

EFFECT OF BUSINESS RESOURCE EFFICIENCY ON EMPLOYMENT AND COMPETITIVENESS

Project Summary

This project sought to create a methodological approach to assess the impacts of quick-win resource-efficiency measures on employment and competitiveness at national and sectoral level. The two methods identified were tested on the Construction sector and the Food, Drink and Tobacco sector. A summary of findings and key aspects that affect sector specific impacts on employment and competitiveness have been provided.

Key Findings

Headline Messages

- The case studies used to generate data show that the implementation of the different quick-win resource efficiency measures tends not to be directly linked to job creation but possibly job retention. This is because the measures are often implemented in order to save costs. However, businesses are able to yield competitive benefits with the implementation of a number of quick-win measures.
- The impact of resource efficiency on the economy is likely to vary considerably depending on the characteristics of the sectors concerned, namely:
 - the positioning of the industry with regard to final product supply chains;
 - the import intensity of the resources whose demand is reduced;
 - the types of resource efficiencies (the extent of the intra-industry feedbacks);
 - the price elasticity of demand (and trade demand);
 - the degree of influence of the business cycle on demand for the sector;
 - the cost pass-through rate; and
 - labour market interactions influenced by the business cycle.
- From the case studies, the quick win resource efficiency savings were estimated at 1.0% of costs (£1058m) for Construction and 0.9% of costs (£341m) for Food, Drink & Tobacco sector.
- The first round impacts of resource-efficiency savings on the sector itself suggest modest gains in competitiveness (GVA, profit, trade balance) and employment (more through job retention than job creation, as stated above) within sectors through lower prices, increased demand, and increased output.
- The secondary effects on the wider economy can outweigh the first round impacts in a wider economy, implying that income effects can be larger than the price effects that result directly from the resource-efficiency savings. The lower intermediate demand reduces output (of supply-chain industries), employment, income and spending.

Sector specific findings

A more price-competitive UK Food, Drink & Tobacco sector emerges from the implementation of efficiency measures:

- First round impacts of resource efficiency
 - The study estimates an increase of around £400m to GVA as a result of the savings of about £900m.
 - Demand may be boosted but at a sector level the impact of a price reduction on demand is modest.
 - UK exports are likely to become cheaper and domestic prices become more favourable relative to import prices; as a result, net trade is estimated to increase by around £430m.
 - A smaller increase in employment of around 6000 FTEs is estimated due to increased output.
- Second round impacts of resource efficiency
 - The resource efficiency savings may be offset by a reduction in intra-industry demand.
 - In the whole-economy hours worked could be increased, not the level of employment.

In the Construction sector, an estimated increase in GVA and employment is offset by effects on supplying sectors:

- First round impacts of resource efficiency
 - All of the cost savings are passed through to lower prices, and so demand for Construction is boosted. For example, a cost saving of around £250m would lead to a £40m increase in GVA.
 - The small change in output is likely to lead to a modest increase in employment of around 700 FTEs because the sector is reasonably labour intensive.
- Second round impacts of resource efficiency
 - The resource-efficiency measures lead to a reduction in intermediate demand: this reduces the output of sectors that supply inputs to Construction.
 - Assuming no other changes in those supplying sectors or the wider economy, this leads to an estimated reduction in employment of between 3000 and 14,000 FTEs.

Methodology

Two modelling approaches were developed and used in this study: a sector framework for sector-specific analysis; a whole-economy MDM-E3 model of the UK. The sector framework is a static framework designed to look at the one-off impacts of resource-efficiency. The whole-economy modelling approach is dynamic and provides estimates of the impact on the industries supply chain in the whole economy over a long term period, subject to the limitations listed below. The Food, Drink and Tobacco sector and the Construction sector were the selected examples including twenty five case studies that focussed on waste minimisation, water efficiency and energy efficiency. The data were collected through literature review, case studies and stakeholder consultation.

Limitations & Robustness

This study was subject to many limitations and assumptions and should be considered experimental. The sector framework is a comparative static model and ignores the second-round effects. The whole economy approach addresses some of the limitations of the sector framework approach. However, the modelling approach is sensitive to assumptions for scaling up sector level findings and does not include data on any new jobs created from a more resource efficient, greener economy. It is also based on past data and does not take into consideration behavioural changes as a result of more recent policies. The estimates of resource-efficiency savings are relatively small as the study was limited to no/low cost resource efficiency savings. The case studies did not return as much information as initially expected and required. The solution to this was to make use of estimates of cost savings which were not as robust as the previous study by Oakdene Hollins (2007) findings because the sample size was substantially smaller.

Researchers' Suggestions

It would be necessary to conduct regular assessments of businesses to improve the quality of available data and further research. It is important to identify regulations that act as the leading drivers of change to resource efficiency. Lastly, it is in the interest of both the industry and the regulatory bodies to identify the procedures relevant for the sector that are most in need of additional incentives as well as to simplify the processes and requirements of policies without a risk to environmental effectiveness or health and safety.

Further Information

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