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Report on Charging and Provision for (Domestic) Pest Control

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Abstract

This report presents a methodology to evaluate different charging and provision options for pest management. The methodology is illustrated by three case studies. The main finding is that take up of pest control for public health pests, for example rats and mice, may depend negatively on the introduction of charges. Consequentially this will have implications on revenue generation and the costs of enforcing compliance with environmental standards and public health targets.

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Executive Summary

Objectives of the study

- To stimulate discussions among council environmental health practitioners and policy makers on the costs and benefits of provision of pest control at the local level and on the best way to deliver it
- Report findings of interviews done for 10 councils on their stated objectives for provision, the strategy of provision and the rationale for such strategies
- Make some recommendations for the essential elements to be considered in the design of an effective pest control strategy

The main questions to be answered in this study are:

- Is there an economic justification for councils providing for and charging for pest control and if so, what is the "right" charge?
- If the service is provided what is the most cost effective way of providing it?

These questions are relevant since, in principle, councils are not legally bound to provide these services but they do have enforcement obligations and powers. Under the Prevention of Damage by Pests Act 1949, the duty on every local authority only, is to take such steps as may be necessary to secure so far as practicable that their district is kept free from rats and mice. Local authorities must from time to time carry out such inspections as may be necessary for the purpose of meeting that duty and may serve notices. In practice most local authorities meet this duty by responding to complaints.

Pests can be the vectors of disease and are associated with asthma (as indicated *inter alia* by the WHO LARES¹ study); and cause damage to property. Infrastructures that are pest infested also make an area less attractive for investment. These effects go beyond a single household so that there is a difference between the private costs/benefits of pest control and the social costs/benefits.

Some "pests" that are treated by local authorities may however have little

traditional public health significance and may only be considered a "nuisance", e.g wasps. Some pests, such as mice, are erroneously considered by some local authorities to be nuisance rather than public health pests. The degree of divergence between social benefits and private benefits may therefore be different for different types of pests and for different individuals. These issues are considered within the report.

It seems that in practice very few authorities resort to legal action since there are few reported cases. Where such action has been taken, it has involved substantial costs and many councils may not pursue cases for fear of these costs. The implication is that enforcement costs in this regime are likely to be too high to consider as a serious option, although more data is needed to substantiate this claim. There are differing regimes for charging for the pest control service

The introduction of charges can lead to a drop in complaints and more DIY treatments and "advice" calls to the local authority. Such DIY treatments could in themselves increase risks to the householder and the environment. Where charging leads to a reduced take up of services, it is necessary to assess the extent to which this decline in service requests results in an increase in infestation rates or leads to higher costs of monitoring and enforcement. However, it is apparent that there is no standard way in which local authorities record information and little data is being obtained on actual infestation rates.

Another issue in pricing is the *moral hazard* faced by households when faced with a free service. When a service is free, it may encourage households not to take responsibility for prevention and requires higher costs of enforcement. Many councils, it seems, charge a nominal fee and avoid means testing – this saves on administrative costs and also reduces the problem of over-use of the system.

According to those interviewed for this project, none of the local authorities surveyed made a surplus from their

charging regime. The motive for introducing charges was merely to keep the service in the face of budget cuts. Yet this seems inconsistent with the lack of detailed knowledge of actual costs and revenues. The authorities have little idea of the full economic cost of providing the service and cannot therefore assess the true "loss" incurred (ie the level of subsidy).

Subsidised prices charged are lower than the commercial rates. Charging was seen in part, as a way of countering the service being exploited when free and of encouraging a greater sense of responsibility on the part of householders who could do more to prevent infestations.

Although there is limited data, it is concluded that in-house provision of the service may be more cost effective than contracting-out but there are certain basic principles that should guide the policy on charging and service provision:

- The authority should intervene only for pests where there is a significant difference in private and social costs and benefits. This may depend on the area, ie deprived or not, congested housing etc. However, if provision is removed, there may well be political implications
- Relying purely on enforcement actions especially for public health pests provides wrong incentives for landlords and is a high cost option
- Charges have had a negative effect on the take up of services but the extent may differ between councils based on per capita income and level of deprivation
- Charges should be uniform for a particular area (thereby avoiding means testing) to decrease administrative costs
- Charges should have built-in incentives to prevent repeat infestations
- The mix of in-house provision and contracting out should depend on comparisons of monitoring costs and operating costs
- Contracts for pest control should be based on targeted levels of pest control where possible

¹ The LARES survey is the Large Analysis and Review of European housing and health Status, carried out in 8 EU countries and Osh in Kirghistan by the WHO. It involved surveys of 3800 households, involving 8400 inhabitants. Data collected covered allergy, respiratory disease, obesity, mental health, quality of life, noise, sociology and psychology



CURRIE HOUSE

1.0 Introduction

In 2003 Murphy and Brown undertook a survey of 242 councils on charging for pest control which found wide variation in approaches to charging. They did not find any obvious characteristics of local authorities which determined whether they charged or provided a free service. Even out of the 28 that were fully supported by local authority funding they found a mix of charging regimes as well as a mix of in-house provision and partial or full contracting out. For 10 councils they did a more detailed survey which again underlines the differences between councils in their charging and provision policy. The present study provides a more detailed analysis of charging and provision policy for 11 councils and provides a set of principles to evaluate different policy options.

The main question to be answered in this study is: Is there an economic justification for councils providing for and charging for pest control and if so, what is the “right” charge? If the service is provided what is the most cost effective way of providing it? These questions are relevant since in principle councils are not legally bound to provide these services and the main reason why councils started charging was in response to funding cuts by the central government.

The study has the following objectives:

- To stimulate discussions among council environmental health practitioners and policy makers on the costs and benefits of provision of pest control at the local level and on the best way to deliver it
- Report findings of interviews done for 10 councils on their stated objectives for provision, the strategy of provision and the rationale for such strategies
- Make some recommendations for the essential elements to be considered in the design of an effective pest control strategy

The study is based on an economic approach to pest control (Section 2), which discusses the main economic and legal issues to be considered. Section 3 discusses the situation at present, using surveys done by Murphy and Brown (2003) and interviews for 10 councils which use a varying mix of charging and contracting regimes. Section 4 considers a set of regimes (provision or not, charging, and type of provision, in-house or contracted out) and evaluates each of them against the criteria developed . Section 5 concludes with some lessons learnt.



2.0 The Economic approach to Pest Management

Traditionally, pest control was provided free and in-house as a way to prevent large -scale infestations, damage to food stocks and for maintaining public health and environment. However the Prevention of Damage by Pests Act 1949 does not make it a statutory duty to provide pest management services. In recent years this has led to many councils seeking to lower spending through this discretionary part of the budget. In effect this means that while Pest Management was once treated as a public good to be supplied primarily by local government, it is now effectively being treated as a private good by many local authorities. But is this change in approach justified?

2.1 Is intervention by government justified?

Pests can be the vectors of disease and are associated with asthma (issues highlighted in the WHO LARES Study²), or cause damage to property, and infrastructures thus making an area less attractive for investment - these effects go beyond a single household so that there is a difference between the private costs/benefits of pest control and the social costs/benefits. Moreover the control of pests requires expertise in the use of pesticides that do not degrade the environment or in the most efficient ways of doing it.

The *benefits of pest control* are usually a reduction in the private and environmental costs of pests.

For example, a single household faced with rats in the house would consider the costs of controlling them: the private cost of controlling rats (e.g. the charges for removal) while the private benefits of control are the reduction in stigma costs of having rats in the house, the stress

caused, the loss of property value. The social costs include the damage not only to a single household but the impact on public health, productivity and the damage to other neighbouring properties. Suppose that social benefits of pest control for a particular pest (e.g. rats) are much higher than private benefits. This means that, if left to the market, there will be *under-provision* of pest control for rats, because households do not internalise the additional social benefits of pest control. In addition, the best and most effective control may be by securing a change in the environment that may not be possible on an individualised basis, unless for example rats are a problem as the result of an individual drainage problem

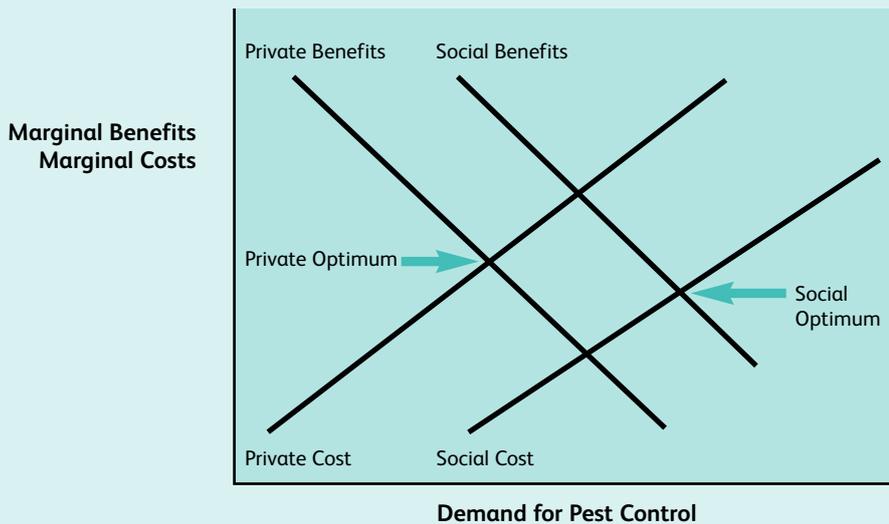
The presence of *externalities* (the difference between private and social costs/benefits) in pest control and their measurement is therefore crucial in considering the basic question of intervention by the government. If there is no difference between the private and social benefits then there is no economic reason to consider pest control different from any of the private decisions that households make.

However, the degree of divergence between social benefits and private benefits may be different for different types of pests and for different individuals. For example, for Rats and Mice which are associated with public health risks and significant damage to the environment, the divergence may be much bigger than for wasps which presumably have high private costs (stings, stress). Moreover, the private costs of having rats in the house (the stigma cost) may be different for households in deprived areas where rats may be a common occurrence compared with households in middle income or rich areas, so we may expect wide differences in

² See for example Milstead TM, Miles R, (2004) Housing Type, Housing Conditions And Cockroach Infestations In The WHO-LARES Study, *Proceedings of the 2nd WHO International Housing and Health Symposium*, Vilnius, Lithuania, 29 September - 1 October 2004, pp 189-198. See also Cohn RD et al. (2004). National prevalence and exposure risk for mouse allergen in US households. *Journal of Allergy and Clinical Immunology*, 113:1167-1171

behaviour of households in the private demand for pest control according to (a) type of pest (b) type of area to which the household belongs. The divergence is illustrated below when the socially optimal level is higher than the privately optimal level.

- If the socially optimal level of pest control is much higher than the privately optimal level of pest control for a particular area and pest then government intervention is justified.



We consider the differences between social and private benefits of (a) Rats and (b) Wasps to highlight the different behavioural implications for individual households.

(a) Battersby (2004) discusses the social costs due to brown rats: (i) Public Health – i.e. the prevention of disease that could be attributable to rats (ii) the infrastructure damage (iii) costs of closures and loss of trade in the food industry (iv) damage to stored food etc. On the basis of evidence collected from sewerage companies, water companies, environmental managers of Railtrack, the degree of infestations, the total economic costs of rats excluding the public health costs was estimated to be of the order of between £61.9 million and £209 million. If there was a public health crisis costs would certainly be a lot higher (e.g. the 1994 plague outbreak in India cost the economy over \$600 million). The savings in costs of damage from pests are the social benefits from pest control. The social costs are the costs of reducing this damage in a cost effective way. Private benefits from control of rats are the savings in the value of the property due to possible structural damage, the prevention of any disease to the family, the savings in stigma and stress costs from having infestations. These benefits may be very different for families who live in deprived areas (stigma costs is lower) than those who live in affluent areas. The private costs of rat control are the financial costs

of getting rid of the problem. Households are usually confronted with a choice of different ways to control rats and they will choose the mix to minimize costs given the regulations and charging policies in place. Using the marginal costs and benefits (assuming the mix of private and public options chosen by households) allows us to find the privately optimal and socially optimal levels.

(b) Wasps are not carriers of disease so the Public Health cost of wasps is roughly equivalent to the private health cost: the loss of working days and concomitant loss of income (or productivity) for the economy due to stress caused. There is an additional social cost which is the expenditure on treatment of wasp bites (being provided free on the NHS). Moreover wasps do not have the same dangers of spreading between households as rats do. Hence, as far as wasps are concerned, there is not much prima facie evidence to suggest a big divergence between social and private benefits of control (except the costs of treatment for allergies on the NHS). On the costs side the use of the private control of wasps may not have much impact on the social costs (e.g. through the use of toxic but cheap pesticides).

The conclusion is that the state needs to intervene when there are large externalities (positive or negative) implying a big divergence between the privately optimal and socially optimal level of pest control.

2.2 What should be the form of intervention?

This section considers the possible solutions to the externality problems discussed in Section 2.1. There are two broad categories of solutions:

- Quantity restrictions: monitoring and enforcement to ensure that households take care of their pests
- Market based or price based solutions: these work e.g. by reducing the private costs of pest control to induce households to (a) use the best mix of pest control strategies (b) change the optimal level of pest control to bring it more in line with the social optimum. Where the private sector exists to provide services there is also the question of whether local government should directly provide services or whether they should be fully or partially contracted out

(i) Since Quantity Restrictions (exclusively) are used in very few councils³ we will discuss them first. The efficacy of such instruments depends on the legal enforcement powers of the councils. The laws governing pest control are the following (information based on

interviews with S.Battersby): Rodent control Law is centred around the Prevention of Damage by Pests Act 1949 which only applies to rats and mice and make the local council responsible for ensuring that the area is safe from damage, but it does not require councils to provide pest control services. The Environmental Protection Act 1990 empowers local councils to require landlords to keep their premises in a reasonable state. There are some legal requirements on how the control is carried out – e.g. Control of Pesticides Regulations 1986 (as amended) & Biocidal Products Regulations 2001 and there is a new law – the Housing Act 2004 which introduces a hazard -based approach to assessing dwellings with domestic hygiene pests and refuse as a hazard on which local authorities can act. If the hazard assessment indicates a considerable risk to health (a Category 1 hazard) there is duty to act. For those hazards assessed as of being lesser risk (Category 2) there is discretion on intervention.

role for local authorities even though revenue generation seemed more of a political issue - funding was dependent on the revenue generated by the service. All of the 10 case studies considered by Murphy and Brown said that they would like pest control to be a statutory function.

The criteria for evaluating environmental policies are:

- Their ability to achieve cost effective and efficient pest management
- Their fairness (equity)
- The incentives they offer to households to keep their environment clean and free of pests and to report infestations promptly
- Their enforceability

The regimes which we could analyse are (i) Subsidized Rates with In-house Provision (ii) Subsidized Rates with partial or full Contracting out (iii) No subsidy in rates with in-house provision (iv) Pure Enforcement i.e. No regulation of price and no provision (entirely left to the private sector). There are at least 3 out of 271 authorities in the CIEH survey in 2003 who did not provide any service – they gave advice and where necessary used enforcement action. Each of these options can be combined with means testing or not.

Since infestations are observed best at the household level, most authorities rely on a complaints based system to treat pest infestations, combined with pro-active strategies like sewer baiting. The incentives of households especially those for whom stigma costs are low and whose tolerance levels are high may depend on the prices charged. Typically lower income households in urban areas are more crowded and most vulnerable to the spread of infestation between households. In order to be able to assess the impact of subsidized prices we need to be able to say something about how different types of households respond to price incentives. Since a number of councils have changed their charging policies over the last 10 years, there is a potentially good source of data. Three case studies are discussed in Section 3⁵.

Even when charging leads to a decline in take-up the figure we really want to see is the impact on infestation levels and monitoring/enforcement costs. How much of the fall in take up leads to increase in infestation rates or in monitoring and enforcement costs? (Any direct or indirect evidence of changes in this due to changes in policy would be useful).

Another issue in pricing is the moral hazard faced by households when faced

“Even when charging leads to a decline in take-up the figure we really want to see is the impact on infestation levels and monitoring/enforcement costs”

In practice it seems very few authorities resort to legal action and there are few reported cases. Those that have been taken have involved substantial costs associated (and many councils may not pursue cases in fear of the costs). The implication is that enforcement costs in this regime are likely to be too high to consider as a serious option, although more data are needed to substantiate this claim.

2.3 Choosing the best intervention strategy

The question of which is the best intervention strategy depends on the objectives of intervention. Various objectives proposed by councils are: Minimize the Expected Public Health and Environmental Costs attributable to pests in a cost effective way⁴, Equity (i.e. assure access to pest control for all income classes), Revenue generation. Revenue generation seemed important in the charges set by councils (Murphy and Brown (2003)) - charges were set to cover costs as far as possible while ensuring equity and comparisons with the private sector. In other words all of the three objectives above were seen as playing a

³ Most councils provide pest control at subsidized rates either in house or contracted out, there are only 3 which did not provide any service in 2003 according to the CIEH Guidance Document (2003)).

⁴ E.g. see the Audit Commission Report on Wyre Borough Council. The stated objective of the service is “ To provide a service for the control of rodents and the extermination of insects of significance to public health. ...”

⁵ To be able to say what the effect of charging is on take up we would need access to a much wider data set. Notice that since the areas covered may be very different,



with a free service. When service is free it encourages households not to take responsibility for prevention, and requires higher costs of enforcement. Many councils it seems charge a nominal fee and avoid means testing – this saves on administrative costs and also reduces the problem of over use of the system.

- Lower Prices imply higher revenues and lower monitoring and enforcement costs if the elasticity of demand is bigger than 1 (i.e. the gain due to increase in take up is higher than loss in unit price). If elasticity is small however then lower prices lead to lower revenues. The optimal price is one that maximizes Revenue net of monitoring costs⁶, or it is the price at which the marginal gain in revenue (assume elasticity is less than 1) due to an increase in price is equal to the marginal increase in monitoring cost due to the price increase. If elasticity is bigger than 1 however the lowest possible price should be chosen (subject to some constraints discussed below). Hence measuring the elasticity of demand for different pests and estimating the monitoring and enforcement cost functions is crucial to answer this question

“When service is free it encourages households not to take responsibility for prevention, and requires higher costs of enforcement”

Means testing has been used in many areas where charges are high to fulfill an “equity” objective. Customers on benefits are charged less or provided services free of charge. This in turn has led to abuses of the system where landlords may not qualify but tenants do. Moreover when block treatments are needed and some people are on benefits and not others this may create inequities and free riding.

Most councils when questioned on enforcement said that court cases were rare. A lot of the time when notices are served and work done in default, the cost of going to courts is so high that many councils do not recover charges. The case of *Leeds v Spencer* (1999) A11 ER (D) 470 is an example where the council failed to recover charges. Given the poor records of councils in recovering charges, landlords

have little incentive to pay charges to take care of infestations especially when they own more than one property. In one local authority the RSL had decided that they would not initiate any control themselves. Regardless of whether charges are made for pests or not, there is the question of how provision should be made. Murphy and Brown (2003) show that there is a wide variation across councils in the way they provide pest control with some providing completely in house and others using a mix or fully contracting out – out of 28 authorities they surveyed, 8 had their services fully or partially contracted out with the rest providing in house.

The benefits of in house provision are (a) that they can provide a service that is integrated and co-ordinated with other environmental health services – e.g. close links with other Council departments to combat cross cutting issues such as derelict sites, litter and drainage problems (b) they are more flexible while the quality of contracted out services depends crucially on the details of the contract (c) if some personnel are needed anyway to monitor and enforce pest management and e.g. for picking up stray dogs (a statutory requirement) there may be economies of scope and scale – i.e. given that the fixed costs are already incurred the extra costs of providing the actual service may not be that much more. (d) it is important to build the expertise on pest control in case of emergencies (e) the incentives of operatives in the councils are very different from those of the private sector companies which are driven by profits rather than quality, but this depends on the type of contract. Contracts should be written so that contractors provide a certain target level of output in terms of pest control.

- The choice between different regimes (in house, contracted out, means testing, level of price) relies on how revenues and different types of costs change with different regimes: e.g. with means testing, administrative costs increase, with contracting out monitoring costs may increase but there is savings in overheads and operating costs. Data on costs are therefore essential to answer this question. The efficacy of contracting out relies on negotiating a contract that provides incentives to deliver certain targets

⁶ Any “target levels” of pest control are ignored here. The discussion in Section 2.1 might lead to an expectation that we know what is the socially optimum level of pest control. In this case the maximization is subject to a constraint.

The financial and economic costs of In house and Contracted Out provision:

In-house Provision

Financial Costs = Costs of Overheads attributed to pest management services + Operating Costs (cost of materials, transport, failed visits, monitoring and enforcement) - revenues generated from charges.

Opportunity Costs = measures the value of benefits forgone in alternative uses of tax money i.e. if instead of providing pest control the tax money from the council is used to provide the next best alternative (a weighted sum of valuation of benefits from e.g. lower crime, cleaning services etc).

Economic Costs = Financial Costs + Opportunity Costs

Marginal costs from provision as a function of level of service (in house)

Contracted Out

Since the costs depend on the form of the contract, we consider two options that have been used in one council:

- A lump sum is paid to the contractor for the year and he provides all services - prices are set by the council and all revenues go to the council

Financial Costs = Lump sum payment to contractor net of revenues generated + Monitoring and Enforcement Costs

- A lump sum is paid to the contractor which is considerably less than (A) but revenues go to the contractor. Prices are negotiated by the council and the council does the referrals and gets an amount per referral

Financial Costs = Lump sum payment net of referral revenue + Monitoring and Enforcement Costs

The opportunity costs are calculated in the same way. Since opportunity costs are minimized when the financial costs are, the minimum cost of provision will depend only on the financial costs. Note that monitoring and enforcement costs may be different between the two modes of provision.



3.0 The situation at present



Local authorities where officers were interviewed: (i) West Oxfordshire DC (ii) Cheltenham Borough Council (iii) Manchester (iv) Liverpool (v) London Borough of Bromley (vi) Tower Hamlets (vii) London Borough of Kensington and Chelsea (viii) North Somerset (ix) Warwick DC (x) Rugby

Charging Policy:

Charges for Rats: Many councils provide this free. Four councils out of the 10 interviewed charge about £20 per visit (free for concessions) , £30 for two visits, £51 for full treatment (£15 concessions, provision by contractor) or £38 for a full course of treatment (free for concessions) respectively.

Charges for Mice: The charges range from free for 2 councils out of 10 to (i) £77 (Rugby) (ii)£43 for three visits (N Somerset) (iii) £51 for full treatment (Bromley) (£15 for concs) (iv) £90 for 3 visits (Kensington and Chelsea) (v) £38 for a full course (West Oxfordshire) (vi) £30 for two visits (Cheltenham, concs at £15), but only landlords or private tenants charged (vii) £48 (Warwick DC with concs for pensioners at £24) (viii) £16 for tenants and £70 per treatment for landlords (Manchester)

Charges for Other Pests: varies a lot e.g. the charges for treating Wasp nests vary from close to free in Tower Hamlets to £48 in Warwick DC. Comparisons are not easy since the number of visits covered varies as well. For rats, the charges vary from being free in most councils to £51 in the London Borough of Bromley.

Table 1. Rates Charged for different pests by various councils (sample of 10) Information using websites:

	Wasps	Mice	Rats	In-house or Contracted Out	Per capita Income	Rural/Urban	Population (2001 census)	Means testing?
North Somerset Council	£43 for a nest	£43 for three treatments	Free	In house		Rural Unitary	188,564	Yes—free for all pests if on benefits
Cheltenham Borough Council	£30 (per nest)	£30 (2 visits)	£30 for two visits	In house	N/A		110,013	Yes—subsidized, Council house tenants do not pay.
Manchester City Council	£16 per treatment	£16 per treatment	Free	In house	£16,500	Urban	437,000 (mid 2004)	No
West Oxfordshire DC	£37 + subsequent visits £18.50	£37 one off charge	£37 one off	In house mainly, contracted out for wasps	NA	Urban	95,640	Yes free for those with means tested benefits
Liverpool City Council	£39.95	Free	Free	In house	£14,619	Urban	444,500	No
London Borough of Bromley	£43 full treatment	£51 full treatment	£51 for full treatment	Contracted Out	Combination of affluent and deprived areas	Rural (1/3), and urban (2/3)	295,532	Yes concessions
Tower Hamlets	£34.90	Free	Free	In house	Mostly deprived area	Urban	196,106	Mostly free
Rugby	£45 (no concs)	£77 (£38.50)	£20 (free)	In house	NA	Rural/Urban	87,453	For rats and mice
Kensington and Chelsea	Not provided	£90 (3 visits)	Free	In house	Affluent	Urban	158,919	Yes means tested
Warwick DC	£48	£48 per treatment	Free	In house except Wasps	NA	Rural/Urban	125,931	Yes concessions for pensioners
Vale of Glamorgan	£26 per treatment and £52 for nest removal	Free	Free	Mainly in house but contracted out in periods of high demand (wasps, rats is summer).	£13,520 (urban) £17,004 (rural)	Rural/Urban	119,000	Yes pensioners and people on benefits





According to the interviewees, none of the councils made profits from charging⁷. All said that the motivation for charging was not to make a profit but simply to reduce net costs so that pest control could be kept as part of Environmental Health services in view of budget cuts. Part of the issue seems to be a question of why the tax (or council tax) payer should pay for these services, and that the people who create the problems should pay for them. The equity objective is taken care of by means testing in many councils. The basic pattern is to charge lower rates for Rats (see above table), higher for mice and other nuisance pests and also in councils on a higher deprivation index (Manchester, Liverpool) rates are considerably lower than in say the London Boroughs of Bromley and Kensington and Chelsea which are probably much lower on the deprivation scale. Compared to commercial rates from the biggest firm in the market (Rentokil) these prices are very low – based on a phone conversation with them their rates are approximately £180 +VAT for a free survey and an additional two visits for both rats and mice. For Wasps the cheapest rates are approximately £85 for a nest.

There are differences in the provision – most do provide a service of the destruction of Rats and Mice but there is variation over whether other pests are provided. Rats and Mice are treated differently because of the provisions of the Prevention of Damage by Pests Act 1949 which covers rodents – however rats and mice were treated differently by many local authorities – according to some only rats were covered in the legal requirements and also mice cost much more. Surprisingly most do provide a service for Wasps even though these do not appear to be public health pests. The wasps business is seen as a way to cross subsidize⁸ the rest of the service as it was

felt that the extra costs of providing this service is low (but one could check if it really does if there are costs and revenue figures available). However this may imply that the priority on pests changes in summer months when the demand for wasps suddenly increases. Many councils do contract out these services in high demand seasons. The rationale for the charges is ad hoc - some are based on rough ideas of costs, what the market can bear and the prices in neighbouring councils.

Many councils have been experimenting with different levels of charges since charges were introduced and have monitored the changes in take up. Most councils had the experience of the service being exploited by citizens when the service was free of charge and many reported abuse of the means testing. There were some “regular” customers who had many repeat problems, however the records did not contain this information. They all felt that a nominal charge or some kind of charge that would be simple and require them to pay upfront would take care of the problem of excess call outs. Moreover all felt that charges had resulted in fewer calls but I could only get data from 3 councils. One of them reported a big increase in “advice” calls suggesting that people were resorting to DIY treatments, which themselves could increase health and environmental risks. It was felt that the time period over which charges were introduced is too short in many councils to be able to say whether people would take some time to get used to the new charges or whether it was a more permanent effect. When asked about whether enforcement costs had increased as a direct result of charging, there was no clear evidence either way though many felt that the number of complaints of rats in public areas (outside the house) had increased and also that

⁷ This claim is inconsistent with the lack of knowledge of costs and revenues that was claimed at the same time - if they have no idea of true costs, then they will not know if they make a profit or not.

⁸ Again, this implies that councils do have an idea of costs and of the profits they make.

the number of notices served on landlords had increased but most were complied with and did not go to court. A rough idea of the hourly rates for court duty was provided in an interview as £50. However this may disguise the fact that even when work is done in default the huge expense of court cases and the uncertainty over the chance of success may deter many councils from following up on default in payment (e.g. one authority that did take enforcement action was Leeds City Council, they undertook work in default but in court were unable to recover their costs (Leeds City Council v Spencer [1999] All ER (D) 470)). Indeed this particular problem has led some landlords (RSL) to make it a policy not to do anything at their own expense but wait for tenants to bring it up with the council. Knowing that the costs of going to court are so high for the council may make it more expensive for the council to charge and do the work in default rather than not charge or charge a nominal amount in the first place! Therefore charging policy should be sensitive to areas where the benefits of free (nominal charge) provision (higher

index of deprivation, low proportion of owner occupied houses) may be much higher than others.

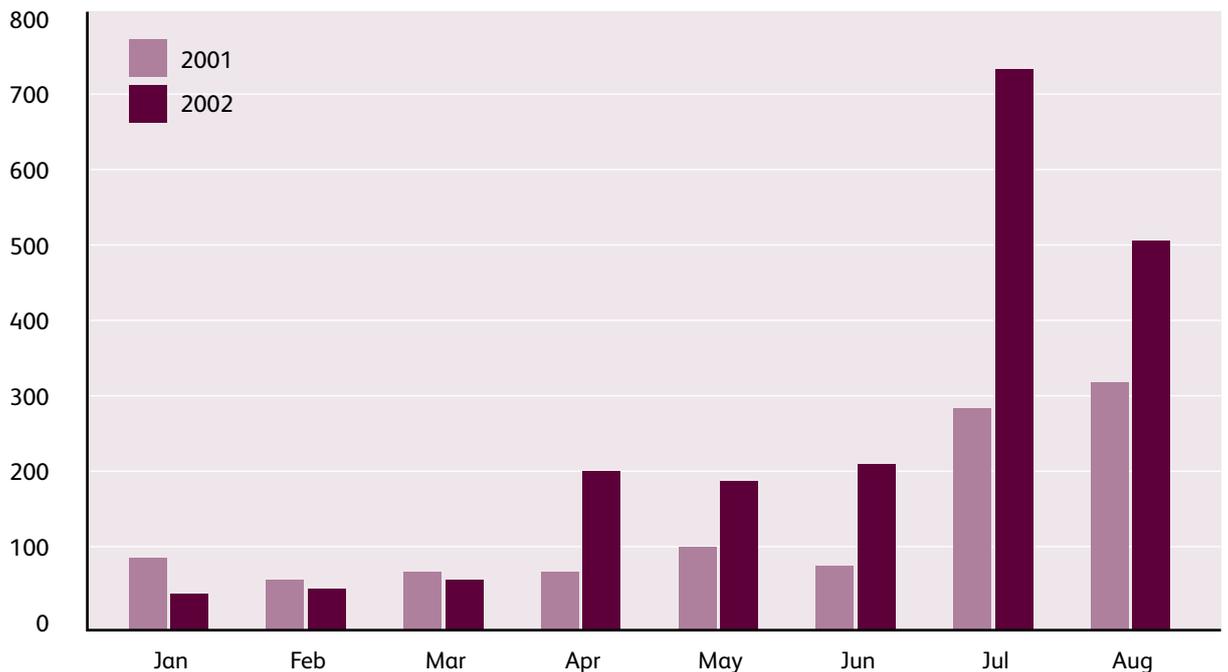
Reported here are the cases of three such councils which provided data:

Case Study 1

In case study 1 full cost charging to market rates was introduced in July 1997, then withdrawn in September 2001 when charges were reduced to £15 for all pests (rats are always free). Then in June 2006 again seasonal pest prices increased to £35 for wasps and garden ants and to £45 for squirrels. The following figure shows the short term impact of the reduction in prices for the period from April 2002 for all chargeable pests (mice, ants, bedbugs, cockroaches, fleas, squirrels and wasps)

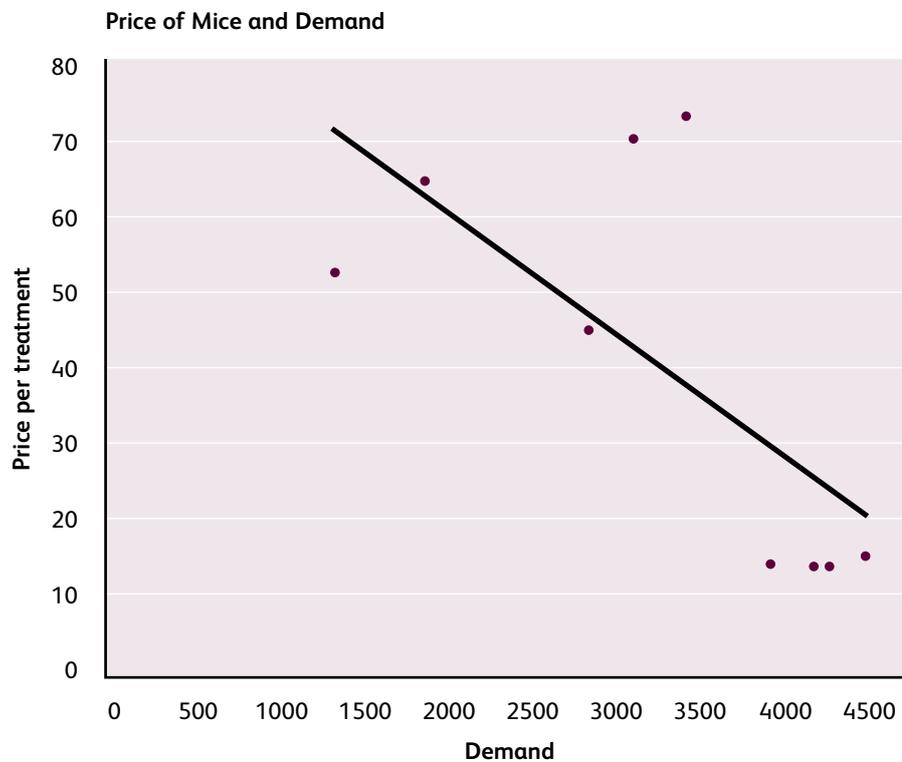
Prices in 2001 were on average more than double prices in 2002, eg Mice were £72, wasps were £38, cockroaches were £57 etc. The short term impact seems to be an increase by an average of more than double.

Service Requests (all chargeable pests) when charges reduced in 2002





What can we say about the long term impact? Focusing on the case of Mice (Since in our first case study Rats are always free), we have the following figure:



There was a sudden drop in prices in 2002 (as mentioned above) which is reflected in the steep drop from £70 to £15. Fitting a trend to the scatter plot, the demand function is downward sloping showing that as prices decrease, take up increases. However the scatter plot shows that there is still a need for more data to be able to say something about responsiveness (there are many outlying points). This figure does not take account of inflation, a CPI deflated price might be more useful, nor does it take care of any seasonality since mice in the house may not happen very often for a majority of people, their knowledge of prices and their demand may reflect a lack of knowledge about historical prices. There is also the question of which alternative they consider after the council - is it a private contractor or DIY treatments. If a reputable private contractor is used when price increases then charging may not have such an adverse impact on infestations (and therefore monitoring and enforcement costs) by comparison with when DIY treatments or less scrupulous operators are used. However this issue needs further investigation using more detailed information for this and other councils.





Case Study 2

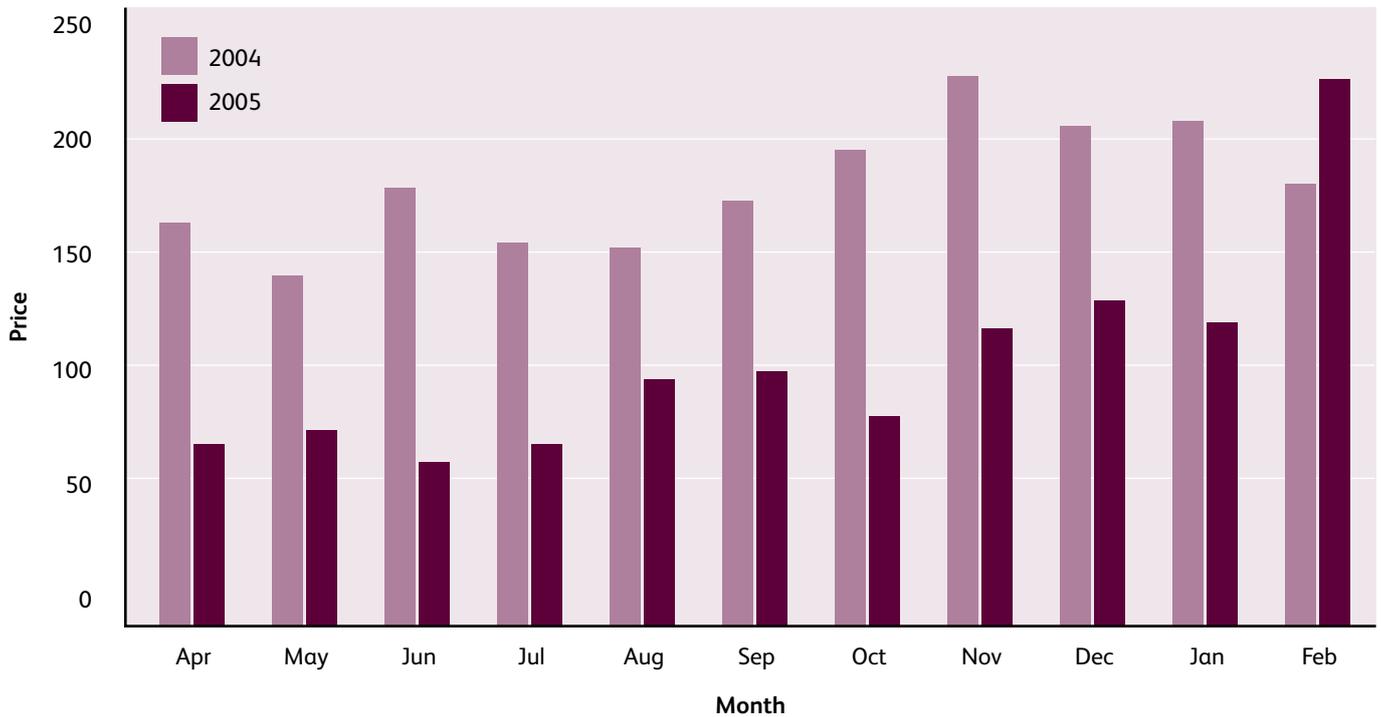
Up until April 2005 all public health pests, in occupied domestic dwellings, were treated free of charge. (The only charge made in domestic premises before 01/04/05 was for the treatment of wasps and ants. The charge made was £24.50). From 01/04/05 it was decided to introduce a standard charge of £15.00, plus vat, for the treatment of public health pests in occupied domestic premises. This charge involved pre-payment and there were no exemptions. (The charge for treating wasps and ants was also increased from 01/04/05 to £39.95).

This figure measures the short-term impact of a change in price controlling for seasonality in months. Notice that the figures may reflect a mix of two things: (1) that the rat population in houses went down in 2005 or that people responded to the change in prices. The pest control officers were convinced however that the difference was due to the change in price. Notice that in 2005 demand seems to be going up again after January.

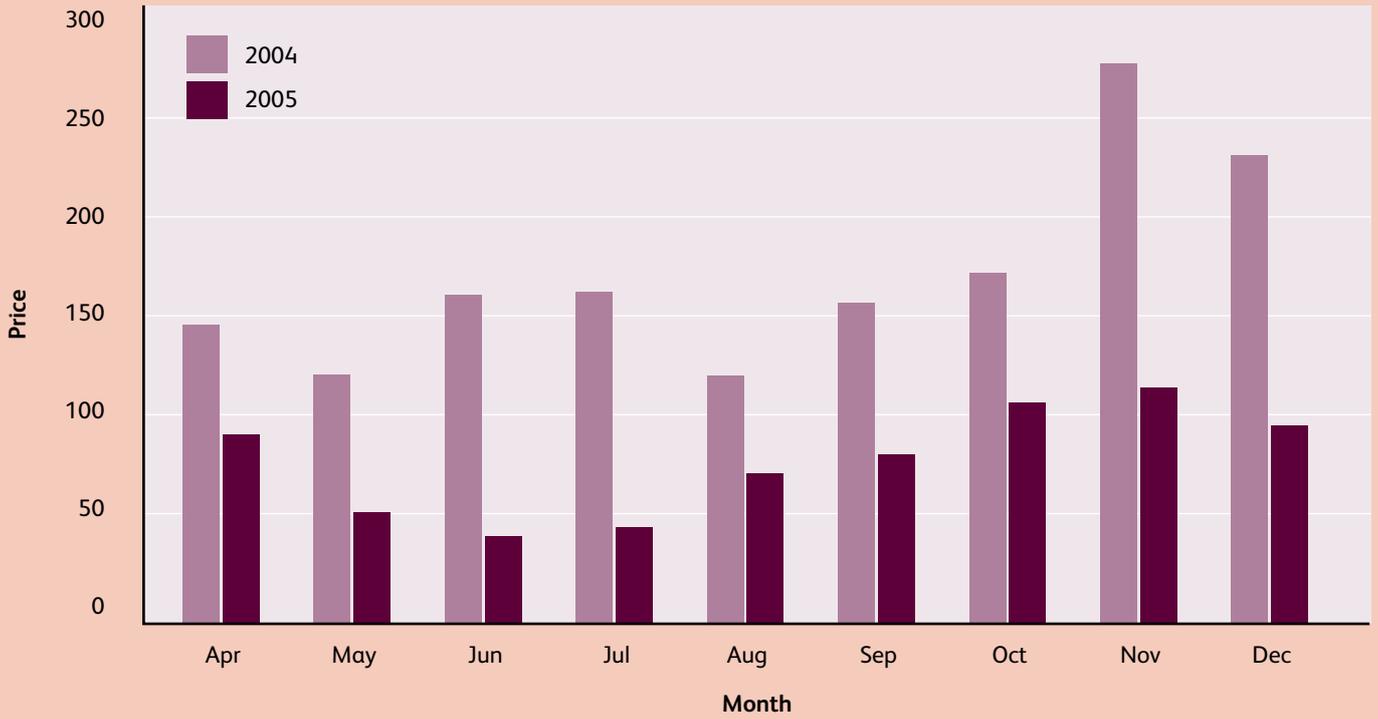
From 01/02/06 the standard charge of £15.00 for treating public health pests was removed and a "free of charge"

service was resumed. (The charge for treating wasps and ants remained the same). A nominal charge of £15 is not much but as seen below does cause a sudden drop in demand.

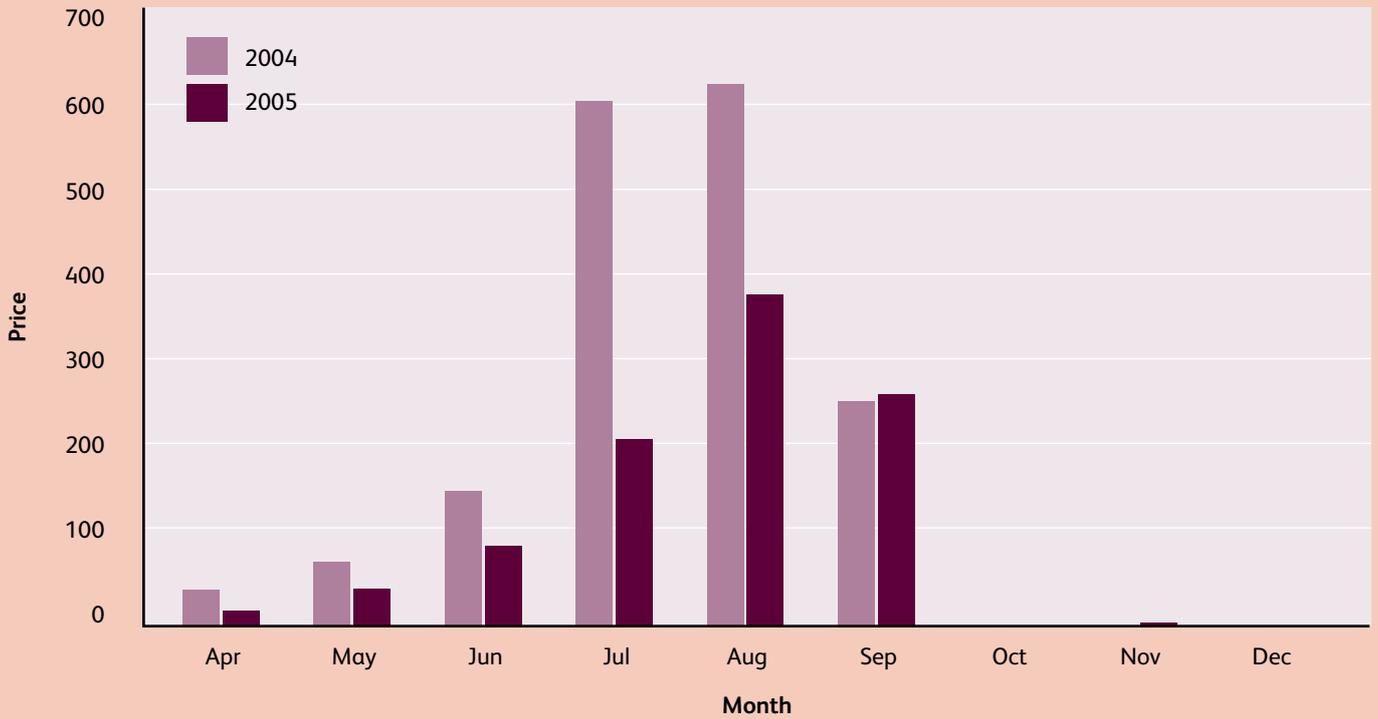
Responsiveness of Demand for Rats to Price Increase



Responsiveness of Demand for Mice to Price Increase



Responsiveness of Demand for Wasps to Price Increase



Case Study 3

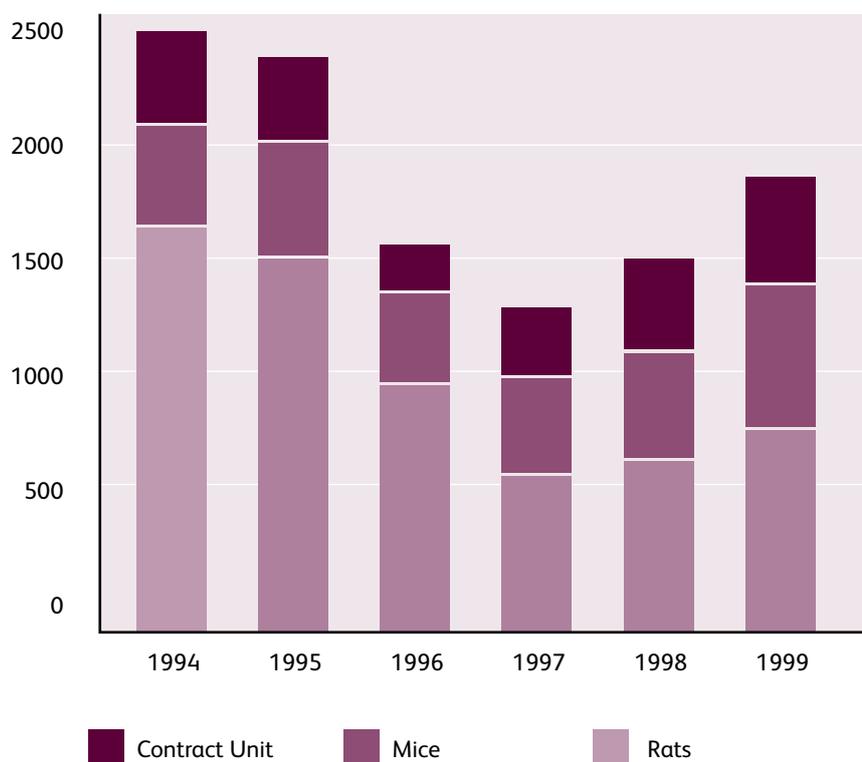
In this case provision was free and in house until 1992. In 1992 a contractor took over the work which was closely monitored by the council. Up until 1996 the service was still provided free for rats and mice. Then in 1996 due to budget constraints, there was pressure to start charging. Hence in 1996 the current charges were introduced and adjusted for inflation every year. In April 2006 the council switched to completely contracting out the work⁹. The effect of charges (£51 per treatment for Rats and Mice). See the figure below for Rats and Mice.

- The raw data for all three case studies seems to suggest that there is a decline in take up at least in the short term

Monitoring and Enforcement

Most councils relied on complaints for monitoring though in one council (case study 3) when the work was contracted out, monitoring increased to 10 random visits a year and surveys of consumers were used to check the quality of service. It is possible to collect data for some selected councils to study this issue in greater detail using their cost and demand figures. Bromley noticed an increase in “complaints from neighbours” but it was not very significantly higher:

Pest Control 1994 - 1999



	1995	1996	1999
Complaints	264	298	400

The service of notices went up slightly and most work was carried out in default with no prosecutions. Most councils reported that the work in default was paid for. One council reported an increase in the number of free calls for advice when charges increased.

- The anecdotal evidence however suggests an increase in complaints and consumers “switching” to DIY treatments.

Policy on In-house or Contracted out

Regarding the issue of whether the service was in-house or contracted out, only our case study 3 had a contracted out service. Before 1992 the service was free and in-house. In 1992 it was given over to a contractor with close supervision by the council. Based on information provided by the council (and discussed above in Section 2) the in house option was cheaper in terms of cost net of expected revenue. The gain from having a contractor (second option considered) was that there was less volatility in the budget with the contractor having to bear the risk of lower demand and lower profits in some seasons. The estimated population covered by council: 120,000 households. The council covers rural (1/3) as well as urban areas and affluent areas as well as ex council estates. The table below gives the projections of the council.

The sharp change in price occurred in 1996 and there is indeed a sharp a fall in demand for rats treatments that year. However it does not seem from the above graph that the fall in demand is anything long-term (though must be corrected for seasonality¹⁰ and inflation) and for mice the demand function looks very flat. Notice that this is an affluent area relative to Case studies 1 and 2 which have a much higher index of deprivation.



Projected Costings for Case Study 3 for 2006-2009:

Pest delivery option	Expenditure Year 1	Income Year 1	Expenditure Year 2	Income Year 2	Expenditure Year 3	Income Year 3	Net Cost
In house pest service	£79448 (See note 1)	£52300 (See note 2)	£80739 (See note 3)	£53300 (See note 2)	£83161 (See note 3)	£55300 (See note 2)	£85000 (See note 5)
Contracted pest service	£141000 (See note 7)	£50300	£141000 (See note 7)	£50300	£141000 (See note 7)	£50300	£272100
No pest service	£30000 (See note 4)	- £7500 (debit) (See note 6)	£30000 (See note 4)	- £7500 (debit) (See note 6)	£30000 (See note 4)	- £7500 (debit) (See note 6)	£112500

- **Note 1:** This figure includes £1060 one off equipment cost (purchasing)
- **Note 2:** This figure includes projection of additional £2000 income generated from new services offered by “in house” service in first year, £3000 in second year and £5000 in third year
- **Note 3:** This figure 3 % increase built in to reflect inflation costs based on average annual increases
- **Note 4:** This figure is the cost of contracting out statutory requirement to seize stray dogs and is based on cost of employing contractor given market price and comparison with cost of neighbouring authorities dog services. Seizure of stray dogs is statutory requirement under Environmental Protection Act 1990
- **Note 5:** This figure includes £2500 for additional administrative support to assist with invoicing processes
- **Note 6:** This figure is lost income from loss of current service level agreements
- **Note 7:** The current contractor has provided an estimate to continue the service for one further year 2006/7, however it cannot be guaranteed that this will be the same price for each of the two subsequent years

From the above costings a rough idea of the cost structure emerges, suggesting that in terms of financial costs, even assuming the same quality of service the in-house provision is cheaper. The picture may be different for differently sized councils however, so the data we really need is cost functions, costs as function of the service level (and marginal cost functions).

The first year cost of in-house provision in Bromley was estimated to be £27,148 for a population of 295,532 (per capita cost of £0.09), while the cost with contracted out service was at least double that. In Wyre Borough Council in 2001, which charged £21 for rodents. The Audit Commission report attributed a cost of £74,000 per year to pest control to serve a population of 105,000 (per capita cost of £0.70). In Blaenau Gwent County Borough Council where service was mostly free, the cost was £89,000 to serve a population of 70,064 (per capita cost of £1.27). In the Vale of Glamorgan, the net costs of provision are estimated at £137,609 for the year 2005-06 and the population is 119,000 (per capita cost of approximately £1.16).

- Based on case study 3, in-house provision seems to be more cost effective than contracting out

⁹ The way this was done was to pay a lump-sum of about £70-80,000 per year to a contractor who would provide the expertise and the labour, the pest control officers would be working only on council related work. Customers would contact the council and work was done by the contractors, however all revenue came back to the council. The work was closely monitored by the council with random checks and questionnaires to clients. Depending on seasonal conditions the business from wasps especially could generate significant income for the council. The council decided charges. Till 1996 the service was still provided free for rats and mice. Then in 1996 due to budget constraints, there was pressure to start charging. Hence in 1996 the current charges were introduced and adjusted for inflation every year. In April 2006 the council has switched to completely contracting out the work. The council pays a lump sum to a contractor for the provision of the service, and has the power to decide on charges. However calls go directly to contractors and they keep the revenue from provision. The main advantage of this system was that the costs per year were not so volatile and the risk of charging income is borne by the contractor. The council still has the ultimate responsibility to ensure quality of provision, hence they still have a significant monitoring role. The incentives of contractors under the new system are quite different since now they get all the revenue. There are about 10 random visits and questionnaires sent every year.

¹⁰ However no assessment been made for natural fluctuations in the rodent population – in general the local authorities do not have sufficient data to show the effect of charges - complaints could decrease as the result of a natural reduction of the population. We do not know if it is the change from the “normal” pattern over time when charging was introduced or if it is seasonality causing the change.

4.0 Evaluation



The criteria for evaluation are:

- Impact on Public Health: Does the policy succeed in keeping the rate of infestations down to a “tolerable” level?
- Is it cost effective?
- Does it provide incentives for prevention of infestations?
- Does it provide incentives for safe use of pesticides and other pollutants?
- Is it equitable?
- Is it administratively feasible to monitor and enforce?
- Is it politically feasible?

In this report it is not possible to evaluate using all these criteria as there is limited evidence, for example how is “tolerable level” defined?¹¹ However, based on the limited data we have for three case studies, two with highly deprived areas and one a mix with a relatively affluent population, we can list some of the basic principles that should guide the policy on charging and provision:

- Local government should intervene only for pests where there is a significant difference in private and social costs and benefits. This may depend on the area: deprived area or not, congested housing etc. However if provision is removed there may be political implications

- Relying purely on enforcement actions especially for public health pests provides wrong incentives for landlords, and is a high cost option
- Charges have had a negative effect on take up of service, but the extent may differ between councils based on per capita income and level of deprivation
- Charges should be uniform for a particular area (avoiding means testing) to decrease administrative costs¹²
- Charges should build in incentives to prevent repeat infestations¹³
- The mix of in-house provision and contracting out should depend on comparisons of monitoring costs and operating costs
- Contracts should be based on targeted levels of pest control where possible

¹¹ What do the LAs see as a tolerable level? Drummond (1970) has suggested that it is not worthwhile to replace a system of complaint led intervention with a more structured approach where the rate of infestation is less than 1%. In LA areas the overall average may be about 1% but within the district there are likely to be areas with substantially higher infestation rates. The evaluation must take account of the LAs’ strategies, if any.

¹² All councils agreed that a free system is not the best nor is means testing very practicable as there is a lot of abuse of the system and wasted time of operatives. Some councils have instituted a refund method whereby consumers pay upfront but get reimbursed if treatment is carried out. Others charge a uniform nominal price which is found to generate greater revenues than higher charges with means testing.

¹³ One scheme that could be applied at the cost of better record keeping: if councils kept records of all their calls they could implement a scheme that links payment to a score (say from 1 to 10) of how much is the household’s responsibility for the problem (e.g. quality of housekeeping). Indeed as the CIEH recommends (Guidance document 2003), there is a need for a records system that enables pest control staff to monitor areas where regular complaints occur.





5.0 Future Steps

In this section we identify some of the steps towards a more scientific study of the charging issue.

- Charging policy needs to be monitored more closely to see the impact on take-up and infestations levels. Some indicators of changes in infestations are the number of complaints or work done in default. One way to do this easily is to focus on some councils as detailed case studies (e.g. Liverpool and Manchester, Rugby, Wrexham in Wales) that have been keeping records of the impact of charging policy
- However, monitoring complaint or service request levels may not be a substitute for gathering data directly on the impact of charging policy on infestation levels or on public health
- A tool used frequently by economists is that of “randomized experiments” such experiments make selective interventions e.g. on charging to isolate the impact of a single change while keeping everything else the same. This method could possibly be used if some councils agreed to make the changes recommended and collect data
- Data needs to be collected on different types of cost functions using case studies: It may then be possible to use a Cost Minimization model (Rogers and Nagaraja (1996)) to simulate which regime of charging and provision works best
- There is a need to encourage participation of key stakeholders (Council members and Environmental Services officers, Audit Commission, Local tax payers, NPAP, NHS, Industry, farmers) in data collection as well as design and implementation of charging and provision regimes. For examples the Audit Commission has only two studies on Best Value in pest control (Wyre Borough Council and Blaenau Gwent County Borough Council). These reports are very useful in providing information on costs of provision and comparisons with neighbouring jurisdictions and they do point out the non availability of disaggregated data on costs and revenues
- Collect data from European and international counterparts and compare to identify best practice

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Appendix 1

Questionnaire for Interviewees

Size of council (i.e. population covered)

Per capita Income

Why was charging introduced (if known)?

If some pests are free, what is the reason?

If some are contracted out, which are these and why?

Estimated Profit/Loss from Provision of Pest Control Service (separately for In house and contracted out) for as many years as you have

Estimated Annual demand for different types of pests or total if you do not have disaggregated figures.

Comparison with Private Sector rates for at least the most important pests in terms of your core business.

Estimated Enforcement Costs if provision is stopped or commercial rates applied:

How is charge decided?



Chartered
Institute of
Environmental
Health

The National Pest Advisory Panel
Chartered Institute of Environmental Health
Chadwick Court, 15 Hatfields, London SE1 8DJ
Telephone 020 7928 6006 **Fax** 020 7827 5831
Email npap@cieh.org.uk **Web** www.cieh-npap.org.uk