The Double Dividend: Fact or Fallacy?

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Carbon tax challenges

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A carbon tax poses important distributional challenges

- A regressive tax.
- Urban vs. rural households.
- Fuel poors?

How to address these challenges? Through the redistribution of resources levied.

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- Public budget
- Lump-sum benefit:
  - Everybody the same
  - According to what HHs have payed in carbon tax
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In France the government proposed to redistribute according more or less to what has been payed (**rural** > **urban**): 46€ where there are public transport systems, 61€ where are not + 10€ per dependent person.

Room for a **double dividend** reducing other distortive taxes?

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Distributional dividend : redistribution of resources to decrease inequalities.

Relative recent debate: years 90s. Two strands:

1. First group of contributions focuses upon the **distortions** of the tax system, before and after an environmental fiscal reform. They ignore distributive equity and focus on the welfare impact. Usually based on a **perfect competition** framework.
2. The second group looks at the impact that **recycled fiscal revenues** can have on relevant macroeconomic variables, especially employment, output, or growth. The contributions in this area usually assume **imperfect competition**.

1. Introduction
   - Carbon tax challenges
   - How to use carbon tax resources?
   - The notion of a double dividend

2. Theorical evidences
   - First approaches
   - More recent approaches

3. Empirical evidences
   - Some calibrations for France
   - Other countries

4. Conclusions

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More controversional the strong form (a revenue-neutral substitution of a green tax for typical or representative distortionary taxes produces zero or negative welfare gross costs).

From an initial skepticism...

Bovenberg and de Mooij (1994) build a static general equilibrium model and find no welfare gross benefits:

- The purchase power does not change: there is just a shift from taxes on labor to consumption taxes.
- A carbon tax may even reduce employment. A reduction in the tax wedge just brings the employment level back.

Elasticities are the key parameters: price **elasticities of labor supply** (and demand) and substitution **elasticities in production** between labor, energy, and capital inputs.

...to conditions for a DD.

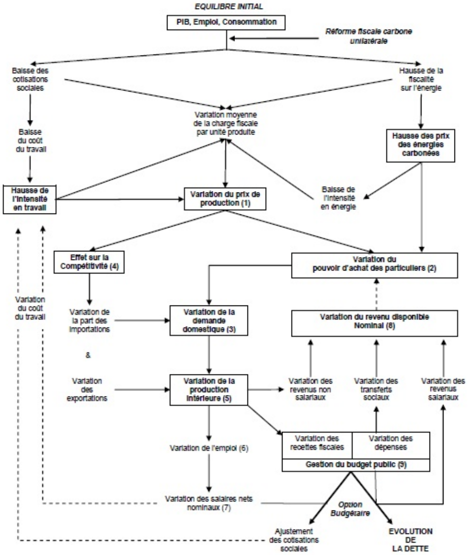
If some assumptions are relaxed, the double dividend can occur.

- Distortive tax system
- The second dividend should focus on the good or factor most distorted: L in EU, K in USA.

And especially:

- Imperfect competition: Involuntary unemployment and monopolies or monopsonies.

Now even room for a strong double dividend!


EQUILIBRE INITIAL
PIB, Emploi, Consommation
Réforme fiscale carbone unilatérale
Baisse des cotisations sociales
Hausse de la fiscalité sur l'énergie
Variation moyenne de la charge fiscale par unité produite
Baisse du coût du travail
Hausse des prix des énergies carbonées
Hausse de l'intensité en travail
Variation du prix de production (1)
Baisse de l'intensité en énergie
Effet sur la Compétitivité (4)
Variation du pouvoir d'achat des particuliers (2)
Variation du coût du travail
Variation de la part des importations
Variation de la demande domestique (3)
Variation du revenu disponible Nominal (8)
&
Variation des exportations
Variation de la production intérieure (5)
Variation des revenus non salariaux
Variation des transferts sociaux
Variation des revenus salariaux
Variation des recettes fiscales
Variation des dépenses
Gestion du budget public (9)
Variation de l'emploi (6)
Variation des salaires nets nominaux (7)
Option Budgétaire
Ajustement des cotisations sociales
EVOLUTION DE LA DETTE

France

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Table: Impact on GDP of a carbon tax of 9 Billions €(≃72€/ton).

	MESANGE	EGEE
Reduction of all taxes	+0.4%	+0.2%
1/2 HHs, 1/2 firms	+0.5%	+0.2%
Payroll taxes	+0.5%	+0.3%
Firms	+0.6%	+0.3%

Source: DGTPE

Table: Impact on GDP of a carbon tax of 400€/ton.

	Payroll			VAT		
	(1)	(2)	(3)	(1)	(2)	(3)
GDP	+2.1%	+1.2%	+0.4%	-0.2%	+0.2%	-0.2%
Empl	+4.1%	+3.1%	+2.3%	+0.5%	+0.8%	+0.4%

Source: CIRED

NOTE: (1) = constant debt/gdp ratio; (2) = constant tax/gdp ratio; (3) = all other taxes being equal.

Other countries

In general negative evidences of a strong version:

- In US DRI and LINK macroeconometrics models find negative welfare impact.
- GEM in US: carbon tax of 25$/ton $\Rightarrow$ -0.48% if cut on corporate tax, -0.53% if cut in personal taxes.
- GEM in EU: DD just in the short run (Carraro *et al.* JPE 1996).

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- GEM in EU: DD just in the short run (Carraro *et al.* JPE 1996).

But consensus on a weak form of DD: compensating for a green tax with cuts in distortionary taxation is in any case less costly than compensating for it via lump-sum transfers.

Conclusions

Not strong evidences... but a strong political tool?

- Weak DD: already something.
- Easier to accept: carbon tax in a wider reform of fiscal system.
- Issues of justice and efficiency enter the debate, not only issues about uncertainty and risks.