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Technocracy Inside the Rule of Law.
Challenges in the Foundations of Legal Norms

Abstract: Technocracy is usually opposed to democracy. Here, another perspective is taken: technocracy is countered with the rule of law. In trying to understand the contemporary dynamics of the rule of law, two main types of legal systems (in a broad sense) have to be distinguished: firstly, the legal norm, studied by the science of law; secondly, the scientific laws (which includes the legalities of the different sciences and communities). They both contain normative prescriptions. But their differ in their subjects' source: while legal norms are the will's expression of the normative authority, technical prescriptions can be derived from scientific laws, which are grounded over the commonly supposed objectivity of the scientific knowledge about reality. They both impose sanctions too, but in the legal norm they refer to what is established by the norm itself, while in the scientific legality they consist in the reward or the punishment derived from the efficacy or inefficacy to reach the end pursued by the action. The way of legitimation also differs: while legal norms have to have followed the formal procedures and must not have contravened any fundamental right, technical norms' validity depend on its theoretical foundations or on its efficacy. Nowadays, scientific knowledge has become and important feature in policy-making. Contradictions can arise between these legal systems. These conflicts are specially grave when the recognition or exercise of fundamental rights is instrumentally used, or when they are violated in order to increase the policies' efficacy. A political system is technocratic, when, in case of contradiction, the scientific law finally prevails.
Keywords: Technocracy, rule of law, fundamental rights, structure of the norms, efficiency

Structure

I. Submission of the question

At present, it has been attributed to scientific knowledge a fundamental role in explaining the social and political changes that contemporary societies suffer. The prevailing discourse is that the best possible policy decisions, if not the only viable, is to adapt and, even better, to anticipate to those changes that are caused by forces which are beyond human control. But those connections between technological change and social change have a history. Following Echeverría (2003) and Sanz (2008), two crucial moments can be highlighted.

The first one began with the so-called Vannevar Bush Report, after the end of the World War Two. Although other proposals finally prevailed over that of Bush (Dennis, 2006; Greenberg, 2001: 41-51), it was from his report that permanent relations in peace times (or Cold War) between the state and the scientific community were established. It is at this time when scientific research permanently oriented its activity to other purposes than those strictly epistemic, in exchange for funding, among other demands . During the beginnings, most of the projects promoted had a military goal. Nowadays, the objectives are wider (Lakoff, 2001). Although those projects were by themselves highly expensive and uneconomical, they provided the scientific knowledge necessary for later profit-earning research lines . But in the meanwhile, public initiative and investment was predominant. In this context, science continued to be perceived as an activity apart from society.

The socialisation of science took place in the late 60's and early 70's of the XXth century, when technological innovation came to be considered the decisive factor in economic growth and, by extension, in the transformations of social reality (Castells, 2003: 116-118; Bell, [1973] 1999: 192-193) . From that moment on, science and technological innovation have not only been the source for the production of new consumer products, but the very foundation of economic development and social welfare. It was then when society began to realise the key role of science in social life. As a result of this shift on the paradigm and the fact that investment in scientific research and technological development was already profitable enterprises incorporated research and development departments and States promoted scientific and technological development for economic purposes, both in the public and private sphere. “Big science” of huge governmental projects are since then combined with private initiatives of “technoscience” .

In the same decades in which people was getting conscious of the critical role of science and technology in the economy and society, a controversy arose, marked by the increasing modernisation of both the public and the private administration, about the desirability of adapting social structures and policies to the needs of this new source of economic progress. The privileged position enjoyed by science as an objective source of knowledge was reflected by the incorporation of technicians trained in scientific fields considered of public interest, in order to advise or participate in decision-making processes. This led to the discussion around the contrast between technocracy and democracy (Maasen and Weingart, 2005). In its centre, there was the question about whether the expert should hold political power or not, because of, on the one hand, the knowledge they possess, but on the other hand, its lack of democratic legitimacy and of public accountability of their activities. The belief in the objectivity of scientific knowledge was the key element of the arguments of those who argued the desirability of a government of experts (Fischer 1990). This discourse is articulated in two basic ideas. First, the objectivity of knowledge and lack of personal motivation would qualify the expert to make decisions. Second, the lack of expert knowledge of the population and their biased motivations would disqualify them to make decisions, and to exert some control over those who qualified to take them, too.

Finally, during the 1960's and the 1970's took place one last crucial change: the belief that science could not be the cause of social harm fell down (de la Mothe, 2001: 6). First, people began to be aware that it was impossible to foresee the possible consequences of the technological innovation's implementation (Beck, 2006: 288-290; Jasanoff, 1995: 69-92). This will call into question the myth of the uniqueness of valid alternatives; especially in situations of uncertainty, it is impossible to evaluate the goodness of the various alternatives. Secondly, epistemology began to question in depth the objectivity of scientific knowledge. It was precisely when epistemologists became aware of the social and political use of science, that belief in the objectivity of scientific knowledge was questioned. Along that stream, but without falling into relativism, Kuhn ([1969] 2007) grounded his theory in the existence of many scientific communities, which would differ in their positions and their responses to the challenges posed by an ever-changing reality. Against the belief in the objectivity of the scientists, his work emphasised the fact of their belonging to a specific community, defined by its support of a particular paradigm, and the influence of the academic background in scientific research.

Having assumed those criticisms, a new academic current has emerged which maintains that the dispute between democracy and technocracy would have lost in intensity: since experts' decisions cannot guarantee the goodness of all its consequences and, in addition, are based on a knowledge whose objectivity is questioned, those decisions can and should be subject to public criticism and control. However, it is worth making explicit that, despite the fact that the objectivity and impartiality of the policies adopted by the experts is discredited, experts are still requested. What has happened is that the debate between democracy and technocracy has also been redefined: now the emphasis is on how to structure the decision making process to attend both expert bodies and democratic representation (Massen and Weingart, 2005; Cozzens and Woodhouse, 1995).

But on this last point I disagree both with the new approach and with the assumptions underlying it. My basic criticism would be summarised as follows: if it is true that this supposed objectivity of scientific knowledge has been rightly called into question, in my opinion the scope of these investigations has been largely restricted to the small circle of people who could have had interest in that subject. In regard to people without knowledge in epistemology, the myth of science as objective knowledge remains basically intact. The claim that what has fallen after the 1970's is, if anything, the aura of scientists' objectivity and disinterest, but not of science, seems a more realistic picture. The problem is seen to arise only when the scientist leaves the academic world and enters the realm of political activity; it is then, when suspicions about their motivations and interests can be put into question and, therefore, the neutrality of his proposals too. Thus, the participation of experts in decision making continues to bestow an aura of objective justification to the policies adopted, provided that the expert is not questioned.

To my mind, the centre of the controversy does not lie in the contrast between technocracy and democracy. This is due, not to a neutralisation of the technocratic tendencies through a greater involvement of representative bodies, but because that debate misses the real issue. What the new epistemology has put into question is the myth of objectivity of science in itself, bringing useful tools to describe more accurately the decision making processes involving experts as well as the ideological component inherent to scientific knowledge. Therefore, a democratic procedures of decision making are perfectly compatible with what has been called “technocracy”. The debate between democracy and technocracy, in which attention is paid to the procedure about how decisions are made and by whom, left in a

second place matters about which scientific paradigm dominates the decision-making, which has been the final result, and how these measures have been justified. If the perspective is changed and the analysis prioritises this second set of issues, then the terms of the dispute also vary: now, the dispute arisen is that between the rule of law and technocracy. That claim is specially pressing nowadays, when States seem to have lost their leading position in transforming society and seem to be compelled to adapt to the driving forces of financial markets. Curiously, that drift would have started from the 1970s onwards. In what follows, I try to present this approach.

The focus must be directed, therefore, not only to decision-making procedures, but also to the the result, to the final content of the law, and whether fundamental rights are being cut and/or eroded and how those transgressions are justified. Nevertheless the more democratic roots in decision-making, that would just mean a relapse in the discourse of the necessity. What should be analysed, then, is that new form of legitimation of the law's content which can not be identified with any of the two great traditions, nor with non-positivism, neither with legal positivism.

II. Scientific laws and legal norms

1. The objective and the normative

As just said, the starting point is that scientific knowledge is commonly understood by people who are not profane in epistemology as a form of objective knowledge. As Chalmers explains about the popular perception of science:

«When it is claimed that science is special because it is based on the facts, the facts are presumed to be claims about the world that can be directly established by a careful, unprejudiced use of the senses. Science is to be based on what we can see, hear and touch rather than on personal opinions or speculative imaginings. If observation of the world is carried out in a careful, unprejudiced way the facts established in this way will constitute a secure, objective basis for science. If, further, reasoning that takes us from this factual basis to the laws and theories that constitute scientific knowledge is sound, then the resulting knowledge can itself be taken to be securely established and objective» (Chalmers, 1993: 1) .

This author refers to this conception of science as “common view inductivism” (Chalmers, 1993: 3). It is inductive because the source of knowledge lies on the observation

and scientific laws obtained by generalisation. It is objective because the observation is seen as unbiased. Similarly, one can speak of a kind of "common view deductivism". It would be deductive because some concepts given to human reason serve as premises for new drawing conclusions that, ultimately, would attain to explain the object of study. And it is objective because the concepts given are considered free of subjectivism and, by extension, the inferences drawn. The term "common view conception of science" will be used to refer to both forms of ingenuity.

The belief in the possibility of a radical separation between a subject and an object of knowledge is the common place for both forms of common view. If the subject is the knower, the object is what is known. Hence, we conclude that we can speak of scientific knowledge when the researcher observe and objectively generalises (common view inductivism), or when he intuits intellectually and analyses objectively (common view deductivism). It is worth noting two implications of both ways of understanding the cognitive process: 1) knowledge consists in the construction of theories and the formulation of scientific laws by the subject of knowledge, 2) the paradigm of scientific activity lies in its objectivity, so that the resulting knowledge are, in turn, objective. Albeit knowledge is an idealisation of reality constructed by an individual and, in that sense, the scientist generates norms, that process of theories and laws' construction should ideally not incorporate any subjective element, such as bias or personal values, but only adhere to the conclusions reached, inductively or deductively. To this end, the method becomes the key element to ensure the highest degree of objectivity of theories and scientific laws that scientists generate (Calsamiglia, 1986: 21-40).

This popular belief in the objectivity of scientific knowledge is the result of the popularisation and simplification of a long academic tradition. However, the study of that tradition is useful to understand those beliefs. The starting point of that tradition lies on its conception of scientific activity as a description of facts, be they empirical, normative or ideal. All these types of events have in common that they fall outside the subject of knowledge, so it is up to the researcher to add nothing to the observation. The empirical facts refer to the different states of things in physical reality, which can be perceived by the people through their senses (even if some apparatus are used, which would not interfere with the possibility of objective observation). The ideal facts refer to abstractions not empirically observable, but whose definition does not depend on the subject that seeks to explore its properties; theology or mathematics would be examples of this type of objective knowledge.

Finally, normative acts refer to the fact of the existence of rules that govern social relations. The science of law is an example of this type of science. Thus, laws of empirical science describe relationships between empirical facts, while deductive sciences describe relationships between ideal concepts, and laws of the normative sciences describe relationships between rules. The different nature of their object of knowledge also means that they differ in the type of relationships that each one set. While the empirical sciences would claim to determine causal relationships ("if it is A, then it is B"), deductive sciences would establish logical derivations between abstract concepts ("if P is P, then it follows that Q"), and normative sciences would be governed by the principle of imputation ("if it is X, then it must be Y"). The logical derivation relationship always provides necessary links between the two objects. The causal relationship can be understood as deterministic or as probabilistic. Finally, the relation of imputation in all case has a probabilistic character, since the assertion that from one fact must follow another, does not mean that it will actually happen .

From the common view conception of science, it is emphasised that the work of normative scientists is not to establish prescriptions , but to describe the existing ones and to relate them to clarify the underlying normative order. In the science of law, that work can be based on two different approaches: a non-positivist one, and a iuspositivist one.

For non-positivism, the science of law is both a normative science and a deductive science (Alexy, 2010a)). Therefore, the rules comprising the legal system and the relationships established between them are characterised by the features of both types of sciences. The legal norm not only expresses what should be, but also refers to what it is, as the duty to act in a certain way is established by the nature of the subject who must obey. A norm is always right because it is true. But its truth does not refer to any empirical fact, but to abstract ideal concepts about the nature of the human being, which makes a radical distinction from the empirical sciences . His nature is intended to be described in his normative dimension (Lee and George, 2008: 174-175; George, 1996: 321-322; Nozick ([1974] 1988: 56-61). This duality is possible because the source of that prescription is external to the subjects that must obey and hierarchically superior to them. Otherwise the requirement would result in a mere act of will of a fellow, with cognitive and volitional capacities similar to those who must obey, who could disagree on equal terms about the veracity and validity of the prescription in question. In conclusion, for those who must comply with the requirement, it

must be the product of an external and hierarchically superior body that knows the true nature of beings and, therefore, laws that should govern their activity.

For iuspositivism, however, the legal rules are not the product of any superhuman will, or something inherent in the nature of things, but the expression of an act of human will. This implies the need to distinguish between normative sentences and legal norms (Kelsen, [1960] 2009: 84-89), in order to preserve the descriptive character of the normative sciences. From this point of view, law maker and normative scientist must be clearly differentiated. While the first's function is to produce legal norms, the second's is to describe the legal system produced by the law maker.

In the empirical sciences, by contrast, the sharp distinction between who describes and who prescribes has no sense, because of not having rules as its object of study. The distinction would be, in any case, between empirical facts and scientific laws. Therefore, the existence of some type of normativeness is not denied, as long as scientific laws are seen as abstractions of empirical facts. But that process of abstraction would be sustained on facts whose determination does not depend on human will. And since the foundation of technical standards refers to the normativeness of scientific laws and not to the will of the expert, a sharp distinction cannot be maintained between the two figures of the empirical sciences, namely, the scientific (who describes) and the expert (who prescribes, but because of his scientific knowledge). In the next subsection, these comments will be further developed.

According to the above, neither the laws of normative sciences, nor the laws of empirical sciences aim to regulate social life, but only to describe and explain the regularities of the natural or the social reality. This is what would distinguish them from the legal norms, which itself ultimately aim to regulate social life. Therefore, from the common view conception of science, the descriptive nature of science must be weighed against the normative nature of legal norms.

2. On prescriptions

As is known, the distinction static and dynamic normative systems have been made within the philosophy of law (Kelsen, [1960] 2009: 203-205). According to this distinction, a legal system is dynamic when the validity of the rules is only based on a presupposed rule, which establishes the obligation to behave in accordance with the orders of the legal authority or

with customarily produced rules. This rule can only provide the foundation of validity, but not the valid content, of the rules based on it (Kelsen, [1960] 2009: 204). In this way, the matter of having to resort to rules outside the positive legal system to base its validity is avoided. The content of the basic foundational rule would only refer to whom has the authority to make valid legal norms. In contrast, a legal system is static when there is a basic foundational rule that provides both the basis of validity and the valid content of the rules inferred from it by a logical deduction (Kelsen, [1960] 2009: 203).

Non-positivism, as a deductive science, would defend a static view of the legal systems. For this conception, is the content of the foundational rule what gives validity to itself, validity that transmits to the derived rules. In order not to be dependent of the validity of another norm, the validity of the basic foundational rule must be accepted as evident itself. To this conception, the validity of the rules that belong to a positive legal system depends on the adequacy of its contents to that basic foundational rule, which is external to that system. And only if its content does not depend on the subjectivity of any fellow, its can be able to be evident to anyone; in that sense, its content is objective. Correspondingly, the authority of those who make positive legal norms depends on the authority of another entity, external and hierarchically superior to them. The authority of the law maker lies, if in anything, in their ability to grasp intuitively the content of the basic foundational rule. Therefore, the capacity to produce norms by the law maker is not unlimited, but constrained by the duty to adapt it to the content of the basic foundational rule (George, 1996). If they suffer transformations is, supposedly, to get closer to the ideal legal system. Once reached, it would stop to change: ideally, the trend is toward staticism.

Scientific theories are similar to static normative systems, but now the validity of scientific laws depends on the adequacy of its contents to the empirical facts. This does not necessarily imply the denial of certain dynamism to the system of scientific laws. However, as in the non-positivism, these changes are explained by the replacement of one theory by another which is more descriptive of the facts than the first one; therefore, content remains the criterion of validity and, in this sense, the theories do not lose their static nature.

If it is admitted that scientific knowledge progresses towards the truth, implicitly it is stated that truth is not achieved yet. Firstly, these gaps do not affect the objectivity of knowledge already held . Secondly, the most recent attempts in trying to substantiate the

validity of the empirical sciences have used a kind of knowledge not external to itself. Otherwise, it would imply having to validate, in turn, that knowledge which does not refer to any empirical fact, and to admit that there are more forms of objective knowledge and that those forms are axiologically superior. So, to debug the empirical sciences of any strange element, the characteristic criteria of validity of deductive or normative sciences must not be relied on. Nonetheless, the issue of scientific knowledge's foundation has not been resolved yet. This has meant the replacement of the concept of "truth" by the less ambitious one of "certainty". But it is precisely this weakness that becomes the very foundation of its legitimacy: in opposition to supposed truths adduced from certain conceptions of deductive and/or normative sciences that refer to a metaphysical knowledge (eg., non-positivism), one scientific theory succeed another in an endless progression toward truth, unattainable in its entirety. The system is no longer based on an ultimate truth, but on the promise of an eternal progress, possible only through the empirical scientific knowledge (Lyotard, [1979] 1993).

That appeal to the lack of foundation to validate empirical knowledge has two ambivalent consequences over the authority of the scientist and the expert. On the one hand, it is weakened, due to the necessity to admit that their knowledge is not fully true, opening the possibility of mistakes and criticisms. But, on the other hand, those possible mistakes are justified as a result, not of the lack of objectivity, but of gaps in knowledge. It deters potential external controls over science, which reaffirms its authority on the basis of the promises of progress in scientific knowledge, making good the claim that it is urgent to invest in research.

From the typology of sciences set out above, it could seem that normative sciences are closely linked with the prescriptions found in legal norms, as that is its object of knowledge, while the empirical sciences, whose object of knowledge are the empirical facts, do not keep any relation with the normative sphere. But this is obviously false. It is possible to derive prescriptions from the knowledge of empirical sciences. Formally expressed, from descriptive statements that comply with the principle of causality: "if it is A, then it is B", prescriptions can be extracted that correspond to the formula: "if X, then you have to (must not) Y". The logic would be as follows: "A is the cause of the (no) production of the effect B, so if you (do not) want that B to occur, then you have to (must not) A". Those prescriptions derived from scientific knowledge will be called "techno-scientific prescriptions". It should be noted that the validity and, therefore, the duty to obey that prescription does not come from the duty of obedience to those who have created it (the expert), as stated by the basic foundational rule in

dynamic legal systems, but from the objectivity of scientific knowledge from which the prescription was derived . From there, you can draw a relevant distinction between the two kinds of static legal systems viewed. For non-positivism, the dual character (descriptive and normative) of the rules included in the legal system affects the whole legal system, from the basic foundational rule to all derived rules. In contrast, in the empirical sciences, this duality is only produced in techno-scientific prescriptions resulting from scientific laws, which, in itself, are strictly descriptive.

Those differences approach empirical sciences to iuspositivism. According to iuspositivism, normative scientists do not intend to create new rules or change the existing ones, but only to describe them. In contrast, the law maker produces rules with the aim to suit social reality to his will . In that sense, his interest lies not in describing reality, but in transforming it. Consequently, normative sentences are clearly distinguished from legal norms and, by extension, the normative scientist from the law maker. Similarly, the scientist should not intend to suit reality to his theories. However, the purpose the expert is to transform reality, in order to adjust it to his will. (That character is reflected in the first part of the formula set above: "if you (do not) want to B, then you have to (must not) A"). As in dynamic legal systems, scientific laws are distinguished from techno-scientific prescriptions and, in some way, the scientist from the expert.

In certain sense, the law maker and the expert fall on voluntarism, due to the their will of prevail over reality. Voluntarism can be seen in the fact that goals and motivations that give reason of the acts of will are defined either by the law maker, or by the expert. In its formal structure, nor the rule of law, nor the techno-scientific prescription set the end to be pursued. In first place is determined what is wanted; and only after, an effective action to adequate reality to will is conducted. As seen below, the law maker and the expert differ in the means they employ to achieve their ends.

The sovereigntist theory of Austin, for instance, has a distinctively voluntarist character. But it is not so in other cases. Kelsen seeks to purge every trace of voluntarism, an element that finds strange to a pure theory of law. Instead, the basic foundational rule is located on the top of the hierarchy of validity, but whose content remits to the duty of obedience to the rules produced by the law maker. The ends are excluded from the structure of the rule of law, those are irrelevant to a pure theory of law. Consistent with its position, the purpose can never be

the ground for validity, since this would mean to substantiate the legal system according to its content, falling into staticism. Similarly, and in connection with the above stated, the basis of validity of prescriptions dictated by the expert refers to a scientific law, and not to the ends that the expert could give to himself.

Although both the theory of Kelsen and the common view conception of empirical science agree on holding an anti-voluntarist point of view of dynamic legal systems, there are also important differences. In Kelsen, what validates the basic foundational rule is the legislation procedure; in other words, what is validated are the acts of the will of the law maker, in principle, unlimited in content. Instead, what scientific law validates is the techno-scientific prescription and, only indirectly, the expert who has promulgated it. The scientific law does not authorise any particular expert directly. This results in a substantial difference regarding the legitimacy of its authority to dictate prescriptions: while the law maker remits to an external rule, but which, in turn, refers to his will; in the case of the expert, the external and legitimatory rule does not go back again to the will of the expert. In that sense, the legitimacy of the expert would find a solid objective base on which to sustain. This is reflected in the distinct articulation of the different principles that characterise normative sciences and empirical sciences. While in the relation of imputation, the connection between the antecedent and the consequent is the result of the will of the law maker, in the case of the causal relation, that connection is determined by an objective relationship between two empirical facts.

Therefore, expert authority would derive from his obedience and submission to the laws of nature, but the very same act of submission would lead to his domination, not only of nature, but also of societies, under the promise to put nature at their service. Its authority would derive from an initial act of submission, its legitimacy from a final act of submission. The iuspositivist law maker's authority and legitimacy, however, intends to remit to its sovereign will, or to one basic foundational rule that is situated solely on the beginning (Lyotard, [1979] 1989: 23-24). But this foundation falters at one point: while the grant of validity to normative production would have been achieved, as well as the ability to argue the existence of a legal duty of obedience (Ross, 1993: 19), the law maker's submission to the will of the governed would not have been guaranteed, thereby posing problems about its legitimacy.

3. On sanctions

At least in most cases, the prescriptions are supported by the imposition of a sanction (either negative or positive). This is correct for both legal norms and techno-scientific prescriptions. In the case of legal rules, the sanction consists in what is set by the rule itself. To the extent that it is the product of the law maker's will, ultimately he is who has determined what facts or behaviours deserve a legal consequence, and in what it should consist. By contrast, in the case of default of a techno-scientific prescription, the sanction consists, as a common denominator, in the efficacy or inefficacy of the action in achieving the desired end (Bobbio, 1990: 261). Now, the determination of the sanction has not been stipulated by any act of will; in some sense, it could be said that it is the reality who "imposes" the sanction. In this subsection, I develop these basic ideas.

Firstly, the grounds of legitimation of the imposition of sanctions in techno-scientific prescriptions will be addressed. The separation between subject and object in scientific knowledge implies that reality is seen by the scientist as static and given, whose laws cannot be altered. As noted above, the scientist cannot expect that the objective laws governing the world will suit to his will. Thus, people's knowledge will be more or less objective, more or less close to the truth, depending to their will to adapt their beliefs to the scientific findings made, or to persist in their unfounded prejudices. Similar to scientific laws, prescriptions arising from them cannot be repealed by any act of will. They are permanently in force (at least until a new theory may replace them); in other words, its validity and efficacy does not depend on the subjective will of compliance with them. This gives them an aura of inevitability.

But, as was the case of scientific knowledge, each agent (whether companies, individuals, states, etc.) is free to decide comply or not with the prescriptions arising from scientific knowledge, to decide freely act in accordance with the principle of efficacy or with other principles . To the extent that it is an act of free choice, the agent must assume his responsibility for any consequence that may follow. On the other hand, the imposition of the sanction for its (in)observance is justified by its inevitability, as it is considered the logical and necessary consequence of a non-abolishable law, the scientific one. Formally, the above related could be expressed as follows. From the principle of the techno-scientific prescription: “if you want to B, then you have to A”, the next conclusion can be drawn: “if it is not A, then it is not (must not be) B”. “It is not" is employed in the consequent to express the inevitability

of the no production of the effect (which does not depend on the subject, but on a causal relationship), but "must not be" is also used to express the fairness of the sanction, consisting in the no production of the expected result, for not having behave according to law. You can blame the world for being as it is, but also to yourself for not having acted in order to get fit. It is the result of this combination between the necessity that scientific laws express and human freedom (to decide whether or not get fit to reality), how the inevitable imposition of sanctions (positive or negative) is legitimated, in the case of techno-scientific prescriptions.

There is one more question to be addressed before entering another issue: that of the exemption from liability for lack of knowledge of the techno-scientific prescription. As already commented, techno-scientific prescriptions are an outgrowth of scientific knowledge. Given that access to scientific knowledge is universal or, if preferred, democratic, ignorance is considered, again, the result of a free choice. As mentioned above, people are free to decide whether to adapt their ideas to scientific rationality, or to keep other kind of beliefs. In conclusion, ignorance do not exempt from liability. However, it might be replied that it is impossible to acquire all scientific knowledge. But in response to that objection, one may answer that that impossibility can be countered through the use of experts in matters about which one does not have an appropriate knowledge.

I will now address the legitimating basis for the imposition of sanctions in the legal norms. If scientific theories were characterised by their staticism, for the iuspositivist law maker the reality is dynamic and transformable. The iuspositivist law maker must choose, among the whole possible worlds, which of them should prevail. In the case of the non-positivist law maker, valid alternatives are limited by the content of natural law. But in both cases the expected result is that, due to the accomplishment with the law, society is ordered in a certain way. The anthropological presumption of law is that legal rules are aimed at free agents, namely, the ability to determine its conduct according to the norm or not, but also free to share or not the law maker's worldview.

In the case of legal norms, the relationships between the antecedent and the consequent were linked by the principle of imputation. That implied that the consequent did not necessarily and inevitably follow the mere fulfilment of the antecedent. This is true both for non-positivism (the truth and justice of any ideal concept do not imply by itself the application of the sanction), and for iuspositivism (from the mere will of the law maker does

not necessarily follow the effective implementation of the sanction). A positive legal norm is not imposed by reality itself. That is why that connection, in the case of negative sanctions, must be ensured through the threat of physical violence by certain authority. This is the characteristic instrument of legal norms. All this means that the ability to impose negative sanctions depends on the effective coercive means available. So, the connection, in this case, is merely probabilistic.

Contrary to what happens to techno-scientific prescriptions, neither iuspositivism, nor non-positivism attain to legitimate the content of prescriptions, the imposition of sanctions and the use of violence related to legal norms by themselves (Habermas, [1968] 2007: 69) . Both forms of legitimacy lack the force that the ideological discourse of necessity and inevitability, characteristic of techno-scientific prescriptions, has .

III. Technocracy within the rule of law

Until now, some similarities and differences between techno-scientific prescriptions and legal norms have been explained, but separately. The characteristics of the prescriptions and sanctions have been analysed, and, from there, conclusions about the basis of both the prescription's and the sanction's legitimacy have been drawn.

The goal now is to investigate how both normative systems, the legal one and that composed by the set of techno-scientific prescriptions, interact with each other in order to regulate social life. I leave aside the conflicts that occur within science between scientific communities, both among different disciplines, and within each field of knowledge.

Techno-scientific prescriptions are also addressed to the law maker, who may decide to take them into account or not, when carrying out their legislative activity. But, what is the point in transposing the techno-scientific prescriptions into legal norms and in incorporating them to the legal system, especially considering the inevitability in the imposition of their sanctions? To answer the question I refer, first, to the brief historical introduction made at the beginning. Given the profound implications, both positive and negative, that scientific knowledge has over society, states would be also interested in making use of scientific knowledge, in promoting its production, and in regulating the techno-scientific activity in order to manage its consequences (Grimm, [1991] 2006: 190-193).

That science and technology would be considered the engine of economic and social development signifies that efficacy is the new engine of the economy: the more efficacious a society is, the more competitive and the more economic progress; and efficacy is improved by developing new technologies . That has given rise to what has become known as the "technological imperative". This imperative has two dimensions: 1) technologies must be developed and applied to ensure efficacy in achieving the various objectives pursued; here, efficacy is understood in its instrumental value; and 2) available resources for production and/or distribution of goods must be deployed in the most efficacious way to achieve developing the most efficacious technologies to increase competitiveness and economic growth. An economy is efficient when it reaches that distribution. In this case, efficiency is no longer a means to achieve certain given ends, but the criterion for choosing between goals (Weber, [1922] 1964: 47-48). Put it in another way: that the criterion for resource allocation is to choose the most efficient option means that efficiency itself has become the end (Fischer, 1990: 24).

There is still the next issue to be resolved: if techno-scientific prescriptions already include the threat of a negative sanction for breach, what need is there to support that prescription with the threat of another sanction granted by the state through the use of physical coercion? Why to the promise of efficacy, or the threat of inefficacy, the promise or threat of other sanctions stipulated in legal norms is added? In those two above commented dimensions of the "technological imperative" , the state seeks to promote efficacy, as a social value essential for social and economic progress. The negative sanction to society as a whole for failing to comply with the technological imperative would be the economic and social backwardness. The state's justification for the transposition of techno-scientific prescriptions (prescriptions which consisted precisely in how to be efficacious), as well as the anticipated imposition of sanctions (positive or negative) lies on the intention of avoiding the inevitable negative sanction that society would suffer in the event of non-compliance with the technological imperative (Habermas, [1968] 2007: 84-85). Therefore, the objective is to promote the efficacy and efficiency among all social agents, including the state itself.

Exposed the reasons adduced to justify the inclusion in the legal system of the techno-scientific prescriptions, I put my attention to some problems that can arise. Legal rules and techno-scientific prescriptions may regulate the same issue. If that happens, it may raise an

adequacy or a contradiction between them. In case of contradiction, there can be five possible scenarios:

1. That the rule of law and the prescription still continue to be in force and, therefore, the contradiction remains.
2. That the prescription is refuted and the one in replacement is contradictory with the legal norm, maintaining the contradiction.
3. That the legal norm is repealed and, in case of approval of a new rule, there is adequacy, thus ending the contradiction.
4. That the prescription is refuted (its refusal would depend, according to the above exposed, on the refutation of the theory or scientific law in which was based) and the one which would replace the previous one is not contradictory with the legal norm.
5. That the legal norm in which the techno-scientific prescription has been implemented is repealed, thus ending the contradiction.

Except in the last option, it does not matter whether the conflict takes place within the legal system, due to having been implemented such prescriptions, or between normative systems: in this case, the relevant point is the possibility of transposition.

If contradiction is maintained and it occurs within the legal system, there are two possibilities: 1) that the legal norm resulting from the transposition of the prescription prevails, or 2) that the other legal norm prevails.

“Technocracy" can be defined in relation to the solution set as valid. Thus, technocracy would be a political system in which the ideal criterions for the solution of contradictions that arise between legal norms or legal systems that set out fundamental rights and techno-scientific prescriptions consists in the third and fourth options. Having been established the criteria of resolution of conflicts among types of knowledge, the best solution is to adapt the legal standard to the one conceived by policy makers as the best alternative. The necessity discourse emerges when, in order to justify the policies adopted, which are backed by the threat of possible imposition of negative sanctions, the presented as the best alternative (or the less bad) becomes in fact the only one.

The specific value that inspires the legal system in the rule of law is the human dignity. Historically, the legal regulation has been considered the essential and most effective instrument for ensuring and promoting that specific purpose of the rule of law. In that sense, the recognition of a set of fundamental rights, that is, linked to human dignity, are the legal means that the law has generated to achieve that aim (Díaz, 2002) . Its foundation is not derived from any empirical fact, as in the case of techno-scientific prescriptions, but from a strictly normative ground. Suppose that the legal system includes legal norms that recognise those fundamental rights. Then, the "rule of law" could be defined as the way of organisation of the political power that only admits, as a criterion to resolve the antinomies that arise between legal norms that set out fundamental rights and techno-scientific prescriptions, the fourth option mentioned and, in case of maintenance of the contradiction, the second of the two possible options .

That the essential and characteristic value of the rule of law is respect for human dignity does not mean that other purposes cannot (and should) concur in their legal systems, for example, the maintenance of order public, national security, economic growth, social peace, etc. Suppose that all these goals are valuable and legitimate. The means through which these ends are to be attained may or may not conflict with the respect for fundamental rights. Respect for fundamental rights clash with the pursuit of any of such purposes when their recognition or exercise is refused, or their contents and scope are reduced, or are used exclusively as a means of achieving other purposes different from that of respect for human dignity. The rule of law is defined by putting respect for human dignity above any other purpose.

To justify the means employed that are incompatible with respect for fundamental rights, there are two possible ways forward. First, it can be justified by the very value of the objective pursued. In that case, that end is placed explicitly as a hierarchically superior value to human dignity. But this would be the same as denying the rule of law. But what matters in this paper is to analyse whether there is any way to justify such means that do not involve an categorical denial of their status as a rule of law. The second way goes in this track.

Secondly, the justification may focus on the technical nature of the measure. In that case, the means employed are justified, but without having to state the axiological superiority of the objective pursued over the value of human dignity. There are two lines of argument. First, it

can be adduced that the means are used to achieve a relevant end which, in turn, is suitable and necessary to seek to guarantee the rule of law. In this case, the axiological superiority of human dignity would be formally recognised. The means employed would claim the benefits for the guarantee of fundamental rights, although, in fact, involve their violation. To solve this paradox between what it should be and what it is, techno-scientific prescriptions could be used to justify the absence of viable and/or effective alternatives compatible with the defence of fundamental rights, and, therefore, the necessity and appropriateness of the means employed . Secondly, it is possible to justify the measures taken in the name of efficacy as a value in itself. I refer to was has been commented above about the technological imperative and efficiency. In conclusion, a political system is shown as technocratic when violations of fundamental rights are justified, not by the aim pursued, but by the appropriateness of the means based on techno-scientific prescriptions.

IV. References

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