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NEW POLICY INSTRUMENTS FOR ENERGY EFFICIENT HOME APPLIANCES IN EUROPE

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Overview

During the last decade, unit energy consumption of large household appliances has been reduced from 30 to 40 percent; and today the marginal cost of further technological improvements is greater. In this context, to achieve additional energy and environmental savings, public incentives will be increasingly be appropriate and required.

In the summer of 2005, the US Congress passed legislation introducing a new type of financial incentive, corporate income tax credits for the production of highly efficient household refrigerators and clothes washers. Other major production areas such as China also are considering production tax credits. For the first time, this new policy instrument is studied in a European context.

Methods

The situation examined is that of a consumer who decides to purchase an A++ category combination refrigerator/freezer instead of an A category model as the result of the marketing campaign associated with production tax credits. In order to capture the substitution effects, a dual production facility (for both A++ and A category production) is modelled using the method E-GRIM (European Government Regulatory Impact Model), utilized in several studies for CECED and the European Commission[1].

Results

Compared to the business as usual base case, the production tax credit results in increased discounted cash flows for the manufacturer, zero or neutral cash flows for the government and positive discounted cash flows for the consumer. Surprisingly, for the government, even including the loss in electricity taxes due to energy savings, the cost of the tax credits are almost fully compensated by increased value added taxes and increased corporate income taxes, due the production shift to the more costly and profitable A++ model. Thus, the production tax credit can result in essentially positive cash flows for all three major stakeholders.

A comparison is made with the traditional policy of rebate. Under assumptions quite favourable to rebates, we find that government cash flow are significantly negative and consumer benefits disproportionately high, both due to the fact that rebate schemes cannot identify and eliminate free riders, those who would have purchased in any case the higher efficiency model.

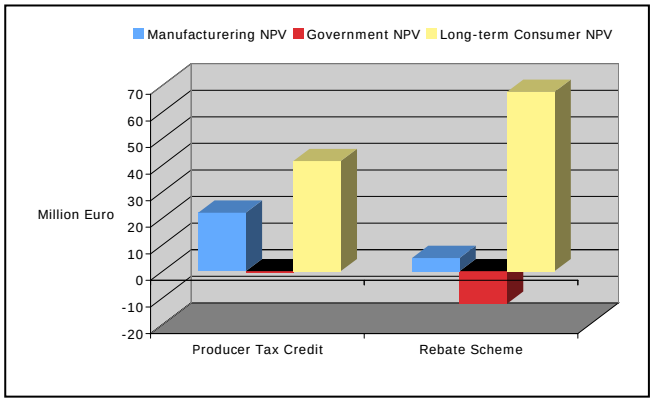

Fig. 1: Comparison of Production Tax Credit and Rebates In Change of Net Present Value (NPV) of Cash Flows of Manufacturers, Government and Consumers

A comparison also was made applying the tax credit to labour taxes instead of corporate income tax, which may increase the possibility of being introduced in some countries. Finally it is shown that a reduced value added tax on the most efficient product is essentially equivalent to the rebate case.

Conclusions

Production tax credits are more cost effective for governments with respect to rebates and lower value added taxes. In Europe, there is no legislation that provides producer tax credits for highly efficient appliances. Corporate income taxes are paid at the Member State level and thus the role of the EU could be that of facilitating the introduction of the production tax credits.

With such policy the higher quality production will tend to remain within the EU, to the benefit of the European economy in general, and specifically with greater revenues, a larger tax base, and more employment within the Union. Obviously the measure goes toward meeting the goals of the Kyoto agreement.

References

[1]E-GRIM has been utilized in the following studies:
ISIS/ENEA, Study of the Environmental Impact of Dishwashers, promoted by CECED, completed in September 2005.
Enhancing the Government Regulatory Energy Measures Impact and Diffusion Speed Appraisal Method (E-GRIDS), project number NNE5-2001-00147, contract number ENG1-CT2001-80550**,** completed in 2002.
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