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Aligning Resource Efficiency and Economic Efficiency

Challenges

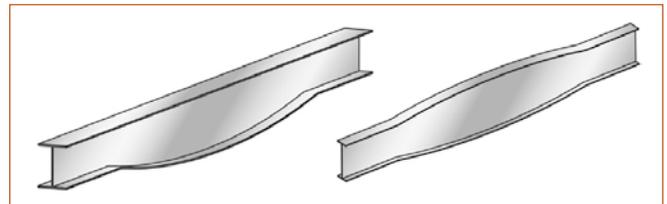
- In situations where labour is expensive, but resources and pollution cheap, a resource-inefficient strategy may often be the economically efficient one.
- In such situations, the cost of making an investment in a process that consumes fewer resources can be greater than the savings that will be afforded by the reduced consumption of resources – as a result, rational economic actors will not pursue resource-efficient strategies.



Example

In construction, materials are often over-specified, because it is easier and cheaper if components such as steel beams are standardised and mass-produced. If the design of such components was optimised for their specific purpose within the building, the amount of material used could be reduced. However, the customised design and the logistics of handling numerous variously different shaped components at the building site, causes an increase in labour cost which outweighs the savings in material cost.

Illustration of optimised designs for steel beams, in which more material is located at the point of maximum bending moment, but with tapered designs reducing material where it would not be needed



Source: Carruth, M., & Allwood, J. (2012). The development of a hot rolling process for variable cross-section I-beams. Journal of materials processing technology.

Responses

- Policies to rebalance the cost of labour, and the costs of resources and pollution, in order to make resource-efficient decisions more consistent with economically efficient decisions, including:
 - pricing externalities and using taxation to stimulate investment in resource-efficient alternatives
 - using dynamic taxes to buffer price fluctuations, thereby reducing volatility and future uncertainty
 - creating other incentives for actors to favour paying for labour to save materials, rather than for materials to save labour, such as reducing taxes on labour.

Examples

UK landfill tax

What?

- Tax to be paid per tonne on all waste going to landfill.

Success factors

- Introduced at a low rate, increased incrementally (rising from a rate of £7 per tonne to £84 per tonne over 20 years).
- When the tax was first introduced, in order to reduce the tax burden on businesses that had not yet had time to adapt to it, the costs of the tax were compensated by a reduction in labour taxes (specifically, employer National Insurance contributions).
- In combination, the measures increased the cost of disposing of materials, and reduced the cost of labour.

Results

- 45% household recycling rate in 2014 in comparison to 7% in 1996.
- Reduced quantities of waste disposed in landfill.

Swedish proposals

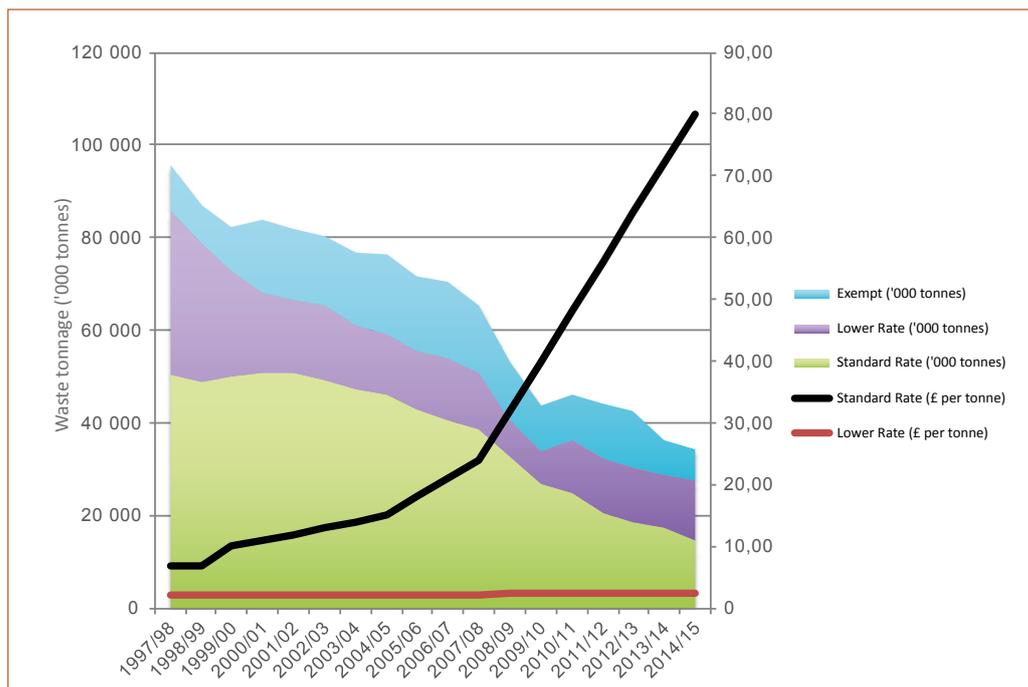
What?

- Recent regulation proposal in Sweden to reduce the labour costs of repair relative to the cost of materials.
- Cutting the value-added tax (VAT) charged on repair work, and providing tax rebates for the labour cost of repairs.

Success factors

- The measure will reduce the cost to consumers of repairing appliances, and encourage them to commission repair work, rather than dispose of them and buy new ones.

Waste tonnage sent to landfill, and landfill tax rates



Source: HMRC Tax and Duty Bulletins in the UK

For more information please contact
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The International Resource Panel was established in 2007 to provide independent, scientific assessment on the sustainable use of natural resources and the impacts of resource use over the full life cycle.