

Summary: Intervention & Options

Department /Agency:	Title: Impact Assessment of powers to pilot local authority incentives for household waste minimisation and recycling	
Stage: Final	Version: 1	Date: November 2007
Related Publications: "Modelling the Impact of Household Charging for Waste in England" report for Defra by Eunomia Research and Consulting (December 2006)		

Available to view or download at:

<http://www.defra.gov.uk/environment/waste/strategy/incentives/index.htm>

Contact for enquiries: Samuel Thomas

Telephone: 020 7238 1036

What is the problem under consideration? Why is government intervention necessary?

The UK needs to radically reduce the amount of waste it sends to landfill, to reduce the climate change impact of our production and consumption and to comply with the EU Landfill Directive. Encouraging householders to minimise, compost and recycle their waste as far as possible is an important part of this. The UK is currently the only EU15 country to prohibit local authorities from placing financial incentives upon householders to minimise and recycle waste. Government wishes to provide a power to pilot local authority incentives for household waste minimisation and recycling.

What are the policy objectives and the intended effects?

The objective is to give local authorities a power to pilot incentives, as a potential additional tool to change waste behaviour in order to boost recycling, reduce waste levels and reduce waste to landfill.

What policy options have been considered? Please justify any preferred option.

Government has considered the following alternatives:

Do nothing;

Introduction of a local waste charge (as seen elsewhere in Europe)

Introduction of revenue neutral financial incentives

A power to pilot local authority incentives for household waste minimisation and recycling

In addition, a number of other options are already available to authorities to encourage recycling and waste minimisation by households. These include reward schemes, compulsory recycling and Alternate Weekly Collection.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? Defra will carry out monitoring and evaluation of the first pilots to gather evidence on the costs and benefits with a view to a review during 2010/11.

Ministerial Sign-off For final proposal/implementation stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) the benefits justify the costs.

Signed by the responsible Minister:

.....Date:

Summary: Analysis & Evidence

Policy Option:	Description:
-----------------------	---------------------

COSTS	ANNUAL COSTS	Description and scale of key monetised costs by 'main affected groups' Costs to the UK as a whole will depend on whether powers are made more widely available following the initial pilots, and, if so, how many local authorities take up the option to introduce incentives. Start-up costs for a 50,000 household scheme are estimated at £100k - £200k, annual running costs at £200k to £500k (costs borne by local authorities).
	One-off (Transition) Yrs £ 70m - 135m 7	
	Average Annual Cost (excluding one-off) £ 50m - 60m	
	Total Cost (PV)	
Other key non-monetised costs by 'main affected groups' Across wider society more recycling could lead to significant additional time costs of householders sorting waste which would outweigh other net benefits. This will be revealed if householders do not respond to incentives as expected as at the household level incentives should compensate for incremental recycling effort.		

BENEFITS	ANNUAL BENEFITS	Description and scale of key monetised benefits by 'main affected groups' Financial savings can be made through lower waste treatment due to waste prevention, estimate for a 50,000 household scheme suggest £290k and £1.4m savings accruing to local authorities (£180k to £1.35m savings excluding tax to society as a whole). CO2 equivalent savings valued at £80k to £340k p.a. are also predicted.
	One-off Yrs £ none 7	
	Average Annual Benefit (excluding one-off) £ 80m - £200m	
	Total Benefit (PV)	
Other key non-monetised benefits by 'main affected groups' There may also be amenity benefits associated with less waste treatment and movements, these will depend on the type and location of waste facilities.		

Key Assumptions/Sensitivities/Risks There may be distributional impacts depending on the type of incentives the authority pilots, the relative income of households producing larger than average amount of waste or who are not easily able to change their behaviour. Nb. Aggregate estimates are based on potential coverage rates of households and schemes in the Eumonia study and ranges in annex 2.

Price Base Year 2006	Time Period Years 7	Net Benefit Range (NPV) £ 0 - £750m	NET BENEFIT (NPV Best estimate) £ 285m
-------------------------	------------------------	--	---

What is the geographic coverage of the policy/option?	England				
On what date will the policy be implemented?	2009/10				
Which organisation(s) will enforce the policy?	Local Authorities				
What is the total annual cost of enforcement for these organisations?	£ N/A				
Does enforcement comply with Hampton principles?	Yes				
Will implementation go beyond minimum EU requirements?	No				
What is the value of the proposed offsetting measure per year?	£ N/A				
What is the value of changes in greenhouse gas emissions?	£ 17m - 38m				
Will the proposal have a significant impact on competition?	No				
Annual cost (£-£) per organisation (excluding one-off)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">Micro None</td> <td style="width: 25%; text-align: center;">Small None</td> <td style="width: 25%; text-align: center;">Medium None</td> <td style="width: 25%; text-align: center;">Large None</td> </tr> </table>	Micro None	Small None	Medium None	Large None
Micro None	Small None	Medium None	Large None		
Are any of these organisations exempt?	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">No</td> <td style="width: 25%; text-align: center;">No</td> <td style="width: 25%; text-align: center;">N/A</td> <td style="width: 25%; text-align: center;">N/A</td> </tr> </table>	No	No	N/A	N/A
No	No	N/A	N/A		

Impact on Admin Burdens Baseline (2005 Prices)		(Increase - Decrease)
Increase of £ N/A	Decrease of £ N/A	Net Impact £ N/A

Key:

Annual costs and benefits: Constant Prices

(Net) Present Value

Evidence Base (for summary sheets)

[Use this space (with a recommended maximum of 30 pages) to set out the evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Ensure that the information is organised in such a way as to explain clearly the summary information on the preceding pages of this form.]

Draft Impact Assessment – Evidence Base

Introduction

1. This Impact Assessment looks at options to introduce a new tool to enable local authorities to boost recycling, reduce waste levels and reduce waste to landfill of their populations.

Background

2. The Government's Waste Strategy 2007 aims to help England achieve increasing annual net reductions in global greenhouse gas emissions from waste management. Challenging targets for waste minimisation and recycling in the Strategy, alongside EU targets for a reduction of biodegradable municipal waste sent to landfill, mean that local authorities need residents to take steps to reduce their waste, home compost and recycle waste. The European Landfill Directive states that:
 - by 2010 biodegradable municipal waste landfilled must be reduced to 75% of the total amount produced in 1995;
 - by 2013 biodegradable municipal waste landfilled must be reduced to 50% of the total amount produced in 1995; and
 - by 2020 biodegradable municipal waste landfilled must be reduced to 35% of the total amount produced in 1995.
3. If these challenging targets are not met, the UK will be liable to substantial financial penalties from the EU. The government has the power to pass these penalties on to individual local authorities that contribute to any UK breach of these targets. This would further drive up the costs of waste management, putting pressure on the local government funding system.
4. In this context, the Government believes that local authorities need to be given sufficient power to choose the tools necessary to be able to achieve key priorities, namely:
 - boost recycling/composting;
 - encourage waste minimisation; and
 - reduce waste going to landfill.
6. Householders' behaviour is vital towards meeting these national targets in a cost effective way. Authorities need residents to take steps to reduce their waste, home compost more, where appropriate, and recycle more. If residents do not change their behaviour, authorities may need to invest in more expensive waste technologies or purchase additional allowances to landfill biodegradable municipal waste. They may also face substantial penalties. Failing to minimise, home compost and separate waste also increases greenhouse gas emissions, mainly from the demand for new products made from virgin materials.
7. Variable charging for waste, or "pay as you throw", is common elsewhere in Europe. The principle behind it is that householders pay according to the amount of waste they throw away. In Flanders for example, 98% of municipalities have waste charging in place. In most cases, waste bills have fallen as a result of introducing charging. Flanders households recycle 70% of their waste, compared to 27% in England.
8. The Local Government Association (LGA) has called for local authorities to be given the power, not the duty, to incentivise householders in this way. Its 2007 publication, War on Waste, calls for: "save-as-you-throw' powers to help encourage people to take more responsibility for the way they throw their rubbish away... it's also fairer because if you throw out less you pay less." Sir Michael Lyons

has recommended that Government give authorities the freedom to implement such schemes, developed in close consultation with local residents and other stakeholders.

9. The Local Government White Paper published in October 2006 sets out the Government's intention to empower local communities by giving them greater freedoms and powers to improve public services. Granting local authorities new powers to meet their waste management challenges is an important part of increasing local flexibility as part of the Government's devolutionary agenda.

Rationale for intervention

10. There is currently no way to distinguish between those who produce the most waste and those who produce the least, in terms of the overall amount they pay to the local authority. This means that there is little or no incentive for householders to reduce or sort their waste. As a direct result there is likely to be an inefficiently large amount of waste entering the municipal waste stream and - due to its mixed nature – it may be difficult to treat in an efficient manner.
11. There are wider impacts of waste disposal and treatment beyond the market price, most notably the climate change impacts of landfilling waste and the climate change and natural resource protection benefits of avoiding primary production through waste prevention and recycling. As well as producing too much waste, accounting for these impacts suggests that we have over relied on landfill and other disposal technologies, which in turn are associated with single mixed waste collections. To allow more efficient levels of treatments like recycling, waste needs to be better sorted. Incentivising the reduction of mixed residual waste (and not waste sorted for treatment) gives an incentive for both sorting and reducing waste.
12. From a wider UK perspective the EU Landfill Directive places legally binding limits on the amount of biodegradable municipal waste that can be landfilled. This obligation has been devolved to local authorities. Providing the ability to pilot incentives gives local authorities an additional potential instrument to reduce waste landfilled and hence it should help the UK as a whole to meet its targets at lowest cost.

Options

13. Three options were identified in the public consultation:
 - 1) Do nothing
 - 2) Allow authorities to levy a separate charge upon householders for waste collection
 - 3) Introduce a new power to allow local authorities in England to introduce revenue-neutral financial incentives with the purpose of encouraging recycling and minimisation of waste.

Option A – Do nothing

14. The Government could leave legislation unchanged, meaning that authorities would not be able to introduce financial incentives schemes. They would still be able to offer rewards and to charge for collection of certain wastes (such as garden waste and bulky waste).

Option B (i) – Allow authorities to levy a separate charge upon householders for waste collection

15. In the public consultation, some stakeholders wanted to see waste funded through a separate local waste charge, as happens in many European countries. This would mean moving to a local waste charge for all local authorities. Individual authorities could then choose whether they wished to implement a variable waste charge, or whether should charge all households at a flat rate.
16. In England, waste is funded through a combination of Council Tax, redistributed business rates and central government grant. In order to change to a European system without increasing the amount of tax paid overall, the charge would have to replace revenues raised through Council Tax and central government funding to local authorities (which comes from business rates and general taxation).

17. Funding waste entirely through a local charge would have distributional impacts. The tax burden on individuals and lower income households would increase, because the cost of waste services would no longer be met to a significant degree from the national tax pot, but would be met solely by charges on individuals. Thus, though the aggregate tax bill to society as a whole would not change, moving from general taxation to a local waste charge would be regressive.

Option B(ii) – Charge for waste through Council tax

18. A further option for a local waste charge would involve turning the proportion of householders' Council Tax bills that funds waste services into a variable charge. Central Government funding would be unchanged. Council Tax funds only a proportion of local authority waste services, meaning that the level of the incentive to householders could be limited under such a system.

19. The incentive effect of this option would be smaller than fully funding waste through local taxation, however it would not have the regressive impact of removing the national element of funding.

Option C – Introduce a new power to allow local authorities in England to introduce revenue-neutral financial incentives with the purpose of encouraging recycling and minimisation of waste

20. This was the Government's preferred option set out in the public consultation. It would involve a rebate being paid to households producing the least waste, with households producing most waste paying to do so. As such, all the revenue raised by the local authority would be returned to residents in a transparent way and would not increase the amount that residents as a whole pay to their authority. (This is the concept of revenue neutrality).

21. In order to avoid unfair impacts on certain groups or unintended impacts such as flytipping, the following conditions would also have to be met prior to introduction of any financial incentive scheme:

- Any household covered by an incentives pilot would have to be served by a good free kerbside recycling service
- The authority would have to have a fly-tipping prevention strategy in place
- The authority would have to take account of any potential disadvantage caused to particular social groups

Costs and Benefits

22. Comparison of Options Bi, Bii, and C

23. Options Bi, Bii and C would all grant local authorities the power to incentivise waste reduction, and thus help to reduce waste more cost-effectively than could be done under option A. However Option Bi results in a shift from general taxation to taxation on individuals regardless of income, and would therefore be regressive. Option Bii could constrain the level of incentive possible, since Council Tax funds only a proportion of local authority waste services. Option Bi could have a regressive impact (meaning that those on low incomes could end up paying relatively more) but Options Bii and C would not.

Option D – a power to pilot local authority incentives for household waste minimisation and recycling

24. The Government proposes to provide a power to pilot local authority incentives. Incentives could take several forms, as put forward by local authorities, potentially including pure rebates for householders; a combination of charges and rebates (with all revenue raised by the authority being returned to residents) and the ability to link incentives to Council Tax. This would allow, for instance, the piloting of options similar to Bii and C, with the benefits set out above. The conditions set out in paragraphs 20 and 21 above would also apply to option D.

25. The following discussion is based on research on incentives as a whole as opposed to specific options set out. Hence it should be viewed as a comparison of a system with and without incentives. The Government would prefer to allow incentives to be put in place through option D based on the arguments presented above.

Impact of incentives

26. Option D would mean that local authorities could pilot incentives for minimising and recycling household waste. Granting local authorities this power will not necessarily mean that they will wish to pilot these schemes. The costs and benefits of doing so will vary depending on the characteristics of the local authorities. **There should therefore only be a net gain to society of providing powers to pilot incentives since pilots should only be put in place where there are net benefits of doing so.** For illustrative purposes and to show the range and magnitude of potential costs and benefits associated with introducing financial incentives the following section presents estimates of the range of impacts that could be associated with the introduction of a scheme covering 50,000 households.
27. The impact of incentives has been investigated through:
- 1) a Defra-funded research project¹ which analysed the impact of household waste charging in England, including by surveying existing literature on international waste charging schemes and by carrying out modelling work;
 - 2) a partial Regulatory Impact Assessment carried out prior to consultation;
 - 3) further work by Defra to analyse the likely costs and benefits of schemes.

Sectors and groups affected

The public sector

Costs to central Government:

28. Government has allocated up to £1.5 million a year for three years to help implement and monitor the pilots, and to research the impacts, for example on waste behaviour, fly-tipping and attitudes. If in the future powers became more widely available, we would expect further authorities to fund set up of incentive schemes from within existing budgets.
29. There will also be a small reduction in revenue from landfill tax to the Exchequer, depending on whether pilots are replicated more widely in the future and the associated reduction in waste to landfill.

Local authorities

30. This proposal will affect local authorities that decide to pilot incentive schemes. Government will not compel any authority to pilot an incentive scheme.
31. In all options local authorities will incur additional costs relating to the introduction, administration and monitoring of pilots, and the increased attention required to prevent increases in fly-tipping. However, the behaviour change created by the incentives can generate cost savings for authorities (see below for more detail), benefiting all residents by reducing pressure on authorities' waste management costs and hence on Council Tax bills. The net impact for the UK as a whole should be to reduce the cost of compliance with the Landfill Directive.
32. Defra has funded a research project, which examined evidence from international household charging schemes and modelled the potential future effect of such schemes in England.
33. By increasing recycling and encouraging waste minimisation, incentive schemes can reduce the amount of waste that has to be disposed of. This can lead to cost savings and help reduce pressure on Council Tax bills. First, it can reduce authorities' waste management costs. Modelling in the Defra-funded research project predicts **cost savings to local authorities of up to £18 per household per year** as a result. This figure however is highly dependent on the type of authority and scheme in place, and the marginal avoided disposal costs in these authorities. Where the avoided disposal is landfill, although costs savings to the local authority may be this high, the net saving for

¹ <http://www.defra.gov.uk/corporate/consult/waste-incentives/index.htm>

the UK as a whole will be lower as part of financial saving is savings in the tax Local Authorities are liable for and is thus simply a transfer from local to central government. The extent to which tax makes up a portion of this saving will also depend on the share of waste that is disposed of rather than recycled or composted. An attempt has been made to adjust savings to account for the landfill tax across different schemes in the costs and benefits annex, annex 2. It could be argued that a charging scheme might have a stronger incentive effect than an incentive scheme, because the threat of penalties would be more likely to generate behavioural change than the chance to gain a financial benefit. Government believes however that the broad costs and benefits as identified in this report could apply equally to a charging scheme or an incentive scheme.

34. The level at which the local authority set the incentive will affect the results – a high average level should, all other things remaining equal, encourage a more pronounced change to household waste behaviour than a lower one, and thus more cost savings. The Defra commissioned research report looked at evidence on the relationship between level of charge and impact on behaviour. It found that there was little data which compared different levels of charge within similar schemes, and therefore robust conclusions could not be drawn. This is an area where further research is needed.
35. It should be noted that the costs of waste disposal may also vary from authority to authority depending on contract type as well as alternative treatment. For example, if the authority's waste disposal contract committed it to a minimum level of charges even if waste volumes fell, the marginal benefit of avoided disposal could be very low or potentially zero for a particular authority, this would therefore reduce expected savings. Individual authorities would need to assess carefully the likely costs, savings and benefits for their locality before putting forward proposals to pilot incentives.
36. The figures quoted above are net of set-up and administration costs which are estimated be **between £5 to £6 per household** (with any one-off costs annualised over a 7 year scheme). They include the cost of:
 - containers, vehicles and equipment;
 - sorting/treatment/disposal;
 - revenues from material sales;
 - scheme implementation (including billing, administration and communications); and
 - monitoring and clearing up fly-tips (assuming for prudence that these increase).
37. The actual quantum of savings would depend on the type of schemes taken forward, the level of the incentives, and the coverage of the schemes, the numerical examples given relate to an example of a scheme covering 50,000 households.
38. Government legislation would require any local authority piloting incentives to first have in place a fly-tipping prevention strategy. The detail of such strategies would differ according to local priorities. Defra would however like to see all authorities have fly-tipping prevention strategies in place regardless of whether or not they wish to introduce incentives. A fly-tipping prevention strategy would have wider benefits for a local area, not just in relation to dumping of household waste but also as regards dumping of commercial waste.
39. Annex 1 provides a detailed breakdown of the potential costs associated with fly tipping. However, a local authority might expect to incur additional costs of around £130,000 to £180,000 up front plus £50,000 per year thereafter. This is compared to savings of up to £1.4m through waste prevention.
40. Defra will develop detailed best practice guidance for authorities on fly-tipping working with the Local Government Association and the Environment Agency, and will also put in place monitoring of the pilots in order to detect any impacts on fly-tipping and learn lessons regarding mitigation.
41. A summary of the potential costs and benefits to a local authority in this section is provided in table 1 below, along with an estimated range of benefits (assuming a 50,000 household scheme). It should be noted that the financial benefits include savings in landfill tax payments that might accrue to local authorities, and hence the costs to society will be lower. A more in depth analysis of costs and benefits of different scheme types is provided in annex 2. As can be seen the range of costs and benefits is large (due to the range of schemes covered) and hence the net benefit will depend on the particular authority.

Table 1: Summary of estimate financial costs and benefits to representative local authority for a financial incentives scheme covering 50,000 households

One off cost increases	
<i>Included in Eunomia Report</i>	
Fleet management software	£0 - £5,000
Scanners	£0 - £3,000
Delivery and scanning of bins	£0 - £65,000
Start up call centre	£30000
Start up information provision (incl fly tipping)	£100000
Bin changes	£0 - £85,000
<i>Additional costs identified by Defra</i>	
Fly-tipping strategy/training/data analysis	£0 - £85,000
Annual operating cost increases	
Additional staff for implementation / queries	£24,000
Additional monitoring of fly-tips	£50,000
Billing costs	£16,000 - £280,000
Range of annual cost savings from reduced waste collection, disposal and treatment	
	£290,000 - £1.4m

42. It should be noted that Table 1 assumes a revenue neutral scheme, if the local authority were to fund incentives out of current expenditure, an average incentive payment of, for example, £35 per household would translate to additional costs of £1.75m per year.

Businesses

43. This proposal will not affect businesses, who already pay for collection of their waste, unless it discourages illegal disposal of commercial waste in the household waste stream

Households

44. Since these schemes are likely to reduce costs overall to local authorities, there is likely to be a net cost saving to householders, though within this group some will receive a rebate while others will pay more. Option D will affect householders, as they could potentially receive a rebate or face a payment according to the type of incentives being piloted and the amount of waste they produce. Some householders could potentially pay more to their local authority than at present, whereas others could receive a payment. All householders would have the opportunity to reduce the amount they pay by taking steps to recycle and compost more and throw away less (authorities would not be permitted to introduce an incentive scheme where residents were not served by a good, free kerbside recycling service).

45. Households may spend more time separating waste for recycling and composting, however, the impact in terms of time on householders of this additional recycling is likely to be minimal, as any household covered by an incentive scheme would have to be served by a good, free kerbside recycling service, limiting the need for trips to recycling facilities etc. Households increasing their production of and using compost will also benefit from the use of this bi-product however again the value of this is likely to be minimal.

46. Any local authority choosing to pilot incentives would be required to consider any potential disadvantage caused to particular social groups. Government will work with stakeholders to develop guidance on this point. Groups that may need to be considered include:

- householders receiving Council Tax benefit;
- families with young children (who tend to produce more waste); and
- groups that might have difficulties in separating waste for recycling or adjusting to new waste collection systems, such as the elderly or people with disabilities.

This might affect the number of households that any pilot might be able to cover.

47. In some cases, authorities may choose to exempt certain households from the incentives. However experience from England and overseas shows that there are a range of options for managing potential impacts on these groups while still incentivising them to reduce and recycle their waste. It should not be assumed that taking account of needs of potentially disadvantaged groups means excluding them altogether. Example measures to mitigate impacts on disadvantaged groups in England and overseas include the following:
- Harrow's compulsory recycling scheme – residents using disposable nappies are entitled to rent an extra bin at low cost;
 - Fingal County, Ireland – disadvantaged residents are offered free tags (to identify their waste for collection in a sack-based system); and
 - Leuven, Belgium – households with new born babies are give 40 free pre-paid sacks to use over time.
48. Many authorities in England already offer assistance to those with disabilities, e.g. collecting waste and recycling from the house, and these services will be important in ensuring that all households are able to recycle as much of their waste as possible.
49. Research shows that larger households create more waste, but that they produce less waste per head than smaller households. According to one study, an average one-person household produces 19kg/week of waste, while a five-person household produces 29kg/week.² However, there is significant variation in the amount of waste produced by different-sized households. For example, one study from Wales shows many five-person households creating less waste than average one-person households.³ Data from Flanders shows that the top residual waste-producing households disposed of between 3 and 17 times as much waste as average households of the same size.⁴
50. A study of waste arisings in an English local authority area shows that a small number of households create a disproportionately large amount of residual waste.⁵ Data from Flanders shows the same pattern in an area where waste charging schemes operate. **This suggests that under an incentives pilot where those who produced more waste than average paid more and those below the average paid less, more households would benefit from a rebate than would pay more.** This is because the waste services required by the small number of high-waste producing houses are effectively currently being subsidised by the majority. These patterns could obviously vary from area to area.
51. Research shows no link between income and levels of waste generated⁶. Hence the distributional impacts will depend on whether the larger residual waste producing households (generally those with more people in) tend to be more or less wealthy in the particular area concerned.
52. There is some evidence that waste arisings are linked to age group. Pensioners produce less waste than average, whereas families with young children produce large amounts (e.g. disposable nappies). Some authorities that have introduced alternate week collection allow households with babies to dispose of extra waste at no charge, and this could be replicated in an incentives pilot. Local authorities would be legally required to take account of the needs of particular groups. It would be for local authorities to decide the exact nature of the measures they introduce to do this.

Time cost to society as a whole

² Open University (2005) The Open University Household Study, Factsheet No. 2: Working Out the Factors that Affect Household Waste Generation, <http://www.defra.gov.uk/environment/statistics/waste/research/download/ou-fct02-20060621.pdf>

³ Welsh Assembly Government (2003) The composition of municipal solid waste in Wales. Report by AEA Technology, December 2003.

⁴ Add reference to Flanders data

⁵ Dresner and Ekins

⁶ Newcastle 2004. SWAT: a tool to enhance the precision and compatibility of solid waste analysis data. Warmer Bulletins, Issue 94, March 2004; Welsh Assembly Government (2003) The composition of municipal solid waste in Wales. Report by AEA Technology, December 2003; Parfitt J. R. Flowerdew and R. Pocock (1997) A review of the United Kingdom Household Waste Arisings and Compositional Data. Report produced for the Department of the Environment, May 1997

53. Whilst incremental recycling efforts should be compensated at the household level by incentive payments, at the society wide level we should examine the cost of additional time invested in the sorting of waste. The value of this time can be estimated by assuming a wage rate and examining the amount of extra time householder might spend working on waste. Using a range of simple assumptions, that time is valued at the minimum wage rate (£5.35/hr), 50% of household change their waste related behaviour and waste sorting takes between 1 minute per day and 1 minute per week per household. This gives an estimates cost of sorting to society of £120k to £810k for a scheme covering 50,000 people. This reveals the need to ensure that recycling services are made readily available and convenient to householders where incentive schemes are established.

Environmental impacts

Reduction in residual waste and change in treatment patterns

54. Greenhouse gases

55. in terms of wider benefits of incentives that will accrue to society as a whole, these are the environmental impacts, that predominantly relate to greenhouse gases. The extent to which greenhouse gases associated with waste production and treatment can be reduced are connected, like the financial costs, to the extent to which incentives change behaviour.

56. The level at which the local authority set the incentive will affect the results – a high average level should, all other things remaining equal, encourage a more pronounced change to household waste behaviour than a lower one.

57. Incentives have the potential to increase levels of recycling and home composting. Modelling in the Defra commissioned research project predicts the best types of schemes see local recycling/composting rates rise from 37% to 54%. The least effective schemes see local recycling/composting rates rise from 43% to 44%.

58. Incentives can also help to reduce the total amount of waste that householders dispose of. Modelling in the research project predicts that total bin waste reduces between 4% to 31%, depending on the nature of the authority and the type of scheme used.

59. Defra's Waste Strategy 2007 for England examined the link between waste treatment patterns, waste prevention and greenhouse gas emissions. It estimated that if incentives could divert 0.7 to 1.2 million tonnes of waste annually from disposal to recycling and genuinely prevent 0.8 to 2.0 million tonnes of waste nationally it could reduce global greenhouse gas emissions by between 2 and 6 million tonnes of CO₂ equivalent per year. A more local level assessment is presented in Annex 2, again looking at the relative carbon impacts of a scheme covering 50,000 households.

Local environmental quality

60. At the authority level there may be a local environmental quality impact. These have not been estimated as although we have evidence on the disamenity impacts associated landfill, these have not been quantified for other waste disposal or treatment options to or from which waste may be diverted. However, as at a scheme level there is expected to be lower waste treatment, disposal and collection, it seems likely that there will be a net benefit in terms of reduced disamenity impacts at a local level and therefore an environmental gain.

61. Fly-tipping

62. It is important that all authorities crack down on fly-tipping, whether or not they wish to introduce an incentive scheme. There is a lack of evidence to draw any firm conclusions on links between incentives and fly-tipping. Research that exists is often based on anecdotal evidence rather than robust studies. The available evidence shows that in some cases fly-tipping has increased following introduction of similar schemes, but in other cases it has decreased or stayed the same. The research suggests that careful scheme design and strong enforcement can prevent rises in fly-tipping. . Options Bi, Bii, C and D would include a requirement that any authority piloting incentives

have in place a fly-tipping prevention strategy, including robust enforcement measures as a last resort.

Race equality assessment

63. There is no evidence to suggest that overall quantities of household waste are affected by ethnicity. How much a household pays for waste collection under these proposals would depend on the total quantity of non-recyclable waste set out for collection. Available evidence indicates that ethnic groups would have an equal opportunity to reduce the amount of non-recyclable waste they produced, provided that a good, free kerbside recycling service was available.

Rural considerations

64. The proposal would not have any adverse effects on rural communities. Rural areas face different challenges in operating good waste collection services. As this would be a voluntary power, not a duty, there would be no requirement for a rural authority, or any other authority, to pilot incentives if this was not judged a good option for their local area.

Small Firms Impact Test (SFIT)

65. The proposals would only affect local authorities and householders, so no disproportionate costs or benefits to small firms arising from the power to introduce financial incentive schemes have been identified.

Competition Assessment

66. The proposals would only affect local authorities and householders and so would have no direct effects on business and no implications for competition. Many local authorities currently contract out waste collection services to private contractors. Research suggests that 42% of waste collection contracts are won by the incumbent provider, indicating that there may be some incumbency advantage in the sector. If a local authority were to introduce a weight-based incentives pilot under Government proposals, there would be a risk that the more advanced weigh technology required to facilitate these schemes would favour larger, incumbent providers.

Enforcement, Sanctions and Monitoring

Enforcement

67. Local authorities would be given the power, not the duty, to pilot incentives. Pilots would need to clearly communicate the details of the scheme to householders. These authorities would need to clearly outline how householders will be required to set out their waste for collection under the pilot.

68. Authorities piloting incentives would need to ensure they took steps to mitigate against possible increases in fly-tipping. Paragraphs 36 – 49 outline measures these local authorities would need to take, and Government would also produce more detailed guidance. Evidence from overseas provides examples of measures that can be taken to avoid an increase in fly-tipping (indeed in some cases a decrease has been achieved).

Sanctions

69. Pilot authorities will be able to rely largely on existing and similar legal powers to enforce compliance with incentives.⁷ In some countries, municipalities refuse to collect waste from any household that is behind in its waste payments. However in England authorities are under a statutory duty to collect

⁷ The Clean Neighbourhoods and Environment Act 2005 (CNEA) added section 47ZA to the EPA and allows the WCA to impose a fixed penalty notice on persons breaching sections 46 or 47 of the Environmental Protection Act. Fixed Penalty Notices (FPN) can be issued by local authority officers and are penalties of £50. Receiving a FPN does not count as a conviction. Recipients have 14 days in which to pay the penalty or request a hearing. Failure to pay the penalty may result in a higher fine imposed by the court or imprisonment. For more information see <http://www.defra.gov.uk/environment/localenv/legislation/cnea/fixedenotices.pdf>

waste. Government does not propose to change the law to allow any authorities to leave waste uncollected for long periods of time where householders had not paid or complied with a scheme.

Monitoring

70. The Government would fund a monitoring project to assess the progress of the pilots, especially any increases in incidences of fly-tipping. These costs are not additional to the £1.5 million a year for three years attributed to central government above

Summary and conclusion

71. Annex 2 shows illustrative calculations for a scheme affecting 50,000 households, discounting future savings. This estimates annualised costs of introducing revenue neutral incentives of approximately £236k to £532k. Pure rebate schemes will face an additional cost of payments to households, an average incentive payment of £35 per household translates to £1.75m per year. From a local authorities' perspective in twelve out of fourteen cases investigated for revenue neutral schemes the financial cost of introducing a scheme was more than outweighed by the financial benefits of the scheme in terms of reduced collection, disposal and treatment costs. From a societal perspective looking at the wider costs and benefits, including greenhouse gases and excluding taxes as transfer payments, all schemes bar 3 showed a net benefit for society as a whole.

72. The following table summarises the annual net benefits of a 50,000 household scheme.

	Option C (relative to do nothing)
Annual net benefit to local authorities	£0.3m-£1.4m per authority
Annual net benefit to business	Not identified
Environmental impact	CO2 savings of £80k-340k per authority that takes up scheme Reduced disamenity value
Net benefit to households	Neutral
Net benefit to society	CO2 savings of £80k-340k per authority that takes up scheme £0.2m-£1.35m cost savings per authority that takes up scheme Some reduction in disamenity Increased time spent sorting waste due to incremental recycling

73. Assuming therefore that local authorities properly design the schemes and appraise the impacts of piloting incentives in their areas, it should be possible for there to be net financial gains to the local authority and net welfare gains to society as a whole.

Aggregating benefits to an England level

74. The summary sheet provides a scaled up estimate of the costs and benefits to society in England that may arise should incentives be replicated more widely in the future. This will of course depend on whether the powers are made more widely available following the pilots, and, in that scenario, how many local authorities decide to introduce incentives. It also depends on the nature of the incentives themselves. However, the Eunomia Research report suggests a proportion of households that may be covered (62.5%), and what types of scheme could be rolled out (see p95 of the report). Using these proportions of households covered and scheme choices, along with DCLG's estimate of 21,519,000 households in England for 2006, allows the calculation of an aggregate cost benefit analysis for the UK. Ranges were based on the maxima and minima of costs and benefits calculated in Annex 2, with the central estimate using the average impacts for each scheme type.

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	<i>Results in Evidence Base?</i>	<i>Results annexed?</i>
Competition Assessment	Yes	No
Small Firms Impact Test	Yes	No
Legal Aid	No	No
Sustainable Development	No	No
Carbon Assessment	Yes	No
Other Environment	No	No
Health Impact Assessment	No	No
Race Equality	Yes	No
Disability Equality	No	No
Gender Equality	No	No
Human Rights	No	No
Rural Proofing	Yes	No

Annex 1 – Fly tipping costs

Government has identified the following additional costs that authorities without well developed strategies might incur if they wished to introduce incentives, some of which were included in the research report costings and others that were not:

(a) Formulation of the strategy

A fly-tipping prevention strategy will need to be written in the first instance. Like all enforcement activities, a prevention strategy must not exist in isolation; it must be developed and integrated with a local authority's wider environmental enforcement strategies and with other strategies being taken forward by the authority and its partners, including any relevant corporate strategies. It is estimated that this process could cost up to £20,000, based on an estimate of the amount of staff time that would be needed to develop and approve such a plan and to have it signed-off by the necessary people or groups. The cost of this initial measure is not included in the research report's assumptions.

(b) Setting up enforcement teams

Costs will depend on the size of the team and salary costs. The research report assumes a cost of £50,000 for two officers and other associated administration and enforcement costs (based on a 50,000 household authority).

(c) Training

Enforcement staff and local authority lawyers will need to be fully trained before effective and proportionate enforcement against fly-tipping can take place. There are a number of training providers that could supply generic services although Defra has funded the Flycapture enforcement programme which delivers specific fly-tipping enforcement training through ENCAMS and the Chartered Institution of Wastes Management. The full course of training for local authority officers is currently £1,400. Lawyer specific courses are £400. These costs are not included in the research report. The report assumes two officers (at £2,800), while one lawyer (at £400) would be sufficient for a regular authority. A 50,000 authority could therefore expect additional costs of around £3,200. This cost is not included in the research report.

(d) Communications campaign

Residents' awareness of incentives and effective communication between them and the local authority will be a significant pre-requisite to its success. Local authorities will likely wish to run a communications campaign before incentives pilots are launched and should also ensure that any successful enforcement action is publicised. Actions could include adverts in the local media, poster campaigns, leaflet or newsletter drops, resident events or house to house calls. The research report assumes £100,000 for an initial communications campaign.

(e) Prosecution costs

Visible and active enforcement, including taking action against offenders, will be important to prevent any initial increases in fly-tipping from becoming embedded in the local culture and to support implementation of the pilot. The Environment Agency has calculated the costs of carrying out each stage of the fly-tipping enforcement process. Costs may include:

- (i) cost of identifying suspect = £90;
- (ii) cost of issuing a formal caution = £87; and

(iii) cost of prosecution = £600.

These costs do not include the cost to the Court of processing a case. These costs are not included in the research report's assumptions. Incentives would not necessarily lead to more prosecutions for fly-tipping, but if they did, the cost would be an additional £600 per prosecution.

(f) Joint agency working

Local authorities will need to adopt a multi-agency approach, working with neighbouring authorities, local trading standards, housing associations and landowners amongst others to tackle flytipping in neighbouring authority areas or on private land. Dedicated resource to do this (if not done through the enforcement team as above) could cost in the region of £10,000. Any additional costs for joint agency working are not included in the research report's assumptions.

(g) Data monitoring

Although Flycapture, the national fly-tipping database, records incidences of illegal disposal, this is done at a high level and will not be detailed enough for more in depth spatial and geographical analysis that would allow local authorities to better mitigate fly-tipping in hot spot areas. Further analysis could cost around £50,000 where authorities are not already doing this (Defra will put in place fly-tipping monitoring schemes for the first schemes). These costs are not included in the research report.

Annex 2: Costs and benefits of an example scheme covering 50,000 households

1. The following calculations should only be viewed as illustrative. They provide a range of costs for a range of financial incentive schemes across different authority types with different characteristics in terms of housing stock and current recycling performance (see table 2.1 and Eunomia Report for more detail). However, they are not a substitute for specific analysis of the costs and benefits of such a scheme in a particular area.
2. The figures are aggregated across 50,000 households, and it assumed that a scheme lasts 7 years, starting in 2009/10. Figures are discounted to 2007/8.
3. The financial costs and benefits are based on those presented in "Modelling the Impact of Household Charging for Waste in England" report for Defra by Eunomia Research and Consulting (December 2006) and are in 2006/7 prices⁸. Initial set up costs are annualised and spread over the lifetime of the scheme through out this analysis.
4. The greenhouse gas emissions analysis is based on the behavioural responses modelled in the same report and on the emissions factors presented in the impact assessment for the Waste Strategy for England

⁸ <http://www.defra.gov.uk/environment/waste/strategy/incentives/pdf/wasteincentives-research-0507.pdf>

2007⁹. Where increases in recycling are predicted it is assumed that the material collected will be in similar proportion to those currently reported in municipal waste statistics¹⁰. In the absence of better information and given an expectation that incentives could be associated with greater home composting of garden waste, it assumed that material collected for composting is half garden waste and half food waste. The relative balance of recycling and composting is assumed to remain constant.

5. Where waste prevention occurs, it can not be assumed that all reductions in municipal waste arisings will be genuine waste prevention, for example, some waste will be diverted to home composting, some may be diverted into other commercial waste streams and some reductions may reflect an increase in fly tipping. As a result, in line with some of the more conservative estimates in the Eunomia report, it assumed that only 20% of any reduction in predicted overall waste arisings will be genuine waste prevention. It is assumed that the material saved through waste prevention is saved in proportion to the estimated composition of municipal waste. The carbon savings related to waste prevention represent the carbon embodied in the material that is assumed is to be no longer produced (from primary sources) at the margin.
6. Increases in waste prevention, recycling and composting are assumed to be diverted from a disposal mix of 90% landfill and 10% energy from waste.
7. Net financial benefits to the local authority are calculated from the local authority perspective, including any reductions in tax burden through lower landfilling. Net benefits to society are estimated without the landfill tax, but including carbon benefits values at the HMT recommended social cost of carbon. As before it is assumed the 90% of disposal is landfill and 10% energy from waste. It should be noted that this may be reasonable on average, at the margin it is likely to be conservative, this is because binding targets on landfill diversion mean the marginal disposal technology is more likely to be a non-landfill treatment. This means that the societal cost benefit analysis presented is also likely to be conservative.
8. The results are presented in full in table 2.1. In all but two out of fourteen scenarios there is a net financial saving from piloting incentives. This is the result of lower collection and disposal/treatment costs that result from reduced waste collection. For revenue neutral schemes the average saving across all the scheme and authority types examined represents around £2.1m over 7 years, or around 6% of total expenditure on waste collection, disposal and treatment. We would expect to find larger savings where a scheme was introduced covering a larger number of households as the set up and administration costs would be relatively smaller. Incentives that are funded from local authority expenditure increase costs over 7 years to the local authority by roughly £10.3m (assuming an average incentive payment of £35 per household).

⁹ <http://www.defra.gov.uk/environment/waste/strategy/strategy07/pdf/waste07-annex-a.pdf>

(see table A.28 for emissions)

¹⁰ <http://www.defra.gov.uk/environment/statistics/waste/kf/wrkf16.htm>

9. The conservatively calculated social cost benefit analysis showed a net benefit to society of introducing household charging in all but 3 cases (2 of those also being those which were also not financially profitable for the local authority under revenue neutrality).
10. Appendix 1 provides an example distributional analysis looking at the impact of a changing framework on households with different income levels. By putting a relative weight on richer and poorer households and looking at the impact of a revenue-neutral charge and rebate scheme (based on weight of waste) the analysis shows that in this example there is a net benefit to less well off households. This was because the data set used seemed to show that the larger households - that are on average the larger producers of waste - were also richer on average. As a result, the net flow of funds expected on waste volumes (from larger to smaller households) was progressive in nature. This will obviously vary between localities, and there may also be a variation in how different groups can respond to household incentives hence this analysis should not be seen as comprehensive nor fully representative. It does however estimate a welfare gain from redistribution to add to the net benefits of revenue neutral scheme to be worth approximately £368k per year in current prices. Despite this, there are still some households and household types - notably poorer households with a large number of inhabitants - who could be worse off with these types of incentives.

Table 2.1: Estimated costs and benefits of different scheme and authority types for revenue neutral incentives schemes.

2006/7 prices £m (except italics)	Sack-based	Bin Volume-based			Frequency-based				Weight-based				Weight and Frequency	
Estimated annualised impacts 2009/10	a**	a	b	b	b	b	c	c	c	c	d	d	d	d
Financial costs of running scheme	£0.24	£0.40	£0.41	£0.38	£0.43	£0.50	£0.49	£0.44	£0.46	£0.53	£0.53	£0.49	£0.53	£0.49
Savings from lower collection, disposal and treatment costs (incl. landfill tax)	£0.57	£0.48	£0.29	£0.30	£0.90	£1.12	£0.65	£0.64	£0.74	£1.02	£0.53	£1.18	£1.42	£1.38
Savings from lower collection, disposal and treatment costs (excl. landfill tax)	£0.43	£0.34	£0.18	£0.19	£0.78	£0.96	£0.52	£0.51	£0.42	£0.60	£0.25	£1.15	£0.98	£1.35
Net annual financial savings to local authority as a result of scheme introduction (incl. landfill tax)	£0.34	£0.08	-£0.12	-£0.08	£0.47	£0.62	£0.15	£0.20	£0.29	£0.49	£0.01	£0.69	£0.88	£0.89
CO2 equivalent savings from increased recycling and composting (tonnes)*	2,656	3,510	2,332	2,683	2,396	2,750	1,357	1,600	7,145	8,790	4,183	-6,126	9,234	-6,301
CO2 equivalent savings from waste prevention (tonnes)*	2,814	1,443	1,164	1,084	2,405	3,694	3,136	3,025	3,125	4,439	4,759	9,497	4,461	9,724
Annual value of carbon equivalent savings 2009/10*	£0.14	£0.12	£0.09	£0.09	£0.12	£0.16	£0.11	£0.11	£0.25	£0.33	£0.22	£0.08	£0.34	£0.08
Estimated discounted impacts 2009/10 to 2015/16														
Present value cost of running scheme over 7 years [i]	£1.39	£2.39	£2.44	£2.25	£2.53	£2.93	£2.91	£2.58	£2.69	£3.15	£3.12	£2.88	£3.15	£2.88
Present value savings from reduced waste collection and treatment cost (incl. landfill tax) [ii]	£3.39	£2.84	£1.71	£1.78	£5.33	£6.62	£3.82	£3.76	£4.39	£6.01	£3.15	£6.98	£8.37	£8.16
Present value savings from reduced waste collection and treatment cost (excl. landfill tax) [iii]	£2.40	£1.85	£0.97	£1.03	£4.46	£5.50	£2.96	£2.89	£2.15	£3.16	£1.17	£6.73	£5.38	£7.91
Present value cost carbon savings expected over 7 years [iv]	£0.82	£0.75	£0.53	£0.57	£0.72	£0.97	£0.68	£0.70	£1.55	£1.99	£1.35	£0.51	£2.06	£0.52
Total net present value to society [iii - i + iv]	£1.83	£0.20	-£0.95	-£0.65	£2.65	£3.54	£0.72	£1.01	£1.01	£2.00	-£0.60	£4.36	£4.30	£5.55
Range of financial savings to local authority [ii - i] ***	£2.00	-£0.73 - £0.45			£0.91 - £3.69				£0.04 - £4.1				£5.22 - £5.28	
Financial savings as a proportion of expenditure on waste	5%	-1.9% - 1.1%			2.5% - 10.1%				0.1% - 12.4%				15% - 16.6%	

* for simplicity avoided methane emissions from landfill avoided are assumed to be emitted in the year in which they are landfilled and valued as such using the social cost of carbon

** Authority characteristics; Housing: a. high share high rise & multi-occupancy low rise, b. high share multi-occupancy low rise, c. high share detached, d. high share semi-detached; Initial recycling rate: a&b low, c&d high

*** NB. These savings relate to revenue neutral incentive schemes. If local authorities are to pay incentives from their own expenditure through a pure rebate scheme - assuming an average incentive payment of £35 per household - discounted over 7 years, scheme costs increase by £10.3m. This does not affect the net benefit to society but reduces the value for money of schemes from a local authority perspective.

Annex 2, Appendix 1: Distributional Analysis

1. This following section considers a distributional analysis as described in the Treasury Green Book guidance on policy and project appraisal¹¹. In this context we examine the impact across different households of introducing a weight based revenue neutral charge and rebate incentives structure, taking into consideration relative prosperity within and across different household sizes. We consider relative prosperity because poorer households tend to value one pound of income or expenditure more highly than richer households, and it is possible to weight financial impacts of new policies to reflect this. Distributional analysis can also be used to assess impacts on other groups in society e.g. gender or race groups, however these are considered of less concern to this proposal.
2. It should be noted that this analysis is not representative of all authorities that introduce a weight based scheme but more an illustrative example as to what the distribution of impacts might be. In practice this is likely to vary depending on residual waste arisings within a given authority, the proportion of different households and their composition, as well as varying income levels.
3. The data available was limited and only enabled analysis to be carried out using household size of up to only four persons, therefore further analysis when considering introducing a scheme may be required in order to look into the impacts on larger households, as well as considering varying compositions of individuals within different household sizes.
4. A hypothetical authority was considered and a charging structure constructed based on that authority piloting a weight based charge and rebate scheme. This had to take into account that any charging structure introduced would have to be revenue neutral overall. It was assumed that there would be an upfront charge of £50 and that the household producing the mean amount of waste in kg would receive a rebate of £50 at the end of the year. Using evidence from a study by Dresner and Ekins¹², the mean weight of the waste produced by households by different household size was calculated, and a charge of 12 pence per kg of waste produced was estimated. The amount received by households varies in proportion to this amount, with households producing waste below the mean kg produced, receiving more than £50 back, and those households producing waste above the mean kg produced, receiving less than £50 back. It would be expected that smaller households are likely to benefit from this type of charging structure as they produce on average, less waste than larger households.

¹¹ <http://greenbook.treasury.gov.uk/annex05.htm>

¹² <http://www.psi.org.uk/docs/rdp/rdp20-dresner-ekins-waste.pdf>

5. Distributional weights were derived using net equivalised income data from the Family Resources Survey 2005-06¹³ and applied to the net impacts associated with the weight based charging structure. The results show that, for this hypothetical authority and charging structure, with an assumed size of 50,000 households, there is a net benefit of approximately £368,000. This reflects a redistribution from larger households to smaller households, and a net welfare benefit to less well off households, suggesting that in this case the incentive structure is progressive in nature. This was because the data set used seemed to show that the larger households, that are on average the larger producers of waste, were also richer on average.

13

http://www.dwp.gov.uk/asd/hbai/hbai2006/excel_files/chapters/chapter_2_excel_hbai07.xls#'.3!A1

Table 2.2 Net equivalised disposable income (£) per week

£per week equivalent 2005/06 prices including the self-employed, before housing costs										Source: FRS 2005/06
		Mean	Median	50% mean	60% median	Bottom quintile	Second quintile	Middle quintile	Fourth quintile	Top quintile
1	Single with no children	297	242	148	145	< 152	152-210	211-279	280-384	385+
2	Couple with no children (equivalised income benchmark)	443	362	222	217	< 226	226-313	314-416	417-573	574+
3	Single with two children aged 5 and 14	532	434	266	260	< 272	272-375	376-499	500-688	689+
4	Couple with two children aged 5 and 14	678	554	339	332	< 346	346-479	480-637	638-877	878+

Table 2.3 Distributional weights using net equivalised income

Household size		Bottom quintile	Second quintile	Middle quintile	Fourth quintile	Top quintile
1	Single with no children	5.79	2.43	1.80	1.33	1.14
2	Couple with no children	3.89	1.63	1.21	0.89	0.77
3	Single with two children aged 5 and 14	3.23	1.36	1.01	0.74	0.64
4	Couple with two children aged 5 and 14	2.54	1.07	0.79	0.58	0.50

Table 2.4 Net impact (£) of charging structure according to household size and income

Household size		Bottom quintile	Second quintile	Middle quintile	Fourth quintile	Top quintile	Average	Average accounting for proportion of household size	Net impact for 50,000 household authority
1	Single with no children	-£89.66	-£37.65	-£27.81	-£20.52	-£17.70	-£43.91	-£13.55	
2	Couple with no children	-£18.77	-£7.87	-£5.81	-£4.29	-£3.70	-£9.19	-£3.52	
3	Single with two children aged 5 and 14	£61.54	£25.87	£19.13	£14.09	£12.15	£30.16	£4.81	
4	Couple with two children aged 5 and 14	£72.31	£30.33	£22.40	£16.51	£14.25	£35.39	£4.89	
								-£7.36	-£367,953.13

