
CONSTRAINTS AND POSSIBILITIES FOR ENERGY TAXES IN SPAIN

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Contents

- **Why this paper?**
 - **Energy taxes and green tax reforms**
 - **Anomalies of Energy Taxes in Spain**
 - **Potentials**
 - **Conclusions**
-

Why this paper?

- ❑ A singular case of barriers to environmental taxation
 - ❑ Exploiting different methodological approaches
 - ❑ Importance of policy packaging
 - ❑ Lessons to other countries?
-

Reasons for energy taxes

- ❑ Revenue-raising (Ramsey)
 - 1970s
 - Low price-elasticities
 - ❑ Environmental correction (Pigou)
 - 1990s
 - Static and dynamic efficiency
 - ❑ Capture of economic rents
 - Oil-shock related
-

Limits to energy taxes

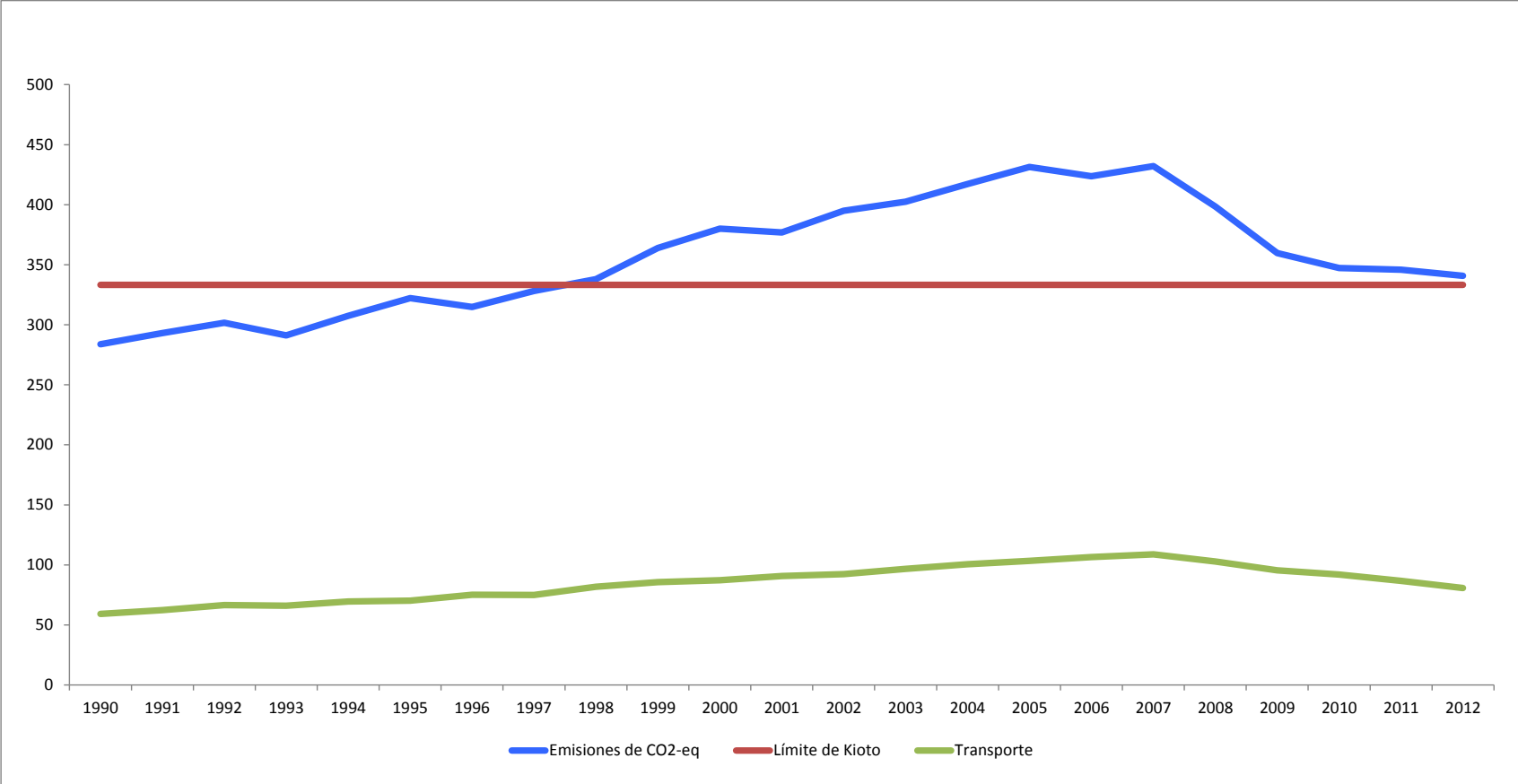
- ❑ Energy/GDP decoupling
 - Applicable to evolution
 - ❑ Distributional concerns
 - Country and product dependent
 - ❑ Competitiveness
 - Exemptions
-

Green Tax Reforms

- ❑ **Systemic approach based on energy-related taxation**
 - ❑ **Based on the theory of double dividend**
 - Externality correction
 - Fiscal improvement
 - ❑ **Three generations**
 - **Scandinavian model (1990s)**
 - ❑ Income and carbon taxation
 - **German model (2000s)**
 - ❑ Labour and (conventional) energy taxation
 - **Variable recycling (2010s): Ireland, Japan, Switzerland, etc.**
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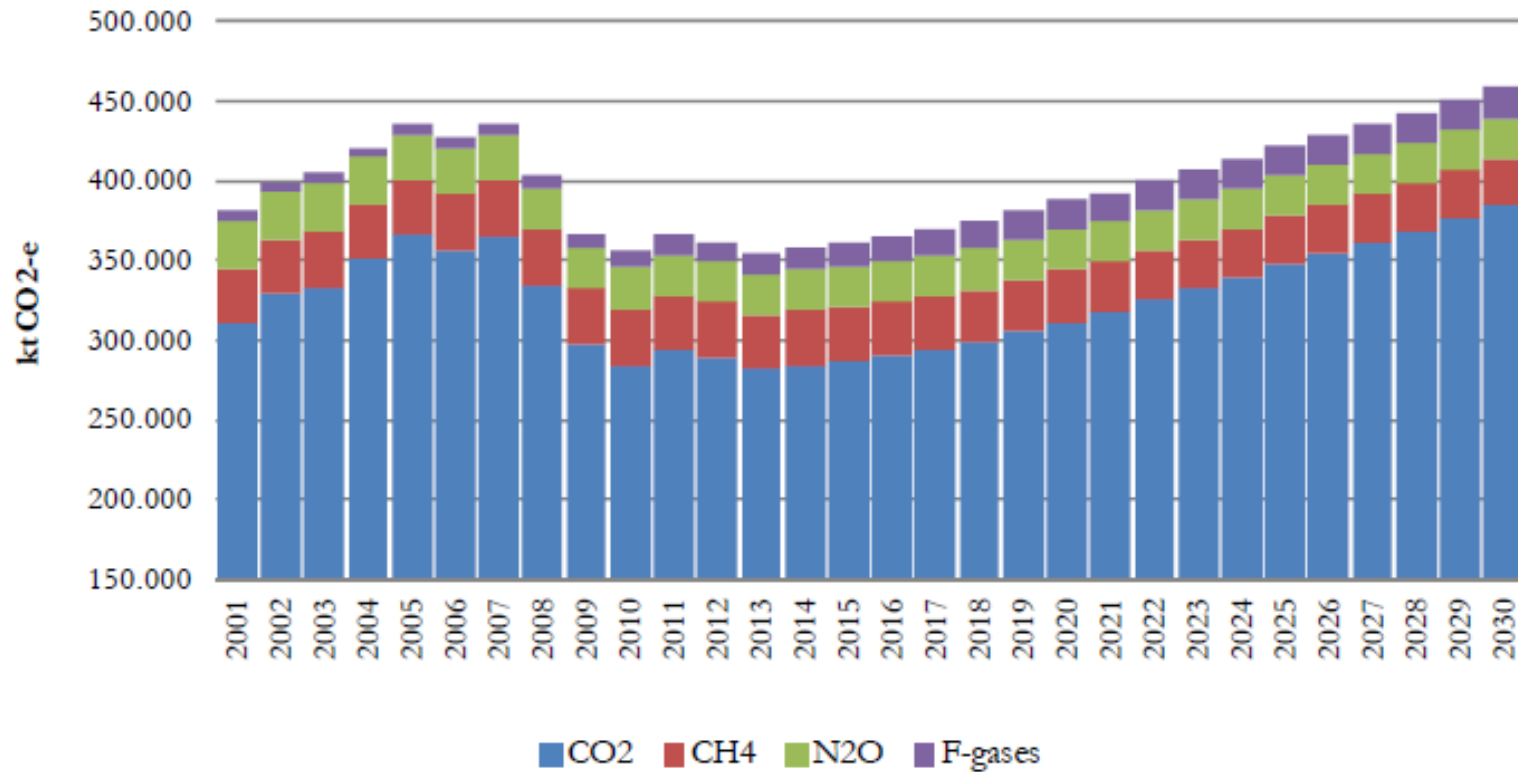
Spain: A picture

Spanish CO₂ emissions

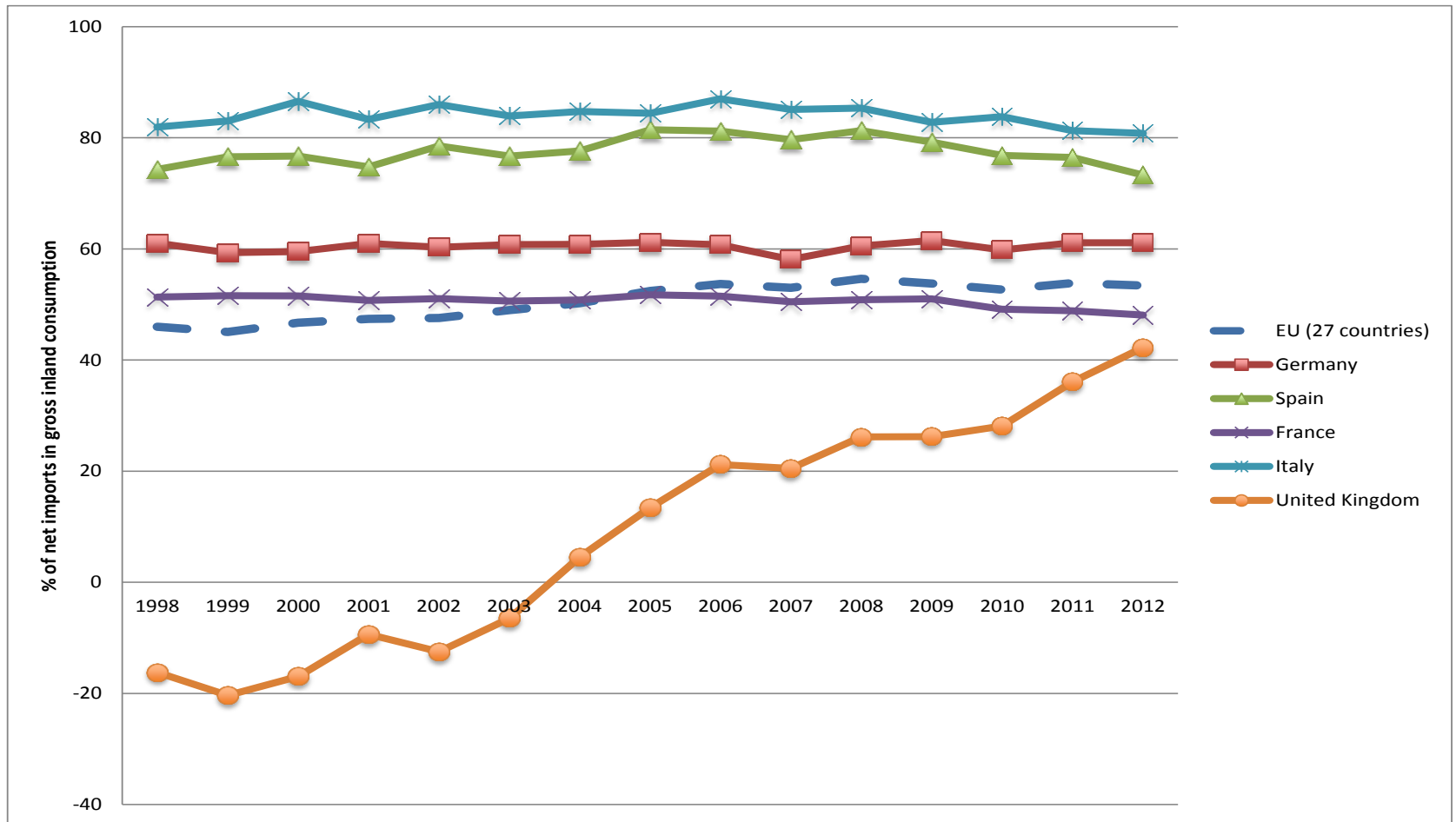


Spanish CO₂ emissions (official forecast)

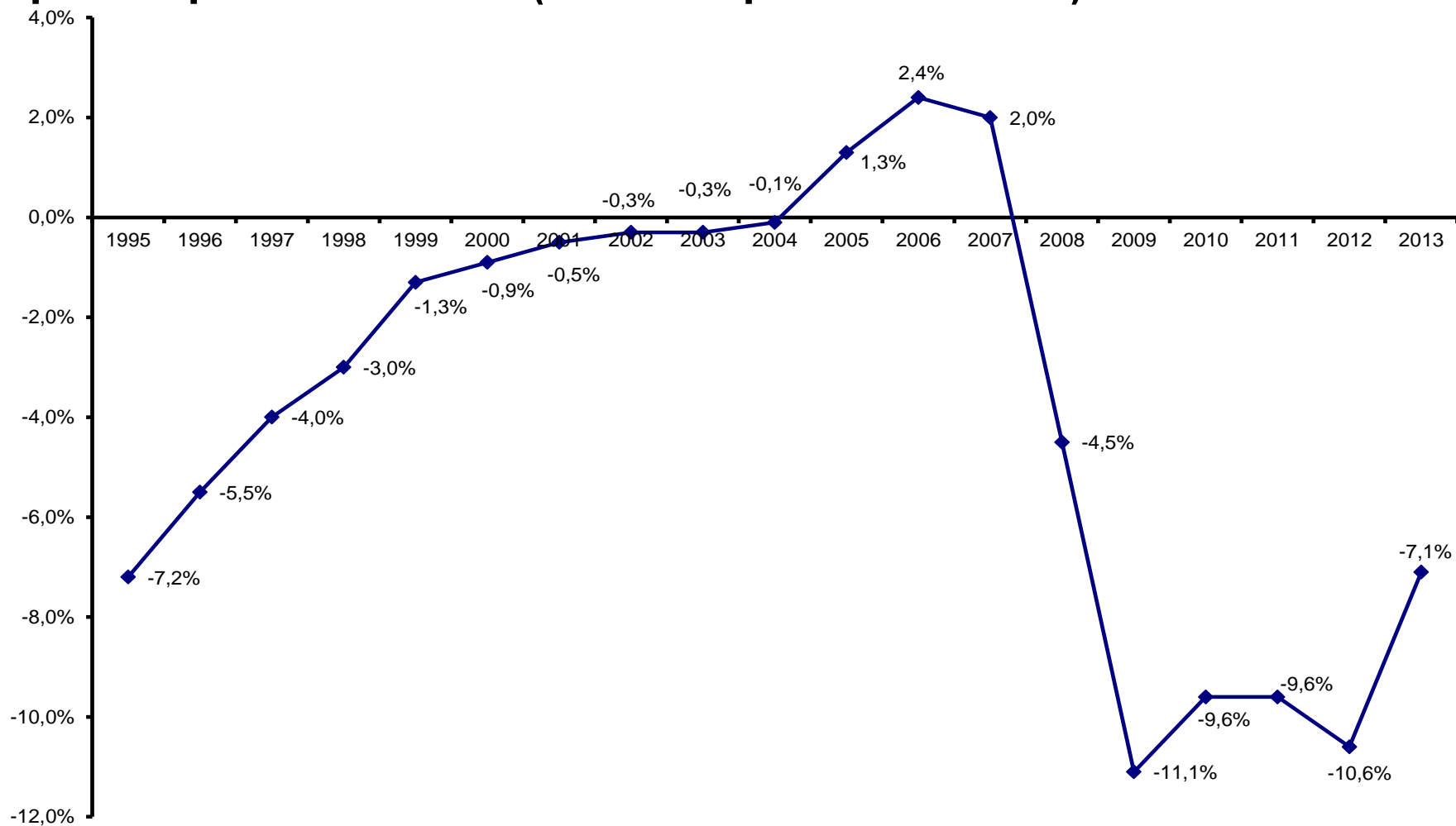
Proy. Total Inventario
Total GEIs - Escenario WM



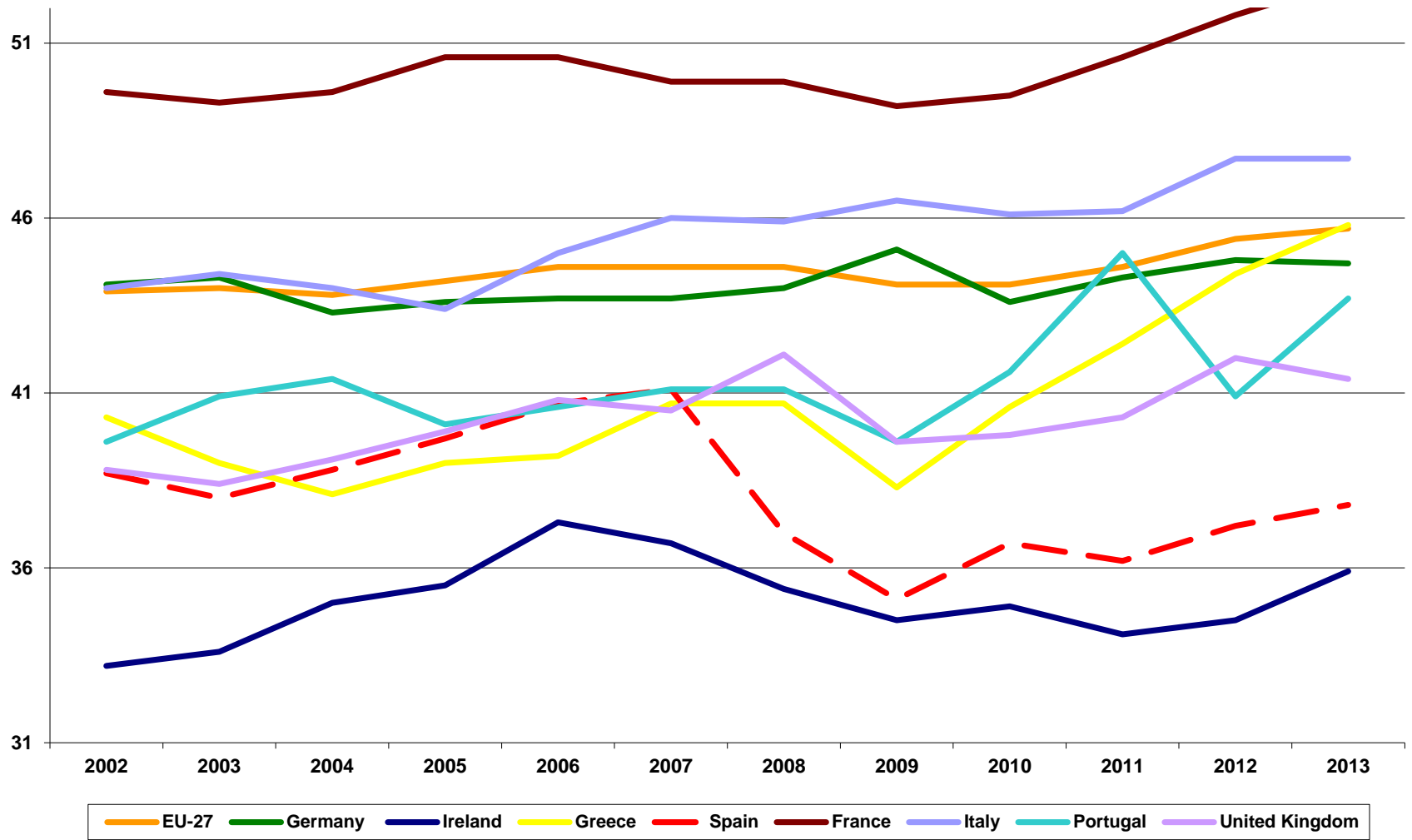
Spanish energy dependence



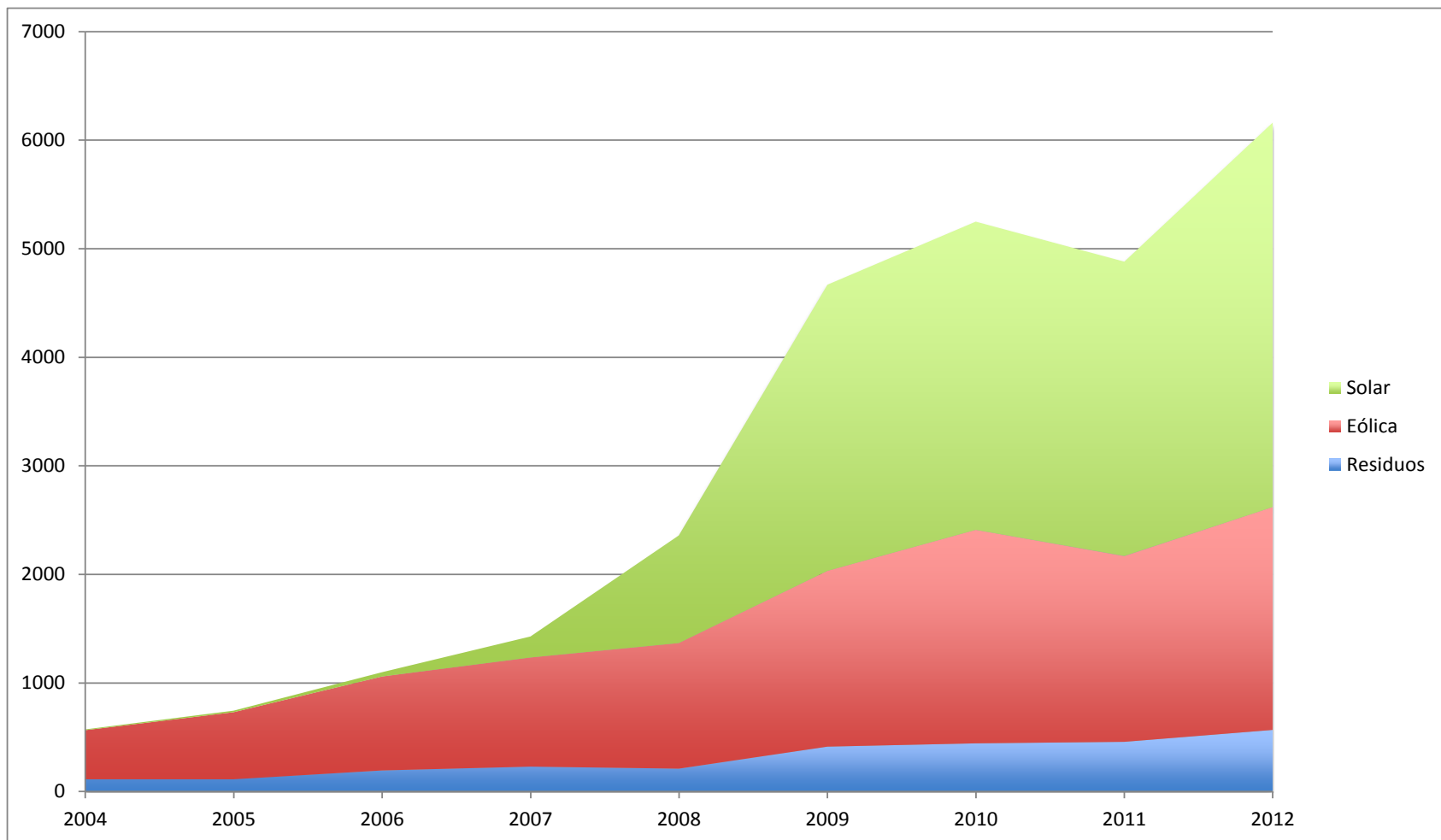
Spanish public finances (deficit/superavit on GDP)



Public revenues on GDP (2002-2013)



Costs of renewable support (M€)



Spanish anomalies

- ❑ **Low levels of energy taxes**
 - January 2012 increases of personal income tax and other minor taxes; September 2012 VAT increase
 - IMF & EC continuous recommendations to raise energy/environmental taxes
 - December 2012 New “environmental” taxes on electricity producers and natural gas
 - July 2013 New environmental tax on fluorinated greenhouse gases
 - The ‘expert’ commission on tax reform and the government
 - ❑ **Regional involvement in energy taxation**
-

Comparatively lower energy taxation (2013)

Impuestos sobre la energía (€) 2013	Fuelóleo ligero para hogares (por cada 1000 litros)				Gasóleo de automoción para uso no comercial (por litro)				Gasolina sin plomo (95 octanos) (por litro)				Gas natural para hogares (por cada MWh GCV)				Electricidad para hogares (por kWh)			
	Accisa	IVA (%)	Total	PPA (%)	Accisa	IVA (%)	Total	PPA (%)	Accisa	IVA (%)	Total	PPA (%)	Accisa	IVA (%)	Total	PPA (%)	Accisa	IVA (%)	Total	PPA (%)
	Alemania	61,35	19,00	194,63	58,70	0,47	19,00	0,70	87,76	0,66	19,00	0,91	96,20	5,50	19,00	16,88	100,65	96,30	19,00	142,90
Austria	109,18	20,00	267,00	75,68	0,42	20,00	0,65	76,45	0,51	20,00	0,74	73,42	5,96	20,00	17,62	98,73	30,70	20,00	64,90	94,51
Bélgica	18,49	21,00	164,89	46,73	0,43	21,00	0,68	80,70	0,61	21,00	0,90	89,42	2,60	21,00	14,05	78,73	19,60	21,00	54,80	79,80
Dinamarca	403,87	25,00	714,14	164,00	0,40	25,00	0,71	67,69	0,59	25,00	0,93	74,87	35,39	25,00	54,96	249,53	109,95	25,00	169,35	199,82
Eslovenia	176,60	21,00	351,40	137,78	0,45	21,00	0,69	111,80	0,57	21,00	0,82	113,25	4,79	21,00	16,78	130,07	16,50	21,00	44,30	89,24
España	87,30	21,00	245,60	84,97	0,37	21,00	0,61	87,27	0,47	21,00	0,71	86,46	0,18	21,00	14,33	98,01	8,80*	21,00	41,10*	73,06
Estonia	110,95	20,00	277,03	118,49	0,39	20,00	0,61	109,32	0,42	20,00	0,64	96,25	2,18	20,00	10,51	88,87	13,20	20,00	35,15	77,25
Finlandia	163,43	24,00	377,19	97,51	0,47	24,00	0,76	82,00	0,65	24,00	0,97	87,63	10,33	24,00	19,85	101,45	17,00	24,00	46,50	61,76
Francia	56,60	19,60	208,59	58,42	0,44	19,60	0,66	76,94	0,61	19,60	0,87	84,92	1,29	19,60	11,29	62,51	25,14	19,60	46,65	67,13
Grecia	330,00	23,00	567,24	205,30	0,33	23,00	0,59	88,44	0,67	23,00	0,98	124,71	5,40	13,00	18,53	132,59	26,10	13,00	44,85	83,40
Hungría	n.d.	27,00	n.d.	n.d.	0,38	27,00	0,69	157,35	0,42	27,00	0,71	137,68	0,00	27,00	8,27	89,90	4,10	27,00	32,37	91,45
Irlanda	88,66	13,50	215,50	62,59	0,48	13,50	0,76	92,24	0,59	13,50	0,89	90,10	3,70	13,50	12,39	71,14	0,00	13,50	26,20	39,10
Italia	403,21	21,25	650,56	204,06	0,62	21,25	0,91	118,56	0,73	21,25	1,04	113,80	n.d.	21,25	26,67**	165,38	56,20	10,00	77,10	124,26
Luxemburgo	10,00	12,00	96,58	24,70	0,34	15,00	0,49	52,58	0,46	15,00	0,64	57,01	1,08	6,00	4,44	22,45	11,40	6,00	20,20	26,54
Países Bajos	254,42**	21,00	360,89	102,29	0,45	21,00	0,69	81,76	0,75	21,00	1,05	104,72	19,28	21,00	32,84	184,02	11,40	21,00	45,00	65,53
Polonia	55,27	23,00	229,66	125,99	0,35	23,00	0,59	134,87	0,40	23,00	0,64	123,33	0,00	23,00	9,58	103,87	4,76	23,00	32,40	91,32
Portugal	323,70	23,00	564,40	221,29	0,37	23,00	0,63	102,33	0,59	23,00	0,88	121,08	0,00	23,00	16,55	128,29	0,00	23,00	39,40	79,37
Reino Unido	131,17	5,00	170,27	49,30	0,68	20,00	0,96	115,53	0,68	20,00	0,95	95,97	0,00	5,00	2,76	15,77	0,00	5,00	8,24	12,26
República Checa	25,40	21,00	254,62	117,00	0,42	21,00	0,66	126,79	0,49	21,00	0,74	118,55	0,00	21,00	10,97	99,66	1,15	21,00	28,02	66,16
República Eslovaca	n.d.	20,00	n.d.	n.d.	0,37	20,00	0,60	115,59	0,52	20,00	0,77	123,69	0,00	20,00	8,87	80,89	0,00	20,00	29,50	69,92
Suecia	451,94	25,00	760,10	179,05	0,53	25,00	0,87	85,40	0,62	25,00	0,95	78,61	30,62	25,00	55,13	256,77	31,90	25,00	67,04	81,14
Media ponderada (PPA)	201,39	18,74	425,08	100	0,66	20,88	1,02	100	0,83	20,88	1,21	100	3,96	18,50	21,50	100	42,76	17,07	82,73	100

Evolution of car fuels in Spain (1998-2013)

Evolución precios carburantes España 1998-2013



Fuel prices before taxes (€/liter)

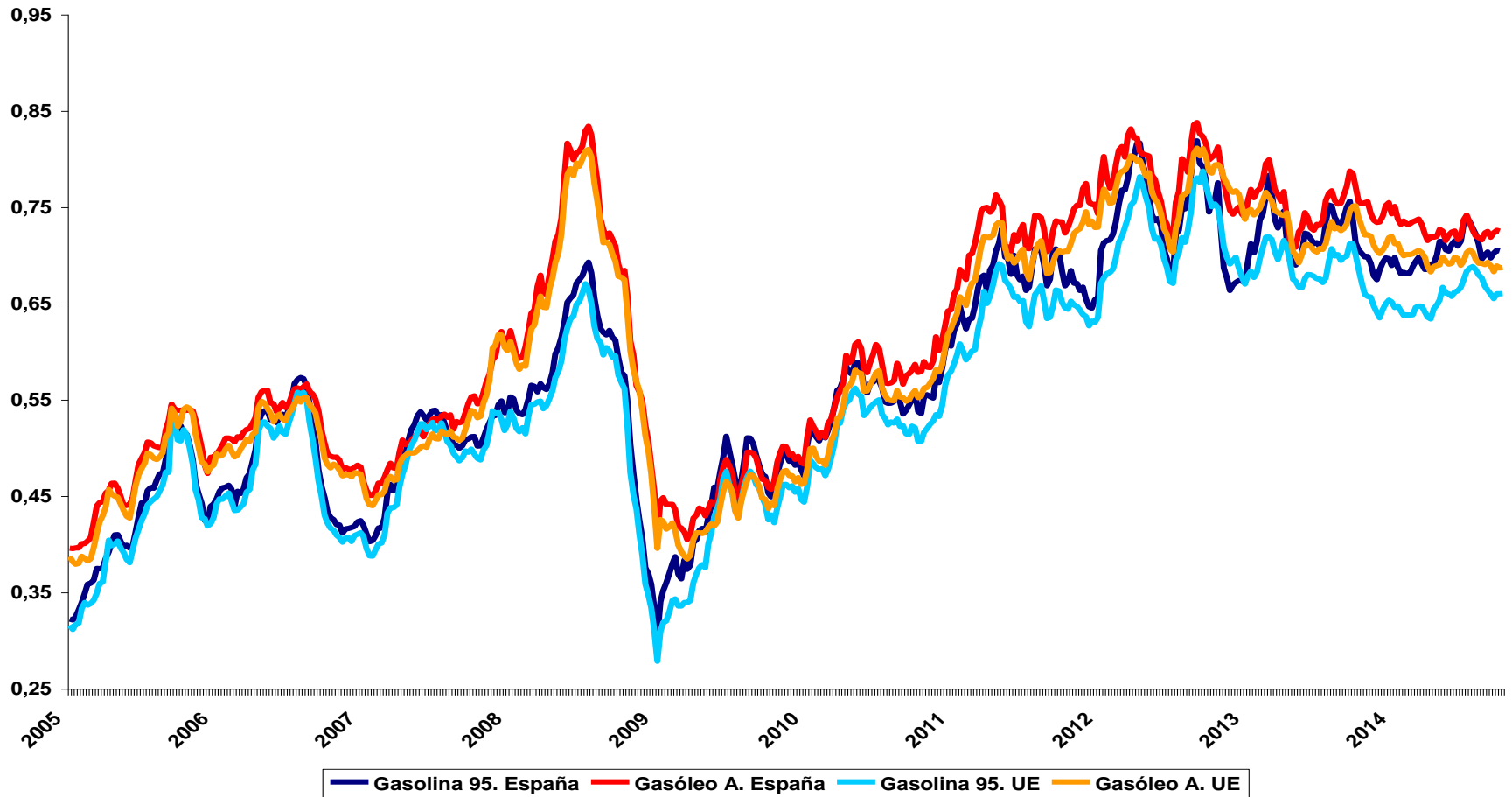
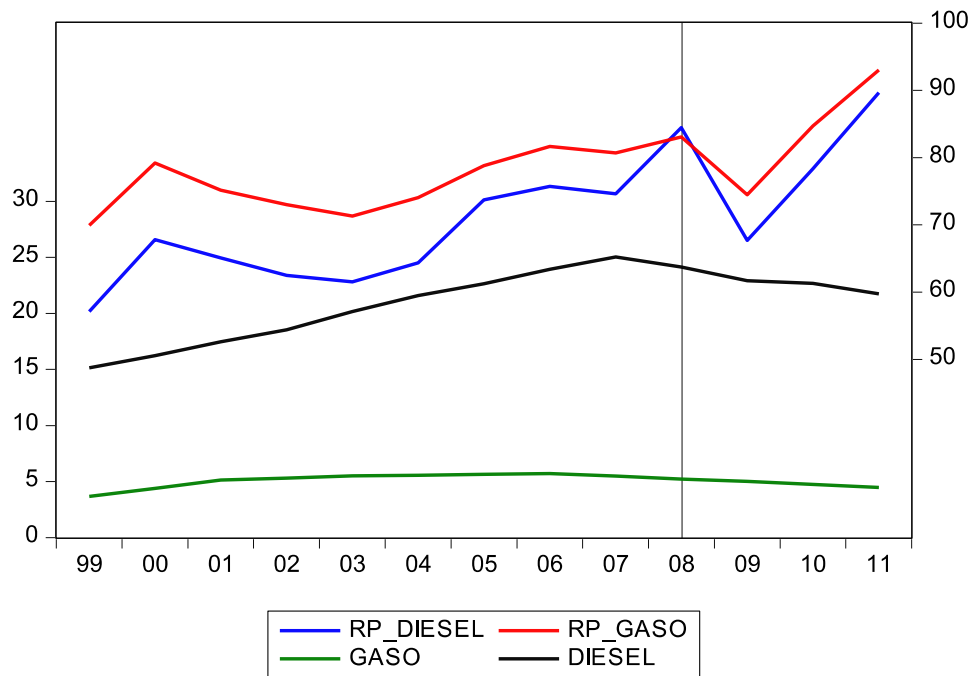
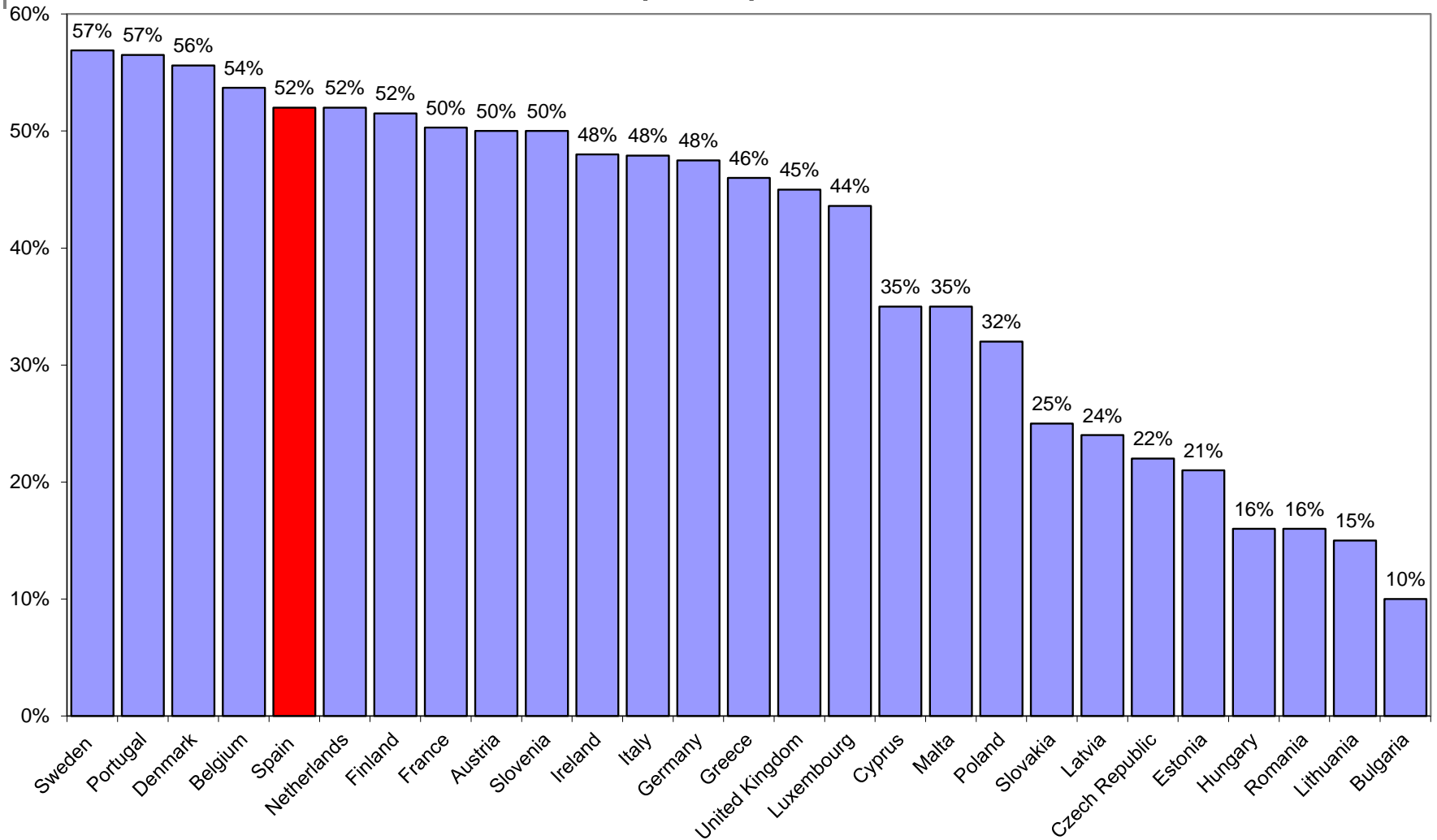


Figure 1. Gasoline and diesel real prices (Euros/litres) and annual consumption (Million litres) in Spain (1999-2011)



Source: The authors with data from Ministry of Industry and CNE.

Income taxation in the EU (2014)



Spanish anomalies

- **Positive results from academic simulations**
 - **Environmental effectiveness**
 - **Distributional effects**
 - **Economic dividend**
 - **Political constraints?**
 - **Competitiveness and growth**
 - **Social preferences**
 - **Results from a CV study on Spanish CC policies**
 - **Fiscal inertia**
-

Academic Literature

- ❑ **General simulations for Spain (within EU modeling)**
 - Carraro et al. (JPE, 1996); Barker and Köhler (1998); Conrad and Schmidt (1998); Bosello and Carraro (Energy Economics, 2001), mainly through GEM
 - Broadly positive effects (employment, GDP) when recycling carbon tax revenues (usually designed to achieve -10% reductions of EU CO₂ emissions) to reduce labour taxes (social security contributions paid by employers)
-

Academic Literature

❑ Specific simulations for Spain

- Labandeira and Labeaga (*Fiscal Studies*, 1999): input-output + microsimulation (after energy demand estimation); Labandeira and Labeaga (*Energy Policy*, 2002) input-output price-effects; Labandeira et al. (*European Environment*, 2004) GEM+microsimulation; Labandeira and Rodríguez (*Climate Policy*, 2010) GEM. Recent demand results: Labandeira et al. (*Energy Journal*, 2006), Labandeira et al. (*Energy Economics*, 2012)
 - Environmental effectiveness (reaction); broadly positive effects (employment, GDP) when recycling carbon tax receipts to reduce distortionary taxes; efficiency gains from extending the EU ETS to non subject sectors; (decreasing) trend to proportionality (slight regressivity)
 - Results confirmed by Gallastegui et al. (*Series*, 2011), González-Eguino (*Ecological Economics*, 2011) and Manresa and Sancho (*Energy Policy*, 2005) through GEM and different alternatives
-

Tabla 4. Efectos de la fiscalidad energético-ambiental en el caso español

Artículo	Reforma simulada	PIB	Empleo	Emisiones
Carraro <i>et al.</i> (1996)	Reducción CC.SS	0,00%	0,70%	2,00%
Barker y Köhler (1998)	No	-0,20%	-0,40%	-8,70%
	Reducción CC.SS	1,20%	1,40%	-11,40%
Conrad y Schmidt (1998)	Reducción CC.SS	0,03%	[0,37%, 0,40%]	[-10,64%, -10,00%]
Labandeira y Labeaga (1999)	No	-	-	-3,00%
Labandeira y Labeaga (2000)	No	-	-	-7,30%
Bosello y Carraro (2001)	Reducción CC.SS (trabajo no cualificado)	-0,20%	0,30%	0,10%
	Reducción CC.SS (trabajo no cualificado)	3,60%	0,80%	3,60%
Labandeira y López-Nicolás (2002)	No	-	-	[-1,52%, -0,28%]
Labandeira <i>et al.</i> (2004)	Reducción CC.SS	0,20%	0,10%	-7,70%
Labandeira <i>et al.</i> (2005)	Reducción CC.SS	0,16%	0,10%	-7,68%
Manresa y Sancho (2005)	No	-	[-0,82%, 0,00%]	[-3,81%, -0,77%]
	Reducción CC.SS	-	[0, 06%]	[-3,21%, -0,70%]
Labandeira <i>et al.</i> (2007)	Reducción IVA	1,00%	0,00%	-5,70%
Labandeira y Rodríguez (2006)	No	[-1,60%, -0,20%]	[-0,80%, -0,10%]	[-16,00%, -2,00%]
Labandeira y Rodríguez (2010)	No	[-0,70%, -0,42%]	-	-16,00%
González-Eguino (2011)	No	[-2,25%, -0,38%]	[-1,74%, -0,35%]	-15,00%
Gallastegui <i>et al.</i> (2012)	No	[-1,60%, -0,60%]	-	-30,00%
Markandya <i>et al.</i> (2013)	No	-1,55%	-1,40%	-15,00%
	Reducción CC.SS	7,65%	0,10%	-15,00%
	Reducción impuestos capital	-1,55%	-1,50%	-15,00%

Fuente: Elaboración propia a partir de la literatura citada

The study on Spanish preferences

- ❑ Hanemann, Labandeira and Loureiro (2011a, 2011b, 2013)
 - ❑ CV application to assess policy options, with exploration of attitudinal questions
 - ❑ Questions on electricity and transport influenced by
 - ❑ Focus groups
 - ❑ Positive WTP for electricity and transport policies
-

The Spanish anomalies (2)

- Subnational growing use of (energy-related) environmental taxes**
 - Why?**
 - Strange recent (inefficient) experiences: Regional taxes on hydro generators and on windmills**
 - Another reason to act in this area (use of extra revenues to compensate regions)**
-

Potentials

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 NO _x	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

Fuente: Elaboración propia

Figura 12. Métodos de simulación

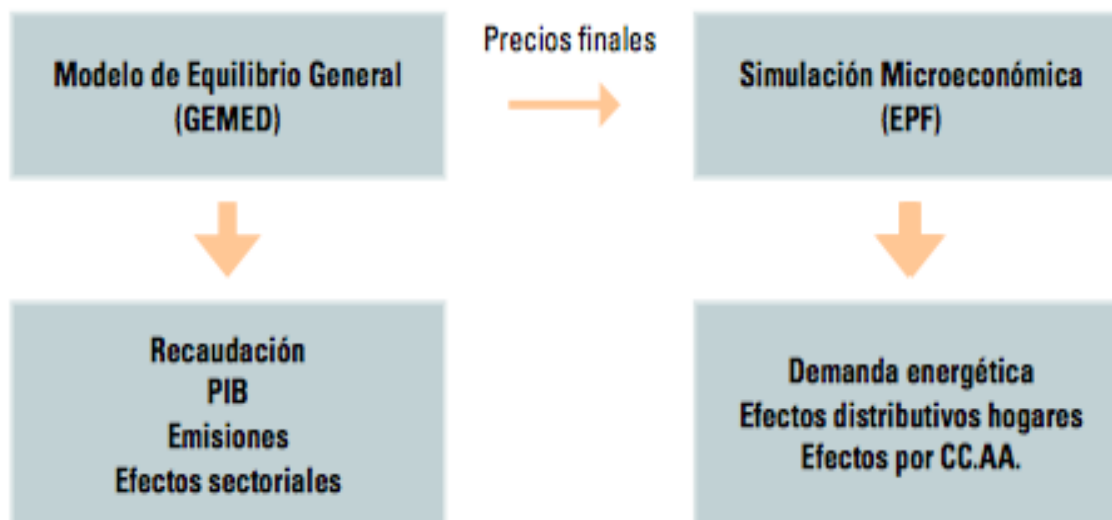


Tabla 64. Resumen de los efectos de las distintas simulaciones

	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 17. Simulación 1B. Efecto total por decilas de renta

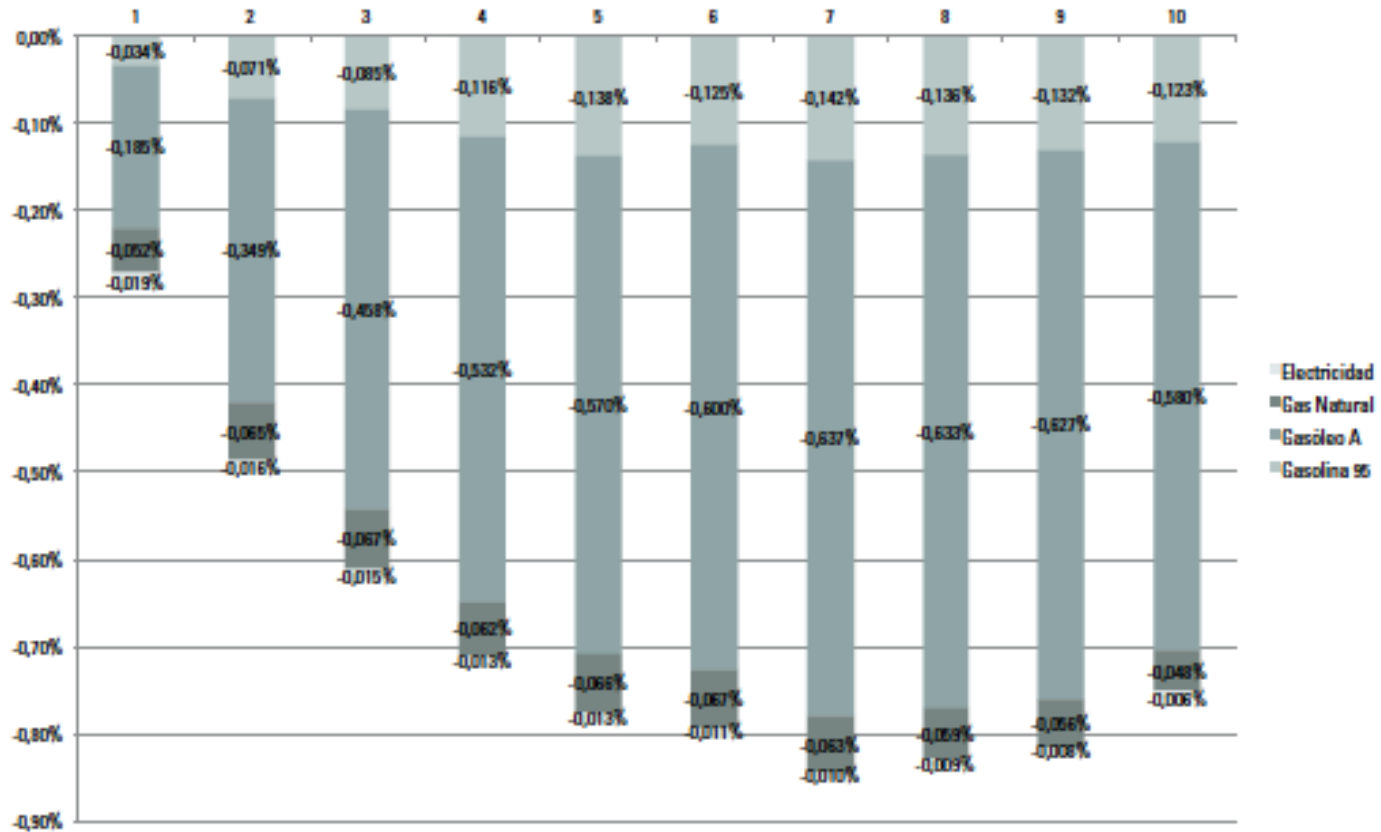
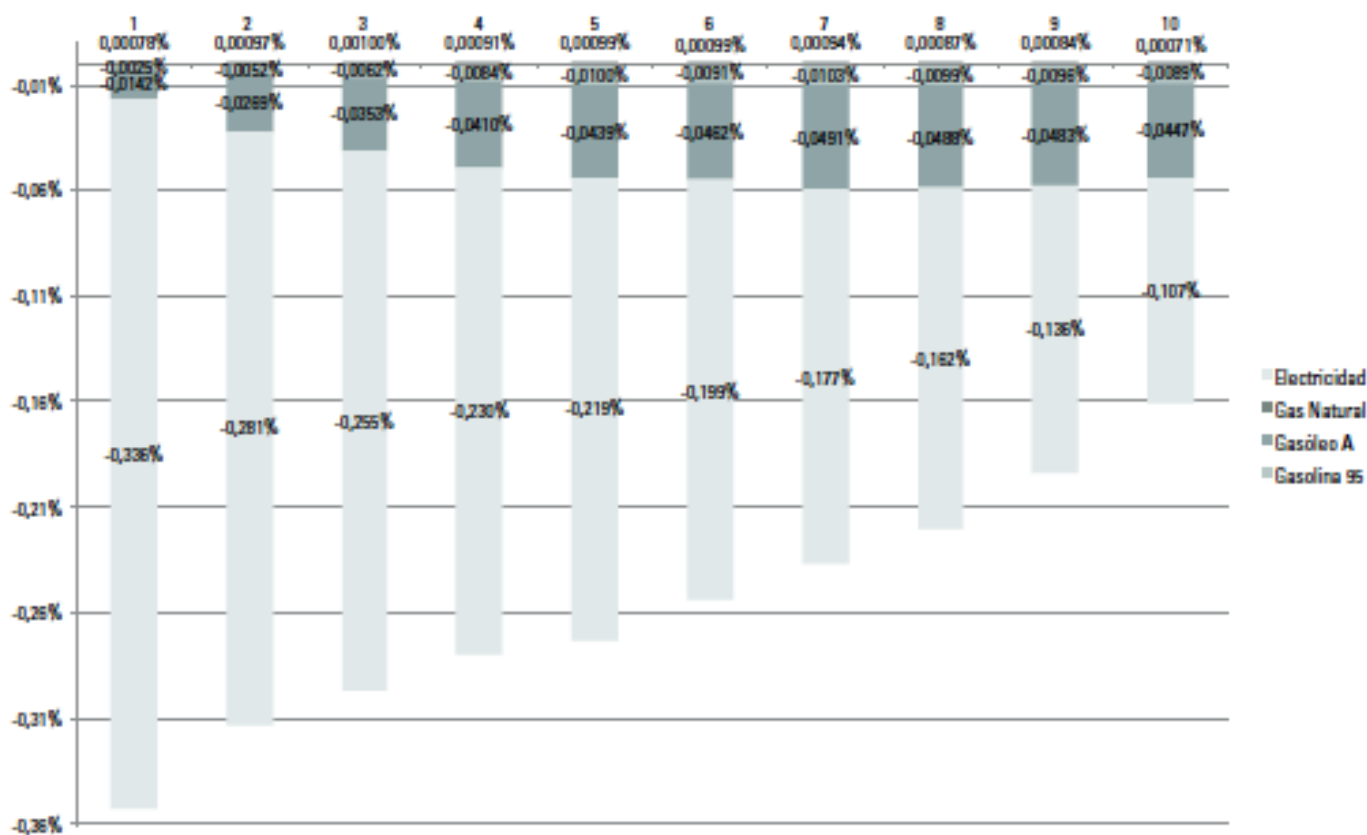
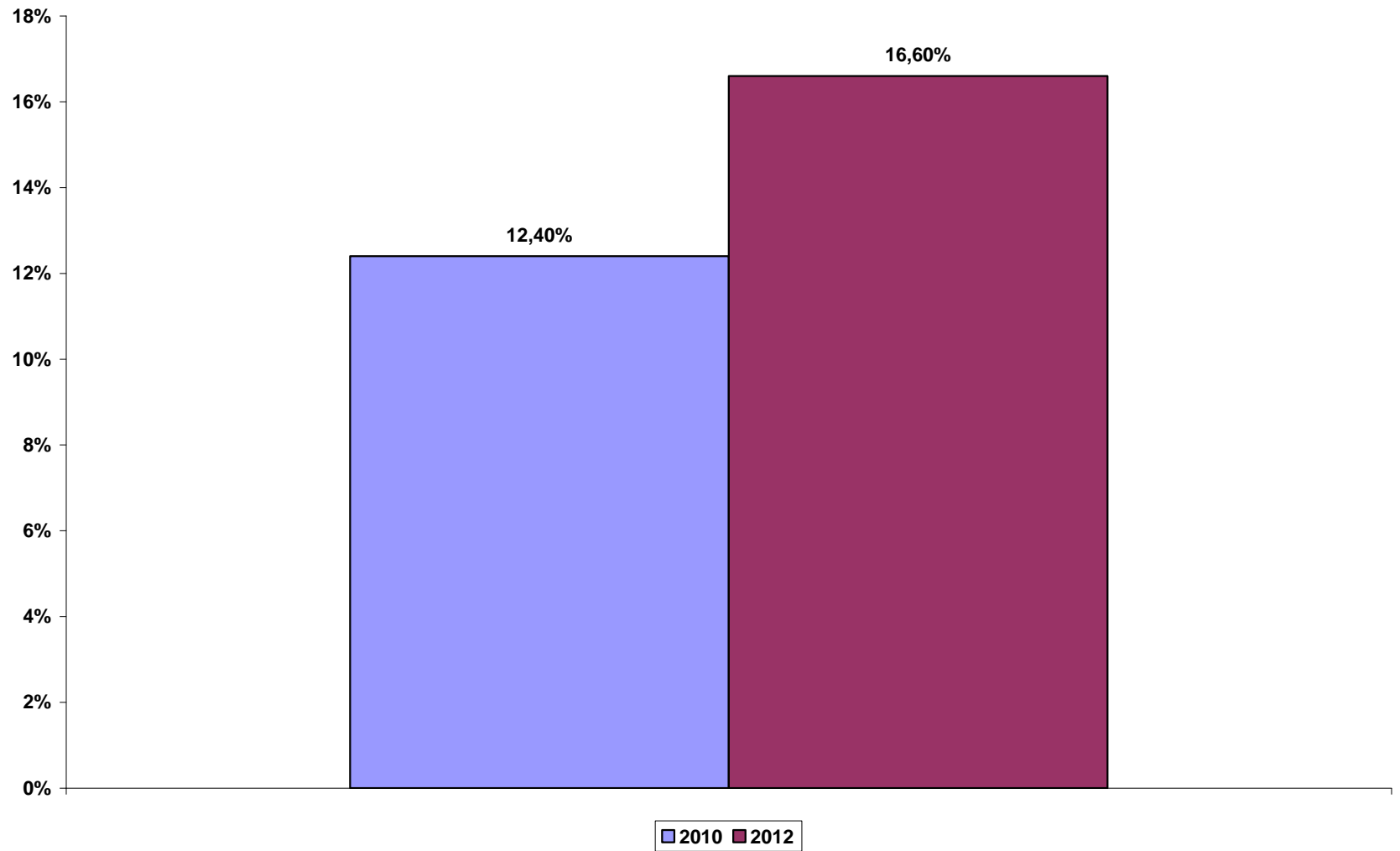


Figura 21. Simulación 2B. Efecto total por decilas de renta



% of Spanish households spending more than 10% of their income in Energy



Distributional concerns

		Simulación A	Simulación B
Recaudación adicional	Total* (M€)	6.127,85	8.583,45
	Media hogar ^b (€)	141,82	314,40
Modificación de la renta disponible (media por hogar, en %)	Decila 1	-1,26	-1,43
	Decila 2	-1,08	-1,74
	Decila 3	-0,80	-1,39
	Decila 4	-0,82	-1,70
	Decila 5	-0,66	-1,43
	Decila 6	-0,65	-1,58
	Decila 7	-0,63	-1,52
	Decila 8	-0,57	-1,42
	Decila 9	-0,52	-1,28
	Decila 10	-0,39	-0,99
Media	-0,61	-1,35	
Efecto redistributivo (índice de Reynolds-Smolensky)		-0,0010698	-0,0011550

Compensación 3 primeras decilas			
Compensac. necesaria	Total (M€)	497,65	759,26
	Media hogar (€)	96,58	147,36
Modificación de la renta disponible (media por hogar, en %)	Decila 1	0,00	+0,49
	Decila 2	0,00	-0,09
	Decila 3	0,00	-0,18
Efecto redistributivo (índice de Reynolds-Smolensky)		0,0001851	0,0007716
Compensación 5 primeras decilas			
Compensac. necesaria	Total (M€)	927,7	1.667,00
	Media hogar (€)	108,5	194,16
Modificación de la renta disponible (media por hogar, en %)	Decila 1	+0,03	+0,89
	Decila 2	+0,03	+0,25
	Decila 3	+0,02	+0,07
	Decila 4	-0,03	-0,27
	Decila 5	-0,01	-0,26
Efecto redistributivo (índice de Reynolds-Smolensky)		0,0007722	0,0021752

Some comparisons

- ❑ **Other consolidation efforts**
 - Greece: +42% increase in energy tax revenues (2011/2008)
 - Italy: +27% (petrol) and +43% (diesel) increases (June 2012/April 2011)
 - ❑ **Previous Spanish revenue increases:**
 - Zapatero's 2010/11 tax rises: VAT + 5500 M€, IT +200 M€
 - Rajoy's 2012 tax rises: VAT +7500 M€, IT +4000 M€, 'Environment' 2700 M€
 - Regional energy and energy-environmental taxes (2012): 250 M€
 - New tax on fluorinated greenhouse gases (2013): 340 M€
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Conclusions

- ❑ **Spain faces complex challenges in its economy, and particularly in its energy and public sectors**
 - ❑ **The behavior of Spanish governments towards energy taxes has been reactive and completely unrelated to the positive signals received from academia**
 - ❑ **The current crisis could bring out an opportunity to change this through a green tax reform of 3rd generation, with revenues partly allocated to fiscal consolidation, reduction of labour taxes (implicit devaluation) and funding of energy efficiency and renewables**
 - ❑ **However, energy and environmental taxes were left untouched, in contrast to other EU countries and the opinion of tax and environmental experts**
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THANKS

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