

Is a uniform price on Carbon desirable?

Comments by John Hassler

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 - 2 If the only purpose of the tax is to internalize the externality – a Pigouvian tax equal to the uniform externality achieves the first best.
- But, there are many other frictions and the *Theory of Second Best*.

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- Key additional frictions in this paper are that individuals are heterogenous in labour productivity and taste for green goods.
- Also shows that under some reasonable assumptions, a move away from uniform CO₂-taxes can improve aggregate welfare.

Key assumptions households and firms

- Consumers derive utility from three goods, a generic consumption good x_c , a green good x_g and brown good x_b ,

$$u(x_c, \chi(\beta x_g, x_c)) = x_c^{1-\nu} \left(\left(\beta x_g^{1-\varepsilon_x} + x_b^{1-\varepsilon_x} \right)^{\frac{1}{1-\varepsilon_x}} \right)^\nu .$$

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- With no abatement effort, emissions per unit of output is highest in the production of brown goods and lowest for green.

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 - sector specific linear emission taxes for the three sectors, and
 - non-linear labor income taxes.
- Government must satisfy an exogenous emission target and may care about distribution.
- Redistribution create standard distortions but also affect emissions (tax levels required to meet emission target).

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 - For example, suppose high productivity households tend to value green goods relatively more than low productivity households do. Higher carbon taxes on the green good (remember it is not completely green) might be beneficial.
 - A deviation from uniformity has second-order distortionary effects but might have first order distributional effects.

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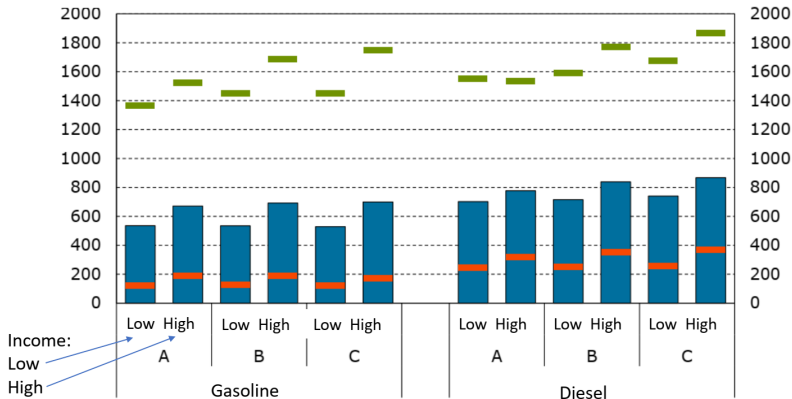
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- How strong is correlation between taste for green and income?

Variation in fuel use

Liter per year Fuel consumption per household



A – large cities
 B – medium cities
 C – small cities and rural.

■ Median ■ P10 ■ P90

Source: Miljö, ekonomi och politik 2023, Konjunkturinstitutet

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- but it remains to analyze if they are approximately right.