

Nicoletta Rangone *

Tools for effective law: a focus on nudge and empowerment **

Summary: 1. Better regulation tools for effective law and regulation – 2. Different approaches to regulatory compliance – 3. Cognitive-based tools for effective law and regulation – 3.1 How real people make compliance choices - 3.2 Nudging and cognitive empowerment – 4. Cognitive-based implementation of controls – 5. Cognitive-based disclosure compliance records – 6. Cognitive-based administrative design – 7. Conclusions

1. Better regulation tools for effective law and regulation

The concepts related to the quality and the effectiveness of law and regulation are strictly linked and are increasingly relevant aspects of the legitimacy of these public interventions.

On the one hand, law and regulation are effective when they introduce adequate mechanisms to produce the desired results and give a concrete answer to the public interests with which they deal. This meaning of effectiveness is related to compliance with the spirit of the law and regulation (i.e. their “desired ends”) ¹.

On the other hand, better regulation tools are functional and crucial to attaining these objectives, while bad regulation drives towards ineffectiveness. In a nutshell, excessively stringent and detailed law and regulation increase opportunities for creative compliance and thus lead to ineffectiveness ², as do legalistic (and aggressive)

* Professor of Economic Law and Administrative Law at LUMSA University, Jean Monnet Module leader on EU Approach to Better Regulation.

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¹ Referring his influential study to rules emanating from government, R. Baldwin (*Rules and Government*, Clarendon Press, Oxford, 1995, p. 142) underlines that “making rules work involves more than producing rules that are conducive to compliance. If the rules are not designed properly then even perfect enforcement and compliance with the terms of the rules may not lead to the results that are desired by legislators or those regulating in the public interest (e.g. safe factories, clean rivers)”.

² D. McBarnet and C. Whelan, *The elusive spirit of the law: Formalism and the struggle for legal control*, in *Modern Law Review*, vol. 54, n. 6, 1991, p. 849. “The more precise the rules, the more complex they become, the greater the number of ‘gaps’ that are created, the greater the potential for internal inconsistencies in their application, the more uncertain their application becomes in any particular circumstance” (J. Black, *Forms and Paradoxes of Principles Based Regulation*, in *LSE Legal Studies Working Paper*, n. 13/2008, p. 16). See also E. Bardach and R.A. Kagan, *Going by the Book. Unreasonableness. A Twentieth Century Fund Report*, Temple University Press, Philadelphia, 1982, p. 58. Moreover, highly detailed rules may lead to ineffectiveness “if they are so expensive or intricate that the costs of dealing with such rules deter potential

enforcement of law and regulation ³; obscure and ambiguous law and regulation risks not being implemented and creates “opportunities” for corruption ⁴; law and regulation are impossible to implement when economic, social, cultural, organizational conditions are not taken into account ⁵. Another challenge to effectiveness is regulatory inflation ⁶.

The effectiveness issue specifically concerns the regulatory content of a given law and regulation, i.e. the rules which have a direct impact on end-user organisation or activities. Such a rule can be supported by a source of law approved at a political level, by administrative provisions adopted by public administrations through discretionary or technical powers, and self-regulation delegated by public powers ⁷. This is why the tools to improve the quality of rules are relevant for all decision-makers (both legislators and regulators), whenever they deal with rules ⁸. In other words, it is time for a unified understanding of the quality of law and regulation and one way to develop it is to pay attention to the regulatory content instead of to their delivery method (legislation, regulation, administrative decision).

entrants to a field” (R. Baldwin, *Rules and Government*, cit., p. 179). These studies challenge the idea that precise and detailed rules discourage non-compliance by increasing deterrence and the probability of punishment, on one hand, and increasing settlements out of courts and therefore also a return of resources, on the other (I. Ehrlich and R. Posner, *An Economic Analysis of Legal Rule-making*, in *J.L.S.*, 4, 1974, p. 257).

³ “The move toward more aggressive and more legalistic enforcement undoubtedly has made regulation more effective in at least some important respects. Inspectors armed with severe sanctions and instructed to act like policemen are not likely to be ignored. (...) The beneficial effects of legalistic regulation, however, should not blind us to the fact that unreasonableness and unresponsiveness associated with those regulations can keep the full potential of regulation from ever being realized” (E. Bardach and R.A. Kagan, *Going by the Book. Unreasonableness. A Twentieth Century Fund Report*, cit., p. 93).

⁴ “Good drafting removes ambiguity and, therefore, limits the scope for abuses of power” (C. Stefanou, *The Policy Process and Legislative Drafting*, in C. Stefanou and H. Xanthaki, eds., *Manual in Legislative Drafting*, IALS, London, 2005, p. 3). Moreover, a number of studies show that where regulation leaves too much room for administrative discretion, it could create a favourable environment for corruption (V. Tanzi, *Corruption Around the World: Causes, Consequences, Scope, and Cures*, IMF Staff Papers, vol. 45, n. 4, 1998, p. 10-11; A. Shleifer and R.W. Vishny, *Corruption*, in *The Quarterly Journal of Economics*, vol. 108, n. 3, 1993, p. 599). At the same time, the debate on rules versus discretion is still open (see footnote 2 and R. Baldwin, *Rules and Government*, cit., p. 16 ff.).

⁵ N. Rangone, *The myth and reality of good quality regulation tools*, in *Italian Journal of Public Law*, vol. 4, issue 1, 2012, p. 2.

⁶ E. Bardach and R.A. Kagan, *Going by the Book. Unreasonableness. A Twentieth Century Fund Report*, cit., p. 193.

⁷ M. De Benedetto, M. Martelli and N. Rangone, *La qualità delle regole*, Il Mulino, Bologna, 2011, p. 13.

⁸ The approaches and tools used to improve the quality of legislation differ from those implemented for regulation. Indeed, while drafting has traditionally been performed and improved in the domain of legislation, other good quality regulation tools (such as regulatory impact assessment, regulatory burden measurement, SME proportionality test, ex post evaluation etc.) are mainly used by regulators.

Decision-makers should use all good regulation tools in the rules life-cycle, from agenda setting to the maintenance of rules. They should consider that most of the rules they draft are (or should be) framed and consistent with a public policy (whose impacts should, in turn, be assessed ex ante and ex post); that these rules must be chosen after having compared advantages and disadvantages of alternative and feasible regulatory options; they should also be aware that one dimension of the good quality of rules is their form: rules must be consistent, well written and accessible to end-users. Moreover, both legislators and regulators should enrich their approach to good quality rules using insights from cognitive sciences, i.e. all disciplines that study human cognitive limitations and how rules should respond to departures from rational behaviour. The latter are widely analysed in economics, sociology, psychology and neurosciences, whose achievements are specifically relevant for rules which are intended to change end-users' behaviour⁹.

The paper deals with law and regulation characterized by a behavioural element¹⁰ and the use of cognitive insight in order to increase their effectiveness in rule-making (ex ante approach) and in regulatory compliance (ex post approach).

It is organized as follows:

Paragraph 2 investigates the different rationales guiding the traditional and new approaches to regulatory compliance and enforcement. Compliance and enforcement are two faces of the effectiveness of law and of regulation¹¹ and they are strictly related: on one side, compliance is referred to as “the panoply of behavioural and attitudinal responses that individuals and firms make to regulation”¹², on the other side, enforcement strategies are crafted by regulators and they are related to

⁹ R. van Bavel et al., *Applying Behavioural Sciences to EU Policy-Making*, JRC Scientific and Policy Reports, Publications Office of the European Union, 2013, p. 6.

¹⁰ Indeed, cognitive findings are crucial with regard to law and regulation with a behavioural element only. A behavioural element exists whenever the main objective of law and regulation is a change of individual behavior, or when individuals' behavioural response might hinder the effectiveness of a given law and regulation, e.g. in the field of consumer protection (F. Di Porto e N. Rangone, *Behavioural Sciences in Practice: Lessons for EU Policymakers*, in A. Alemanno and A.-L. Sibony, eds., *Nudge and the Law: A European Perspective?* Hart Publishing, Oxford, 2015, p. 31).

¹¹ There is a body of research which challenges the link between compliance and effectiveness, emphasizing that some factors lead undertakings to go well beyond compliance measures required by legal rules, “even when enforcement mechanism are flawed” (N. Gunningham, R.A. Kagan and D. Thornton, *Shades of Green: Business, Regulation and Enforcement*, Stanford University Press, Stanford, 2003, p. 21-22; see also R. Kagan and L. Axelrad, *Regulatory Encounters: Multinational Corporations and Adversarial Legalism*, Univ. of California Press, Berkeley, 2000; N. Gunningham and R.A. Kagan, *Regulation and Business Behavior*, in *Law & Policy*, April 2005, p. 217. See also the “expressive function of law” in footnote 35.

¹² C. Parker and V.L. Nielsen, *Compliance: 14 questions*, in P. Drahos, *Regulatory Theory. Foundations and Applications*, Australian National University Press, 2017, p. 218.

decisions about “what to enforce, how to allocate resources for inspections, and the enforcement tools to emphasize”¹³. Some of the different approaches to compliance and enforcement analysed in this paragraph (from the classic deterrence approach to the risk-based) assume the individual’s rationality, while others suggest an understanding of compliance from a more complex and nuanced perspective. These studies suggest that it is worth paying attention, for instance, to the psychological drivers and to individual internal motivations; to focus on the main actors of compliance (such as the single regulatee, other regulatees, public authorities - from rule-makers to inspectors) and on their interaction; to consider the perceived legitimacy of public authorities (the so-called procedural justice).

Abandoning the rationality assumption does not mean dismissing traditional enforcement tools (such as inspection and sanctions), which should be otherwise utilised in a more consistent way (when they prove to be necessary in order to obtain compliance). These studies have instead enriched the list of compliance drivers, suggesting other possible motivation that goes beyond the rational calculus, and thus the enforcement strategies increase in number and variety.

The contention of the paper is that one more strand of these researches is to be identified in the cognitive sciences, which have contributed to the emergence of new regulatory tools and enforcement strategies, that are cognitive-based because consideration is given to bias, heuristics, social norms and neuroscientific insights into behavior. In this framework, paragraph 3 shows that empirical data on how, in the real world, people make compliance choices (hereafter cognitive insights) are crucial in order to draft new regulatory tools, nudging and cognitive empowerment, the first one aiming to “exploit” individual’s cognitive limitations, the second to overcome them.

Paragraphs 4 and 5 are devoted to the design of cognitive-based enforcement strategies, suggesting how compliance controls should be planned and how to make use of compliance records in order to increase the effectiveness of law and regulation.

Nudging and cognitive empowerment can also be introduced at administrative level in order to support compliance with law and regulation, as shown in paragraph 6.

Paragraph 7 concludes that the cognitive-based approach shares with other views of compliance an emphasis on the psychological factors and social norms in explaining individual behaviour, while differently from them it leverages or tries to

¹³ The enforcement style concerns the interaction between inspectors and regulatees (P. J. May and S.C. Winter, *Regulatory Enforcement Style and Compliance*, in C. Parker and V.L. Nielsen, *Explaining Compliance. Business Responses to Regulation*, Edward Elgar Publishing, Cheltenham UK, Northampton MA USA, 2011, p. 223).

overcome the impact of these factors in shaping compliance. In this framework, cognitive insights could help in increasing the effectiveness of rules and their enforcement strategies.

2. Different approaches to regulatory compliance

The compliance model, proposed by Gary Becker ¹⁴, has been adopted in legal theorizations and efforts to limit non-compliance. This classic “deterrence approach” to compliance is strictly linked to the neoclassical economics theory, based on the utility maximization assumption: people and firms act on the basis of a rational assessment of the option providing the largest net gain ¹⁵. According to this approach, people would comply if the compliance cost (related to regulatory costs and liability) were less expensive than the cost of infringement and the risk of being detected were high ¹⁶. Therefore, enforcement strategies would lead to the use of ex ante controls (such as concession systems), harsh sanctions and frequent inspections.

This approach has been challenged for being inefficient ¹⁷, costly for public authorities and regulatees ¹⁸, and for having the effect of potentially diverting rules by

¹⁴ G. Backer, *Crime and Punishment: An Economic Approach*, in *Journal of Political Economy*, vol. 76, n. 2, 1968, p. 169 ff.; G.J. Stigler, *The Theory of Economic Regulation*, in *Bell Journal of Economic and Management Science*, vol. 2, n. 1, 1971, p. 3 ff.

¹⁵ M. Allingham, *Rational Choice*, St Martin’s Press Inc., New York, 1999.

¹⁶ “In the taxation context, for example, a taxpayers’ choice in between compliance and tax evasion. By complying, the taxpayer incurs a loss in the form of taxes paid, but evading tax there is the chance of a relative gain if evasion is undetected. alternatively, there is the chance of an ever greater loss is the evasion is detected and penalized. According to the rational choice model, taxpayers calculate these risks when deciding whether or not to comply” (K. Murfy, *The Role of Trust in Nurturing Compliance: A Study of Accused Tax Avoiders*, in *Law and Human Behaviour*, 28, 2004, p. 188).

¹⁷ “The authority must constantly demonstrate their credibility by maintaining a high level of deterrent potential, something that is difficult and sometimes impossible to do given the fiscal constrain. While our society, for example, expends large amount of money to make the risk of being caught and punished for murder sufficiently high to be a deterrent, it does not devote similarly high level of resources to combating speeding, littering, or drinking in public streets” (T.R. Tyler, *Introduction*, in T.R. Tyler, ed., *Procedural Justice*, Vol. I, Ashgate, Aldershot and Burlington, 2005, p. xv and xvi). A legalistic enforcement applied to all cases would also impose unnecessary costs on regulates (R. Kagan and J. Scholz, *The “Criminology of Corporation” and Regulatory Enforcement Strategies*, in K. Hawkins and J.M. Thomas, eds., *Enforcing Regulation*, Kluwer-Nijhoff Publishing, 1984, p. 73).

¹⁸ The limits of this approach was documented by many studies in the 1970s and 1980s, wisely analysed by F. Blanc (*From Chasing Violation to Managing Risks. Origins, challenges and evolution in regulatory inspections*, Edward Elgar, forthcoming), who also describes his research on a specific set of cases. Recently, see also C. Hodges, *Law and Corporate Behaviour. Integrating Theories of Regulation, Enforcement, Compliance and Ethics*, Hart Publishing, Oxford and Portland, 2015.

their “desired ends”¹⁹. Therefore, some research lines have been developed in order to deal with the limits of the classic deterrence-based approach.

A risk-based approach suggests focussing resources on the most serious risks that regulators face in achieving their objectives²⁰. This view was initially “introduced to provide a way of prioritizing inspections”: in this framework, enforcement strategies are characterized by inspections which are more targeted on where higher probability of violation and the most important potential effects of violation are. Then, it “has become, for some regulators, a more holistic concept, encompassing wider strategic policy decisions”²¹.

This approach has been refined by a “responsive” one, in order to keep the enforcement strategies to the lowest level necessary to achieve the desired results (e.g. education and advice), while regulators escalate the “enforcement pyramid” (to the point of civil or criminal sanctions) where regulatees are non-compliant²². The “responsive” approach has been coupled by a “smart” one, which extends the enforcement pyramid beyond the government action: firms can perform a self-regulatory role and (commercial and non-commercial) third parties can act as quasi-regulators²³. According to this approach, regulators might require firms (regulatees) to disclose information, for instance about its pollution emission (or the compliance with environmental regulation), and third parties (commercial, such as financial markets and insurers, and non-commercial ones, such as environmental groups) can use that information in order to bring pressure to bear on the polluters.

¹⁹ “When inspectors act like policemen (...) they fail to see hazards that are truly serious but that had not been anticipated by the regulation writers and explicitly condemned by the rules” (R. Kagan and J. Scholz, *The “Criminology of Corporation” and Regulatory Enforcement Strategies*, cit., p. 73).

²⁰ J. Black, *Risk-based regulation: choices, practices and lessons being learned*, OECD, 2008.

²¹ R. Baldwin and J. Black, *Driving Priorities in Risk-based Regulation*, in *Journal of Law and Society*, vol. 43, n. 4, 2016, p. 567.

²² I. Ayres and J. Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate*, Oxford University Press, New York, 1992. In line with this approach, the OECD *International Best Practice Principles: Improving Regulatory Enforcement and Inspections* (2014) underlines that enforcement should be based on responsive regulation principles, as well as being risk focused, proportional, and evidence-based.

²³ N. Gunningham, P. Grabosky and D. Sinclair, *Smart Regulation: Designing Environmental Policy*, Oxford University Press, Oxford, UK, 1998, p. 93 ff. A parallel approach is the problem-centered approach which, with a wider scope, suggests regulators’ efforts focus on the most important problems, instead of the most serious risks (M. Sparrow, *The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance*, Brookings Press, Washington DC, USA, 2000). As noted by R. Baldwin and J. Black (*Driving Priorities in Risk-based Regulation*, cit., p. 566), risks and problems have different dimensions in time: “risks are adverse events that may occur in the future. Problems are thing that have happened or are happening or may happen and which require attention”.

While these approaches to compliance are based on evidence of what is likely to work ²⁴ (suggesting also a mix of enforcement strategies) ²⁵, they do not investigate all regulatees' reaction drivers which are not related to a rational calculus.

Other developments suggest that the risk-based approach might be re-conceived in order to be “really responsive” to five key factors, “the behaviour, attitudes, and cultures” of regulatees, “the institutional environments in which regulation takes place, the ways in which different control instruments interact, the performance of the control regime itself, and the changes that occur in regulatory priorities, challenges and objectives” ²⁶. The first factor implies that the intensity of the regulators' intervention (e.g. an incentive-based or disclosure strategy, instead of the use of command and control in a deterrent fashion) should increase according to the risk-type of the regulatees. Some regulatees are indeed well-motivated with a high capacity to comply (which would justify a less intensive intervention), while others are motivated but with low capacity to comply; moreover, some regulatees are less motivated while characterised by high capacity to comply and others are less motivated with lower capacity to comply, a situation which would justify a more intensive intervention ²⁷. While this sophisticated model is tailored to end-users, it does not consider the cognitive limitation which can hinder both capacity and intention to comply ²⁸.

Moreover, some scholars have demonstrated that people tend to comply with regulation irrespective to the rational calculus of future costs (e.g. the amount of

²⁴ For instance, it has been observed that people react more to the probability of being detected than to the severity of sanctions (J.T. Scholz and W.B. Gray, *OSHA enforcement and workplace injuries: A behavioral approach to risk assessment*, in *Journal of Risk and Uncertainty*, vol. 3, n. 3, 1990, p. 284).

²⁵ N. Gunningham, P. Grabosky and D. Sinclair (*Smart Regulation: Designing Environmental Policy*, cit., p. 422 ff.) “highlighted the importance, in term of achieving effectiveness and efficiency, of using combinations of instruments”, while they underline that not all instruments can be considered automatically complementary. “The dangers of smorgasbordism (i.e. wrongly assuming that all instruments should be used rather than the minimum number necessary to achieve the desired result)” is also to be avoid (N. Gunningham and D. Sinclair, *Smart Regulation*, in P. Drahos, *Regulatory Theory. Foundations and Applications*, cit. p. 134).

²⁶ J. Black and R. Baldwin, *Really Responsive Risk-based Regulation*, in *Law and Policy*, vol. 32, n. 2, 2010, p. 182.

²⁷ J. Black and R. Baldwin, *When Risk-Based Regulation Aims Low: Approaches and Challenges*, in *Regulation and Governance*, vol. 6, n. 1, 2012, p. 2 ff.; J. Black and R. Baldwin, *When Risk-Based Regulation Aims Low: A Strategic Framework*, in *Regulation and Governance*, vol. 6, 2012, p. 131 ff.

²⁸ This approach could indeed be used in drafting differentiated regulation according to the different degree regulatees are affected by cognitive bias (see Para. 3.1), on the one hand, and their ability and amenability to be empowered, on the other, i.e. regulatees bias-type (F. Di Porto and N. Rangone, *Proportionality of regulation: what role for cognitive sciences*, paper presented at the annual conference of the International Research Society for Public Management, Hong Kong 2016).

sanctions) and the risk of being detected, suggesting a more comprehensive vision of compliance decisions.

For instance, one driver for compliance has been identified in cooperation, which would gain compliance more effectively than deterrence-based enforcement strategies only ²⁹: the cooperative and “negotiated compliance” based on cooperative governance, bargaining and persuasion method ³⁰. This “compliance approach” to regulatory enforcement has become a part of the European and national better regulation policies ³¹.

It has been underlined also that the bounded rationality of individuals and organisations (e.g. their limited capacity to process information in decision-making) ³² leads them to bring the risk of non-compliance to their attention only when something happens (for instance, being inspected and sanctioned). It has been stressed that there is evidence that “‘punitive,’ ‘command’ or ‘deterrence’ approaches to regulation and enforcement are severely limited in potential since even top companies think in very

²⁹ “Even when rules can in principle cover all the relevant situations, compliance is problematic unless there is an underlying attitude of willing cooperation. Not one-time order to comply, but continuous managerial vigilance, imagination, and leadership are needed to keep a diverse body of middle managers and workers in compliance with rules. Without this managerial attitudes, rule violations due to delay and footdragging and error are ineradicable under all but the most draconian of conceivable enforcement system” (E. Bardach and R.A. Kagan, *Going by the Book. Unreasonableness. A Twentieth Century Fund Report*, cit., p. 100). “The central feature of the enforcement dilemma is that mutual suspicions may lead to confrontation between regulator and regulated firms, even when firm, agency, and society as a whole would be better off with voluntary compliance and cooperative enforcement” (J.T. Scholz, *Voluntary compliance and regulatory enforcement*, in *Law and Policy*, 1984, October, p. 388 and 396). “In the context of reporting wrongdoing, a sequenced reporting system will allow organizations to first require their members to report illegal behavior within the internal reporting channels of the company. Only if internal problem solving fails will individuals be allowed to turn to public channels for whistleblowing” (O. Amir and O. Lobel, *Stumble, Predict, Nudge: How Behavioural Economics Informs Law and Policy*, in *Columbia Law Review*, n. 118, 2008, p. 2098 ff.).

³⁰ N. Shover, D. Clelland and J. Lynxwiler, *Enforcement or Negotiation: Constructing a Regulatory Bureaucracy*, State University of New York Press, Albany, 1986, p. 128. “Enforcement strategies that elicit feelings of resentment towards compliance and towards authority appear to lead to subsequent non-compliance among those affected. In contrast, reintegrative tactics that serve to reduce feelings of resentment appear to foster compliance with rules” (K. Murphy, *Enforcing Tax Compliance: To Punish or Persuade?*, in *Economic Analysis and Policy*, vol. 38, n. 1, 2008, p. 130). Compliance of States with international rules could be increased by a peer review approach (e.g. utilized in the frame of the OECD Anti-bribery convention or the International Atomic Energy Agency), which is a non-punitive system based on reputation and threat of exclusion pressure (G. Dimitropoulos, *Compliance through Collegiality: Peer Review in International Law*, in *Max Planck Institute Luxembourg for International, European and Regulatory Procedural Law, Working Paper Series*, n. 3, 2014).

³¹ A. Ogus, *Better Regulation - Better Enforcement*, in S. Weatherill (ed.), *Better Regulation*, Hart Publishing, Oxford, 2007, p. 107 ff.

³² J.G. March and H.A. Simon, *Organizations*, John Wiley & Sons, New York, 1958, p. 169.

confused, frequently very different, and very irrational ways about how to manage regulatory risks”³³.

Moreover, it has been shown that widespread compliance occurs “just because it is the law”³⁴ and that people respond to the signals embodied in rules, even in the absence of sanctions, beyond simple calculative effects; this so-called expressive function of law is related to the importance that individuals usually place on the opinions of others³⁵.

There are also other drivers for compliance, such as the internal reward mechanism, that can be undermined by an external reward³⁶. In this framework, many experiments in different fields have demonstrated that the penalty is not effective and may otherwise be counterproductive when it “interferes with the moral dimension of compliance activity”³⁷. For instance, the decrease in compliance after an audit and fines (which will be analysed from a cognitive-based point of view in para. 4) has been explained as a consequence of the perceived lack of trust from public authorities leading to a crowding out of the intrinsic motivation to cooperate³⁸.

³³ “Even when they do contemplate managing punitive risks, this may or may not lead to compliance” (R. Baldwin, *The New Punitive Regulation*, in *The Modern Law Review*, vol. 67, n. 3, 2004, p. 382).

³⁴ I. Ayres and J. Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate*, Oxford University Press, New York, 1992, p. 19.

³⁵ See, among others, C.R. Sunstein, *On the Expressive Function of Law*, in *University of Pennsylvania Law Review*, vol. 144, 1996, p. 2021 ff.

³⁶ N. Mazar and D. Ariely, *Dishonesty in Everyday Life and Its Policy Implications*, in *Journal of Public Policy and Marketing*, vol. 25, n. 1, 2006, p. 118. On the internal reward see scholars who have demonstrated altruism and reciprocity in social dilemma games, e.g. E. Fehr and U. Fischbacher, *Social Norms and Human Cooperation*, in *Trends in Cognitive Sciences*, 8 (4) 2004, p. 185–90; J. Andreoni, W.T. Harbaugh and L. Vesterlund, *The Carrot or the Stick: Rewards, Punishments, and Cooperation*, in *The American Economic Review*, Vol. 93, n. 3, 2003, p. 893–902.

³⁷ “Where certain types of misconduct were once inherently wrong, the introduction of a fine may inadvertently specify the financial tipping point at which the costs of reporting misconduct outweigh the moral and social benefits” (Y. Feldman and O. Lobel, *The incentive of Matrix: The Comparative Effectiveness of Rewards, Liabilities, Duties and Protection for Reporting Illegality*, in *Texas Law Review*, vol. 88, n. 6, 2010, p. 1182). In the famous study on the reaction to a monetary fine imposed on parents who were late picking up their child at school, the observation of a significant increase in the number of parents coming late, has been explained with the fact that the behavior that was previously wrong in itself has in fact a price and this price allowed parents to be comfortable being late (U. Gneezy and A. Rustichini, *A Fine is a Price*, in *Journal of Legal Studies*, vol. 29, n. 1, 2000, p. 1 ff.). On blood donation and on the implication of monetary rewards for social polity generally, see R.M. Titmuss, *The gift relationship: From Human Blood to Social Polity*, New York, Pantheon Books, 1971. More, recently, N. Lacetera and M. Macis, *Do all material incentives for pro-social activities backfire? The response to cash and non-cash incentives for blood donations*, in *Journal of Economic Psychology*, vol. 31, 2010, p. 738 ff.

³⁸ B.S. Frey, *Not Just for the Money: An Economic Theory of Personal Motivation*, Edward Elgar Publishing, 1997.

Another compliance approach based on psychological insight (and which goes against the self-interest assumption) emphasizes the role of “procedural justice”³⁹ as the most important and long term driver of compliance⁴⁰. It has been demonstrated that people are more willing to adhere to rules if the subject who enforces such rule (judges, inspectors, but also managers, teachers, doctors etc.) is perceived as exercising their authority through fair procedures. These people’s procedural fairness judgement is based on possibility to participate in public decisions, fairness, impartiality and consistency across people and situations of decision-making.

The above-mentioned broad and comprehensive visions of compliance lead to different enforcement strategies, “by means of a combination of information, advice, persuasion, and (sometimes) threat”⁴¹. All of them have pros and cons and decision-makers should try to combine them, while some strategies seem to be contradictory (e.g. deterrence and education⁴², or penalty and the leverage on the moral dimension of compliance⁴³).

This debate on the compliance approach has also had an impact in many countries and the enforcement strategies have been changed over the years, moving from exclusively authoritarian and deterrence-based systems, to a less intrusive, “responsive”, risk-based and cooperative ones, where possible⁴⁴.

3. Cognitive-based tools for effective law and regulation

³⁹ T.R. Tyler, *What is Procedural Justice? Criteria Used by Citizens to Assess the Fairness of Legal Procedures*, in *Law and Society Review*, vol. 22, n. 1, 1988, p. 103 ff.

⁴⁰ It has been underlined that in many cases it is impossible to achieve deterrence (because of its costs and intrusion in individuals’ freedoms and privacy) and moral values and social norms are difficult to alter, while procedural justice requires public authorities to make a change in behaviours and approaches only (F. Blanc, *From Chasing Violation to Managing Risks. Origins, challenges and evolution in regulatory inspections*, cit.).

⁴¹ M. Faure, A. Ogus and N. Philipsen, *Curbing Consumer Financial Losses: The Economics of Regulatory Enforcement*, in *Law and Policy*, vol. 31, n. 2, 2009, p. 161 ff. Analyzing a specific regulatory field, Kirchler et al. (*Why pay taxes? A review of tax compliance decisions*, in *International Studies Program Working Paper*, 07-30, December 2007, p. 19) underline that “the problem of tax compliance seems much too complex to be explained by a pure economic approach. Including alternative approaches could help to understand the irrational behavior of taxpayers, and could expand the toolbox for an efficient tax policy”.

⁴² J.T. Scholz, *Managing Regulatory Enforcement*, in D.H. Rosenbloom and R.D. Schwartz, *Handbook of Regulation and Administrative Law*, eds., Marcel Dekker, Inc., New York, 1994, p. 425 ff.

⁴³ See Para 3.1.

⁴⁴ In UK, the Hampton Report (*Reducing administrative burdens: effective inspection and enforcement*, HM Treasury, 2005) recommended to all regulators a risk-based approach to enforcement. A similar policy has been developed in many other countries (see OECD, *Recommendation on Regulatory Policy and Governance*, 2012; J. Black, *Risk-based regulation: choices, practices and lessons being learned*, cit.).

3.1 How real people make compliance choices

A step forward could be taken by using insights from the cognitive sciences in the life-cycle of rules, particularly in drafting regulatory options and in the enforcement strategies design.

By clarifying why humans observe or break rules, cognitive sciences could enrich the above-mentioned deterrence, persuasion, risk based and less intrusive approaches in order to maximize compliance and, in turn, increase the effectiveness of laws and of regulation.

Cognitive sciences indeed show that real people are not necessarily rational and their decisions are influenced by many factors, such as bias, heuristics and social norms. In a nutshell, contrary to the traditional approaches based on standard economic theory, the choice to comply with an obligation, subject to adequate controls and sanctions, is not necessarily rational ⁴⁵.

First of all, the decision to comply is not automatically adopted where the advantages outweigh the disadvantages. Indeed, compliance is shaped by social norms ⁴⁶ and the imitation heuristic ⁴⁷. For instance, cognitive studies show that people might be induced to change their behaviour by changing their self-reference point, irrespective of any cost-benefit consideration. This is why comparative feedback ⁴⁸ might induce improvement in energy use, while the temporal discount and loss aversion bias often lead to failure of the simple perspective of a less expensive bill as a consequence of energy efficiency interventions ⁴⁹.

Secondly, the decision to comply is not taken once and for all. Quite on the contrary, it is influenced by the socio-psychological environment in which individuals

⁴⁵ M.G. Allingham and A. Sandmo, *Income tax evasion: a theoretical analysis*, in *Journal of Public Economics*, 1972, vol. 1, n. 3-4, p. 323 ff. At the same time, J. Andreoni and J.H. Miller (*Analyzing Choice with Revealed Preference: Is Altruism Rational?* in C. Plott and V.L. Smith, eds., *Handbook of Experimental Economics Results*, vol. 1, 2006, Amsterdam, Elsevier Science, p. 486-487) have demonstrated that “not all «non-economic» behavior is beyond economic analysis (...) [and] when we define the choice set appropriately, unselfish acts can be described and predicted with the standard neoclassical model of choice”.

⁴⁶ P.W. Schultz, J.M. Nolan, R.B. Cialdini, N.J. Goldstein and V. Griskevicius, *The constructive, destructive, and reconstructive power of social norms*, in *Psychol. Science*, vol. 18, 2007, p. 429 ff.

⁴⁷ R.B. Cialdini, *Influence. The Psychology of Persuasion*, New York, 1984; R.B. Cialdini, C.A. Kallgren and R.R. Reno, *A focus theory of normative conduct*, in *Advances in Experimental Social Psychology*, vol. 24, 1991, p. 201 ff.

⁴⁸ N.J. Goldstein, R.B. Cialdini and V. Griskevicius, *A room with a view point: using social norms to motivate environmental conservation in hotels*, in *Journal of Consumer Research*, vol. 35, 2008, p. 472 ff.

⁴⁹ Moreover, if the behavioural dimension of energy use is neglected, “efficiency gains achieved through improvements in architecture or technology” risks ~~to be being~~ “overcome by a population that is acquiring more goods and using them more intensively” (M.P. Vandenbergh, A.R. Carrico and L.S. Bressman, *Regulation in the Behavioural Era*, in *Minnesota Law Review*, vol. 95, 2011, p. 738).

act. Indeed, people are strongly influenced by previous experiences (availability bias)⁵⁰, ethics⁵¹ and, once again, social norms.

Thirdly, people may make predictable mistakes and irrationally break rules due to heuristics and bias⁵². Indeed, individuals tend to be bad at evaluating risk and probability (due, for instance, to unrealistic optimism)⁵³ and, when it comes to decisions taken in uncertainty, they tend to believe in a negative correlation between random sequences, in the mistaken belief that past events affect future ones⁵⁴. For instance, representativeness heuristics⁵⁵ and overconfidence bias in gambling lead to the failure of traditional information disclosure on the probability of winning.

Knowing how people and firms decide to comply with a given regulation allows public authorities to draft effective law and regulation and to design effective controls, which in turn lead to an increase in compliance. This effectiveness (of rules and controls) is related to the fact that they are based on empirical evidence.

3.2 Nudging and cognitive empowerment

Therefore, it is crucial for decision-makers to take into account empirical evidence arising from cognitive experiments on real people's reactions to a given rule. Such evidence might be helpful in order to increase compliance before and after a law or regulation is approved.

On one hand, cognitive insights enrich the traditional regulatory toolkit (command and control, incentive, market based instruments, information disclosure) with two new tools: nudging and cognitive empowerment (analysed below). On the other hand, cognitive insight can make the ex post monitoring and controls phase more effective and suggests the use of compliance records so as to increase compliance and law or regulation effectiveness.

⁵⁰ "The phenomenon of illusory correlation is explained as an availability bias" (A. Tversky and D. Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, in *Cog. Psych.*, vol. 5, 1973, p. 207).

⁵¹ C. Hodges, *Law and Corporate Behaviour. Integrating Theories of Regulation, Enforcement, Compliance and Ethics*, cit.

⁵² A. Tversky and D. Kahneman, *Judgment under uncertainty: Heuristics and biases*, in *Sciences*, vol. 185, n. 4157, 1974, p. 1124 ff.; T. Gilovich, D. Griffin and D. Kahneman (eds.), *Heuristics and Biases: The Psychology of Intuitive Judgement*, Cambridge University Press, 2002.

⁵³ C. Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, in *Vanderbilt Law Review*, vol. 51, 1998, p. 1653 ff.

⁵⁴ This bias is clearly identified in the Gambler's fallacy. See A. Tversky and D. Kahneman, *Judgment under uncertainty*, cit., and A. Tversky and D. Kahneman, *Belief in the law of small numbers*, in *Psychological Bulletin*, vol. 76, n. 2, 1971, p. 105 ff.

⁵⁵ P. Ayton and I. Fischer, *The hot hand fallacy and the gambler's fallacy: Two faces of subjective randomness?*, in *Memory & Cognition*, vol. 32, n. 8, 2004, p. 1369 ff.

While the above-mentioned cognitive-based tools can both be classified as non-economic incentives, nudging designs the choice of environment in order to prompt some behaviour, somehow exploiting an individual's bias, and cognitive empowerment is aimed at overcoming them⁵⁶. Therefore, nudging is bias-preserving and interferes with individual's autonomy (so-called "end paternalism"), while cognitive empowerment is truly a de-biasing technique and it is aimed at correcting cognitive errors in support of the achievement of an individual's goals ("means paternalism")⁵⁷.

According to this criterion, one example of nudging is the default rule, which "specifies the outcome in a given situation if people make no choice at all"⁵⁸. It has been proven to be the most effective cognitive-based regulatory tool, leveraging on inertia⁵⁹, status quo bias and loss aversion in order to nudge people to choose something which is considered better for them, as demonstrated by experiments performed in many fields (declaration of consent for processing of personal data or buying additional services⁶⁰, retirement savings⁶¹, organ donation⁶², green energy use⁶³). This tool works because it avoids the regulatees' compliance decision step: the compliance is by default, and how to comply is decided by the legislator or regulator, provided that end-users do not opt out. Another example of nudging is comparative feedback, which uses imitation (and therefore leverage on social norms) in order to nudge people to change their personal reference points⁶⁴. Comparative messages have

⁵⁶ F. Di Porto e N. Rangone, *Behavioural Sciences in Practice: Lessons for EU Policymakers*, cit., p. 29 ff.

⁵⁷ C. Sunstein, *Why Nudge? The Politics of Libertarian Paternalism*, Yale University Press, New Haven, 2014, p. 61 ff. See also A. Van Aaken (*The Constitutional Limits of Nudging*, in *University of St. Gallen Law School, Law and Economics Working Papers*, n. 2015-03, 2015, p. 9).

⁵⁸ OIRA, *Disclosure and Simplification as Regulatory Tools*, 2010. C.R. Sunstein, *Deciding by Default*, in *University of Pennsylvania Law Review*, vol. 162, n. 1, p. 1 ff.

⁵⁹ People tend to stick with default options, not only because it is easier to do so, but also because they think it has been endorsed as the right option.

⁶⁰ E.g. art. 22 Directive n. 2011/83/EU on consumer rights.

⁶¹ R. Chetty et al., *Active vs. Passive Decisions and Crowdout in Retirement Savings Accounts: Evidence from Denmark*, in NBER Working Paper n. 18565 Issued in November 2012; R.H. Thaler and S. Bernartzi, *Save more tomorrow: Using Behavioral Economics to Increase Employee Saving*, in *Journal of Political Economy*, vol. 112, n. 1, 2004, p. S164 ff.

⁶² E. Johnson and D. Goldstein, *Do Defaults Save Lives?*, in *Science*, vol. 302, n. 1338, 2003, p. 1338 ff.; E. Johnson and D. Goldstein, *Decisions By Default*, in E. Shafir (ed.) *Behavioural Foundation of Policy*, Princeton University Press, 2013 p. 417 ff.

⁶³ D. Pichert and K.V. Katsikopoulos, *Green Defaults: Information Presentation and Pro-environmental Behaviour*, in *J. Env. Psychol.*, vol. 28, n. 1, 2008, p. 63 ff.

⁶⁴ Cognitive reference point is a heuristic that guides the decisional processes by setting a standard against which to compare the choice and classify its outcomes as gains or as losses (D. Kahneman and A. Tversky *Prospect Theory: An Analysis of Decision under Risk*, in *Econometrica*, vol. 47, n. 2, 1979, p. 263 ff.).

proven to be effective in promoting, for instance, household energy efficiency⁶⁵, timely taxes or license fee payments (see para. 6), to decrease the so called no-shows for healthcare visits or treatments⁶⁶, or an excessively high number of drug prescriptions⁶⁷.

Among the empowerment tools, cognitive-based targeted education can be mentioned. This would enrich traditional information disclosure in order to effectively help people in the decision-making process in many fields, from financial markets, to health care⁶⁸. Other empowerment tools are the standardisation (which eases comparison of products or services) and the simplification of information given to consumers (in order to avoid information overload), e.g. on financial products⁶⁹ or energy consumption⁷⁰. A way to support a given behaviour is also to simplify information requested of consumers (e.g. prefilled forms for tax declarations)⁷¹ or activities to be performed by individuals (pro-choice web applications aimed at facilitating people's choice by making comparisons between products or services easier in the area of utilities, banks and insurance services). This so-called "make it easy"⁷², is a cognitive-based empowerment tool because it helps individuals to overcome inertia.

And then there is a grey area made of cognitive-based informational tools which employ framing. The latter are mainly aimed at simplifying information and prompting "slow" thinking, thus they can be classified as cognitive empowerment. However,

⁶⁵ P.W. Schultz et al., *The Constructive, Destructive, and Reconstructive Power of Social Norms*, cit., p. 429 ff.

⁶⁶ B.G. Voyer, *Nudging' behaviours in healthcare management: Insights from Behavioural Economics*, in *British Journal of Healthcare Management*, vol. 21, n. 3, 2015, p. 130 ff. In other experiments, a message that pointed out the approximate cost of the missed appointment to the public sector (therefore leveraging on salience) had proven to be more effective (M. Hallsworth, D. Berry, M. Sanders, A. Sallis and D. King, et al., *Stating Appointment Costs in SMS Reminders Reduces Missed Hospital Appointments: Findings from Two Randomised Controlled Trials*, in *PLoS One*, vol. 10, n. 9, 2015).

⁶⁷ In the UK, "the letter [from England's Chief Medical Officer] stated that the practice was prescribing antibiotics at a higher rate than 80% of practices in its NHS Local Area Team" led to "an estimated 73,406 fewer antibiotic items" prescribed during the study period (www.thelancet.com, vol., 387, 2016). The same result has not been obtained in US, where "sending medical providers a letter illustrating their unusually high drug prescribing rates relative to their peers had no measurable impact on prescription rates" (Social and Behavioral Sciences Team, 2015).

⁶⁸ F. Di Porto and N. Rangone, *Behavioural Sciences in Practice: Lessons for EU Policymakers*, cit., p. 46.

⁶⁹ EC Commission, *Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective*, 2010.

⁷⁰ EC Commission Working Group, *Report on Transparency in EU Retail Energy Markets*, 2012.

⁷¹ "Complexity can have serious adverse effects by increasing the power of inertia, and that ease and simplification (including reduction of paperwork burdens) can produce significant benefits. These benefits include increased compliance with law" (C.R. Sunstein, *Empirically Informed Regulation*, in *Univ. Chicago Law Rev.*, n. 78, 2011, p. 1351).

⁷² Behavioural Insights Team, *EAST [Easy, Timely, Social, Attractive], Four simple ways to apply behavioural insights*, 2014.

because they use framing techniques, they also contain some manipulative effect, although to a very limited extent, and in this limited sense they may also leverage on biases, and thus share features of nudging. For instance, in order to prompt a given decision, alternative therapies can be framed in terms of a given percentage of life expectancy or of probability of dying ⁷³. Moreover, in order to overcome the hyperbolic discount bias in patients suffering from chronic disease, physicians should keep “a short term focus on good habits, rather than a long-term one” ⁷⁴. How many alternative options are offered is also an issue ⁷⁵; e.g. in complex medical decisions, the introduction of new options can lead to the maintenance of the status quo in patients and physicians (framing effect) ⁷⁶, while “the addition of an inferior alternative to a choice set increases the likelihood that an existing option will be chosen” (attraction effect) ⁷⁷.

Nudging and empowerment can be conveyed by a public policy or a public campaign ⁷⁸; they can characterise the regulatory content of a law or regulation; or they can be introduced at administrative level in support or without a previous law or regulation imposing it ⁷⁹. In other words, if a problem requires a comprehensive approach, it can be answered by a public policy (fighting, for instance, obesity),

⁷³ B.J. McNeil, S.G. Pauker, H.C. Sox and A. Tversky, *On the elicitation of preferences for alternative therapies*, in *N. Engl. J. Med.*, vol. 306, 1982, p. 1259 ff.

⁷⁴ B.G. Voyer, *Nudging' behaviours in healthcare: insights from behavioural economics*, cit., p. 130 ff.

⁷⁵ “The tendency to defer decisions, search for new alternatives, or choose the default option can be increased when the offered set is enlarged or improved, contrary to the principle of value maximization” (A. Tversky and E. Shafir, *Choice under conflict: the dynamics of deferred choice*, in *Psychological Science*, vol. 3, n. 6, 1992, p. 358).

⁷⁶ D.A. Redelmeier and E. Shafir, *Medical decision making in situations that offer multiple alternatives*, in *JAMA*, vol. 273, n. 4, 1995, p. 302 ff.

⁷⁷ J.A. Schwartz and G.B. Chapman, *Are more options always better? The attraction effect in physicians' decisions about medications*, in *Medical Decision Making*, vol. 19, n. 3, 1999, p. 316.

⁷⁸ For instance, a policy which fights alcohol abuse among young people can draft public campaigns which spread the messages that non-drinkers outnumber drinkers in college, leveraging or trying to communicate a new social norm (R.H. Thaler and C.R. Sunstein, *Nudge. Improving Decisions About Health, Wealth, and Happiness*, Yale University Press New Haven & London, 2008, p. 67-67). In this type of campaign it is crucial to optimize the power of normative appeals and to avoid any boomerang effect, such as the one involved “within the statement «Many people are doing this undesirable thing» [which] lurks the powerful and undercutting normative message «Many people are doing this»” (R. Cialdini, *Crafting Normative Messages to Protect the Environment*, in *Current Direction in Psychology Science*, 2003, p. 205).

⁷⁹ Nudging and empowerment can also be used in behavioural change programs by private third parties (in a self-regulation or delegated self-regulation approach). For instance, “private organizations rank schools; environmental groups rank polluters; consumer groups rank airline performance” (D. Weil, M. Graham and A. Fung, *Targeting Transparency*, in *Policy Forum*, vol. 340, 2013, p. 1410-1411). Already in the “Smart regulation” approach, Gunningham and Grabosky (cit.) had identified a regulatory tripartism: regulators, regulatees and third parties.

implemented by traditional and cognitive-based rules⁸⁰, and by cognitive-based campaigns.

This clarification can give an answer to the critics of limited effectiveness of cognitive-based tools, due to the fact that they would be focused on individual choices only, failing to consider other causes of behaviours that rules seek to change (e.g. social and cultural drivers)⁸¹. Indeed, if the problem requires a comprehensive approach, it can be answered by a cognitive-based public policy (fighting, for instance, obesity), instead of a cognitive-based regulatory option (such as nudging). Moreover, where necessary, cognitive-based rules can be used in combination with traditional ones⁸², just as cognitive-based public policies can be implemented by traditional and new rules.

At the same time, it is worth answering some other criticisms. The fact that nudging would lack the transparency normally associated with a command and control approach (which is, at the same time, one of the reasons for their effectiveness)⁸³ might be settled in an open and transparent rulemaking (and allowing a clear and inexpensive opt-out in case of nudging)⁸⁴. It has been also underlined that cognitive-based regulation would impose a preconceived idea of public welfare against

⁸⁰ E.g., compliance with obligations on product information could be increased by a regulation imposing providers to implement product comparison websites in order to discourage cheating (F. Di Porto e N. Rangone, *Behavioural Sciences in Practice: Lessons for EU Policymakers*, cit., p. 49).

⁸¹ “Small nudges to improve energy efficiency or increase recycling rates will not be enough on their own to combat climate change, which is likely to require large-scale recognition on the part of citizens that more major shifts in lifestyle are probably necessary” (P. John, G. Smith, and G. Stoker, *Nudge Nudge, Think Think: Two Strategies for Changing Civic Behaviour*, in *Political Quarterly*, 2009, p. 361 ff.). See also R. Baldwin, *Nudge: Three Degree of Concern*, in *LSE La Policy Briefing Series*, n. 7, 2015, p. 3.

⁸² E.g., compliance with obligations on product information could be increased by a regulation imposing providers to implement product comparison websites in order to discourage cheating (F. Di Porto e N. Rangone, *Behavioural Sciences in Practice: Lessons for EU Policymakers*, cit., p. 49).

⁸³ R. Bubb and R.H. Pildes, *How Behavioural Economics Trims Its Sails and Why*, in *Harvard Law Review*, vol. 127, p. 1605; Y. Feldman and O. Lobel, *Behavioural Trade-offs: Beyond the Land of Nudges Spans the World of Law and Psychology*, in A. Alemanno and A.-L. Sibony (eds.), *Nudge and the law*, Hart Publishing, 2015, p. 301 ff.

⁸⁴ However, it has been underlined that when nudges are “invisible” (i.e. “people are (made) aware neither of the cognitive bias nor of the nudge that seeks to address it and are thus ignorant of the manipulation of their choice”) transparency of the decision-making (e.g. “public discussion on nudging concerning organ donation”) is not a “substitute for the visibility of the nudge at the time an individual gets nudged” (A. Van Aaken, *The Constitutional Limits of Nudging*, in *University of St. Gallen Law School, Law and Economics Working Papers*, n. 2015-03, 2015, p. 10, footnote 41). As an example of invisible nudging, the above mentioned Author suggests “nudges using social norms and emotions, such as energy bills with additional information on the average use of neighbours, because they play on the emotions of social shaming” (p. 12). In order to increase transparency in the case of nudging through default rule, A. Van Aaken suggests using an open default, which allow an active choose at some point of time (e.g. “when turning 18, renewing passports or applying for a driving license” for organ donation) (p. 15).

individuals' own preferences (and thus involving an excessive paternalism)⁸⁵, while a certain degree of paternalism has been a tolerated feature of every legislation⁸⁶. Another drawback of nudging, which would impose “costs on sensible persons in order to enhance the welfare of others who behave irresponsibly”⁸⁷, should be addressed by a differentiated regulation which targets populations according to their cognitive limitations⁸⁸.

4. Cognitive-based implementation of controls

A deterrence-based approach is often understood to require detailed regulation, frequent and strict checks, zero tolerance of regulatory breaches or a risk-based approach to inspections and enforcement. Cooperative compliance tends to improve compliance through information, guidance and personalised support to end-users. The first and second approach would not complement each other easily: excessive deterrence effort reduces voluntary compliance, while voluntary compliance requires “the threat of legal sanction in the background”⁸⁹. At the same time, this mixed approach based on deterrence and cooperation cannot be a stand-alone method and should be coupled with a risk-based one⁹⁰. Moreover, the seminal theory of responsive regulation developed by Ayres and Braithwaite and proposed by the OECD argued that regulatory compliance directed towards well-intentioned companies should start with persuasion, while inspection and fines should be used for more risky or less compliant companies. This approach is intended to promote positive outcomes by performing

⁸⁵ Among the many scholars who advanced this criticism, see E.L. Glaeser, *Paternalism & Psychology*, in *Univ. of Chi. Law Review*, vol. 73, 2006, p. 133 ff. and R. Sugden, *On Nudging: A Review of Nudge by Thaler and Sunstein*, in *International Journal of the Economics of Business*, 16, 3, 2009, p. 365 ff.; R. Korobkin, *Libertarian Welfarism*, in *California Law Review*, vol. 97, 2009, p. 1665 ff.

⁸⁶ Moreover, nudging often achieves improvements towards a public goal issued by a higher source of law (e.g. the increase in energy efficiency has been introduced by a European directive, the product information by the unfair commercial practices European directive).

⁸⁷ R. Baldwin, *Nudge: Three Degrees of Concern*, cit., p. 3.

⁸⁸ “Well-designed behavioural interventions have the added value benefit of not disrupting the behavior of less biased consumers” (The Behavioural Insights Team, *Applying behavioural insights to regulated markets*, 26 May 2016, p. 12). On differentiated regulation see F. Di Porto and N. Rangone, *Proportionality of regulation: what role for cognitive sciences*, cit.

⁸⁹ Compliance “is not entirely voluntary. Indeed, compliance perhaps would dissipate if there were virtually no threat of regulatory enforcement or if firms believed their competitor were regularly violating the law with impunity and were thereby gaining a competitive edge. (...) Punishment and deterrence of unjustifiable violations are essential even under a “cooperative” enforcement strategy” (R. KAGAN e J. SCHOLZ, *The “Criminology of Corporation” and Regulatory Enforcement Strategies*, cit., pag. 76).

⁹⁰ Moreover, “recently created business should be (...) first given a chance to improve (...) so as to promote a culture of openness on their side” (OECD, *Regulatory Enforcement and Inspections*, 2014, p. 28 and 34).

business-friendly inspections so as to support compliance (instead of simply deterring violations) ⁹¹.

A further step is to enable regulators to increase compliance by changing regulatees' perception of the risk of being inspected and their views of the juridical system as fair and legitimate ⁹². Evidence from tax compliance is of particular interest in this regard, showing that evasion decreases where taxpayers (such as new companies or professionals) are monitored at the very beginning of their "fiscal lives". This early check leads checked subjects to an over-estimation of the risks of being controlled (a bias significantly qualified as "echo effect") ⁹³. From a regulatory point of view, it is important to verify the length of the "echo effect", to avoid inspection as long as this bias induces early inspected firms to comply. How to reinforce the "echo effect" across extended periods of time is also the central item to be tested. Provided that such evidence is confirmed in other inspection fields, the OECD recommendation to regulators should be developed as follows: new firms should be contacted immediately, preferably starting with light intervention (such as phone calls) and supported in compliance through consultancy services, and guidance documents etc. This could change their risk perception of being under strict public control and thus of being supported by public authorities in compliance with the tax system ⁹⁴.

Moreover, traditional regulatory recommendations concerning control simplifications suggest that the frequency of inspections should be proportional to the risk level, i.e. a combination of probability of infraction with potential magnitude of harm ⁹⁵. As for the target selection, this item should be enriched by cognitive insights. Lab and field behavioural experiments on tax compliance show an increase in violations in the immediate aftermath of control, while after a few years regulatees

⁹¹ "Businesses which have a history of compliance should be gradually checked less often (their risk level being rated lower) – inspectors should also generally start with improvement notices or (in the case of lesser violations) verbal warnings, except in cases of major, imminent hazard" (OECD, *Regulatory Enforcement, and Inspections*, cit., p. 34).

⁹² E. Kirchler, *The Economic Psychology of Tax Behaviour*, Cambridge University Press, 2007.

⁹³ L. Mittone, *Dynamic Behaviour in Tax Evasion: an Experimental Approach*, in *The Journal of Socio-Economics*, 2006, vol. 35, n. 5, p. 813 ff.; B. Kastlunger, E. Kircher, L. Mittone and J. Pitters, *Sequence of audits, tax compliance, and taxpaying strategies*, in *Journal of Economic Psychology*, vol. 30, n. 3, 2009, p. 407 ff.

⁹⁴ "It seems clear that the probability and severity of punishment are not the primary drivers of tax compliance – but rather, that the moral values of taxpayers, and their views on the legitimacy of the tax system and its rules, are fundamental driver, to which inspections and enforcement only come as an addition" (F. Blanc, *From Chasing Violation to Managing Risks. Origins, challenges and evolution in regulatory inspections*, cit.).

⁹⁵ OECD, *Regulatory Enforcement and Inspections*, cit., p. 27.

raise their tax payments⁹⁶. This so-called “Bomb crater effect”⁹⁷ has been explained by the mistaken belief that it is impossible to be subject to controls twice in quick succession. From a behavioural point of view this is related to a misperception of chance, meaning the limited capacity of individuals to evaluate risk and probability⁹⁸. Recently this explanation has been further enriched: while people compute the probability of being checked correctly, they are driven only by emotions when they have to decide whether and how much to comply⁹⁹. Therefore, the timing of controls should be calibrated to neutralize these reactions and inspections could be run when firms do not expect to be checked to change their personal reference point (thus inducing a more compliant behaviour for the future). At the same time, these inspections should be fair and not excessively burdensome in order not to interfere with voluntary compliance and internal motivation to comply¹⁰⁰.

5. Cognitive-based disclosure compliance records

Among the incentive mechanism of compliance, some are intended to reduce the administrative burden of controls and are based on a targeted transparency. For instance, the “inspection holiday” puts a frequency cap on inspections for businesses with track records of accountability which are rewarded with fewer inspections focusing controls on “bad performer” firms¹⁰¹. Another example is the compliance ratings or

⁹⁶ B. Kastlunger, E. Kirchler, L. Mittone and J. Pitters, *Sequences of audits, tax compliance, and taxpaying strategies*, in *Journal of Economic Psychology*, n. 30, 2009, p. 405-6. J. DeBacker, B.T. Heim, A. Tran and A. Yuskavage, *Legal Enforcement and Corporate Behaviour: An Analysis of Tax Aggressiveness after an Audit*, in *Journal of Law and Economics*, vol. 58, 2015, p. 291 ff.

⁹⁷ “The term derives from the First World War: during bombardments, soldiers would take shelter in bomb craters in the belief that it was impossible for a bomb to fall in the same place twice” (L. Mittone, *Dynamic behavior in tax evasion. An Experimental approach*, in *The Journal of Socio-Economics*, 2006, vol. 35, n. 5, p. 813 ff.).

⁹⁸ Other scholars had suggested an explanation based on the loss repair effect (B. Maciejovsky, E. Kirchler and H. Schwarzenberger, *Misperception of chance and loss repair: On the dynamics of tax compliance*, in *Journal of Economic Psychology*, 2007, vol. 28, n. 6, p. 678 ff.).

⁹⁹ L. Mittone and A. Santoro, *The Bomb-crater Effect of Tax Audits: Beyond Misperception of Chance*, in working paper IGIER Università Bocconi, n. 582, 2016.

¹⁰⁰ “The trend in tax behavior research indicates a move from understanding taxpayers as selfish individuals trying to maximize their own gain to people with a sense of community who are ready to cooperate, if all agents in the social system of the state contribute to a climate of mutual trust” (J. Alm, E. Kirchler, S. Muehlbacher, K. Gangl, E. Hofmann, C. Kogler and M. Pollai, *Rethinking the Research Paradigms for Analysing Tax Compliance Behaviour*, in *CESifo Forum* 2/2012, p. 39). See also E. Kirchler and E. Hoelzl, *Modelling Taxpayers’ Behaviour as a Function of Interaction between Tax Authorities and Taxpayers*, in H. Elffers, P. Verboon and W. Huisman, eds., *Managing and Maintaining Compliance*, Boom Legal Publisher, Den Haag, 2006.

¹⁰¹ R. de Boer, *Regulatory enforcement and inspections. Dutch approach*, October 2012. A similar recommendation is formulated by the OECD, which suggests limiting “re-inspection of the same

compliance records disclosure, which are considered relevant for the simplification of checks, acting as a stimulus to compliance, which in turn limit the need for controls ¹⁰². Both inspection holiday and compliance rating/records systems incentivize compliance without subsidizing the desired activity. However, they enable end-users to reduce their costs, related to the avoided inspection, or to increase revenues by having rating/records systems a potential positive impact on sales. For these reasons they share features of non-economic and economic incentives.

As underlined by the OECD, the rating/records system can only be successful if the administration issuing it is trusted and "updates are sufficiently regular, to mean that ratings can be trusted" ¹⁰³. However, the effectiveness of the rating system might be further increased if it is framed to take into account biases and heuristics which lead to behaviour that is "unresponsive" to traditional regulatory interventions.

One example of positive framing is the compliance certificate, which makes the compliance records salient or provides assurance to customers that a business has been reviewed by a third party for a specific regulation compliance and offers traceability of such ¹⁰⁴. This mechanism has been proven to be effective because it helps in changing the self-reference point, which is a psychological criterion or heuristic that guides decision-making processes by setting a standard against which to compare the choice ¹⁰⁵. In the same way, making information public and salient, the compliance rating motivates individuals or firms to improve compliance and helps in overcoming inertia and status quo biases ¹⁰⁶. One example is food hygiene rating: a scheme introduced by the UK Food Standards Agency ¹⁰⁷, which has worked successfully in Denmark, in New

issue by different inspectorates in the same business within a given period (e.g. one year), except if problems have been identified in the first visit" (OECD, *Best Practices Principles for Regulatory Policies*, cit., p. 44).

¹⁰² E.g. the Italian competition authority attributes a score, from one to three stars, to firms that have a turnover of more than EUR 2 million per year and that meet a number of "legality" requirements: the owner of the company and other executives should not have previous convictions for breach of legislation concerning administrative responsibility of legal persons, for major crimes against the public administration, for tax offences, or for crimes related to the mafia (interministerial decree n. 57/2014, adopted according to the art. 5 *ter*, para. 1, law decree n. 1/2012, converted into law 24 n. 27/2012).

¹⁰³ OECD, *Best Practices Principles for Regulatory Policies*, cit., p. 61.

¹⁰⁴ According to art. 64, of the Directive n. 2014/24/EU on public procurement, member States may establish or maintain official lists of approved contractors, suppliers or service providers.

¹⁰⁵ D. Kahneman and A. Tversky, *Prospect theory: an analysis of decision under risk*, cit., p. 263 ff.

¹⁰⁶ R.B. Cialdini, *Influence. The Psychology of Persuasion*, cit.; P.W. Schultz, J.M. Nolan, R.B. Cialdini, N.J. Goldstein, and V. Griskevicius, *The Constructive, Destructive, and Reconstructive Power of Social Norms*, cit., p. 249 ff.

¹⁰⁷ See <http://ratings.food.gov.uk/default/en-GB>. For an evaluation of the rating commissioned by the Food Standards Agency, see S. Vegeris, *The Food Hygiene Rating Scheme and the Food*

York City since 2010 ¹⁰⁸ and in Los Angeles since 1998 ¹⁰⁹. This disclosure regulation is based on simplified and summarized information on the compliance rate with hygiene law and regulation, printed on stickers posted outside restaurants and available online.

Differently, a negative framing in drafting disclosure of control findings, such as a non-compliance rating, makes negative behaviour public and salient and it leverages on the psychological cost of the social blame. For instance, many governments around the world publish shaming lists, some organized with names, addresses and other information on individuals and undertakings who have committed tax evasion ¹¹⁰, others showing photos ¹¹¹.

Establishing how to frame disclosure of compliance records is something that should be appreciated through empirical evidence from cognitive experiments. Another issue is whether a compulsory positive framing disclosure is more effective than a voluntary one ¹¹². It seems that being effective is related to the widespread use of this disclosure of records; therefore, a compulsory disclosure could be the best regulatory approach until disclosure does not become a social norm (or at least consumer demand leads undertakings to provide the information in question).

6. Cognitive-based administrative design

As already mentioned in paragraph 3, cognitive studies demonstrate that non-compliance of individuals does not depend on a cost-benefit analysis only, but also on

Hygiene Information Scheme: Evaluation findings 2011-2014, Policy Studies Institute, March 2015.

¹⁰⁸ <http://www1.nyc.gov/site/doh/services/restaurant-grades.page>

¹⁰⁹ A panel dataset “show that (i) grade cards cause an increase in inspection scores, (ii) grade cards cause consumers to become sensitive to restaurant hygiene, and (iii) grade cards cause a decrease in the incidence of foodborne illness hospitalizations which is not fully explained by consumer-sorting” (G. Jin and P. Leslie, *The Effect of Information on Product Quality: Evidence From Restaurant Hygiene Grade Cards*, in *The Quarterly Journal of Economics*, vol. 118, n. 2, 2003, p. 409 ff.); P.A. Simon et al., *Impact of Restaurant Hygiene Grade Cards on Foodborne-Disease Hospitalizations in Los Angeles County*, in *Features*, vol. 67, n. 7, 2005, p. 32 ff.

¹¹⁰ More than twenty US states have shaming lists on internet. E.g. New York (<https://www.tax.ny.gov/enforcement/warrants.htm>), California (https://www.ftb.ca.gov/aboutFTB/Delinquent_Taxpayers.shtml), Florida (http://dor.myflorida.com/dor/taxes/delinquent_taxpayer.html).

¹¹¹ For instance, the UK HM Revenue and Customs published in 2013 a photo gallery of the *Most Wanted tax fugitives* (<https://www.gov.uk/government/news/hmrcs-most-wanted-gallery-of-tax-fugitives-published-as-another-caught>).

¹¹² Data referred to 2013, shows that “the majority of these systems are mandatory (Denmark, Canada (Toronto), USA (New York, Los Angeles, San Diego, Ohio, Kentucky), Singapore, and New Zealand, with semi-voluntary systems existing in the UK (England, Wales, Northern Island, Scotland)” (NSW Food Authority, *Progress of ‘Scores on Doors’ (Food Hygiene Rating Scheme) in NSW*, June 2013 CP069/1306).

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the social norms implied by others' behaviour and on their salience ¹¹³. Therefore, changing collective beliefs about how "most people" behave can contribute to reforming prevailing cultural practices ¹¹⁴. To this end the comparative feedback (social comparisons or social information) can be useful and it holds some promise in increasing compliance in many fields. This is a nudging tool which leverages on social norms and it is considered effective the more people comply with regulation ¹¹⁵. It is often introduced at administrative level. For instance, drafting tax collection letters by referencing the behaviours of others increases and accelerates tax collection in some countries ¹¹⁶. Similar letters prove to be effective in increasing TV license fee payments

¹¹³ On unethical behavior, see F. Gino, S. Ayal and D. Ariely, *Contagion and differentiation in unethical behavior: the effect of one bad apple on the barrel*, in *Psychological Science*, vol. 20, n. 3, 2009, p. 393.

¹¹⁴ Moreover, "when people observe that others violated a certain social norm or legitimate rule, they are more likely to violate other norms or rules, which causes disorder to spread. (...) Signs of inappropriate behavior like graffiti or broken windows lead to other inappropriate behavior (e.g., litter or stealing), which in turn results in the inhibition of other norms (i.e., a general weakening of the goal to act appropriately)" (K. Keizer, S. Lindenberg, L. Steg, *The Spreading of Disorder*, in *Science*, vol. 322, 2008, p. 1681 and 1685). Researches on behavioural ethics (which analyses ethical failure and inconsistencies between the individuals' desire to be moral and their actual behavior) also show that "the degree to which people are influenced by social norms of dishonesty depends, to some extent, on the relationship between the initiator and the follower": people tend to consider corrupt behavior of people who are similar to them to be more acceptable than those of people who they perceive as dissimilar (M.H. Bazerman and F. Gino, *Behavioural Ethics: Toward a Deeper Understanding of Moral Judgement and Dishonesty*, in *Annual Review of Law and Social Science*, n. 8, 2012, p. 85 ff.).

¹¹⁵ J. Elster, *The Cement of Society. A Study on Social Order*, Cambridge University Press, 1989, p. 130 ff. "This implies that the impact of the social information on behavior crucially relies on individuals' prior beliefs about others' compliance. With noncommon priors, the provided information can affect beliefs and thus compliance in either direction" (G. Fellner, R. Sausgruber and C. Traxler, *Testing Enforcement Strategies in the Field: Threat, Moral Appeal and Social Information*, in *Journal of the European Economic Association*, vol. 11, n. 3, 2013, p. 638).

¹¹⁶ For instance, the influence of social norms on tax debt payments has been tested in randomized controlled trials. "Letters were sent to 140,000 taxpayers, and took four forms. The first was the standard letter with no mention of social norms (the control group), the remaining three all contained the statement '9 out of 10 people pay their tax on time' in the context of either Britain as a whole, for the taxpayers' postcode, or taxpayers' home town. The interventions appeared to be successful: 67.5 per cent made payments in the control group; 72.5 per cent for national social norms; 79 per cent for postcode social norms and, finally, 83 per cent for home town social norms" (Cabinet Office, *Applying behavioural insights to reduce fraud error and debt*. The British Psychological Society, Promoting excellence in psychology, 2012). See also M. Hallsworth, J.A. List, R.D. Metcalfe and I. Vlaev, *The Behavioralist as Tax Collector: Using Natural Field Experiments to Enhance Tax Compliance*, in NBER Working Paper n. 20007, 2014. A mail-based appeal which raises no evidence in significantly increasing tax compliance in Minnesota were drafted slightly differently: "Audits by the Internal Revenue Service show that people who file tax returns report correctly and pay voluntarily 93 percent of the income taxes they owe. Most taxpayers file their returns accurately and on time" (M. Blumenthal, C. Christian and J. Slemrod, *Do Normative Appeals Affect Tax Compliance? Evidence From A Controlled Experiment In Minnesota*, in *National Tax Journal*, vol. 54, n. 1, 2001, p. 125). "A scheme tested in Guatemala with help from the World Bank and BIT tweaked the wording of letters sent to people and firms who had failed to submit tax returns the previous year. The

¹¹⁷. This approach can also change the perception of the strength of regulation enforcement and of the risk of being sanctioned for cheating (the letter is a sign of surveillance).

When non-compliant behaviour occurs because of a lack of self-awareness, “it is important to make use of contextual cues that increase awareness when deception is about to happen, namely, at the point of temptation” ¹¹⁸. To this end, the simple design of forms has proved to be one option. For instance, in order to improve the accuracy and honesty of self-reported income ¹¹⁹, sales or other data ¹²⁰, cognitive experiments have demonstrated that there is a positive impact from signing declarations at the start of the form instead of the end, also when online forms are involved ¹²¹.

Another cognitive-based approach to increase compliance is to “make it easy”, which is an example of empowerment. It can be made, for instance, through digital platforms designed in a way that encourages specific human behaviours, such as income tax calculators or web sites where it is possible to fill out forms for income declarations online. Another way to support compliance is also to simplify information requested from consumers, such as through pre-filled forms for declarations.

7. Conclusions

In attaining law and regulation effectiveness, decision-makers might draft rules and design enforcement strategies which lead to compliance “with the terms of the rules” and are able to attain the public interests involved ¹²².

This is a very complex task. First of all, rules must be understood and accepted. Therefore, they must be clear, accessible, consistent and drafted on the basis of fair, open, and transparent decision-making processes (here better regulation criteria are coupled with procedural justice principles). Secondly, decision-makers need an

letters that framed non-payment as an active choice, or noted that paying up is more common than evasion, cut the number of non-payers in the following year and increased the average sum paid” (*Policymakers around the world are embracing behavioural science. An experimental, iterative, data-driven approach is gaining ground*, in *The Economist*, May 18th 2017).

¹¹⁷ G. Fellner, R. Sausgruber and C. Traxler, *Testing Enforcement Strategies in the Field: Threat, Moral Appeal and Social Information*, cit., p. 634 ff.

¹¹⁸ N. Mazar and D. Ariely, *Dishonesty in Everyday Life and Its Policy Implications*, in *Journal of Public Policy & Marketing*, vol. 25, n. 1, 2006, p. 123.

¹¹⁹ UK Cabinet Office, *Applying behavioural insights to reduce fraud error and debt*, cit., 2012.

¹²⁰ US Social and Behavioral Sciences Team, *Annual Report*, September 2015, p. 15.

¹²¹ L.L. Shu, N. Mazar, F. Gino, D. Ariely and M.H. Bazerman, *Signing at the Beginning Makes Ethics Salient and Decreases Dishonest Self-Reports in Comparison to Signing at the End*, in *Proceedings of the National Academy of Sciences*, vol. 109, 2012, p. 15197 ff.

¹²² R. Baldwin, *Rules and Government*, cit., p. 142.

understanding of different drivers of compliance: not only deterrence, but also emotions, internal motivations, ethics, and social norms etc. should be involved. Cognitive-based insights also make essential contributions to understanding compliance decisions. Thirdly, rules should be evidence-based: decision-making must assess the specific drivers involved and their role in compliance.

In this framework, the paper suggests that an integration of compliance approaches could offer the most promising perspective in increasing effectiveness. On one hand, deterrence is crucial in order to prevent non-compliance and to support voluntary compliance; however, in order to be effective, deterrence should be calibrated by a risk-based and responsive approach to rules and enforcement. On the other hand, trust and cooperation are fundamental in order to ease voluntary compliance, and a cognitive-based approach should complement these views in order to help in increasing the effectiveness of rules and enforcement strategies.

Abstract. Starting from the traditional deterrence approach, the paper analyses its more recent developments (as responsive and risk-based regulation) and emerging approaches, as "procedural justice" and cognitive-based regulation and administration. These researches have enriched the list of compliance drivers, suggesting other possible motivations that go beyond the rational calculus, leading to an increasing in regulatory options and enforcement strategies. The paper concludes by advocating for a mix of traditional and new tools, an integrated approach which should help regulators in making rules effective.

Keywords: nudging, empowerment, regulation, enforcement, compliance

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