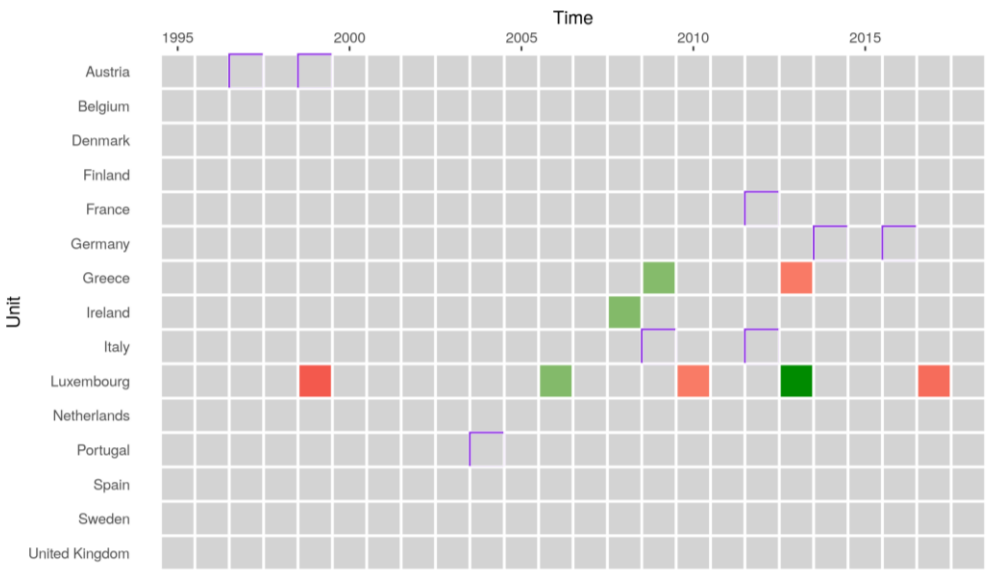
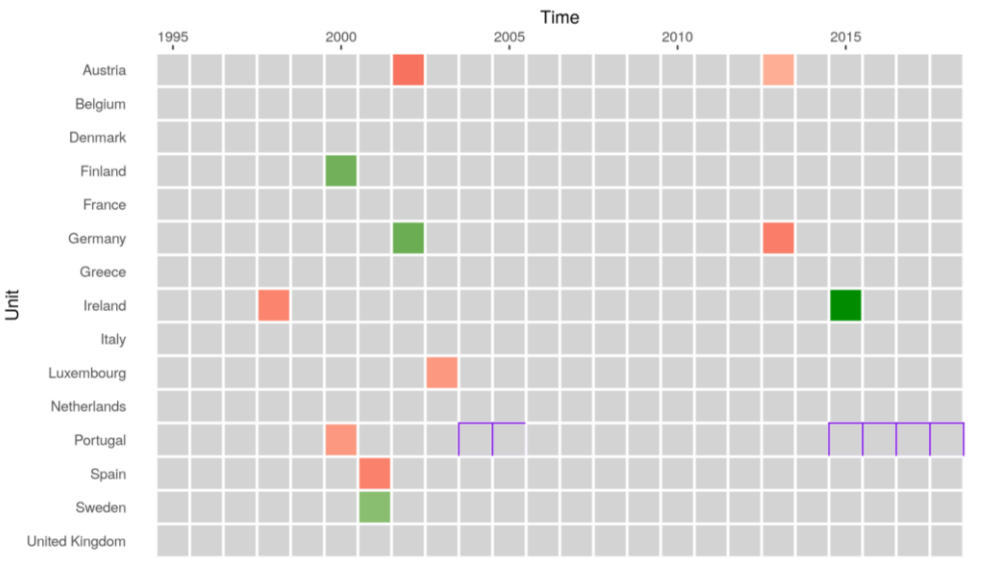
EU15

DV: log(CO2)

with autoregressive lag

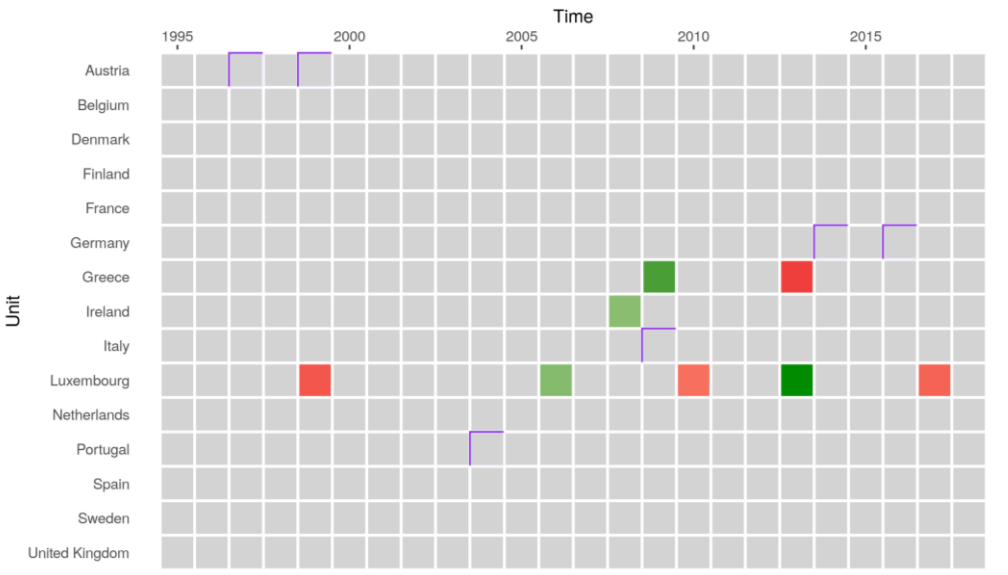


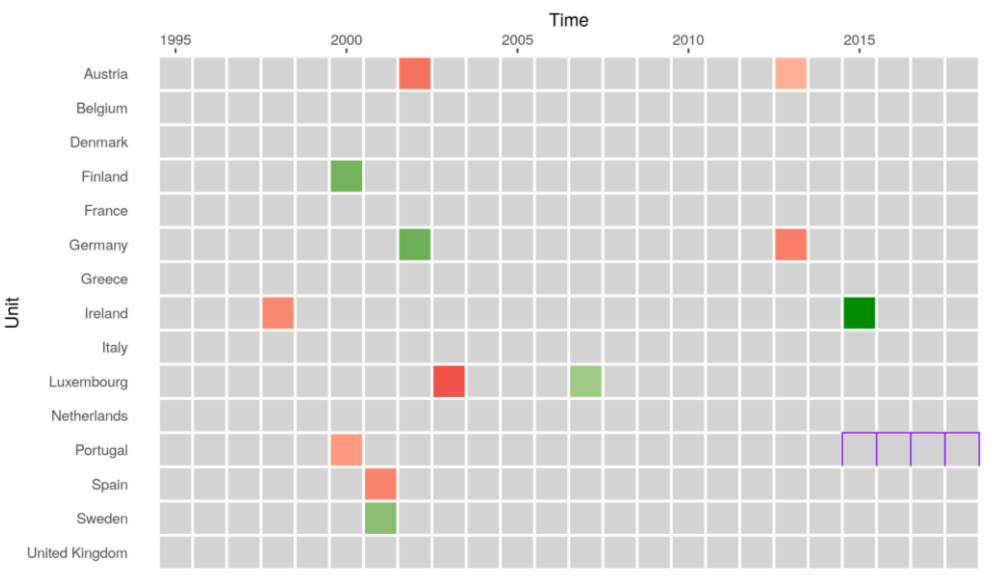
without autoregressive lag



1%

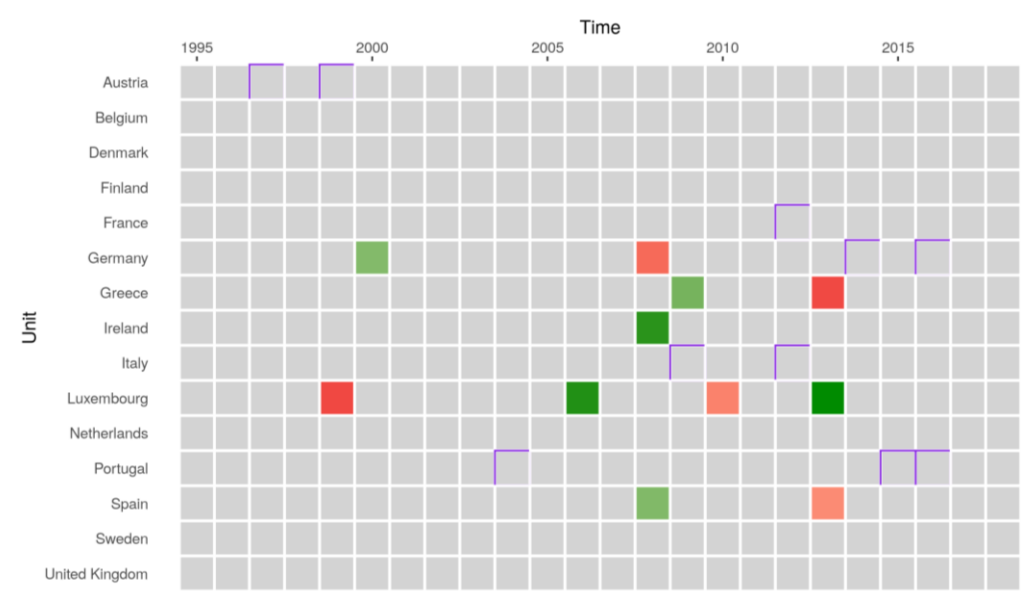
False Positive Rate: 0.5%



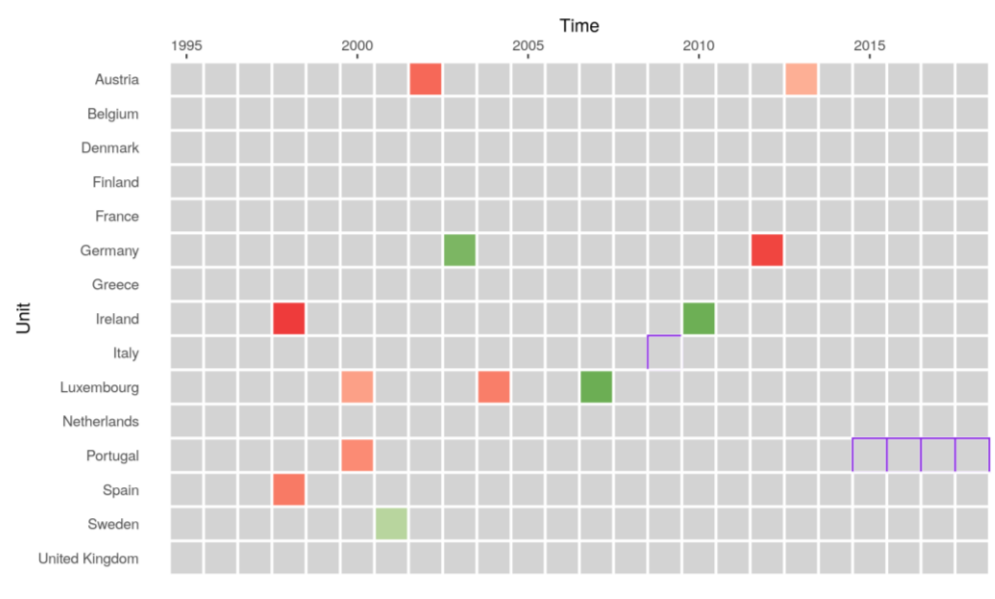


DV: log(CO2 p.c.)

with autoregressive lag

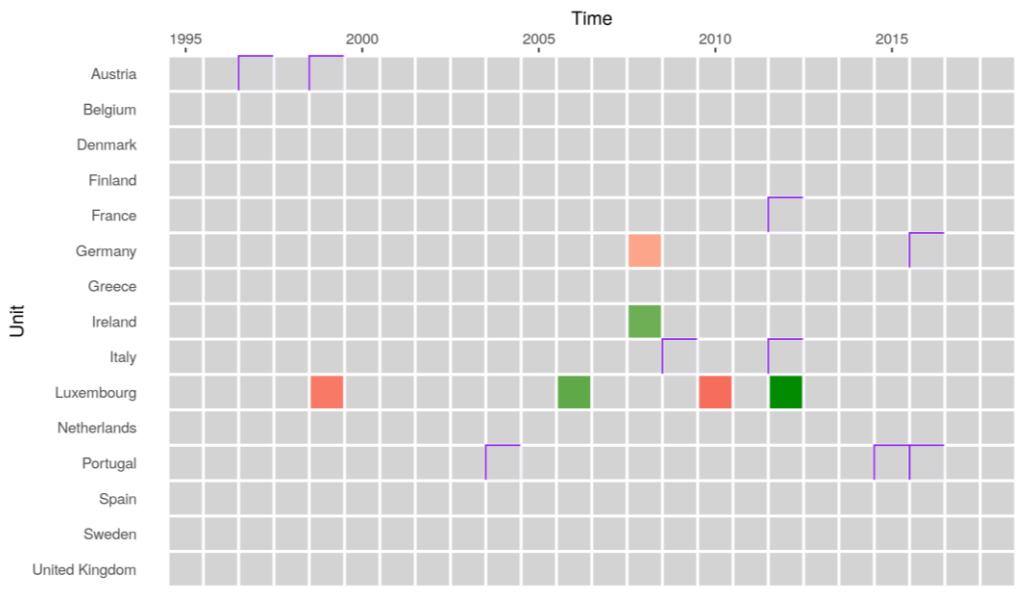


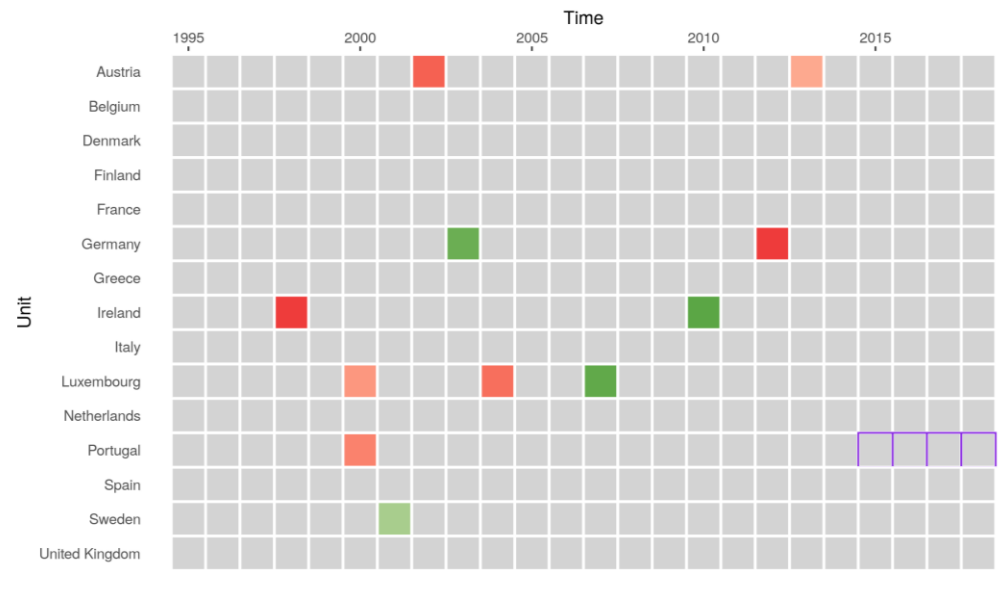
without autoregressive lag



1%

False Positive Rate: 0.5%

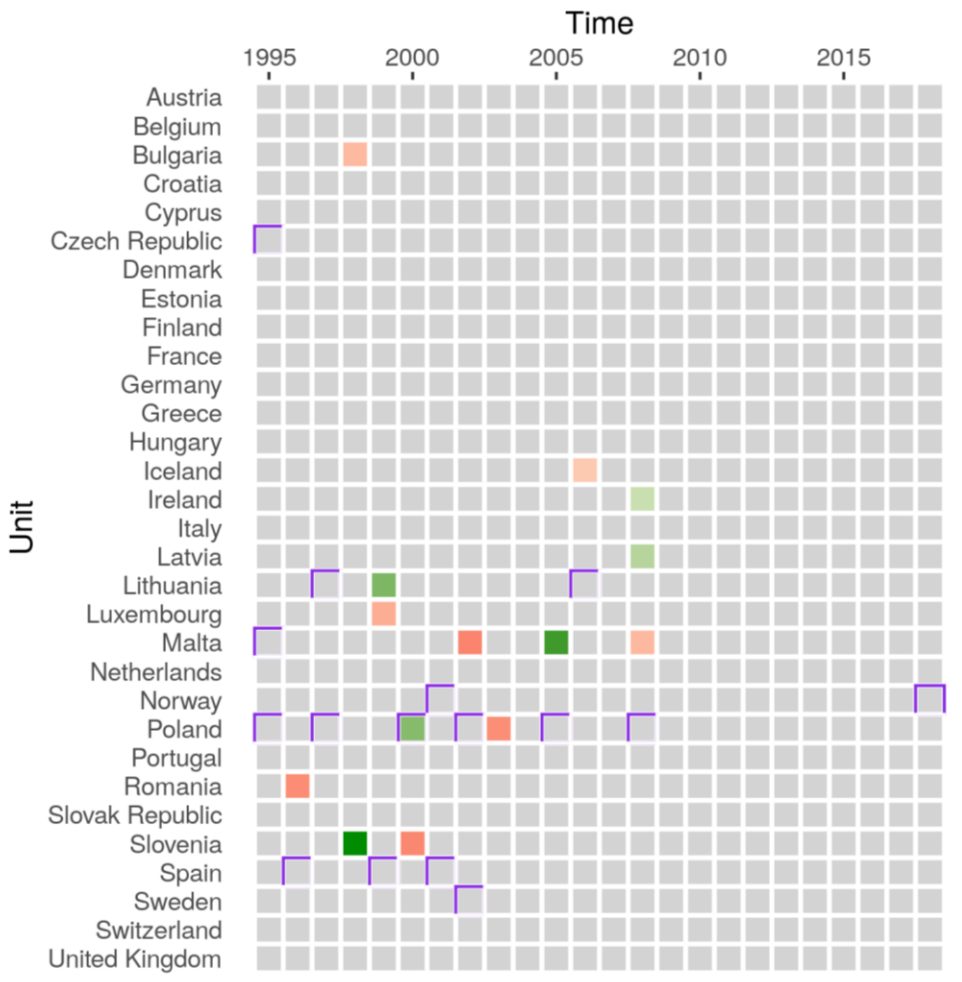




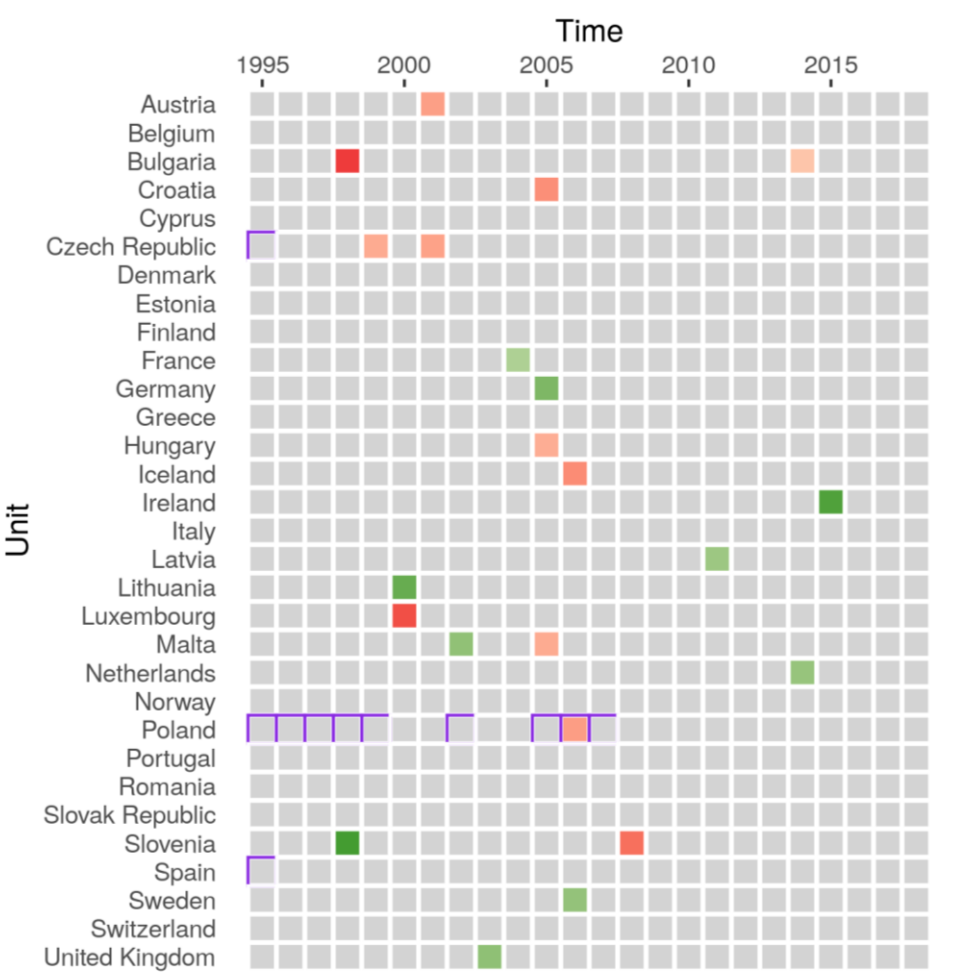
EU31

DV: log(CO2)

with autoregressive lag

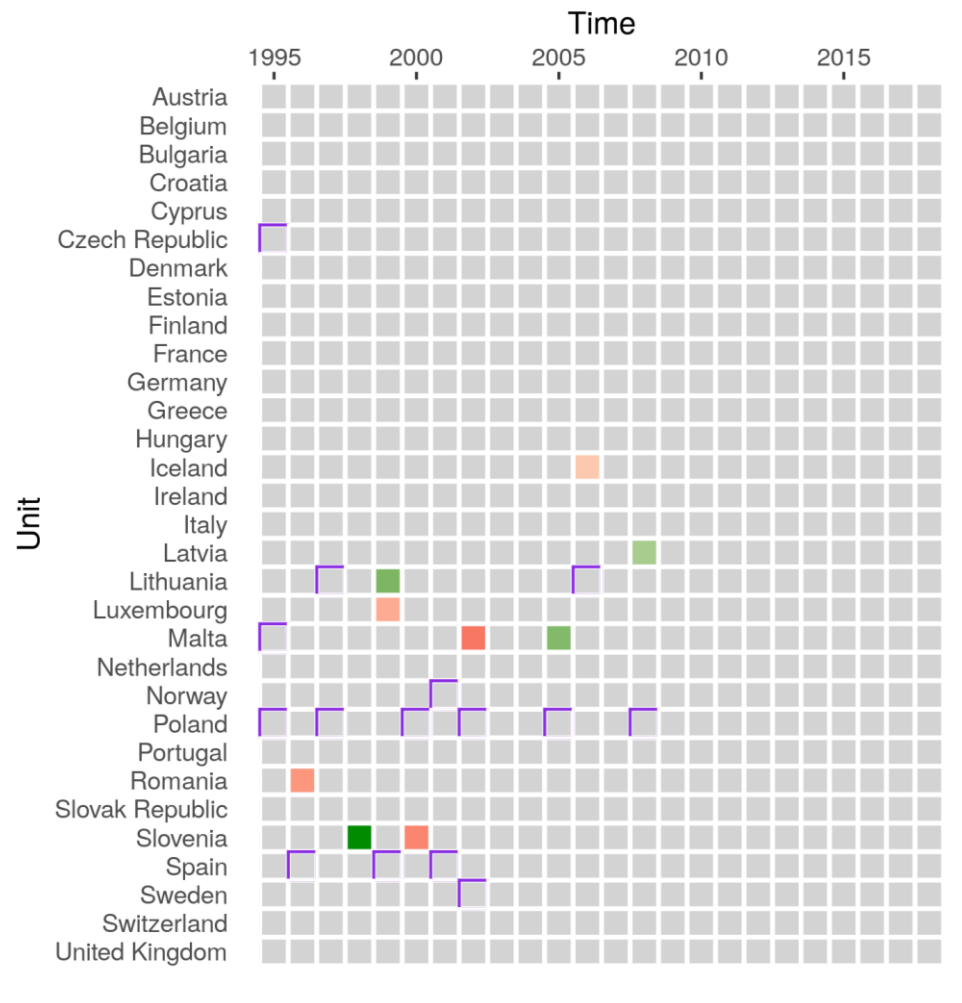


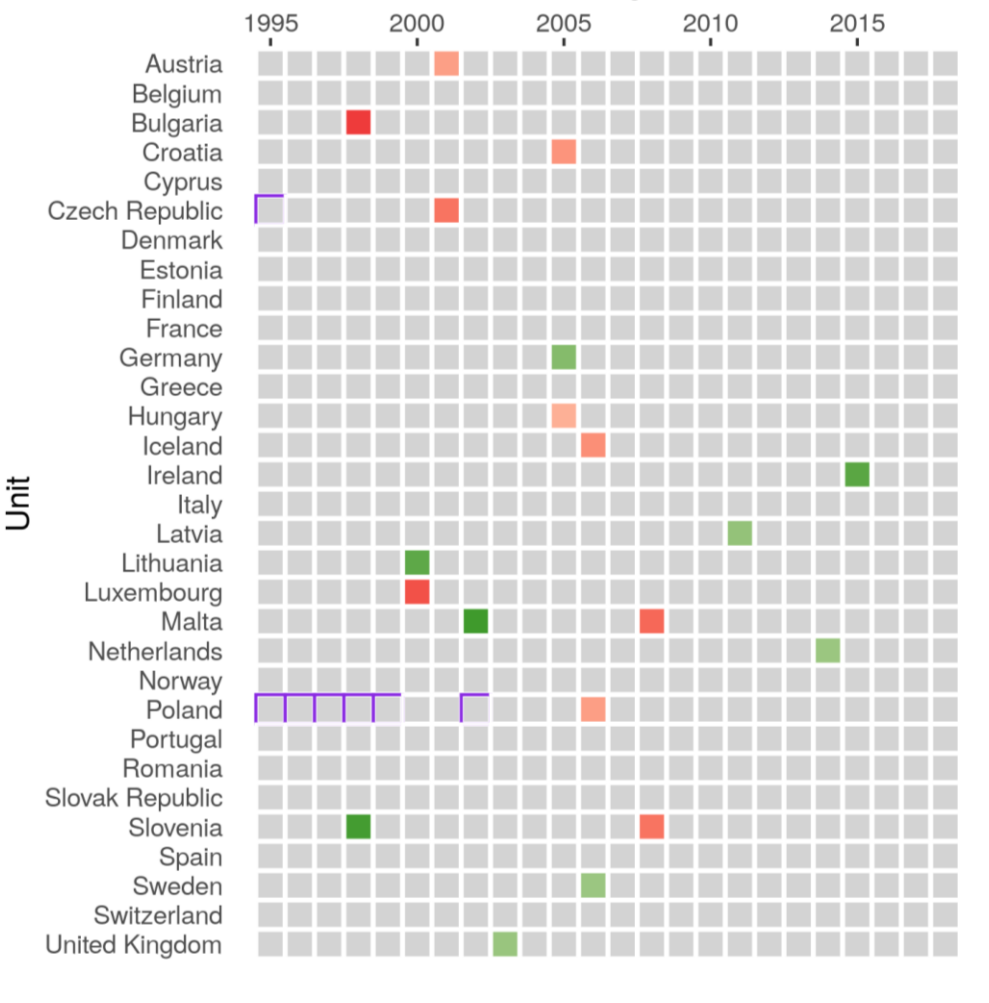
without autoregressive lag



1%

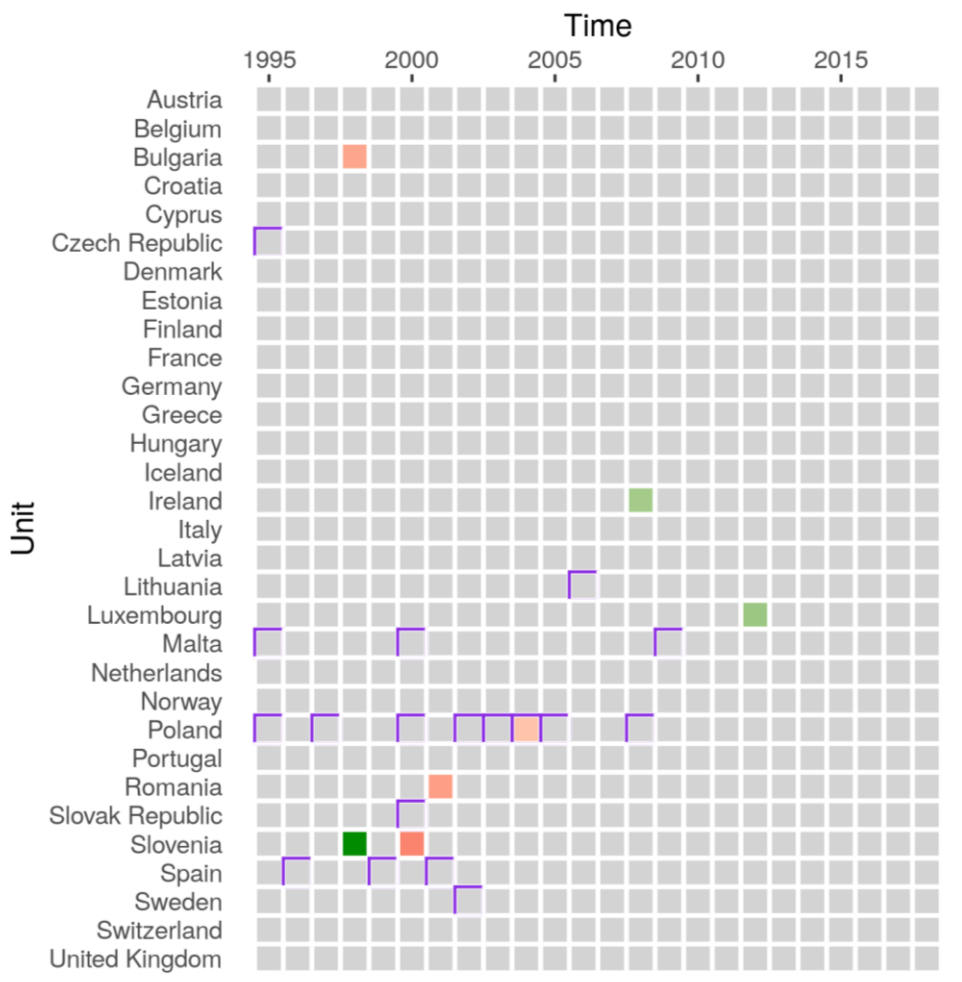
False Positive Rate: 0.5%



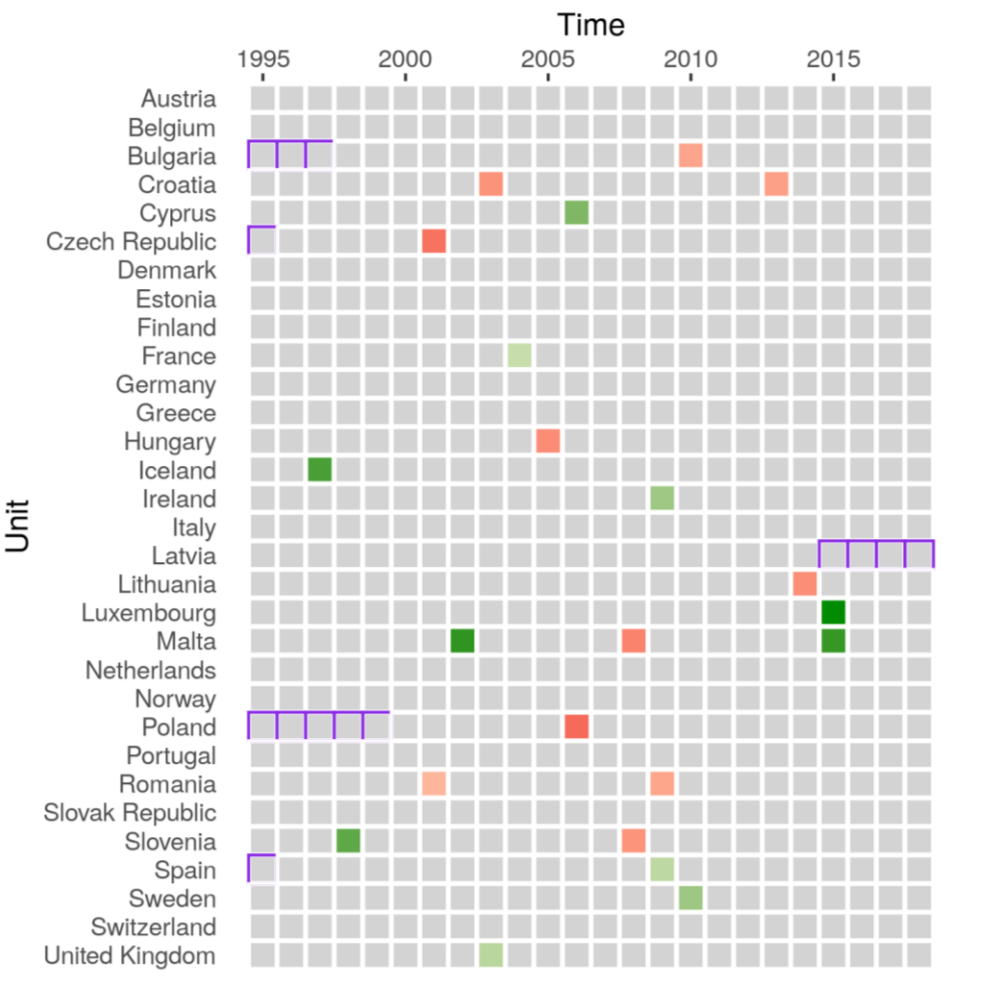


DV: log(CO2 p.c.)

with autoregressive lag



without autoregressive lag



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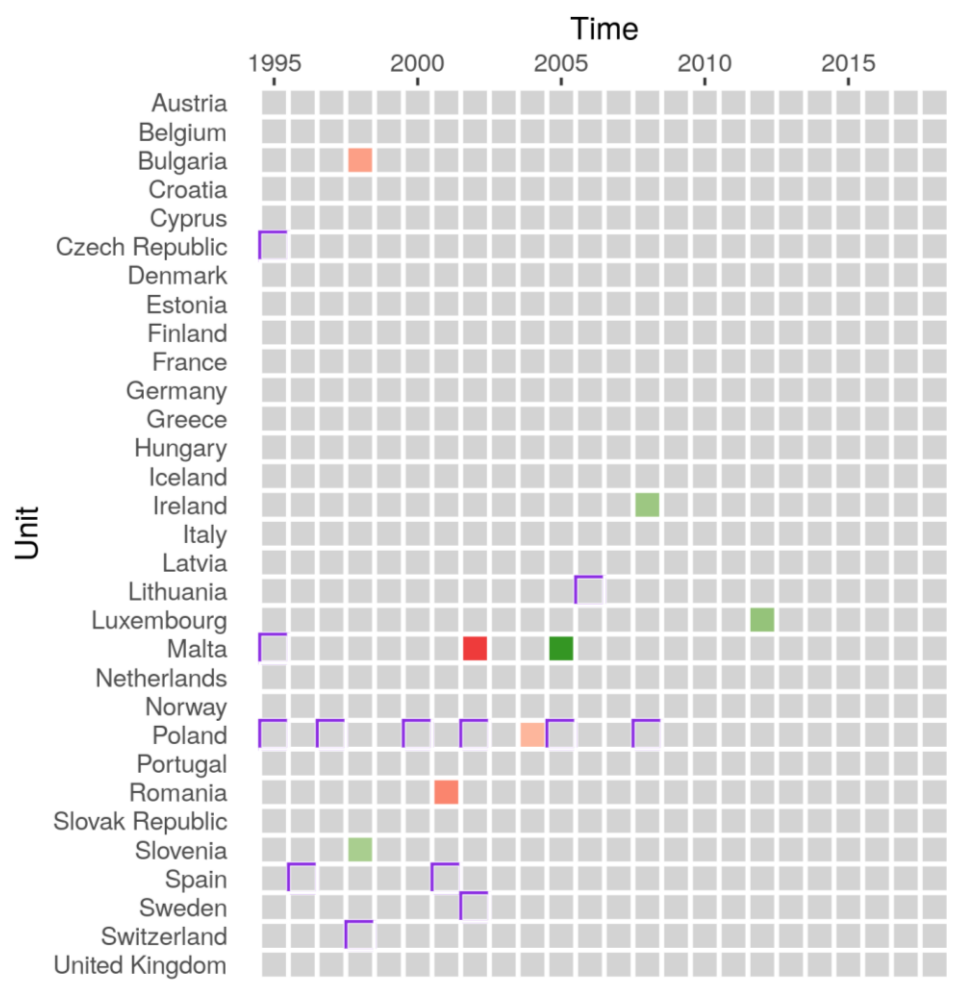
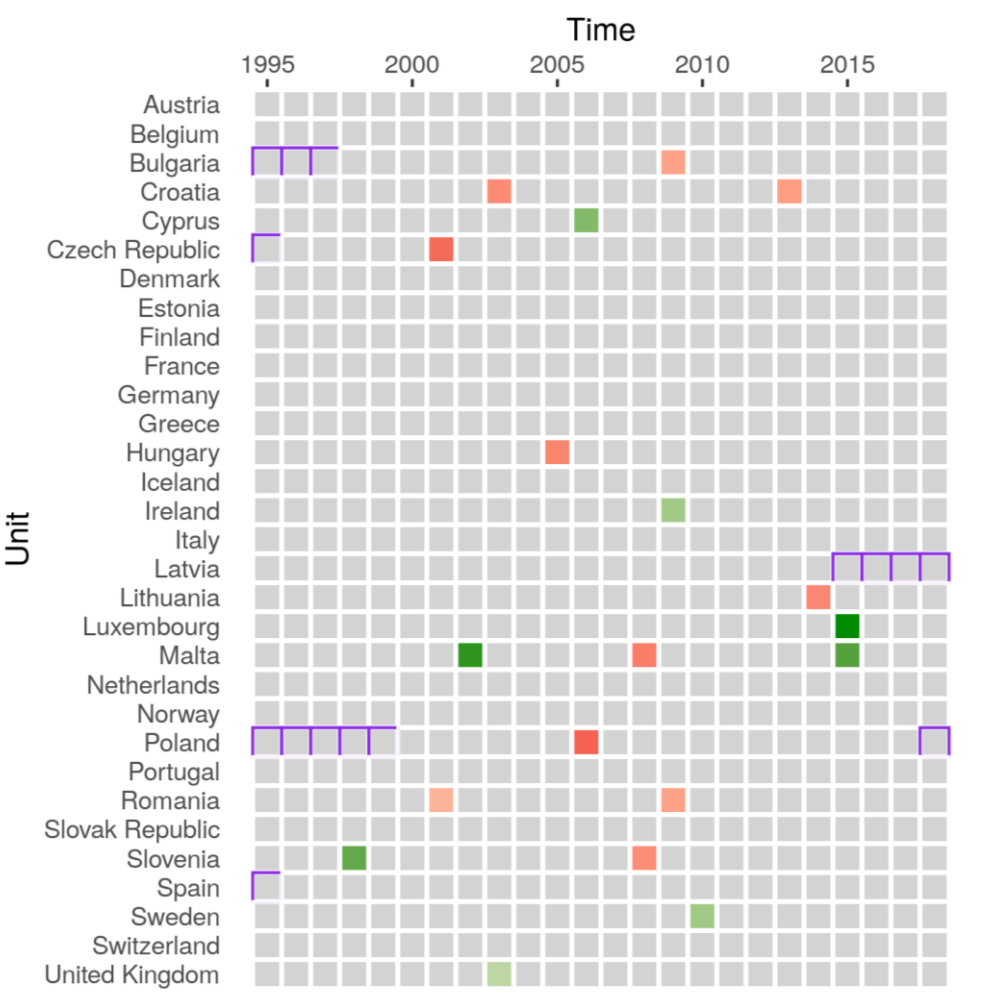
False Positive Rate: 0.5%





Possible Treatments

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

Country	Year	Sample	DV	Effect Size	Possible Treatment
Finland**	2000	EU15	level	-0.12	?2001: Change of basis for annual car ownership tax from total mass to CO2 emissions (ACEA 2016)? ?1997: Significant increase in carbon tax?
Sweden**	2001	EU15	**both**	-0.10 (level) -0.68 (pc)	2001-2005: Carbon tax increase from US$44 to US$109 per ton of CO2 (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
Germany**	2002/ 2003	EU15	**both**	-0.13	?1999-2003: Annual increase of mineral oil tax on fuel by 3.07ct/litre, respectively? ?2004: Reduction of distance-based tax allowance for commuters from 36ct/km to 30ct/km (National Communication, p.87)? ?2004: fuel and CO2 consumption labelling obligations for cars enter into force (ibid, p.88)?
UK**	2003	EU31	**both**	-0.15 (level) -0.11(pc)	2002: Company Car Tax Reform: now taxed on a percentage of their list price according to CO2 emission bands; *“following 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) -0.09 (pc)	2002: Road safety measures (speed limit decrease, penalty increase, 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) ⇔ 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) ?2007: 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/ 2010	**both**	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)	?2015: Increse in Mineral Oil Tax
Luxembourg	2015	EU31	pc	-0.4	???