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Key Issues of Private Law Transformation under Influence of Behavioural Economics and Data Science

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Abstract

Corporations are now increasingly embracing the advances of Data Science and behavioural economics. This will undoubtedly have far-reaching implications for many areas of legal regulation and practice. The author believes that private law aimed at regulating relations between business and consumers will be the first to deal with the transformation. This article outlines the main issues lawyers will face in the next five to ten years as the ideas of behavioural economy and Data Science spread to private law, and offers some thoughts on addressing these issues. To begin with, the author briefly reviews the progress of behavioural economy and how its achievements help to attain the aims of legal regulation. In particular, the author surveys private law tools such as default rules and information disclosures for "nudging" individuals to more rational behaviour. The author then analyses how the current level of Big Data collection and processing can affect the default rules and information disclosures in corporate contracts with consumers, including the possibility of private law "personalisation" based on the individual features of the parties to the transactions. Furthermore, the article attempts to answer the key question: What regulatory environment should be in place to enable behaviourally informed personalisation of private law by using Big Data? In responding to this question, the author analyses three related problems arising at the intersection of law, Data Science, psychology, and economics: 1) How do we ensure freedom of choice and autonomy of will of individuals while using digital and behavioural innovations? 2) How much information should customers be provided with in order to make optimal decisions? 3) How do we find a balance between private law "personalisation" and personal data protection? In conclusion, the author summarises the results of the study and concludes that there

are no universal rules and algorithms for private law personalisation, and that the introduction of Data Science and behavioural economics into private law is still taking place on a case by case basis.

Keywords
private law; behavioural economics; Data Science; cognitive bias; nudges; personalisation of private law; personal data protection.

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Introduction. Behavioural Economics and its Impact on Private Law

The traditional school of economics is based on the concept of man as a "rational maximiser of utility", which implies that people (1) act rationally and analyse all information available to them on the market; (2) aim to maximise their utility; and (3) have a stable set of preferences [Becker G., 1976]. However, by about the 1950's, researchers had accumulated a fair amount of reliable experimental and empirical evidence showing that human economic behaviour often contradicts the assumptions of rational choice theory [Elster J., 1990] and that such behaviour is not an anomaly or random error, but part of the human evolutionary heritage [Gowdy J., 2008]. It has led to the emergence of a new academic field—behavioural economics, which attempts to improve economic theory by drawing primarily on psychological or behavioural insights into how real, rather than perfectly rational, people make decisions [Mullainathan S., Thaler R., 2001].

Above all, behavioural economics abandons the concept of man as a "rational maximiser" in favour of concepts about man's "bounded rationality," "bounded willpower" and "bounded self-interest" [Posner R., 1998]. The most developed of these concepts is the "concept of bounded rationality", which was first introduced by Herbert Simon in the 1950's. It argues that human cognitive abilities in computation, prediction, and decision-making are not unlimited [Simon H., 1955]. Such systemic (rather than random) deviations in the economic behaviour of a real person from the person's "classical model" later became known as "cognitive biases" [Jolls C., Sunstein C., Thaler R., 1997: 1477]. Further research in behavioural economics has developed generally along two main lines: (1) expanding the list of cognitive biases observed in experimental and field settings; and (2) explor-

ing how these biases may affect different areas of human economic activity [Wright J., Ginsburg D., 2012: 1038].

The development of behavioural economics triggered the emergence of a separate field within the economic analysis of law—behavioural economic analysis of law. Unlike the "classical" trend of Law & Economics, which considers legal actors from the point of view of rational choice theory, behavioural analysis considers legal actors to be prone to making repeated errors in their judgements and decisions [Mitchell G., 2002: 69]. Behavioural economic analysis of law is extensively used in various areas of private law such as contract law, corporate law, tort law, etc. Consumer protection is currently the most popular area of practical application of this research area. Here, various behavioural techniques are used to protect consumers from irrational actions that are harmful to their life, health, or welfare.

The best-known regulatory technique within behavioural analysis of law, called "nudge," was introduced by Cass Sunstein and Richard Thaler. The term denotes any aspect of choice architecture that changes people's behaviour in a predictable way, while neither prohibiting anything nor significantly altering economic incentives [Thaler R., Sunstein C., 2008]. This approach, aptly referred to in the literature as "libertarian paternalism," preserves freedom of choice on the one hand, and allows both private and public institutions to steer people in a direction that promotes their well-being on the other [Thaler R., Sunstein C., 2003]. It is commonly accepted that carefully elaborated and designed nudging leads to more rational decision-making and thus contributes to the well-being of both individuals and society in general. The "nudging" technique comprises a wide range of tools (including legal tools) united by the idea of "gently nudging" a person to perform an action through a stimulus that this person can easily understand and appreciate [Cominelly L., 2018: 293]. In private law, "nudging" usually manifests itself as default rules and information disclosures.

Default rules are the basis of regulatory "nudges" that are ubiquitous in private law [Schlag P., 2010: 915]. The assumption behind this tool is that instead of teaching people to overcome their irrational behaviour, the legislator can use it in a positive way and set default rules or options that will promote individual well-being and the well-being of society[1]. An important advantage of setting default rules is that they reduce transaction costs by allowing the parties to focus on the core issues of the transaction [Cooter R.,

[1] Behavioural traits that distinguish a real person from a "rational maximiser" and are used in the development of default rules include conformism, passivity, lack of specific preferences, endowment effect, tendency to procrastinate, status quo effect, authority bias, and many others.

Ulen T., 2014: 293]. For the legislator, default rules are low-cost too, because they are relatively cheap to change [Cartwright E., 2014: 524]. In addition, default rules tend to crystallize long-standing transaction practices and therefore the interests of the majority of transacting parties [Cserne P., 2012].

Mandatory rules are used in private law only when market failures and irrational behaviour of the consumer cannot be addressed by establishing default rules alone. The regulator's task in this case is to find the optimal balance between the degree of severity of the cognitive bias being addressed and the intensity of the specific means of paternalistic intervention. In this regard, the law usually distinguishes between subgroups deemed to be eligible to different degrees of protection, e.g., securities market law differentiates fundamentally between retail and professional investors [Hacker P., 2017: 658].

The purpose of information disclosure is to draw the consumer's attention to the possible harmful consequences of an action or transaction, mainly by means of warnings (e.g., "read the terms and conditions of the contract carefully before signing") or mandatory disclosure rules [Karampatzos A., 2020: 35]. The mandatory disclosure paradigm originated in the early 20th century in the United States and has gradually spread from securities regulation to virtually all other markets with asymmetric information, especially to areas where businesses enter into contracts with consumers [Ben-Shahar O., Schneider C., 2014].

In general, the range of "nudges" that the legislator can use is unlimited; it is not a formula based on a strict concept, but a flexible regulatory tool capable of responding to various cognitive errors of individuals.

1. Data Science Development as a Catalyst for Further Changes in Private Law

The term "Big Data" does not have a universally accepted definition in the literature. The most common form of defining the phenomenon of Big Data is the "concept of the three V's"—large volume (Volume), variety (Variety), and high rate of change (Velocity) of data [Laney D., 2001]. In practice, Big Data is understood as any legitimately obtained information about consumers and their preferences. This includes information from social networks, blogs and online messages, online activity data (including user search queries, data on websites visited), traditional business process information (data on transactions, purchases, orders, payments, customer registration, banking, etc.), government data (administrative data, including customs, tax and other data, medical data), data from mobile and other

devices (geolocation data, traffic data, data from home automation systems, CCTV cameras, sensors, trackers, etc.)[2].

Collection, processing and the use of big data have in recent years evolved from being an auxiliary tool for assessing customer preferences into an integral feature of any more or less large business, a key production factor and a key competitive advantage. This process is particularly widespread in B2C, financial and healthcare sales, where Big Data can help tailor the customer experience, personalise product and service offerings, reduce costs, and operate more efficiently. In particular, banks can use Big Data analysis to manage their loan portfolios more efficiently, assess risks more accurately, improve compliance procedures and the quality of services in general; insurance companies can calculate the probability of an insured event more correctly and determine the amount of insurance premiums; and medical companies can customise treatment for each client.

As Big Data and AI grow rapidly, and corporations have access to large amounts of Big Data on customers, many areas of law will also undergo far-reaching change. The author believes that private law institutions will take the lead here: Both default rules and disclosures in corporations' contracts with consumers can, through the "collaboration" of behavioural economics and Data Science, be "personalised" based on a consumer's past behaviour, online search history, social media data, credit activity, transaction history, and other personal preferences and characteristics. In some cases, default rules in contracts can be tailored to personal characteristics such as age, income level, degree of rationality or willpower, etc. An example of "behavioural" personalisation of the contract could be default rules for people prone to certain cognitive biases (e.g., over-optimism in assessing risks) which are calibrated differently from rules for those who behave as more rational consumers.

Ideas on how private law can be transformed in the process of adapting its regulatory framework to the needs of individual legal actors together with the corresponding term "private law personalisation" appeared in Western literature about 10 years ago[3]. Over time, these ideas have evolved into an independent field, suggesting changes in the interpretation and application of private law, with due regard to the personal characteristics of the

[2] For details see Big Data in the Financial Sector and Financial Stability Risks. Report for Public Consultation. Central Bank of the Russian Federation, 2021. Available at: https://cbr.ru/Content/Document/File/131359/Consultation_Paper_10122021.pdf (accessed: 16.04.2022)

[3] An article by A. Porat and L. Strahilevitz written in 2014 is usually cited as a "trailbreaker" in this field (Porat A., Strahilevitz L. 2014).

parties to transactions and relationships [Ben-Shahar O., Porat A., 2016[; [Busch C., 2016]; [Hacker P., 2017]; [Karampatzos A., 2020]. In particular, proponents of "personalised" law note that the previous paradigm of regulation based on the division of legal actors into groups with equal legal status within the group (usually on a binary principle, such as "consumer vs entrepreneur" or "professional investor vs unprofessional investor", etc.) no longer meets the needs of the times as it does not take into account the heterogeneity of the members of each group [Hacker P., 2017: 658]. In the Russian legal doctrine, that concept has not yet been widely accepted. At any rate, the author has only been able to find one paper on the topic. Its author, having studied this phenomenon, describes personalised law as a system of norms adopted or recognised by the state and individualised on the basis of the analysis of data about a person (including information on their physiological and mental characteristics, cultural features, interests and preferences), mainly through algorithmic data processing subject to measures aimed at respecting the rights and freedoms of the individual [Misostishkhov T. Z., 2020: 71].

2. Issues of Private Law Transformation under Influence of Behavioural Economics and Data Science

The key question that developments in behavioural economics and Data Science pose to private law may be formulated as follows: What regulatory environment should be in place to enable behaviourally informed personalisation of private law by using Big Data? It is impossible to answer this question without investigating at least three related questions arising at the intersection of law, Data Science, psychology and economics.

2.1. How can law ensure freedom of choice and autonomy of will of individuals as they use information and behavioural innovations?

Some scholars believe that the use of "nudges" represents a form (albeit not too explicit) of manipulation of individual choice that reflects the wishes and expectations of the legislator [Bovens L., 2009]. From this perspective, "nudges" usurp the autonomy of people's will rather than teach people to actively think and choose [Hansen P., Jespersen A., 2013]; [Sunstein C., 2015] thus essentially functioning as peremptory, due to the low level of digression from the "default rule" caused by a number of inherent human cognitive biases the author discussed above. Academic literature refers to this problem as the "implicit mandate" or "paternalism in disguise" [Cominelly L., 2018: 297]. From this perspective, even information disclosure

may, in certain circumstances, be regarded as paternalistic interference and undermine individual autonomy or freedom of choice. Firstly, from a behavioural point of view, the way (or even the context) in which information is presented and displayed greatly influences people's preferences and final decisions (the so-called "frame effect"). Secondly, there are moral considerations to be taken into account when disclosing information, because in many cases the information would not be neutral and the party providing the information is practically giving advice. The problem is complicated by the fact that the legislators or officials who need to determine the best way to inform people are themselves not perfectly rational and are subject to various cognitive biases [Lodge M., Wegrich K., 2016].

Opponents of this view argue that, on the contrary, personalisation of norms and contractual terms encourages individual freedom and autonomy because it is more likely to correspond to the specific characteristics and preferences of the individual. Moreover, an individual can always reject the proposed choice architecture and "restore" their autonomy of will [Moller A., Ryan R., Deci E., 2006]. Also, they consider it a fallacy to claim that "nudging" is always based on the exploitation of human irrationality, since people may "not choose" deliberately if the costs of not choosing are higher than the benefits of choosing (in psychology, this strategy is termed "rational apathy"). In other words, from their point of view, default rules function under the potestative condition of an individual rejecting them and choosing another option [Johnson E., Goldstein D., 2003:1338].

As practice shows, regulators in the overwhelming majority of jurisdictions are more likely to take the second position and use "nudges" and other behavioural tools as a mechanism for increasing the rationality of individuals[4]. It is obvious that it is impossible to give a universal answer to the question "Where is the line between paternalism and freedom of choice?" Each case of "behavioural intervention" requires an individual approach. There are two fundamental principles that guide the choice made by foreign regulators [Karampatzos A., 2020].

The proportionality principle suggests that "nudges" are only used if there is a very high likelihood that the cognitive bias will harm a citizen's well-being[5]. In practical terms, this means that there is sufficient re-

[4] This is confirmed by the existence of special regulatory units dedicated to behavioural analysis in dozens of countries around the world (Behavioral Insights Teams/Nudge Units) (e.g., see UK Behavioral Insights Team. Available at: https://www.gov.uk/government/organisations/behavioural-insights-team/about (accessed: 20.04.2022)

[5] The approach has been known since the Roman law under the name of "De minimis non curat lex" ("The law doesn't care about little things").

search-based evidence of: (a) a high probability of a cognitive bias in a particular situation; and (b) its negative impact on the life, health and financial well-being of individual or third parties.

The transparency principle implies that the individual's choice should be as well informed as possible and the individual should always have the ability to promptly change it (the ability to opt out). This implies providing the individual with complete and accessible information to make a decision, ensuring clarity, openness and understandability of contracts, the obligation of the better informed party to act in good faith when providing information, including informing them about the possible risks and negative consequences of the transaction. Below the author looks at the challenges of informing and disclosing information that occur when using "nudges".

The use of Big Data to shape "personal" default rules and disclosures takes the debate about the boundaries of paternalism and freedom of choice to a new level and raises new questions. The main question is whether "personalisation" of contract terms is a form of discrimination and, as a consequence, a violation of the principle of equality of citizens before the law. Because, in essence, in the case of "personalisation" of terms, two consumers can buy the same product at the same price, but receive *ex post* a different set of contractual rights. In addition, the mere fact that different contract terms are offered on the basis of unchangeable characteristics such as sex, age or ethnicity may a priori be regarded as discrimination. Another issue is how to rule out an individual's "strategic behaviour", i.e. their attempts to deliberately influence the data collected about them (e.g. characteristics such as online search history, social media composition, geolocation data, etc.) in order to obtain more favourable "personalised" contractual terms or a more favourable "personalised" legal regime. In addition, the academic literature argues that Big Data characterises only the external aspects of human behaviour, its empirically recognisable preferences, while an individual's real preferences and personality characteristics may either not be recognisable, or change, or contradict each other [Elkin-Koren N., Gal M., 2019]. The author believes that the latter two problems can be solved over time by improving data collection mechanisms, data processing algorithms, and the use of artificial intelligence.

2.2. What amount of information should be provided to the legal actors in order to make the optimal decision?

As noted above, compliance with the transparency principle is an important condition for guaranteeing the freedom of choice and autonomy of the individual's will when using "nudges." However, the problem is the

ideas of behavioural economics compel us to rethink the very principle of transparency in its traditional sense.

The "traditional" concept of disclosure assumes that the better informed party (or the party whose information is clearly easier to collect and disclose from an economic point of view) [De Geest G., Kovac M., 2009: 113–132][6] is obliged to bring it to the knowledge of the counterparty or to the public at large to the maximum extent possible. The duty of the "strong party" to disclose information lies at the heart of corporate law, banking law, contract law, securities market law, consumer protection, etc. The "traditional" concept of information disclosure is based on the above-mentioned "rational consumer" model, which assumes that the consumer is able not only to perceive, process, and evaluate the entire amount of information offered, but also to make a rational decision on this basis. As some authors point out, such a "standardised" concept is a product of industrial mass society and does not consider the heterogeneity of post-industrial society [Busch C., 2016]. In addition, numerous studies in the field of behavioural economics show that this model fails to provide the desired transparency in real life: the average consumer either does not read information brochures at all, or is unable to process and assess the information offered due to its large volume, complexity, lack of time, etc. According to behavioural scientists, the "classical" information disclosure regime leads to information overload (the information overload problem) rather than ensuring that people are adequately informed [Hacker P., 2017: 667].

Combining developments in behavioural economics with Data Science allows society to rethink the institution of information disclosure and adapt it to the needs of the real rather than the "perfectly rational" individual. By owning more data, corporations or government can provide individuals or consumers with information tailored to their individual characteristics, demographics and cognitive abilities, instead of standardised "impersonal" information. In other words, disclosure can be transformed so that only the information that may be relevant to the individual is disclosed and the information may be irrelevant to the individual is omitted [Porat A., Strahilevitz L., 2014]. As an example, by "personalising" corporate disclosures, companies can tailor the importance and complexity of certain information to the individual investor, reducing the risk of information overload. This concept is also referred to as "smart disclosure" or "behaviourally informed disclosure" [Sibony A., Helleringer G., 2015].

In practical terms, this may be implemented in the form of information disclosure in a multi-level format, where the complexity of each level in-

[6] The principle is referred to as Least Cost Information Gatherer Principle.

creases. In other words, the company does not provide the investor with a multi-page prospectus that contains as much information as possible, but with a choice of at least three different documents of varying degrees of complexity. Using Big Data, companies can take this a step further and determine the optimal level of disclosure sophistication for a particular investor. However, it is clear that, similar to the default rules, the investor should always be able to change the option offered and request more disclosure, so that their autonomy of will is not compromised.

In a similar way, the state can "personalise" the public information communicated to individuals by targeting information to those individuals or groups of individuals (pensioners, car owners, pregnant women, students, etc.) who may actually need it. As an example, if a pregnant woman purchases medication and the instructions state in small print that it may have certain side effects for pregnant women, this information will be highlighted and brought to her attention as being the most relevant to her [Misostishkhov T. Z., 2020: 63]. However, in the case of both corporations and the state, this regime will only work if citizens voluntarily share this information, which raises the following legal problem.

2.3 How does society find a balance between private law "personalisation" and personal data protection?

It is clear that the idea of the "personalisation" of private law, based on the collection and processing of a large amount of personal data and consumer profiling, conflicts with the need to protect citizens' personal data. Although the amount of data disclosed and posted online by individuals and simultaneously collected and processed by large corporations (like Meta, Google or Amazon) has grown to unprecedented levels and is a kind of "new oil", strict legislative and methodological standards for handling such data are still lacking in many countries.

The main document regulating the protection of personal data of citizens at the international level is the Council of Europe Convention for the Protection of Individuals with regard to the Automatic Processing of Personal Data[7] approved in 1981. Based on this Convention, most Euro-

[7] "Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data" (Concluded in Strasbourg on 28 January 1981) (together with the Amendments to the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (CDPS No. 108) that allow accession of the European Communities, adopted by the Committee of Ministers in Strasbourg on 15 June 1999). Available at: https://rm.coe.int/1680078c46 (accessed: 16.04.2023)

pean countries have adopted national laws on personal data protection. In Russia, it is Federal Law No. 152-FZ of 27 July 2006 "On Personal Data" (hereinafter the "Personal Data Law"). The fundamental principles of personal data protection and processing enshrined in Art. 5 of the Law provide, in particular, for the following: Personal data processing shall be limited to predetermined purposes; An informed consent of the owner of personal data shall be required to process the data; Databases containing personal data processed for incompatible purposes shall not be merged; and Personal data shall be stored for a term no longer than the term required by the purposes of personal data processing, and shall be subsequently deleted or anonymised etc.

As researchers note, the possibilities created by Data Science and current practices of collecting and using Big Data are in direct contradiction with these principles, thus questioning the adequacy and effectiveness of personal data laws in their current form in relation to the latest technology developments [Saveliev A.I., 2015]; [Lane J., Stodden V. et al., 2014: 70]. Essentially, companies around the world today are required to choose between compliance with personal data legislation and the use of Big Data, as the technologies for collecting, processing and using Big Data are in direct conflict with the provisions of the law as they were laid down back in the 1981 Convention.[8]

It is obvious the dilemma between data privacy and the personalisation of relations with consumers does not and cannot have an unambiguous answer. It is always a compromise, where one is sacrificed for the sake of the other, just as in solving other dilemmas of this kind such as "data privacy vs security", "data privacy vs development of innovations", etc. Each state independently chooses its priorities in a particular period of time, balancing these categories in different proportions.

In the author's opinion, the most obvious way is to give individuals the right to choose between data privacy and a personalised relationship with a

[8] E.g., as A.I. Savelyev notes [Saveliev A.I., 2015; 54-61], in order for the consent of the personal data owner to be called informed and conscious, this person must be provided with detailed information on how their personal data will be used: The purposes of use, the composition of the processed personal data, and the ways of their processing (Para 4, Art. 9, and Para 7, Art. 14 of the Federal Law "On Personal Data"). Clearly, it takes a lot more time to study this kind of document in the process of making a regular purchase through a web-store than to actually make the purchase, and it is the ability to save time that is one of the most attractive features of e-commerce. Consequently, the concept of informed consent to the processing of personal data comes into conflict with the main value provided by modern information technologies—the promptness of the transactions in question.

company based on the collection and processing of their data. In a liberal approach, such consent may be presumed (and the individual can withdraw it at any time); in contrast, in a conservative approach all individuals may be deemed to have consented to the collection and processing of their data by default, and the corporation must obtain such consent from each consumer. Another option for finding a compromise could be a restriction in law on the collection and use of certain types of data of a particularly sensitive nature.

To increase the number of consumers who agree to a "personalised" relationship with a company, they can be informed about the potential benefits of personalisation (i.e. application of the above-mentioned transparency principle). With full information about the potential benefits, a rational consumer will be able to approach the privacy vs personalisation dilemma in a pragmatic way and consent to the collection and processing of personal information if the personal benefits of personalisation are greater than the costs.

Conclusion

Private law institutions will be personalised under the influence of behavioural economics and Data Science in the very near future. The author has examined both the undeniable benefits of such a transition, as well as the obstacles and challenges that legal professionals will face during such a transformation. It is clear that currently there are no universal rules and algorithms for personalisation, even at the level of large corporations: The transition to "personalised" customer relations is performed on a case by case basis subject to the principles of proportionality and transparency discussed above, rather than strict rules.

In the author's opinion, the state should act in a similar manner and promote personalisation using Big Data, at least in areas where it is clear that the objectives of the law can be better achieved through personalised rules, and where their application would not entail high transaction costs and risks to the rights of individuals (e.g., in the areas of personalisation of mandatory disclosure or default rules in contract law).

"Personalisation" of legal relationships with customers will be economically justified for a business when the benefits to the business exceed the costs. This parity can be changed by using legal institutions to reduce the transaction costs of business during such a transition, by creating incentives for such legal innovations, by finding a balance between the interests of different groups, and between concepts such as privacy and personalisation, paternalism and freedom of choice, efficiency and fairness.

Last but not least, it is clear that the "personalisation" of private law calls for a new type of legal professional who is equipped with knowledge of the law, computer science, basic programming, and algorithms, all at the same time. Without training specialists with these competences and involving them in the process of developing "personalised" norms, there is a high risk that personalisation based on hidden algorithms will lead to violations of human rights and the basic principles of private law.

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