**EU15** 

DV: log(CO2)

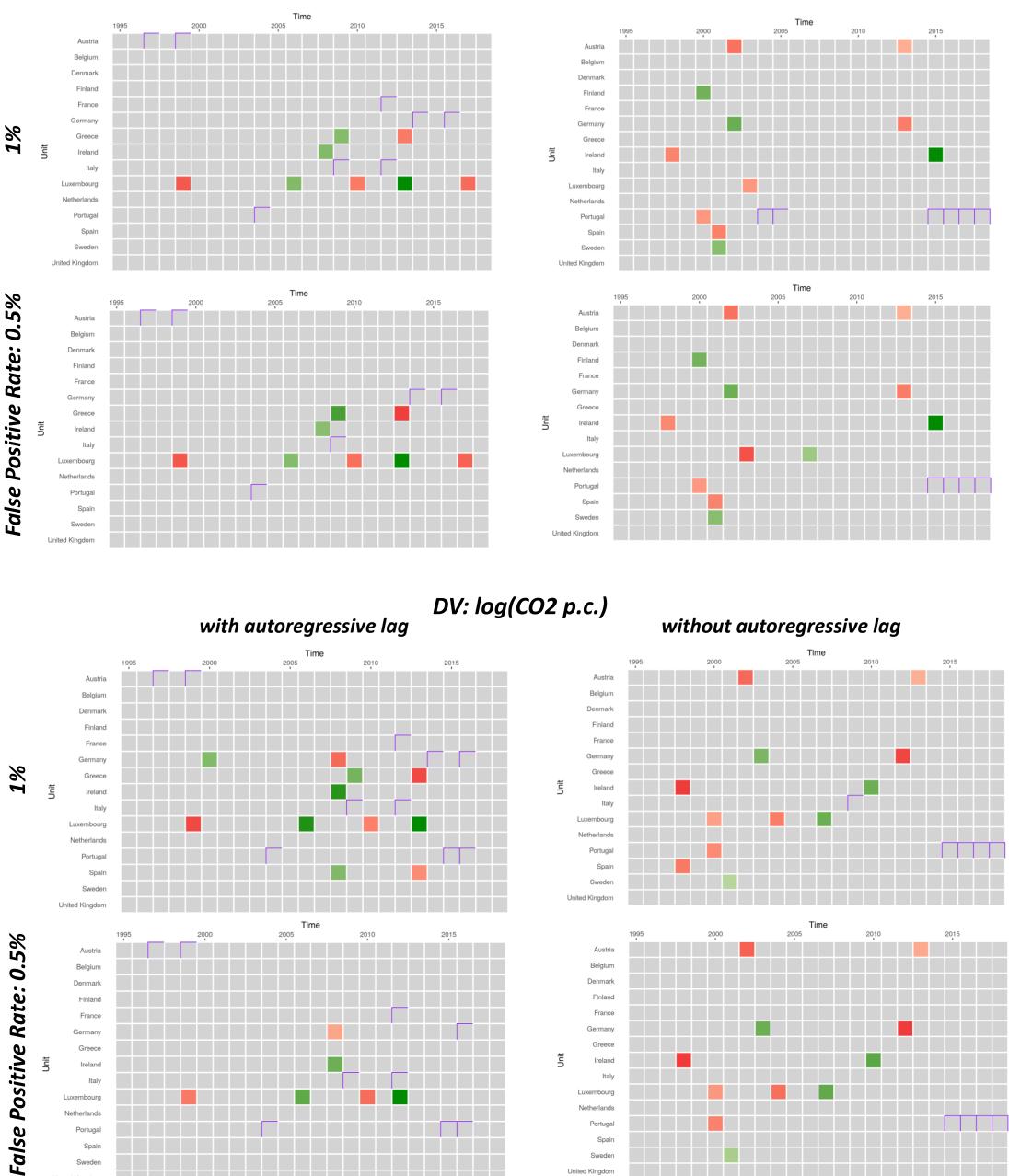
with autoregressive lag

Netherlands

United Kingdom

Spain Sweden

without autoregressive lag



Portugal

United Kingdom

## DV: log(CO2) with autoregressive lag without autoregressive lag Time Time 1995 2000 2005 2010 2015 2000 2005 2010 Austria Austria Belgium Belgium Bulgaria Bulgaria Croatia Croatia Cyprus Cyprus Czech Republic Czech Republic \_\_\_\_ Denmark Denmark Estonia Estonia Finland France France Germany Germany Greece Greece Hungary Hungary Iceland Iceland Ireland Ireland Italy Italy Latvia Latvia Lithuania Lithuania Luxembourg Luxembourg Malta Malta Netherlands Netherlands \_\_\_\_ Norway Norway Poland Poland Portugal Portugal Romania Romania Slovak Republic Slovak Republic ------<del>-</del>------Slovenia Slovenia \_\_\_\_\_ Spain Spain Sweden Sweden Switzerland Switzerland United Kingdom United Kingdom Time Time 1995 2000 2005 2010 2015 2005 2010 2000 2015 \_\_\_\_ Austria Belgium Austria Bulgaria Belgium Bulgaria Croatia Croatia Cyprus Czech Republic Cyprus False Positive Rate: 0.5% Czech Republic Denmark Denmark Estonia Estonia Finland Finland France France Germany Germany Greece Greece Hungary Hungary Iceland Iceland Ireland Unit Ireland Unit Italy Latvia Latvia Lithuania Lithuania Luxembourg Luxembourg Malta Malta Netherlands Netherlands Norway Poland Poland Portugal Portugal Romania Romania Slovak Republic Slovak Republic Slovenia Slovenia Spain Spain Sweden Sweden Switzerland Switzerland United Kingdom United Kingdom DV: log(CO2 p.c.) with autoregressive lag without autoregressive lag Time Time 1995 1995 2000 2005 2000 2005 2010 2015 2010 Austria Austria Belgium Belgium Bulgaria Bulgaria Croatia Croatia ---------**-**-------Cyprus Cyprus Czech Republic Czech Republic Denmark Estonia Estonia \_\_\_\_\_ \_\_\_\_\_ Finland Finland France Germany Germany Greece Hungary Hungary Iceland Iceland ------Ireland Ireland Unit \_\_\_\_\_ Italy Italy Latvia Latvia Lithuania Lithuania \_\_\_\_ Luxembourg \_\_\_\_ Luxembourg Malta Malta Netherlands Netherlands Norway Norway Poland Poland Portugal Portugal Romania Romania Slovak Republic Slovak Republic \_\_\_ Slovenia Slovenia Spain Spain Sweden Sweden Switzerland Switzerland United Kingdom United Kingdom Time Time 1995 2000 2005 2010 2015 1995 2000 2005 2010 2015 Austria Austria Belgium Belgium Bulgaria Bulgaria Croatia Croatia Cyprus Cyprus False Positive Rate: 0.5% Czech Republic Czech Republic Denmark Denmark Estonia Estonia Finland Finland France France Germany Germany Greece Hungary Hungary Iceland Iceland Ireland \_\_\_\_ -----Ireland \_\_\_\_\_ Italy Italy Latvia Latvia Lithuania Lithuania -----Luxembourg Luxembourg Malta \_\_\_\_ Malta Netherlands Netherlands Norway Poland Poland Portugal Portugal Romania Romania \_\_\_\_ Slovak Republic Slovak Republic Slovenia Spain Spain Sweden Sweden

Switzerland

United Kingdom

Switzerland

United Kingdom

## Possible Treatments

- Only negative breaks
- only without AR lag
- Only EU15 countries

Financia   2000   EUIS   Evel   0.12   2001. Congrego it basis for annual car ownership task from total mass to CO2 emissions (ACEA 2016)?   72997. Sandianni crosses in carbon task?   72997. Sandianni crosses in carbon task.   72997. Sandianni crosses in come task cuts, sare feel for biolute's respectively?   72004. Sandianni crosses in disk ask allowance for commuters from Sect/m to 30ct/m (Satinal Communication, p. 82)?   72004. Sandianni crosses of mineral oil task on fuel by 3.07ct/time, respectively?   72004. Sandianni crosses of mineral oil task on such by 3.07ct/time, respectively?   72004. Sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of mineral oil task on specific processes of sald sandianni crosses of sald sandi	Country	Year	Sam ple	DV	Effect Size	Possible Treatment
Sweden** 2001 EU15 both 0.10 (level) 2001-2005: Cathon fax increase from USS44 to USS109 per ton of CO2 (roughly sourceten) to 18ct/fire of petral burned > 25ct/fire) 2001-2006. Green lax Shirt (2001-2006): overall raise of environmental taxes, income tax cuts, lax relief for biofuels 2001-2006. Green lax Shirt (2001-2006): overall raise of environmental taxes, income tax cuts, lax relief for biofuels 2001-2006. Green lax Shirt (2001-2006): overall raise of environmental taxes, income tax cuts, lax relief for biofuels 2002-2004. Annual increase of minoral oil tax on fuel by 3.07ct/lkre, respectively?  2003 EU31 both 0.15 (level) 2002- Company Car Two Beform: now touch on a percentage of their list price according to CO2 emission bands; from one of the costing regime (which) convoluped those using company cars to drive extro, unnecessary miles on business?  France* 2004 EU31 level 0.11 (level) 2002- Company Car Two Beform: now touch on a percentage of their list price according to CO2 emission bands; from one using company cars to drive extro, unnecessary miles on business?  France* 2005 EU31 level 0.18 2005- Enrighting ger LIOV-Maint aut Autobahnen und einigen Bundestraßen  Sweden** 2006 EU31 level 0.15 2005- Enrighting ger LIOV-Maint aut Autobahnen und einigen Bundestraßen  Sweden** 2007 EU35 both 0.08 (level) 2007: Vehicle Tax Reform based on CO2 emissions (National Communication, p.43) 2007: Vehicle Tax Reform based on CO2 emissions (National Communication, p.43) 2007: Vehicle Tax Reform based on CO2 emissions (National Communication, p.43) 2007: Vehicle Tax Reform based on CO2 emissions (National Communication, p.43) 2009: Introduction of Carbon Tax of LISE/trone, increase of 2004 in 2003- Liquity 2007-2008: Raise in fuel tax by 2ct/litre (bid, p.161)?  Ireland** 2004 EU31 pc 0.15 2009: Exemption of "green cars" from annual road tax for five years, 2009: Introduction of Carbon Tax of LISE/trone, increase of 2004 in 2003- Exemption of "green cars" from annual road tax for five years, 2009: Environmental enri	Finland**	2000	EU15	level	-0.12	·
Cough   Section   Cough   Cough   Section   Se						?1997: Significant increase in carbon tax?
Semany**   2007   FUTS   both   -0.13   71999-2003: Annual increase of mineral oil tax on fuel by 3.07ct/litre, respectively?   72004: Reduction of distance-based tax allowance for commuters from 36ct/km to	Sweden**	2001	EU15	both		(roughly equivalent to 10ct/litre of petrol burned -> 25ct/litre)
Section   Parameter   Parame						
Section   Sect	Germany**	•	EU15	both	-0.13	
Into force (bid, p.88)?   UK**   2003   EU31   both   -0.15 (level)   2002: Company Car Tax Reform: now taxed on a percentage of their list price according to CO2 emission bands; "Goldwing, a review of the existing regime (which) encouraged those using company cars to drive extra, unnecessary miles on business"   France*   2004   EU31   both   -0.11 (level)   2002: Road safety measures (speed limit decrease, penalty increase, extension of controls) (National Communication, p.72)						
Prance   P						·
Germany** 2005 EU31 level -0.09 (pc) extension of controls) (National Communication, p.74)  Germany** 2005 EU31 level -0.18 2005: Einführung der LKW-Maut auf Autobahnen und einigen Bundesstraßen  Sweden** 2006 EU31 level -0.15 2001-2005: Carbon tax increase from US\$44 to US\$109 per ton of CO2 between (roughly equivalent to 10ct/litre of petrol burned -> 25ct/litre) c> 2001-2006: "Green Tax Shiff" (2001-2006): overall raise of environmental taxes, income tax cuts, tax relief for biofuels	UK**	2003	EU31	both		price according to CO2 emission bands; "following a review of the existing regime [which] encouraged those using company cars to
Sweden** 2006 EU31 level -0.15 2001-2005: Carbon tax increase from US\$44 to US\$109 per ton of CO2 between (roughly equivalent to 10ct/litre of petrol burned -> 25ct/litre) convironmental taxes, income tax cuts, tax relief for biofuels revironmental	France*	2004	EU31	both	· ·	
between (roughly equivalent to 10ct/litre of petrol burned -> 25ct/litre)  2001-2006: "Green Tax Shift" (2001-2006): overall raise of environmental taxes, income tax cuts, tax relief for biofuels  ?2007-2009: Green Car Subsidy of 1000€ (National Communication, p.48)?  Luxembourg** 2007 EU15 both -0.08 (level) -0.138 (pc)  2007: Vehicle Tax Reform based on CO2 emissions (National Communication, p. 163)  22007: subsidy of 750€ for purchase of energy efficient cars (ibid, p.164)?  ?2007-2008: Raise in fuel tax by 2ct/litre (ibid, p.167)?  Ireland** 2009/ both 2015  Pc 2008: Change of basis for Vehicle Registration Tax and Motor Tax (annual) from engine size to CO2 emissions?  2009: introduction of Carbon Tax of 15€/tonne, increase of 20€ in 2011 (National Communication, p. 99)  ?2009: introduction of tax incentive of up to 1000€ for the purchase of bicycles for commuting (ibid, p.108)?  Sweden** 2010 EU31 pc -0.16 2009: Exemption of "green cars" from annual road tax for five years, both private and business (ACEA 2016)  ?2011: "Inclusion of light commercial vehicles and light vehicles into system of CO2-differentiated vehicle tax"?  Netherlands** 2014 EU31 level -0.14 ???  Ireland 2015 both level -0.19 (EU15) -0.24 (EU31)	Germany**	2005	EU31	level	-0.18	
Luxembourg** 2007 EU15 both -0.08 (level) -0.138 (pc) 2007: Vehicle Tax Reform based on CO2 emissions (National Communication, p. 163) ?2007: subsidy of 750€ for purchase of energy efficient cars (lbid, p.164)? ?2007-2008: Raise in fuel tax by 2ct/litre (lbid, p.167)?  Ireland** 2009/ both pc 2010	Sweden**	2006	EU31	level	-0.15	between (roughly <u>equivalent</u> to 10ct/litre of petrol burned -> 25ct/litre)  ⇔ 2001-2006: " <u>Green Tax Shift</u> " (2001-2006): overall raise of environmental taxes, income tax cuts, tax relief for biofuels  ?2007-2009: Green Car Subsidy of 1000€ ( <u>National Communication</u> ,
Preland**   Pre	Luxembourg**	2007	EU15	both		
Ireland** 2009/ both 2010 both 2010 pc -0.15 ?2008: Change of basis for Vehicle Registration Tax and Motor Tax (annual) from engine size to CO2 emissions? 2009: Introduction of Carbon Tax of 15€/tonne, increase of 20€ in 2011 (National Communication, p. 99) ?2009: introduction of tax incentive of up to 1000€ for the purchase of bicycles for commuting (ibid, p.108)?  Sweden** 2010 EU31 pc -0.16 2009: Exemption of "green cars" from annual road tax for five years, both private and business (ACEA 2016) ?2011: "Inclusion of light commercial vehicles and light vehicles into system of CO2-differentiated vehicle tax"?  Netherlands** 2014 EU31 level -0.14 ???  Ireland 2015 both level -0.19 (EU15) -0.24 (EU31)						?2007: subsidy of 750€ for purchase of energy efficient cars (ibid,
2010   (annual) from engine size to CO2 emissions?						?2007-2008: Raise in fuel tax by 2ct/litre (ibid, p.167)?
(National Communication, p. 99)  ?2009: introduction of tax incentive of up to 1000€ for the purchase of bicycles for commuting (ibid, p.108)?  Sweden**  2010 EU31 pc -0.16 2009: Exemption of "green cars" from annual road tax for five years, both private and business (ACEA 2016)  ?2011: "Inclusion of light commercial vehicles and light vehicles into system of CO2-differentiated vehicle tax"?  Netherlands**  2014 EU31 level -0.14 ???  Ireland 2015 both level -0.19 (EU15) -0.24 (EU31)	Ireland**	_	both	рс	-0.15	
bicycles for commuting (ibid, p.108)?  Sweden**  2010 EU31 pc -0.16 2009: Exemption of "green cars" from annual road tax for five years, both private and business (ACEA 2016)  ?2011: "Inclusion of light commercial vehicles and light vehicles into system of CO2-differentiated vehicle tax"?  Netherlands**  2014 EU31 level -0.14 ???  Ireland 2015 both level -0.19 (EU15) -0.24 (EU31)						
both private and business (ACEA 2016)  ?2011: "Inclusion of light commercial vehicles and light vehicles into system of CO2-differentiated vehicle tax"?  Netherlands** 2014 EU31 level -0.14 ???  Ireland 2015 both level -0.19 (EU15) -0.24 (EU31)						·
Netherlands** 2014 EU31 level -0.14 ???  Ireland 2015 both level -0.19 (EU15) -0.24 (EU31) ?2015: Increse in Mineral Oil Tax	Sweden**	2010	EU31	рс	-0.16	
Ireland         2015         both         level -0.19 (EU15) -0.24 (EU31)         ?2015: Increse in Mineral Oil Tax						
-0.24 (EU31)	Netherlands**	2014	EU31	level	-0.14	???
Luxembourg 2015 EU31 pc -0.4 ???	Ireland	2015	both	level	` '	?2015: Increse in Mineral Oil Tax
	Luxembourg	2015	EU31	рс	-0.4	???