






## Reducing the impact of 'green' taxes and charges on low-income households

Environmental or 'green' taxes and charges send signals to consumers by making consumption of environmental resources more expensive. However, there are concerns that their effect could be 'regressive', by hitting lower income households disproportionately. This research, by Paul Ekins and Simon Dresner of the Policy Studies Institute, investigated the possible impact on low-income households in four areas of environmental and social importance: domestic use of energy, water and transport, and domestic generation of waste. It also considered whether any negative impacts could be reduced if the tax or charge were designed appropriately, or if a compensation scheme were introduced. The study found that:

-  Low-income households' use of energy, water and waste disposal services, and their use of cars where they own them, is disproportionate in relation to their income. This confirms that a flat-rate tax or charge applied to such usage would be regressive.
-  For the average low-income household, the disproportionate impact could be removed through an appropriate (i.e. non-flat rate) design of the tax or charge scheme and/or by introducing a compensation scheme along with the tax or charge.
-  However, use of environmental resources tends to vary widely within a given income group. This means that, in practice, some low-income households would end up as net losers from any charging-plus-compensation scheme, even when the scheme leaves low-income households better off on average.
-  Taxes and charges will cause some people to reduce their consumption of the environmental resource in question. This should reduce both the number and extent of the net losing, low-income households.
-  Where this would cause unacceptable hardship, it may be possible (as with essential water use) to relieve this through further special arrangements. Alternatively, it may be necessary to tackle the underlying cause of the hardship (such as energy-inefficient buildings) if pricing is to be used as an instrument of policy.

## Background

Policy-makers are naturally concerned that environmental improvements should be achieved at minimum overall cost, and there is widespread agreement that environmental taxes and charges can often help to achieve this. However, it is also important to policy-makers that measures are not regressive i.e. do not hit lower-income groups disproportionately. This consideration may act as a significant constraint on the introduction of environmental taxes and charges, even where they might otherwise be appropriate.

The study explored the possible impacts on low-income households of the introduction of environmental taxes and charges in four key areas of environmental and social concern: the use by households of energy, water and transport, and their generation of waste. In each of these areas, taxes or charges have been discussed or implemented, and their impact on those on low incomes has been an important part of the policy debate.

## Household energy use

Many low-income households in the UK experience 'fuel poverty', meaning a need to spend more than ten per cent of their income to attain a satisfactory level of warmth. The present government is committed to the abolition of fuel poverty by 2016.

There is enormous variation in household energy use between households with similar incomes, including those with low incomes. The variation in carbon emissions is not as great, but is still very substantial. Low-income households also pay substantially more per unit of energy than richer households. A carbon tax imposed equally across the board, without any compensation for poor households, would therefore add to the unfair price

burden these households are already experiencing.

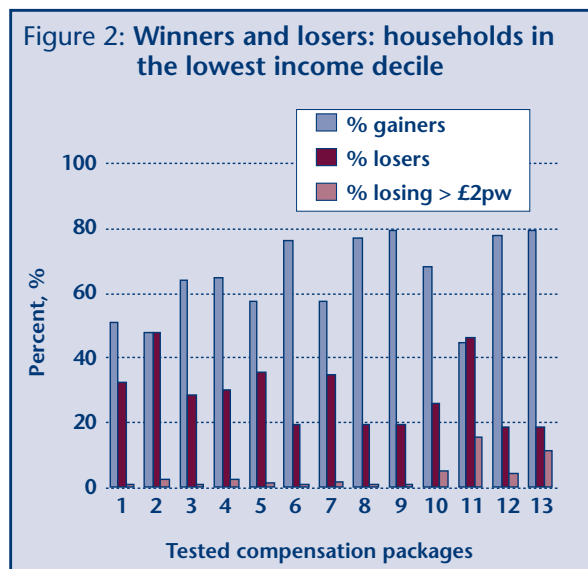
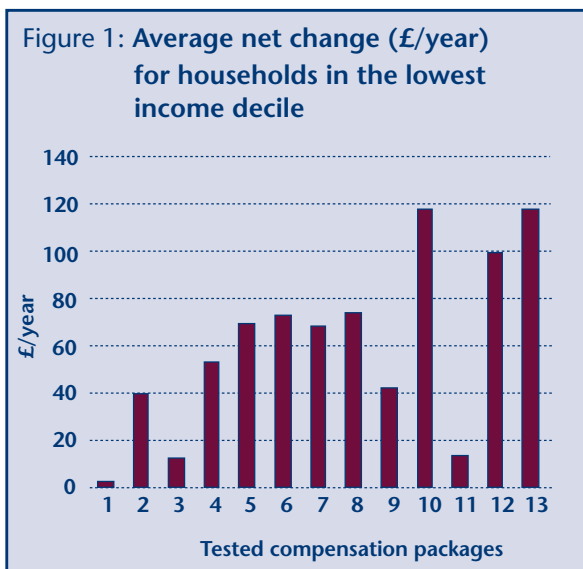
The research explored thirteen tax plus compensation packages, compensating poor households through some combination of means-tested benefits, child benefit, adjustments to pensioners' Winter Fuel Allowance (WFA) and varying the rate of carbon tax. Figure 1 shows that it was not difficult to design packages which on average benefited poor households.

However, the enormously skewed distribution of energy consumption among households with similar incomes means that the average result conceals great differences in net gains and losses. In fact, none of the investigated compensation packages managed to reduce the proportion of losing households in the poorest ten per cent of households much below twenty per cent (see Figure 2). Many of these households are among those that are deepest in fuel poverty.

Many UK homes are very inefficient in terms of their energy use. An alternative approach to reducing energy use and carbon emissions would be to introduce incentives for households to implement cost-effective energy efficiency measures. The research explored the potential of such a scheme and concluded that adopting such an approach – described in some detail in the report – offers a relatively rare opportunity for public policy success in its generation and distribution of economic, social and environmental benefits.

## Household use of water

At present most households in the UK pay for their water through a bill based partly on a standing charge and partly on the rateable value of the property. This system is itself regressive. The alternative is to be metered. Universal metering could



be implemented in the UK through a variety of different tariffs, each with different distributional implications. Impacts of metering on larger low-income households could be reduced by having a lower tariff for those on benefits, giving a 'free' allowance of water to some households, or varying the tariff by an amount related to Council Tax. These are some of the options explored by this research, all of which were found to involve, on average, a redistribution of income from richer to poorer households.

The distributional effect of eleven alternative tariff designs was examined with three variables in mind: the average effect on low-income households; the effect on high-water-using low-income households; and the overall redistributive effect (i.e. the transfer from richer to poorer households). This research found that:

- All the metered tariffs investigated were better for low-income households than the present tariffs, on average helping those in the lowest income group, some substantially.
- All the tariffs made at least six per cent of the lowest-income households (those with the highest water use among these households) worse off by more than £1 per week. Where high water use is not essential, households could reduce their charges by using less water. Where it is essential, perhaps due to medical reasons, it should be possible to reduce the charges through a specially targeted policy.
- Though all the tariffs were redistributive to some extent, they varied considerably in the degree of redistribution from richer to poorer brought about.

### Household use of transport

Transport is the only sector of the UK economy which has increased its emissions of carbon dioxide since 1990. Although this is mainly due to growth in domestic aviation, road transport emissions are expected to grow by more than twenty per cent between 2000 and 2010, and further beyond that date, without further measures to restrain traffic growth. Petrol taxes do not disproportionately affect poorer households as a whole, because such households are less likely to have a car. However, petrol taxes do disproportionately affect low-income motorists.

The study examined the effect on low-income households of several measures to restrain the likely future increase in emissions from transport. Results showed that, if fuel duties were increased, the most

effective means of compensating low-income motorists would be to abolish vehicle excise duty (VED). If, instead, a revenue-neutral congestion charging system was introduced, this would lead to a redistribution of money from urban to rural drivers. Congestion charging that could both reduce traffic growth and fund improvements in public transport would need to be revenue raising. That would inevitably mean that low-income urban households would have to pay more if they continued to drive.

An alternative approach might be to use domestic tradable quotas (DTQs).

These involve every adult resident receiving for free an equal number of carbon units to cover their annual carbon emissions, including private transport. Those who used less than their entitlement could sell their surplus units to others who wanted to use more. The study showed that if a domestic tradable quotas system covered the carbon emissions from household energy use and motoring, it would be progressive overall but around thirty per cent of low-income households would lose out. However, if only emissions from motoring and aviation were included, the proportion of 'losers' amongst low-income households would only be ten to fifteen per cent.

### Household waste generation

Compared with most other EU member states, the UK has a low rate of recycling of household waste, and sends a relatively high proportion to disposal in landfill. EU commitments mean that much less waste will need to be sent to landfill in future, yet the quantity of household waste is increasing at about 3 per cent annually. In the absence of waste reduction measures, disposal costs are likely to double to £3.2 billion by 2020.

Households presently pay for waste collection and disposal through the Council Tax. Because this is itself regressive, increasing Council Tax to pay for higher waste costs will also bear disproportionately on low-income households. An alternative approach, recommended by the government's Strategy Unit, could be to allow local authorities to introduce variable waste charging. This could be expected to result in both waste reduction and an increase in the separation of recyclables. But this too could be regressive, because, as the project data made clear, the generation of household waste bears little relation to income, and more affluent households tend to recycle more, thereby reducing their residual waste which would bear the charge.

Because the Council Tax is regressive, removing waste charging from it by reducing it for all households by the same amount would make low-income households proportionately better off.

If a revenue-neutral variable weight-based charge was then introduced for all households – and there was no waste reduction – ninety-two per cent of single-person households, and seventy-six per cent of two-person households, would still be better off. Although larger households would be net losers, they could reduce their waste disposal costs by reducing the amount of residual waste they generate.

Compensation for extra waste disposal costs could be given through the benefits system. The research found that the cost of fully compensating all but the twenty per cent of these households that produce most waste would be £365 million per annum. This is comparable to the £375 million that central Government will have to find to fund the increased costs of local authority recycling, if this continues to be funded as at present. Thus, if variable charging were to significantly reduce the generation of household waste, the resulting lower waste disposal expenditure by government could offset partially or completely the extra benefits needed to protect low-income households.

### General conclusions

This research has shown that, in general, it is possible to solve the disproportionate impact on low-income households sometimes associated with environmental taxes and charges. This can be done through either a tariff or charge, or a targeted compensation scheme.

However, the consumption of key environmental resources tends to vary widely within a given income group. This means that under any practicable compensation system (and assuming no change in household behaviour), some low-income households will end up as net losers from any charging-plus-compensation scheme, even when most low-income households end up as significant gainers. In practice, households will be able to change their behaviour in response to charging (thereby reducing the consumption of the environmental resource in question). This should greatly reduce both the number and extent of net losing, low-income households. Where even this would lead to unacceptable hardship, either further special measures could be implemented, or the underlying cause of the hardship could be addressed.

The results from this research could help ensure that, if environmental taxes and charges are introduced, they are designed so that they do not have unintended social consequences.

### About the project

For each of the four areas studied, the research first identified the impact of an environmental tax or charge on low-income households, and then considered how this might be reduced either through appropriate design or through the simultaneous implementation of a compensation scheme.

The impact of an environmental tax or charge on households was calculated from data which showed the household use of the environmentally-related service according to household income. New datasets relating household characteristics to their water use and waste generation allowed the implications of other elements of the compensation schemes in these areas to be calculated. For transport, the main data source for the calculations was the Family Expenditure Survey. For energy use, both the English House Condition Survey and the Family Expenditure Survey were used. The implications of that element of the compensation schemes that involved the benefits system were calculated using the POLIMOD model maintained by Holly Sutherland at the University of Cambridge.

### How to get further information

The full report, **Green taxes and charges: Reducing their impact on low-income households**, by Paul Ekins and Simon Dresner, is published by the Joseph Rowntree Foundation as part of the Reconciling Environmental and Social Concerns series (ISBN 1 85935 246 4, price £13.95).

Detailed working papers in each of the four areas studied are being produced and will be put on the Policy Studies Institute (PSI) website ([www.psi.org.uk](http://www.psi.org.uk)). Further information about the details of the work carried may be obtained from Simon Dresner at PSI ([s.dresner@psi.org.uk](mailto:s.dresner@psi.org.uk)).