among which an annual assessment of environmentally harmful and environmentally favorable subsidies (both direct incentives and fiscal allowances) through an annual Report to the Parliament.

The first Catalogue has been released by the Ministry of Environment, Land and Sea in February 2017; it examines about 130 already existing subsidy schemes across all sectors of economy and all main forms of taxation, for an overall financial cost for the State budget of about 41 billion euro/year, highlighting more than fifty environmentally harmful subsidy

schemes for an overall amount of 16.1 billion.

The Catalogue paves the way to a possible Government long term Plan, consistent with the environmental and financial targets of the Paris Agreement and with the 17 goals of UN Agenda 2030, to progressively reduce tens of tax breaks that presently contrast and undermine a fair implementation of the Polluter Pays Principle in the national taxation system. Moreover, the fore-coming “Green Act”, a new Environmental Law drafted by the Ministry of Environment and expected to be proposed by the Government to the Parliament, could represent the occasion to address together the reduction of environmentally harmful subsidies, the reduction of taxes on labor and the financing of a long term climate mitigation and adaptation investment plan.

ENVIRONMENTAL TAXES PAID BY SECTORS AS COMPARED WITH EXTERNAL COSTS GENERATED

A brief introduction is needed to present the structure of environmental taxes in Italy. Istat monitors environmental taxes' revenues in Italy by applying the definition provided by official statistics international guidelines, implemented by Eurostat as well: a tax is environmental if its tax base is made up of a physical quantity that has a proven, specific negative impact on the environment. Under this definition the aim of the tax is not necessarily relevant (this is seldom expressed by the fiscal laws). Table 1 shows the revenue breakdown of environmental taxes by tax category (Energy, Transport, Pollution), in year 2013 (reference year for the polluter pays comparison) and 2015 (last available data).

Table 1

Revenues from Environmental Taxes in Italy, 2013 and 2015 (million euro, current prices)

Source: Istat, Gettito delle imposte ambientali (Revenues of Environmental Taxation), May 2016 edition

Environmental tax category	2013		2015	
	M€	%	M€	%
Energy	44,649	81,3	45,025	81,4
Border surtax on non condensable gases	50	0,1	60	0,1
Border surtax on mineral oils	11	0,02	10	0,02
Tax on mineral oils and related products consumption (excise duties)	26,277	47,9	25,611	46,3
Tax on non condensable gases of oil products	564	1,0	585	1,1
Excise duty on electricity and system charges on electricity bill for renewable sources incentives	13,542	24,7	15,042	27,2
Tax on natural gas consumption (excise duty)	4,083	7,4	3,196	5,8
Tax on coal consumption (excise duty)	55	0,1	43	0,08
Fee on sales of energy sector operators destined to the Authority for Electricity and Gas and Water System	66	0,1	59	0,1
Revenues of the Italian Central Body for Oil Storage	1	0,002	12	0,02
Revenues from Emissions Allowances sales (ETS)	-	-	407	0,7
Transport	9,762	17,8	9,678	17,5
Public automobile registry (PRA)	1,359	2,5	1,569	2,8
Tax on car civil liability insurance	2,637	4,8	2,137	3,9
Car taxes paid by companies	1,395	2,5	1,422	2,6
Car taxes paid by households	4,342	7,9	4,535	8,2
Tax on aerotaxi passengers	7	0,01	8	0,01
Tax on leisure boats and on private aircrafts	22	0,04	7	0,01
Pollution	488	0,9	597	1,1
Special tax on landfill	129	0,2	98	0,2
Tax on sulfur dioxides and nitrogen oxides emissions	15	0,03	7	0,01
Provincial tax for environmental protection	344	0,6	475	0,9
Regional tax on aircrafts' noise emissions	-	-	17	0,03
Total	54,899	100,0	55,300	100,0

“The comparison between the environmental taxes paid and external costs at a first level of sector disaggregation shows strong inequalities for Households (+70 percent) and Services (+57 percent), while a very favorable treatment is given to Agriculture (-93 percent) and to a lesser extent to Industry as well (-27 percent)”

Pollution taxes, the category under which taxes are either environmentally aimed and related to a base that has a negative environmental impact, account in Italy for about 1 percent, while energy taxes contribute for the majority of environmental taxes revenue (81 percent), followed by transport taxes with about 18 percent (see Table 1). In particular, excise duties on all fossil fuels account for about 56 percent in 2013 (53 percent in 2015), while excise duty and system charges on electricity bill (the latter are used for financing renewable sources technologies) account for about 25 percent in 2013 (27 percent in 2015).

Vehicle circulation taxes, that are related in Italy with the engine power (kW), a far proxy of fuel consumption per km, account for more than 10 percent of environmental taxes. It must be noted that while taxes on fuels and vehicles can theoretically be an instrument to implement the Polluters Pays Principle, excise duty and system charges on electricity bill do not represent the Polluter Pays Principle, but rather the “User Pays for pollution” Principle (user taxes and charges can still be calculated on the basis of average external costs of electricity production), since they are directly paid by users independently from the ways electricity is produced.

In fact, the excise duty and the renewable charges on electricity are paid also for the renewable share of electricity consumptions. The Polluter Pays Principle assumes that the best way to tax is when

and where pollution is generated, so as to produce a prevention effect through behavioral change or, at the company level, through the choices of the management system (investments for environmental mitigation, organizational changes, supply chain changes, etcetera).

Finally, it must be noted that from year 2014 two additional environmental taxes started to generate additional revenues: the auctioning of ETS allowances (classified as an environmental tax, by Istat) and the revived Regional tax on aircraft noise pollution, for an overall additional revenue of 424 million euro in 2015.

After this introduction, the results of the external costs estimation for NACE sectors and households, presented in Part I of the paper, can be compared with the amount of environmental taxes paid by the same sectors, to verify consistency of the Polluter Pays Principle. The comparison is made possible by further statistics elaborated by Istat on environmental taxes (May 2016 edition), that firstly separate the environmental taxes revenues related to residents (economic activities and households) and non residents, and secondly detail the environmental taxes paid by economic activity sectors with the same disaggregation level of NAMEA emission statistics (64 NACE sectors). The reference year of the comparison is 2013, since external costs have been estimated on the basis of environmental impact factors referred to that year.



Jean-Claude Juncker



Figure 1 shows the comparison between the environmental taxes paid and external costs at a first level of sector disaggregation. Strong inequalities are evident for Households (+70 percent) and Services (+57 percent), while a very favorable treatment is given to Agriculture (-93 percent) and to a lesser extent to Industry as well (-27 percent).

Very strong inconsistencies between what is paid and what should be paid are confirmed at a higher disaggregation level as well (see Figure 2 for the intermediate level and Figure 3 for the most detailed available level).

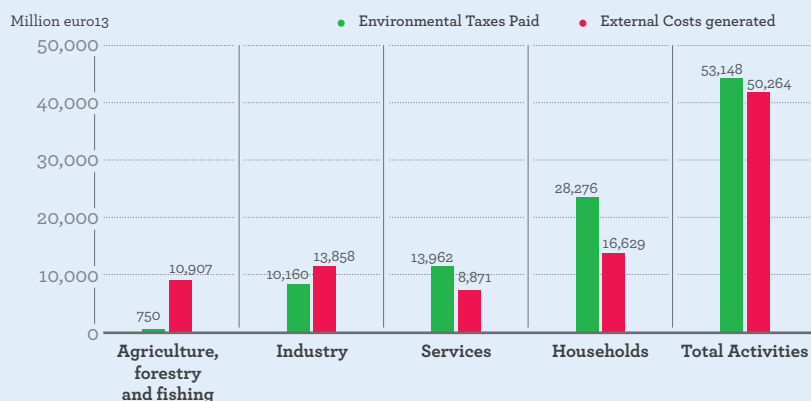
At least four branches result to pay very little as compared to the external costs they generate (maritime transport 1 percent; air transport 6 percent; agriculture 6.6 percent; power & gas 16.9 percent). As also highlighted by the recently released national Catalogue on Harmful and Favorable Subsidies, such a small tax contribute by these branches to State budget is mainly explained respectively by the total exemption of maritime and aviation fuels from excise duties taxation, and by excise duty allowances provided to fossil fuels used in agriculture and in power generation.

As to the power and gas sector, it must be said that the 3.4 billion gap calculated for 2013 (between 0.7 billion paid through environmental taxes and the 4.1 billion of external costs) do not

Figure 1

Comparison between the Environmental Taxes paid and External Costs generated by the main sectors of Economic and Social activities (Italy, 2013)

Sources: Istat (May 2016 edition) for Environmental Taxes Revenues, Author for External Costs Estimate



include yet the sector's payments for ETS in the same year, while the last data provided by Istat for 2014 show an increase of the sector payments to 0.9 billion including ETS: a strong gap remains even if ETS revenues are accounted alongside to (discounted) excise duties paid on coal, oil and natural gas. Even the manufacturing sector, that in Figure 2 apparently shows a reasonable coherence with the polluter pays principle (94 percent coverage of external costs), presents strong inequalities when data are seen under the most detailed sub-sector breakdown, with 15 out of the 19 manufacturing branches paying as much or more than their external costs, thus subsidizing 4 manufacturing branches for their non-covered external costs (coke and refining; glass, ceramic, cement and other minerals; metallurgy; paper industry, see Figure 3).

POTENTIAL FOR A CARBON TAX AND OTHER POLLUTION BASED TAXES

The adopted modeling illustrated in Part I of this paper provides information on the potential revenue of pollution taxes based on the external costs of specific impact factors, such as CO₂ or PM_{2.5} emissions, levels of noise sources, or homogeneous sets of pollutants (for example "green-house gases" or

"heavy metals"). Here follows a preliminary estimate of the potential revenue of a carbon tax in Italy according to the external costs approach (central value of the CO₂ emission marginal damage, as recommended by the EU Guide on CBA – 30.5 euro/ton CO₂ in year 2013), covering respectively EU's ETS sectors (this allows a comparison with the current ETS revenues from auctions of

emission allowances), non-ETS sectors and imports from non-EU countries.

In the ETS sectors the carbon tax potential revenue is 5.2 billion, assuming that the tax would be applied to all CO₂ producing activities in the ETS sectors (not only to emissions of ETS large industrial plants). Given that real ETS revenues from National auctions of allowances amounted to 528 million in 2015 (as updated by Istat November 2016 edition of the Environmental Taxes Report), with an average EUA market price of 7.4 euro/ton. (source GSE), the revenue of a hypothetical carbon tax based on marginal external costs of CO₂ emissions would be about ten times more than the present ETS revenue.

As to non-ETS sectors, the potential revenue of a CO₂ tax would amount to 6.1 billion. Household (for their transport and heating needs), road transport services, manufacturing industries and maritime transport would be the major contributors for such a tax (Figure 4).

Extension of carbon pricing to imports is increasingly advocated by many European stakeholders, on the basis that unilateral introduction of carbon pricing in EU through ETS and a carbon tax would intensify industrial relocation processes towards Countries with weak environ-

Figure 2

Comparison between the Environmental Taxes paid and Environmental External Costs generated by main sub-sectors (intermediate level of disaggregation) Italy, € million, 2013

Sources: Istat (May 2016 edition) for Environmental Taxes Revenues, Author for External Costs Estimate

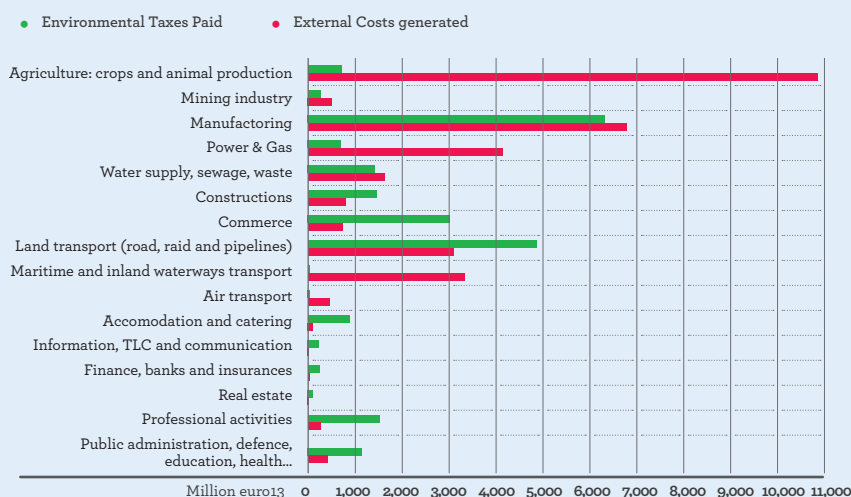
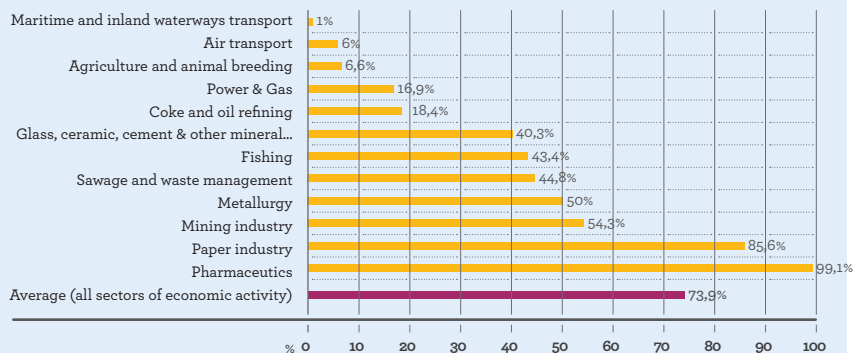


Figure 3

Revenues of Environmental Taxes paid as % of Environmental External Costs, by Branches of Economic Activity (maximum disaggregation level), Italy, 2013

Source: Istat (May 2016 edition) for Environmental Taxes Revenues, Author for External Costs Estimate. The 64 available branches have been ordered by increasing value of the indicator. Due to space constraints, only the branches not covering external costs are shown (12 of 64 branches).



mental policies, favoring unfair competition and “carbon leakage”. A practical option, in the context of a wider reform shifting taxation from labor income to environmental tax bases, is to apply a carbon tax from production processes and on imports of goods from those Countries not adopting similar forms and levels of carbon pricing. If we look at Italy’s CO₂ emission trends under an international trade perspective (see Figure 5), we can see that CO₂ embodied in Final Demand of products and services has grown by 7 percent in the 1995-2011 period, while CO₂ emissions due to Production (Domestic market + Exports) reduced by 4 percent, mainly thanks to domestic energy efficiency and renewable energy effort.

The gap is due to CO₂ embodied in imports to Italy, that increased from 92 million tonnes CO₂ in 1995 to 134 million in 2011, with a startling increase of 46 percent. A possibly EU wide carbon tax applied to Imports from non EU countries would support the introduction of more stringent climate policies in non EU Countries, preventing unfair competition. Without mentioning the practical difficulties and simplifications needed to implement such a tax, the potential revenue for Italy would amount to about 4.1 billion. Summing up, the full potential of a carbon tax applied to all sectors of activity (resident companies and households) and to imports from non-EU

Countries totals about 15.4 billion euro.

FINAL REMARKS

Before drawing conclusions, the main assumptions and limitations of the analysis carried out must be outlined. First of all, not all main environmental external costs of economic activities have been quantified. The impact pathway methodology adopted for this paper should be further developed to assess more environmental external costs categories, such as pollution from water discharges. Also some major *non-environmental* external costs categories, such as road ac-

cidents and traffic congestion, remained excluded from the modeling (this assumption influences mainly the results obtained for “transport services sector” and for “households transport”, since their external costs can be heavily underestimated).

Moreover, even if some environmental impact factors have already been quantified in Italy on a quite detailed geographical scale, such as land consumption (artificial coverage of soil) by the ISPRA annual Report, they couldn’t be considered in the proposed modeling since they haven’t been statically assigned yet to their causal activities under an integrated environmental-economic account.

Secondly, the Inventory of environmental taxes managed by Istat should be updated to include revenues of local or specific taxes so far not analyzed (pesticides tax, Milan congestion charge, extraction taxes on raw materials in some Regions), as pointed out for Italy by the last EEA Report on environmental taxes (2016). But the main assumption underpinning a fair comparison of the polluter pays principle is the historical practice of National legislation to earmark revenues of environmental taxes for non-environmental purposes.

Transport fuel excise duties have been often increased for financing emergency costs of natural disasters such as earthquakes, international

Figure 4

Non-ETS sectors: potential revenue of a CO₂ tax at 30.5 euro/ton (2013, million euro)

Source: Author own elaboration (see Part I)

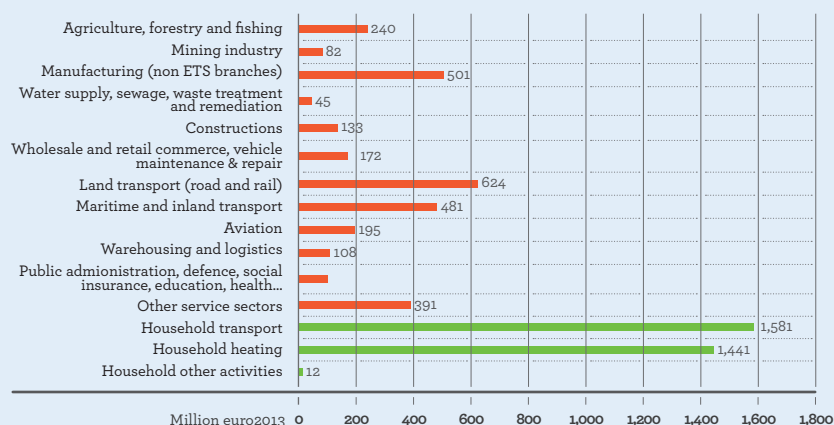
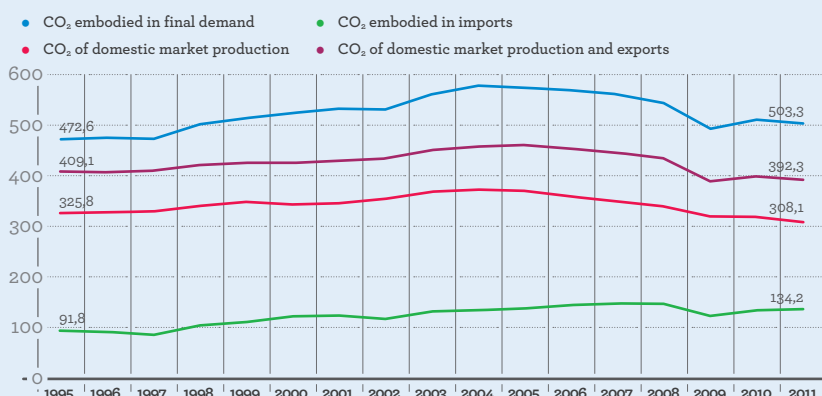


Figure 5

Italy's CO₂ emissions of Production (domestic market and exports), Final Demand and Imports (1995-2011, million tonnes)

Source: OECD (2017)



peace-keeping missions or other public finance emergencies. Since such costs constitute real expenses for the State that must be covered through revenues of environmental taxes, when assessing the implementation of the Polluter Pays Principle in environmental taxation, these costs must be subtracted from the State revenues of environmental taxes. For the moment being, lack of official and reliable data on earmarking of environmental taxes for non-environmental purposes hinders such subtraction under scientific basis. The choice of the present paper of considering 100 percent of environmental taxes revenues as the amount that the Polluter already pays for covering the external costs should be considered an optimistic assumption.

To sum up, even if there are good reasons for going beyond environmental external costs in determining environmental taxation rates and structure, it is clear that the Polluter Pays Principle can play an important role in steering the national tax reform towards a robust green growth, where the increase of the added value of the economy is paralleled by the achievement of ambitious environmental goals.

The Polluter Pays Principle is a powerful principle for taking into account environmental concerns in special taxation (on energy products, transport means, pollutants and natural resources) and even, more generally, in income and in-

direct taxation. In fact, the measurement of external costs can provide valuable information for reforming existing environmental taxes and eliminating or reducing environmentally harmful tax allowances. A proposal of this paper is to increase the use of external costs valuations (either in absolute terms and in relation to added value) to assess inconsistencies of environmental taxes or other taxes. For example, distortions in VAT regime happen when a lower than the standard VAT rate is granted to the consumption of products such as electricity and gas, even if the high environmental costs for society related to their additional production are destined to erode the social benefit of the allowance.

There is a lot of room in Italy to increase consistency of environmental taxes through a fair and integral application of the Polluter Pays Principle based on environmental external costs valuation. Action is urgently needed in some

“There is a lot of room in Italy to increase consistency of environmental taxes through a fair and integral application of the Polluter Pays Principle based on environmental external costs valuation”

specific branches of economic activity (see particularly Figure 3) which are responsible for much more environmental damages than those covered by related taxes, with the negative side effect that at least part of these damages are compensated through environmental taxes paid by households or other production branches (in the latter case unfairly reducing their competitiveness). A more coherent tax regime in relation to carbon content and external costs of fuels used by sectors of activity is needed. At least two priorities emerge from the modeling used in this paper:

- environmentally Harmful Subsidies on fossil fuels, which are presently evaluated by the National Catalogue to sum up 16.1 billion euro, must be reduced. This can be done gradually, by transforming exemptions in tax breaks, and by including all tax breaks in a reduction program, to be coordinated with the timely achievement of energy and climate 2030 targets;
- at present, ETS shows a lack of capacity in pricing CO₂ emissions for their global marginal damages (the recommended central values of the latter are at least 4-5 times higher than the current average price of EU allowances). After the Paris Agreement a strong impulse to further reduce ETS emission caps and avoid free allocation of allowances is needed. Moreover, since the EU ETS cannot price the whole amount of CO₂ emissions related to all economy sectors and the amount embodied in International Trade, it could be accompanied by a carbon tax either in non-ETS sectors and on Imports of goods from Countries that do not adopt any carbon pricing.

Other pollution taxes, covering external costs of specific air pollutants and noise costs from all sectors of activity, could complement the tax reform, aimed at the reduction of taxes on labor income.

The views expressed in this paper are those of the author and should not be reported as or attributed to the Ministry, Sogesid or any other Organization with which he cooperates. My heartfelt thanks to Aldo Ravazzi Douvan for the valuable comments to the text.