Demand-side interventions for resource efficiency in the EU

Application for session: 3.5. Patterns of trade, production, and consumption (can also be considered in a different session if relevant)

Short Abstract

Applying a consumption-perspective to resource use in the EU can increase the scale and scope for resource efficiency policy. Micro energy efficiency policies are not realising their full energy demand reduction potential due to rebound effects. Addressing resource demand across product supply chains opens up further avenues for cost-effective reduction strategies. This paper will identify additional demand-side policy intervention opportunities across product supply chains for energy demand reduction across the EU; quantify how much they can contribute to meeting energy and climate change targets; and suggest what policies would be most effective in changing behaviours to meet energy demand and emissions reduction targets.

Extended abstract

Multi-region input-output models have shown the significance of international trade in driving emissions (e.g. Davis and Caldeira, 2010 and Peters, 2010) and other environmental impacts (Lenzen et al., 2013; Lenzen et al., 2012; Weinzettel et al., 2013; Yu et al., 2014). Despite reductions in domestic energy, material consumption and greenhouse gas emissions as the EU economy has grown, this decoupling is weakened, if not reversed, when including the impact of net trade. This issue has been highlighted in international climate change policy where net emissions embodied in imports to countries subject to emissions reduction targets have been considerably more than the reductions achieved resulting in increased global emissions (Peters et al., 2011; Kanemoto et al., 2014). Such discrepancies have questioned the use of territorial accounting in climate policy in terms of environmental justice and advocated integrating emissions transfers into setting carbon budgets (Steininger et al., 2014; Grasso and Roberts, 2014; and Springmann, 2014). Applying a consumption-perspective to resource use in the EU not only has the potential for developed countries that consume higher per capita resources and have a greater financial and technical capacity to manage global resources, but also increases intervention points for resource efficiency policy.

EU resource efficiency policy has short and long-term targets for emissions reductions, renewable energy and energy efficiency. However without a global cap on emissions, the fate of which will be determined in Paris 2015, consumption impacts may continue to undermine domestic policies. A focus on energy efficiency and decarbonisation does not guarantee a reduction in the demand for energy. The EU is considering implementing energy demand reduction targets which would ensure energy efficiency delivers a reduction in energy and energy savings could not be undermined by the rebound effect. The current micro approach to energy efficiency policy neglects interactions with the macro-economy (e.g. population, economic growth and structural change). For example, the Eco-design Directive has improved the energy efficiency of electrical appliances yet the demand and diversity of appliances has increased. There is evidence of the rebound effect across a number of sectors and household activities (Chakravarty et al., 2013). An economy-wide approach is needed to ensure policies contribute to economy-wide reductions.

In addition, current policies don't address the underlying causes of continued use of resources, just the environmental impact. A focus on demand management and behavioural change can achieve short-term cost-effective measures, reduce dependencies on volatile energy markets and critical materials, provide more flexibility to the mitigation portfolio and respond to the issues raised in international negotiations on responsibility for impact reduction. To be used in addition to a domestic producer perspective, accounting for embodied resource use across product supply chains shifts the emphasis from the generation of impact to the use of materials and products. This presents additional stages at which policy can intervene. Resource efficiency policy must also move from waste policy to reducing the initial demand for materials. A number of strategies have been proposed such as designing with less material, product longevity and new business models of service provision. A macro-level assessment of their potential contribution to emissions reduction targets and identification of a coordinated policy package for implementation has not been done.

The objectives of this paper are to:

- identify additional demand-side policy intervention opportunities across product supply chains for energy demand reduction across the EU
- quantify how much they can contribute to meeting energy and climate change targets
- suggest what policies would be most effective in changing behaviours to meet energy demand and emissions reduction targets

The energy use and emissions associated with EU consumption will be calculated and mapped to product supply chains with as much granularity as is feasible using a combination of top-down multi-region input-output analysis and bottom-up lifecycle data. A comprehensive review of demand-side strategies across products, sectors and users will be conducted to gather data on resource and emissions reduction potentials and the triggers and barriers for behaviour change. Examples of successful and failed demand-side policies across different policy instruments from regulation to voluntary measures will be examined to understand whether certain policies are likely to be more or less effective. This will depend on product and use characteristics, such as frequency of use and relative cost. Policies will be viewed in combination to understand the interactions between them and counteract any adverse rebound affects. The outcome will be a policy framework for additional policies to meet EU resource efficiency objectives and support absolute reductions in energy demand.

References

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