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Abstract: Consumers play an integral role in societal divisions of labour. Rather than simply consume, they frequently perform labour. Incorporating consumers into the division of labour poses a challenge to this foundational and enduring concept, given its traditional focus on the technical division of tasks/skills within a labour process. Yet, insofar as completion of a circuit of production, distribution, exchange and consumption is predicated on consumers undertaking work in order to/after they consume, analysis of the division of labour would be incomplete without their inclusion. This paper uses the case of household recycling to demonstrate the importance of 'consumption work' for the organisation of the waste management industry in England. By sorting their waste, consumers initiate a new economic process, providing feedstock (such as metals, plastics and paper) which in turn creates jobs/profits within the recycling, processing and manufacturing industries. Consumers also reconfigure public and private sector responsibilities when they sort their recyclable materials from general household waste, revealing the interdependency of consumption work with labour conducted under different socio-economic relations and across differing socio-economic domains. This paper makes the case for a renewed conception of division of labour to account for transformations and interconnections between work of different forms within contemporary society.

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

Consumers play an integral role in societal divisions of labour. The labour associated with consumption is not new, but it has been rapidly expanding as a consequence of both socio-

economic change and technical innovation. We are all familiar with self-service in supermarkets, now moving to self-scanning and self check-out, and with self-assembly furniture and equipment. Few goods or services are delivered 'complete' to consumers in the sense that they are ready for use without further activity, whether prior to their consumption or when dealing with their remains after use. Such tasks performed by consumers can involve a transfer of work from producers/retailers to consumers and vice versa. Yet despite the growing importance of consumption work, there have been few attempts to investigate the interdependence between work undertaken by consumers, prior to and after the purchase of goods and services, and work conducted within the paid employment sectors. Our aim is to challenge the notion of 'production' and 'consumption' as watertight realms, and so call for a conception of the division of labour that extends from the market and world of paid employment to encompass also the labour of consumers.

Specifically, this paper investigates the case of household recycling to highlight the importance of 'consumption work' for the organisation of the waste management industry in England. By sorting their waste, consumers initiate a new economic process, providing feedstock (such as metals, plastics and paper) which in turn creates jobs/profits within the recycling, processing and manufacturing industries. Consumers also reconfigure public and private sector responsibilities when they sort their recyclable materials from general household waste, revealing the interdependency of consumption work with labour conducted under different socio-economic relations and across differing socio-economic domains. In illustrating the additional work consumers increasingly undertake in respect of recycling, we aim to open up 'consumption work' more generally as an important new empirical terrain for investigation within debates about the division of labour.

The division of labour concept is in need of revision because, despite its enduring status within the sociology of work, it struggles to deal with the growing complexity and connections of labour within contemporary society. Building on the multi-dimensional conception of the division of labour outlined by Glucksmann (2009), we explore the work of consumers within recycling processes to demonstrate the critical role that they play within this industry. Elsewhere, we have made our case for incorporating the work of consumers within distinctive systems of recycling provision in Sweden and England, detailing how this work varies nationally and interdepends with labour conducted within the overall system (Wheeler and Glucksmann, 2013). Here we take a closer look at how recycling consumption work is practically accomplished by consumers, drawing attention to what the work comprises and the implications of its successful accomplishment for subsequent labour processes. We present data from qualitative interviews with both consumers and key informants in the waste industry to reveal how the practices of consumers are shaped by wider systems of recycling provision and vice versa. In so doing, we make our case for a renewed conception of division of labour that can make sense of transformations of work within contemporary society.

'Consumption work'

This paper develops Glucksmann's (2009, 2013) concept of 'consumption work', defined as 'all work necessary for the purchase, use, re-use and disposal of consumption goods and services'. The work of consumers has received minimal attention by scholars of either work or consumption as a distinctive form of labour. However, we contend that analysis of divisions of labour would be incomplete without their inclusion because the work they regularly perform is integral to the completion of a process of production or service provision. Incorporating consumers into the division of labour poses a challenge to this

foundational and enduring concept, given its traditional focus on the technical division of tasks and skills within a labour process or sector of work relating to paid employment. Yet, insofar as completion of a circuit of production, distribution, exchange and consumption is predicated on consumers undertaking work in order to consume, analysis of the division of labour would be incomplete without their inclusion. If tasks are reallocated from producers or retailers to consumers, then the framework of analysis requires extension to comprehend the reconfiguration of the division of labour. Work does not simply disappear when it shifts across socio-economic boundaries. Similarly, it is important to develop concepts capable of capturing the range of tasks required of consumers before or after they consume on which consumption itself is predicated. At present this realm of activity features only marginally within the study of work and consumption.

We maintain that there is a real and analytical distinction between consumption and consumption work. The latter revolves around tasks/activities enabling consumption of goods and services to take place, facilitating their appreciation, and undertaking whatever is required for consumption to endure over time or to be discontinued. The former relates to the using or using up of goods and services, appreciating or in other ways consuming them. Campbell (1995:102) and Warde (2005:137) have both provided wide-ranging definitions of consumption, encompassing activities beyond the mere use (or using up) of goods and services that could subsume our characterisation of 'consumption work' (such as selection, appreciation, maintenance, repair and disposal). Yet, these existing definitions run into difficulty when it comes to theorising the relationship between production and consumption and how this is linked to economic activity. Scholarship on co-creation/prosumption appears to open this black box, commenting on developments requiring greater input on the part of end consumers, such as self-service in retail (Humphery 1998) and fast food outlets (Ritzer 2001), 'work transfer' in health care (Glazer

1993), and generation of online content on Web 2.0 technologies (Ritzer and Jurgenson, 2010). However, these diverse studies do not offer a broader analysis of transformations of work, nor of reconfiguration of the division of labour across socio-economic modes or between instituted economic processes, but rather focus on the one-way shift of work across the consumption/production boundary and its positive/negative consequences. Our 'consumption work' framework provides an opportunity to explore moving boundaries, with recognition that the work of consumers dynamically interacts and interdepends with economic processes.

The division of labour is an enduring concept within sociology, first deployed in 19th century to make sense of key social and economic transformations resulting from industrialisation. With factory modes of production came increasing levels of specialisation and the division of tasks within a labour process. Classical social scientists, like Marx and Durkheim, focused on the consequences of such divisions on social cohesion, inequality and power. As this concept was taken forward, detailed divisions of occupations within economic life was taken for granted and although much attention was devoted to how these divisions interacted with other social and economic divisions (for example gender and racial divisions, and across global networks), Braverman (1974) arguably narrowed the focus towards managerialism and organizational power relations associated with new technologies of production and services. The concept became tied to market modes of provision and had little to say about the organization of the economy as a whole, in the sense of integration and differentiation of labour between production, distribution, exchange and consumption of goods and services (Glucksmann, 2009). Sociology has been slow to recognise work when it is unpaid, as was spectacularly the case with domestic labour until the 1980s, and remained so in the case of 'voluntary' work until far more recently. Nowadays both are fully acknowledged, yet the tendency remains to separate

them off to be studied as self-standing forms of work rather than explore how they interact with, complement or replace paid employment.

We contend that the complexity and diversity of contemporary forms and connections between labour of different kinds cannot readily be captured by a taken-for-granted understanding of the basic/technical division of labour concept. The approach developed here builds on attempts to make the concept more suitable for contemporary modes of division across different chains of provision (Gershuny, 2000) and socio-economic modes (Pahl, 1984). Our framework outlines three forms of differentiation and integration of labour; the first of which remains the classical one; the technical division of skills and jobs within particular work processes, organisations or sectors, and their allocation to different kinds of people.

The second dimension of differentiation and interaction is 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). 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.

A third differentiation and connection of labour comes into focus when 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. For example, the self-assembly of furniture required by a company like IKEA is an integral

component not only of the firm's business model but also of its whole manufacturing and design process. All the different stages from raw material preparation, design, through manufacture, carpentry and upholstery, to packing and distribution not only connect with each other but presuppose that final assembly work will be undertaken at its eventual destination by the consumer. Crucially, this third component offers the opportunity to explore work conducted at the phase of consumption and recognises that the work of consumers cannot be understood in isolation, but only in relation to work undertaken in production/provision, distribution and exchange.

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 or interdependencies of work across differing socio-economic modes ('total social organisation of labour') where labour is undertaken on different socio-economic bases (market/non-market, formal/informal, paid/unpaid and so on)
- (3) Processual: connections of labour across the various stages of instituted economic processes encompassing work undertaken across the whole span of a process of production of goods or provision of services, including the work of consumers.

Taken together, these three dimensions propose a relational conception of the work and constitute, through interactions between these different levels, the 'socio-economic formations of labour' (SEFL). As we shall demonstrate, the work of consumers in recycling processes in England is apparent at all three levels, with consumers performing distinct tasks shaped by modal and processual divisions of labour.

Economies of consumer recycling

There has been an explosion of interest in discard studies with scholars revealing the myriad ways waste structures and shapes our social and material worlds (Evans et al 2013, Gregson et al, 2010; Hawkins, 2006). This journal has been at the forefront of such scholarship with the recent publication of *Waste Matters: New Perspectives on Food and Society* (Evans et al, 2013), exploring our everyday relationships with food waste and the social, economic and political consequences of its handling. There is a tradition within discard studies of foregrounding the materiality of waste, focusing upon performativity of materials across different domains (Gregson et al, 2010), and how disposal shapes our identities and practices (Hetherington, 2003; Munro, 2013). Whilst this tradition represents an important strand of waste research, the approach taken in this paper is principally concerned with the role that consumers play within a labour process – this has not been a key focus of existing scholarship on waste and society. Although Hawkins (2006:107) recognises the recycling industry functions ‘with the assistance of free labour from householders’, and O’Brien (2013:207) maintains that householders convert their food waste ‘from a private leftover to a capitalist surplus’ when they leave it for local authority collection, neither author follows through the implications and explores the practical contribution and consequences of consumers performing distinctive recycling tasks to the division of labour within the recycling economy.

A notable exception is Koponen’s (2002) piece in this journal which maps how the value of commodities is constructed along the recycling chain. He notes that consumers ‘donate labour to the processing of trash by separating and carting the 'junk-made-urban-ore' to the collection site or the curb’ and in so doing ‘lessen the cost of separating the stuff further downstream’ (Koponen, 2002:553 & 566). The labour intensity of the consumer

sort depends on the system of provision s/he is operating within, with 'clean sorts' (where materials are separated into many fractions) demanding more from consumers than 'dirty sorts' (where materials are mixed in one receptacle for onward sorting further along the waste processing chain). However, Koponen's concern with commodity chains means he does not focus in any depth on the work practices of consumers. It is this aspect of consumer recycling we seek to address.

To say that cleaning, sorting and transporting recyclable packaging involves work for consumers may seem obvious. However, as Oates and McDonald (2006:421) point out, recycling has seldom been recognised as 'work' and instead tends to be portrayed as 'a conscious green act'. Studies of gendered divisions of household recycling have recognised recycling as an additional chore to be integrated into existing domestic routines and found that women tend to carry the day-to-day burden of this work. But recycling is rarely conceptualised as a distinctive form of consumer work, its performance interdependent with wider processes of labour within waste management.

In contemporary English society, sorting one's household waste for recycling has become commonplace, following significant investment in recycling infrastructures (such as collection vehicles, and recycling boxes) by local authorities and private waste management companies. Consumers freely give their labour to this system and are implicated in a chain of economic relations when their sorted recyclable waste enters the market as valuable commodities to be exchanged by different parties, notably local authorities, private waste management and processing companies. This is a distinct socio-economic organisation of waste which contrasts with how recycling is organised elsewhere. For example, in Brazil, waste-pickers play the key role in generating value from waste, with limited involvement from consumers (Beecheno, 2013). Consumers can play a more or less important role in recycling systems and their reasons for participation can vary from

economic remuneration to feelings of duty/citizenship. But where performed, consumption work is central to the overall economy of waste management processes.

This study

Our material is drawn from a larger project exploring 'consumption work' in comparative contexts.¹ In this paper, we focus upon the key stages of work performed by consumers when dealing with recyclable material at home, considering how this work is practically accomplished by consumers in England,² and the implications of this work for divisions of labour across processes of waste management. We draw on data gathered through expert interviews and in-depth household interviews.

Eighteen interviews were conducted in 2011 with waste experts (representatives from waste management companies, third sector organisations, policy makers, municipal officers and waste consultants). We spoke with recycling officers from local authorities in Essex (Chelmsford and Rochford), London (Tower Hamlets and Lewisham) and Shropshire to capture both urban and rural systems of recycling provision. Interviews sought to uncover how recycling and waste management were organised (between different economic actors and technologies) and the role of the consumer within the overall system of provision.

Thirty households were then interviewed in Essex, Shropshire and South-East London in 2012. We recruited households by placing adverts into public spaces (like libraries, community centres and supermarkets) and sampled households to ensure variation between socio-economic groups and stage in the life-course. Interviews lasted 45-120 minutes and questions sought to uncover how consumers coordinated their recycling with other household activities (such as cooking and cleaning), whether recycling tasks

were assigned to different household members, and any skills that were required to successfully accomplish this work.

Socio-Economic Formation of Household Recycling Labour

The following analysis develops our analytical SEFL framework with respect to household recycling. We elaborate in turn each of the three dimensions so as to show what the work of consumers comprises (technical division of labour), how this work interdepends with work conducted across differing socio-economic modes (modal division of labour) and finally how this work connects to the various stages of the instituted economic process of waste management provision (processual division of labour).

Technical Division of labour

In presenting the first dimension, we draw upon the experiences of consumers within three participating households (see table 1 below). These households were chosen to highlight the three key stages of recycling consumption work – its supply, warehouse and distribution - and how responsibility for these tasks is shared within the household.

Table 1: Background information on three case-study households

	Age range	Working/ retired	Current/ previous occupation	Location ³
Gemma and Dave	25-34	Working full- time	Gemma: receptionist Dave: design engineer	Essex

Jane and Barry	Over 60	Retired	Jane: teacher Barry: librarian	Shropshire
Mark	25-34	Working full-time	Web designer	London

The consumer as supplier

This paper starts its exploration of recycling consumption work at the point of post-purchase. The work involved in obtaining packaging materials (eg searching, transport, shopping) could be considered a part of recycling consumption work – for example, deliberately purchasing a less-packaged item – but most of our participants did not seriously consider recycling until materials were brought home. So for our purposes, the work of household recycling begins when products that have entered the home are unwrapped/used up, leaving empty packaging material to be dealt with. Consumers must first decide what type of material the packaging is composed of and judge how best to prepare it for their recycling system.

Discerning between materials is an essential skill for consumers to acquire. One expert jokingly remarked that consumers need ‘a PhD in material science’ to correctly recycle their household waste because packages are often made of composite materials. Gemma and Dave provide an excellent illustration of this point;

Interviewer: *Ok I'm going to show you something now, what would you do with this? [Tetrapak]*

Gemma: *Oh yeah we get through a lot of these.*

Dave: *That would go in the cardboard sack.*

Gemma: *That would however I have not been doing that; I've been putting that in the black bin.*

Interviewer: *I think you're right actually.*

Gemma: *Really?*

Dave: *Why?*

Interviewer: *Because this is a TetraPak and it's got a plastic coating on it, but this often throws people.*

Dave: *It's cardboard though.*

Interviewer: *Yes it is*

Gemma: *That's really interesting with the cardboard, it's like plain cardboard isn't it? Like box-type things.*

Interviewer: *Like this pizza-box?*

Gemma: *Yes*

Dave: *But that's got a plastic coating as well.*

Gemma: *Not really has it, it's not quite the same. So yeah I put these in the black bin.*

Dave: *So that's wrong to go in there [Tetrapak] and that's right [pizza box]?*

Gemma: *Yeah it is quite confusing isn't it cos you could end up analysing everything, you generally think what's cardboard?*

Henriksson et al (2010) identified 'uncertainty' as a key theme in their study of waste sorting in households in Sweden because of a mismatch between professional and cultural categories of waste. Like the respondents in Henriksson et al's study, Dave does not understand why juice cartons are not recyclable, whilst cardboard pizza boxes are. The categorisation of recyclable and non-recyclable cardboard relates to the availability of local systems of recycling provision (or 'professional categories') – such as whether the local authority has access to TetraPak recycling, or a Materials Recovery Facility (where mixed materials are sorted into their separate fractions) – rather than consumers' understandings of what constitutes plastic or cardboard. Thus the sorting skills required of consumers are directly shaped by the local system of provision and, as we shall see in the sections that follow, incorrect sorting has important consequences for subsequent divisions of labour.

Once an item of packaging is deemed recyclable, the next stage is preparation for storage. Washing, squashing and disassembling packaging into component parts represent key tasks for consumers to perform at this stage. The willingness of consumers to perform this work varies, with items requiring more effort being less likely to be prepared correctly. When shown a dirty peanut butter jar, Mark admitted he would be very unlikely to wash it.

It's just for me to do things like that I have to feel really settled and that I've got the space to engage with stuff like that because I have a lot of stuff going on and that is like the utmost bottom of the list.

Recycling consumption work requires effort and time, so must be integrated with other activities, such as working long hours and caring for children. Many of our respondents regularly sorted their materials for recycling, but preparation of materials (like washing) was done on a less regular basis, and often depended upon how consumers performed the next key stage of recycling consumption work – the warehousing of materials.

The consumer provides a warehouse

The likelihood of washing recyclable packaging increased if stored within consumers' homes. Gemma stores her recyclable material outside her front door so feels little need to wash it in preparation for storage. Each household can be thought of as a warehouse for recyclable material, stowing the material in a dry and/or protected space so it does not deteriorate or blow away prior to its transfer to the collection point. Recyclable material occupies a lot of domestic space and lack of space is a key barrier to consumer recycling. The more fractions that consumers must sort their materials into, the more space required in the storage zone. Indeed, the one household who did not recycle in our sample cited lack of space in the kitchen of their small London flat as the reason.

Jane and Barry live in Shropshire, where the recycling system asks consumers to separate their material into three boxes; one for paper, one for glass and one for tins and plastic bottles. When asked to discuss their rubbish routines, Barry pointed to Jane and said 'that's your speciality'. Jane is a keen recycler, a proficient sorter, and takes the main responsibility for sorting and storing the recycling in their household. Dirty items of packaging are placed into the dishwasher for a thorough wash before being sorted into the 'Ikea mega-drawer' in their kitchen, which allows the storage of separate fractions in one place out of sight. Because of limited space in this 'warehouse', she crushes plastic bottles and asks Barry to empty the drawer on a regular basis. Cardboard not composted by Jane is stored in the shed and once a month Barry will 'blitz it, flatten it and take it to the recycling centre' along with any garden waste.

In Oates and McDonald's (2006) quantitative study of recycling in Sheffield, women were identified as the key initiators and sustainers of recycling activity within the household. However, the authors noted their surprise that recycling is not as clearly gendered as they had expected with high proportions of men participating in recycling activity alongside their female partners. Results from our study support this 'surprising' finding and suggest that the gendering of recycling activity is differentiated according to which stage of work it falls within.

Interviewer: *Who takes the bins out?*

Barry: *It tends to be me but not necessarily.*

Interviewer: *Who would you say takes the main responsibility in the house for the recycling?*

Jane: *It's joint really.*

Barry: *I mean we both do it, I probably am the one that errs on the side of not doing it, I probably put stuff in ordinary waste that shouldn't, but not much.*

Jane: *Hmm [nods in agreement]*

Interviewer: *Do you then fish it out?*

Jane: *Yes [laughs], but I'm more, I do the compost, you tend to empty the bins from here to outside, so it's 50/50 really I would say, but sort of little domains within that.*

Whilst Jane is responsible for supplying and warehousing recyclable material, Barry distributes it to the collection point, as well as driving materials to the recycling centre. Recycling consumption work is therefore coordinated with other domestic activities, such as cooking and gardening, and is typically incorporated into existing gendered divisions of household labour.

The consumer as distributor

Collection day involves a specific assemblage of tasks for consumers, often conducted the night before. First, consumers must be aware what materials need to be left for collection on what day of the week, where there are alternating weekly collections of different recyclable materials. Second, consumers must gather those materials left in storage zones and transfer them to council-provided containers/receptacles. Third, those containers must then be placed at the collection point, outside one's property by a particular time of day. In so doing, the consumer effects an act of exchange, transferring ownership of materials from the household to the local authority or waste management company.

Like Jane and Barry, Gemma and Dave share the responsibility for recycling. Gemma leaves all her recyclable material outside her front door and the transfer of these materials to the front of her property on collection day is managed by Dave because 'sometimes it's too heavy to lift it out'. The night before collection day, Dave will 'look out the front and see what bins are out' and he copies what his neighbours have done. Mark, on the other hand, lives in a flat, so he waits until his bag of recyclable material is full and 'just stick[s] it outside and it goes away'. Whilst most households were acutely aware of

when their recycling was collected and organised their domestic tasks around this weekly moment, for those living in flats, the temporal rhythm of collection was less apparent; whenever they wanted to dispose of their recycling they did so in communal bins that were, to their knowledge, frequently emptied.

How consumers present their recycling for appropriation matters – whether within one bag or separated into several boxes. In England, each local authority has their own recycling system, placing different demands upon consumers. We can identify two dominant collection systems; source-separated, where consumers have to present their recycling in multiple receptacles according to fraction; and, commingled, where consumers present their mixed recycling in one receptacle which is then sorted into its respective fractions at a Materials Recovery Facility (MRF) through both manual and technological labour. Materials sorted at MRFs tend to be of lower quality than those sorted by consumers and this influences their market price.

Gemma describes recycling as ‘another job that we’ve got to do on top of cooking the dinner, eating dinner, clearing away, sorting out things’. She thinks this ‘job’ could be made easier if they had one bin for all their recyclable material. They used to have a commingled system (when living elsewhere) and she realises that she now sorts her recycling because this makes it easier for the council to deal with.

Gemma: *It's kind of saving them a job isn't it in a way. It's a way of them probably cutting down jobs as well isn't it because they're getting us to do it? And maybe it is just easier as well for us to do it.*

Dave: *Easier for who?*

Gemma: *Easier for them that we do it so in a way yeah it's making their jobs easier isn't it, their end with us doing it otherwise they've got to sort out all the mess haven't they. That would take a lot of time, money and staff, so maybe that's why.*

Gemma is aware that by sorting her waste, she is performing an important job which would have been conducted by a paid worker/technology in a different system of provision. She performs this work because she feels compelled to – she says ‘we do it because we’re told to do it and we don’t want to get fined.’ But at the same time, she ‘feels like you’re helping the environment,’ revealing the complex moral economy of recycling.

Mark had also experienced both source-separated and commingled systems. He thought recycling much easier ‘now you don’t have to sort stuff’ because he stores all his materials in one place and transfers them to the collection point in one container. When asked what he thought happened after the material was collected, Mark imagined

...it goes to some sorting factory where some poor bugger’s on a conveyor belt putting it in different pots and I guess it gets melted down somewhere and I don’t know what happens to it after that, certainly they pick it up and then send that to recycled stuff.

Awareness of what happens after material was collected was limited, with responsibility for material ceasing once consumers exchange it with their local authority/waste management company. It is at this moment of exchange that interdependencies between work of consumers and work of other waste management actors (operating under different socio-economic modes and at different stages of the waste management process) becomes apparent.

Modal division of labour

English local authorities are responsible for waste management services. Recycling systems were established relatively late in England, developing against the backdrop of European legislation (EU Landfill Directive and EU Waste Framework Directive) that placed restrictions on landfilling (the dominant method of waste disposal in England) and financial penalties on those failing to meet recycling targets. Keeping consumer waste away

from landfill has become a key goal for local authorities who must pay the escalating landfill tax. Recycling represents the potential to save public money (relative to landfill) and in some cases, generates profits from the sale of recyclable material. The profit made from recyclable material varies and depends upon how responsibility for recycling and waste disposal is divided between different sections of the local authority and private sector, which in turn influences how consumers present their waste for collection.

The private sector plays an important role in provision of waste management services and has done so since early 1990s. Most local authorities use private waste management companies (WMCs) for waste disposal services (eg landfill/incineration). Some also contract them for collection services, whilst others offer collection services in-house 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. Private WMCs tend to prefer commingled collections and they own most MRFs in England, charging a gate fee for their usage. Source-separated collections tend to be preferred by local authorities (if they are solely responsible for collection) because consumer-sorted material is usually of a higher quality than MRF-sorted materials and can generate higher returns (particularly for paper) (WRAP, 2008). However, if responsibility is shared between two-tier local authorities and private waste management companies, the choice of collection system is more complex.⁴ Thus, modal divisions of labour between and within the public and private sectors influence how consumers sort and distribute their recycling. Whether the local authority collects and sells the material or a private WMC is contracted to provide their services, or some variant upon this, in either case, their work relies on, and is shaped by, the 'voluntary' contribution of the consumer. Consequently, in England, three socio-economic modes interdepend and interact in the economy of recycling (public; private; consumer).

A good example of interactions between work conducted under different socio-economic modes is how poor consumer recycling performance is handled. If consumers leave materials that are unwanted or cannot be processed by the infrastructures available, those employed in the recycling industries can provide feedback to improve their work performance at the point of distribution.

We have certain little flyers or stickers that we put on their green boxes saying your particular material wasn't collect today because you didn't put it out before 7 o'clock, or they have contaminated it (which is the official term) where they put one material, say paper or cardboard, where they shouldn't have done then we will also notify them of that. The crew might take the material out and they'd leave it for the home occupier and then they'd give them the flyer and just say look, you left this out with this, and you can't really be doing that.

(Local Authority representative)

Part of the waste collector's job is to educate consumers about what can be deposited into the system. If consumers consistently distribute materials incorrectly, they may be visited by local authority waste officers or provided with educational leaflets to improve their work performance. Thus, we see the interactions and interdependencies between work performed under different socio-economic bases, with paid employment tasks (in the public/private sectors) being shaped by the unpaid work of consumers.

Processual division of labour

In the third dimension of differentiation, interactions between the work of consumers and work undertaken across the whole economic process is the focus because work done at any one phase presupposes and is shaped by work undertaken at others. As we have seen, consumers sometimes struggle to understand what items are recyclable. The types of material local authorities collect depend upon their access to sorting

infrastructure/collection vehicles and end-markets for materials. The skills to discern between materials are therefore directly shaped by the system of provision and division of labour along the waste processing chain. Likewise, if consumers incorrectly sort their materials, this has consequences for subsequent labour processes, as one expert told us.

Some Authorities collect plastic bottles, but they don't collect other forms of plastic packaging, so they don't collect the yoghurt pots and the margarine tubs. But people just see plastic, and lob everything in, so you get quite high levels of contamination, so when that material goes to the MRF, then often the reject rate is quite high, because the MRF is not designed to cope with some of these materials, or the contract with the MRF operator doesn't require them to sort them out.

(UK Waste Expert)

If processing infrastructure is unable to deal with mixed plastics supplied by consumers, this material is unlikely to be recycled, resulting in decreasing feedstock for processing and potentially high costs when disposing of this material on landfill. In one local authority area, awareness that consumers struggled to distinguish between types of plastic led them to search for a provider who could deal with mixed plastics – deemed a more cost-effective solution than educating consumers.

We have argued that the preparation (washing) and storage of recyclable material is an important part of the work consumers must perform. There are several important consequences if certain materials are not cleaned prior to their distribution. First, if we think of the journey that recyclable materials travel, it is not hard to imagine how dirty packaging might impact upon the job that waste collectors and material processors perform.

If you've had cat food or something like that then you really have got to make sure they're clean. I mean I guess once they go into a furnace to be melted down, it's probably not the end of the world if there's a bit of baked bean juice on one, but it's the before that – the crews have got to

physically pick them up, put them in a vehicle, get driven back to the depot, bulked up for maybe as much as 2-3 weeks before there's sufficient quantity to fill a lorry's load and send it off down to the smelter and even then, they might go through other processes like baling and separating and stuff so you know if there's trails of food waste all the way in that journey, it's not really very pleasant for anyone is it?

(Local authority representative)

Whilst not washing some materials may not affect the ability to recycle those materials, it does affect the working conditions of those handling them (for example, health and safety regulations). On the other hand, there are certain materials where cleanliness does matter.

For certain industries, the cleanliness of the product is quite important, glass manufacturers and paper being the two most important because if you think about it, if you've got a small contaminant in glass once you've gone through all the smashing up so it's sand, if you've got a stone in there that suddenly becomes a thousand, each one of those little grains of non-glass will affect a thousand bottles so that's why they're quite keen about it.

(Independent Waste Consultant)

Thus, how consumers supply material can impact upon potential profits from the sale of materials.

The phases through which commingled and source-separated materials pass, provides an excellent illustration of the role consumers play within the processual division of labour. Materials separated at source by consumers are usually collected by multiple vehicles (or specially-designed vehicles) and then delivered directly to re-processing companies, possibly via a warehouse for baling. Commingled recyclables, on the other hand, are collected by one vehicle and taken to a WMC-owned MRF to be separated by manual and technological labour, from which they will be baled and sent to a processing company, or, as is argued by groups like 'The Campaign for Real Recycling', exported to

Asia where they are further sorted/landfilled. There is an ongoing debate in England regarding the relative merits of commingled versus source-separated systems, with kerbside-sorts offering an alternative between the two (where consumers perform a rudimentary sort, which is then further sorted at the kerbside by a collection operative, thus reducing levels of contamination and reliance upon MRFs). This debate looks set to continue as technology and labour processes interact with the work of consumers.

Recycling consumption work and societal divisions of labour

Recycling processes rely on consumers regularly performing a range of tasks, and although these tasks may not be recognised by them as 'work', they nevertheless interdepend with work tasks conducted by other waste management actors/technologies. This paper has developed the emergent concept of consumption work by examining its fruitfulness in one specific domain where we have shown the significance of consumers' contribution to the overall process and division of labour of waste management. The three dimensions of interdependence and differentiation of labour (comprising the SEFL framework) have been explored and applied to develop a relational conception of work. This paper illustrates how the tasks necessary for the recycling of household waste are technically divided between a range of linked industries (operating across public and private socio-economic modes) and consumers, which in turn are shaped by work undertaken across processes of production, distribution and exchange.

Returning to each dimension of the SEFL framework; we have illustrated how consumers perform three distinct recycling tasks (dimension 1) – of supply, warehouse and distribution – which can have a knock-on effect for the processes of labour that precede/follow it. This technical division of recycling consumption work reveals 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 (Beecheno, 2013). Our research further shows that within the household, recycling consumption work tasks are differentiated by gender, with women typically taking responsibility for sorting materials and men usually taking responsibility for their distribution to the kerbside/recycling centre. This finding challenges existing research which has claimed that women carry the burden of sustainability policies within the household – although, women are likely to spend more total time sorting and storing waste, with men's contribution related to the less regular task of distribution.

The unpaid labour of consumers interacts with the paid work of those employed by the public and private sectors, highlighting interdependencies between work undertaken on different socio-economic bases (dimension 2). Whether the local authority collects and sells the material or a private WMC is contracted to provide their services, in either case, their work relies on, and is shaped by, the 'voluntary' contribution of consumers. Recycling consumption work is often coordinated with existing routines within the household suggesting that other forms of unpaid domestic labour (like cooking and gardening) ought to be explored in this relational complex. Moral norms, such as environmental citizenship, and legal sanctions play an important role in encouraging consumers to participate in this work (see Wheeler, forthcoming).

The role of consumers within the instituted economic process of labour (dimension 3) is readily apparent from our research. At the starting point of the process, the consumer acts as a supplier by transforming her/his waste into recyclable materials. After warehousing these materials, s/he then accomplishes the first stage of distribution by putting it out for kerbside collection. 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 or a WMC. The waste is thus transformed from being a hitherto personal individual good into a private or municipal good, a property with potential value to the parties it has been transferred to. Crucially, the potential value of this material depends upon how consumers have performed the three stages of recycling consumption work within their system of provision. For example, if consumers sort the material for a source-separated system, they will generate more value for a third party than if they sort it for a commingled system. Insufficient washing of material can challenge re-processing technologies (eg in the case of glass) and will make the job less pleasant for those employed in the distribution phase of this labour process. After completion of the recycling process, the householder comes back into the picture as the consumer of recycled materials 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.

Conclusion

The work of consumers is a significant and growing field of work that deserves recognition both in its own right and as an integral component within the division of labour. We have proposed a framework that offers an integrative approach for exploring societal divisions of labour in which consumption work plays a critical role. The SEFL framework highlights that divisions and connections of labour are not only technical, but also straddle and link diverse socio-economic modes and the differing stages of instituted economic process. Consumers may play a crucial part in both the technical and processual division of labour, yet undertake it in a quite different socio-economic space. This paper has explored the case of household recycling to illustrate how the consumer's performance of a range of linked tasks form an essential component within this relational configuration of work in a specific

domain. In so doing, we have demonstrated the need for a revised conception of the division of labour that can deal with the ever-growing complexities and connections of labour in contemporary society. Such an approach offers exciting possibilities for our understandings of work and employment and addresses sociology's tendency to sideline or ignore forms of unpaid work conducted by different actors (including consumers), which interact with and configure the expectations of those within paid employment. It is hoped the SEFL framework will be taken forward by other researchers to explore current transformations and interconnections of work across diverse economic domains.

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² Waste is a devolved issue in UK and policies/practices in England are distinctive.

³ Each household is drawn from a different study area and were selected to demonstrate the diversity of recycling practice/provision rather than represent their location.

⁴ Waste Disposal Authorities (county-level) pay Waste Collection Authorities (district-level) 'recycling credits' according to how much waste diverted from landfill.