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Abstract

Laws, policies, and incentives provide people with extrinsic reasons to engage in desired behaviours. But by doing so, they may attenuate or displace people's intrinsic reasons for complying. In this chapter, I review theorising and empirical evidence on such *crowding-out effects*. I outline perspectives from psychology and economics on how laws, policies, and incentives may undermine people's intrinsic motivation. Moreover, I describe how such insights have been applied to explain why laws, policies, and incentives may fail to increase compliance—or may even undermine it. The chapter will then review the empirical evidence on these processes in environmental, organisational, and other legal settings. Although it is plausible that laws, policies, and incentives will affect intrinsic motivation to comply, I conclude that empirical evidence of these processes is still modest. I conclude by outlining some important directions for future research, and some (tentative) recommendations for policy.

Crowding-out Effects of Laws, Policies and Incentives on Compliant Behaviour

Regulators, organisations, and other authorities; all frequently rely on rules, affirmative duties, or incentives to shape behaviour and promote compliance. Consider the use of fines to punish tax violations (Listokin and Schizer 2012), or the use of duties to report whistleblowing (eg, Feldman and Lobel 2009); in these and many other cases, authorities provide external reasons for citizens to show good, or refrain from bad behaviour. But do these instruments effectively promote compliance? Behavioural evidence suggests that this is not so straightforward. The reason for this is that laws and policies may change the meaning of the behaviours that they seek to influence, and thereby, people's willingness to perform them (Feldman 2011; Underhill 2016).

Consider the example of day-care centres, which are often faced with the problem that parents arrive late to pick up their children. This necessitates that staff remain after closing time, which is costly and inconvenient. In response, these businesses often use a sanctioning system, such that parents who arrive late receive a monetary fine. The reasoning is that increasing the cost of tardiness will increase parents' motivation to arrive on time. However, behavioural evidence has suggested the opposite: introducing a sanctioning system actually *increased* late arrivals (Gneezy and Rustichini 2000). By setting a price, it reframed after-hours pickup into a buyable service, rather than a violation or inconvenience. Incentives thereby *crowded out* intrinsic reasons to not be late.

As this example illustrates, using laws and policies to shape good and bad behaviour may be ineffective, or may even have consequences that are diametrically opposed to their intention.

According to motivational crowding theory (Frey and Jegen 2001), this occurs because providing extrinsic reasons to comply: 1) crowds out from the equation people's intrinsic motivations to comply; 2) makes decisions to comply (exclusively) contingent on extrinsic reasons (eg, laws and policies); and 3) may ultimately result in a decline in compliance (when people become desensitized to the impact of these instruments, or they are abolished).

In this chapter, I will explain crowding-out effects and illustrate how they may impact compliance. To do so, I will review theories from psychology and economics, to illuminate how laws and policies may affect intrinsic motivation and behaviour. I will then review empirical evidence on how these processes affect compliance in environmental, organisational, and other legal settings. I conclude by outlining some important directions for future research and by providing (tentative) recommendations for policy, based on the existing (preliminary) evidence.

Crowding-out Effects: Theory and History

Theorising on crowding-out effects originates from research on blood donation. As with many public goods or noble causes, medical stocks of blood for transfusion depend on voluntary donations by individual citizens—for whom this act is costly (in terms of time, inconvenience, and pain). To increase donations, programmes may offer monetary rewards that aim to compensate donors for these costs. Titmuss (1970) argued, however, that providing such incentives may, in fact, be detrimental to this outcome. He hypothesised that providing rewards would undermine donors' intrinsic motivation, reducing or even displacing their altruistic motives with extrinsic reasons for doing so (ie, earning rewards). In this way, providing

incentives could be detrimental to blood donations by driving away donors who would give out of altruistic or moral reasons, and attracting donors who are extrinsically motivated (which, according to Titmuss, could include persons with infectious diseases or drug addictions).

As this example illustrates, crowding-out effects may occur when incentives (rewards, punishments) are provided to promote good (or reduce bad) behaviour. These incentives aim to make it more profitable for individuals to comply, which is in line with the economic assumption that greater rewards will increase behaviour (i.e., the relative price effect; the 'strongest predictive statement a social scientist can make with regard to human behavior' [McKenzie and Tullock 1985]). However, by doing so, these incentives may alter how people perceive the act, the reasons for performing it, and ultimately, their willingness to do so (often in different ways than intended).

While crowding-out effects originally were originally linked mainly to monetary incentives (payment, bonuses, fines), they have since been expanded to a broad range of laws and policies—including rules, affirmative duties, torts, and criminal sanctions (Feldman 2011; Frey and Jegen 2001; Underhill 2016). Like incentives, such instruments provide extrinsic reasons to comply, which thereby may crowd out individuals' intrinsic reasons for doing so. However, the reverse is also possible. Laws, policies, and incentives also proscribe which behaviours are permissible (or not) and express social norms. In these ways, these instruments may also produce crowding-in effects and strengthen people's intrinsic reasons to comply (Bowles and Polanía-Reyes 2012; Frey 1997a; McAdams and Nadler 2005).

Crowding-out effects are ambiguous in that different fields focus on different outcomes when referring to them (eg, in psychology: intrinsic motivation and task persistence; in economics: behaviours that oppose the relative price effect). Moreover, they are ambiguous because much evidence shows that incentives can have favourable effects on behaviour (see eg Part 3 of this volume). In truth, however, crowding-out effects may occur even when the effects on behaviour seem favourable (eg, when those behaviours become exclusively contingent on external rewards, Gneezy, Meier, and Rey-Biel 2011), and their harmful effects may nevertheless be considerable (Frey 1997a). And alarmingly, people generally seem to be oblivious to this possibility: for example, they remain convinced that incentives are effective (Murayama et al. 2016).

Processes that explain crowding-out effects

Several related processes have been suggested to underlie crowding-out effects (see Bowles and Polanía-Reyes 2012; Feldman 2011; Rode, Gómez-Baggethun, and Krause 2015; Underhill 2016):

Effects on intrinsic motivation. In the absence of extrinsic reasons to do so, individuals who show good behaviour (or refrain from showing bad behaviour) may do so primarily for intrinsic reasons; that is, because they regard it as moral or legitimate, they want to help others, or they want to feel good about themselves (Bénabou and Tirole 2006; Feld and Frey 2007). Laws, policies, and incentives introduce additional, extrinsic reasons for doing so. Although such instruments mainly serve to motivate those who are *not* (sufficiently) motivated, their

introduction may also undermine intrinsic motivation (Deci, Koestner, and Ryan 1999; Frey 1997a). Several processes may contribute to this.

A first process is that these instruments may be experienced as controlling (Deci et al. 1999; Frey 1997a). According to this explanation, people may experience laws, policies, and incentives as attempts to control or manipulate their behaviour, reducing their intrinsic motivation to comply. Evidence on monitoring also suggests that control may crowd out intrinsic motivation: although monitoring people's behaviour can increase compliance and reduce dishonesty, it simultaneously undermines their intrinsic motivation to do so (eg, Frey 1993; Schulze and Frank 2003).

A second process is that these instruments may lead people to misattribute the reasons for complying. According to this explanation, laws, policies, and incentives may lead people to misattribute their reasons for acting to these extrinsic forces, and to neglect the role of their intrinsic motives (ie, the overjustification effect, Lepper, Greene, and Nisbett 1973; Tang and Hall 1995).

Effects on the meaning of behaviour. In the absence of extrinsic reasons, decisions to comply may be understood as a question of norms or morals (Gneezy and Rustichini 2000). However, when compliance is proscribed by laws, policies, or incentives, this may alter how such decisions are interpreted—both by the actors and by those who observe them. This involves several related processes:

Firstly, these instruments may change the frame from which people understand good (or bad) behaviour. This is illustrated by the example of the day-care centre: here, the introduction of a sanctioning system reframed the issue from a moral question into one of economic exchange, where a 'market ethic' is appropriate (Gneezy and Rustichini 2000; Heyman and Ariely 2004).

Secondly, these instruments may change how compliance reflects upon oneself. When proscribed or rewarded, good behaviours may no longer seem like moral or prosocial acts, but rather like self-interested behaviours. For people who comply for intrinsic reasons, this may be highly objectionable and irreconcilable with their self-image. Laws, policies, and incentives may thus reduce the satisfaction or 'warm glow' that people receive from performing such behaviours (Andreoni 1990; Bowles and Polonía-Reyes 2012). Furthermore, when good behaviours are proscribed or rewarded, they also lose their meaning as a signal to others (ie, image spoiling, Bénabou and Tirole 2006; Janssen and Mendys-Kamphorst 2004). Accordingly, people may also be less inclined to comply in order to gain a favourable image.

Laws, policies, and incentives as signals. A third reason is that people may interpret laws, policies, and incentives as signals—signals that provide information on what behaviour is appropriate, on what others do, and on how the authority perceives them.

To begin with, people may interpret laws, policies, and incentives as normative signals. They interpret from these instruments what behaviours are appropriate or not. For example, punishment may be regarded as a signal that the authority disapproves of noncompliance, while rewards may do the opposite (Bowles and Polonía-Reyes 2012; Gneezy and Rustichini 2000). In

this way, these instruments may strengthen people's intrinsic motivations to comply (ie, a crowding-in effect, Bowles and Polanía-Reyes 2012; Frey 1997a; McAdams and Nadler 2005). Such interpretations may not only depend on the instrument itself (eg, whether an act is prohibited), but also on how it is implemented. For example, if rewards are low, people may interpret that compliance is not highly valued by the authority (Bénabou and Tirole 2006; Gneezy and Rustichini 2000).

In addition, people may interpret laws, policies, and incentives as an indication of how frequently others comply. When authorities introduce such instruments to promote compliance, people may interpret from this that noncompliance must be widespread (Kahan 2001). If so, these instruments may reduce, rather than increase, their willingness to comply by suggesting that noncompliance is the norm (Underhill 2016).

Lastly, people may interpret such instruments as signals that the authority does not trust them to comply spontaneously (see Bénabou and Tirole 2006; Cerasoli, Nicklin, and Ford 2014; Frey 1997b). If so, people may experience this as demeaning, undermining their intrinsic motivation to comply.

How crowding-out effects may impact behaviour

How may crowding-out effects be reflected in people's behaviour? This is not self-evident. Although there is an extensive (psychological) literature that demonstrates that incentives may reduce intrinsic motivation (eg, Cerasoli et al. 2014; Deci et al. 1999), this does not mean that

laws, policies, and incentives will necessarily reduce compliance. The reason is that such instruments simultaneously increase extrinsic motivation—and it is their combination that determines their impact on behaviour.

According to economic theory, incentives make the target behaviour more attractive by increasing its payoff (ie, the relative price effect). However, incentives may simultaneously decrease intrinsic motivation, reducing their net effect on behaviour. If people's extrinsic motivation from incentives exceeds the loss to their intrinsic motivation, they are likely to comply more. Conversely, if the loss to their intrinsic motivation is greater, they are likely to comply less. If intrinsic and extrinsic motivation are both affected in equal terms, their behaviour will be unaffected (Bowles and Polonía-Reyes 2012). As such, the impact of crowding-out effects will not always be directly visible in the target behaviour. Rather, this impact may be concealed (eg, by changing the reasons why people display it), visible in other behaviours (eg, by supplanting one undesirable behaviour with another, Thøgersen 1994), or visible in the future (eg, when the instruments lose their draw on people, or ultimately are abolished, Funk 2007; Gneezy & Rustichini 2000).

Evidence of crowding-out effects in compliance

In terms of their impact on behaviour, crowding-out effects have particularly been related to (academic) performance (eg, Cerasoli et al. 2014; Deci et al. 1999), cooperation (Bowles and Polonía-Reyes 2012), health behaviours (Promberger and Marteau 2013), and prosocial behaviour (Bénabou and Tirole 2006). However, laws, policies, and incentives are similarly used

to shape behaviour in the domain of compliance. If we apply the insights from the literatures in psychology and economics, then there are strong theoretical reasons to assume that these instruments may crowd out intrinsic motivation and thereby undermine compliance. However, in the domain of law, policies and incentives also have a strong expressive function, by signalling what behaviour is appropriate (Funk 2007; Sunstein 1996). For this reason, it is not clear how these instruments may impact intrinsic motivation and compliance. To provide insight into this question, I will now review evidence on crowding-out effects in compliance in theorising and empirical research. To do so, I will integrate insights from laboratory studies and field research on compliance in environmental, organisational, and other legal settings,.

Laboratory experiments

Experimental studies on crowding-out effects in compliance examine these processes in context of experimental games that are designed to model real-life principal–agent relationships (see Bowles and Polanía-Reyes 2012). In these types of games, participants either do or do not receive incentives (rewards, fines) to comply with requests to engage in behaviours that are costly to themselves but beneficial to the principal. By systematically manipulating these factors, and by controlling the variability that characterises principal–agent relationships in real life, these studies are well suited for demonstrating how incentives impact compliance levels—and for uncovering the mechanisms that contribute to this (Bowles and Polanía-Reyes 2012). Furthermore, because experiments are not limited by the constrains that exist in real life, they can also be used to explore how incentives could be shaped to prevent crowding-out effects—and more effectively promote compliance.

As a case in point, Fehr and Rockenbach (2003) examined agents' compliance with requests from the principal in context of a trust game. In this game, agents could return valuable endowments that had been transferred to them by the principal, who could specify their desired amount. Agents were less, rather than more, inclined to return the requested amount if the principal fined them for noncompliance. Conversely, they returned more when principals chose not to fine them, despite having the opportunity to do so.

The finding that fines reduce compliance was replicated by Henrich and colleagues (2001) in a study that spanned 15 different societies. Across many of these societies, participants reduced (rather than increased) their transfers to a powerless recipient in the dictator game when a third party could fine them for low transfers.

Xiao and Houser (2011) examined how these processes operated in more complex situations that involved multiple actors. They did so by studying a public-good game, in which multiple players must donate in order to achieve a public good. Their findings showed that punishment for low contributions reduced, rather than increased players' contributions when punishment was private and not visible to others. In contrast, when punishment was public, it did effectively increase their donations.

In sum, experimental studies have demonstrated that incentives can reduce compliance (or fail to affect it) in line with the idea of a crowding-out effect. The processes through which crowding out occurs remain nebulous, however, and are mostly based on inferences rather than direct

measures (Bowles and Polanía-Reyes 2012). Also, it is important to note that these processes are likely to be more complex in real-life settings—where they unfold over longer time frames, where moral and legal implications will be stronger, and where the scope for tailoring incentives may be more limited (see Feldman 2011; Underhill 2016).

Environmental compliance

Crowding-out effects have been strongly related to compliance with environmental policy. In particular, Frey (1999) has theorized that environmental policy may produce crowding-out effects, by being experienced as controlling, and by reframing pollution as an economic (rather than a moral) question.

To illustrate this process, Frey (1999) singled out emission rights; that is, measures that limit the amount that polluters are licenced to pollute (eg, Frey 1999). The reasoning behind such instruments is that they will make it costlier for actors to pollute, and thereby will reduce their tendency to do so. However, Frey (1999) argued that their effects may often be opposed. By reframing pollution as a buyable right (a 'licence to pollute'), such instruments instead may legitimise pollution and crowd out moral considerations. Similar concerns may arise over emission taxes, which impose a cost on polluters for harming the environment. However, relative to emission rights, taxes may more clearly express that pollution is undesirable, and accordingly, their impact on moral considerations may be more limited. Instead, Frey (1999) argued that taxes may undermine intrinsic motivation by being perceived as controlling. These processes have also

been applied to understand (non)compliance with other environmental policies, such as the European Landing Obligation for fisheries (Kraak and Hart 2019).

A number of studies have followed up on such theorising by empirically studying crowding-out effects in environmental compliance. These studies examine whether fines or rewards for behaviours that harm (or conserve) the environment may have unintended consequences by affecting people's intrinsic motivation to comply. Rode et al. (2015) reviewed a set of 18 empirical studies that examine these questions in the context of actual (Greiner and Gregg 2011, Sommerville et al. 2010) or simulated (eg, Jack 2009; Velez, Murphy, and Stranlund 2010) environmental behaviours among rural populations in (mostly) developing countries. These studies included the effects of regulation and tax incentives on conservation behaviours among cattle farmers in Australia (Greiner and Gregg 2011) and the effects of rewards on compliance with forest management plans (prohibiting agricultural expansion and hunting) in Madagascar (Sommerville et al. 2010). Across the various studies, Rode et al. (2015) observed indications that fines and rewards fail to promote, or even undermine, people's compliance with conservation goals (eg, Jack 2009). However, such findings mostly failed to reach significance, or occurred only in part of the sample (Sommerville et al. 2010; Velez et al. 2010). Conversely, other studies reported favourable effects of fines and rewards (eg, Velez et al. 2010).

A more direct indication of crowding-out effects in environmental compliance was provided by Feldman and Perez (2012), who studied such processes in the domain of recycling. Legislature employs a range of instruments to encourage people to recycle, including deposits and fines. In an experimental study, Feldman and Perez (2012) demonstrated that (especially high) deposits

and fines may undermine intrinsic motivation and compliance for people who are intrinsically motivated to recycle. Conversely, a low fine, or an ethical code to promote recycling, did seem to increase their compliance. These effects were opposed for people who were not intrinsically motivated to recycle: here, especially high fines and deposits enhanced compliance.

Importantly, Feldman and Perez (2009) also demonstrated that environmental regulation may produce crowding-out effects in observers. Participants reported lower condemnation of environmental offences if the offending company would be charged a tax or a fine. Conversely, they reported greater condemnation if the violation was prohibited (without penalties), would invoke a high sanction (fine and imprisonment), or occurred despite community-negotiated standards or permission to self-report. Furthermore, they were least inclined to take civic action when pollution was taxed (and most if it violated community standards or self-reporting). Feldman and Perez interpreted this as a crowding-out effect, such that putting a price on pollution may reduce moral considerations. Interestingly, they observed no indications that criminal sanctions (fines, imprisonment) could crowd in and evoke greater condemnation.

That incentives may have effects beyond the individuals or behaviours that they target is also suggested by a field study reported by Thøgersen (1994). Here, the introduction of a pay-by-weight scheme effectively reduced the volume of household waste (as intended) —but simultaneously increased illegal waste burning. These findings show that crowding-out effects may also manifest themselves in outcomes other than those that the policy targets (ie, spill-over effects).

Health-related behaviours

Following the seminal work of Titmuss (1970), a wealth of research has examined crowding-out effects in health-related behaviours (for a review, see Promberger and Marteau 2013). While fewer studies have focused on compliance, crowding-out effects may also be prominent in this domain. An important area is that of vaccination against infectious diseases.

Vaccination against infectious diseases is critical for public health, and many countries require citizens to inoculate children. Nevertheless, many citizens refuse to comply with such requests out of fears that vaccines may have harmful side-effects. To increase compliance, institutions have utilised rewards and fines, as well as legislation that makes vaccination compulsory. Research suggests that incentives may indeed promote compliance with vaccination obligations (for a meta-analysis, see Stone et al. 2002). Nevertheless, scholars have also expressed concern that such measures may produce crowding-out effects (Fiske et al. 2015; Promberger and Marteau 2013). In particular, such measures may be experienced as controlling, and are thereby believed to undermine voluntary compliance. Firm evidence on these processes is lacking, however, as studies generally do not directly assess how these instruments impact extrinsic and intrinsic motivation. As such, it remains unclear to what extent the greater compliance levels that they produce are at the expense of voluntary cooperation.

Tax compliance (and evasion)

Crowding-out effects have also been linked to tax compliance (and evasion). Authorities rely on monitoring, sanctions, and rewards to ensure citizens' tax compliance. Scholars have predicted, however, that doing so may undermine intrinsic motivation to comply—and thereby may undermine, rather than promote, tax compliance (Listokin and Schizer 2012; Feld and Frey 2007).

In this vein, a considerable body of research has examined how fines may impact tax compliance (for an overview, see Feld and Frey 2007). The results are mixed, however. Some studies report that fines promote tax compliance (e.g., Alm, Sanchez, and De Juan 1995), while others suggest that fines may even reduce it (Lubell and Scholz 2001). Feld and Frey (2007) suggested that the effect of fines may differ from that of monitoring, such that fines may promote compliance, while monitoring may reduce it. Other studies have suggested that monitoring, too, may display both positive and negative effects on tax compliance. They have demonstrated that audits may strongly increase tax compliance by increasing deterrence (Beer et al. 2019) —but also may decrease it by reducing intrinsic motivation (Gangl et al. 2014).

Other scholars have argued that tax compliance results from perceptions of legitimacy. For example, Frey (1997b) has argued that tax morale may be promoted by fair laws and policies that express trust in citizens, which may crowd in civic virtue. Conversely, laws that convey distrust may do the opposite. In line with this idea, Frey demonstrated that tax morale is lower in Swiss Cantons where opportunities for political participation are lower (and those policies thus are less fair and inclusive). In an experimental study, Hofmann et al. (2014) demonstrated that greater legitimacy may counter the detrimental effects of strict audits and fines. Thus, it seems that tax

compliance may result from both coercion and legitimacy, which may crowd motivation in opposing directions. It is the relative strength of these processes that is likely to determine whether compliance increases or decreases—which may explain the differing effects that are observed in the literature.

Contract breach

Researchers have also related crowding-out effects to the enforcement of contracts. In order to stimulate compliance with contracts, the law provides affirmative duties and sanctions for breaking them. Jurisdictions may vary in their enforcement of such sanctions, however, and the level of enforcement may produce crowding-out effects.

As a case in point, Bohnet, Frey, and Huck (2001) conducted an experiment using a contract enforcement game, in which the level of enforcement was varied. They observed greater compliance with contract terms not only in case of high enforcement but also in case of low enforcement. In contrast, contract breaches were more common in case of intermediate enforcement. Their findings are in line with the idea that greater enforcement may crowd out trustworthiness. This may be countered by high enforcement, which can ensure compliance for extrinsic reasons. However, trustworthiness may be crowded in at low enforcement levels in which contracts may be performed for intrinsic reasons.

Bribery

Crowding-out effects have also been linked to bribery (Schulze and Frank 2003; Serra 2011). In an experimental study using a bribery game, Serra (2011) examined how monitoring affected the tendency of 'officials' to ask for bribes. A conventional, top-down auditing system (in which the chances of being caught were low) was ineffective for reducing bribery: instead, 'officials' asked for larger bribes. However, a whistleblowing system, where 'citizens' could report corrupt 'officials' to the 'authorities', did effectively reduce bribery—even though the chances that doing so would effectively result in punishment were stated to be equally low. Bowles and Polanía-Reyes (2012) suggested that being accountable toward one's peers may crowd in social preferences against corruption. As noted earlier, monitoring may operate in the opposite direction, by evoking resistance and strategic behaviour (Frey 1993; Schulze and Frank 2003).

Civic duty

Crowding-out effects have also been related to compliance with civic duties such as voting (Funk 2007) or jury duty (Seamone 2002). In particular, this concerns the use of legislation or incentives to increase citizen compliance with civic duties. On the one hand, there is concern that such measures may reduce voluntary compliance. On the other hand, there are also suggestions that such measures may have beneficial effects by underlining the importance of these duties (ie, crowding-in effects).

In several countries (eg, Belgium, Australia), voting is compulsory, instead of citizens being free to decide whether or not to vote. Other countries have relied on fines or rewards in order to encourage voting (eg, Switzerland). Some researchers have voiced concern that such measures

may crowd out intrinsic motivation (eg, Chapman 2019). However, there are also indications of the opposite: for example, Funk (2007) observed that the voting turnout decreased, rather than increased, when a (symbolic) fine for not voting was abolished. This implies that fines (or rewards) may also express the importance of voting, and thereby crowd in intrinsic motivation.

Compliance in organisational settings

In organisational settings, researchers have referred to crowding-out effects to understand how compliance is affected by organisational reward structures (Frey and Jegen 2001; Stout 2014) or monitoring (Ramaswami 1996). Specifically, there is concern that these instruments may undermine compliance by evoking opportunistic and unethical behaviours.

Opportunistic behaviour. A case in point is the meta-analysis by Crosno and Brown (2015), which examined the effects of monitoring in marketing exchange relationships; that is, in interactions between companies and agents that act on its behalf (eg, employees, franchises, contractors, or intermediaries). Across 65 studies, they found that monitoring improved agent performance, but could also increase harmful, guileful opportunism. According to the authors, monitoring may have such effects because it undermines agents' sense of control, and thereby crowds out trust and voluntary cooperation (Ramaswami 1996). However, it seems that this impact can vary, as opportunism differed depending on what was being monitored (processes or outcomes) and in which relationship (within or between organisations).

Performance-based pay. At present, direct evidence that links performance-based pay to crowding-out effects is still limited. However, several scholars theorise that these reward structures may have such an impact and may (for example) crowd out moral considerations (eg, Frey and Jegen 2001; Stout 2014). Although there is no direct evidence of these processes yet, several empirical studies have shown that compensation indeed may predict organisational misbehaviour (eg, Harris and Bromiley 2007).

Whistleblowing. Crowding-out effects have not only been related to organisational deviance but also to the willingness to report it, known as whistleblowing. Because misbehaviour is often difficult for outsiders to detect, authorities are strongly dependent on whistleblowing by insiders. However, insiders often fail to report transgressions because doing so may have harmful consequences for themselves (eg, dismissal, sanctions). For this reason, authorities use a range of instruments to promote whistleblowing, including incentives, legal protection, and duties to report. But because whistleblowing may normally arise from intrinsic reasons, scholars have argued that such instruments may lead to crowding-out effects (eg, Feldman and Lobel 2010; Lobel 2012). Feldman and Lobel (2009) demonstrated this in an experimental study in which they tested how several laws and policies (rewards, fines, whistleblower protection, and/or affirmative duties to report) affected people's willingness to report misbehaviour. Participants generally reported strong intentions to blow the whistle across both affirmative duties, legal protection, fines, or (high) rewards. Their intentions were the strongest when there was a duty to report misbehaviour and doing so would earn a high reward. Conversely, their willingness declined when reporting was not obligatory and earned only a low reward. Interestingly,

participants did not seem to appreciate how influential (high) rewards were for their own intentions and condemned others who decided to report based on them.

To understand how these processes relate to intrinsic motivation, the authors also separated participants by their tolerance for misbehaviour (which they regarded as a proxy for intrinsic motivation). Those with low intrinsic motivation were more willing to report misbehaviour when doing so was obligatory, would prevent a fine, or earned a high reward. Conversely, those with high intrinsic motivation reported regardless of the policy. Feldman and Lobel concluded that rewards may encourage people to report less severe misbehaviours—but may crowd out intrinsic motives and give the impression of greed. In contrast, a duty to report, fines, or whistleblower protection may encourage whistleblowing while simultaneously conserving intrinsic, moral motivations.

Synthesis

Crowding-out effects refer to a diverse range of processes that may occur when authorities incentivise, control, or oblige compliant behaviour. They generally concern processes that undermine people's intrinsic motivation to comply (crowding-out effects), although the reverse is also possible (crowding-in effects). The impact of these effects on behaviour may often not be apparent, due to the notion that such instruments simultaneously increase extrinsic motivation to comply; also, their impact may spill over to different outcomes than the target behaviour. Nevertheless, there are considerable indications that laws and policies may have unanticipated,

detrimental (side) effects because of crowding-out effects—particularly by supplanting valuable, intrinsic reasons to comply.

Evidence of crowding-out (and crowding-in) effects on compliance is relatively modest compared to that on (academic) performance (eg, Deci et al. 1999) and cooperation (eg, Bowles and Polanía-Reyes 2012). Crowding-out effects are frequently linked to compliance in theorising; however, empirical evidence of these effects is more limited and shows mixed results. The strongest evidence comes from (laboratory) experiments (eg, Bowles and Polanía-Reyes 2012). Evidence from field experiments is more variable. Some studies report considerable, detrimental effects on compliance (eg, Gneezy and Rustichini 2000 on fines in day-care), while in other studies and settings, these effects are (at best) limited (eg, Rode et al. 2015 on incentives for environmental conservation).

As a consequence of this variability, it is difficult to draw firm conclusions on the impact of crowding-out (and crowding-in) effects in the domain of compliance. One major limitation especially accounts for this: although many studies refer to crowding-out effects to explain their findings, few studies directly examine the processes that comprise it. Generally, studies do not measure intrinsic and extrinsic motivation, impaired control, or salience of moral or economic frames. Because these processes may work in opposing directions (and potentially may cancel each other out), their impact may not always be visible in (non)compliant behaviour. As such, it is possible that similar processes (but in different proportions) are at work behind the differing effects on compliance.

If we want to understand their impact on compliance, an important question therefore remains: namely, how do crowding-out (and crowding-in) effects operate to shape people's decisions to comply (or not)? Future research should directly examine this question. On the one hand, this could be done through quantitative measures, which can be used to predict (non)compliant behaviour in structural models. On the other hand, much could be learned from qualitative research, which asks the actors themselves to describe the reasons for their actions. Through either approach, we may come to understand the mixed picture that we observe in the present literature.

To understand crowding-out effects on compliance, it is also imperative that future research focuses more on rules, affirmative duties, and prohibitions, and less on incentives and monitoring. By proscribing which behaviours are or are not permissible, such laws and policies are arguably especially relevant for compliance; however, only a few studies have explored their impact (eg, Feldman and Lobel 2009; Feldman and Perez 2009). Doing so may also shed more light on crowding-in effects and how these may contribute to greater compliance. The existing literature has mostly focused on how incentives and monitoring may produce crowding-out effects, and may thereby undermine compliance. However, laws, rules, and duties have a strong expressive function, signalling what behaviour is appropriate (Funk 2007; Sunstein 1996). In this fashion, such instruments may also evoke or strengthen intrinsic, moral motivations, and thereby contribute to greater compliance (Bowles and Polanía-Reyes 2012; Frey 1997a; McAdams and Nadler 2005). By focusing more on these instruments and processes, future research may provide a more comprehensive picture of how law and policy shape compliance—and how this may be hurt or helped by crowding-out and crowding-in effects.

Practical implications: how to shape law and policy to avoid crowding-out effects

Although current research leaves some important questions unanswered, it is clear that crowding-out effects can potentially be very costly, whereas crowding-in effects may enhance compliance. As such, it is important to ask how law and policy should be shaped to harness these effects. More research is needed to fully understand this. Nevertheless, some (preliminary) recommendations can be derived from the work of Underhill (2016) and Feldman (2011), who provided a comprehensive analysis of how the existing work on crowding-out effects applies to law. I recount some of their recommendations below. Please note that these should be treated as preliminary because most of these processes have not directly been tested in the domain of law and policy or in relation to compliance.

Setting incentives

Authorities frequently rely on incentives, yet (as noted) these may especially risk crowding-out effects. Underhill (2016) provided several recommendations on how incentives should be used to prevent this.

To begin with, she concluded that crowding-out effects may be reduced by relying on non-financial rewards, such as in-kind rewards or praise. These may be less likely to recast compliance as an economic transaction and more likely to conserve intrinsic motivation.

When setting financial incentives, Underhill (2016) observed that it is crucial that they be proportional to the requested behaviour and not too small. Small incentives may be ineffective; large incentives may undermine intrinsic motivation, but may still ensure compliance for extrinsic reasons. Rewards that reflect mastery or quality may be less likely to crowd out intrinsic motives. In every case, if incentives are introduced, it is essential that they are continued – because they may fundamentally alter people's reasons for complying (eg, Funk 2007).

To address concerns related to (self or public) image, an intriguing recommendation is to allow recipients to indicate a different beneficiary than themselves (eg, a charity, see Beretti, Figuières, and Grolleau 2019). This would enable decisions to comply to retain a moral character in spite of the reward.

For expressing disapproval, fines may be more effective (Bowles and Polonía-Reyes 2012). As such, they may be more suitable for misbehaviours where public disapproval is strong. Underhill (2016) noted that public punishment may be especially effective—but may also especially crowd out intrinsic motivation.

Conserving self-determination and control

To prevent crowding-out effects that result from impaired self-determination or autonomy, Underhill (2016) suggested that authorities could consult recipients in the design of laws and policies. Citizens may feel more compelled to comply with fair policies and may be more willing to relinquish their autonomy to them (see Frey 1997b). Furthermore, policies that give them

space in terms of *how* they comply (ie, outcome control rather than process control) may invoke less resistance (Crosno and Brown 2015).

Using uniform or targeted policies

Feldman (2011) recommended that when designing policies, authorities should consider which recipients and outcomes they target. Targeted policies, focusing specifically on people with low intrinsic motivation, should be used in cases where any violation can be critical (eg, divulging trade secrets). If the goal is to achieve high compliance, regardless of people's motives for doing so (eg, recycling), then uniform incentives may be suitable. Conversely, if only few individuals are needed to comply (eg, whistleblowing), uniform incentives are excessive, and may do more harm than good.

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