Políticas de eficiencia energética y de transporte

Xavier Labandeira

14 Encuentro del Sector Energético, IESE
Madrid, 9 febrero 2017

European University Institute
economics for energy
Universidade de Vigo

Eficiencia energética

- No un fin en sí mismo: emisiones, dependencia, distribución…
- Transversal y crucial en la descarbonización
- Heterogeneidad de medidas y *Energy efficiency Gap*
- Nuevo entorno para las políticas: tecnologías, información, interacciones
- ‘Paquetes de política’ y nuevas aproximaciones
- Aspectos distributivos

Transporte

- Un sector en ebullición: mucho más que eficiencia
- Políticas públicas: oferta y demanda (saliencia); C/P y L/P
- Políticas públicas: fiscalidad, congestión

Fiscalidad, eficiencia energética y transporte

- Metaanálisis de elasticidades precio y más
- Un instrumento con fuerte fundamento académico
- Grandes expectativas no materializadas, pero crucial en la transición
- Innovación en la fiscalidad ambiental
  - Nuevos tributos, especialmente en estos ámbitos
  - Nuevas reformas fiscales verdes

Aterrizando

- UE: coste-efectividad de las políticas
  - Interacciones
  - Cobertura
- España: fiscalidad energético-ambiental y RFVs
  - C/P: Alza recaudatoria y distribución de la carga
  - L/P: Nuevas figuras

Gracias

http://labandeira.eu

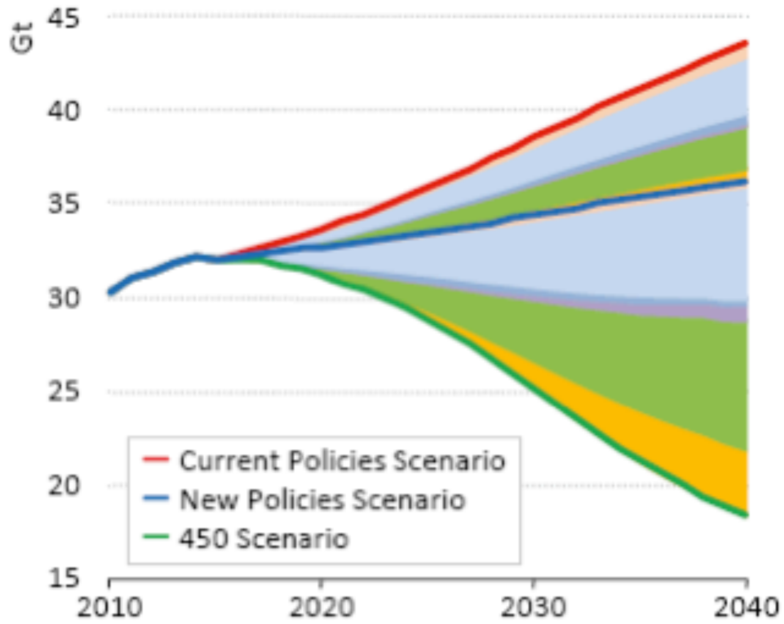
xavier@uvigo.es

European University Institute

economics for energy

Universidade Vigo

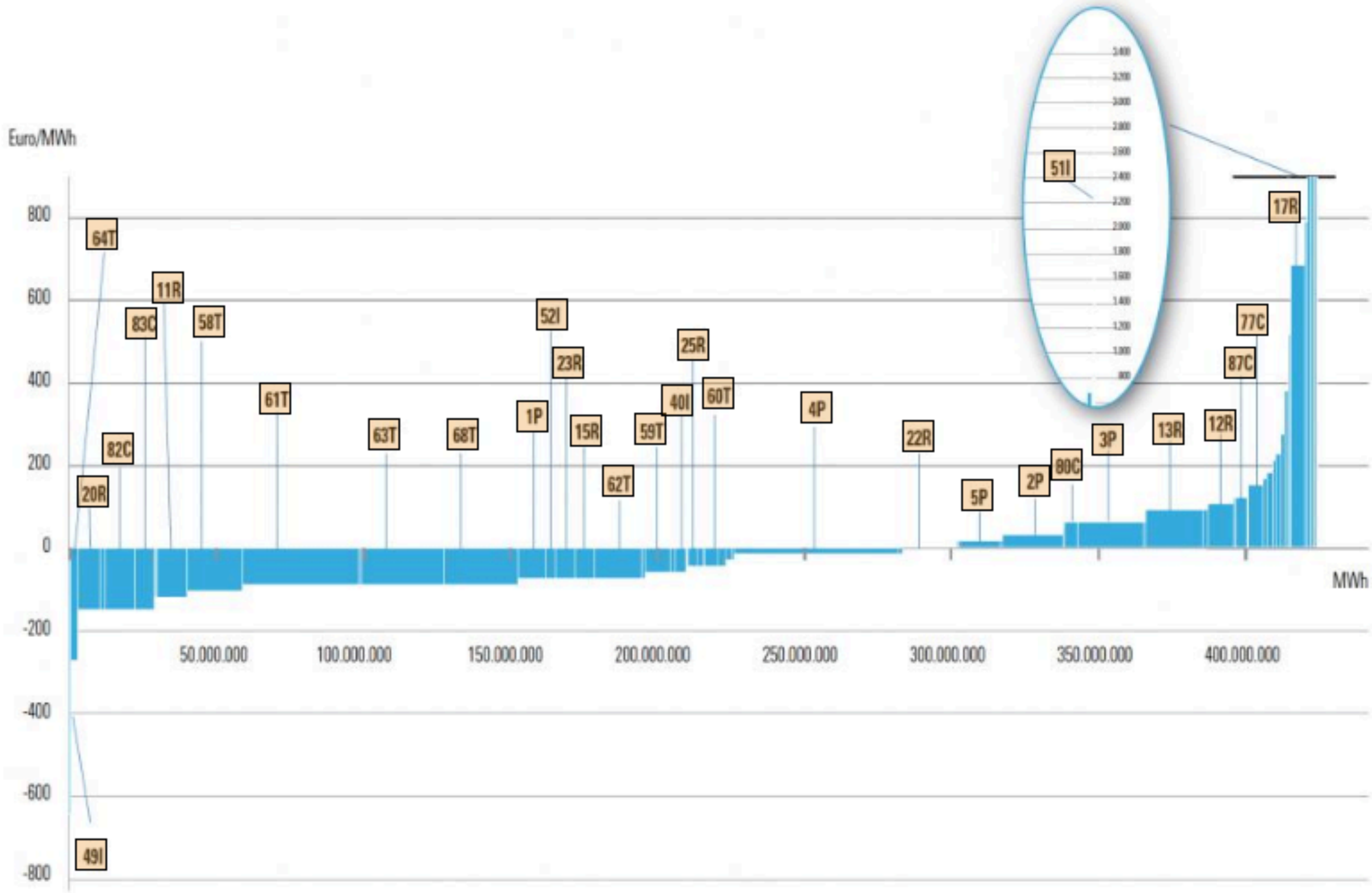
Figure 7.8 ▷ World energy-related CO_2 emissions abatement by scenario



CO_2 abatement in 2040	CPS to NPS	NPS to 450
Activity effect	12%	2%
End-use efficiency	39%	33%
Supply efficiency	6%	2%
Fuel and technology switching	3%	4%
Renewables	32%	39%
Nuclear and CCS	9%	19%
Total (Gt CO_2)	**7.4**	**17.9**

Energy efficiency is a key abatement measure in the New Policies and the 450 Scenario

Notes: CPS = Current Policies Scenario; NPS = New Policies Scenario; CCS = carbon capture and storage.



Euro/MWh
800
600
400
200
0
-200
-400
-600
-800
MWh
50.000.000
100.000.000
150.000.000
200.000.000
250.000.000
300.000.000
350.000.000
400.000.000
64T
11R
83C
58T
82C
20R
61T
63T
68T
1P
52I
23R
15R
62T
59T
40I
25R
60T
4P
22R
5P
2P
80C
3P
13R
12R
87C
77C
17R
51I
49I

ENERGY EFFICIENCY: ECONOMICS AND POLICY

Pedro Linares
Universidad Pontificia Comillas, Spain

Xavier Labandeira
Universidade de Vigo, Spain

Abstract. Energy efficiency and conservation are major factors in the reduction of the environmental impact of the energy sector, particularly with regard to climate change. Energy efficiency also contributes to reducing external dependence and vulnerabilities in the energy domain. In this paper, we discuss the factors that influence energy efficiency and conservation decisions, and the most appropriate policies for their promotion. Although not all public policies seem justified, we argue that specific policies for promoting energy conservation may be required, preferably based on economic instruments or on the provision of information to consumers.

Keywords. Energy; Energy efficiency; Environment; Public policy

1. Introduction

In these times of economic, energy and environmental crisis, energy conservation and efficiency (ECE) forms a major option from the energy sector to stand up to these challenges. We define energy conservation as the absolute reduction in energy demand compared to a certain baseline, measured in energy units, whereas energy efficiency is defined as the improvement (increase) in the efficiency with which energy is used to provide a certain product or service, measured in units of output per energy unit. Energy conservation allows us to save our scarce economic resources and postpone the depletion of our limited fossil resources (on which our current energy supply mostly depends) and, finally, is considered as one of the better alternatives for reducing carbon dioxide emissions. The key for the existence of all these benefits resides in the fact that people do not consume energy, but rather energy services: therefore, it may be possible to provide the same level of energy service with a lower consumption of energy.

Although energy conservation is not central to solving all our environmental problems, its contribution to some of them, like climate change, may be highly significant. To check the validity of this assertion it is only necessary to look at

Journal of Economic Surveys (2010) Vol. 24, No. 3, pp. 573–592

Policy Instruments to Foster Energy Efficiency

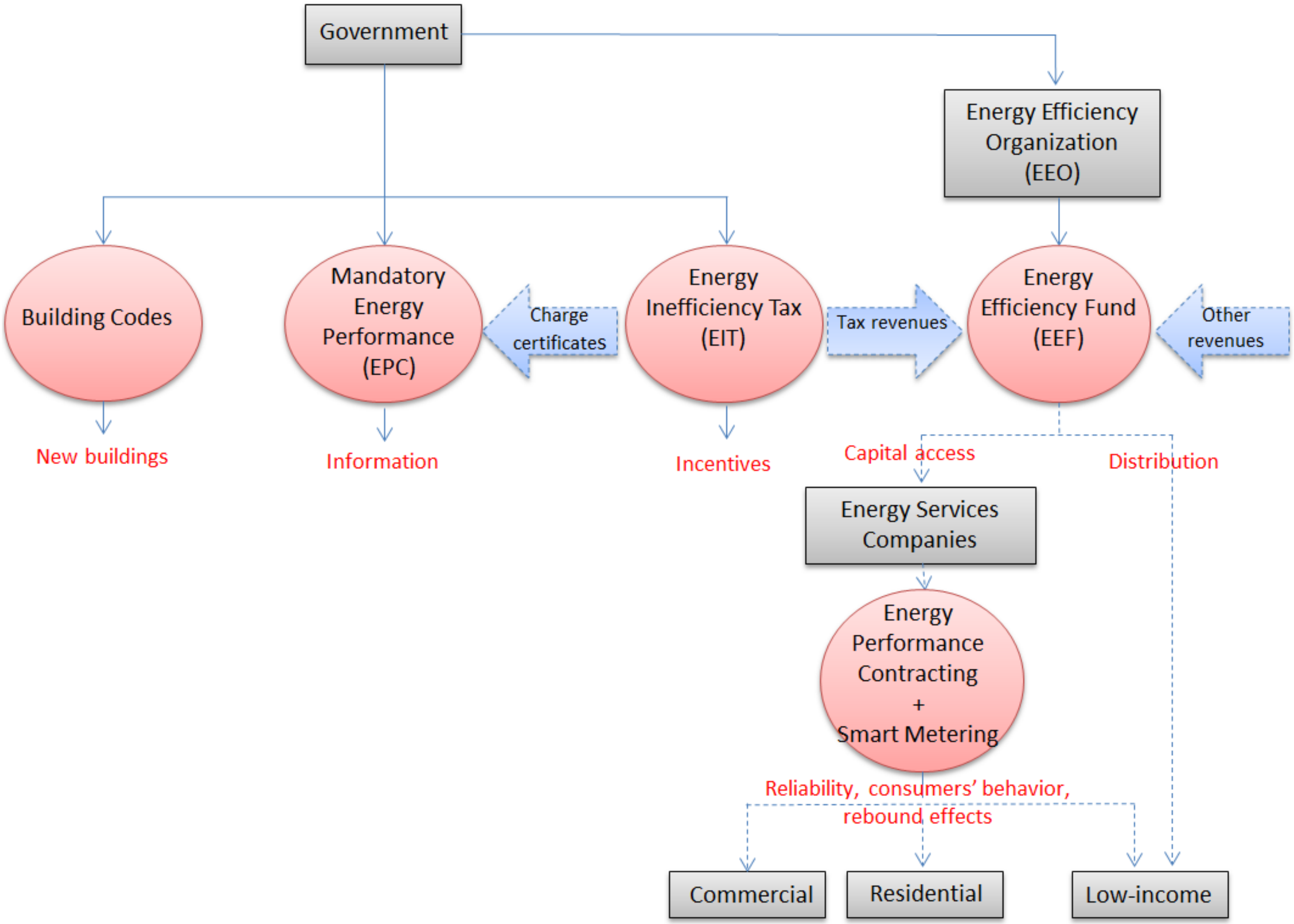
Anil Markandya [a†], Xavier Labandeira [b,c], Ana Ramos [b,c]

[a] Basque Centre for Climate Change (BC3), Alameda Urquijo 4 , 4ª 48008 Bilbao Bizkaia, Spain
[b] Economics for Energy, Doutor Cadaval 2, 3-E, 36202 Vigo, Spain
[c] Universidade de Vigo, Facultade de CC.EE., Campus As Lagoas s/n, 36310 Vigo, Spain.

Abstract

In this paper we focus on the reasons why progress in terms of realizing the energy efficiency potential has been so limited. To being with we consider why individuals and firms do not take advantage of the benefits of increased energy efficiency. Then we turn to the role of policy in moving agents closer to the optimal level. Governments have a range of instruments at their disposal for doing so and while some of them have been successful other have not. Lessons can be learnt from the experience in implementing these different measures. The paper finishes with some thoughts on how policies can be made more effective. Given its overarching nature the paper should be seen as an introduction to the rest of the book where many of the different instruments for energy efficiency are discussed in greater detail.

Figure 3. The policy package to promote energy efficiency in buildings



ENERGY EFFICIENCY IN THE RETAIL SECTOR: A FIELD EXPERIMENT

XAVIER LABANDEIRA
MARIA LOUREIRO

Energy Policy 102 (2017) 549–568

Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

A meta-analysis on the price elasticity of energy demand☆

Xavier Labandeira[a,b], José M. Labeaga[c,*], Xiral López-Otero[a]

[a] Rede, Universidade de Vigo, Facultade de CC.EE., Campus As Lagoas s/n, 36310 Vigo, Spain
[b] FSR Climate, European University Institute, Via Boccaccio 121, 50133 Florence, Italy
[c] Departamento de Análisis Económico, UNED, Senda del Rey 11, 28040 Madrid, Spain

ARTICLE INFO

JEL Classification:
C13
C83
Q41

Keywords:
Short-term
Long-term
Electricity
Gas
Gasoline
Diesel
Oil

ABSTRACT

Price elasticities of energy demand have become increasingly relevant in estimating the socio-economic and environmental effects of energy policies or other events that influence the price of energy goods. Since the 1970s, a large number of academic papers have provided both short and long-term price elasticity estimates for different countries using several models, data and estimation techniques. Yet the literature offers a rather wide range of estimates for the price elasticities of demand for energy. This paper quantitatively summarizes the recent, but sizeable, empirical evidence to facilitate a sounder economic assessment of (in some cases policy-related) energy price changes. It uses meta-analysis to identify the main factors affecting short and long term elasticity results for energy, in general, as well as for specific products, i.e., electricity, natural gas, gasoline, diesel and heating oil.

Elasticities of Car Fuels at Times of Economic Crisis: An Empirical Analysis for Spain

Mohcine Bakhat [a], Xavier Labandeira [b,c], José M. Labeaga [a*], Xiral López-Otero [b]

[a] Departamento de Análisis Económico, UNED, Senda del Rey 11, 28040 Madrid, Spain
[b] Rede, Universidade de Vigo, Campus As Lagoas, 36310 Vigo, Spain
[c] FSR Climate, European University Institute, Via Boccaccio 121, 50133 Florence, Italy

Abstract

This paper provides an updated calculation of the price and income responsiveness of Spanish consumers of car fuels, with an explicit exploration of the effects of the recent economic crisis. We examine separate gasoline and diesel demand models using a set of estimators on a panel of 16 Spanish regions over the period 1999-2015. The paper confirms the persistence of low own-price elasticities both for diesel and gasoline in the short and long runs. It also shows that the crisis of 2008-2013 slightly increased the price elasticity of demand for car fuels, with a higher effect on diesel than on gasoline. By contrary, the crisis slightly reduced the income elasticity of car-fuel demand. Given the intensity and length of the economic recession in Spain, the results of this paper may be useful to anticipate the effects of domestic public policies that impact car-fuel prices as well as to advance some of the potential consequences of crises elsewhere.

Table 5
Average energy elasticities in the empirical literature.

	GLS	Fixed-effects panel
Short term	**−0.221*****	**−0.207*****
Long term	**−0.584*****	**−0.608*****

*** Significant at the 1% level.

Table 6
Average energy products elasticities in the empirical literature.

	Short term	Long term
Electricity	**−0.126***	**−0.365***
Natural Gas	**−0.180*****	**−0.684***
Gasoline	**−0.293*****	**−0.773*****
Diesel	**−0.153****	**−0.443*****
Heating oil	**−0.017**	**−0.185**

*** Significant at the 1% level.
** significant at the 5% level.
* significant at the 10% level.

Tabla 41. Simulaciones de la fiscalidad energético-ambiental para España

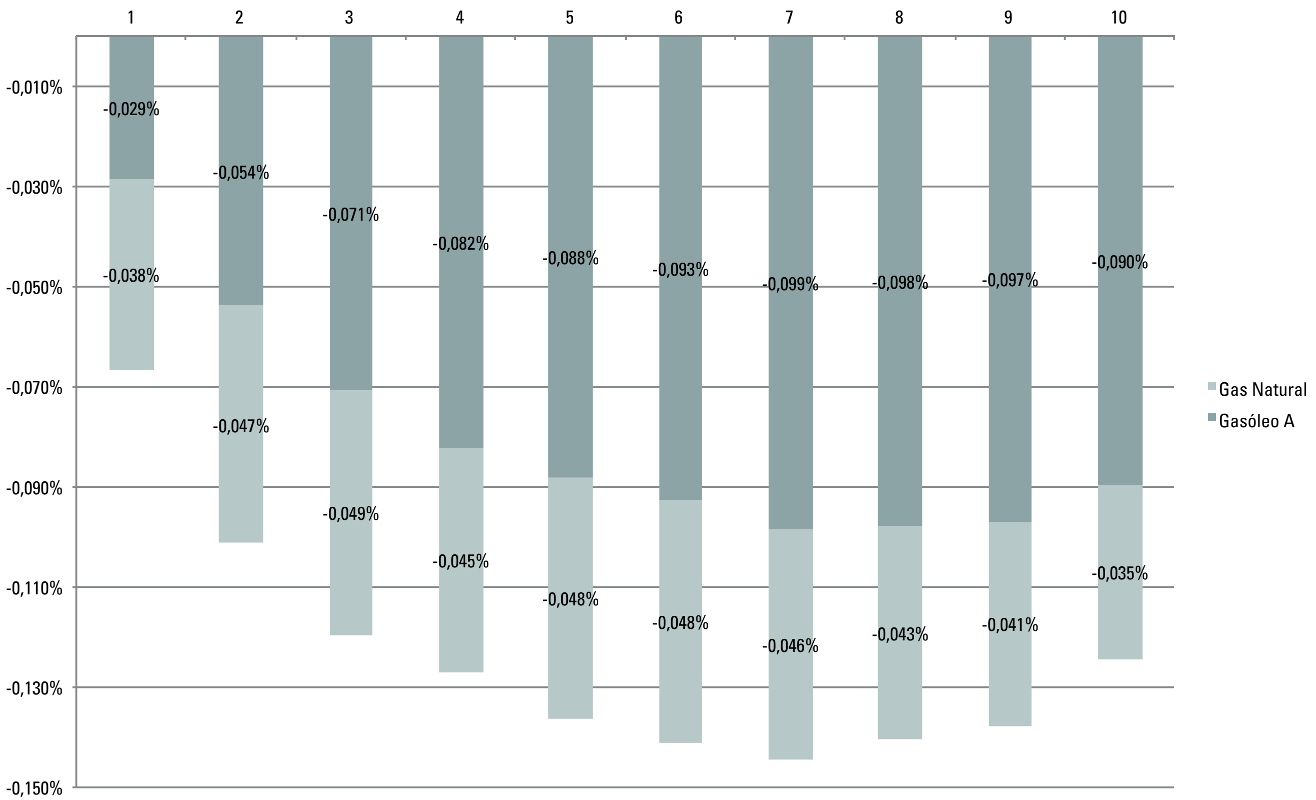
Simulación 1	Propuesta de Directiva de fiscalidad energética	1A. Niveles mínimos 2018
		1B. Convergencia principales países europeos
Simulación 2	Impuesto sobre las emisiones de SO_2 y NOx	2A. 1.000 €/tonelada
		2B. 2.000 €/tonelada
Simulación 3	Impuesto sobre el CO_2 aplicado sobre los sectores difusos	3A. 10 €/tonelada
		3B. 30 €/tonelada
Simulación 4	Financiación del coste de apoyo a las renovables mediante impuestos	4A. Impuestos sobre sectores energéticos
		4B. Impuesto sobre todos los sectores

Tabla 64. Resumen de los efectos de las distintas simulaciones

	Recaudación (millones de €)	**Variación consumo energético**	**Variación PIB**			**Variación emisiones CO_2**		
			DP	**CC.SS**	**SP**	**DP**	**CC.SS**	**SP**
Simulación 1								
1A	1.659	-0,38%	-0,174%	-0,171%	-0,179%	-0,51%	-0,50%	-0,45%
1B	5.283	-1,19%	-0,404%	-0,396%	-0,419%	-1,72%	-1,70%	-1,55%
Simulación 2								
2A	2.696	-0,41%	-0,068%	-0,063%	-0,077%	- 0,56%	-0,55%	-0,47%
2B	5.354	-0,83%	-0,137%	-0,128%	-0,155%	-1,09%	-1,06%	-0,91%
Simulación 3								
3A	2.214	0,01%	-0,057%	-0,053%	-0,064%	-0,10%	-0,09%	-0,04%
3B	6.620	0,03%	-0,169%	-0,159%	-0,191%	-0,30%	-0,26%	-0,07%
Simulación 4								
4A	7.477	0,15%		-0,288%			-0,41%	
4B	7.477	2,44%		0,000%			1,97%	

Fuente: Elaboración propia

Figura 15. Simulación 1A. Efecto total por decilas de renta



Fuente: Elaboración propia