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ARTICLE

The epistemic division of labour in markets: knowledge, global trade and the preconditions of morally responsible agency

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Abstract
Markets allow for the processing of decentralized information through the price mechanism. But in addition, many markets rely on other mechanisms in markets, or non-market institutions, that provide and manage other forms of knowledge. Within national economies, these institutions form an 'epistemic infrastructure' for markets. In global markets, in contrast, this epistemic infrastructure is very patchy, undermining the preconditions for morally responsible agency. New technologies might help to improve the epistemic infrastructure of global markets, but they require conceptualizing knowledge not only as a tradable good, but also as a precondition of morally responsible agency.

Keywords: markets; knowledge; responsibility; global trade; Hayek

1. Introduction

In 2014, British Primark customers were surprised to find stitched messages sewn into clothes they had bought. 'Forced to work exhausting hours', said one of them, 'Degrading sweatshop conditions', said another (*The Guardian* 2014). A year after the Rana Plaza collapse, in which more than 1100 garment factory workers had died in Savar, Bangladesh, these messages were sober reminders of a reality that we know about in theory, but all too easily block out in everyday life: that many products we buy, especially clothes, are produced under inhumane conditions. With the stitched messages, information about this fact apparently travelled all the way from South East Asia to Europe, going through the hands (or containers and warehouses) of many intermediaries. The flow of apparel is coordinated by markets, which pass on information about supply and demand through the price mechanism. What they do not pass on – other than in such exceptional cases – is information about the working conditions in which these clothes are produced.

In this paper, I discuss the way in which markets process, or fail to process, knowledge and what this implies for our ability to act as morally responsible agents.[1] Defenders of markets often emphasize their ability to deal with decentralized information; many commentators take this to be one of the strongest arguments in their favour. As Friedrich August von Hayek put it in his famous 1945 paper, 'The Use of Knowledge in Society': markets can process 'dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess' in a decentralized way, through the price system (Hayek 1945: 519). What I here call 'Hayek's model' has become a staple of economic thinking. It is often simply taken for granted that if knowledge needs to be processed, markets are the best solution because they can deal efficiently with decentralized information. Other influential models, for example the general equilibrium model, while different in many ways, share the assumption that market prices serve as tools for processing decentralized information, which is needed to reach efficient outcomes.

Markets process information in a highly selective way, however, leaving many kinds of information behind. To enable morally responsible agency, they often need to be embedded in networks of institutions that process other forms of knowledge, which the price system omits. Often, markets are not epistemically self-sufficient, at least not if one assumes that certain basic moral standards apply to individuals in all contexts, and hence also in their roles as market participants. This is an assumption that serves as premise for what follows.

I will defend three claims. First, Hayek's model of how markets deal with knowledge has a number of blind spots. As a matter of fact, many real-life markets function differently: rather than being epistemically self-sufficient, they depend on sophisticated epistemic infrastructures with divided epistemic labour. Second, without such epistemic infrastructures, market participants do not act as morally responsible agents: when acting in such markets, it often seems fair to say that they do not know what they are doing. Third, in cases in which it is morally problematic to act in such irresponsible ways, we need to find institutional solutions for improving the epistemic infrastructures of markets, especially global markets.

This topic can be understood as a form of 'applied social epistemology': it concerns how knowledge is embedded in social structures (for a similar account see e.g. Goldman 1999). But my concern is not with the generation of knowledge *as such*. Rather, I am interested in the link between knowledge and responsible agency, and the relation of both to a specific institutional context, namely markets.[2] When thinking about the institutional design of a just society, epistemic questions are an important, and unduly neglected, consideration.[3] For reasons of space, I will not defend, but rather take for granted, the normative basis of my argument, namely the assumption that all human beings have a duty to act responsibly, which often means that they also have a duty to find out

[1]I use the terms 'knowledge' and 'information' largely interchangeably, and in a non-technical sense.

[2]These normative dimensions of social epistemology have rarely been explored. The most prominent exception is the debate about 'epistemic justice' started by Fricker (2007). It has also led to some discussion about epistemic justice in *institutions* (e.g. Anderson 2012), but there has been no discussion of the epistemic limits of markets.

[3]One exception, in the context of finance, is De Bruin's (2015) study of financial institutions from the perspective of epistemic virtues.

what it is they are doing and what the contexts and consequences of their actions are (see section 4).

In the next section I recapitulate and discuss Hayek's argument about markets and knowledge. Then, I move on to the nexus between knowledge and responsibility, arguing that many global markets lack the preconditions for morally responsible agency. I discuss various proposals for how this problem could be addressed by improving the epistemic infrastructure of global trade. New technologies have great potentials here, but these can often not be realized because of legal obstacles. I briefly respond to some challenges, and conclude by re-emphasizing the lack of epistemic self-sufficiency of markets.

2. Hayek on markets and knowledge

A classic argument in favour of markets is that they can coordinate supply and demand through the price mechanism, which is a more efficient way of dealing with knowledge than central planning. This argument goes back at least to Adam Smith, but it found what is probably its most famous formulation in a short essay by Hayek written in 1945. Hayek states that the problem of coordinating economic action is the problem of 'the utilization of knowledge not given to anyone in its totality' (Hayek 1945: 520). As instances of such knowledge, Hayek provides various examples, including knowledge about available means of transport, opportunities for arbitrage, information about 'a machine not fully employed', about 'somebody's skill which could be better utilized', or about 'a surplus of stock which can be drawn upon during an interruption of supplies' (Hayek 1945: 522). These are all situations in which there are opportunities for Pareto-improvements: if the agents learn about these facts, they can bring about mutually advantageous outcomes.

Hayek emphasizes the importance of such local knowledge – in contradistinction to the scientific knowledge held by experts – for the smooth running of an economy. It is in particular because circumstances are constantly changing that such knowledge is so important: 'economic problems arise always and only in consequence of change' (Hayek 1945: 523). Hayek reminds us, however, that there is another challenge: individuals with local knowledge need to receive relevant information about the local situations of *other* agents, in order to synchronize their behaviour. Here, price signals play a crucial role. They deliver exactly the information that Hayek takes individuals to need:

> There is hardly anything that happens anywhere in the world that *might* not have an effect on the decision he [the individual with local knowledge] ought to make. But he need not know of these events as such, nor of *all* their effects. It does not matter for him *why* at the particular moment more screws of one size than of another are wanted, *why* paper bags are more readily available than canvas bags, or *why* skilled labor, or particular machine tools, have for the moment become more difficult to acquire. All that is significant for him is *how much more or less* difficult to procure they have become compared with other things with which he is also concerned, or how much more or less urgently wanted are the alternative things he produces or uses. It is always a question of the relative importance of the particular things with

> which he is concerned, and the causes which alter their relative importance are of no interest to him beyond the effect on those concrete things of his own environment. (Hayek 1945: 525, emphasis in the original)

The transmitted information is purely quantitative: prices, by shifting upwards or downwards, indicate relative scarcities of goods or services. No information about the specific features of goods or about the contexts of production are transmitted. Such additional pieces of information could not easily be transmitted without prices losing the feature that is the very point of using them, according to Hayek: the efficiency in drawing on them as simple, one-dimensional data points.

The picture that underlies Hayek's argument is that of a machine: he describes the price system as 'a kind of machinery for registering change, or a system of telecommunications which enables individual producers to watch merely the movement of a few pointers, as an engineer might watch the hands of a few dials, in order to adjust their activities to changes of which they may never know more than is reflected in the price movement' (Hayek 1945: 525). Another, related metaphor for the market that Hayek's argument suggests is that of a system of communicating vessels: demand goes up somewhere, and the change in pressure travels through the whole system, communicated by price changes, so that, for example, 'the users of tin' learn that 'some of the tin they used to consume is now more profitably employed elsewhere, and that in consequence they must economize tin' (Hayek 1945: 525).[4] Such systems are more efficient than central planning, Hayek argues, because they allow for decentralized, 'spontaneous' coordination.

In Hayek's model, individuals do not know anything about the reasons for price changes, they just receive signals and adapt to them – and they also do not seem to show any curiosity about what is behind these changes. As Hayek puts it: this adaptation functions 'without the great majority of those instrumental in bringing about these substitutions knowing anything at all about the original cause of these changes' (Hayek 1945: 526). All that is needed is that 'their limited individual fields of vision sufficiently overlap so that through many intermediaries the relevant information is communicated to all' (Hayek 1945: 526).

This account of economic agents is not very flattering: this person is – or at least can be – quite narrow-minded, interested exclusively in adapting the quantities of certain goods, without any interest in political or moral issues. She resembled a robot more than a human person, and her behaviour could easily be automated (as is indeed the case in many financial markets). If Hayek were right in how he describes markets, agency in markets would be agency only in a rather limited sense. Our everyday notion of agency presupposes that we know what we are doing, and also know the background and the possible consequences of our actions, at least up to a point. Acting without understanding the wider consequences – for example, pressing a random button on a machine we know nothing about – would normally be considered morally irresponsible.

[4]In fact, a few years after Hayek's essay was published, economist William Phillips developed the MONIAC (Monetary National Income Analogue Computer), a hydraulic model of the UK economy – the macroeconomic analogue to Hayek's (and other economists') argument about the self-adjusting properties of markets. See https://en.wikipedia.org/wiki/MONIAC for details.

A defender of Hayek might reply that the essay provides a model, and as such is necessarily simplified. This may be true – but the argument behind it, about the capacity of markets to efficiently process decentralized information, has nonetheless been extremely powerful. It became a key element of the narrative that justified the liberalization of markets on a global scale, while the institutional framework that had previously 'embedded' them (Ruggie 1982) was cut back step by step. This story has been told many times (e.g. Van Horn *et al.* 2011; Stedman Jones 2012); for reasons of space, I do not go into the details here.[5]

In global trade, we often face a situation in which it is indeed only the price that conveys any information. From the perspective of retail consumers, the situation looks like the one Hayek described: 'In abbreviated form, by a kind of symbol [the price], only the most essential information is passed on, and passed on only to those concerned' (Hayek 1945: 525). Whether or not Hayek is justified in thinking that this information is 'the most essential' one, is, however, debatable. In the next section, I point out some blind spots of his model, and explain why they matter for understanding agency in real-life markets.

3. Hayek's blind spot – the epistemic division of labour in markets

In his essay, Hayek abstracts from numerous *other* mechanisms that are part of real-life markets, and that contribute to their capacity to deal with decentralized knowledge. Many later economists – at least until 1970[6] – have followed him in that they have simply not made these mechanisms an issue.[7] One can distinguish two categories of mechanisms that complement Hayek's picture in real-life markets: endogenous and exogenous mechanisms.

Endogenous mechanisms are mechanisms that process knowledge within markets, but above and beyond the price mechanism that Hayek described. Markets are populated by human beings, and when human beings interact, it is natural for them to communicate and to start conversations. Hence, they often share information above and beyond market prices, without any additional costs.

Markets, especially business-to-business markets, are socially embedded, and experts from different companies often 'talk shop' with each other (Granovetter 1985; see also Spillman 2012 on the role of US business associations for sharing knowledge). In a friendly chat with one another, market participants often share

[5]For models to become politically influential – and in that sense to have a 'normative' dimension – it is not necessary that their authors intended them as normative models. In the case of Hayek, it is clear that he saw the free market as superior to a planned economy, and his model is meant to explain, on a descriptive level, where this superiority comes from. Economic models can have a performative effect if economic agents, whether politicians or market participants, see them as sufficiently adequate descriptions of reality to guide their action (see e.g. Mackenzie 2008 on performativity in financial markets).

[6]This distinction is also used in Diekmann and Przepiorka (2018).

[7]Information, or its absence, became an issue in the line of research that deals with 'asymmetric information', pioneered by Akerlof (1970). Akerlof deals with ignorance of product quality, and with some 'counteracting institutions' such as guarantees, brands, chains or licences (Akerlof 1970: 499–500). These belong to what I here call 'endogeneous' mechanisms. What is curious, though, is that information asymmetries are often treated as an anomaly, rather than as a widespread phenomenon. The very fact that sufficient epistemic infrastructures do exist for many (domestic) markets might have contributed to the impression that information asymmetries are rare.

far more information than what is contained in market prices. To be sure, such communication may sometimes be strategic; for example, a customer might try to present himself as low on funds in order get a supplier to offer his products at a lower price. But often, information is exchanged openly, or is simply impossible to hide.

For example, if a competitor builds a new factory nearby, local suppliers are likely to find out about it. It tells them that despite an upward trend in prices, which indicates rising demand, there is probably no point in building a new factory themselves; instead, they might want to focus on providing raw materials for this new factory. This is more or less 'local' knowledge, but it is not communicated through the price mechanism, at least not until it is too late for the competitors to adapt their behaviour.

Second, and relatedly, mechanisms of reputation and brand building play a large role in markets, and are in turn complemented by various evaluation mechanisms. Often, they respond to the fact that the quality of goods cannot be known before the buying decision. In the words of Siamwalla (1978, quoted in Diekmann and Przepiorka 2018): they are not 'inspection goods', but 'experience goods', whose quality only shows when one makes experiences with them, for example if one processes them further. Siamwalla's example is rubber, in contrast to rice – the latter can be evaluated by a quick inspection, whereas the former only shows its qualities over longer periods of time. For experience goods, it makes sense for buyers to prefer trustworthy transaction partners, which in turn creates incentives for the latter to build and maintain a reputation as trustworthy (see similarly Kreps 1990). The fact that billions of dollars are poured into brand building speaks to the importance of 'customer loyalty' – and if one manages to build it, the importance of price signals is often massively reduced. Hayek's model suggests that market prices are the one and only factor that influences buying decisions, thus neglecting the role of brands.

Thirdly, both companies and individual customers do spend considerable amounts of time and money on forms of information processing that should, on the Hayekian model, take place through the automatic synchronization by prices. Numerous jobs consist in nothing but providing the information that, on Hayek's picture, should be provided by prices alone, for example in logistics or market research. Buyers rely on product reviews, and are often willing to pay expert advisers, because they need more information than is transmitted by prices.

While there may be some dysfunctionalities and inefficiencies, on the whole these mechanisms seem to fulfil an important function, without which markets possibly could not even come about. Instead of the 'invisible hand' alone, numerous very visible hands help to process information in markets. It would be an interesting, but difficult to explore, empirical question what percentage of crucial information in markets is actually transmitted by price signals, and what percentage by other endogenous mechanisms.

To get a sense of what this means in practice, we can contrast Hayek's abstract model with an empirical study of the global cotton market by political scientist Koray Çalışkan (2010). Çalışkan's aim was to understand how the abstract entity called 'the global cotton market' works on the ground. To do this, he travelled to Egyptian and Turkish farming villages, to local exchanges in Izmir and

Alexandria, and he traced all the steps that it takes to ship a load of cotton across the Atlantic. As he shows, market prices do not 'arise' by themselves; they are preceded by complex processes of information gathering – in which a Liverpool based company with a global network of informants among cotton traders plays a crucial role – and they are enacted locally, by human beings embedded in social structures. Global, regional, local, spot, option and futures prices interact in complex ways. Often, power struggles have an impact on the exact determination of prices, and trust plays a crucial role for bringing about market transactions.

What emerges from this study is a picture of markets as 'fields of power operating on dynamic and heterogeneous platforms of power/knowledge relations' (Çalışkan 2010: 17). While I cannot go into all the fascinating details of this study, and the normative questions that arise from it, one point becomes very clear: insofar as prices can coordinate human behaviour, they can do so only because human behaviour in turn creates and coordinates prices. Markets could not be run on some abstract notion of 'market prices' alone; numerous other processes for dealing with information are necessary to sustain them.

What would Hayekian and other economists say about this or about other instances of non-price-related knowledge processing in markets? They would probably acknowledge that Hayek's model did not highlight these features of real-life markets. But they would insist that its general message – that free markets are the best way to process decentralized knowledge – still stands. But this claim comes under pressure, and requires qualifications, when one considers the second category distinguished above, exogenous mechanisms. When, and insofar as, markets work well in processing knowledge, they often do so because *other* institutions take on *other* epistemic tasks, in an institutional division of labour that makes it possible for market participants to mostly focus on prices when acting in markets. Or to put it differently: many markets rely on an epistemic infrastructure that is not in turn provided by markets themselves, but by other institutions. And as I hope to make clear later on, the knowledge that is needed for *morally responsible* agency is often *not* provided by markets, but – if it is provided at all – by other institutions.

To start with a simple example: take the food market in a reasonably well-regulated economy. When one buys yoghurt in a supermarket, one often knows next to nothing about the conditions of production: about the legal rules for how animals are to be treated, about hygiene standards in dairy factories, about the regulation of intermediary markets, about the maximum working hours in the supermarket, etc. The end consumer does not know these things, but he or she knows that there are *other* individuals or institutions that know them, and he or she relies on them doing a sufficiently good job, so that end consumers can focus on the price signal, together with their preferences (e.g. concerning flavour and fat content)[8] and the information about their budget constraints, in making a decision.

[8]In fact, the 'knowledge' about my preferences might raise questions of its own – are they really 'my own', or might they have been 'polluted' (George 2001) by advertisement? I here abstract from the complex questions raised by this issue.

In fact, the reason why end consumers can rely on these institutions is that they know that there are *yet other* institutions that control their behaviour: regulatory agencies, courts, and a free press that can uncover scandals. Consumers act within a system of divided labour, in which many epistemic tasks are outsourced to other individuals or institutions. There is a sophisticated framework of checks and balances that makes sure, hopefully, that these epistemic tasks are all fulfilled well.[9]

Many forms of knowledge that are processed by this epistemic infrastructure are different from the knowledge that Hayek describes, i.e. local knowledge about capacities or preferences. Expert knowledge – for example, about hygiene standards or about the use of technologies of production – plays a role in various ways (though not in the way that Hayek criticizes, i.e. for centralized economic planning). The epistemic infrastructures that surround such markets are hardly perfect. But we trust this whole system so much that we let our life and health depend on it: we constantly buy products that could harm us, e.g. by infecting us with deadly diseases, without doing additional checks ourselves. The efficiency-enhancing features of markets would disappear very quickly if we had to carry out even just a fraction of these epistemic tasks ourselves.[10]

A well-functioning epistemic infrastructure takes many epistemic tasks off the table because buyers know that with regard to a number of dimensions, all suppliers offer the same standard, for example of food hygiene. Rather than companies competing for customers by claiming to offer the least risk of food poisoning – which would probably overshadow competition along more reasonable lines, such as quality, price or variety of tastes – public authorities establish binding rules and undertake regular controls. This creates a level playing field, allowing competition to run along more useful lines.

But not all markets are surrounded by such an epistemic infrastructure – or at least not by one that would allow us to act in them in the full sense of morally responsible agency, as I will discuss in the next section. In international markets, such an epistemic infrastructure is often missing, and because such markets are less socially embedded, participants also have fewer opportunities to share knowledge through mechanisms such as gossip, networks or industry associations. There is often no coherent legal framework with one regulatory agency that would oversee rules such as labour standards or environmental standards. There is only a very patchy framework of international law, e.g. the ILO labour norms, which are poorly enforced in many countries.

To be sure, certain standards, for example safety standards, are usually enforced as a condition of importing goods into well-regulated national markets, not only in order to protect consumers from safety hazards, but also to protect local suppliers from unfair competition. Thus, when food is imported from abroad, it usually has to satisfy the same standards as home-grown food, and some pieces of information, e.g.

[9]If regulation is insufficient – for example with regard to animal rights – consumers might encounter epistemic problems that are similar to the ones in global markets that I discuss below.

[10]Cf. also the debate, within epistemology, of shifting from epistemic agency to epistemic practices (see e.g. Calvert-Minor 2011). As some commentators in this debate hold, the very act of knowing can often only be understood as part of a social practice.

the list of ingredients or notifications about substances that might cause allergies, have to be provided as standard. What is missing, however, is information about *other* features of products, and notably about their production conditions. And this means that when we act in such markets, what we do can hardly be described as agency in the full sense of the word, let alone *morally responsible* agency – it is closer to the blind, mechanistic adaptation of behaviour that Hayek's model describes. In the next section, I discuss why this is a problem.

4. Knowledge and morally responsible agency in markets

Our everyday notion of agency includes a basal assumption that individuals know what they are doing. This includes, at least up to a point, knowledge about the causal chains of which their actions are part, and the effects they can have. Without such an assumption, our notion of morally responsible agency would not make much sense. One way of understanding this nexus between knowledge and morally responsible agency is to ask whether individuals are able to give a full description of what they are doing. In a famous example, Elizabeth Anscombe (1963) illustrated this fundamental insight from the theory of action. Actions can be described at various levels: a man is moving his arm, thereby pumping water, thereby inserting poison into the water supply of a house, thereby helping to overthrow a political regime. To act in a morally responsible way, it is not enough to say that 'I am moving my arm'; one also needs to have an understanding of the wider context and the consequences of moving one's arm.[11]

It is because agents usually know the contexts and hence the probable consequences of their actions that they can describe them at several levels and take moral responsibility for them. The same holds for agency in markets, but here, the differential access to knowledge, and its impact on how agents can or cannot describe their actions, becomes visible. If they buy yoghurt from a local farmer whose farm they regularly visit, they know not only that they buy yoghurt, but also that they support a local supplier and a sustainable, animal-friendly way of farming; they can take full responsibility for what I do. If they buy yoghurt from a supermarket in a well-regulated economy, they know at least that all suppliers had to obey the laws and regulations, and if someone asks me whether they feel justified in doing what they do, they can point to various regulatory agencies and *their* responsibilities. If they buy goods imported from abroad, however, none of these options might be available: they can neither know enough themselves, nor point to other institutions.

Being able to describe one's actions on more than one level – 'knowing what one is doing' in an emphatic sense – is a core element of what it means to be a responsible agent and to take control over one's life. It is also a precondition of responsible agency in a *moral* sense.[12] As moral agents, we hold one another accountable for what we do: we expect ourselves and others to be able to explain and justify our behaviour. This is not a question of high-flying moral ideals, but

[11]Of course, in this scenario it might be the case that the agent has been deliberately left in the dark by the conspirators in order not to implicate him in the coup.

[12]In what follows, I use the notions 'responsibility', 'duty' and 'obligation' interchangeably.

of basic moral decency. If we lack knowledge about the actions we undertake, we usually have a duty to inform ourselves before acting (see e.g. Smith 2014: 12; she defends the duty to inform oneself before acting against the 'subjective turn' that holds agents responsible for acting rightly or wrongly only 'in light of the agent's beliefs about her situation').

There is some controversy among moral philosophers about how exactly moral responsibility and knowledge are related. We often have an intuitive sense of how far the duty to inform oneself before acting goes, and at what point a justification from ignorance becomes relevant. But sometimes, we can be culpable *despite* being ignorant (see Sher 2009 for a discussion of various cases), e.g. because we did not take sufficient care to gather knowledge despite the fact that we 'should have known' (Goldberg 2015). Sometimes, this ignorance can itself be culpable (Smith 1983). In other constellations, we act together with others, and do not, or not fully, know how their actions will interact with ours; this creates the possibility of complicity (see e.g. Kutz 2000). Many court cases turn around the question of who knew what, at what point in time, and who should have known what. These two questions are often intertwined, because if an agent knows a certain fact – for example, that a certain substance is poisonous – he or she might have a duty to find out more – for example, whether sufficient safety measures have been taken. If he or she fails to acquire the relevant knowledge, he or she might have become guilty in a moral, and often also in a legal, sense.

This description of the nexus between moral responsibility and knowledge, however sketchy, points to a key problem in the Hayekian model of markets. Hayekian agents do not act in an informed way. They only have access to the first level of description, in Anscombe's sense: the person in Hayek's example knows that she is buying or selling tin, but she does not know, or at least she does not *need* to know, whether she is enabling the production of cans or the production of toxins, or whether she is contributing to the perpetuation of exploitative working conditions, or supporting family-owned businesses to survive (or several of these at once). For Hayek, these things presumably all belong to the factors that agents 'need not know'. This means that these agents are not acting in the full sense of the word, such that they could take moral responsibility for what they are doing. Here, critical questions arise: do they thereby refuse to carry the moral responsibility for their actions?[13] It seems to be a case in which they should inform themselves before acting, because they might be contributing to causal chains the results of which they cannot morally endorse. One would expect that they have a duty to inform themselves, in Smith's sense.

At this point, however, one runs into a number of complexities. There is some disagreement about which moral standards to draw on in the first place. We might agree on certain standards, e.g. human rights, but in a morally imperfect world, it is often unclear which compromises might be permissible, given that not all rights can

[13]Some agents might also simply have *an interest* in taking such a responsibility, in addition to any moral obligation they might have. The question about the access to knowledge then becomes one about individuals' *rights* to know. In terms of what can be done, this line runs in parallel to the one based on moral responsibility, hence I will not discuss it separately in what follows.

be secured at the same time. For example, might some degree of child labour be permissible if it helps families to provide enough food? Should we really reject all sweatshop labour, given that many individuals in poor countries prefer it to a life without *any* paid work? What alternatives are available, and are they capable of improving the welfare of those concerned? What difference do individual actions make, and is it substantial enough to ground a duty to behave in one way or the other?

This is not the place to open up these difficult and complex normative questions. Instead, I assume that there is a minimal duty to avoid harming others when one can easily do so, and that there is also, in principle, a duty to inform oneself about the risk of harming others and about possible alternatives. Goff (2018) has recently argued, in a similar vein, that such responsibilities – her discussion turns around the responsibility to buy fair trade goods – can be conceptualized as duties of assistance or as duties to avoid participating in exploitative structures. Likewise, it seems hard to reject a moral responsibility on the part of affluent consumers to avoid buying sweatshop clothes if they can, alternatively, buy clothes produced under better conditions, given that the price difference is minimal.[14] Often, however, we lack relevant knowledge about the options we have: we do not even know which ones would be morally better than others.[15] This means that meaningful moral reflection cannot get off the ground.

Nonetheless, one can raise a number of arguments against a direct responsibility of individuals, qua consumers, to act against exploitative working conditions or environmental pollution in productive processes in foreign countries. Individuals are likely to be overwhelmed by the challenge of improving their epistemic situation. Even if they managed to do so, efforts by single individuals would be unlikely to bring about large-scale improvements. Moreover, knowledge is a public good, so once it has been acquired, it can be shared without additional costs. Hence, it would be inefficient to call upon single individuals, each taken individually, to inform themselves. Rather, it suggests that *institutional* solutions are a better strategy.

But this does not mean that individuals have no duties at all – rather, the question becomes what they can do to contribute to institutional change (see e.g. Collins and Lawford-Smith 2016 for a discussion of the transfer of duties between individuals and states). As citizens of well-regulated market economies, many individuals have become used to relying on other institutions to which they can outsource their epistemic responsibilities. This is indeed an effective solution, because it allows individuals to focus on price signals without thereby

[14]For example, for a pair of jeans produced in Bangladesh, the additional cost for labour safety measures is 90 cents (this is a 2013 figure from Srivastava and Shannon 2013). I take it that such improved labour conditions would be preferable both to sweatshops and to other work available in these countries – one can thus avoid the stale debate about whether buying goods from sweatshop work could, under very non-ideal circumstances, be morally justified.

[15]For example, individuals often do not know for certain whether a higher price reflects better working conditions, or rather one of the many *other* factors that can enter into pricing decisions. Consumers might cynically, but maybe somewhat realistically, assume that if an industry is marred by certain moral problems, competitive pressures lead all suppliers to using the same, morally dubious methods (e.g. the same degree of exploitation, or the same amount of environmental pollution).

acting in a morally irresponsible way. But we should not forget that it did not come about by itself – often, the creation of these institutions was the result of decade-long political struggles. On the global level, where such an epistemic infrastructure is missing, it is likely that consumers fail to fulfil their duty to inform themselves, which is based on their moral duty not to harm others. These duties translate into the responsibility to contribute to changing the institutional framework of markets.

This approach can be understood along the lines of Iris Marion Young's (2011) notion of 'forward looking' responsibility. In her discussion of how to address issues such as sweatshop labour, she suggests shifting from a model of 'backward looking' responsibility to a model of 'forward looking' responsibility. Instead of asking who has *caused* the injustice in question – often an impossible task – we should ask how we can assign responsibilities in order to change, by political means, the institutional structures that caused the injustice. Young discusses four criteria for assigning such responsibilities: power, privilege, interest and collective ability (Young 2011: 145ff., see also Herzog's 2016). There is, however, a fifth criterion: knowledge, or the lack thereof.

Knowledge stands in a complex chicken-and-egg-relation with the four factors Young discusses: power, privilege, interest and collective ability all depend on who knows what, and who shares which knowledge with whom. If individuals are unable to acquire sufficient knowledge about the consequences of their actions, they are often powerless. On the other hand, those with power or interests might want to block the distribution of knowledge if this could threaten their position. Hence, the question of how relevant knowledge can be provided needs to be integrated into the search for solutions. Improving the epistemic infrastructure of markets enables individuals to take moral responsibility for their actions. This can contribute to moral improvements, a path that is blocked off if individuals do not know what they are doing when acting in markets.

When thinking about institutional solutions, however, we need to remain realistic about the way in which buying decisions are often taken. Many decisions, including many buying decisions, take place 'in the heat of the moment', or when under time pressure, so that individuals might not consider all information that they might have a duty to inform themselves about, even if they could do so.[16] If such information is provided in small print, or hidden away under large amounts of irrelevant information, the likelihood that individuals neglect it rises.[17] Hence, ideally, institutional solutions would be such that the relevant information is really made salient for individuals at the time when they make decisions.

To summarize: the current situation with regard to agency in global markets is highly unsatisfactory from a normative perspective. Individuals who could relatively easily bring about moral improvements are prevented from doing so

[16]Cf. e.g. Kahneman's (2011) distinction between 'system 1' and 'system 2' thinking.

[17]This is all the more likely if the moral harms done by certain consumption patterns happen far away, or in the distant future, and individuals are never touched by them directly, because our imagination is not very well suited to conjure up visions of such harms.

because they lack the relevant knowledge.[18] However one fills in the finer details of the moral responsibilities of the end consumer – they end up routinely not fulfilling them, not because they would be overburdened by, say, paying a few cents more for clothes, but because they are connected to the moral harms they contribute to by causal chains that are not accompanied by *epistemic* chains that would make morally responsible agency possible. These causal chains are mediated through a mechanism, the global market, that only processes certain kinds of knowledge while neglecting others, and is not sufficiently surrounded by an epistemic infrastructure that would compensate for this deficit. It is not surprising that in this situation, responsibility seems to be diffused, and blame gets shifted from one group to another. The realization of a Hayekian model for global trade, without the institutions that would provide adequate epistemic infrastructures, has systematically severed the nexus between knowledge and moral responsibility. But individual solutions are unlikely to be successful; instead, institutional or at least proto-institutional solutions are needed.

5. Improving the epistemic infrastructure of global markets

What can be done to address the lack of an adequate epistemic infrastructure of global markets, especially those in apparel and other products that might be tainted by morally questionable production conditions? I start with considerations about a first-best solution, and then discuss possible second-best approaches, including one that already exists in some niche markets: labels.

The first-best solution to the problems diagnosed in the previous section would probably be to create a similar kind of institutional infrastructure as the one that surrounds many national markets: a set of interlocking institutions, with checks and balances, to which the relevant epistemic tasks can be outsourced. The existence of an *epistemic* infrastructure would not, by itself, answer all questions about the division of *moral* responsibilities, e.g. whether the wages and working conditions should be regulated by minimal standards, excluding only the worst forms of abuse, or by more demanding standards of justice. But it would make answering these moral questions *possible*. It would, in fact, make it more urgent and psychologically salient to find answers for them, because no one could hide behind a lack of knowledge any longer.

But such a first-best solution seems currently rather utopian. If it could be brought about, one might just as well bring about an infrastructure not only for

[18] Would von Hayek and other economists also find it unsatisfactory? It is interesting to note that in the 1945 paper, Hayek uses the formulation 'the whole society', which implies that he was assuming a closed system (von Hayek 1945: 519). The context in which he wrote was the systemic conflict between planned economies in totalitarian states and free market economies in Western democracies (but which he feared might slide into totalitarianism as well). Given that historical situation, he would probably have considered the problems I discuss here as trivial compared to the 'big' question about markets versus planned economies. In later economic models, various idealizing assumptions, e.g. about time-consistent behaviour and about a closed legal framework that would prevent fraud and other crimes backgrounded such questions. Many mainstream economists would probably simply declare themselves as not in charge of such questions, both because of the academic division of labour and because of the self-understanding of the field as purely descriptive and concerned with questions of efficiency, not morality.

knowledge, but also for regulation and control with regard to at least minimal moral standards. Such regulation could focus on phasing out the worst excesses that we currently see in global markets, such as those for apparel: child labour, exploitation, exposure to physical harm, sexual harassment, environmental degradation, etc. Various ideas along these lines have been developed, for example the coupling of market access to labour standards (e.g. Barry and Reddy 2008). But these proposals are difficult to realize, not least because of the current WTO regime, which allows for restrictions of free trade or the imposition of tariffs only in rare and limited cases (for a discussion see e.g. Herzog and Walton 2014). Moreover, many powerful agents, especially transnational corporations, have vested interests in *not* changing the current system, because they benefit from consumers not knowing enough about child labour, exploitation and other morally questionable practices. It would require a major political effort on the part of democratic countries to work against these vested interests.

Hence, the question is whether, short of such a first-best solution, other improvements with regard to the epistemic infrastructure of global markets could be brought about. Ideally, this would lead us onto a path of incremental reforms that could, in the long run, bring about solutions that appear utopian today. Such second-best approaches should be *collective*, because of the problems of individual action described above, and also because collective approaches are more likely to overcome the resistance of companies with vested interests.

They would suggest voluntary forms of knowledge sharing, brought about by alliances of individuals and groups that see the need for a better flow of information and an improvement of the moral balance sheet of global markets. While such alliances lack formal sanctioning mechanisms, they can often draw on informal sanctioning mechanisms, for example public blame or social exclusion. For example, business associations offer spaces of social recognition for individuals, in which knowledge is shared and the meaning of their business activities is negotiated (Spillman 2012). The members of business associations can, for example, agree on standards of information sharing that are appropriate for the products at hand, and enforce them through social norms.

Such groups are not always groups in the philosophical sense, with shared intentions or shared identities.[19] In fact, sometimes part of the problem is that the agents who could, together, push for reforms of the epistemic infrastructure of markets are *not* organized. If businesses within one industry compete with one another for market shares, their relations are often marked by distrust and secrecy. For improving the epistemic infrastructure of their industry, however, they might have to cooperate – they might have a moral duty to 'collectivize' (Collins 2013) in order to carry out their collective responsibility. Given how unlikely that is, it might often be more promising to rely on third parties, for example NGOs. They might play a role in facilitating 'collectivization' in such cases, in order to push for common standards with regard to sharing information.

[19]On 'group agency' see e.g. List and Pettit (2011). On epistemic virtues of groups (which cannot be reduced to the epistemic virtues of their members) see Lahroodi (2007), for a discussion see also Jones (2007).

One approach that falls into this 'second-best category', and that has had quite some success in niche markets, is to use labels. Labels fall under the general category of standards, which are often needed to make markets viable in the first place. For example, in the cotton markets described by Çalışkan (2010), the differentiation of standards of quality is an important task. There are also labels that explicitly fulfil the function of preventing the worst moral wrongs in global markets: labels such as the 'Fairtrade' label that are issued by coalitions of producers and traders, often supported by NGOs that verify their reports. The basic idea is simple: in addition to the information contained in the price signal, buyers receive additional information about relevant features of the product, which is condensed into a label that is easier to process than, say, lengthy small print text. Buyers can incorporate attention to such labels into their consumption habits, which means that their epistemic burden remains manageable. One can continue to take advantage of the price mechanism: buyers can choose the fair trade clothes that offers them the best 'bang for the buck', because they know that all of them are on the same level with regard to the standards covered by this label. By doing so, they obey their moral duty not to impose unnecessary harm on others, while remaining free to choose between different options.

Several problems mar this approach, however. The first is that the credibility of labels needs to be ensured in turn – and this requires yet again a division of epistemic labour. For example, it must be possible for journalists and academics to explore whether the standards are in fact obeyed, and whether they indeed improve the welfare of the producers, as they claim to do. In that sense, labels remain dependent on the other elements of an epistemic infrastructure. They might be most difficult to install where they would be most needed, because in many poor countries, this infrastructure is most porous and endangered. Secondly, and more insidiously, the idea of labels has been copied by other associations with lower – or in any case, different – standards, and there now exists a multiplicity of labels for many goods. This situation reintroduces a second-order epistemic problem: consumers now need to know which labels stand for which moral standards, how reliable they are compared with others, etc. While this is probably somewhat easier to find out about than getting information about working conditions, it undermines the point of labels, i.e. to present information in a way that is easy to process and that functions well in conjunction with the informational processes of price signals.

6. Technological potentials and legal obstacles

What provides reason for optimism, though, is that the actual *costs* of transmitting information above and beyond market prices, alongside the global supply chains, have fallen dramatically, thanks to new technologies. It is stunning to see how products are tracked, sorted, and distributed across the globe, often by help of digital codes. For example, similar-looking goods can be distinguished by help of QR codes, and their origin can be determined and confirmed. The exact location of goods during the shipping process can be followed on websites from all over the world. We can watch webcams of faraway places, and communicate by videoconference with people all over the globe, for almost no money. Information can be accessed by smartphones, which we carry with us most of the time anyway.

So far, these new technologies have been mostly used for making market processes more efficient. But they could also be used to provide crucial building blocks of an epistemic infrastructure that would make morally responsible agency in global markets easier to achieve. There could be QR codes on products, such as clothes produced in the Global South, that lead to websites on which the working conditions of the producers are reported, or on which there is a live webcam into the production rooms. NGOs could do Skype interviews with employees in other countries to check whether labour standards are enforced. Reports could be collected in online archives that allow for meta-analyses, to track developments over time.

It is not inconceivable that there could be an online community of volunteers, comparable to the Wikipedia community, that would focus on 'supply chain watch' and call out violations of basic rights. Relevant pieces of information could be channelled directly into product websites that potential buyers would see, or there could be a browser extension for online shoppers that red-flags products for which critical information is available.[20]

We should certainly not expect such systems to be perfect and completely immune to manipulation. But they could nonetheless provide massive improvements compared with the *status quo*. The greatest obstacle to their realization, however, might be legal ones. In many legal systems, knowledge is standardly treated along the lines of private property. Hence, third parties, for example an NGO that wants to develop an app to trace information about production conditions, would not have the right to require such information. Many companies appear as 'black boxes' from the outside: what goes on inside them is not visible to other market participants. In his 1945 paper, Hayek does not discuss how knowledge is handled *within organizations* and what impacts this has, in turn, on markets; in many economic models, this question is neglected because 'market participants' are modelled as homogeneous 'agents' without discussing any of the internal complexities they can exhibit if they consist not of human individuals, but of business firms.

It is one of the sad ironies of today's economic globalization that creating an epistemic infrastructure, which would be needed for epistemically embedding global trade, is made more difficult by the fact that *knowledge itself* is often treated as a market product: as private property that is owned exclusively by individuals or business firms. Many companies would probably fight tooth and nail against the publication of information that would throw a negative light on their production processes and, for example, reveal that clothes are produced in sweatshops. The existing legal regimes give them many opportunities for doing so, e.g. by charging NGOs with the betrayal of business secrets. NGOs or activists who would try to use new communication technologies for improving the flow of information along global value chains would likely run serious legal risks.

Nonetheless, technologies could play a role in addressing *behavioural* issues in the processing of knowledge. I mentioned earlier that there can be a vast gap between what consumers know in theory, and which knowledge they activate in

[20]For reflections along similar lines see also Watts and Wyner (2011). Unfortunately, the project described in this paper has not been realized, according to private correspondence with the authors.

practice, when making decisions ‘on the spot’. In the heat of the moment, consumers might forget the ‘bigger picture’, and their commitment to act as morally responsible agents might be trumped by the desire for a certain product, or by the need to get something done quickly. Here, new technologies could help by ‘nudging’ them into the right direction, helping them to do what they would do when considering it in a cooler hour. For example, apps could condense information that is available, but difficult to find, or filter out relevant information that is hidden with stacks of irrelevant data. As such, they would absolve individuals from ‘information overload’.[21] Ideally, relevant information would be almost as easy to process as price signals; for example, it could be coded into red/yellow/green ‘traffic light’ symbols, or into reliable ‘free from’-stamps for products. Thus, such apps would help consumers to act in a fuller sense of the word than if they exclusively reacted to price signals, like the Hayekian automatons.

This point brings me back to the stitched messages in Primark clothes that I mentioned in the Introduction. Subsequent reporting questioned whether they were real, or rather hoaxes staged by Western activists. Even if they were the latter, though, they probably had a positive effect from a behavioural perspective: they provided information, above and beyond price signals, about what we do when we act in certain markets – information that we know about in theory, but all too often neglect when making shopping decisions in our everyday lives.

7. Replies to objections

One might challenge such proposals by holding that even if full knowledge were provided, there is no guarantee that consumers would actually opt for morally responsible agency rather than simply buy the cheapest product. This objection has some weight, but it takes too narrow a view of the potential for change that could be created by a better flow of information. First, social norms would probably change over time: if there was a reliable way to tell ethically sourced products apart, it might become socially unacceptable, or at least ‘not cool’, to opt for other ones, such as clothes without a ‘fair trade’ label.[22]

Second, even if not all consumers might change their behaviour, the opportunities for activists, NGOs and politicians to address these problems would be improved. Depending on how responsive citizens would be to the moral responsibilities that would become visible if they had greater knowledge about their involvement in global trade, these actors could push for various other measures, including the introduction of legal standards for working conditions, environmental protection, etc., which seem utopian today.

A second challenge is weightier, and I have already alluded to it with regard to labels. Even if steps such as the ones suggested above were taken, these would remain toothless without the creation of all the *other* institutions on which such epistemic infrastructures depend: a free press, reliable legal institutions, non-

[21]This term had been popularized by Toffler (1970); I use it in a broad and general sense, without taking on board Toffler’s other claims.

[22]Cf. Appiah (2011) on how shifts in conceptions of honour have contributed to moral progress.

corrupt supervisory agencies, etc. Markets are part of complex, and complexly intertwined, institutional settings, and the degree to which individual market participants can outsource epistemic tasks to them depends on their overall quality. Economic theories, including those that emphasize the epistemic advantages of markets, de-emphasize the degree to which different institutions are interlocked – and how bad the information transmitted by markets can be, accordingly, if they *lack* a well-functioning institutional context that plays its part in the division of epistemic labour.

Economic globalization has brought international markets to many parts of the world in which the epistemic infrastructures that we take for granted in Western countries do not exist. Constructing them will probably take decades. This second challenge shows that the ways in which human knowledge is organized in complex modern societies, and especially in today's globalized world, have to be understood holistically. Hayek's and other economists' claim that markets are superior in coordinating decentralized knowledge is true only under specific conditions, and with regard to specific forms of knowledge. Contrasting it with Çalışkan's (2010) ethnographic study of cotton markets shows all the 'visible hands' that make it possible to create the entities we call 'global markets'. They do not exist in a vacuum, but stand in complex relations to other institutions. The degree to which morally responsible agency is possible depends on how well these function individually and in their totality.

8. Conclusion

In this paper I have argued that markets, while useful tools for processing decentralized information, are often not epistemically self-sufficient, at least not if the aim is to make possible morally responsible agency. If market participants reacted only to price signals – as Hayek described it in his famous paper and economists have, since then, by and large taken for granted – they would be 'acting' only in a very limited sense of the word. Many markets are embedded in epistemic infrastructures that enable a division of epistemic labour, thereby helping to bring agency in markets closer to responsible agency in the full sense of the word.

But for many international markets, such as the one for clothes, we lack such epistemic infrastructures with regard to morally relevant information. Improving the flow of information, to improve moral practices, is a huge challenge. But if we do not address it, we remain trapped in a constellation in which a lot of easily avoidable moral harm is done. Our duty not to participate in such moral harms translates into a duty to contribute to political change that improves the institutions that form an epistemic infrastructure for markets.

The link between responsible agency and knowledge is one that deserves to be explored not only with regard to markets, but also with regard to other institutions. Arguably, however, it is particular urgent to do so with regard to markets, because defenders of markets often praise them for their epistemic qualities, and challenge the defenders of *other* institutions to come up with comparable arguments. Acknowledging that markets are not epistemically self-sufficient – at least if we want to keep seeing ourselves as responsible agents in a meaningful sense of the term – is therefore an important step in discussions about the comparative advantages of different institutions.

We need to keep in mind that it is usually markets *together with other institutions* that have epistemically beneficial results, while markets on their own may in fact do rather poorly. And what makes them dangerous is the fact that their epistemic structures can allow a few immoral individuals to make thousands of others complicit in forms of wrongdoing that they would resolutely reject if they had all the relevant information and could act in the full sense of the word. Whenever possible, we should avoid such situations, not only because of our own desire to 'keep our hands clean', but even more so because of the victims who suffer from the resulting harms.

Knowledge is not only a product, but also a precondition for morally responsible agency. If it is treated just like any other market product, according to the rules of private property, then it is likely that knowledge that promises gains will be appropriated, whereas knowledge that would indicate the need to take responsibility, e.g. in order to prevent grave moral harms, will be marginalized. With new technologies, our epistemic infrastructures could be greatly improved, to enhance responsible agency and to improve the moral qualities of markets. We should not leave these possibilities unexplored, least of all because we mistake simplified models of markets for reality.

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