

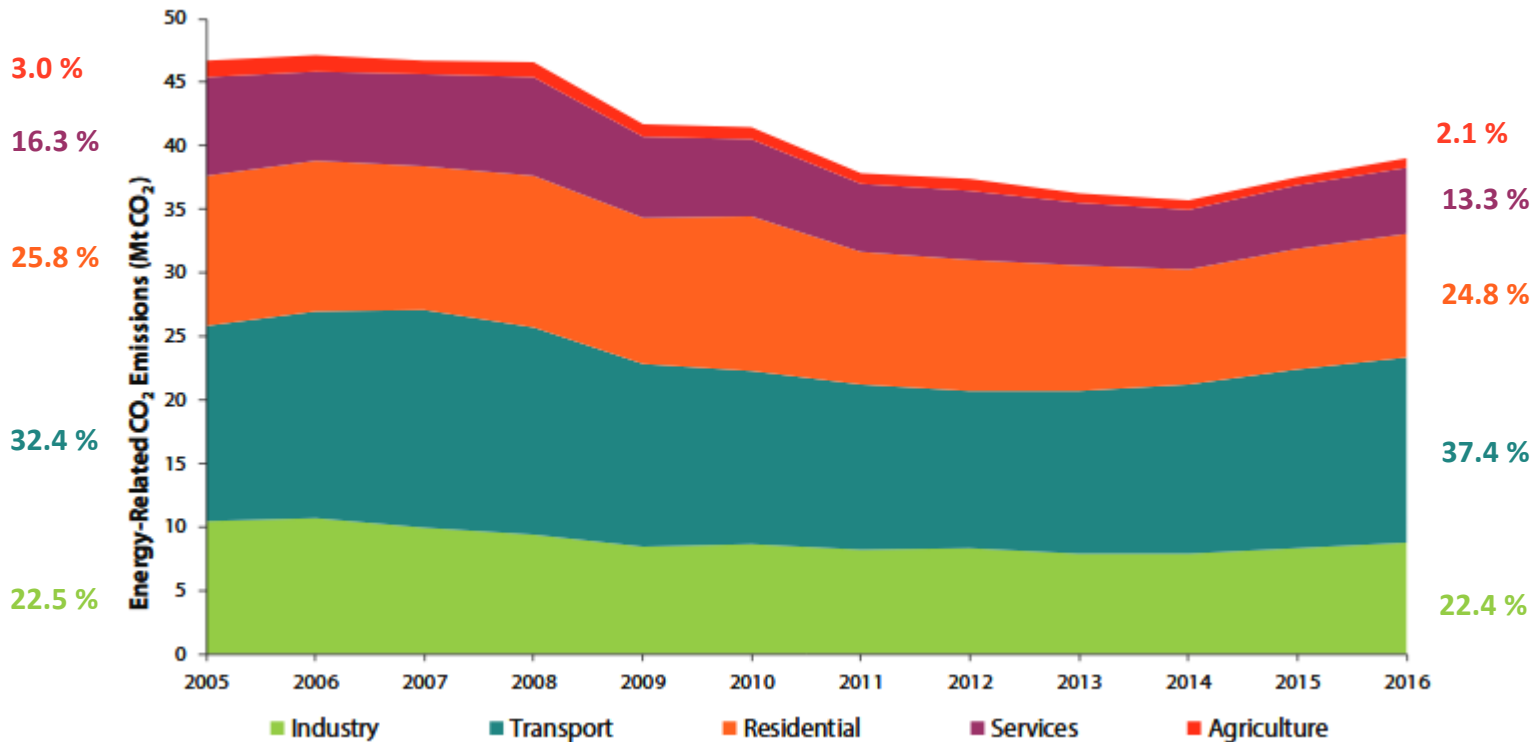
# Vehicle Tax Design and Car Purchase Choices: A Case Study of Ireland

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# Motivation

## Energy- Related CO2 Emissions by Sector

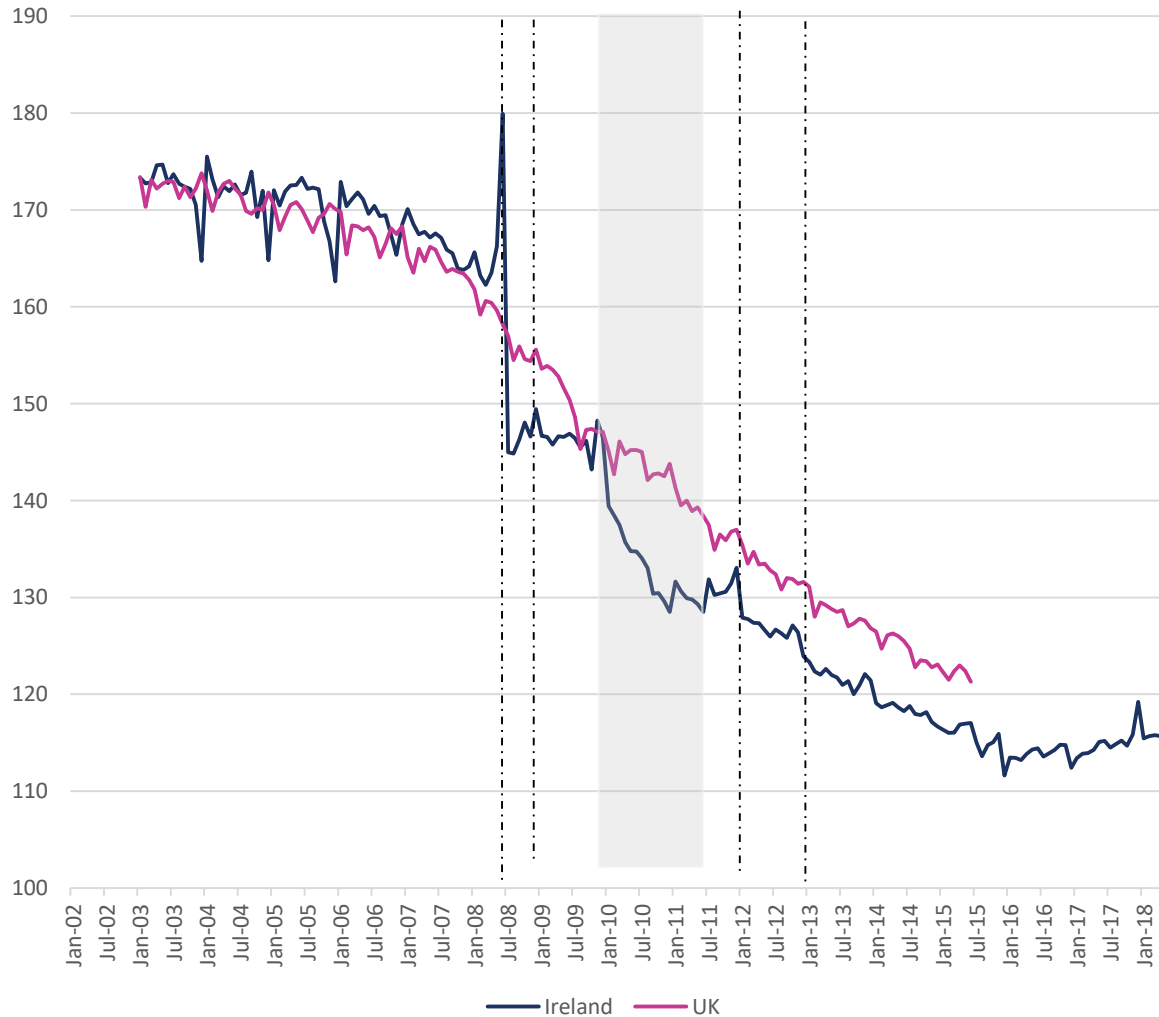


Source: SEAI

# Vehicle Tax Reform Ireland: CO2 Based VRT and AMT

- 1<sup>st</sup> July 2008 – Engine Capacity Based VRT and AMT to CO2 Ratings Based
  - 1<sup>st</sup> Jan 2009 – Flat (4%) increase all bands
  - 1<sup>st</sup> Jan 2010 – 31<sup>st</sup> June 2011 – Scrappage Scheme
  - 1<sup>st</sup> Jan 2012 – Disproportionate increase in lower (A and B) bands.
  - 1<sup>st</sup> Jan 2013 – Subclassification of A band into A0 A1 A2 A3 and A4 (and increases in AMT for certain bands).
- RQ – What has been the effect of these policy changes on vehicle purchasing patterns in Ireland?

# Impact on CO2 Emissions Ratings



Method: Difference in Differences quasi-experimental design (comparison with UK fleet).

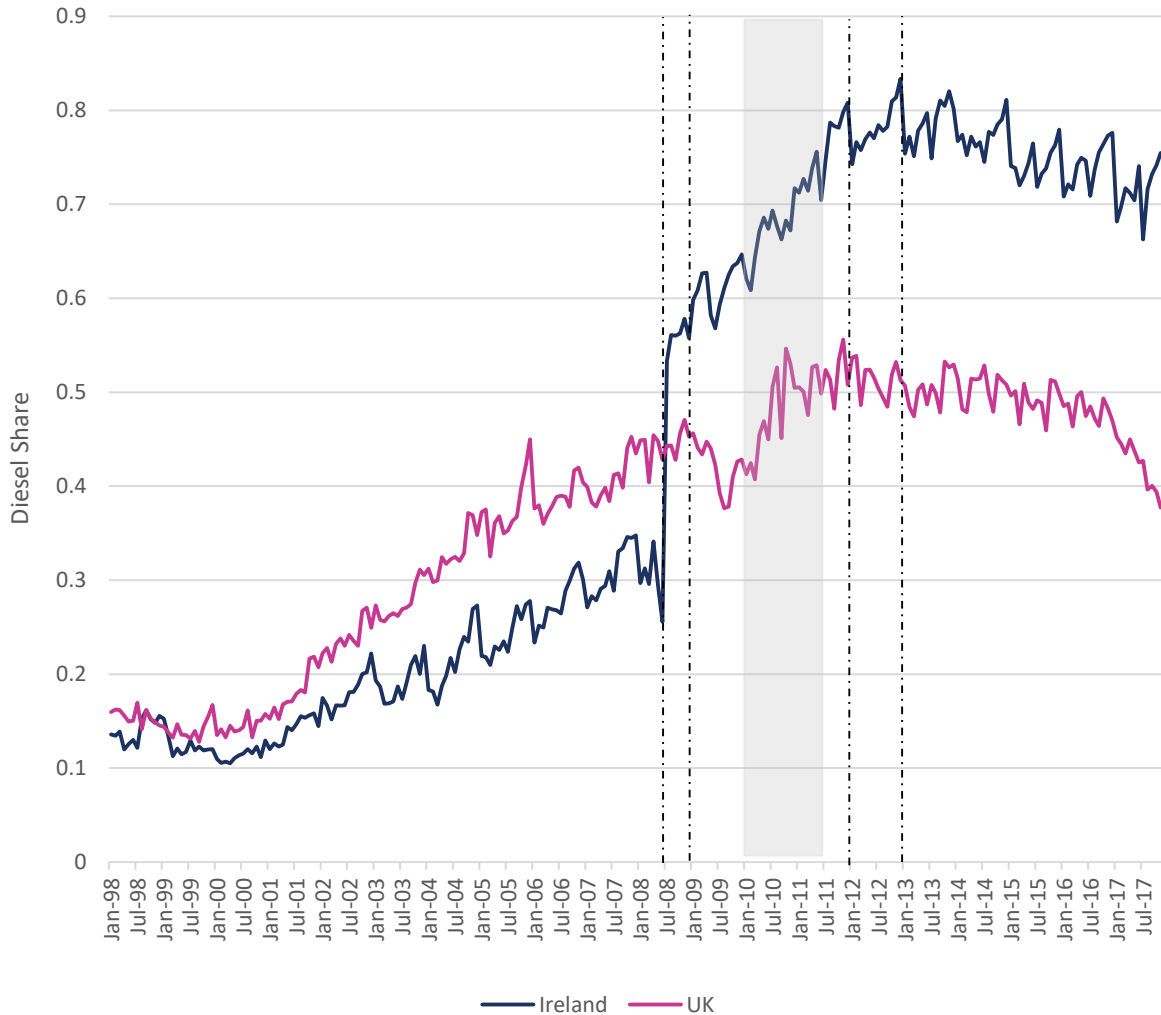
$$Y_{st} = \gamma_s + \lambda_t + \delta D_{st} + X'_{st}\beta + \epsilon_{st}$$

$X'_{st}$  includes state specific covariates which vary over time (e.g. income and fuel price).

Result: Initial policy change reduced rated emissions in Ireland by roughly 8 to 11 gCO<sub>2</sub>/km.

Other policies also had a minor effect (scrappage scheme and

# Impact on Diesel Share of Registrations



Method: Same as for CO2

Result: Initial policy change increased the diesel share of Irish registrations by 18-22%

Policy change in 2009 further increased the diesel share by 8-10%

Change in 2012 also had a minor impact – increasing the diesel share by 4-5%

Summary: Vehicle tax design impacted  
purchase choices – Incentives work

Careful policy design needed

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