Deposit Return

Evidence Summary June 2017

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Research: key areas covered

1. Current recycling rates for targeted containers
2. Modelling cost implications for local authority kerbside collections
3. Potential anti-litter impacts
4. Potential impacts on consumers
5. Potential impacts on industry
6. Potential impact on material prices and quality

Background

- Covers additional evidence requests from Scottish Government – not a comprehensive review of all evidence on deposit systems of relevance to Scotland.
- A mix of new analysis, and capture of stakeholder views
- There is not consensus on all points – we have identified where views differ, and in some cases sought to narrow the range of disagreement
- The quality and availability of evidence is varied – we have highlighted where this is the case
- Much more detailed technical notes are available to cover the headlines presented in this slide set

1.1 Current recycling rates for targeted containers

- Data challenges:
  - Scottish waste data is recorded by material (e.g. metal, glass) not item type (e.g. drinks can, drinks bottle)
  - Sales data is not uniquely available for Scotland only
  - Reprocessing data for these items is recorded on a UK basis

- Nonetheless, using a range of sources, we estimate:
  - Plastic drinks bottles have a recycling rate of 47% - 52%
  - Glass drinks bottles have a recycling rate of 70% - 90%
  - Aluminium drinks cans have a recycling rate between 40% and 60%
  - There's insufficient data to judge steel drinks cans separately, but it seems likely they are comparable to aluminium drinks

2.1 Modelling Cost Implications for Local Authorities

Overview

- Zero Waste Scotland undertook original analysis of the potential cost impact on local authority collections using the model designed to support the roll out of the Household Recycling Charter

- We also looked at third party cost modelling for the UK and overseas; in the latter cases a judgement needs to be made about how comparable operating contexts might be

2.2 Modelling Cost Implications for Local Authorities

Approach

- Our modelling acknowledged that:
  - There is uncertainty around the exact tonnage of targeted containers in residual / recyclate collections currently; and what might be in scope for any deposit system
  - The capture rate of a future deposit system is not known
  - Future material prices received by local authorities – and the impact of a deposit system on them – are not known
- We therefore modelled a range of scenarios – 27 in all, plus the “base case” of business as usual.
- We present findings in terms of conclusions, not a single figure. The exact figure would depend on how a system is actually implemented.

2.3 Modelling Cost Implications for Local Authorities

Scope

- Our modelling focused on collection costs within existing **kerbside collection models only** and does not consider:
  - Reduced costs from street cleansing / public bin servicing
  - Costs associated with business waste services managed by local authorities,
  - Material at local authority recycling centres and bring sites
  - Potential income streams if local authorities were to be involved in managing the material collected via the deposit system, or were able to extract unredeemed containers from collections and reclaim deposits direct
  - Changes to recycling behaviour for other material streams if a deposit system made people either more or less likely to recycle other items at the kerbside
  - Service optimisation over the longer term

2.4 Modelling Cost Implications for Local Authorities

Key model findings

- In the aggregate local authorities' kerbside services benefited financially from a deposit system in all the scenarios we modelled.
  - Aggregate gains between £1.3m and £9.2m (including downside pricing scenarios)
- All local authorities make disposal savings for residual waste
  - Aggregate gains between £2.6m and £6.2m (at current material prices)
- Typically local authorities also make savings for passing on recyclate in deposit system scenarios.
  - Aggregate gains between £2.8m and £3m (at current material prices)
  - Some individual authorities may lose revenue where recyclate currently provides an income stream, and changes aren't outweighed by residual savings. The extent of this varies across scenarios
- There are also minor savings from reduced haulage of residual waste and recyclate for all local authorities.
- Overall local authorities made savings in the aggregate in all the scenarios we modelled.
  - In some of the less optimistic scenarios some individual local authorities may see small losses.

2.5 Modelling Cost Implications for Local Authorities

Key model findings contd.

- The more material captured by a deposit system the better the financial implications for local authorities.
- The more targeted material we assume to be disposed of via kerbside services prior to a deposit system, the more financially beneficial the introduction of a deposit system is for local authorities.
- These observations also strongly imply that the broader the coverage of a deposit system (in terms of targeted containers) the better it is financially for a local authority.
- The conclusions are sensitive to material prices / revenues and gate fees, which will change independently of a deposit system in future.

2.6 Modelling Cost Implications for Local Authorities

Comparison to other studies

- Scotland
  - Modelled urban/semi-urban/rural local authorities as separate groups
  - Considered HWRCs and local authority collections
  - Suggested collection cost savings most likely to be realised in urban areas where vehicle capacity (rather than time) is key operational constraint
  - Disposal costs were the biggest area for savings
  - Showed savings of between £0.47 and £3.25 per tonne across different collection systems
- UK
  - Older study, but same authors and similar conclusion to above
- Catalonia
  - Showed net savings, but appears to be quite a different collection model and thus conclusions may not be transferable
- Australia
  - Separate studies in New South Wales, Tasmania show net savings for local authorities – with higher per capita savings than in the Scottish model; service provision looks superficially similar
  - Assumption MRFs could create extra income by separating containers and reclaiming the deposit where these are still disposed of via local authority services; we have not made this assumption in our model

3.1 Potential Anti-Litter Impacts

Key questions

- How much litter are the containers targeted by a deposit system responsible for?
- What are the direct and indirect financial impacts of these containers as litter?
- How much would a deposit system reduce litter?
- How would this reduction in litter be reflected in cost reductions?

There is a lack of stakeholder consensus on all of these questions, therefore we have presented results as a range of possibilities.

3.2 Potential Anti-Litter Impacts

Key questions

- How much litter are the containers targeted by a deposit system responsible for?
  - Between 5% (item counts) and 40% (volume estimates)
- What are the direct and indirect financial impacts of these containers as litter?
  - Direct costs to local authorities: £36m (all items, clearance only)
  - Indirect costs: estimates range from £25m to £361m (all items)
- How much would a deposit system reduce container litter?
  - We assume the overall deposit system capture rate would be reflected in the removal of target items from the litter stream and explored reductions of 70-90%

3.3 Potential Anti-Litter Impacts

Conclusions

- Direct savings on litter clearance to local authorities following the introduction of a deposit system would probably be between £3m and £6m.

- We believe the wider reduction in the costs litter pollution places on society from a deposit system probably fall between £10m and £40m.
    - This would be an alternative to, not additive to, the local authority cost savings above.
    - Some stakeholders would prefer higher / lower figures

4.1 Implications for consumers

Key questions

- How should we value the public's contribution (time, effort) to a deposit system?
- What other behavioural changes (shopping, recycling, littering) might a deposit system effect, positively or negatively?

Stakeholder consensus is limited on these questions.

Stakeholders agree that survey findings on questions around hypothetical scenarios should be treated with caution

There is relatively little robust evidence on wider behavioural changes – this tentatively leads us to conclude impacts will be marginal

4.2 Implications for consumers

Valuing the public's contribution

- There is a value to the public's time and effort in relation to any recycling system; however many members of the public may be happy – and even derive satisfaction from – participation in pro-social recycling behaviours.
- One approach is a "rational actor model"
    - If people are willing to return a container for a deposit, then the cost to them of participating must be worth the deposit amount (or less)
    - This implies a value for the public contribution of between £23m and £38m based on modelling schemes overseas
- There are weaknesses to this approach
    - There's much less variation in relation to return rates / deposit size overseas than we might expect from "rational actors" – evidence suggests habit and convenience may be much bigger drivers
    - Decisions are not always economically "rational" in this narrow sense – a deposit may also work as a "value signal" (as the carrier bag charge does) – we also know a significant number of people would recycle for free
    - This approach to analysis doesn't account well for differing incomes
- This approach looks only at the direct contribution in isolation – it doesn't consider how costs and benefits are distributed more widely across society.

4.3 Implications for consumers

Other insight into consumer behaviour?

- No hard evidence on changed purchasing patterns (size of store, number of trips, product choice) provided from overseas experience

- Deposit system proponents assume return process would be integrated into pre-occurring shopping trips; critics suggest some extra journeys would be made, with an associated transport impact. There is no conclusive evidence on this.

- Good communication and transparency are likely to be key to system acceptability

5.1 Potential implications for manufacturers and retailers

Overview

- In any discussion of system costs, the actual design and management choices made are a very significant variable in terms of total costs, and who pays what. There is therefore no "correct" answer to these questions currently.

- This section summarises information we have examined, rather than providing new analysis.

5.2 Potential implications for manufacturers and retailers

What might system costs be?

- Very divergent estimates are available for the likely costs of a system to manufacturers and retailers, and we recommend all numbers are treated with caution.
  - Highest figure for set up costs is £92m (PRGS) covering soft drinks only (includes year one running costs too)
  - Lowest is £22m (Eunomia) covering all drinks, of which much is assumed to relate to increased stock, and thus be redeemable
  - Highest figure for running costs is £74m (PRGS) covering soft drinks only
  - Lowest is £16m - £27m (Eunomia) covering all drinks
  - German experience scaled to Scotland (original data via PRGS) falls between these points: £40.7m (set up, paid by retailers); £44.5m (annual ongoing, paid by packagers)
- These figures are assumed to add up to very marginal per container costs
- There is no convincing evidence we have seen of deposit schemes overseas raising product prices; we have seen one (limited) study that concluded there was no evidence in the US.

5.3 Potential implications for manufacturers and retailers

Where might costs be incurred?

- Detailed breakdowns are seldom available, but it is useful to consider where these costs may actually be incurred within manufacturing processes. Issues raised (which would depend on scheme design) include:
  - Duplicating product lines to maintain separate labelling, including down time on production lines etc
  - Distribution and warehouse changes to manage separate product lines, possibly including backhauling, and stockholding costs as minimum stock levels increase
  - Labelling changes, including any anti-fraud measures
  - Internal administration costs for the above, and record keeping for legal compliance
  - Any producer / registration fees charge
  - Some manufacturers suggest some product lines might be withdrawn, and / or expressed concerns about impacts on sales growth

- Specific retailer concerns include: the space requirements for takeback operations or equipment, storage, the feasibility of backhauling, and the staff requirement to support this. In overseas systems, retailers commonly receive a “handling fee” per container when they are involved in a scheme

5.4 Potential implications for manufacturers and retailers

Hygiene in storage/transport

- Some stakeholders raised hygiene concerns around storage, backhauling, and/or takeback from online shopping
- For them, compartmentalising storage/transport space to separate “waste” is assumed to have a cost and efficiency impact
- Other stakeholders have highlighted the lack of problems in this respect in existing schemes elsewhere in Europe
- This issue only arises in relation to some aspects of deposit system operations

6.1 Potential impact on material quality and prices

- Future prices will be determined by many factors – we don't therefore seek to make any quantified projection now

Qualitative analysis

- A deposit system would provide high-quality, very low-contamination material streams without further treatment
- This will be better quality than achieved through existing collections; current sorting may achieve this level of quality, at a price
- Reprocessors are willing to pay a premium for higher quality material, but this premium depends on wider market conditions, volumes, and the perceived difference in quality.
- High quality material from a deposit system may find a different route through the market to current practice (e.g. bypassing some elements of the current recycling chain, and / or via a larger or smaller number of suppliers / aggregators) – this would depend on system design

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Thank you.

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