The University of Nottingham

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UNNC School of Economics Working Paper Series

Series B Behavioural and Experimental Economics

CEDEX

CENTRE FOR DECISION RESEARCH & EXPERIMENTAL ECONOMICS

Law and Norms: Empirical Evidence

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09 September 2019

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Abstract: A large theoretical literature argues laws exert a causal effect on norms. This paper is the first to provide a clean empirical test of the proposition. Using an incentivized vignette experiment, we directly measure social norms relating to actions subject to legal thresholds. Results from three samples with around 800 subjects drawn from universities in the UK and China, and the UK general population, show laws often, but not always, influence norms. The strength of the effect varies across different scenarios, with some evidence that it is more powerful when law-breaking is more likely to be intentional and accurately measurable.

Keywords: Social Norms; Law; Expressive Function of Law.

JEL Classification: C91, C92, D9, K1, K42

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1. INTRODUCTION

Legal rules play a vital role in the functioning of societies. Across all walks of life, laws regulate and constrain social behaviors, from the taxes individuals pay to governments, to the way they treat employees at work, or the sexual acts they engage in at home. However, an emerging literature in behavioral economics shows that many behaviors are also influenced by informal rules of conduct that define what society perceives as socially appropriate or inappropriate. Unlike laws, these *social norms* are not formally codified or sustained by extrinsic reinforcements such as material penalties or fines, yet they are commonly recognized within a given society and informally enforced by means of social sanctions and rewards. Recent research has shown that norms are an essential component of many of the social behaviors that are also regulated by law, such as the untruthful reporting of private information (e.g., Gneezy et al., 2018; Dufwenberg and Dufwenberg, 2018; Abeler et al., 2019; Garbarino et al., 2019), tax evasion (e.g., Lefebvre et al., 2015; Dwenger et al., 2016), bribery and corruption (e.g., Fisman and Miguel, 2007; Gneezy et al., 2019), or the expression of discriminatory behaviors or opinions (e.g., Barr et al., 2018; Bursztyn et al., 2019).

What is the relationship between these two institutions – law and norms -, that frequently regulate very similar types of behavior? Do they have independent influence on behavior, one by means of the deterrent power of incentives, the other by the power of social pressure? Or are there interdependencies in the influence they exert on social behavior? And, more specifically, can lawmakers use the law to affect behavior, not just through the deterring power of incentives, but also through what has been labeled in the literature as the *expressive function of law* (Sunstein, 1996), i.e., by shaping the underlying social norms of a society?

This paper is the first to present clean empirical evidence on the causal influence of law on social norms. While this question has attracted the interest of many researchers from multiple disciplines in the last two decades, and a plethora of theoretical mechanisms have been proposed to explain how law may shape norms, the empirical evidence remains scant. This is mainly because the identification of the causal effects of law on norms presents a number of substantive challenges to empirical research.

First, for many years social scientists have been struggling to translate the concept of social norm into a measurable construct that can be used in empirical analysis. For this reason, previous

empirical research has been limited to studying the influence of legal rules either on *behavior* – arguing that the observed effects cannot be merely explained by deterrence and thus providing indirect evidence for the influence of law on norms (e.g., Funk, 2007) -, or on *personal opinions* (Chen and Yeh, 2014) – a construct that is related to, but quite distinct from, social norms. In this paper, we exploit a recent advancement in empirical research on social norms (Krupka and Weber, 2013), and design a series of vignette experiments that allow us to measure, directly and in an incentive-compatible way, the *social norms* pertaining to a variety of social behaviors. Through these measurements, we can observe, for the first time, the influence that law exerts directly on norms.

A second, pervasive challenge faced by empirical research in this area concerns the difficulty in establishing a clear direction of causality in the relationship between law and social norms. This is because law and norms co-evolve: they can influence one another and are often simultaneously co-determined by external factors, such as the availability of factual information about the harms of certain behaviors. In this paper, we overcome this identification problem by exploiting a special subclass of laws that regulate behavior by means of *legal thresholds* defining the cut-off point above (or below) which a certain behavior becomes illegal (e.g., speed limit laws; age of consent laws; etc.). We argue that it is reasonable to assume that, if a social norm exists that governs the same behavior also regulated by a legal threshold, this norm, absent the law, would not make sharp distinctions between behaviors that are arbitrarily close to the threshold (e.g., driving at 69mph or 71mph on a road with a 70mph speed limit), since these behaviors are virtually identical to each other in all respects except for their legal status. Thus, if we observe a discrete change in the perceived social appropriateness of behaviors that are just on either side of a legal threshold, we can causally attribute this difference to the influence of law.[1]

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[1] Direction of causality can also be readily established in the context of laboratory experiments, where the researcher tightly controls the decision environment and can introduce exogenous changes in the "rules" that govern behavior in the lab. A number of papers have studied the effects of such "lab laws" using experimental games. These studies show that requirements about specific actions mandated by the experimenter (for instance, a minimum contribution level in a public goods game, or a minimum admissible wage in a gift-exchange game) can affect behavior even if they are supported by weak, non-deterrent sanctions, and that the effect can last even after the requirement has been lifted (e.g., Falk et al., 2006; Galbiati and Vertova, 2008; 2014; Riedel and Schildberg-Hörisch, 2013; d'Adda et al., 2017; Barron and Nurminen, 2018; Engl et al., 2018). Differently from these studies, our paper does not focus on lab laws, but on the effects of laws that regulate behavior outside the lab. This circumvents the issue of external validity that is sometimes raised for experiments that focus on how individuals respond to the legal environment (e.g., Kelman, 1985; Arlen and Talley, 2008).

In our vignette experiments, we asked subjects to evaluate the social appropriateness of various behaviors that are regulated by legal thresholds. We consider five types of legal thresholds, pertaining to: sexual activity with minors, the sale of alcohol to minors, undeclared cash imports into a country, drink driving, and speeding. Across several treatments, we present subjects with slightly modified versions of the vignettes where we describe behavior that is either legal or illegal, and either closer or further away from the legal threshold (for example, selling alcohol to a youth who is 1, 2, 3 or 4 months below or above the legal drinking age). In each case, we use the experimental technique pioneered by Krupka and Weber (2013) to measure the social norm pertaining to the behavior described in the vignette, and thus elicit a "normative function" that expresses the social appropriateness of behavior as a function of age, cash amount imported, blood alcohol content or speed, depending on the type of vignette.

We argue that the expressive effect of law on the norm associated with a certain behavior can be identified by testing for the presence of a discontinuity in the corresponding normative function at the legal threshold. As discussed above, we think that it is unlikely that the function, absent the law, would be discontinuous at the threshold since behaviors near, but on opposite sides of the threshold are virtually indistinguishable from one another. Thus, the presence of a discontinuity in the normative function at the threshold is likely to be caused by the existence of a law that assigns legal or illegal status to those behaviors.

We ran the experiments with more than 800 subjects drawn from two student samples, one in the UK and one in China, and one sample that is representative of the UK general population in terms of gender, age and personal income. In all samples, we find clear evidence of marked discontinuities in the normative functions at the legal thresholds. However, we also observe differences in the expressive power of law across the five types of behavior we consider. In particular, in both UK samples we find strong effects of law on norms associated with having sexual relations with minors, selling alcohol to minors, and importing undeclared cash amounts into a country. We find instead weaker or no effects in the case of laws regulating drink driving and speeding behavior. We provide suggestive evidence that these heterogeneous effects are related to differences across the five domains of law in perceptions of the intentionality of illegal behavior and ability of law enforcement to detect it.

Our paper contributes to the interdisciplinary literature on the expressive function of law. Most of this literature (reviewed in section 2 below) is theoretical or conceptual, and there are only few empirical studies that provide evidence for the causal influence of law on norms.[2] However, these studies typically show that the law has effects on behavior that transcends the mere deterrent power of incentives, but cannot show that these effects are actually mediated by shifts in the underlying social norms that are associated with those behaviors. Our paper complements this existing work by providing first-hand empirical evidence that legal rules have the power to shape normative intuitions about the behaviors that they regulate.

Our results provide evidence in favor of a specific mechanism behind this effect: the signaling theory proposed by Posner (1998; 2000; 2002). This theory contends that, when a law succeeds in creating separation in the types of individuals who do or do not comply with the legal rule, illegal behavior becomes socially stigmatized because of the signal it sends about the characteristics of those engaging in it. This allows for the possibility of variation in the expressive power of different laws depending on the informativeness of the signal conveyed by illegal behavior about a person's type. Our data is consistent with this: we observe that the strength of the effect of law on norms varies across legal settings and is correlated with the perceived intentionality and detectability of illegal behavior – two factors that are likely to affect the inferences one can make about the characteristics of those who engage in legal or illegal behavior. Thus, our results contain an important message for public policy design: laws can be made more effective, by better harnessing the power of social norms, if they can send a stronger signal about the transgressor.

The rest of the paper proceeds as follows. In section 2 we present the conceptual framework and identification strategy used in our study. Section 3 describes the experimental design. Section 4 presents the results of the experiment, and section 5 concludes.

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[2] We are aware of three empirical studies. Funk (2007) shows that the abolition of the legal duty to vote in 4 Swiss Cantons had a detrimental effect on voter turnouts, which is unlikely to be due to (lack of) deterrence since fines for not voting were very low (less than $1 in most cases). Wittlin (2011) shows that differences in seatbelt use across US states cannot be solely explained by state-level variations in penalties for not wearing a seatbelt, and that the enactment of a seatbelt law in one state has spillover effects on neighboring states. Rees-Jones and Rozema (2019) show that the effects of changes in the US cigarette tax law are mediated by the intensity of media coverage, lobbying efforts, and other activities related to the lawmaking process.

2. CONCEPTUAL FRAMEWORK & EMPIRICAL STRATEGY

Tracing back to David Hume (1740), the study of social norms has a long tradition in the social sciences (e.g., Durkheim, 1895; Parsons, 1937; Lewis, 1969; Sugden, 1986; 1989; Elster, 1989; Cialdini et al., 1990; Coleman, 1990; Pettit, 1990; Ellickson, 1991; Bicchieri, 1993; McAdams, 1997; Posner, 1997; Ostrom, 2000). It is only recently, however, that this body of research has started to converge on a shared paradigm to define norms and explain their influence on behavior. One point of common ground among several authors is the notion that humans naturally strive to obtain approval and avoid disapproval from others (e.g., Smith, 1759; McAdams, 1997; Sugden, 1998a; 2000; Brennan and Pettit, 2004; Bicchieri, 2006; 2017; Fehr and Schurtenberger, 2018; see Ruff et al., 2013 and Strang et al., 2015 for evidence on the neural basis of this desire for approval). This implies that individuals' willingness to undertake certain behaviors partly depends on the extent to which those behaviors are approved by the members of one's reference network. Social behavior is thus inherently dependent on expectations about what others think that one ought to do. Within this framework, social norms are rules of conduct that embody these expectations and define what is collectively perceived as appropriate behavior in a given decision situation by a specific group of individuals.

In economics, the notion of norm has been frequently used in the tradition of Lewis (1969), i.e. as a solution to pure-coordination problems with multiple equilibria (e.g., Young, 1993; 1996). But more recent approaches have also proposed models where agents strive to conform to others' expectations and are stigmatized for deviations from what is perceived to be appropriate or customary behavior (e.g., Bernheim, 1994; Lindbeck et al., 1999; Bénabou and Tirole, 2006; López-Pérez, 2008; Andreoni and Bernheim, 2009; Krupka and Weber, 2013; d'Adda et al., 2019). A growing empirical literature has provided increasing support to the mechanisms proposed in these models, across a variety of decision settings (see, e.g., Gächter et al., 2013; Krupka and Weber, 2013; Schram and Charness, 2015; Kimbrough and Vostroknutov, 2016; Gächter et al., 2017; Krupka et al., 2017; Barr et al., 2018; Chang et al., 2019).

In this paper, we follow the approach by Krupka and Weber (2013), and operationalize norms as rules that define the social appropriateness of the actions available to an agent. More precisely, we assume that the agent's utility from choosing action a_i is given by:

$$U_i(a_i) = V_i(a_i) + \gamma_i N(a_i) \tag{1}$$

where $V_i(a_i)$ describes the agent's utility over own material payoffs and $\gamma_i N(a_i)$ captures utility from norm compliance. This second term is defined by an individual-specific parameter γ_i, which describes the importance of the norm-compliance motive for agent i, and a norm function $N(.)$, which assigns a value of social appropriateness to each action a_i available to the agent. Krupka and Weber (2013) have shown, and subsequent studies (e.g., Gächter et al., 2017; Barr et al., 2018; Chang et al., 2019) confirmed, the usefulness of thinking about norms as *functions* that define the appropriateness of all possible actions available to i, as opposed to prescriptions of the most appropriate action that an agent ought to take. This makes it possible to capture subtle differences between the norms regulating a particular type of behavior in different situations or societies; for instance, different norms may agree upon which action is the behavior one ought to undertake, but differ substantially in the extent to which they stigmatize deviations from this most appropriate action.

In this framework, actions are more likely to be taken if they provide the agent higher material payoffs, and if they are more socially appropriate. Within this setup, a formal law, created and enforced through governmental institutions, can influence behavior in, potentially, two ways. First, it can alter the material payoffs the agent expects to receive from certain actions – for instance, if the government makes a particular action illegal and subjects it to a fine, the expected material payoff from this action is reduced by the size of the fine weighted by the probability of it being imposed. This is the traditional economics approach to rationalize the deterrent effect of law on behavior (see, e.g., Becker, 1968). Secondly, the law may exert an effect on the norm function $N(.)$ applying to that same behavior. This we can think of as *the expressive power of law*. A number of different mechanisms have been proposed in the literature to explain the source of this power. These fall broadly into three categories: (i) information transmission; (ii) the existence of a meta-norm of legal obedience; and (iii) the use of law compliance as a signal of one's trustworthiness.

The first class of mechanisms proposes that the law can act as a public signal containing crucial information that citizens use to update their beliefs about relevant features of the decision environment. McAdams (2000; 2015), for instance, argues that, particularly in democratic societies, the law conveys information about what most people in a society approve or

disapprove of. This can have a direct impact on norms, especially in situations where individuals may be ex-ante unsure about what others find appropriate or inappropriate – i.e. there is uncertainty about the shape of the norm function $N(.)$.[3] In these cases, factors, such as laws, that aggregate information about what individuals actually think (or are at least positively correlated with it) may lead to profound changes in the perception of what is socially accepted. Relatedly, several authors have proposed models where lawmakers have private information about some key features of the decision environment (for instance, the prevailing standards of behavior; or the distribution of agents' preferences), and use the law – and the formal incentives that accompany it – to signal it to the agents (see, e.g., Kahan, 2003; Bénabou and Tirole, 2011; van der Weele, 2012; Bursztyn et al., 2019).[4]

According to the second type of mechanism, discussed in Cooter (1998; 2000) and McAdams and Rasmusen (2007), individuals may comply with a norm of legal obedience whereby they feel obliged to follow the law and therefore automatically consider as appropriate the behaviors that are legal and as inappropriate those that are illegal. McAdams and Rasmusen (2007, p. 1591) argue that this effect may be "…*particularly important for offenses that are malum in prohibitum – wrong only because illegal – because the prohibited act is not itself governed by a norm and the only relevant norm is legal obedience.*". Thus, according to this account, the law can shape (or indeed create) the norm function $N(.)$ that regulates a specific behavior, but only because individuals follow a meta-norm that prescribes that one ought to respect the law.

Finally, Eric Posner (1998; 2000; 2002) proposes a third type of mechanism according to which individuals may use compliance with the law as a means to signal to others that they are trustworthy partners in informal exchanges.[5] When the signal is informative, and trustworthy individuals successfully separate from untrustworthy ones, illegal behavior becomes stigmatized because those who engage in such behavior are shunned and avoided by society. The law gives

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[3] A classic example of misperceived social norms are situations of "pluralistic ignorance", whereby individuals do not personally stigmatize a certain behavior, but falsely believe that most others do. See Bursztyn et al. (2018) for an example of pluralistic ignorance in the context of attitudes towards female labor force participation in Saudi Arabia.

[4] See Galbiati et al. (2013) and Danilov and Sliwka (2016) for experimental evidence, and Sliwka (2007) for a related model applied to workplace relations.

[5] In Posner's model a "trustworthy agent" has a low discount rate that allows them to sustain the benefits of long-run cooperation and forgo the immediate gains of defection. Agents use features of social life, such as law compliance, to signal to others their own discount rate.

thus rise to a social norm against this behavior: it is disapproved of, not directly because of the behavior's consequences, but because of the type of person it is associated with. However, this may not always be the case. Depending on a number of circumstances, including the incentives used to enforce the law or the ability of law enforcement to monitor behavior, individuals may or may not succeed in signaling their type through law compliance. When they do not succeed and both trustworthy and untrustworthy individuals pool on the same behavior, there is no stigma associated with illegal behavior and no norm against this behavior. Thus, according to Posner, whether the law has expressive power depends on the extent to which it succeeds in favoring the emergence of a separating equilibrium that *creates* a norm $N(.)$ stigmatizing illegal behavior.

While the literature discussed so far proposes mechanisms through which the law can exert an influence on social norms, several authors have highlighted the fact that the influence must also run in the *opposite* direction. Norms do sometimes precede the law and lead to its creation (see, e.g., Posner, 1997; Chen and Yeh, 2013). Indeed, some authors have argued that the law's reflection of the normative intuition of the community that it regulates is essential to guarantee its effectiveness (e.g., Robinson, 2000; Stuntz, 2000; Acemoglu and Jackson, 2017). More generally, law and norms co-evolve, they may influence each other, and they can both be independently affected by external factors, such as factual information about the risks and dangers of certain behaviors, which may stimulate simultaneous changes in both law and norms.

This highlights one of the crucial challenges faced by empirical research in this area – the difficulty in devising an identification strategy that allows overcoming the problem of reverse causality. Indeed, this also explains why empirical research is relatively scarce, especially if compared to the wealth of theoretical work that has been done on this topic.

In this paper, we propose a novel empirical strategy that, we argue, allows to cleanly identify the effect of laws on norms, using reasonably mild assumptions to resolve the issue of reverse causality. In particular, we focus on a special subset of laws that regulate behavior by means of *legal thresholds* that set a cutoff value to distinguish between legal and illegal actions. For instance, laws that establish the maximum speed at which one is allowed to drive on a given road. While it is difficult to defend the assumption that the enactment of a speeding law, or changes in the existing law, are independent from pre-existing normative considerations about the appropriateness of driving at high speed, we argue that a less demanding assumption is that

such a norm is unlikely to make a priori sharp distinctions between behaviors that are in all respects very similar to each other. For instance, in the absence of any pre-existing speed limit, it is unlikely that a norm would sharply distinguish between driving at 69mph instead of 71mph on a motorway such that this would inform the lawmaker's decision to position the legal threshold at 70mph. If this assumption is valid, one can then consider the existence of a sharp discontinuity in the underlying norm *exactly* at the speed of 70mph on motorways as causally determined by the existence of a legal limit at that speed.

Our reasoning here is similar to the arguments used to support the local randomization assumption in regression discontinuity designs. As in those designs, we are assuming that the "outcome" variable – in our case, the normative function $N(.)$ – would be continuous in the vicinity of the legal threshold, absent an expressive power of the law. If so, we can identify the causal effect of the law on norms by testing for a discontinuity in $N(.)$ measured at the behavior that coincides with the legal threshold.[6]

More precisely, in our experiment we will use an incentivized norm-elicitation procedure, described below, to measure the social appropriateness of a series of actions that vary in the distance from a legal threshold (for instance, the appropriateness of driving at 67mph, 69mph, 71mph or 73mph on a road where the limit is 70mph). We use the measurements of appropriateness for actions that fall below the legal threshold T to estimate the norm function for legal actions, $N_{legal}(a_i|a_i < T)$, while we use the measurements of appropriateness for actions that exceed the threshold to estimate the function $N_{illegal}(a_i|a_i > T)$. Under the assumption that these functions are continuous in a_i around the threshold T, we identify the causal effect of the law on the social norm by estimating:

$$(N_{illegal} - N_{legal}|a_i = T) = \lim_{\varepsilon \downarrow 0}\left[N_{illegal}|a_i = T + \epsilon\right] - \lim_{\varepsilon \uparrow 0}\left[N_{legal}|a_i = T + \epsilon\right] \quad (2)$$

Note that our identification strategy and its underlying assumptions have bearings for the type of mechanisms that we may be able to isolate with our study. In particular, our key assumption is that any characteristic of behavior, apart from its legality, that may underlie the

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[6] One difference between our design and regression discontinuity designs is that, as we explain in the next section, we obtain measurements of the outcome variable $N(.)$ from individuals who are *randomly assigned* (by us) to either side of the legal threshold. Thus, we do not have to worry about potential manipulations of the "assignment" variable on the part of subjects, which is instead a main concern in regression discontinuity designs.

normative function $N(.)$ does not vary sharply between actions just on either side of the legal threshold. For instance, if $N(.)$ is also a function of the potential social harms that result directly from engaging in a certain behavior, we assume that there are no sharp differences in the perceptions of such harms between actions that are just legal or just illegal. As such, a rational individual should not use legality as an informative public signal about these other characteristics of the behavior regulated by the threshold. This arguably makes information transmission an unlikely explanation for any effect that we may be able to identify with our design.

On the other hand, our design can pick up effects of the law on norms that are either due to a meta-norm of legal obedience, or to the mechanism proposed by Eric Posner, whereby laws affect norms when legal compliance serves as a separating signal of one's trustworthiness. While our experiment is not specifically designed to disentangle between these two explanations, a possible difference is that the meta-norm mechanism implies that the expressive power of law holds regardless of the specific domains which the law is applied to, whereas, in Posner's mechanism the ability of the law to affect norms is inherently context-dependent.

3. EXPERIMENT

3.1 Experimental Design

Our experiment is designed to measure the effect an action's legality has on the social norm pertaining to it. In contrast to existing studies, which either examine the effect of law on behavior (e.g., Funk, 2007) or on personal opinions (e.g., Chen and Yeh, 2014), we directly measure the influence of action's legality on social norms. To do so, we use the norm-elicitation procedure introduced by Krupka and Weber (2013). We presented subjects with a series of vignettes describing a person behaving in a certain way. In each vignette, subjects were told to evaluate the social appropriateness of the person's behavior. They were required to indicate how socially appropriate they thought this behavior was by selecting one option on a four-point ordered scale: "Very socially appropriate", "Somewhat socially appropriate", "Somewhat socially inappropriate", or "Very socially inappropriate".

The task was incentivized: if a subject's evaluation of the behavior in a vignette was the same as that chosen by most other subjects, the subject could be paid a cash bonus in addition to their participation fee; otherwise, they were only paid the participation fee. The incentives

transform the task into a coordination game in which subjects are incentivized to match the appropriateness evaluations of other participants in the experiment. The rationale for this incentive scheme is that, as argued by Krupka and Weber (2013), if a norm exists regarding the behavior being evaluated, then this constitutes a particularly salient focal point in the task that subjects can use to successfully coordinate. This being the case, subjects' evaluations of the behavior in the vignette indirectly reveal the underlying social norm pertaining to that behavior. Moreover, the task incentivizes subjects to reveal how appropriate they believe particular behavior is commonly regarded, rather than their own personal evaluation of the behavior. As social norms are collectively recognized rules of behavior, rather than personal opinions about appropriate behaviors, this is a key element of the design (see Bicchieri, 2006 and Krupka and Weber, 2013 for a discussion of the difference between personal opinions and social norms).

Five of the vignettes used in the study were designed to measure the effect of law on norms. As explained in the previous section, this was done by focusing on situations where the legality of a particular behavior is determined by which side of a legal threshold the behavior falls on. In particular, we considered five different types of legal thresholds, concerning: (i) the age of consent; (ii) the legal drinking age; (iii) the maximum amount of cash which is legal to import in one's country without declaring to customs; (iv) the blood-alcohol content drink driving limit; and (v) the legal speed limit for driving on a motorway.[7]

Each of our five vignettes described the behavior of a person engaged in a situation that involved one of these legal thresholds. The age of consent vignette described the situation of an adult engaging in sexual activity with a younger person that he had met at a party. The drinking age vignette described a shopkeeper selling alcohol to a youth who is known to be a local vandal. In the cash at customs vignette, a person was returning from abroad with a cash amount that he did not declare at customs. In the drink driving vignette, a woman was driving home after drinking on a night out. Finally, the speeding vignette described a woman driving on a

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[7] We chose these five thresholds because they offer interesting variation in the severity of the illegal behavior, but also in relevant features of law enforcement, for instance the ability to monitor or accurately detect whether a behavior exceeds the legal threshold or not. Moreover, at least in one case (the cash at customs situation), we have an example of illegal behavior that is typically considered *malum in prohibitum*, i.e. wrong just because it has been deemed illegal (see, e.g., McAdams and Rasmusen, 2007). As discussed below, we will exploit this variation to shed light on the possible mechanisms that underlie the effects we observe in our experiment.

motorway. The vignettes, together with the experimental instructions, are reproduced in the Online Supplementary Materials (OSM) A and B.

In all cases, we made it clear that the person in the vignette knew what the legal threshold was and could verify which side of the threshold their own behavior would fall on. For example, in the age of consent vignette, the adult checks the younger person's ID card in order to verify whether she is above the age of consent. We deemed this important for two reasons. First, we wanted to subtly remind (or inform) our subjects about the existing legal rules that were relevant for each situation. Second, we wanted our subjects to evaluate the behavior of a person who was knowingly following or breaking the law, so as to remove any ambiguity about a potential "ignorance of the law", which may have affected judgments of appropriateness.

For each situation, we designed 4 (or 8, depending on the sample – see below) different versions of the vignette, which differed only in that they described behaviors falling on either side of the legal threshold and at different distances from it. This included behaviors that were only just legal or only just illegal, so as to measure the appropriateness of actions that were virtually identical in all respects other than their legal status. For instance, for the age of consent situation, we designed versions of the vignette where the younger person was 1, 2, 3, or 4 months above the age of consent, and versions where she was 1, 2, 3, or 4 months below the age of consent.

The different versions of the vignettes were administered according to a between-subject design, so that each subject evaluated the appropriateness of only one behavior per situation. For example, some subjects were (only) described the vignette where the younger person was 1 month above the age of consent, others were (only) described the vignette where she was 2 months above; etc. These between-subject measurements of appropriateness allow us to obtain, for each situation, an estimate of the norm function $N(.)$ that regulates behavior in a neighborhood around the relevant legal threshold. Our identification strategy consists of testing, for each of the five vignettes, whether there is a discontinuity in the norm function $N(.)$ at the corresponding legal threshold. [8]

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[8] As discussed earlier, this strategy relies on the assumption that any factor other than legality that may affect the norm function $N(.)$, does not vary sharply in proximity of the threshold. A potential concern is that the norm function $N(.)$ may be "jumpy" in the proximity of "round numbers" such as those that are typically used in legal thresholds (e.g., in the case of age, the function may be discontinuous every time a person's age changes by 1 year).

This identification strategy, and more generally the Krupka-Weber procedure to elicit social norms, relies on the crucial assumption that subjects use the norm as a focal point to coordinate their evaluations with those of others. However, in principle, subjects may use other salient coordination points as a mean to coordinate, in which case subjects' responses would not be revealing the underlying social norm as intended. While the Krupka-Weber procedure has been carefully designed to avoid the presence of "nuisance" coordination principles (e.g., by avoiding the inclusion of a mid-point in the set of evaluation options; see Krupka and Weber, 2013 for discussion), in our design this concern may be particularly relevant because legality in itself could be used as a focal principle for coordination. That is, subjects may use the following strategy to coordinate with others: rate actions that are legal as "appropriate" and actions that are illegal as "inappropriate", regardless of whether this is what the underlying social norm truly prescribes. Note that this alternate coordination strategy would also give us a discontinuity at the threshold – albeit for the wrong reason.

Our experiment contains two features that were designed to minimize this concern. First, when we gave subjects instructions about how to complete the evaluation task, we explicitly drew a distinction between the concept of social appropriateness and that of legality. We told subjects that by "*socially appropriate*" we meant "*behavior that you think most people would agree is the 'right' thing to do*", and added: "*Note that the 'right' thing to do may not necessarily be made explicit or supported by laws, nor enforced by the threat of legal sanctions. So an action may be 'appropriate' even if it is not legal; or 'inappropriate' even if it is not illegal. Rather, an appropriate action is an action that most people believe ought to be taken (regardless of whether it is legal or not), and they may be prepared to express their disapproval if it is not taken.*"[9]. The inclusion of this passage in the instructions aims to reduce the incentive for subjects to use legality as a coordination device, since it breaks the cycle of beliefs that may support it as a

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We think that this is an unlikely explanation of our results. As we show below, the discontinuities we observe in our experiments are so large that there is simply no room on our appropriateness scale for similar-sized discontinuities to occur at other round numbers in the function. Moreover, we find that the discontinuities are moderated in their magnitudes by different aspects of the legal environment (see Section 4.2), which would be difficult to explain if they were the simple result of a "round number" effect.

[9] This language may, if anything, nudge subjects towards mentally separating the concepts of social appropriateness and legality further away than they are in reality. The consequence of this would be to make it less likely to observe an effect of laws on norms. As our null hypothesis is that laws do not affect norms, we considered this preferable to the alternative risk of subjects misinterpreting the term "social appropriateness" as being synonymous with or too close to "legal".

successful coordination strategy (subjects should now be doubtful that others may use legality to coordinate given that they are explicitly told not to do so).

Moreover, we included in the study three filler vignettes that were designed to train subjects to think of social appropriateness as a concept that is distinct from legality. In these vignettes, which were presented at the beginning of the experiment and thus before the five vignettes that are the focus of the study, subjects were described behavior which was unlikely to be considered very inappropriate, but that in one case was regulated by law and legal (a person deciding not to illegally download a movie), in another it was regulated by law and illegal (a person driving very slowly and safely without wearing a seatbelt), and in the third case it was not regulated by law (a person choosing between booking a holiday and giving money to charity).

Overall, as we will discuss in more detail in the next section, our results suggest that we have been successful in minimizing the use of legality as coordination principle. In particular, there are multiple occurrences where our subjects did rate legal actions as inappropriate and illegal actions as appropriate, which runs counter the coordination strategy described above. Moreover, we do not observe a discontinuity in *all* vignettes – an outcome which we would have instead expected, had our subjects completed the task using legality as a coordination device.

Finally, our experiment also included seven additional filler vignettes, which, along with the five legal threshold vignettes that are the focus of the study, were presented in random order.[10] These vignettes were included in order to avoid it becoming salient to subjects that we were interested in the evaluation of behaviors regulated by a legal threshold – which might have triggered an experimenter demand effect. Moreover, this could have increased the saliency of legality as a potential coordination strategy. Thus, the seven filler vignettes featured a variety of types of behaviors that were either unregulated by law (e.g., a person refusing to give money to a beggar) or that were regulated by law but not by means of legal thresholds (e.g., a person leaving a restaurant without paying the bill). The filler vignettes were not subject to manipulation (i.e. we did not prepare different versions of them), so each one was identical for every subject. If such an experimenter demand had emerged, we would expect systematic differences in subjects' responses to the first vignette they faced in which a legal threshold was relevant compared to

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[10] Thus, each subject evaluated behavior in 15 vignettes in total: the 3 training vignettes used at the beginning of the study, the 7 filler vignettes, and one version of each of the 5 legal threshold vignettes.

their responses to later such vignettes. Our results show this was not present: the size of the estimated discontinuities do not tend to be larger or smaller for vignettes answered earlier or later.[11]

3.2 Samples and Experimental Procedures

Our experiment was run between September 2017 and March 2019 with a total of 820 participants separately recruited in three different samples across two countries. We used two student samples (one from the UK and one from China), and one sample of the UK general population. In each case, subjects were told that, in order to receive the bonus payment from the Krupka-Weber task, they had to coordinate with other participants of their own sample. Thus, for instance, subjects in the UK student sample knew that they had to evaluate actions in the same way as other participants drawn from the same population as themselves.

The UK student sample consisted of 197 British students at University of Nottingham. For each vignette with a legal threshold, subjects were randomly assigned to one of 4 possible versions of the vignette. Thus, our estimates of the norm function $N(.)$ relies on 4 distinct measurements (2 legal and 2 illegal) per vignette, from approximately 50 subjects each. Students completed the experiment online in around 10 minutes, and one-fifth of participants were selected for payment. The selected subjects were paid a £10 participation fee, plus a bonus payment of £30 if they had successfully coordinated in one of the 15 vignettes they had evaluated, randomly selected at the end of the study.

To probe the generalizability of our findings, we repeated the experiment using a sample of the UK general population. The sample consisted of 375 British participants recruited by an online panel survey company.[12] We set recruitment quotas so as to obtain a sample that was representative of the UK general population along three dimensions: gender (51% female), age (11% aged 18-24; 21% aged 25-34; 23% aged 35-44; 24% aged 45-54; 21% aged 55+), and

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[11] This analysis of order effects is presented in more detail in OSM C.

[12] The company, Qualtrics, manages online panels of participants who have signed up to regularly take part in internet studies in exchange for compensation. The same company has been used, for instance, in the experiments of Hugh-Jones (2016) and Bursztyn et al. (2019). Hugh-Jones (2016) contains a discussion of how online experiments with Qualtrics samples compare with standard laboratory experiments with student samples. Boas et al. (2019) compares samples recruited online in the US and India via Qualtrics, Amazon Mechanical Turk and Facebook with nationally representative benchmarks in terms of demographics as well as several attitudinal and behavioral dimensions. They conclude that Qualtrics samples offer clear advantages over the other two online panels, being the "*most demographically and politically representative*".

yearly income (23% less than £20,000; 42% £20,000-£40,000; 20% £40,000-£60,000; 15% more than £60,000).[13] Again, subjects were randomly assigned to one version of each of the five vignettes with legal thresholds. This time, however, we designed 8 different versions of each vignette (4 legal and 4 illegal), so as to increase the precision of our estimate of the norm function $N(.)$. All subjects received a base incentive of approximately £0.40 for participating in the online study. In addition, we randomly selected one-fifth of participants and paid them (through Qualtrics) according to the same rules used for the UK student sample (£30 for successful coordination on one randomly selected vignette).

This second experiment with the UK general population sample was also used to further probe one interesting result that had emerged from the experiment with the student samples. As we will show in the next section, we found that the law exerts a non-uniform influence on norms across the five situations we studied. We explored three mechanisms that could potentially explain why the law may be more effective in shaping some norms than others, related to the ability of law enforcement to monitor violations, the willingness to tolerate violations that are detected, and the ability of citizens to control which side of the legal threshold their behavior may fall on.

To do so, after participants had completed the evaluations of the 15 vignettes, we asked them to consider, in random order, 5 additional scenarios which were similar to the 5 legal threshold situations they had already evaluated except that in all cases the scenarios now described an instance where the behavior was just on the illegal side of the threshold. For each scenario, participants were asked 4 (non-incentivized) questions, concerning whether they thought that: (i) the person in the vignette had in fact broken the law (and if they did not answer "Definitely", they were asked to further explain their answer using an open-ended response); (ii) avoiding breaking the law was within a person's control; (iii) the police, if they observed the behavior, could accurately detect whether the person had broken the law; and (iv) the police were likely to take action against the person in case of irrefutable evidence that they had broken the law. In all cases, responses were collected on a four-point ordered scale.

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[13] According to 2017 census data, the UK population is divided in the following subgroups: 51% female; 15% of individuals aged 18-24, 21% aged 25-34, 21% aged 35-44, 23% aged 45-54, 20% aged 55+; and 21% with a yearly income less than £20,000, 41% with income £20,000-£40,000; 22% with income £40,000-£60,000; and 16% with income more than £60,000.

At the same time as the UK student experiment, we also collected data from a second student sample comprised of 248 Chinese students at the University of Nottingham Ningbo China. The main interest of this additional experiment was again to probe the generalizability of findings, this time by testing the effects of laws on norms in a very different legislative environment, one where the rule of law is relatively weak compared to the UK case (for instance, according to the 2016 Rule of Law Index of the World Justice Project, the UK ranks 10th out of 113 countries while China ranks 80th). Procedures used in the Chinese experiment were similar to those used in the UK student sample experiment. Instructions were first translated into Chinese and then back-translated in English, as usual practice. The Chinese vignettes were further slightly adjusted to reflect cross-country differences in the law (although laws regulating the five behavior under study exist in both countries, the cutoff values of the thresholds differ).[14] Incentives were converted using a PPP exchange rate of £1 = 6.2RMB, and the payment rules were the same as those in the UK students experiment.[15]

4. RESULTS

4.1 The Expressive Power of Law: UK Samples

We start by presenting the results from our two UK samples. Figure 1 plots the norm functions elicited in the five legal threshold situations. These functions plot the average social appropriateness of the various behaviors that subjects evaluated in the experiment. Following the approach of Krupka and Weber (2013), we assign evenly-spaced values of +1 to the rating "Very socially appropriate", +0.33 to the rating "Somewhat socially appropriate", -0.33 to the rating "Somewhat socially inappropriate", and -1 to the rating "Very socially inappropriate". Thus, the norm functions $N(.)$ assume positive values for actions that, on average, are evaluated as socially appropriate and negative values for inappropriate actions. The blue circles show the function

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[14] Other aspects of the real-world legal frameworks, regulating the actions featuring in the vignettes, may of course also have differed between the two countries. For instance, some laws may carry heavier punishments or be more strongly enforced in one country or the other. Therefore, while we kept all procedural features of the UK and China experiments as close as possible, our aim is not to conduct a fully controlled cross-cultural comparison of the effect of law on norms. Rather, we consider identifying the expressive power of laws in each country to be of independent interest. We can also comment on whether the results are qualitatively similar between the two countries.

[15] Monetary amounts in the vignettes were also adjusted according to PPP exchange rate (with rounding), except in the cash at customs vignette where the amounts were dictated by different legal thresholds between the UK and China. Conversions, subject to rounding, were also made between imperial and metric units, where relevant.

values for the student sample, while the red squares show the function values for the general population sample. Recall that for the latter sample we estimated 8 points on the function, as opposed to 4 points for the student sample.
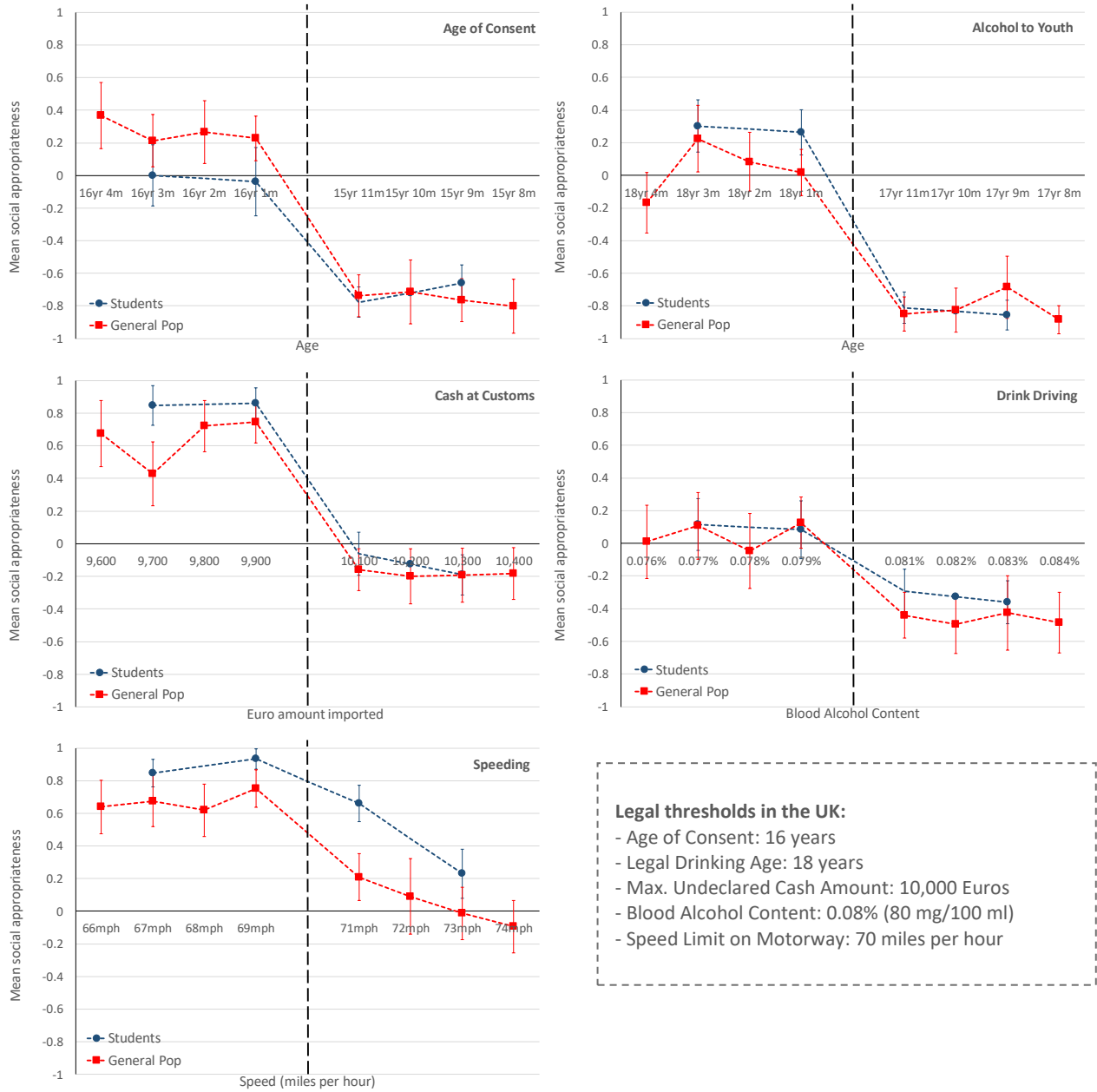
In each panel, the black dotted line indicates the position of the legal threshold. Actions to the left of the threshold are legal, while those to the right are illegal. The first three panels of the figure reveal that, in both samples, the legal threshold exerts a very strong influence on the norm function: there is a sharp drop in appropriateness values as we move from the legal to the illegal side of the thresholds. For the age of consent vignette, the appropriateness values drop from +0.23 to -0.74 (general population; students: -0.04 to -0.78) as the age of the young person in the vignette changes from 16 years and 1 month (1 month above the age of consent) to 15 years and 11 months (1 month below the age of consent). For the vignette where a shopkeeper sells alcohol to a youth, the appropriateness values drop from +0.02 to -0.85 (general population; students: +0.26 to -0.81) as the age of the youth changes 1 month above the threshold to 1 month below the threshold. Finally, in the cash at customs vignette, the appropriateness values drop from +0.75 to -0.16 (general population; students: +0.86 to -0.07) as the person in the vignette imports undeclared cash that is either below or in excess of 100 Euros relative to the legal maximum. In all cases, it is also apparent that the small increments in the running variables (age and cash amount imported) are instead inconsequential for behaviors that are both on the legal side of the threshold, or both on the illegal side of the threshold.[16]

The drop in appropriateness values at the legal threshold is instead much smaller in the drink driving and speeding vignettes, for both the student and general population samples. Here, the functions tend to decrease in the range of behavior measured in the experiment, but there are not such sharp discontinuities at the threshold. For the drink driving vignettes, the appropriateness values drop from +0.13 to -0.44 (general population; students: +0.08 to -0.29) as the blood alcohol concentration changes from 0.079g/100ml (legal) to 0.081g/100ml (illegal). For the speeding vignette, the appropriateness drops from +0.75 to +0.21 (general population;

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[16] In OSM D we present in full the distributions of appropriateness ratings selected by subjects for each vignette. These bear out that, in the three vignettes discussed above, there are big changes in the evaluations when the threshold is crossed. For instance, in the Age of consent vignette, as evaluated by the general population, the older male having sex with the girl aged 16 years and 1 was rated "very socially inappropriate" by only 6.4% of subjects, which increased to 73.8% when the girl was aged 15 years and 11 months.

FIGURE 1

Norms in the five legal threshold situations, UK samples

Note: Each panel plots the average social appropriateness of actions at various distance from a legal threshold (1 = very socially appropriate; -1 = very socially inappropriate). The dashed black line indicates the position of the legal threshold in each situation (values of the legal thresholds reported in the bottom-right box). Actions to the left of the threshold are legal, actions to the right are illegal. Bars are 95% confidence intervals computed as $\mu \pm 1.96 * se(\mu)$ where μ is the average appropriateness of an action and $se(\mu)$ the standard error of the mean.

students: +0.93 to +0.66) as the speed changes from 69mph (legal) to 71mph (illegal).

We formally examine these patterns using regression analysis. Based on the identification strategy sketched in equation (2), we estimate the following regression model for each vignette:

$$n(a_i) = \alpha + \beta_1(T - a_i) + \beta_2 Illegal_i + \beta_3(T - a_i) * Illegal_i + \varepsilon_i \qquad (3)$$

where $n(a_i)$ is subject i's evaluation of appropriateness of the behavior a_i described in the vignette, $(T - a_i)$ measures the distance between the legal threshold and the behavior a_i evaluated by the subject, $Illegal_i$ is a dummy that takes value 1 if subject i evaluated a version of the vignette that contained illegal behavior and 0 otherwise, and ε_i is the error term. Note that this model allows the slope of the relationship between appropriateness and distance from the threshold to differ between legal and illegal actions. The coefficient β_1 measures the relationship for legal actions, i.e., the slope of the function that we called $N_{legal}()$ in Section 2.[17] The coefficient β_3 measures how this slope changes for illegal, rather than legal, actions, i.e. it allows us to derive the slope of $N_{illegal}()$. The coefficient of most interest is β_2, which measures the difference between the estimates of the norm functions $N_{legal}()$ and $N_{illegal}()$ at the legal threshold T, and thus captures the discontinuity of the norm at the legal threshold, i.e. the causal effect of law on normative considerations.

We estimated the regression equation (3) separately for each sample and each vignette, using OLS regressions with heteroscedasticity-robust standard errors.[18] Table 1 shows the results, in Panel A for the students sample and in Panel B for the general population sample.

Starting with Panel A, the estimate of the coefficient β_2 is negative and highly significant in models A1, A2 and A3 (the age of consent, alcohol to youth, and cash at customs vignettes), indicating the existence of strong discontinuities at the legal thresholds for these situations (the magnitude of β_2 ranges from -0.778 to -1.035 across the three vignettes). In contrast, the estimates of β_2 are much smaller in models A4 and A5 (the drink driving and speeding

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[17] In two of our five vignettes (age of consent and alcohol to youth) actions *below* the threshold are illegal, while in the other three actions *in excess of* the threshold are illegal. To ease interpretation, we code our variable $(T - a_i)$ so that positive values are always assigned to legal actions and negative values to illegal actions. In other words, the variable is actually defined as $(a_i - T)$ for the age of consent and alcohol to youth vignettes, while it is defined as $(T - a_i)$ for the other three vignettes.

[18] For the general population sample we also have data on participants' age, gender and income, which we use as controls in the regressions (not shown in Table 1). We did not collect any socio-demographic data from the students.

vignettes). The coefficient is in fact not significantly different from zero for the speeding
vignette, and only significant at the 10% level for the drink driving vignette (p = 0.068).

TABLE 1
OLS regressions, UK samples

Panel A: Students	(A1) Age of consent	(A2) Alcohol to youth	(A3) Cash at customs	(A4) Drink driving	(A5) Speeding
$(T - a_i)$	0.019 (0.071)	0.019 (0.054)	-0.007 (0.039)	0.016 (0.061)	-0.044 (0.027)
$Illegal$	-0.778*** (0.184)	-1.035*** (0.138)	-0.866*** (0.132)	-0.326* (0.178)	-0.103 (0.107)
$(T - a_i) * Illegal$	-0.078 (0.081)	0.004 (0.064)	0.072 (0.061)	0.017 (0.077)	0.258*** (0.055)
$Constant$	-0.058 (0.167)	0.246** (0.114)	0.868*** (0.079)	0.067 (0.141)	0.977*** (0.053)
R^2	0.293	0.613	0.567	0.139	0.319
N.	197	197	197	197	197

Panel B: General population	(B1) Age of consent	(B2) Alcohol to youth	(B3) Cash at customs	(B4) Drink driving	(B5) Speeding
$(T - a_i)$	0.026 (0.038)	-0.029 (0.039)	-0.055 (0.038)	-0.014 (0.043)	-0.039 (0.033)
$Illegal$	-0.890*** (0.128)	-0.920*** (0.118)	-0.948*** (0.124)	-0.522*** (0.143)	-0.461*** (0.127)
$(T - a_i) * Illegal$	-0.001 (0.051)	0.034 (0.045)	0.058 (0.051)	0.024 (0.058)	0.145*** (0.049)
$Constant$	0.216 (0.140)	0.264** (0.119)	0.596*** (0.145)	-0.040 (0.153)	0.623*** (0.126)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.467	0.405	0.373	0.160	0.263
N.	375	375	375	375	375

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. Robust standard errors in parentheses. Controls (age, gender, and income) included in the regressions of Panel B but are not reported in the Table. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

A similar pattern emerges in Panel B. We find strong discontinuities in the norm functions for the age of consent, alcohol to youth, and cash at customs vignettes (coefficients ranging from

-0.890 to -0.948), but much weaker effects in the drink driving and speeding vignettes, where the coefficient estimates are roughly half the magnitude of the estimates of the other three vignettes.

In both samples, a series of Chow tests confirm that, while there are no significant differences between the *Illegal* coefficients of first three vignettes, $\beta_2^{consent}$, $\beta_2^{alcohol}$, and β_2^{cash} (all p > 0.346 for students; all p > 0.867 for the general population), or between the estimates of $\beta_2^{drink-drive}$ and $\beta_2^{speeding}$ (p = 0.347 for students; p = 0.932 for the general population), there are significant differences between the estimates of the first and second group of coefficients.[19] Specifically, among students, we find differences that are significant in all such comparisons (all p < 0.028) except between $\beta_2^{drink-drive}$ and $\beta_2^{consent}$ (p = 0.124); among the general population sample, we find significant differences in all such comparisons (all p < 0.089).

Overall, our results show that the law can have a strong influence in shaping the norms that govern the behaviors that are targeted by the law. However, the results also show that the expressive power of law does not hold uniformly across all situations. In particular, our data show that, in the UK, laws related to driving behaviors seem to hold a weak power on the underlying social norms. We will return on this result in the next subsection, where we explore potential explanations for this variability in the expressive power of law.

To conclude this sub-section, we briefly discuss two additional interesting results that emerge from our data. First, from a methodological point of view, it is remarkable that the comparative static results obtained with the student sample are successfully replicated using a representative sample of the broader population. In several cases, the point estimates of the appropriateness of various behaviors are virtually identical between the two samples. This result contributes to the ongoing debate about the generalizability of results of standard economic experiments (see, e.g., Levitt and List, 2007; Camerer, 2015).[20]

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[19] We report p-values that are corrected, using the Benjamini-Hochberg False Discovery Rate method (Benjamini and Hochberg, 1995), for the fact that we are performing multiple tests of the same hypothesis.

[20] Figure 1 shows that the responses of the general population sample are noisier than the student sample's responses (see, e.g., the wider confidence interval bars). This is not entirely surprising, given that the reference group that subjects were told they had to coordinate with in the Krupka-Weber task, is broader and less well-defined than in the case of students (students knew they had to coordinate with other University of Nottingham students, while the general population subjects were simply told that they had to coordinate with another British participant). This makes the overall replicability of findings even more remarkable.

Another interesting result is that our data suggest that the Krupka-Weber task may be robust to the presence of "nuisance" coordination points – in particular, we see patterns in our data that are inconsistent with the notion that subjects used legality as an alternative coordination strategy. First, Figure 1 shows that, in both samples, there are several instances of legal behaviors being evaluated as inappropriate and illegal behaviors being evaluated as appropriate. This is not just true in terms of the averages reported in Figure 1, but also in terms of modal responses, as shown in OSM D. Second, we do not see uniform effects of the law on norms. Third, if subjects use legality to coordinate with other participants, one would expect this strategy to be likely to emerge and get stronger over time as they notice that many of the vignettes are related to legal thresholds. However, as reported in OSM C, the effect of law on norms does not increase or decrease as subjects progress through the vignettes.

4.2 Variability in the Expressive Power of Law: Possible Mechanisms

The previous subsection has shown that the expressive power of law varies across the five legal threshold situations. This is true for both the student and general population samples, suggesting the existence of a systematic separation between the age of consent, alcohol to youth, and cash at customs situations on the one hand, and the drink driving and speeding situations on the other. This separation does not seem related to the legal nature of the offence described in the vignette (the UK legal system differentiates between "summary" and "indictable" offences, but this does not organize the data; for instance, both selling alcohol to minors and speeding are summary offences), nor does it appear to be positively correlated with the severity of the legal penalties (for instance, importing undeclared cash at customs is subject to a fine of up to £5,000, while a drink-driving offence is subject to up to 6 months' imprisonment, an unlimited fine, and a driving ban for at least 1 year).[21]

This variability in the effect of law on norms is interesting because it speaks against the notion that the expressive function of law can be fully explained by a meta-norm of legal obedience, in which case one would expect a uniform effect across the five legal situations. The variability is, however, in principle consistent with the mechanism proposed by Eric Posner,

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[21] Information retrieved at https://www.sentencingcouncil.org.uk/offences/.

whereby the extent to which laws influence norms depends on the strength of the signal that illegal behavior sends about the "type" of person who violates the law.

To probe whether this could indeed be a plausible explanation for what we observe in the data, in the experiment with the UK general population we included a series of follow-up questions designed to capture three aspects of the situations described in the vignettes that we thought may i) vary across the five legal scenarios and ii) influence the informativeness of the signal sent by law violations about the transgressor. These aspects are: 1) whether illegal behavior can be measured accurately or with a margin of error (which we refer to as "measurability" below); 2) the level of tolerance adopted by law enforcement towards law violations ("tolerance"); and 3) the extent to which law violations may be accidental rather than intentional ("intentionality"). For instance, we hypothesized that (small) violations of the speed law may be perceived as subject to possible measurement error and potentially accidental and tolerated by the police, compared to transgressions of, e.g., the age of consent law. If this is the case, we would expect that speed law violations may provide a noisier signal about a person's type relative to violations of the age of consent law, and, according to Posner, this could explain why speeding laws have a weaker effect on norms compared to age of consent laws.

To examine this conjecture, for each vignette we asked subjects to report, for a person whose behavior fell just on the illegal side of the threshold, the extent to which they agreed that: 1) the police could accurately measure the legality of the behavior; 2) if the police were sure the person had broken the law, they would be likely to take action against them; 3) avoiding breaking the law would have been within the person's control.[22] As these beliefs were all recorded on a four-point ordered scale, we transform the answers onto an evenly spaced numerical scale, with 1 indicating the highest level of agreement and -1 the lowest.

We use the responses to these questions in two ways. First, we check whether there is indeed variability in the perceptions of measurability, tolerance and intentionality across the five

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[22] Minor presentational changes were made to the follow-up questions after the first 35 observations were collected. See OSM C and OSM F for details and discussion of the negligible impact these changes make to our results. As mentioned in section 3.2 we also asked subjects whether they thought that the person in the vignette had broken the law, with those not responding "Definitely" asked to provide an open-ended explanation. This was included to check whether subjects would refer in their explanations to other potential moderators of the expressive power of law beyond those we specifically asked them about. Very few subjects did, while many referred to measurability, tolerance and, to a lesser extent, intentionality in their explanations.

situations – a necessary conditions for these factors to be candidate sources of between-vignette variability in the expressive power of law. Second, having established this, we check whether the effect of law on norms differs across subjects who hold different perceptions about each of these factors – indicating that they are indeed mediators of the expressive power of law.

The right panel in Figure 2 shows, for each vignette, the mean perceptions of measurability of behavior, tolerance and intentionality. We observe clear differences across vignettes in each of the three factors. Of particular interest are the differences between the two groups of situations between which we observed differences in the expressive power of law (speeding and drink-drive on one hand; age of consent, alcohol to youth and cash at customs on the other).

Regarding speeding, as expected, we find that subjects perceive lower accuracy in measuring behavior, lower likelihood of police intervention, and lower intentionality in breaking the law in the speeding vignette compared to the three vignettes with stronger expressive power of law (the differences are all statistically significant at the 1% level, except in the comparison of intentionality with cash at customs).[23] Regarding drink-driving, the evidence is more mixed. We do find that, compared to violations of the age of consent and sale of alcohol to minors laws, drink-driving offences are perceived to be less accurately measurable (both $p < 0.001$) and less likely to be prosecuted (both $p < 0.099$). However, intentionality is only significantly lower in the drink-driving vignette than in the alcohol to youth vignette ($p = 0.024$). Moreover, the differences between the drink-driving and cash at customs vignettes are either insignificant (measurability and intentionality) or significant in the opposite direction relative to the conjecture (tolerance).

In spite of this mixed evidence, this first analysis suggests that any of these three factors can potentially explain *some* of the between-vignette variability in the expressive power of law. To investigate whether they systematically moderate the influence that the law exerts on social norms in the five situations, we conduct an effect heterogeneity analysis – that is, we examine whether the magnitude of the discontinuity of the norm functions at the legal threshold varies across subjects who hold different perceptions of measurability, tolerance and intentionality.

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[23] The significance of cross-vignette differences is tested by OLS regressions containing the numerically-transformed response as the dependent variable, with vignette dummies along with demographic control variables (the full output of these are reported in OSM E). The p-values reported in the text have been corrected, using the Benjamini-Hochberg False Discovery Rate method.

FIGURE 2

Measurability of behavior, police tolerance and intentionality as mediators of the effect of legal thresholds on norms
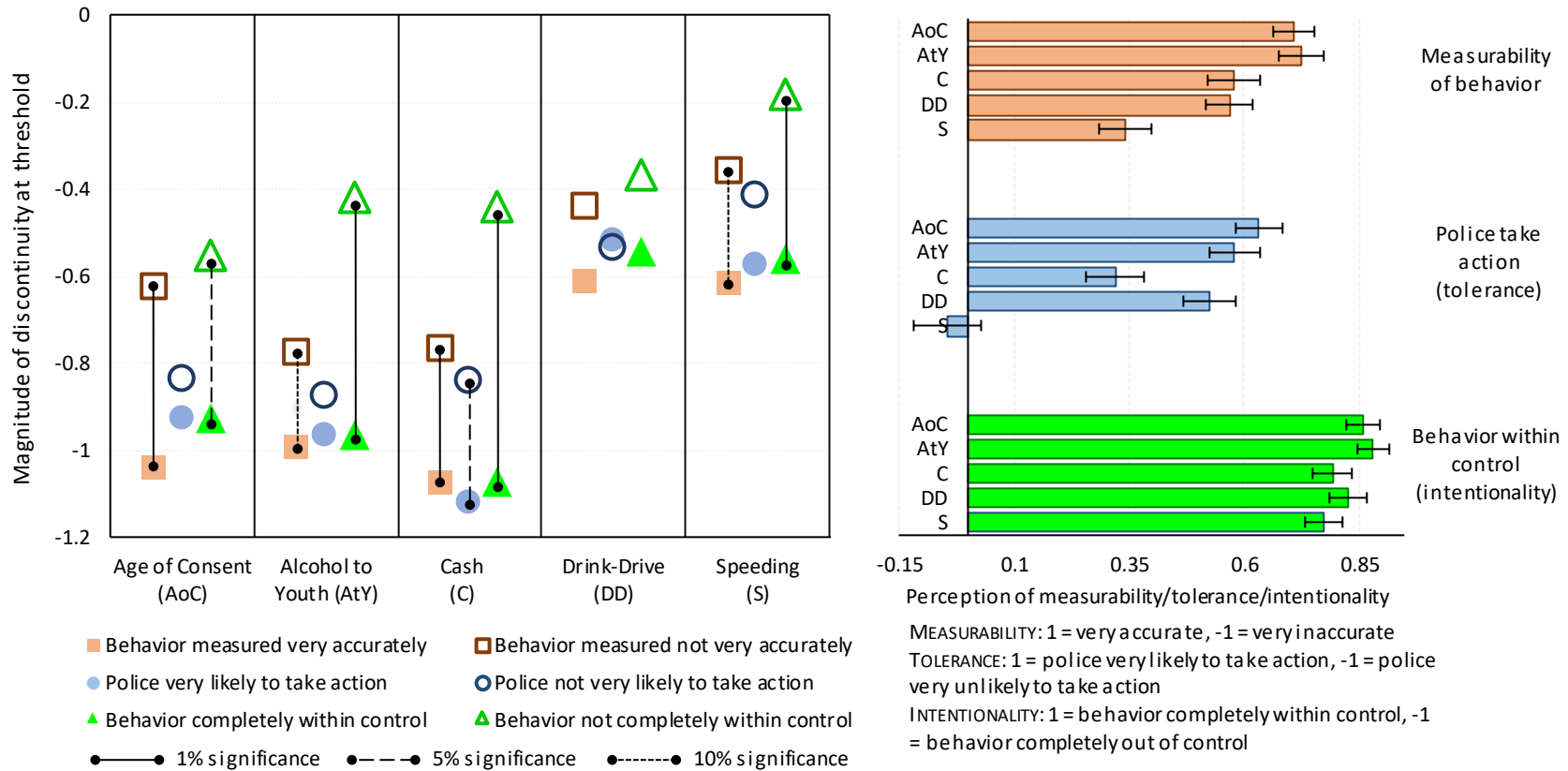
Note: The right panel plots the perceived measurability of behavior, police tolerance and intentionality in each vignette. Bars are 95% confidence intervals computed as $\mu \pm 1.96 * se(\mu)$ where μ is the average perception of measurability/tolerance/intentionality and $se(\mu)$ its standard error. The left panel plots the estimated magnitude of the discontinuity in the norm function at the threshold for each vignette, disaggregated between subjects who think that: 1) behavior can or cannot be measured very accurately (full or hollow square), 2) police is or is not very likely to take action upon detection of a crime (full or hollow circle), 3) the individual has or has not complete control of their behavior in the situation (full or hollow triangle). The black connectors between markers indicate whether the corresponding difference is significant at the 1%, 5% or 10% in the OLS regressions reported in OSM E.

To do so, for each follow-up question we divide subjects into two types, depending on whether or not they expressed the highest possible level of agreement(that is, they said that in a given vignette behavior was very accurately measurable, police were very likely to take action against violators, and behavior was completely within the control of the individual). We then repeat the regression analysis of Panel B of Table 1, separately for each factor, including dummies capturing a subject's type and interacting these with the *Illegal* dummy. We use these regressions (reported in OSM E) to test whether the magnitude of the discontinuities of the norm functions differ between subjects who express the highest possible level of agreement to the given question and those who do not.

The left panel in Figure 2 presents the estimates of the magnitude of these discontinuities in each vignette for subjects belonging to either group. A number of interesting results emerge from this analysis. First, in virtually all cases, the effect of the law on norms is larger among subjects who rate the illegal behavior described in the vignette as highly measurable, very likely to be prosecuted, and completely within the control of the person.

Second, the significance of these differences varies across the three factors. For police tolerance, the differences are never significant except in the case of the cash at custom vignette, where it is significant at the 5% level. Thus, although perceptions of police tolerance differ widely across vignettes (see right panel of Figure 2), this factor alone cannot explain the observed differences in expressive power of the law across situations since it does not moderate the effect of law on norms.

In contrast, both measurability and intentionality of behavior are moderators of the effect of the law on norms for the speeding, age of consent, alcohol to youth and cash at customs behavior. Since we also observe differences in perceptions of measurability and intentionality of behavior between the speeding vignette and the other three vignettes (right panel of Figure 2), these two factors can partly explain the differences in expressive power of law between these situations. In the speeding vignette, subjects think that small violations of the law are measured more inaccurately and are poorer reflections of a person's intentions than in the other three cases, and this reduces the influence that the law has on shaping the underlying norm of conduct.

However, there is not much evidence that these factors can explain the differences between the drink-driving vignette and the three vignettes with strong expressive power of law. Neither

measurability nor intentionality of behavior are in fact moderators of the effect of law on norms in the drink-driving vignette.

Overall, this analysis shows that contextual differences in the measurability and intentionality of behavior can partially explain the differences in the expressive power of laws observed in the main experiment. These results provide suggestive support for Posner's signaling mechanism. In situations where the illegality of behavior is difficult to observe, or may be accidental, it conveys a weaker signal about the type of person who engages in such behavior, and should therefore not be expected to impact strongly on the norms regulating that behavior.

4.3 The Expressive Power of Law: China Sample

In this final section, we report the results of the experiment conducted with a sample of 248 students at a Chinese university. Figure 3 shows the norm functions estimated from the responses of the Chinese students. The figure has the same structure of Figure 1 above. Table 2 contains the regression estimates of this data, using the same models shown in equation (3).

In the Chinese sample, we observe that the law also exerts expressive power on norms, albeit again the effect is not uniform across the five situations. In contrast to the UK case, in China the law seems to have its strongest effects on norms in the case of the cash at customs and speeding vignettes. The effect is weaker for the age of consent and alcohol to youth vignettes, and statistically insignificant for the drink driving vignette. A series of Chow tests confirm that the law tends to carry different expressive power in the cash at customs and speeding situations compared to the other three situations.[25]

Thus, although there are some differences between the UK and Chinese samples, particularly in the type of situations characterized by strong effects of the law, which probably reflect inherent differences in culture as well as in the specifics of the law (e.g., different threshold values) and law enforcement between the two countries, the main result that the law can have expressive power, but that this varies across situations, carries over to the Chinese sample. It is interesting to note that this data were collected in a very different legislative

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[25] Specifically, we find that β_2^{cash} and $\beta_2^{speeding}$ are not significantly different from each other (p = 0.233), β_2^{cash} is significantly different from the other three coefficients (all p < 0.027), and $\beta_2^{speeding}$ is significantly different from $\beta_2^{drink-drive}$ (p = 0.034). All other comparisons are statistically insignificant. (All p-values are corrected using the Benjamini-Hochberg False Discovery Rate method).

environment, characterized by markedly weaker rule of law compared to the UK. This shows that the expressive power of law does not require a strong rule of law to take hold.

FIGURE 3

Norms in the five legal threshold situations, China sample
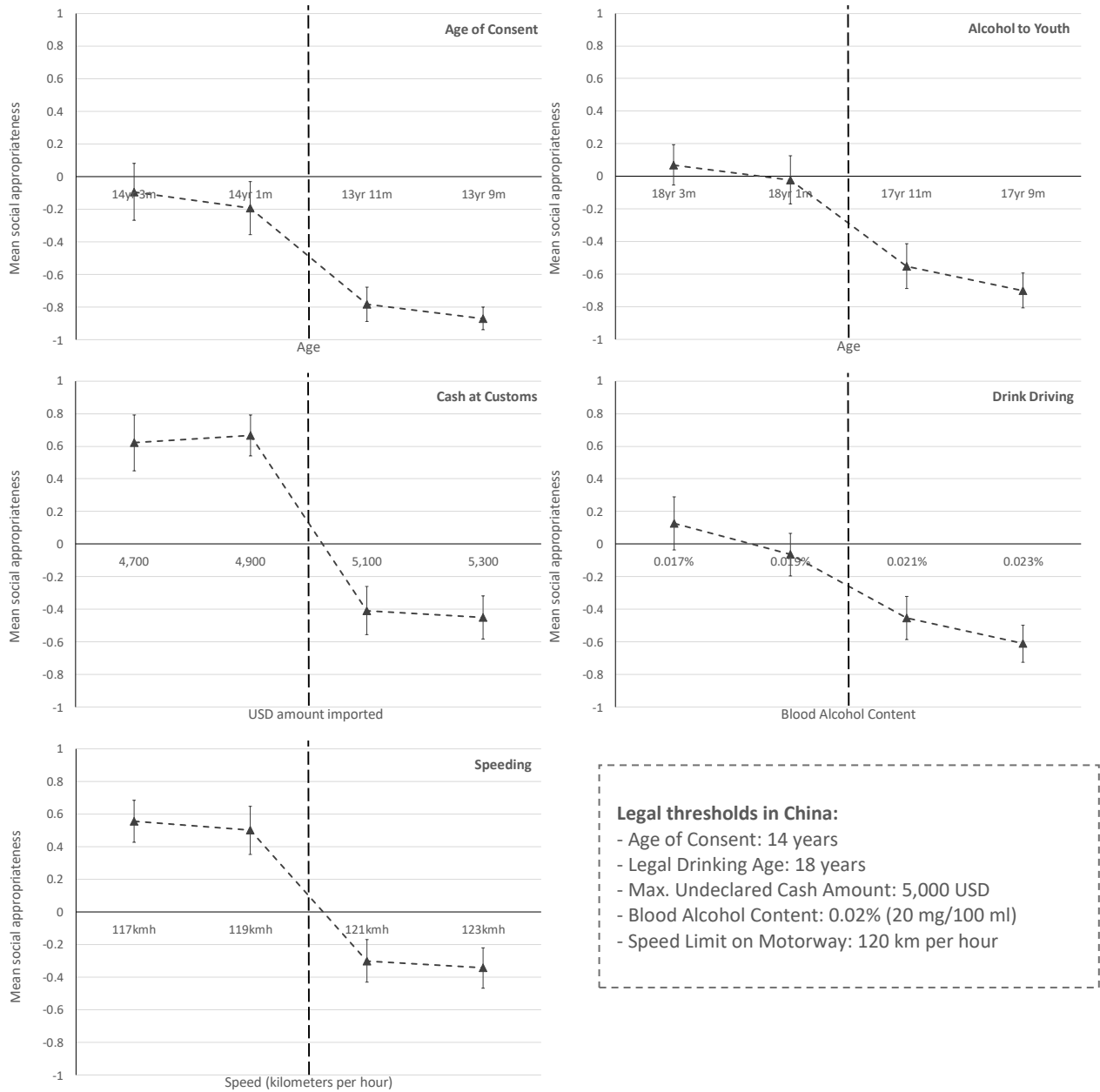
Note: Each panel plots the average social appropriateness of actions at various distance from a legal threshold (1 = very socially appropriate; -1 = very socially inappropriate). The dashed black line indicates the position of the legal threshold in each situation (values of the legal thresholds reported in the bottom-right box). Actions to the left of the threshold are legal, actions to the right are illegal. Bars are 95% confidence intervals computed as $\mu \pm 1.96 * se(\mu)$ where μ is the average appropriateness of an action and $se(\mu)$ the standard error of the mean.

TABLE 2

OLS regressions, China Sample

	(1) Age of consent	(2) Alcohol to youth	(3) Cash at customs	(4) Drink driving	(5) Speeding
$(T - a_i)$	0.050 (0.061)	0.046 (0.049)	-0.023 (0.054)	0.097[*] (0.053)	0.028 (0.050)
$Illegal$	-0.495[***] (0.061)	-0.410[**] (0.160)	-1.078[***] (0.158)	-0.215 (0.151)	-0.751[***] (0.157)
$(T - a_i) * Illegal$	-0.006 (0.069)	0.029 (0.066)	0.044 (0.074)	-0.019 (0.069)	-0.006 (0.068)
$Constant$	-0.243[*] (0.132)	-0.068 (0.117)	0.690[***] (0.105)	-0.161 (0.108)	0.472[***] (0.117)
R^2	0.301	0.285	0.468	0.213	0.396
N.	248	248	248	248	248

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

5. CONCLUSIONS

For some years scholars from across the social sciences have asserted that laws carry expressive power, i.e. the ability to shape social norms. Although suggestive evidence in support of this proposition has previously been provided from studying behavior (e.g., Funk, 2007) or personal opinions (Chen and Yeh, 2014), this paper is the first to confirm it by directly measuring social norms. Our design – taking advantage both of recent advances in methods to estimate norms, and vignettes with laws characterized by thresholds – allows us to conclude that the legal status of an action does causally influence its normative appropriateness.

This has important implications for the effectiveness of laws. It implies the impact of laws on behavior is likely to be greater than their mere deterrent effect alone. As we outline in Section 2, one way a law can alter behavior is by changing the material incentives of the actions it prohibits – this is the mechanism through which economists have traditionally argued laws take effect (e.g., Becker, 1968). However, if we accept the argument that social norms also determine preferences over actions, then a strengthening of social disapproval towards an action resulting from it being illegal provides an additional mechanism through which laws can act in conjunction with deterrence. Moreover, the effects on behavior of this expressive power may be

substantial: in some of our vignettes we find the effect of law on norms to be not just statistically significant but of a quantitatively large magnitude.

However, we also find that the expressive power of laws is not uniform. In some cases we find it to be weaker, or even not statistically significant. We have provided evidence that part of this variability may be driven by contextual differences over the intentionality and measurability of illegal behavior. This suggests laws will tend to have stronger expressive power if it is easy to accurately detect when they have been broken, and less likely that they will be broken by accident.

As discussed above, different mechanisms have been proposed for why laws would influence norms. Theories that laws transmit information about what society approves of, though empirically possible, cannot be tested in our design. In light of our results, we can however comment on the meta-norm explanations of Cooter (1998; 2000) and McAdams and Rasmusen (2007) – that obeying the law is itself a norm. While our results do not rule out this possibility, they cannot be fully explained by a meta-norm alone. We would expect this meta-norm to produce an expressive power of laws which is constant across contexts – we therefore need a further explanation as to why it is not (i.e. why the strength of the meta-norm itself would be context-dependent).

We argue that this can be provided, at least in part, by the signaling theory of Posner (1998; 2000; 2002). This proposes that illegality can make behavior less appropriate because of the signal it sends about the person committing it. In scenarios where the illegality can be unintentional or difficult to observe, one would expect the signal conveyed to be weaker and therefore less impactful upon norms. This is consistent with what we find.

Our results suggest the overall effectiveness of laws will – by virtue of their greater impact on norms – be stronger where it is difficult to break them by accident and easy to detect when they have been broken. It may be particularly unlikely, for instance, for these criteria to apply to motoring laws, not least because people cannot perfectly control their driving. Also on the matter of intentionality, a person might accidentally break a law which they are not aware of, or which is difficult to understand. Governments would therefore have more success passing laws which are not overly complex and are well communicated to the public.

Our study finds that the general tendency for norms to be affected by laws holds not just across a range of different decision-making contexts, but also within different subject pools. The patterns of data drawn from the UK general population are similar to those from the UK students. This provides a hopeful message to the academic community regarding the external validity of researching social norms on student subjects.

The results of the experiment run on the Chinese sample differ somewhat from those in the UK. The scenarios in which the law has its strongest expressive power are not the same in the two countries. We are agnostic as to the reasons for these differences. They may be driven by cultural factors, as well as differences relating to the legal framework (e.g., different legal thresholds, different likely severity of punishment for lawbreakers in different cases). Instead, we emphasize the general point: just as in the UK, we find in China that laws generally affect norms, but the strength of the effect varies across contexts. This is good news for lawmakers in countries (such as China) where the rule of law is weaker. One might have expected that in jurisdictions where laws are more frequently ignored, it would be difficult to pass laws which carry expressive power. This could create a negative feedback problem, as influencing social norms is one way that a strong rule of law can help establish itself. Our results, however, do not suggest the existence of this problem for governments seeking to strengthen the rule of law.

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ONLINE SUPPLEMENTARY MATERIALS FOR THE PAPER

"LAW AND NORMS: EMPIRICAL EVIDENCE"
BY TOM LANE AND DANIELE NOSENZO

- Supplementary Materials A contains details about and full wording of the vignettes.

- Supplementary Materials B contains screenshots from the experiment.

- Supplementary Materials C contains analysis of order effects.

- Supplementary Materials D contains full distributions of social appropriateness ratings.

- Supplementary Materials E contains regressions behind the analysis concerning the follow-up questions in Section 4.2.

- Supplementary Materials F replicates the analysis of Supplementary Materials E with the exclusion of observations from our soft launch.

Supplementary Materials A: Vignettes

The five vignettes we chose to investigate describe different types of behavior, all of which are illegal only if particular thresholds are crossed. The five behaviors to be evaluated were: 1) an older adult having sex with a person just below or above the legal age of consent; 2) selling alcohol to a youth who is known to be a vandal who is just below or above the age at which a person can legally be sold alcohol; 3) entering one's country with an amount of cash just below or above the threshold at which it must legally be declared to customs, and not declaring it; 4) driving with a blood-alcohol level just below or above the legal limit; 5) driving at a speed just below or above the legal speed limit.

These behaviors were chosen because each is subject to a legal threshold in both the UK and China (although for some of them the threshold is set at different levels in each country). Moreover, we wanted to select behaviors which, in their legal version, would cover a range of positions across the social appropriateness scale. For instance, while it may be viewed as morally dubious – even when such behavior is legal – for an older adult to have sex with a younger person, or for someone to sell alcohol to a youth, it is unlikely that anyone would consider it inappropriate to drive just below the legal speed limit, or carry a large but legal amount of cash undeclared through customs.

All five of the vignettes are constructed such that subjects are made aware of the legal threshold, and in all cases the characters whose behavior they are evaluating also know whether their behavior is legal or illegal. The full wording of the vignettes follows below. Where two wordings appear in parentheses, the wording on the left applies to the UK experiments and the wording to the right to the China experiment.

Age of consent Vignette: A (20/18) year old man meets a girl at a party. The man invites the girl to come to his home, and she agrees. At his home, the man tells the girl he wants to have sex with her, but that she looks young, and asks whether she is above the legal age of consent of (16/14) years. The girl tells the man that she is aged (Age)*, and shows him an ID card which confirms this. She tells the man that she wants to have sex with him. The man then has sex with the girl.

How socially appropriate would most people think it is for the man to have sex with the girl?

The possible value of (Age) were: 16 years and 3 months, 16 years and 1 month, 15 years and 11 months or 15 years and 9 months in the UK student experiment; 16 years and 4 months, 16 years and 3 months, 16 years and 2 months, 16 years and 1 month, 15 years and 11 months, 15 years and 10 months, 15 years and 9 months or 15 years and 8 months in the UK general population experiment; 14 years and 3 months, 14 years and 1 month, 13 years and 11 months or 13 years and 9 months in the China student experiment.

Alcohol to youth Vignette: A youth enters a local shop with the intention of buying some beer. He sees a sign in the shop reminding customers that in (Britain/China) it is illegal for shopkeepers to sell alcohol to people younger than 18 years. The shopkeeper knows the youth personally, and knows that he is aged (Age)*. The shopkeeper knows that the youth often gets drunk and vandalises property in his neighbourhood. The youth, who appears sober, asks to buy a box containing 20 alcoholic beers, and the shopkeeper sells it to him.

How socially appropriate would most people think it is for the shopkeeper to sell the beers to the youth?

The possible value of (Age) were: 18 years and 3 months, 18 years and 1 month, 17 years and 11 months or 17 years and 9 months in the UK student and China student experiments; 18 years and 4 months, 18 years and 3 months, 18 years and 2 months, 18 years and 1 month, 17 years and 11 months, 17 years and 10 months, 17 years and 9 months or 17 years and 8 months in the UK general population experiment.

Cash at customs Vignette: A man is returning to (Britain/China) from an overseas holiday. In his suitcase he is carrying cash worth (Amount)*. In the airport he notices a sign informing passengers that it is illegal to bring cash worth more than (€10,000 into Britain / 5,000 US dollars into China) from overseas without declaring it to customs. After reading the sign, the man enters the country without declaring the cash to customs.

How socially appropriate would most people think it is for the man to enter the country without declaring the cash to customs?

The possible values of (Amount) were €9,700, €9,900, €10,100 or €10,300 in the UK student experiment; €9,600, €9,700, €9,800, €9,900, €10,100, €10,200, €10,300 or €10,400 in the UK general population experiment; $4,700, $4,900, $5,100 or $5,300 in the China student experiment.

Drink driving Vignette: A woman works for a company which manufactures state-of-the-art breathalysers, machines which can measure a person's blood alcohol content with extremely high accuracy. One day, after drinking in a bar in (City)*, the woman remembers she has one of the breathalysers in her bag, and wonders whether her blood alcohol content is below (0.08% / 0.02%), the maximum level at which a person can legally drive in (England/China). [26] She tests herself and discovers that her blood alcohol content is (Percentage)**. The woman then drives home.

How socially appropriate would most people think it is for the woman to drive home?

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[26] The UK version specifies 'England' rather than 'Britain' because, unlike the laws featured in the other scenarios, drink-driving laws differ across the constituent countries of the UK.

(City) was 'Nottingham' in the UK student experiment, 'Ningbo' in the China student experiment, and 'a city in England' in the UK general population experiment.

**The possible values of (Percentage) were: 0.077%, 0.079%, 0.081% or 0.083% in the UK student experiment; 0.076%, 0.077%, 0.078%, 0.079%, 0.081%, 0.082%, 0.083% or 0.084% in the UK general population experiment; 0.017%, 0.019%, 0.021% or 0.023% in the China student experiment.*

Speeding Vignette: A woman is driving between two cities in order to attend a meeting. She turns onto a road and notices a sign informing motorists that the legal speed limit on the road is (70 miles per hour / 120 kilometres per hour). The woman drives for the next five minutes at (Speed)*, before turning onto a different road.

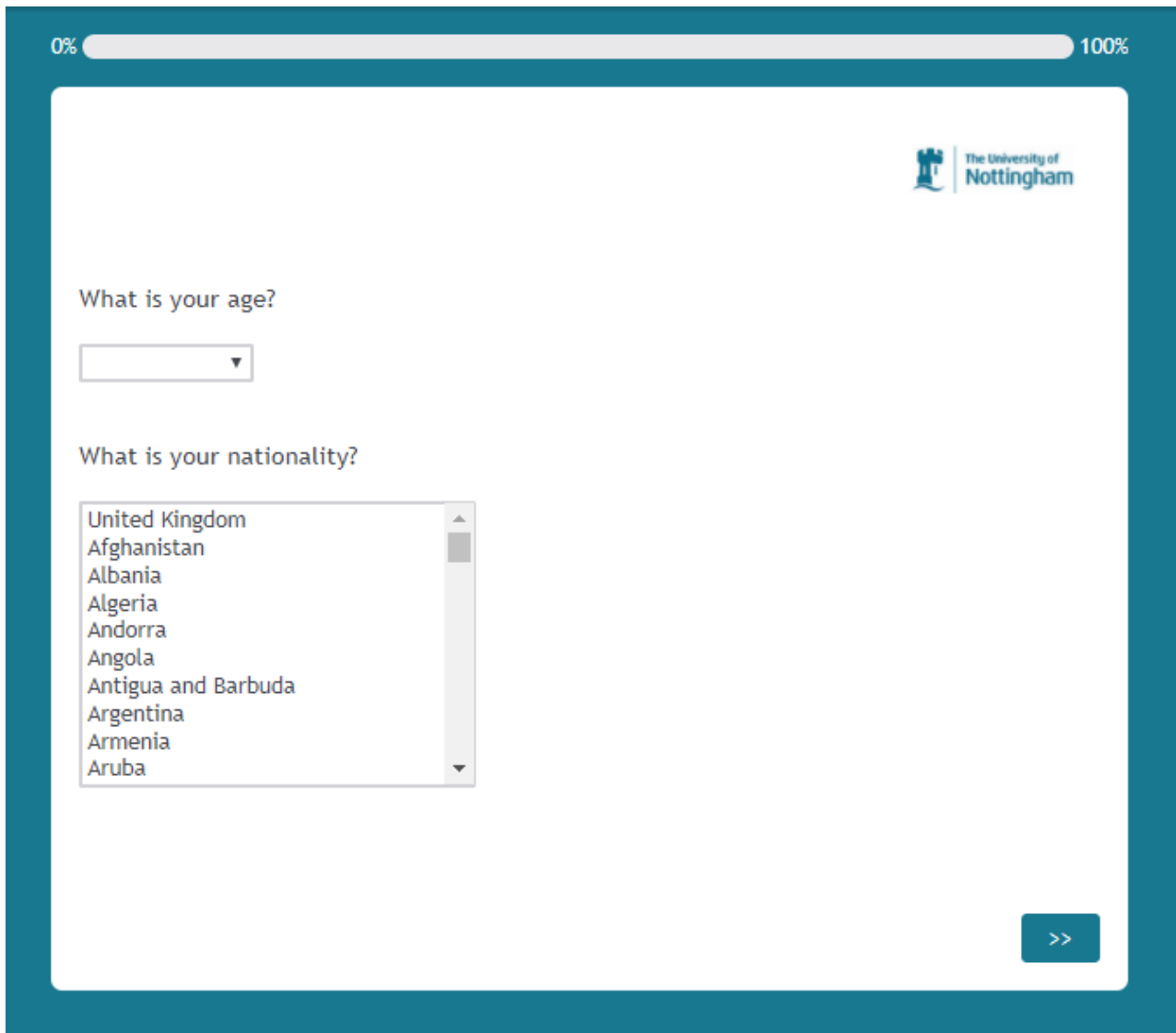How socially appropriate would most people think it is for the woman to drive at (Speed)?

The possible values of (Speed) were: 67, 69, 71 or 73 miles per hour in the UK student experiment; 66, 67, 68, 69, 71, 72, 73 or 74 miles per hour in the UK general population experiment; 117, 119, 121, 123 kilometers per hour in the China student experiment.

Supplementary Materials B: Screenshots of the experiments

We first present screenshots from the UK experiments and then from the China experiment. The size has been adjusted so that each screen fits on one page – in the experiment itself subjects could scroll up and down.

UK experiments

Screenshots are taken from the general population experiment. Where the student experiment differed, this is explained below each screenshot.

(Not included in student experiment)

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What is your gender?

Male

Female

Roughly, what is your pre-tax personal income per year?

▼

Which region of the United Kingdom, as defined by the census, do you live in?

South West England

South East England

London

East England

East Midlands

West Midlands

Wales

North West England

Yorkshire and the Humber

North East England

Scotland

Northern Ireland

<<   >>

(Not included in student experiment)

6

The University of
Nottingham

Participant Information Sheet for Qualtrics survey on social appropriateness

Dear Participant,

Thank you for agreeing to participate in this questionnaire survey in connection with our research at the University of Nottingham. The project is a study about people's perceptions towards the social appropriateness of particular behaviours. In the following survey, you will be presented with a series of hypothetical behaviours that a person could make, and you will be asked to report how socially appropriate you consider these behaviours to be. Depending on your responses and the responses of others to the survey, you may receive a bonus payment for your participation.

Your participation in the survey is voluntary. You are able to withdraw from the survey at any time and to request that the information you have provided is not used in the project. Any information provided will be confidential.

The research project has been reviewed according to the ethical review processes in place in the University of Nottingham. These processes are governed by the University's Code of Research Conduct and Research Ethics. Should you have any question now or in the future, please contact us. Should you have concerns related to our conduct of the survey or research ethics, please contact the School of Economics' Ethics Committee.

Yours truly,
Tom Lane

Contact details:
Researchers: Tom Lane Tom.Lane@nottingham.edu.cn
        Daniele Nosenzo Daniele.Nosenzo@nottingham.ac.uk

Nottingham School of Economics Research Ethics Committee
(nse-rec@nottingham.ac.uk)

>>

In student experiment, following *Any information provided will be confidential*, the additional sentences: *Your student ID number will be taken so that we can contact participants who are selected to receive payment, but when stored the data will be anonymized as quickly as possible, and your identity will not be revealed to any third party*.

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PARTICIPANT CONSENT FORM

Project topic: Qualtrics survey on social appropriateness

Researchers' names: Tom Lane and Daniele Nosenzo

Please click on all the statements below, to confirm you agree with each statement.

I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

I understand the purpose of the research project and my involvement in it.

I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.

I understand that data will be stored in accordance with data protection laws.
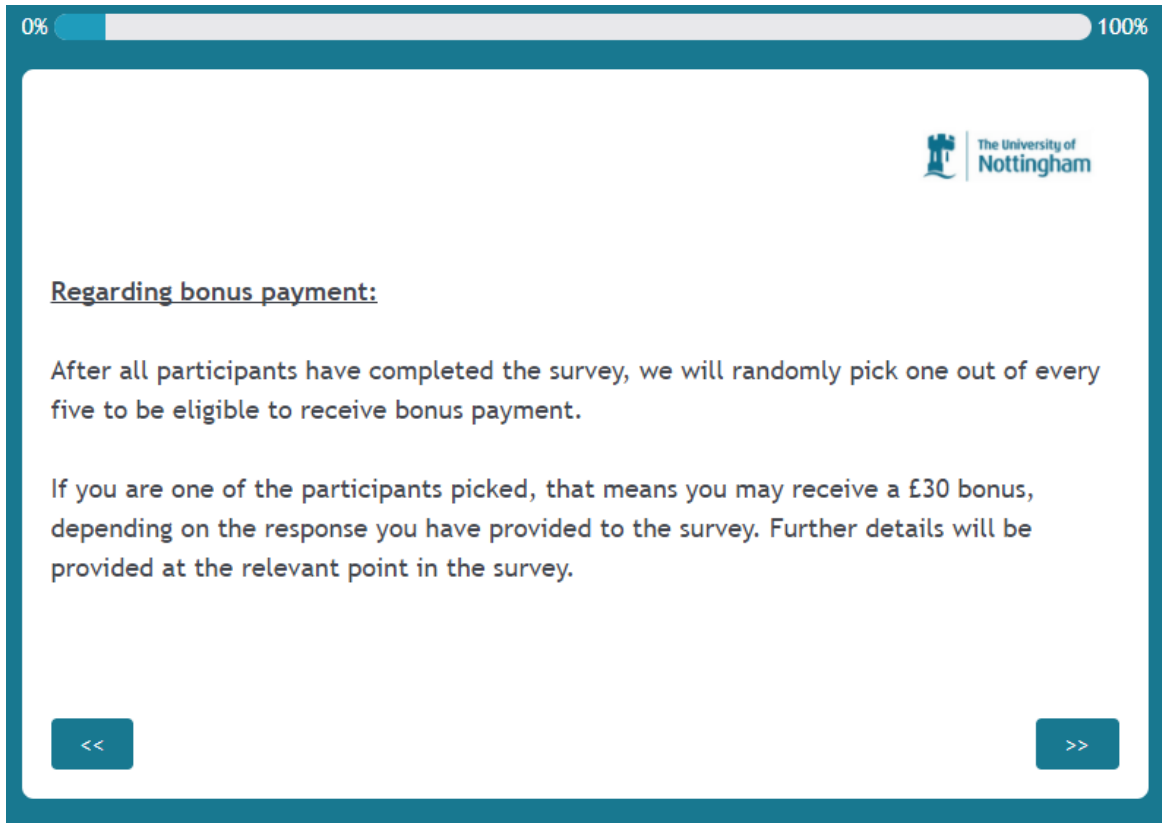
I understand that I may contact the researcher if I require more information about the research, and that I may contact the Research Ethics Sub-Committee of the Nottingham School of Economics if I wish to make a complaint related to my involvement in the research.

<<   >>

Additional screen at this point in student experiment, reading:

This survey should take around 45 minutes to complete. If you need to stop, you can save your responses and return to the survey later.

First, please enter your student ID number. Make sure you enter this correctly, as we will use it to contact you regarding payment. (followed by box to enter ID number)

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Regarding bonus payment:

After all participants have completed the survey, we will randomly pick one out of every five to be eligible to receive bonus payment.

If you are one of the participants picked, that means you may receive a £30 bonus, depending on the response you have provided to the survey. Further details will be provided at the relevant point in the survey.

<<   >>

In student experiment, this screen read:

Regarding payment:

After all participants have completed the survey, we will randomly pick one out of every five to receive payment. We will email all participants by September 28 to notify them whether they have been selected for payment or not. Participants selected for payment will then be able to collect their money from the Clive Granger Building on University Park Campus. If you have any questions regarding payment for this survey, please email Tom.Lane@nottingham.edu.cn.

If you are selected for payment, you will receive a participation fee of £10. Based on your response to the survey, you may also receive an additional £30. Further details will be provided at the relevant point in the survey.

Information about this survey

This survey will describe 15 hypothetical situations, and will ask you how socially appropriate certain behaviour is in these situations. In each case, you must indicate whether the behaviour would be "socially appropriate" or "socially inappropriate". There will be four possible responses, as shown below, of which you must select exactly one.

> Very socially appropriate

> Somewhat socially appropriate

> Somewhat socially inappropriate

> Very socially inappropriate

By socially appropriate, we mean behaviour that you think most people would agree is the "right" thing to do. Another way to think about what we mean is that if someone were to behave in a socially inappropriate way, then other people might be angry at them. Note that the "right" thing to do may not necessarily be made explicit or supported by laws, nor enforced by the threat of legal sanctions. So an action may be 'appropriate' even if it is not legal; or 'inappropriate' even if it is not illegal. Rather, an appropriate action is an action that most people believe ought to be taken (regardless of whether it is legal or not), and they may be prepared to express their disapproval if it is not taken.

In each of your responses, we would like you to answer based on your opinions of what most people believe constitutes socially appropriate or socially inappropriate behaviour.

After all responses to the survey are completed, we will randomly select one of the situations we asked you about. We will look at your answer to how socially appropriate the behaviour described in the situation was. To reward you, if your answer to this question is the same as the answer provided by the highest number of participants in this survey, and if you are one of the participants selected as eligible for bonus payment, we will give you a £30 bonus. All participants in this survey are British and recruited online.

In student experiment, the final two sentences read: *To reward you, if your answer to this question is the same as the answer provided by the highest number of participants in this survey, and if you are one of the participants selected for payment, we will give you £30 in addition to your participation fee. All participants in this survey are British and studying at the University of Nottingham.*

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The University of Nottingham
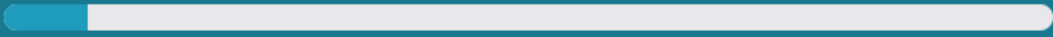
We will now go through an example of a possible situation and demonstrate how you would respond to it.

<<   >>

An example situation

A man is planning to attend a friend's wedding on Saturday. The man is a big football fan and, two days before the wedding, he is offered free tickets to watch an important football match. The man decides to take the tickets. On the Saturday, he goes to the football match, and tells his friend he is too ill to attend the wedding.

Suppose you thought this behaviour was somewhat socially inappropriate. Then you would answer this question as follows:

How socially appropriate would most people think the man's behaviour is?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Then, if you were one of the participants selected as eligible for bonus payment and if this was the situation we randomly selected to look at, we would give you £30 if 'somewhat socially inappropriate' was also the answer to this question provided by the highest number of participants in this survey. If a different answer was provided by the highest number of participants, we would not give you this £30.

<<   >>

In student experiment, *selected as eligible for bonus payment* replaced by *selected for payment*.

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Nottingham

On the next screen you will be asked to evaluate
the first of 15 scenarios. Click forward to begin.

<<   >>

(The following three vignettes were presented in random order)

The University of
Nottingham

A man is helping a friend transport goods between two houses in a village in your region. The distance between the houses is 200 metres, and today there are no other cars on the road. The man fills his car with boxes and prepares to drive between the two houses. On the radio he hears a news report reminding listeners that it is illegal to drive without wearing a seatbelt. The man does not wear a seatbelt, and drives the 200 metres to the other house at a maximum speed of 10 miles per hour.

How socially appropriate would most people think it is for the man to drive this journey without wearing a seatbelt?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

>>

In student experiment, *village in your region* replaced by *village near Nottingham*.

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

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The University of
Nottingham

A woman has saved up £2,000 which she intends to spend on a luxury beach holiday. Just before she books the holiday, she reads a news report about a charity providing aid for hungry people in an impoverished African country. The woman decides she should donate the £2,000 to the charity instead of booking the beach holiday. However, she then changes her mind and books the beach holiday, and does not donate any money to charity.

How socially appropriate would most people think it is for the woman to book the beach holiday and not donate any money to charity?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

A woman wants to watch a foreign movie which has not yet been released in Britain. Her friends tell her about a website they have found from which she can download the movie for free. They warn her that downloading the movie from this website is illegal. Later, the woman visits the website but decides not to download the movie.

How socially appropriate would most people think it is for the woman not to download the movie?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

(The following 12 vignettes were presented in random order)

The University of
Nottingham

A man has eaten a meal in a restaurant. The food took a very long time to arrive, and tasted bad. The man asks the waiter for the bill, but after ten minutes the waiter has not returned. The man walks out of the restaurant without paying his bill.

How socially appropriate would most people think it is for the man to walk out without paying his bill?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

>>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

A woman is driving between two cities in order to attend a meeting. She turns onto a road and notices a sign informing motorists that the legal speed limit on the road is 70 miles per hour. The woman drives for the next five minutes at 68 miles per hour, before turning onto a different road.

How socially appropriate would most people think it is for the woman to drive at 68 miles per hour?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

A student is having lunch at a coffee shop near campus. When she gets up to leave, she notices a wallet unattended on the floor. The student checks to see nobody is looking, and then picks the wallet up and walks out of the coffee shop with it.

How socially appropriate would most people think it is for the student to pick the wallet up and walk out of the coffee shop with it?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of Nottingham

A homeowner wakes in the middle of the night and finds a burglar attempting to steal his television. He catches the burglar and beats him heavily, breaking the burglar's arm, before throwing him out through the front door.

How socially appropriate would most people think it is for the homeowner to treat the burglar this way?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of Nottingham

On his way home from work in your local city, a doctor is approached by a man begging for money. The doctor ignores the beggar and walks away from him.

How socially appropriate would most people think it is for the doctor to ignore the beggar and walk away from him?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, *your local city* replaced by *Nottingham*.

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

A student is taking an exam which she expects to fail. Before the exam she writes some notes on a sheet of paper, and hides it under her sleeve. Just before the exam begins, the invigilator makes an announcement reminding all students that it is an offence for them to bring any materials into the exam to help them answer questions. During the exam the student secretly looks at the notes and uses them to help her answer the questions.

How socially appropriate would most people think it is for the student to use the notes this way?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

A construction company in your local city is bidding to the government to win a contract for a largescale infrastructure project. The CEO of the company attends a conference where an important government official makes a speech. In the speech, the official mentions that a businessman recently tried to bribe him. The official says that offering bribes to government officials is not only illegal but also bad for business. Later, the CEO asks to speak privately with the official, and then offers him a bribe worth £1 million to ensure the construction company wins the contract.

How socially appropriate would most people think it is for the CEO to offer the official this bribe?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<　　　　　　　　　　　　　　　　　　>>

In student experiment, *your local city* replaced by *Nottingham*.

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

23

The University of
Nottingham

A woman is on her way to meet a friend, when she sees an injured man lying by the street. The woman stops to ask the man if he is OK; the man tells her he has been attacked and had his wallet and phone stolen. The woman phones the police and waits with the man until they arrive.

How socially appropriate would most people think it is for the woman to help the man in this way?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

24

The University of
Nottingham

A youth enters a local shop with the intention of buying some beer. He sees a sign in the shop reminding customers that in Britain it is illegal for shopkeepers to sell alcohol to people younger than 18 years. The shopkeeper knows the youth personally, and knows that he is aged 18 years and 4 months. The shopkeeper knows that the youth often gets drunk and vandalises property in his neighbourhood. The youth, who appears sober, asks to buy a box containing 20 alcoholic beers, and the shopkeeper sells it to him.

How socially appropriate would most people think it is for the shopkeeper to sell the beers to the youth?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of Nottingham

A woman works for a company which manufactures state-of-the-art breathalysers, machines which can measure a person's blood alcohol content with extremely high accuracy. One day, after drinking in a bar in a city in England, the woman remembers she has one of the breathalysers in her bag, and wonders whether her blood alcohol content is below 0.08%, the maximum level at which a person can legally drive in England. She tests herself and discovers that her blood alcohol content is 0.079%. The woman then drives home.

How socially appropriate would most people think it is for the woman to drive home?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, *a city in England* replaced by *Nottingham.*

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

26

The University of
Nottingham

A 20 year old man meets a girl at a party. The man invites the girl to come to his home, and she agrees. At his home, the man tells the girl he wants to have sex with her, but that she looks young, and asks whether she is above the legal age of consent of 16 years. The girl tells the man that she is aged 15 years and 8 months, and shows him an ID card which confirms this. She tells the man that she wants to have sex with him. The man then has sex with the girl.

How socially appropriate would most people think it is for the man to have sex with the girl?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<<   >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

A man is returning to Britain from an overseas holiday. In his suitcase he is carrying cash worth €9,900. In the airport he notices a sign informing passengers that it is illegal to bring cash worth more than €10,000 into Britain from overseas without declaring it to customs. After reading the sign, the man enters the country without declaring the cash to customs.

How socially appropriate would most people think it is for the man to enter the country without declaring the cash to customs?

Very socially appropriate

Somewhat socially appropriate

Somewhat socially inappropriate

Very socially inappropriate

Remember that by socially appropriate we mean behaviour that most people taking this survey would agree is the "right thing to do" (regardless of whether it is legal or not). You can earn £30 from this question (if it is selected for payment) only if you give the same answer as the answer provided by the highest number of participants in this survey. Remember that all participants in this survey are British and recruited online.

<< >>

In student experiment, last sentence read: *Remember that all participants in this survey are British and studying at the University of Nottingham.*

The University of
Nottingham

Finally, please consider five additional scenarios and answer some questions about them. These scenarios will be **either the same as, or similar to, some of the scenarios you have already considered.**

<< >>

(Not included in student experiment)

(Following questions about the five scenarios presented in random order)

(This screen, and the screen after next, were changed slightly after reviewing the responses to our soft launch data (N=35), which revealed some subjects were misunderstanding these follow up questions relating to each of the scenarios, incorrectly believing the questions were asking about the version of the vignette they evaluated earlier. The sentence beginning *The girl tells the man…* was not initially in bold, and the parentheses *(which is below the minimum legal age of 16 years)* was absent.)

(Not included if subject answered *Definitely* to previous question)

(Not included in student experiment)

The University of
Nottingham

Party scenario (continued)

A 20 year old man meets a girl at a party. The man invites the girl to come to his home, and she agrees. At his home, the man tells the girl he wants to have sex with her, but that she looks young, and asks whether she is above the legal age of consent of 16 years. The girl tells the man that she is aged 15 years and 11 months (which is below the minimum legal age of 16 years), and shows him an ID card which confirms this. She tells the man that she wants to have sex with him. The man then has sex with the girl.

If the man in this scenario had wanted to avoid breaking the law, to what extent would achieving this have been within the man's control?

It would have been completely within his control

It would have been to a large extent within his control

It would have been to a small extent within his control

It would have been completely out of his control

Suppose the police observe this behavior. How accurately can the police detect whether the man in this scenario has broken the law?

Very accurately (beyond reasonable doubt)

Somewhat accurately

Somewhat inaccurately

Very inaccurately

Suppose the police have evidence, beyond reasonable doubt, that the man in this scenario has broken the law. How likely would they be to take action against the man?

Very likely

Somewhat likely

Somewhat unlikely

Very unikely

>>

(Not included in student experiment)

32

The University of Nottingham

Shop scenario

A youth enters a local shop with the intention of buying some beer. He sees a sign in the shop reminding customers that in Britain it is illegal for shopkeepers to sell alcohol to people younger than 18 years. **The shopkeeper knows the youth personally, and knows that he is aged 17 years and 11 months (which is below the minimum legal age of 18 years).** The shopkeeper knows that the youth often gets drunk and vandalises property in his neighbourhood. The youth, who appears sober, asks to buy a box containing 20 alcoholic beers, and the shopkeeper sells it to him.

In this scenario, do you think the shopkeeper has broken the law?

Definitely

Probably

Probably not

Definitely not

>>

(Not included in student experiment)

(This screen, and the screen after next, were changed slightly after reviewing the responses to our soft launch data (N=35), which revealed some subjects were misunderstanding these follow up questions relating to each of the scenarios, incorrectly believing the questions were asking about the version of the vignette they evaluated earlier. The sentence beginning *The shopkeeper knows the youth…*was not initially in bold, and the parentheses *(which is below the minimum legal age of 18 years)* was absent.)

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Nottingham

Please very briefly explain your choice of answer for the previous question.

<<   >>

(Not included if subject answered *Definitely* to previous question)

(Not included in student experiment)

<u>Shop scenario (continued)</u>

A youth enters a local shop with the intention of buying some beer. He sees a sign in the shop reminding customers that in Britain it is illegal for shopkeepers to sell alcohol to people younger than 18 years. **The shopkeeper knows the youth personally, and knows that he is aged 17 years and 11 months (which is below the minimum legal age of 18 years).** The shopkeeper knows that the youth often gets drunk and vandalises property in his neighbourhood. The youth, who appears sober, asks to buy a box containing 20 alcoholic beers, and the shopkeeper sells it to him.

If the shopkeeper in this scenario had wanted to avoid breaking the law, to what extent would achieving this have been within the shopkeeper's control?

It would have been completely within the shopkeeper's control

It would have been to a large extent within the shopkeeper's control

It would have been to a small extent within the shopkeeper's control

It would have been completely out of the shopkeeper's control

Suppose the police observe this behavior. How accurately can the police detect whether the shopkeeper in this scenario has broken the law?

Very accurately (beyond reasonable doubt)

Somewhat accurately

Somewhat inaccurately

Very inaccurately

Suppose the police have evidence, beyond reasonable doubt, that the shopkeeper in this scenario has broken the law. How likely would they be to take action against the shopkeeper?

Very likely

Somewhat likely

Somewhat unlikely

Very unikely

>>

(Not included in student experiment)

35

The University of Nottingham

Bar scenario

A woman works for a company which manufactures state-of-the-art breathalysers, machines which can measure a person's blood alcohol content with extremely high accuracy. One day, after drinking in a bar in a city in England, the woman remembers she has one of the breathalysers in her bag, and wonders whether her blood alcohol content is below 0.08%, the maximum level at which a person can legally drive in England. **She tests herself and discovers that her blood alcohol content is 0.081% (which is above the maximum legal level of 0.08%).** The woman then drives home.

In this scenario, do you think the woman has broken the law?

Definitely

Probably

Probably not

Definitely not

>>

(Not included in student experiment)

(This screen, and the screen after next, were changed slightly after reviewing the responses to our soft launch data (N=35), which revealed some subjects were misunderstanding these follow up questions relating to each of the scenarios, incorrectly believing the questions were asking about the version of the vignette they evaluated earlier. The sentence beginning *She tests herself...*was not initially in bold, and the parentheses *(which is above the maximum legal level of 0.08%)* was absent.)

(Not included if subject answered *Definitely* to previous question)

(Not included in student experiment)

The University of Nottingham

Bar scenario (continued)

A woman works for a company which manufactures state-of-the-art breathalysers, machines which can measure a person's blood alcohol content with extremely high accuracy. One day, after drinking in a bar in a city in England, the woman remembers she has one of the breathalysers in her bag, and wonders whether her blood alcohol content is below 0.08%, the maximum level at which a person can legally drive in England. She tests herself and discovers that her blood alcohol content is 0.081% (which is above the maximum legal level of 0.08%). The woman then drives home.

If the woman in this scenario had wanted to avoid breaking the law, to what extent would achieving this have been within the woman's control?

It would have been completely within her control

It would have been to a large extent within her control

It would have been to a small extent within her control

It would have been completely out of her control

Suppose the police observe this behavior. How accurately can the police detect whether the woman in this scenario has broken the law?

Very accurately (beyond reasonable doubt)

Somewhat accurately

Somewhat inaccurately

Very inaccurately

Suppose the police have evidence, beyond reasonable doubt, that the woman in this scenario has broken the law. How likely would they be to take action against the woman?"

Very likely

Somewhat likely

Somewhat unlikely

Very unikely

>>

(Not included in student experiment)

38

Airport scenario

A man is returning to Britain from an overseas holiday. **In his suitcase he is carrying cash worth €10,100 (which is above the maximum legal amount of €10,000).** In the airport he notices a sign informing passengers that it is illegal to bring cash worth more than €10,000 into Britain from overseas without declaring it to customs. After reading the sign, the man enters the country without declaring the cash to customs.

In this scenario, do you think the man has broken the law?

- Definitely
- Probably
- Probably not
- Definitely not

(Not included in student experiment)

(This screen, and the screen after next, were changed slightly after reviewing the responses to our soft launch data (N=35), which revealed some subjects were misunderstanding these follow up questions relating to each of the scenarios, incorrectly believing the questions were asking about the version of the vignette they evaluated earlier. The sentence beginning *In his suitcase…* was not initially in bold, and the parentheses *(which is above the maximum legal amount of €10,000)* was absent.)

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Please very briefly explain your choice of answer for the previous question.

<<   >>

(Not included if subject answered *Definitely* to previous question)

(Not included in student experiment)

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Airport scenario (continued)

A man is returning to Britain from an overseas holiday. In his suitcase he is carrying cash worth €10,100 (which is above the maximum legal amount of €10,000). In the airport he notices a sign informing passengers that it is illegal to bring cash worth more than €10,000 into Britain from overseas without declaring it to customs. After reading the sign, the man enters the country without declaring the cash to customs.

If the man in this scenario had wanted to avoid breaking the law, to what extent would achieving this have been within the man's control?

It would have been completely within his control

It would have been to a large extent within his control

It would have been to a small extent within his control

It would have been completely out of his control

Suppose the police observe this behavior. How accurately can the police detect whether the man in this scenario has broken the law?

Very accurately (beyond reasonable doubt)

Somewhat accurately

Somewhat inaccurately

Very inaccurately

Suppose the police have evidence, beyond reasonable doubt, that the man in this scenario has broken the law. How likely would they be to take action against the man?

Very likely

Somewhat likely

Somewhat unlikely

Very unikely

>>

(Not included in student experiment)

41

Driving scenario

A woman is driving between two cities in order to attend a meeting. She turns onto a road and notices a sign informing motorists that the legal speed limit on the road is 70 miles per hour. **The woman drives for the next five minutes at 71 miles per hour (which is above the maximum legal speed of 70 miles per hour),** before turning onto a different road.

In this scenario, do you think the woman has broken the law?

Definitely

Probably

Probably not

Definitely not

\>\>

(Not included in student experiment)

(This screen, and the screen after next, were changed slightly after reviewing the responses to our soft launch data (N=35), which revealed some subjects were misunderstanding these follow up questions relating to each of the scenarios, incorrectly believing the questions were asking about the version of the vignette they evaluated earlier. The sentence beginning *The woman drives…*was not initially in bold, and the parentheses *(which is above the maximum legal speed of 70 miles per hour)* was absent.)

Please very briefly explain your choice of answer for the previous question.

(Not included if subject answered *Definitely* to previous question)

(Not included in student experiment)

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Driving scenario (continued)

A woman is driving between two cities in order to attend a meeting. She turns onto a road and notices a sign informing motorists that the legal speed limit on the road is 70 miles per hour. The woman drives for the next five minutes at 71 miles per hour (which is above the maximum legal speed of 70 miles per hour), before turning onto a different road.

If the woman in this scenario had wanted to avoid breaking the law, to what extent would achieving this have been within the woman's control?

It would have been completely within her control

It would have been to a large extent within her control

It would have been to a small extent within her control

It would have been completely out of her control

Suppose the police observe this behavior. How accurately can the police detect whether the woman in this scenario has broken the law?

Very accurately (beyond reasonable doubt)

Somewhat accurately

Somewhat inaccurately

Very inaccurately

Suppose the police have evidence, beyond reasonable doubt, that the woman in this scenario has broken the law. How likely would they be to take action against the woman?"

Very likely

Somewhat likely

Somewhat unlikely

Very unikely

>>

(Not included in student experiment)

China experiment

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关于在社会上的得当性Qualtrics问卷调查的参与者信息表

尊敬的参与者:

感谢你愿意做这份与我们在宁波诺丁汉大学的研究项目相关的问卷调查。此项目研究人们对特定行为的在社会上的得当性认知。在以下的调查中,我们将向你说明一系列某人可能做出的假定行为,并要求你报告你觉得这些行为在社会上的得当程度如何。根据你的回答和其他参与者对调查的回答,你可能会收到参与酬金。

你参与这项调查出于自愿。你可以随时退出调查,并且可以请求不将所提供的信息用于该项目。所提供的任何信息将予以保密。你必需填写学生证号码,以便我们联系被选中的参与者收取酬金,但在储存资料时,我们将尽快使其匿名化,且不会向任何第三方披露你的身份。

该研究项目已根据伦理审查流程在宁波诺丁汉大学审查到位。该等流程受到大学研究行为守则和研究道德的管制。目前或今后你若有任何疑问,请联系我们。你若对我们进行的调查或研究道德有任何顾虑,请联系大学的伦理委员会。

致礼,
Tom Lane

联系方式:
研究者: Tom Lane Tom.Lane@nottingham.edu.cn
     Daniele Nosenzo Daniele.Nosenzo@nottingham.ac.uk

诺丁汉大学研究道德委员会秘书: Ms Joanna Huang
(Joanna.Huang@nottingham.edu.cn)

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参与者同意表

项目主题： 关于在社会上的得当性的Qualtrics问卷调查

研究者姓名： Tom Lane和Daniele Nosenzo

请点选以下所有声明，以确认你同意各项声明。

本人已阅读声明，项目组织者已经我解释了研究项目的性质和宗旨。本人理解并同意参与。

本人理解项目的目的和在项目中的参与作用。

本人明白可以在研究项目的任何阶段退出，不会因此影响现在以及将来的状况

本人明白研究过程中信息可能会被公开，但本人身份不会被确认，个人的调查结果始终是被保密。

本人了解数据会根据数据保护相关法律进行存储

本人理解，如果需要更多有关研究的信息，可以联系研究者。并且如果想就本人与研究的牵涉提出投诉，可以联系宁波诺丁汉大学研究道德委员会。

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完成这份调查大约需要45分钟。如果需要暂停，你可以保存你的回答，以后再继续作答。

首先，请输入你的学生证号码。确保准确输入，我们将通过该号码就酬金事宜与你联系。

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关于酬金：

所有参与者完成调查后，我们会随机在每五位参与者中挑选一位获取酬金。我们将在9月28日前发电子邮件给每位参与者，告知其是否被选中获取酬金。被选中的参与者届时可以到UNNC校园的行政楼领取酬金。若对这份调查的酬金有任何疑问，请发送电邮至 Tom.Lane@nottingham.edu.cn.

你若被选中获得酬金，你将收到62元的参与费。根据你对调查问卷的答复，你还有可能获得186元的额外奖金。在调查问卷的相关问题上会提供更多详情。

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关于这份调查的信息

这份调查将描述15个假设情境，然后就这些情景询问你觉得某种行为在社会上的得当程度如何。在每种情景下，你必须指出该行为"在社会上被认为是得当的"还是"在社会上被认为是不得当的"，将会有四个可能的回应（如下所示），你必须从其中选择一个。

> 在社会上被认为是非常得当的

> 在社会上被认为是相对得当的

> 在社会上被认为是有些不得当的

> 在社会上被认为是非常不得当的

我们用"在社会上被认为是得当的"描述的行为是指你认为大多数人会认同这是应该做的"正确"事。从另一个角度考虑，如果某人做出的行为在社会上是不得当的，那么其他人可能会对他表示生气。要注意的是，该做的"正确"事不一定在法律上有明确规定或受到法律支持，也不一定受法律制裁的威胁而必须遵守。所以，即使某行为违反法律，也有可能是'得当的'；又或者即使其并没有违法，也有可能是'不得当的'。更确切地说，一个得当的行为指的是大多数人认为这是一个应该要做的行为（不论其是否合法）；如果某人不做此行为，其他人可能会随时准备表达他们的不满。

在你作出每个回应时，你都要考虑大多数人认为该行为是得当的还是不得当的。

完成所有调查问卷的回答后，我们将随机挑选你被问及的其中一个情境。对于该情境所描述的行为，我们会了解你对该行为在社会上的得当程度如何所作出的回答，如果你对该问题的回答和在本次调查中被参与者描述中最多次的回答一致，并且你是描述中的有副参与者，则除了参与副金外，我们将给你发放180元的奖金。本次调查的所有参与者均为中国人并且在宁波诺丁汉大学学习。

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现在，我们将举个可能情境的示例，并演示如何作答。

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示例情境

有位男子计划星期六去参加一个朋友的婚礼。他是个大球迷，在婚礼开始两天前，有人给他一场重要球赛的免费门票。他决定收下门票。周六时，他去观看了足球赛，并告诉他朋友因为生病不能参加婚礼。

假设你认为该行为在社会上是有些不得当的。那么你将作出如下回答：

大多数人会如何看待该男子的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

那么，如果你是其中一位被选中获得酬金的参与者，并且这就是我们随机选中查看的情景，我们将会给予你186元酬金，若"在社会上被认为是不恰当的"正是那个在本次调查中被参与者们选中最多的回答。如果被参与者们选中最多的是一个另外的回答，我们将不会给予你这笔186元的酬金。

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下一个屏幕，你将被问及如何评价15个情境的第一个。点击下一步开始作答。

<<   >>

(The following three vignettes were presented in random order)

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一名女子想要看一部还未在中国发行的外国影片。她朋友们告诉她一个网站，他们发现该网站可以免费下载该影片。他们警告她说，从该网站下载电影是违法的。后来该女子访问了该网站，但她决定不下载影片。

大多数人会如何看待该女子不下载电影的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

请记得，"在社会上被认为是得当的"是指参与本次调查的大多数人都认同的"该做的正确事"（不论是否合法）。你可以从这个问题赢取186元（若被选中作为获奖问题），条件是但你的回答必须与在本次调查中被参与者选中最多次的回答一致。记住本次调查的所有参与者均为中国人并且在宁波诺丁汉大学学习。

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在宁波附近的一个村庄，一名男子正帮一个朋友在两栋住所之间搬运货物。两栋住所间的距离是200米，而且今天路上没有其他车辆。该男子将货箱装上车后，准备在两栋住所之间行驶。他在收音机中听到一则新闻报道，提醒听众未系安全带开车是违法的。该男子并没有系安全带，然后以每小时15公里的最大速度行驶200米到另一处住所。

大多数人会如何看待该男子未系安全带行驶这趟旅程，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一名女子存储了12,000元，她打算用这笔钱度一个豪华海滨假期。就在她预订假期前，读到一则新闻报道称一个慈善机构正在为某个贫困的非洲国家的饥民提供援助。该女子决定不预订海滨假期，而是向慈善机构捐出了12,000元。但是，她又改变了主意，然后预订了海滨假期，而没有向慈善机构捐款。

大多数人会怎么看待该女子预订海滨假期却不向慈善机构捐款的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一个女子在去见朋友的路上，她看到一个受伤的男子躺在街边。她停下来询问该男子怎么回事；他告诉她遭到袭击，钱包和手机都被偷了。该女子报警后陪着男子，直到警察赶来。

大多数人会如何看待该女子以这种方式帮助该男子，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一名学生正在校园附近某咖啡馆吃午饭。她起身准备离开时，发现地上有一个被丢的钱包。该学生看看周围无人注意，于是捡起钱包并带着离开了咖啡馆。

大多数人会如何看待该学生捡起钱包并带着离开咖啡馆的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一个青年人去当地一家店买了几瓶啤酒。他看到店里的一个标牌提醒顾客：在中国店主向未满18岁的青年出售含酒精的饮料是违法行为。店主认识该青年，并且知道他17岁零9个月。店主知道该青年经常喝醉并且破坏周边小区的财产。该名看上去头脑清醒的青年人要求买一箱（20瓶）啤酒，店主就卖了一箱啤酒给他。

大多数人会如何看待店主向该青年出售啤酒的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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宁波的一家建筑公司在向政府投标，为赢得一个大型基建项目的合同。公司首席执行官（CEO）参加了一个有政府重要官员进行演讲的会议。该官员在演讲中提及最近有位商人试图向他行贿。该官员说向政府官员行贿不仅是违法行为，而且对公司不利。会后，该CEO要求与该官员私下交谈，然后向他行贿600万元，以确保该建筑公司能够中标。

大多数人会如何看待该CEO向官员行贿的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一个女子为一家生产先进的呼气测醉器的公司工作，该仪器能测量人体血液酒精含量，准确率极高。某天，在宁波某酒吧喝酒后，该女子记起包里有一个呼气测醉器，想测一测她血液中的酒精含量是否低于0.02%。在中国超过该含量开车属于非法行为。她自测后发现血液中的酒精含量为0.019%。随后她驾车回家。

大多数人会怎么看待该女子驱车回家的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一名女子为参加一个会议在两座城市之间行驶。她转到一条马路上，看到一个标牌指示驾驶员该路段的合法限速为每小时120公里。接下来的五分钟内她以每小时123公里的速度行驶，直到拐入另一条路。

大多数人会如何看待该女子以每小时123公里的速度行驶的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

请记得，"在社会上被认为是得当的"是指参与本次调查的大多数人都认同的"该做的正确事"（不论是否合法）。你可以从这个问题赢取186元（若被选中作为获奖问题），条件是但你的回答必须与在本次调查中被参与者选中最多次的回答一致。记住本次调查的所有参与者均为中国人并且在宁波诺丁汉大学学习。

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一名男子结束了海外旅行准备返回中国。他在行李箱中携带数额4,900美元的现金。他在机场注意到一个标牌告知旅客：携带数额超过5,000美元的现金从国外入境中国但未向海关申报属于违法行为。读过标牌后，该男子未向海关申报就入境了。

大多数人会如何看待该男子未向海关申报现金就入境的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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宁波的一名医生在下班回家的路上，被一名男子靠近乞讨金钱。该医生不理乞丐并径自走开了。

大多数人会如何看待医生不理乞丐径自走开的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一名房主在半夜醒来，发现一名窃贼想偷他家的电视机。他抓住窃贼并下重手打他，打断了窃贼的胳膊，然后从前门将他仍出去。

大多数人会如何看待该房主这样对待窃贼，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一名学生在参加一个她预计会失利的考试。考前她在一页纸上写下一些笔记，然后藏在袖子里。考试开始前，监考人宣布并提醒所有学生：携带任何材料进入考场帮助答题是违规的。考试期间，该学生偷看笔记并用以帮助她作答。

大多数人会如何看待该学生以这种方式使用笔记，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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（进度条）0% ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬ 100%

一男子在一家餐馆吃饭。上菜很慢，并且味道较差。他让服务员结账，但十分钟过后服务员还未回来。该男子未付款就离开了餐馆。

大多数人会如何看待该男子未结账就走掉的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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一名18岁的男子在一个聚会上结识了一个女孩。他邀请女孩来家里，女孩也接受了邀请。到家后，男子告诉女孩：他想和她发生性关系，但女孩看起来很小。男子继而问女孩是否年满14岁即法律允许的性行为的最低年龄。女孩告诉男子她的年龄是14岁零1个月，并向她出示了身份证确认。她告诉男子想和他发生性关系。随后该男子就与她发生了性关系。

大多数人会如何看待该男子与那女孩发生性关系的行为，这在社会上是否得当？

在社会上被认为是非常得当的

在社会上被认为是相对得当的

在社会上被认为是有些不得当的

在社会上被认为是非常不得当的

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Supplementary Materials C: Analysis of order effects

In this section we show that the strength of the estimated effect of law on norms for any vignette is not dependent on the order in which that vignette is presented to subjects. To do this, we re-run the regressions from Table 1 and Table 2 separately based on the position, out of the five vignettes featuring legal thresholds, in which each appears, i.e. we analyze each vignette separately for those subjects for whom this vignette is the first, second, third, fourth or fifth of these vignettes that the subject sees. We then compare the size of the coefficient on *Illegal* between these regressions. Casual inspection of this data shows that the coefficient is not systematically higher or lower for vignettes presented earlier or later. These coefficients are reported in Table C1 (for the UK experiments) and Table C2 (for the China experiment). We ran pairwise Chow Tests to determine which of the coefficients, for a given vignette amongst a given sample, significantly differ from one another. All significant results at the 10% level or lower are reported in the tables (note that we do not correct the p-values using the Benjamini-Hochberg False Discovery Rate method to avoid being conservative in favor of the null hypothesis). These are few in number, and split between those showing higher coefficients for earlier and later presentations of the vignettes.

TABLE C1: COEFFICIENTS ON *ILLEGAL* IN UK EXPERIMENTS

Panel A: Students						
		Age of consent	**Alcohol to youth**	**Cash at customs**	**Drink driving**	**Speeding**
Order of vignette	1	-1.001**	-1.347***	-1.046***	-0.231	-0.227
	2	-0.773*	-0.991***	-0.820***	-0.528	0.054
	3	-0.944**	-0.699***	-0.114	-0.206	-0.070
	4	-0.443	-1.130***	-0.885***	-0.518	-0.133
	5	-0.752*	-1.093***	-1.214***	-0.369	-0.367
Significant differences (Chow Tests – uncorrected p-values)		-	-	3>1 (p=0.027) 3>4 (p=0.049) 3>5 (p=0.010)	-	-
Panel B: General population						
		Age of consent	**Alcohol to youth**	**Cash at customs**	**Drink driving**	**Speeding**
Order of vignette	1	-0.861***	-0.778**	-0.591	-0.965***	-0.586**
	2	-0.465	-0.796***	-0.995***	-0.450	-0.615**
	3	-0.883***	-0.862***	-0.673**	-0.152	0.076
	4	-1.024***	-1.341***	-0.923***	-0.745**	-0.578*
	5	-1.125***	-0.974***	-1.371***	-0.695*	-0.537**
Significant differences (Chow Tests – uncorrected p-values)		-	-	1>5 (p=0.069) 3>5 (p=0.074)	3>1 (p=0.040)	3>1 (p=0.079) 3>2 (p=0.083)

Note: *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE C2: COEFFICIENTS ON *ILLEGAL* IN CHINA EXPERIMENT

		Age of consent	Alcohol to youth	Cash at customs	Drink driving	Speeding
Order of vignette	1	-0.617**	-0.602	-0.984***	-0.426	-0.252
	2	-0.426	-0.422	-0.849***	-0.334	-1.302***
	3	-0.423	-0.002	-0.989***	-0.045	-0.277
	4	-0.553*	0.338	-1.347***	-0.072	-1.108***
	5	-0.555*	-1.223***	-1.526***	-0.142	-1.110***
Significant differences (Chow Tests – uncorrected p-values)		-	4>1 (p=0.064) 4>5 (p<0.001) 2>5 (p=0.059) 3>5 (p=0.011)	-	-	1>2 (p=0.017) 1>4 (p=0.049) 1>5 (p=0.031) 3>2 (p=0.058)

Note: *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE D1: APPROPRIATENESS OF SEX IN AGE OF CONSENT VIGNETTE: DISTRIBUTION OF RATINGS

		Very socially inappropriate	Somewhat socially inappropriate	Somewhat socially appropriate	Very socially appropriate
Panel A: UK Students					
Age of girl (years, months)	16, 3	16.7	35.4	29.2	18.8
	16, 1	23.3	27.9	30.2	18.6
	15, 11	66.7	33.3	0.0	0.0
	15, 9	59.0	31.2	9.8	0.0
Panel B: UK General population					
Age of girl (years, months)	16, 4	5.3	26.3	26.3	42.1
	16, 3	8.0	24.0	46.0	22.0
	16, 2	10.0	17.5	45.0	27.5
	16, 1	6.4	23.8	49.2	20.6
	15, 11	73.8	16.4	6.6	3.3
	15, 10	77.1	8.6	8.6	5.7
	15, 9	76.5	13.7	7.8	2.0
	15, 8	83.8	8.1	2.7	5.4
Panel C: China Students					
Age of girl (years, months)	14, 3	24.6	32.8	24.6	18.0
	14, 1	24.6	40.4	24.6	10.5
	13, 11	76.6	14.1	9.4	0.0
	13, 9	81.8	16.7	1.5	0.0

Notes: Table D1 displays the percentages of subjects, by sample and treatment, who chose each social appropriateness evaluation in the Age of consent vignette. In each case, the modal evaluation is shaded.

TABLE D2: APPROPRIATENESS OF SALE IN ALCOHOL TO YOUTH VIGNETTE: DISTRIBUTION OF RATINGS

		Very socially inappropriate	Somewhat socially inappropriate	Somewhat socially appropriate	Very socially appropriate
Panel A: UK Students					
Age of youth (years, months)	18, 3	2.4	26.2	45.2	26.2
	18, 1	1.7	32.8	39.7	25.9
	17, 11	73.9	23.9	2.2	0.0
	17, 9	82.4	13.7	3.9	0.0
Panel B: UK General population					
Age of youth (years, months)	18, 4	20.0	45.0	25.0	10.0
	18, 3	11.6	25.6	30.2	32.6
	18, 2	12.5	33.3	33.3	20.8
	18, 1	11.5	36.1	41.0	11.5
	17, 11	83.0	13.2	1.9	1.9
	17, 10	83.3	9.5	4.8	2.4
	17, 9	72.2	13.9	8.3	5.6
	17, 8	86.5	9.6	3.9	0.0
Panel C: China Students					
Age of youth (years, months)	18, 3	3.2	46.0	38.1	12.7
	18, 1	11.7	43.3	31.7	13.3
	17, 11	52.2	34.3	7.5	6.0
	17, 9	62.1	31.0	6.9	0.0

Notes: Table D2 displays the percentages of subjects, by sample and treatment, who chose each social appropriateness evaluation in the Alcohol to youth vignette. In each case, the modal evaluation is shaded.

TABLE D3: APPROPRIATENESS OF NON-DECLARATION IN CASH AT CUSTOMS VIGNETTE: DISTRIBUTION OF RATINGS

		Very socially inappropriate	Somewhat socially inappropriate	Somewhat socially appropriate	Very socially appropriate
Panel A: UK Students					
Amount imported (Euros)	9,700	2.6	0.0	15.4	82.0
	9,900	0.0	4.2	12.5	83.3
	10,100	5.6	57.4	27.8	9.3
	10,300	12.5	57.1	26.8	3.6
Panel B: UK General population					
Amount imported (Euros)	9,600	10.3	2.6	12.8	74.4
	9,700	9.5	11.9	33.3	45.2
	9,800	4.7	4.7	18.6	72.1
	9,900	3.2	7.9	12.7	76.2
	10,100	14.8	49.2	31.2	4.9
	10,200	17.8	55.6	15.6	11.1
	10,300	18.4	44.7	34.2	2.6
	10,400	18.2	45.5	31.8	4.6
Panel C: China Students					
Amount imported (USD)	4,700	8.6	10.3	10.3	70.7
	4,900	5.0	8.8	17.5	68.8
	5,100	35.9	43.4	17.0	3.8
	5,300	36.8	45.6	15.8	1.8

Notes: Table D3 displays the percentages of subjects, by sample and treatment, who chose each social appropriateness evaluation in the Cash at customs vignette. In each case, the modal evaluation is shaded.

TABLE D4: APPROPRIATENESS OF DRIVING IN DRINK DRIVING VIGNETTE: DISTRIBUTION OF RATINGS

		Very socially inappropriate	Somewhat socially inappropriate	Somewhat socially appropriate	Very socially appropriate
Panel A: UK Students					
Blood alcohol content	0.077%	8.2	32.7	42.9	16.3
	0.079%	12.5	31.3	37.5	18.8
	0.081%	18.4	61.2	16.3	4.1
	0.083%	25.5	54.9	17.7	2.0
Panel B: UK General population					
Blood alcohol content	0.076%	21.6	24.3	35.1	18.9
	0.077%	22.6	18.9	28.3	30.2
	0.078%	25.7	20.0	40.0	14.3
	0.079%	15.5	23.9	36.6	23.9
	0.081%	45.3	32.0	16.0	6.7
	0.082%	42.4	42.4	12.1	3.0
	0.083%	50.0	25.0	13.9	11.1
	0.084%	42.9	42.9	8.6	5.7
Panel C: China Students					
Blood alcohol content	0.017%	9.6	30.8	40.4	19.2
	0.019%	13.0	46.8	27.3	13.0
	0.021%	40.9	39.4	16.7	3.0
	0.023%	49.1	43.4	7.6	0.0

Notes: Table D4 displays the percentages of subjects, by sample and treatment, who chose each social appropriateness evaluation in the Drink driving vignette. In each case, the modal evaluation is shaded.

TABLE D5: APPROPRIATENESS OF SPEED IN SPEEDING VIGNETTE: DISTRIBUTION OF RATINGS

		Very socially inappropriate	Somewhat socially inappropriate	Somewhat socially appropriate	Very socially appropriate
Panel A: UK Students					
Speed (miles per hour)	67	0.0	1.9	19.2	78.9
	69	0.0	0.0	10.0	90.0
	71	0.0	4.3	42.6	53.2
	73	5.2	31.0	37.9	25.9
Panel B: UK General population					
Speed (miles per hour)	66	4.0	14.0	14.0	68.0
	67	2.7	5.4	29.7	62.2
	68	2.4	11.9	26.2	59.5
	69	0.0	7.8	21.6	70.6
	71	5.1	30.5	42.4	22.0
	72	12.1	39.4	21.2	27.3
	73	14.0	34.0	42.0	10.0
	74	15.1	47.2	24.5	13.2
Panel C: China Students					
Speed (kilometers per hour)	117	4.0	13.3	28.0	54.7
	119	1.9	17.3	34.6	46.2
	121	24.6	49.2	23.0	3.3
	123	23.3	58.3	15.0	3.3

Notes: Table D5 displays the percentages of subjects, by sample and treatment, who chose each social appropriateness evaluation in the Speeding vignette. In each case, the modal evaluation is shaded.

Supplementary Materials E: Regression Output for results in Section 4.2

TABLE E1 –DIFFERENCES BETWEEN VIGNETTES
OLS regressions, UK general population sample

	(1)	**(2)**	**(3)**
	Measurability	Tolerance	Intentionality
Age of consent	0.364*** (0.036)	0.676*** (0.040)	0.085*** (0.024)
Alcohol to youth	0.382*** (0.035)	0.623*** (0.040)	0.107*** (0.022)
Cash at customs	0.235*** (0.037)	0.366*** (0.037)	0.018 (0.025)
Drink driving	0.226*** (0.031)	0.567*** (0.038)	0.051* (0.026)
Constant	0.283*** (0.068)	0.103 (0.083)	0.624*** (0.052)
Controls	Yes	Yes	Yes
R^2	0.078	0.152	0.052
N.	1,875	1,875	1,875
Linear restriction tests (raw P-values)			
Drink driving vs *Age of consent*	<0.001	<0.001	0.146
Drink driving vs *Alcohol to youth*	<0.001	0.091	0.012
Drink driving vs *Cash at customs*	0.783	<0.001	0.176
Cash at customs vs *Age of consent*	<0.001	<0.001	0.005
Cash at customs vs *Alcohol to youth*	<0.001	<0.001	<0.001
Age of consent vs *Alcohol to youth*	0.511	0.099	0.312

Note: Dependent variables are the numerically-transformed responses to the questions asking about the degree of measurability of, tolerance towards, and intentionality of illegal behavior. The omitted vignette dummy is *Speeding*. Robust standard errors (with clustering at the individual level) in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level. Note that the p-values reported in the main text have been adjusted using the Benjamini-Hochberg False Discovery Rate method.

OLS regressions, UK general population sample

	(1)	(2)	(3)	(4)	(5)
	Age of consent	Alcohol to youth	Cash at customs	Drink driving	Speeding
$(T - a_i)$	0.026	-0.027	-0.057	-0.019	-0.038
	(0.037)	(0.039)	(0.038)	(0.042)	(0.033)
$Illegal$	-1.043***	-0.996***	-1.077***	-0.612***	-0.616***
	(0.133)	(0.121)	(0.134)	(0.153)	(0.153)
$(T - a_i) * Illegal$	-0.006	0.027	0.065	0.042	0.155***
	(0.050)	(0.045)	(0.050)	(0.057)	(0.049)
$Measurement\ Error$	-0.173*	-0.087	-0.085	0.141	-0.043
	(0.088)	(0.094)	(0.085)	(0.099)	(0.082)
$Measurement\ Error$ $* Illegal$	0.417***	0.221*	0.309***	0.174	0.257*
	(0.126)	(0.124)	(0.117)	(0.131)	(0.133)
$Constant$	0.299**	0.281**	0.605***	-0.097	0.655***
	(0.144)	(0.126)	(0.149)	(0.158)	(0.138)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.485	0.411	0.387	0.188	0.274
N.	375	375	375	375	375

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. *Measurement Error* = 0 if subject reports that police can measure illegal behavior very accurately, =1 if they do not. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE E3 – TOLERANCE
OLS regressions, UK general population sample

	(1)	(2)	(3)	(4)	(5)
	Age of consent	Alcohol to youth	Cash at customs	Drink driving	Speeding
$(T - a_i)$	0.026	-0.031	-0.054	-0.018	-0.036
	(0.038)	(0.039)	(0.038)	(0.043)	(0.033)
Illegal	-0.930***	-0.967***	-1.122***	-0.520***	-0.574***
	(0.142)	(0.125)	(0.143)	(0.157)	(0.178)
$(T - a_i) * Illegal$	-0.002	0.032	0.068	0.037	0.145***
	(0.051)	(0.046)	(0.049)	(0.058)	(0.049)
Tolerance	-0.042	0.052	0.038	0.154	0.029
	(0.085)	(0.091)	(0.087)	(0.099)	(0.088)
Tolerance * Illegal	0.093	0.091	0.278**	-0.015	0.157
	(0.117)	(0.114)	(0.123)	(0.133)	(0.149)
Constant	0.242	0.250**	0.566***	-0.115	0.627***
	(0.147)	(0.126)	(0.145)	(0.162)	(0.148)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.468	0.411	0.394	0.170	0.269
N.	375	375	375	375	375

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. *Tolerance* = 0 if subject reports that police are very likely to take action against person breaking law, =1 if they do not. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE E4 – INTENTIONALITY

OLS regressions, UK general population sample

	(1)	(2)	(3)	(4)	(5)
	Age of consent	Alcohol to youth	Cash at customs	Drink driving	Speeding
$(T - a_i)$	0.027	-0.025	-0.052	-0.015	-0.040
	(0.038)	(0.040)	(0.037)	(0.043)	(0.033)
$Illegal$	-0.928***	-0.967***	-1.077***	-0.546***	-0.562***
	(0.130)	(0.118)	(0.122)	(0.147)	(0.129)
$(T - a_i) * Illegal$	-0.001	0.033	0.060	0.029	0.149***
	(0.050)	(0.046)	(0.050)	(0.059)	(0.048)
$Intentionality$	0.005	-0.075	-0.347***	0.048	-0.232**
	(0.108)	(0.108)	(0.116)	(0.112)	(0.094)
$Intentionality$ $* Illegal$	0.376**	0.545***	0.635***	0.180	0.379***
	(0.185)	(0.187)	(0.142)	(0.152)	(0.126)
$Constant$	0.219	0.256**	0.684***	-0.087	0.709***
	(0.145)	(0.117)	(0.146)	(0.162)	(0.125)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.480	0.427	0.408	0.167	0.280
N.	375	375	375	375	375

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. *Intentionality* = 0 if subject reports that avoiding breaking law completely within person's control, =1 if they do not. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

Supplementary Materials F: Replication of analysis of Supplementary Materials E with exclusion of data from initial experimental launch

Note: Small changes were made to the presentation of the follow-up questions after our initial experiment launch (N=35), in response to evidence from responses to the open question that some subjects were misreading them (see OSM C for more information). Here, we repeat the regressions from OSM E, which are behind the analysis of subsection 4.2, after excluding these 35 subjects. There are only minor changes to the results; intentionality now moderates the effect of law on norms at the 10% level in the age of consent vignette and at the 5% level in the alcohol to youth vignette; tolerance is no longer a significant moderator even in the cash at customs vignette.

TABLE F1 –DIFFERENCES BETWEEN VIGNETTES
OLS regressions, UK general population sample

	(1) Measurability	(2) Tolerance	(3) Intentionality
Age of consent	0.376*** (0.037)	0.683*** (0.042)	0.070*** (0.025)
Alcohol to youth	0.392*** (0.036)	0.639*** (0.042)	0.111*** (0.023)
Cash at customs	0.237*** (0.039)	0.378*** (0.038)	0.014 (0.027)
Drink driving	0.219*** (0.033)	0.578*** (0.040)	0.045 (0.028)
Constant	0.302*** (0.070)	0.118 (0.087)	0.655*** (0.051)
Controls	Yes	Yes	Yes
R^2	0.083	0.159	0.053
N.	1,700	1,700	1,700
Linear restriction tests (raw P-values)			
Drink driving vs Age of consent	<0.001	0.002	0.302
Drink driving vs Alcohol to youth	<0.001	0.092	0.003
Drink driving vs Cash at customs	0.615	<0.001	0.236
Cash at customs vs Age of consent	<0.001	<0.001	0.025
Cash at customs vs Alcohol to youth	<0.001	<0.001	<0.001
Age of consent vs Alcohol to youth	0.574	0.189	0.050

Note: Dependent variables are the numerically-transformed responses to the questions asking about the degree of measurability of, tolerance towards, and intentionality of illegal behavior. The omitted vignette dummy is *Speeding*. Robust standard errors (with clustering at the individual level) in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE F2 – MEASURABILITY
OLS regressions, UK general population sample

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Age of consent	Alcohol to youth	Cash at customs	Drink driving	Speeding
$(T - a_i)$	0.022	-0.029	-0.066	-0.015	-0.058
	(0.039)	(0.041)	(0.040)	(0.044)	(0.035)
$Illegal$	-1.083***	-0.980***	-1.097***	-0.654***	-0.613***
	(0.133)	(0.130)	(0.142)	(0.163)	(0.158)
$(T - a_i) * Illegal$	0.001	0.031	0.070	0.021	0.191***
	(0.050)	(0.048)	(0.052)	(0.061)	(0.051)
$Measurement\ Error$	-0.161*	-0.092	-0.083	0.153	-0.003
	(0.094)	(0.100)	(0.093)	(0.104)	(0.084)
$Measurement\ Error * Illegal$	0.374***	0.224*	0.308**	0.172	0.228*
	(0.126)	(0.134)	(0.124)	(0.139)	(0.138)
$Constant$	0.355**	0.294**	0.634***	-0.071	0.697***
	(0.152)	(0.132)	(0.160)	(0.171)	(0.143)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.533	0.400	0.380	0.201	0.292
N.	340	340	340	340	340

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. *Measurement Error* = 0 if subject reports that police can measure illegal behavior very accurately, =1 if they do not. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE F3 – TOLERANCE
OLS regressions, UK general population sample

	(1) Age of consent	(2) Alcohol to youth	(3) Cash at customs	(4) Drink driving	(5) Speeding
$(T - a_i)$	0.022 (0.041)	-0.031 (0.041)	-0.061 (0.040)	-0.016 (0.045)	-0.055 (0.035)
Illegal	-0.971*** (0.139)	-0.945*** (0.135)	-1.079*** (0.151)	-0.549*** (0.167)	-0.600*** (0.184)
$(T - a_i) * Illegal$	-0.003 (0.052)	0.033 (0.048)	0.071 (0.052)	0.019 (0.062)	0.177*** (0.051)
Tolerance	-0.002 (0.089)	0.036 (0.096)	0.077 (0.094)	0.174 (0.105)	0.067 (0.089)
Tolerance * Illegal	0.050 (0.113)	0.089 (0.121)	0.185 (0.130)	-0.059 (0.142)	0.170 (0.153)
Constant	0.288* (0.155)	0.264** (0.132)	0.577*** (0.156)	-0.094 (0.174)	0.674*** (0.151)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.519	0.399	0.382	0.181	0.291
N.	340	340	340	340	340

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. *Tolerance* = 0 if subject reports that police are very likely to take action against person breaking law, =1 if they do not. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.

TABLE F4 – INTENTIONALITY
OLS regressions, UK general population sample

	(1)	(2)	(3)	(4)	(5)
	Age of consent	Alcohol to youth	Cash at customs	Drink driving	Speeding
$(T - a_i)$	0.024	-0.031	-0.059	-0.012	-0.062
	(0.041)	(0.042)	(0.040)	(0.045)	(0.034)
$Illegal$	-0.981***	-0.951***	-1.084***	-0.592***	-0.574***
	(0.128)	(0.126)	(0.129)	(0.159)	(0.133)
$(T - a_i) * Illegal$	0.002	0.040	0.060	0.009	0.184***
	(0.051)	(0.048)	(0.052)	(0.063)	(0.050)
$Intentionality$	0.011	-0.006	-0.313**	-0.001	-0.205**
	(0.109)	(0.119)	(0.129)	(0.118)	(0.101)
$Intentionality * Illegal$	0.311*	0.526**	0.585***	0.147	0.367***
	(0.180)	(0.210)	(0.154)	(0.168)	(0.133)
$Constant$	0.283*	0.239*	0.681***	-0.022	0.770***
	(0.152)	(0.123)	(0.155)	(0.176)	(0.132)
Controls	Yes	Yes	Yes	Yes	Yes
R^2	0.527	0.418	0.395	0.167	0.295
N.	340	340	340	340	340

Note: Dependent variable is the evaluation of appropriateness of the behavior described in a vignette. *Intentionality* = 0 if subject reports that avoiding breaking law completely within person's control, =1 if they do not. Robust standard errors in parentheses. *** = 1% significance level; ** = 5% significance level; * = 10% significance level.