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Economies of recycling, 'consumption work' and divisions of labour in Sweden and England

Abstract: The recycling of domestic waste has become increasingly significant over recent years with governments across the world pledging increases in their recycling rates. But success in reaching targets relies on the input and effort of the household and consumer. This article argues that the work consumers regularly perform in sorting their recyclable waste into different fractions and, in some cases, transporting this to communal sites, plays an integral role in the overall division of labour within waste management processes. We develop the concept of 'consumption work' drawing on comparative research in Sweden and England to show how the consumer is both at the end and starting point of a circular global economy of materials re-use. The work that consumers do has not been systematically explored as a distinctive form of labour, and we argue that treating it seriously requires revision of the conventional approach to the division of labour.

Keywords: consumption work, division of labour, recycling, waste

Recycling is increasingly high on the global economic agenda. The recovery of materials from domestic and commercial waste streams not only addresses the detrimental environmental impacts of disposal, but also reduces the energy costs of processing products from raw materials. As governments pledge to increase their recycling rates, the household or the consumer becomes an important target for policy interventions. Without the input and effort of consumers who sort their recyclable waste from their non-recyclable waste, targets like those set out in the EU Waste Framework Directive to reach a 50 per cent household recycling rate by 2020 (Directive 2008/98/EC) will be impossible to meet.

In recent years, requirements have been placed on households to sort their recyclable waste into different fractions and, in some cases, transport this waste to communal sites. The active participation of households through the performance of routine and regular consumption work links to a new global market economy of materials re-use which is only likely to expand in a future of scarce natural resources.

The contribution of consumers is the central focus of this paper which attempts to highlight how their labour is configured in an interdependent relationship with different actors and organisations in distinct socio-economic-political contexts. We suggest that consumers play an integral role in the recycling process, occupying a new and distinctive position in the overall division of labour in the waste sector. The argument is based on comparative research in England and Sweden, and is part of a larger research programme into societal divisions of labour and 'consumption work'.[1] Despite considerable national differences, both in the overall organisation and economy of recycling and in everyday recycling practices, successful operation of the system in both countries presupposes the active participation of households through routine and regular unpaid 'consumption work'.

The shift towards recycling over the last decade or so has been associated with a broader reconfiguration of the waste industry. Huge opportunities have been created for multi-national businesses, such as the French-owned global players Veolia and Sita, to engage in a far greater scale of operations in both the UK public and private sectors. It has also placed a range of additional demands on municipal authorities, to drastically reduce the proportion of waste previously sent to landfill, or risk an escalation of costs. Both these developments have implications for work and employment in an expanding 'green economy'. ONS data pinpoint a significant increase in UK employment between 1998 and 2008 in 'waste collection, recycling and reuse', from 47,000 to 118,000 (ONS 2010). In 2011, of 128,000 employed in the waste management sector, 22 percent worked in carrying and

collection, 17 per cent in the processing of recyclate and 17 percent in sorting and sale (BIS 2011: 8, 28-30). Looking ahead, Friends of the Earth (2010) estimate that achieving a 70 per cent recycling target for municipal waste by 2025 would create 29,400 direct jobs, and an additional knock-on 22,000 jobs in the UK alone. Recent requirements on consumers to sort, present or transport their waste for collection in particular ways comprise an integral component of such reconfiguration, and the distinctive division of labour associated with it. Consumers are in the business of recycling, which may be part public, part private enterprise, but always part consumer.

Following a brief review of relevant literature, we outline our conceptual approach to understanding consumption work and its importance in different economies of recycling, before introducing our research from England and Sweden.

Waste, sociology and work

Waste regimes may be delineated according to Gille (2007: 9) 'through what economic, political and material dynamics waste is produced, how it is conceptualised, and how it is politicised'. They vary enormously in all these respects, both comparatively and historically, including the ways consumers dispose of their waste. Readers may remember rag and bone collections, or recollect their mothers darning clothes rather than throwing them out or giving them to a charity shop. Few will have memories of quilt- or rag carpet making, a commonplace 19th century way of reusing worn out material (Strasser 1999).

Although the process and practices of waste management are nothing new, they have attracted little interest from sociology, including the sociology of work, with far greater attention focused on the acquisition of goods. An exception is O'Brien (2008) who takes seriously the socio-political economy of waste and attempts to counter moralistic pronouncements that, as a society, we have become more wasteful. Gregson *et al*'s (2007)

ethnographic research also contributes to understanding consumer waste disposal practices, arguing they play an important role in the maintenance of family and social relationships. However, this research had little to say about disposal as work or its role in other socio-economic relations. By contrast, the ambitious ESRC *Waste of the World* project (** LINK "<http://www.thewasteoftheworld.org/html/overview.html>": Hyperlink to another webpage) with its focus on the globalisation of waste markets and the ever-present potential of waste for re/materialisation, begins to redress the omission, predominantly from a spatial perspective. However, the integral role of the household within these spatial divisions of labour is no longer a key focus.

To say that cleaning, sorting and transporting recyclable packaging and other goods involves work for the consumer may seem obvious. However, as Oates and McDonald (2006: 421) point out, recycling is seldom recognised as 'work' and instead tends to be portrayed as 'a conscious green act'. The authors maintain that recycling is a chore that must be integrated into existing domestic routines and is often initiated and maintained by women. But they do not follow through to conceptualise recycling as a distinctive form of consumer work, nor to consider the close connection between household performance of recycling activity and the wider institutional systems of provision.

Technological innovation and the local system of waste management play an important role in shaping household recycling work. For example, in terms of the latter, it matters how many fractions consumers are asked to sort their waste into or where they have to leave this recyclable waste (at their kerbside or at a bring bank). Such factors influence how demanding the task of recycling is for the consumer but they cannot be understood in isolation from the overall process of waste management provision and its related division of labour. In terms of the former, the invention of the wheelie-bin provides an instructive example. Chappells and Shove's (1999) historical analysis of the dustbin demonstrates how

changes in its design shifted configurations of responsibilities and re-formed the interdependence between the work performed by the consumer and the wider organisation of waste management. With the provision of wheelie-bins to households in English local authorities, consumers gained the responsibility for transporting the bin from their back garden to the kerbside ready for collection. This in turn sped up the waste collection round and reduced physical effort, thus requiring smaller teams of collection operatives owing to the reliance upon the unpaid work of the consumer.

Recycling, consumption work and divisions of labour

Thus, despite the changing nature of waste and disposal practices in recent years, the conceptualisation of household recycling as a form of work has not been developed. More generally the work of consumers has received minimal attention by scholars of either work or consumption as a distinctive form of labour and we begin to address this oversight in the field of household recycling. Drawing attention to the work of the consumer offers an important development to the theoretical framework that has dominated traditional understandings of divisions of labour within society. As Crow et al (2009) noted in this journal, it is vital to recognise the complexity of different forms of work in order to fully grasp the nature and meaning of work in contemporary society. We distinguish (below) three dimensions of differentiation and interdependence of labour: technical, modal and processual. The work of consumers in economies of recycling provides a key illustration of the need for such a differentiated approach.

Consumers' involvement in recycling is just one example of a more widespread trend over recent decades whereby work is transferred from retailers or manufacturers to consumers, and from paid employment in production, service provision or distribution to the unpaid labour of purchasers, consumers or householders. Consumers are fundamental to

much contemporary economic activity, especially with the expansion of self-service, internet and telephone transactions, self-assembly and other forms of 'self-provisioning'. Our analysis develops the concept of 'consumption work' (Glucksmann 2009; forthcoming), provisionally defined as 'all work necessary for the purchase, use, re-use and disposal of consumption goods and services'. In this conception, consumption work is recognised as an economic activity which forms a necessary stage in the reproduction of the economic cycle. 'Consumption work' is thus distinct from consumption itself in the sense of using or using up goods or services.

A familiar example of this type of work is the assembly of flat pack furniture whose production, distribution and exchange is predicated upon the unpaid work of the consumer to complete the process, thus shifting this labour out of the domain of manufacture. Flat-pack furniture requires assembling by (or on behalf of) the consumer. Transporting the goods from store to home also becomes the responsibility of the customer. The labour and costs of transport and assembly thus shift downstream and across socio-economic domain to the consumer. In so far as the furniture has to be assembled in order to be useable, the consumer has labour to undertake *after* having bought the goods, but *before* they can be consumed and used. The emergence of flat-pack thus shifts the final assembly work associated with making furniture ready for use from the traditional terrain of 'production' to that of 'consumption', moving it out of the factory and shop and into the home, where it relies on the unpaid labour of the consumer.

Over the years scholars have identified a variety of ways in which work has been transferred to consumers or where changes in a work process come to incorporate the labour of the consumer as an essential component of the process, but little attempt has been made to draw these together or analyse them systematically. Glazer (1993), for example, highlighted managerial practices of 'work transfer' in retailing and health service occupations in the US

where tasks were shifted from paid to unpaid labour. Self-service has been of particular interest to historians of retail, who have explored the spread of new shopping technologies with the switch from counter service to self-service in supermarkets, and the co-optation of customers to the new regimes of selling (Humphery 1998; Alexander *et al* 2009). They draw attention to the 'co-creation' of supermarket self-service, with the contribution of shoppers being essential to the success of the project. Emphasizing the dearth of empirical research into self-service, particularly concerning its reception by shoppers, Du Gay (2004: 149) poses the fundamental question of 'How do you get them to see something that they have conceived of as work, undertaken for them by other people for a wage, as something they should do themselves, for free?' Many examples of the process of McDonaldization outlined by Ritzer (2001; 2010) require the consumer's input of labour to complete the process of purchasing, including at MacDonalds itself and other fast-food outlets, as well as ATMs, internet shopping and other instances of 'disenchantment' brought together under this term. DIY offers another example of work assumed by consumers (Shove et al 2007), an expansion of the 'self-provisioning' that Pahl (1984) had identified in his prescient classic study of household strategies and divisions of labour on the Isle of Sheppey. Recent theories of prosumption or co-creation (Zwick et al 2008; Ritzer and Jurgenson 2010) highlight the interactive relation, and feedback loops, between producer and consumer, especially prevalent in new media, such that consumers become co-producers, and the distinction between producer and consumer is blurred.

The implication from this cursory overview is that consumers do work. Rather than simply consume, they frequently also perform labour. Rather than being external to the division of labour, they are part of it. But, although work undertaken by consumers is often key to completing a process of production or service provision, this is not usually acknowledged in classic approaches to the division of labour whose predominant focus is

tasks accomplished through market relations prior to reaching the consumer. In contrast, we are suggesting both that 'consumption work' merits attention in its own right as a distinctive form of labour, and that treating it seriously requires expansion or revision of the conventional approach to the division of labour.

In addition to the division and allocation of tasks and skills within particular work processes, organisations or sectors (the dominant understanding of the division of labour), there is also a second division, and importantly also a connection, or interaction, of labour across socio-economic modes. These domains include the state, market, not-for profit sector, household and community where the same tasks may be undertaken on very different bases (paid or unpaid, formal or informal). In their analysis of care work in Italy and the Netherlands in this journal, Glucksmann & Lyon (2006) demonstrated that although family care remained dominant in both countries, the availability of state-funded care provision varied, respectively shaping how care work tasks were organised within the state, voluntary and (informal) market sectors. Work may shift across socio-economic boundaries from one domain to another for a variety of reasons (including privatisation, outsourcing or cuts in public services), and the boundaries themselves may change (Glucksmann 2005). In different countries and at different times, work activities are distributed in particular ways between socio-economic domains, resulting in distinctive 'modal' organisations of labour.

Shifting perspective again, a third kind of division and connection of labour comes into focus when the work conducted at the various different stages of an overall instituted economic process is considered (Polanyi 1957; Harvey 2007). Labour is organised and distributed across the processes of production, distribution, exchange and consumption in such a way that what is done at any one phase presupposes and is shaped by work undertaken at others. This is the case in food preparation (e.g. work associated with getting food from

field or farm to shop to table), furniture production, and all other economic processes, including waste management and recycling, as we shall demonstrate.

Our approach develops the multi-dimensional approach to analysing 'socio-economic formations of labour' sketched by Glucksmann (2009). Here the classical 'peopled' division of labour is complemented by these two additional kinds of division and connection of labour: interactions of work across socio-economic modes and across an overall instituted economic process. Three dimensions of interdependence and differentiation of labour are thus distinguished:

(1) Technical: the 'division of labour' as a technical division of tasks and skills, and their allocation to different kinds of people.

(2) Modal: connections between or interdependencies of work across differing socio-economic modes ('total social organisation of labour') where labour is undertaken on different socio-economic bases (market and non-market, formal or informal, paid or unpaid and so on)

(3) Processual: connections between or interdependencies of labour across the various stages of instituted economic processes. This dimension incorporates the work of consumers, where this is necessary.

These three dimensions will of course impact on and interact with each other, combining at a higher level of abstraction in what may be called a socio-economic formation of labour (ibid: 90).

All three dimensions are readily apparent in the process of waste management which relies, not only on a division of tasks between paid employees in occupational hierarchies (1 above), but also on integration of labour undertaken within a variety of different socio-economic domains including the public and private sectors, and the household (2), with input from NGOs which may extend beyond promoting waste reduction and exhorting recycling

initiatives. The process of waste management is a cyclical one, comprising a number of stages, from initial sorting of rubbish, through collection, and on to final recovery of materials and reprocessing (3). The work done at each stage in this process is predicated on all the others, for example where technologies of materials recovery rely on particular forms of sorting by households.

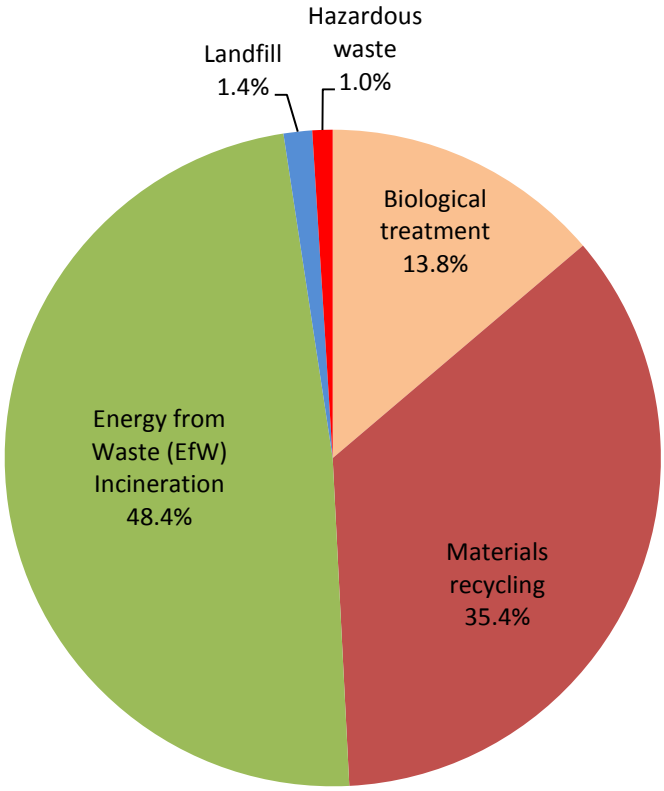
Recycling in comparative context

To develop our argument, we now present an overview of waste and recycling in Sweden and England, foregrounding the work performed by consumers. The primary data is based on thirty interviews conducted by the authors in 2011 with recycling and waste 'experts' in each country, including representatives from waste management companies, third sector organisations, policy makers, municipal officers and academics. We aimed to elicit general understandings of the organisation of waste management, particularly of the key players involved in the provision of these services, the contribution of the public and private sectors, the dominant methods of waste and recycling collection and the reliance on particular waste technologies. We also attempted to discover how the consumer is encouraged to recycle and the moral discourses through which recycling activities are promoted within each country. In order to explore the variation within the two countries, we chose five municipal areas (Lund and Stockholm in Sweden and Essex, Shropshire and Lewisham in England).[2] The primary research is complemented by documentary sources on waste management in each country, and site visits to a variety of waste and recycling treatment facilities.[3] All visual materials included in this article were collected during our fieldwork in England and Sweden. Our aim is to demonstrate the role of the consumer within the system of waste management provision and its related division of labour in the two countries.[4]

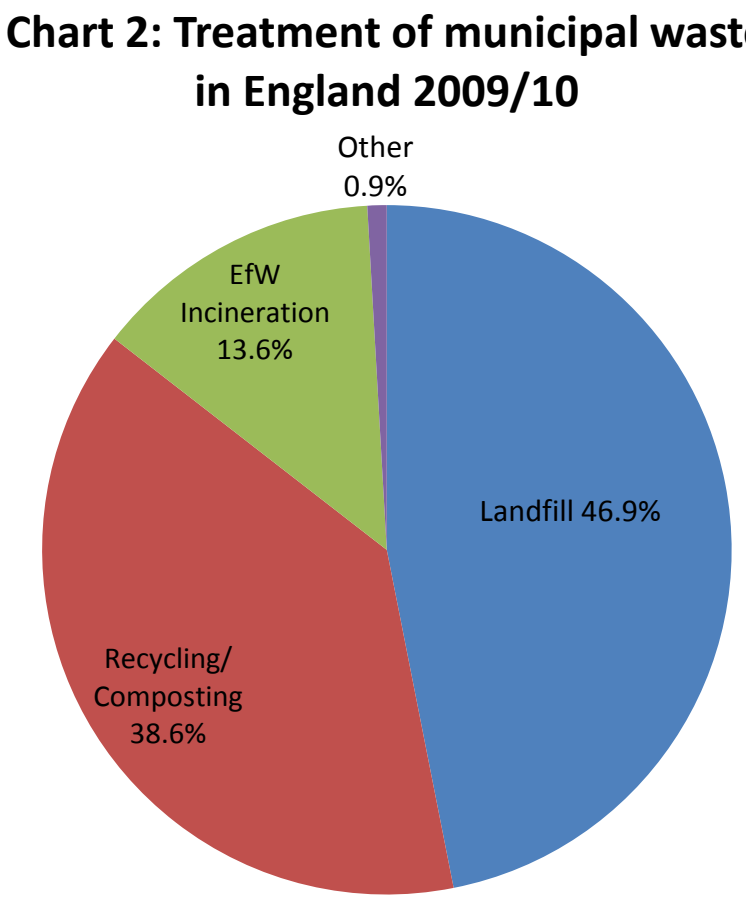
A comparative approach offers the opportunity to explore the specificities of consumption work within different national settings and brings into sharper focus the implications of the distinctive arrangements of work that consumers are expected and enabled to perform. Waste management practices differ substantially across the world, with countries in Asia and Africa relying upon the informal labour of 'waste pickers' to recover recyclable material and increasingly private sector provision, whilst countries in Europe and America utilise varying configurations of public and private modes of organised waste management provision (Davies 2008). Whilst England and Sweden may be expected to adopt similar approaches given that both are governed by the same EU laws, closer inspection reveals considerable variation across a number of features, with important consequences for the performance of consumption work.

These two countries were selected because of their different historical commitments to recycling, as well as the different expectations they place upon the consumer to recycle. In Sweden, interest in recycling dates back to the 1970s and consumers must separate their recyclable waste and transport it to packaging stations and recycling centres in a system which is common across Sweden. In England, by contrast, recycling is a relatively new addition to the household's repertoire of domestic activities. Here consumers have to sort their recyclable waste which is then collected from their homes. Unlike Sweden, there is not one standard recycling practice but considerable variation between local authorities across England. Sweden and England also represent different welfare regimes (Esping-Andersen 1990) with their public and private sector dominance respectively shaping the provision of waste management services. Chart 1 and Chart 2 reveal how municipal waste is handled and treated within the two countries (although the data are not directly comparable due to differences in the way municipal waste statistics are collected).[5]

Chart 1: Treatment of municipal waste in Sweden 2009



Source: Author generated chart using Avfall Sverige (2010)



Source: Author generated chart using Defra (2010)

We systematically examined and compared the waste management systems in the two countries according to six key features; 1) the key actors and institutions providing waste management services; 2) the role of the public and private sectors; 3) variations in the collection systems between and within the countries; 4) the degree to which recycling waste is separate from other household waste; 5) the technologies employed to deal with waste; 6) strategies for mobilising consumers to recycle. As we shall see, differences are evident across all these, shaping how the consumer is put to work.

Recycling and waste management in Sweden

In Sweden an initial distinction is made between packaging and all other waste, so the same materials may be differently treated depending on whether they are packaging or not. Across Sweden there are 5,800 unmanned recycling stations, comprising of at least five different recycling bins, that consumers are expected to travel to in order to deposit their clean, sorted packaging waste. (see Image 1). This waste is then collected by the joint materials company, Förpacknings-och Tidningsinsamlingen (FTI), which was set up following the Swedish Producer Responsibility Ordinance in 1994.[6] Any organisation that manufactures or sells packaging in Sweden has the 'legal, physical and economic responsibility for collecting and disposing' of that packaging (SEPA 2005: 71). This system, known as the producers' system, operates on a not-for-profit basis as the costs of providing a nationwide collection service across sparsely populated Sweden – which the FTI contract private waste management companies to operate for them – outweighs the profits that can be made from the sale of the materials.

Image 1: Recycling station in Stockholm

Traditionally waste management was a local state or municipal concern in Sweden. The Swedish Environmental Protection Agency (SEPA) has responsibility for developing regulations and guidance around municipal waste management, but they do not dictate how each municipality organises their system. However, following the introduction of the producers' system, the municipalities' role in household waste management changed. They no longer had responsibility for packaging waste, although they kept their responsibility for the provision of manned recycling centres for bulky household waste, as well as kerbside collection of general household waste. It also remains their duty to inform consumers what to do with their waste, including packaging waste, and why. This division of responsibility has created some tensions between municipalities and the FTI. For example, there have been complaints about litter at the packaging stations because of infrequent collection by the FTI meaning the municipality has had to arrange for their cleaning, though it is not their job to do this (see Image 2). In a small number of municipalities, the decision has been taken to run the collection services for the producers; the waste authority in Lund offers a kerbside collection of recyclable packaging where consumers sort their household waste into eight fractions in two wheelie-bins, the relevant fractions of which are then delivered to the FTI for a fee. However, this situation is quite unusual and for many municipalities the division of responsibility continues to cause problems.

> *We don't like that system with collecting at the containers outside, we want the producers to come to the households otherwise the municipalities will do that. But in the Swedish law, the municipality are not allowed to collect the packages because it's a producer responsibility and there is a sort of conflict between the producers and the municipalities. We want a better system but we can't take our money to do that. 24 per cent of the packages and papers that are in our household waste today are sent to incineration. It costs us about 20*

million Kronas per year to send it to incineration and we want to use that money to have a better system but we can't.

(Representative from Stockholm municipal waste company, Sorab)

Image 2: Rubbish left at a recycling station in Stockholm

The division of labour between the FTI and the municipalities has important implications for the performance of recycling consumption work. First, it transfers the burden of transporting the waste away from the municipality and onto the consumer who must transport the waste to the FTI stations. Second, by separating recyclable waste into packaging and non-packaging, it creates uncertainty for the consumer who has to determine whether his/her waste is packaging or some other material that can be recycled. Henriksson *et al* (2010) found that consumers were quite skilled at identifying between materials but often came into difficulties when distinguishing between packaging and non-packaging. This uncertainty is nicely illustrated in the following observation from one of the Swedish experts.

I saw on a glass bin yesterday, it was a glass that you use in the oven to make potatoes gratin, where to put that? It's not a package by definition but the

person who's coming from the house, he didn't want to put it in the bin for burnable waste, of course, and it's not hazardous waste, it's just glass so where to put it? So he put it on the container.

Proficient consumer sorting is very important in the Swedish system because there are limited technological after-sorting processes (Materials Recovery Facilities) to deal with mixed recyclable fractions, unlike in England. Despite some uncertainties, the majority of experts interviewed agreed that Swedes in general are very good at sorting their waste, and because they are good at sorting the waste, this in turn reduces the need for investment in technological after-sorting processes. There is one dominant system for recycling across Sweden that accepts the same fractions of packaging waste, influencing the degree to which the consumer knows what to do and how. However, the communal bring bank system offers few opportunities for individual consumers to receive feedback about how well they are sorting their waste. But a system that requires consumers to transport their material to a packaging station is likely to be used by those keen to perform this work:

But you see if you have made the effort to transport yourself and the packaging to a recycling station, we see that people are very good. The material we get there is often very good, high quality. In Sweden you know, the people are very keen to do right, we follow the system so to say, most of us do.

[Representative from FTI]

Indeed, those who do not want to recycle properly, or do not know how to, may just put their packaging waste or recyclable waste into their general waste bin, thus transforming this waste into a municipal responsibility.

Because adults are judged to be well-informed about recycling, much effort is placed upon educating children. Educational programmes and resources are developed by the FTI, municipalities and the littering charity, Keep Sweden Tidy. Children learn about waste and

recycling as part of wider educational programmes aimed at developing environmental consciousness. There was a consensus amongst the experts that people recycle because they are 'very environmentally conscious and feel that this is the right thing to do', and environmental norms have been powerful explanatory variables in existing research in Sweden (Berglund *et al* 2010). Significantly, although there appears to be an obvious environmental critique of multiple households driving their waste to bring stations, our respondents argued that as long as consumers visit bring stations on their way to other locations (such as shops or work) it was not an environmental problem. In addition to environmental norms, wider social norms, such as the actions of one's neighbours (Hage et al, 2009), also influence the likelihood of the consumer recycling suggesting collective practices are crucial for sustaining the recycling system.

The dominant socio-economic mode of provision for waste management in Sweden lies with the public sector (e.g. the municipalities). Households pay a fee to their municipality to have their general waste collected and in some cases they can choose how frequently they want this collected and the capacity of their bin. In around three quarters of the municipalities in Sweden, waste collection services are contracted out to private waste management companies, but waste disposal facilities – e.g. incineration plants – tend to be owned by municipal companies.[7] The incineration plants generate energy that is used to power district heating systems and although an incineration tax was introduced in 2006, this was removed in 2010, making incineration a relatively cheap option for the municipalities who are reducing their reliance upon oil. Unlike in other parts of Europe, environmental groups in Sweden do not organise lobbies against incineration which can perhaps be understood in the context of the relation between state and civil society within their social democratic system.[8] However, there is an ongoing debate about the public mode of waste management provision in Sweden. The municipal lobby, Avfall Sverige, argues that it ought to stay under municipal

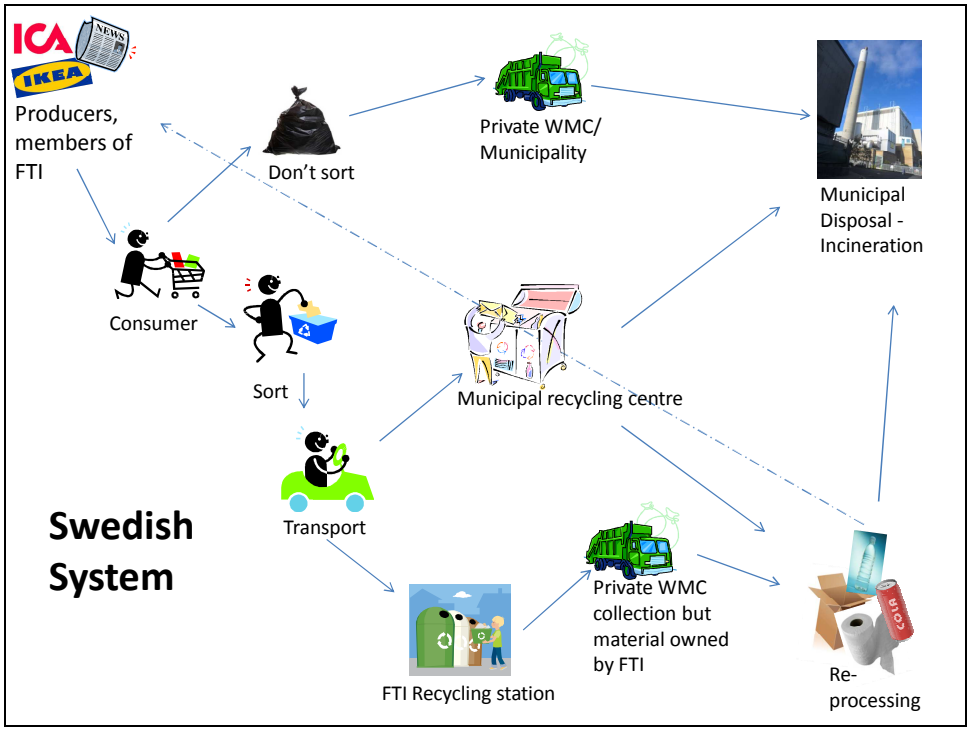
control because of a fear that if waste management becomes a profit-driven enterprise, the benefits to the local community will be lost.

> *In Sweden, the local municipality has a lot to say in different matters, like waste management, [...] which gives them like a lot of power, I don't know what you'd say, but it's in a good way we think because then they have a very strong incentive to deliver something good to the society, you know they're a local society because they believe that they represent the infrastructure the district heating and the energy and the waste collection, they do it for the common good.*
>
> (Representative from Avfall Sverige)

The business lobby, Swedish Recycling Industries, on the other hand, believe that because the municipality is not a risk-taking enterprise, it is not best placed to drive forward what will be, in a future of scarce natural resources, a growing industry of materials recycling and re-use.

Click image 3 for a pictorial summary of the organisation of the Swedish waste management system.

Image 3: The Swedish System



**LINK "Swedish System.ppsx": Hyperlink to another document

Recycling and waste management in England

In England, consumers are asked to clean and sort their recyclable waste before leaving it outside their property in often multiple bags, boxes and bins, ready for collection by their local authority along with their general rubbish (thus making it difficult to separate recycling from waste management in general). Household recycling centres are also available for consumers to bring bulky household waste. Unlike Sweden, producers have no responsibility for funding the collection of packaging, but instead need to purchase notes from reprocessing companies to prove they have recycled a certain percentage of their packaging placed onto the market. The responsibility for recycling (including packaging) and waste collection/disposal services lies with local authorities, who fund this service through council tax and central government revenue. Following the Environmental Protection Act 1990, local authorities in England were no longer allowed to own and operate waste disposal facilities, unless they formed a separate municipal company. Although later revoked, this Act

paved the way for private waste management companies to become important providers of waste management services. A number of waste management companies operate on behalf of local authorities in England today, such as Veolia, Sita and Biffa, and their dominance in the industry has been boosted by the government Private Finance Initiative (PFI) for investment in waste infrastructure. PFI funding is supplied by central government and ties local authorities and waste management companies together for a long period of time (often 20+ years) ensuring local authorities have access to waste disposal and recovery facilities. Lobby groups campaign against the construction of waste infrastructure (in particular, incineration plants), delaying or preventing the progress of local waste planning. Whilst disposal facilities are predominantly managed by the private sector or through public/private partnerships, collection services are still operated by in-house providers in about 50 per cent of the local authorities in England.

The provision of recycling services in England was motivated by EU legislation for packaging recycling (94/62/EC, revised 2004/12/EC) and the Landfill Directive (99/31/EC) which imposed a tax/per tonne of waste disposed. Given that landfill remains the dominant method of disposal in England (see Video 1), this ever-increasing burden[9] has forced local authorities to look for cheaper ways to dispose of their waste, such as recycling or waste prevention.

> *Recycling has actually grown from a peripheral activity to a core activity in that now the best part of half the waste stream is going through some sort of recycling process. Probably a key driver in that is the landfill tax which is pushing many of those who are running the tip and haul, when you take waste and shove it into a landfill, they are now realising that they can't continue to do that because the cost of taking it to landfill is more expensive than doing something else with it,*

whether it's just running it through a picking belt and then sending it off to landfill, because diversion is worth it.

[Independent UK Waste Expert]

It was not until 2003 that the Household Waste and Recycling Act made it a requirement for all local authorities to offer the collection of at least two recyclable materials at the kerbside by 2010. Recycling services have not developed uniformly across England, but have evolved gradually over time. There is huge variation in terms of what is and is not collected, how many fractions the recyclable material must be sorted into and the type of container the material must be placed into, as well as variation in the public/private provision of recycling services. Consumers living within neighbouring streets and/or local authorities may be dealing with very different systems and sorting requirements, thus creating much uncertainty about what is recyclable.

Video 1: A landfill site in Essex (one of our fieldwork sites)

(**LINK "<http://www.youtube.com/watch?v=q_mLBRzEvEw&list=HL1344426076&feature=mh_lolz>": Hyperlink to another webpage)

It is possible to identify three main sorting and collecting systems in operation in England today – source separated, commingled, and twin-stream (WRAP 2008) – which are interesting because of the differentiated divisions of labour they imply. A source separated system asks consumers to sort their recyclable waste into a number of different fractions into multiple boxes (e.g. plastic, paper, glass, metal, cardboard) which are then collected by specialised vehicles that often deliver the materials directly to reprocessing companies (see Image 4). This system is the most labour-intensive for the consumer but because of minimal

cross-contamination, it delivers good quality recyclate onto the market and therefore offers a good return to the local authority. The commingled system asks householders to place all their recyclable materials into one receptacle which is then taken to a Materials Recovery Facility (MRF), where it is sorted through technological processes (click here to view a MRF in action, **LINK "<http://www.youtube.com/watch?v=8DAk8m7sVM4&feature=related>

": Hyperlink to another webpage). MRFs are owned by private waste management companies and the local authority must pay a gate fee to leave the material with them, which is crucially lower than the Landfill Tax. This system is argued to be the easiest for the consumer, although it is unlikely the local authority will benefit from the sale of the materials as in the source separated system. A twin-stream system offers a compromise by asking consumers to conduct an initial sort of their waste (for example, paper and card in one box and glass, plastics and cans in another) which is then either sorted by the collection operatives with a specialised kerbside sort vehicle, or taken to a MRF for technological sorting.

Image 4: A specialised vehicle to collect source-separated waste

In each of these systems, it is clear that how consumers sort their waste relates to a differentiated division of labour further along the waste processing chain. This is succinctly captured in the following quotation.

> *You have different collection systems; so some councils offer a source segregated system which works very well where the householders are willing to bear that labour and put their bottle out here, their can out there, their piece of plastic out there and tear off different bits of materials which are all ingrained within the same product, clear out bits of food from each, and where they're willing to do that and willing to bear that labour, it's very good to get them to do it, they don't normally charge for it. But in other places, the classics being high-rise flats in inner-city locations where people are very busy, people don't have time or the inclination to do it; [...] commingled systems make things much easier for the household and there the division of labour shifts to the technology, it shifts to the industry - to say we're going to do less at this end, so you need to do more. The labour just shifts down the supply chain* (Sher, 2011).

If the consumer incorrectly sorts his/her waste in any of the three systems, it can create problems of contamination, although it creates more problems in a commingled system because collection operatives have limited opportunities to inspect the materials in a large wheelie-bin or bag. If incorrect materials are left for recycling, this can create problems for the technology within a MRF, thus resulting in poor quality materials at the back end, or refusal to accept the material in the first place. A lobby against the widespread use of MRFs, the Campaign for Real Recycling, argues that the quality of the material from MRFs is poor and often ends up either being sold to Asian markets because English re-processors cannot

use it, or being disposed of through landfill. This is an important debate that looks set to continue, as technology challenges the value of human labour.

Given problems with contamination, much attention is placed upon educating the consumer about how and why to sort, through both general and targeted communications (directed at individual properties/estates). Because recycling is collected at the kerbside, feedback sheets can be left for individual households in their recycling boxes to inform them when they recycle incorrectly. Targeted visits to those who persistently recycle improperly or do not recycle at all, are a feature of local authority recycling officer's duties, and fines for the worst offenders are imposed. Recycling officers are keenly aware of who recycles within their population and employ behavioural/marketing profiling models (such as ACORN) to direct their informational campaigns, as one of the local authority representatives we spoke to explained.

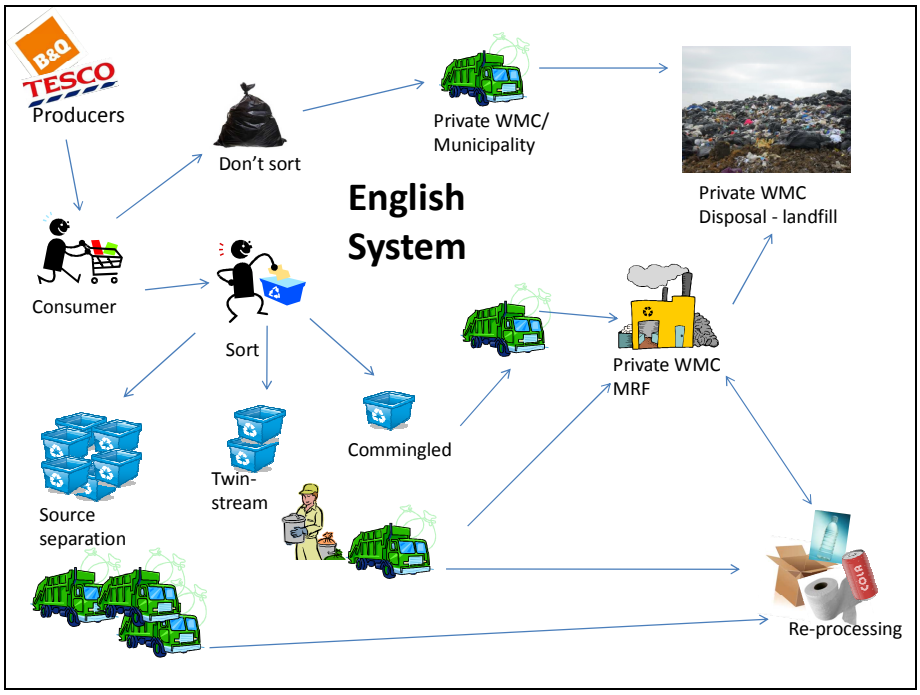
> *In the past we took a broad brush kind of approach, put a leaflet out not particularly targeting certain people, but now we spend more time looking at who might be more susceptible and likely to make a behavioural change and try to target those types of people. Have you heard of ACORN? Acorn have just brought out, well it's been around for a couple of years now, green acorn which splits every single person into particular 7 categories, like family first, active greens, waste-not-want-not's.*

It is important to emphasize that, in contrast to Sweden, consumers are encouraged to recycle and reduce the amount of waste they generate not only because of the environmental benefits this work will bring, but also, in the context of public spending cuts within England and the high Landfill Tax, because it will save public money. This is an interesting development, challenging the existing research focus upon environmental norms and raising important

questions about the interactions and overlap between the moral and political economy in different national contexts (Sayer 2000).

Click Image 5 for a pictorial summary of the organisation of the English waste management system.

Image 5: The English System



**LINK "English System ppsx": Hyperlink to another webpage

Comparing waste management in Sweden and England

Table 1 summarises the waste management systems in the two countries according to our six features for comparison. In both countries, the unpaid labour of the consumer plays a vital role in the overall recycling process. The effort required by the consumer is shaped by the organisation of the system in the different countries, with consumers in Sweden having to transport their waste to the FTI stations while consumers in England have theirs collected at the kerbside by the local authority or waste management company. In Sweden, recyclable packaging operates in a separate system to general household waste meaning the consumer's

actions can transform the same waste into either a municipal or producer responsibility, the former returning to the consumer in the form of power or heat generated through incineration technology. Although recyclable material is collected alongside general waste in England, both are the responsibility of the local authority (or their contracted representatives) so the consumer's actions either represents a burden on public finances owing to the Landfill Tax or an opportunity to save (and in some cases make) money.

Table 1: Waste management in Sweden and England

Features of Comparison	**Sweden**	**England**
The key actors and institutions providing waste management services	Municipalities FTI Waste management companies Consumer	Local authorities Waste management companies Consumer
The role of the public and private sectors	Public sector dominance	Private sector dominance
Variations in the collection systems between and within the countries	One common system across Sweden	Much variation between and within local authority collection systems
The degree to which recycling waste is separate from other household waste	Recyclable packaging/ newspaper managed in a separate system to general household waste	Recyclable waste managed through the same system as general household waste
Dominant technologies employed to deal with waste	Incineration Limited technological after-sorting	Landfill MRFs
Strategies for mobilising consumers to recycle	Consumer mobilised to recycle for the environment; education aimed at children; no personalised feedback to individual households.	Consumer encouraged to recycle to save public money and for the environment; targeted feedback to individual households

The degree to which consumers have to sort their waste into separate fractions depends upon the availability of technological after-sorting processes, as well as the end market for the recyclable material. Private sector dominance in England enables waste management companies to take the risk to sell-on recyclable materials so they are in a better

position to invest in MRFs than the not-for-profit producer system where the material is always owned by the FTI in Sweden. Consumers learn the sorting requirements of their local system, which is uniform across Sweden but varies greatly in England, creating many uncertainties and therefore the need for MRFs in the first place.

Our research with experts has revealed that consumers are motivated to sort their waste because of the existence of distinctive forms of moral education, whether environmentally focused and directed at young children as in Sweden, or by providing feedback and imposing sanctions on individual wrongdoers, as in England. The moral economy of recycling interacts with the socio-political economy of waste management so that the potential of recycling to save public money in England filters through to the promotional tactics of local authorities who call citizen-consumers to work, while in Sweden it remains a public environmental duty.

Conclusion

Our research on waste management and recycling in England and Sweden reveals not only the consumption work undertaken by households, but also how this work is both shaped by and situated in an interdependent relationship within existing configurations of responsibility and systems of provision. In so doing, we develop the emergent concept of consumption work by exploring its fruitfulness in one specific domain where we demonstrate the significance of consumers' contribution to the overall process and division of labour of waste management. In both countries, the work of the consumer is central to overall waste management processes and it therefore makes sense for us to explore consumer recycling as a form of consumption work. The materials economy depends upon and presupposes the completion of this work by the consumer for its reproduction. In England, for example, although consumer tasks are undertaken unpaid outside of market or formal

economy relations, how consumers sort directly contributes to how private enterprises make profit from waste.

In terms of the division of labour (dimension 1), many linked industries are involved in the overall process of recycling domestic waste, each with their own occupational structure, range of skills and expertise, and hierarchy of work and employees. These extend from the local to the very global, with large multinational companies such as Veolia and SITA straddling a range of industries. In both countries, the consumer plays a distinctive and essential role in the overall division of labour, which presupposes their contribution, whatever methods of waste treatment are operative. Recycling is a skilled activity that requires consumers to learn about and discern between materials. In Sweden the consumer's role is arguably greater than in England, given the requirement for consumers to transport most of their recyclable goods, as well as sort them. The Swedish system relies upon the consumer performing a proficient sort thus removing the need for advanced technological sorting processes. In England, on the other hand, consumers are often confused about what is and is not recyclable so waste management companies provide an alternative technological sorting system, thus alleviating some of the burden on the consumer to distinguish between materials. This is a historically distinctive and specific division of labour which contrasts with arrangements in many countries, especially in the global south, where consumers do not sort their waste but rather this is done by waste pickers on vast waste dumps (Davies, 2008).

The interaction and interdependencies between work undertaken on different socio-economic bases is readily apparent from our research (dimension 2). The unpaid work of consumers articulates with the paid work of those employed by the public (usually municipal) sector and the private market sector. While virtually all local authorities in England use private waste management companies to dispose of their waste and to sell on recyclables, and some also contract with them for collection services, others undertake collection themselves

using directly employed council workers. Thus the involvement of profit-making firms varies between councils, and so too does the precise relation between public and private. In Sweden, municipal authorities generally dominate over waste management companies in terms of the range of collection and disposal activities they undertake, especially when power generation through municipal incineration is taken into account. But it is important also to highlight the very significant role of the not-for- profit FTI in the disposal and recycling of packaging. In Sweden, the producer offers the collection services for recyclable packaging materials and this system is conducted on a not-for-profit basis because the material is always owned by the producers. In England, by not assigning responsibility for collection to producers, the material is available on the private market for whoever wants to take the risk to sell it. Thus in Sweden four socio-economic modes interdepend and interact with each other in the economy of recycling, in contrast to three in England.

Our research reveals that the consumer is situated at both the end and starting point of a continuous cyclical process of recycling (dimension 3). At the starting point of the process (production), s/he transforms waste into recyclables and non-recyclables by sorting. S/he also accomplishes the first stage of distribution by transporting it to collection centres (Sweden) or putting it out for kerbside collection (England). At this point the consumer is involved in an act of exchange where ownership of the waste changes hands and is appropriated either by the municipality, the FTI or a waste management company. The waste is thus transformed from being a hitherto personal individual good into becoming a private or municipal good, a property with potential value to the parties it has been transferred to. Again the configurations of private, municipal and not-for-profit vary between the two countries. After completion of the recycling process, the householder comes back into the picture as the consumer either of recycled plastic or other materials, or of power and energy via municipal heating systems, so initiating repetition of the cycle. This ever-repeating process comprises the dynamic of the

economy of recycling, work undertaken at each stage presupposing and depending on that of the others

In conclusion, comparative analysis of England and Sweden reveals significant national differences both in recycling practices and in the overall organisation and economy of recycling. In both countries, however, the unpaid labour of consumers is central to the overall process. Routine household practices of recycling cannot be understood outside of the institutional system of provision of which they are a part. And, vice versa, successful operation of the system presupposes active participation through the performance of routine and regular consumption work.

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[1] The research programme 'Consumption Work and Societal Divisions of Labour' (** LINK "<http://www.essex.ac.uk/sociology/research/divlab/>": Hyperlink to another webpage) (DivLab 249430) is funded by a European Research Council Advanced Investigator Grant for which the authors are indebted. There are two other research probes: food preparation work and the domestic installation of broadband.

[2] Stockholm was chosen to represent how Sweden generally organises its recycling – e.g. with drop off stations, and municipal-owned incineration facilities - whilst Lund represents a variation on this, offering kerbside collection alongside drop-off stations. In England, areas chosen represent different collection systems, waste disposal facilities and public/private systems of provision; Essex - source separated/commingled, landfill, in process of PFI-deal; Shropshire – source separated, landfill moving to incineration, 25-year Veolia contract; Lewisham – commingled, incineration, mixture of public and private contracts.

[3] All interviews were conducted in English. Documentary sources were translated using online translation services and our understanding of these materials was checked during the interviews in Sweden. Visits to waste treatment facilities included, household recycling centres, packaging stations, a MRF, a Landfill site, an Incineration plant and an Anaerobic Digestion facility.

[4] It is beyond the scope of this article to include consumer voices in this account - although they are an important focus of our ongoing research and will be presented elsewhere at a later date. A study of consumption work in thirty UK households is ongoing. Other publications from this project will explore the moral economy of recycling, the influence of gender and social class in household consumption work, and practices of household recycling.

[5] The reader should note that material and biological recycling are conflated in Chart 2. Recycling rates vary hugely across England from 15 per cent in the worst district to over 60 per cent in the best (local authority statistics are not available in Sweden).

[6] Initially, four materials companies were established, but in August 2007 these companies joined forces to become the FTI. They work in close cooperation with PressRetur (newspapers) and Svensk GlasÅtervinning (glass). We do not focus on the producer responsibility deposit scheme for drinks bottles in this article.

[7] For example, SySav in the South of Sweden is owned by 14 municipalities, providing incineration and anaerobic digestion facilities.

[8] Wijkström and Zimmer suggest that Nordic civil society organisations 'are accepted partners of neo-corporatist arrangements instead of being engaged in pluralistic pressure politics and lobbying activities' (Wijkström and Zimmer, 2011: 11).

[9] The 2011 tax rate in £56/ tonne and this is set to rise to £80 /tonne by 2014.