

SPEEDING: THE LAW AND THE DRIVERS

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The law and behavior

Legislation is a social product that is intended to regulate not only individual behavior but also social relations. Where traffic is concerned, it is hoped that drivers are aware of the traffic laws and respect them, that pedestrians behave within a determined pattern, and that signalization functions as a reference between pedestrians and drivers.

However, the law is placed on the social level. On the individual level, the behavior of the people manifests itself in a way that either comes closer or distances itself from social norms, making the interaction between pedestrians, drivers and supervisory agents either easier or more difficult. Even if the individual behavior is produced by the group's social practices in which the individual exists, it is possible to find different behaviors and expectations inside apparently homogeneous groups. It is expected that, from the social point of view, individuals who obey the law, contribute to a more harmonic traffic; it is expected that individuals respect, for now, all presuppositions that guide the technical analysis, which result in behavior patterns. For example, it is hoped that individuals respect the speed limits, since the technical studies were realized and consequently guided the decisions that are currently stipulated in the law.

It is possible to see that a part of this expert knowledge is used by those who legislate traffic in the determinations of appropriate speed limits for the roads, and that at the same time, it takes away from the importance exercised by the trust of the drivers in these expert systems.

The laws appear as an important mediator in social behavior since it establishes rules that make it possible for a more harmonic relationship in traffic.

The law does not immediately become a homogeneous action by the societal integrants who are exposed to it. Each individual and each group of people exposed to a determined rule participate in the way this rule is interpreted, made operational, perceived, respected, followed, and improved upon. And this interaction is mediated by the way individuals and

groups perceive the rule. Various groups and individuals will perceive rules in different ways, due to the context in which they find themselves at the moment.

New rules of behavior were introduced in the Brazilian Traffic Law of 1997 with models of behavior which modified the relationships between individuals, the Traffic Law and the State. Like every changing process, a period of adaptation is necessary for the adjustments to become effective. According to CAMMI (1999), "the proof that a law is 'good' is given by its practice, and the practice itself is able to annul the 'bad law' by a state of general non-accomplishment, which ends up by being accepted by the ones who have the obligation to make the law effective." (p.11)

When one understands the driver's behavior as resulting from the interaction of several factors, it is possible to eliminate one of them and search for its relationship to the driving action. For this research, the traffic laws and the specific speeding rules were selected factors, since speeding has been associated with accidents.

Legal context of the study

The starting point to being able to analyze and understand the variables involved in the drivers' behavior is the analysis of the Law 9.503 from September 23, 1997, that was used to establish the Brazilian Traffic Law (CTB), and has been valid since January 22, 1998. This new law opened up space for the municipal integration of traffic and defined the new structure and synergy among the federal, state and municipal levels, that integrate into the National System of Traffic.

The fifth article of CTB defines the National Traffic System as the joint institutions and entities of the Union, the States, the Federal District and the Municipality, whose finality is the planning, administration, establishment of rules, research, vehicle register and license, formation, habilitation and recycling of the conductors, education, engineering, road system operation, policing, supervision, judgment and punishment of offenders, and resources and applications.

The seventh article of CTB indicates the composition of the National Traffic System:

I – The National Traffic Council - CONATRAM, coordinator of the System and maximum normative and consulting institution;

II – The State Traffic Councils – CETRAM and the Federal District traffic Council – CONTRANDIFE, normative, consulting and coordinating institutions;

III – The traffic executive institutions and entities, including Union, States, Federal District and Municipality;

IV – The road executive institutions and entities, including Union, States, Federal District and Municipality;

V – The Federal Road Police;

VI – The Military Police of the States and Federal District; and

VII – The Administrative Office of Fine resource (JARI).

The National Traffic Council (CONTRAM) – regulated by the Decree nº 2327 of September 23, 1997 – coordinates the Brazilian Traffic Law, being the maximum normative and consulting institution.

The State Traffic Councils (CETRA) act as consulting and normative institutions in the States. According to Article 14 of the Brazilian Traffic Law, it is of CETRA, among other things, "the elaboration of rules in the ambit of its respective competences."

Executive institutions of Traffic include the National Traffic Department (DENATRA), acting on the federal level, the State Traffic Department (DETRA), acting on the state level, and the Traffic Directory (DIRETRA), acting on the municipal level.

With these various levels of rules and execution, one can understand the existence of regulations over the same aspects, however these parameters can be defined in different ways, as in the case of speed limits, that can have several kinds of parameters.

In Chapter XV of the CTB, Article 218, the various indications of offensive speeding and its respective punishments can be found.

Article 218. To travel at a speed which is greater than the one allowed by law for the locality, measured by capable instruments or equipment:

I – On the roads, fast traffic streets and arterial streets

a) When the speed is greater than the maximum speed allowed in twenty percent

Infraction – serious

Punishment – fine

b) When the speed is greater than the maximum speed allowed in more than twenty percent

Infraction – very serious

Punishment –fine (three times) and then suspension of driving privileges

II – Other streets:

a) When the speed is greater than the maximum speed allowed in fifty percent

Infraction – serious

Punishment – fine

b) When the speed is greater than the maximum speed allowed in more than 50% (fifty percent):

Infraction – very serious

Punishment – fine (three times) and suspending of the driving right

Administrative measure – retirement of the driving license

In Paraná, the CETRA, through the Resolution 1516.0/2000 of October 4, 2000, states in the 1st Article, "The punishments for speeding on the Paraná State Urban Ways will be framed exclusively in the Section II, subheading "a" or "b", in the Art. 218 of the Brazilian Traffic Law, according to the verified excess."

This Resolution of CETRAN/PR, though it does not change the kind of infraction (serious or very serious), modifies the “tolerance” of speeding, whereas Section I refers to speed over the maximum speed in 50 percent and in more than 50 percent. According to CTB the subheading “a”, in Section I and also in Section II, refers to a serious offense, with a fine of 120 UFIR, and the loss of 5 points on the driver’s license; the subheading “b”, in both sections, refers to a very serious offense, with a fine of 540 UFIR, suspension of driving privilege, and loss of 7 points on the driver’s license. This change was based on the definition of the category to which the State urban roads belong, passing from the framing in “roads, fast traffic ways and arterial ways” to “other roads” – collective or local.

Though this new framing is able, in fact, to change from 20 percent to 50 percent of the “tolerance”, the same criteria was not used to limit the speed that on the “other roads” would be of 30km/h and 40km/h – even if everything is very contradictory.

The electronic detection in Curitiba

Curitiba’s municipal government decided to implant educative measures whose purpose would be to develop in the drivers, new ways of perceiving and acting in traffic, and measures that were adequate to the new Brazilian Traffic Law (CTB). These measures reflect the concern about the establishment of a favorable atmosphere to a behavioral change in traffic, turning themselves to a necessary period of adaptation as new parameters are established (new traffic law). One of these measures refers specifically to Article 218 of the Law 9503. Municipal government established two “Educative Notifications”, or in other words, the driver who commits the offense of “traveling at a speed which is greater than the maximum allowed” is not fined the first time, neither the second time. According to what appears on the “Warning,” the municipal government informs the driver that it will tolerate up to two situations of the same offense and “only with the third ticket, the speeding fine will be given.” Included on the “Warning” is a schedule containing the speed limits, type of infraction, fines and points in driver’s license. These educative warnings stayed valid until the date of September 30, 2001. Concomitantly, several educative folders were spread to the population, guiding the driver in several aspects of the vehicle conduct, like speeds and various concerns relating to this type of infraction.

The electronic detection

There is an enforced system of speeding in Brazil that is “presently the greatest and most successful experience of electronic detection in the world” (CANNELL, 2001, p. 2). According to this author, the electronic enforcement reduces the number of accidents by 30 percent, and the mortality rate by 60 percent.

A meaningful reduction of accidents was noted in Curitiba after the implantation of the electronic detection system. On the roads where 10 of the radars work, during the eight months before the installation the monthly median of pedestrians being hit was of 4.6. During the seven months afterwards, the median was reduced to 1.1. During the period from January to August, 1999, the total of pedestrians hit at this place was of 37, whereas during the period from September, 1999, to February, 2000, only 7 pedestrians were reported as having been hit (CANNELL, 2001, p. 22).

Experiences with electronic detection in other countries also point to the gains that can come from a careful implantation: in Uruguay there was a drastic reduction of the number of infractors (at the interval that links Montevideo to Punta del Este, in the Canelones

Municipality): 55 percent comparing February, 1999 (before) to February, 2000 (after); 71 percent comparing March, 1999 to March and 87 percent comparing April, 1999 to April, 2000, resulting in a 60 percent reduction of fatal accidents during the high season period (from December 1999 to February 2000). A pilot project in Chile for speed control was tested between Santiago and the airport, with equipment that only showed the speed, without fining, and the comparative results of three weeks before and after the implantation indicated a reduction of speed: "The volume of the speeding traffic (higher than 70km/h) on the "slow" band was reduced from 41 percent to 23 percent, and on the "rapid" from 68 percent to 36 percent" (CANNELL, 2001, p. 40). Ten American states use the photographic control with respect to the red stop light. It is also used in Africa and several countries of Europe. In Australia There was a reduction in the accident rate in Australia of from 5.83 to 1.55 during eleven months of the electronic supervision operation which began in April, 1999 (CANNELL, 2001).

The proceedings and models of behavior as to how to act on public roads make it possible for uniformity in behavior, generating a climate of trust, since those in traffic know what to do and what is expected of the others (CAMMI, 1999). This atmosphere of trust presupposes the respect for the others and for the rules.

CAMMI (1999) emphatically affirms "when the subject systematically develops risky, offensive conduct, having a tendency towards accidents, he represents an objectionable and permanent problem to road security, and thus becomes **unable to travel safely in traffic (...)**" (p.28), becoming a risk. PUMPIDO (1963) emphasizes "(...) the danger of the inadequate individual to the traffic is generally made known before his inappropriate acts can cause harm, *due to the repeated infraction of the rules and in the adoption of conduct that encompasses a potential danger to the law-abiding drivers* (p.65).

Speeding and the law

What does the law say about speeding?

What repercussions do these texts provoke on the human behavior that is subjected to them?

First of all, as noted in the most general text, it means the Brazilian Traffic Law (CTB) shows in Article 61 three kinds of information related to speed. For a better detail, the text is reproduced below.

The maximum speed allowed for the road will be indicated through signalization, obeying its technical characteristics and traffic conditions.

§ 1st Where there is no regulating signalization, the maximum speed will be:

I – On urban roads:

- a) Eighty kilometers per hour, in the fast traffic ways;
- b) Sixty kilometers per hour, in arterial ways;
- c) Forty kilometers per hour, in the collector ways;
- d) Thirty kilometers per hour, in the local ways.

II – On open roads (...)

§ 2nd The traffic authority or unit with authority for the road will be able to regulate, through signalization, speeds that are greater or inferior to the ones established in the preceding paragraph.

The first point is that there will be traffic signs indicating the speed.

The second point indicates that in the absence of traffic signs, the specified speeds (80km/h; 60km/h; 40km/h; 30km/h) will be valid.

The third point is that those with authority over the roadways will be able to regulate speeds that are different from the specified ones.

These three points are reflected on the driver who has to answer with the correct behavior, which is that of driving at the established speed. But the behavior is not mechanical. These several inputs are analyzed and interpreted, based on meanings and values that the driver gives to them, or the meanings made possible by the rules.

Beyond the three pieces of information contained in Article 61, Article 218 specifies the rules for the application of punishment, making clearer the speed limit precepts, defining serious attribution related to the excess speed, according to the type of road.

The most important law states that an offense can be serious or very serious, with different speed limits according to the kind of road one drives on. This means that for urban roads classified as arterials or for fast traffic, serious was defined as traveling in speeds of 20 percent over the maximum established and very serious when it is over 20 percent. What does this rule mean to the driver? Verifying the limits imposed in Article 61, the speeds defined by the general text for the arterial or fast traffic ways are 60km/h and 80km/h. It is also important to note that INMETRO (institution which regulates measurements in Brazil) established 7km as a difference in measuring with precision equipment in relation to the speedometers, and that DENATRAN regulated this value to be considered with all established speed limits. This means that the driver who travels at 79km/h (for a maximum speed of 60km/h, it is considered more than 7km, or 20 percent more) or 103km/h (for a maximum speed of 80km/h, it is considered more than 7km, or 20 percent more) will be committing a serious offense. The infraction is considered very serious if the rate of excess speed is over 20 percent and could result with suspension of the driver's license. It's noted that these are the speeds seen in the urban areas.

Article 61 also establishes the speeds for the other roadways, such as collector, 40km/h and locals, 30km/h. Section II, of Article 218 of CTB, makes the rule clear that to travel at a speed that is 50 percent greater than the maximum established speed is considered a serious offense and over 50 percent is very serious. This is explicit when considering the speeds of 40km/h and 30km/h on the other roads, meaning respectively, the definition of offense for speeds at 50 percent, at 67km/h (for 40km/h) and at 52km/h (for 30km/h).

However, the same Article 61, in the second paragraph, makes it possible that other institutions with authority over the roads, define different parameters. And this is what happened in Paraná: CETRAN regulated through the Resolution nº 1515.0/2000, from October 4th, 2000 (published in DOE in October 19th, 2000): "Article 1 states that the penalties for speeding in Urban Ways of Paraná State will be framed exclusively in Section II, subheading "a" or "b", of Article 218 of the Brazilian Traffic Law, according to the verified excess.

This Resolution of CETRAN justly modifies the amplitude of speeding, eliminating the excess framing “at 20 percent and over 20 percent”, to use just the criteria of “50 percent and over 50 percent.” This change was based on the definition of the category to which the Urban Ways of Paraná State belong, passing from the framing in “fast traffic ways and arterial ways” to “other ways” – collector or local.

It is important to rescue the definitions of these roadways, according to CTB:

FAST TRAFFIC WAYS – Characterized for special accesses with free traffic, without intersections in level, without direct access to borderline lots and without pedestrian’s crossing in level.

ARTERIAL WAYS – Characterized by intersections in level, generally controlled by light traffic, with access to borderline lots and to secondary and local ways, making it possible for traffic to be among the city’s regions.

COLLETOR WAYS – A way destined to collect and distribute the traffic that needs to go in or out of the fast traffic or arterial ways, making it possible for traffic to be inside the city’s regions.

LOCAL WAYS – Characterized by intersections with no traffic lights, in level, destined only to the local access or restricted areas.

However, the urban speed limits in Curitiba, are defined at 70km/h, 60km/h, 50km/h, 40km/h and 30km/h, different from what is stated in Article 61 for “the other ways”, though it allows the institutions with authority over the roadways to define different speed limits. This means that for the purpose of framing, it was used as a type of criteria (not explicit in the Resolution text) and for defining the maximum speed limit, which guidelines as contained in CTB, were not respected.

If the urban ways of Curitiba are classified (all of them) as collectors or local, how are the speeds justified as being defined at such a wide specter (from 30 to 70)? Also, how can the speed of 70km/h be justified for a road that is classified as a collector?

How is this input processed by the driver? It is from the input, which defines the speed, that the driver can guide his behavior adequate to the rules. It is also from the results of his behavior that the driver can maintain or change it. If the law foresees punishment for behavior (as in the case of speeding), the punishment and the conditions in which they occur must be clear to the driver in a way that makes possible an unmistakable comprehension of the “legal” risks to which he is exposed. The association of the behavior to the result, in this case, the ticket, must also be made possible in such a way that this association leads to the acknowledged rule and, consequently, can be translated into a behavioral change – therefore no longer committing infraction. The input “speed limit” presupposes the legal consequences that come from its disobedience – serious or very serious – and a ticket. This refers only to the legal aspect.

Chart 1 – Kind of ways, speed limits and band for fine framing

WAY	DESCRIPTION	CTB	LIMIT	20%	50%
Express	Without intersection/ without access to lots	80	At or more than 20%	88 to 103	to 127
Arterial	With intersection/ with access to lots	60	At or more than 20%	68 to 79	to 97
Colector	Aim: get in or out the preceding ways	40	At or more than 50%	48 to 55	to 67
Local	Intersection in a without-traffic light level	30	At or more than 50%	38 to 43	to 52

Chart 1 summarizes the information related to the type of roadways, the maximum speeds established by the CTB laws, and the framing of the excesses according to CTB and according to CETRAN/PR, indicating the limits of 20 percent and 50 percent, making it possible to compare them. For a maximum speed of 60km/h the determinations contained in CTB make explicit the infraction of exceeding the speed limit by 20 percent as it corresponds to traveling at 79, but exceeding the speed limit at 50 percent (according to the CETRAN Resolution) means that an offense will be serious if the driver travels at 97km/h. And there will only be a very serious offense if the speed is greater than 98km/h. This means that accepting a speed that is next to 100km/h on an urban road, defined as a "collector or local way", without the obligatory license suspension (which happens when the speed is over 98km/h). Technical information establishes that a pedestrian that is hit by a vehicle, which is over 60km/h, has a 70 percent of probability of dying and therefore, only a 30 percent probability of survival (with injuries and mutilations). And it was determined that, on the State level, over 98km/h the infraction will be considered very serious.

For the driver, this information means that speeding is tolerated within a greater margin, meaning that "it is not so dangerous", neither very serious. According to SILCOCK *et al.* (1999) 85 percent of the interviewed drivers admitted that they speed, though they recognize that it is illegal. The researchers identified an inner speed limit that is "frequently, but not always, higher the propagated limit" (p.45). The mistake and the apparent lack of reason on the determination of the limit of the specific speed generates its misuse. A legislation that confirms the lack of danger perception on the speeding behavior makes the imposition of speed limits more difficult to accept.

Of the reports of people who coordinate the state and municipal traffic system, a frequent complaint refers to the checked registers of speeding (for a maximum speed of 60km/h): 68km/h, 69km/h, 70km/h, 71km/h e 72km/h. The complaining drivers point out that "this is not speeding." Through the declarations of the traffic administrators, these speeds are the ones at which is registered the greatest volume of offenses (on roads where the speed limit is 60km/h). The variation of the initial value from which the offense is registered (68km/h when the maximum speed allowed is 60km/h) is due to differences of precision equipment (speedometer, radars, among others) and not at "10 percent of tolerance" as some drivers suppose. But, since one of the internal inputs includes the incorrect information of a "10 percent of tolerance", the driver does not bind himself by the limit established by law. Besides, the speed limit signs (in the "fast ways"), in Curitiba, explicitly state that the infraction is serious over 68km/h, suggesting to the driver that the limit is 67km/h and not 60km/h.

One of the main inputs for the drivers' behavior (the information contained in the traffic signs and the regulating legislation of speeding) appear contaminated by deviations in terms of the expressed conception in CTB and should be the surveyor of the decisions in the many levels that decentralize the National Traffic System. For the Brazilian legislators, it is always possible to "find a way" and use their own openings in the law to facilitate the adoption of deviant rules of the "spirit of the law." After all, Article 61, itself, determines that the "traffic or road authority or entity with authority over the roadways will be able to regulate, through speed limit signs, the speeds that are greater or inferior to the ones established in the preceding paragraph."

Law ambivalences

The “spirit of the law” established a difference of excess speeds when classifying the offense as serious or very serious, differentiating the excess percentages (20 percent for higher speeds or 50 percent for lower speeds), according to the type of road. What does this difference of between 20 percent or 50 percent mean for the driver?

Surprisingly, it has a conflicting meaning, in that it is possible to manifest the behavior of exceeding the speed in two ways: driving faster in places where you should drive more slowly, and driving slowly where you can go faster.

This suggests the existence of a speeding conception that does not depend on the conditions of interaction on the road, the vehicle and people; a conception that determines that “speeding moderately” (maybe at 67km/h, at a place where the maximum allowed speed is 40km/h; or 79km/h, at a place where the maximum allowed speed is 60km/h) is not dangerous. This confirms the driver’s belief that there is absolute “speeding”, with no correlation to interactions.

These gradations on the speeds and different penalties confirm to the driver that there are more risks and less risks, if not related to specific human and material factors, at least related to different fines (greater or smaller fines), even though the initial value hasn’t been altered, from which the offense is registered (68km/h). When CETRAN/PR emphasized the limits that start to be considered a serious infraction (for a road where the maximum speed is 60km/h), from 79km/h (20 percent) to at 97km/h (50 percent), a band of speed was created (from 80km/h to 96km/h) in which the driver was not able to differentiate the potential risks, making it possible for him to be equally harmed by a vehicle driving at 68km/h (the initial of the offense register) one being driven at 97km/h. This fact goes against all available technical information concerning the risks of determinate speeds. For example, the possibility of the death of a pedestrian is 5 percent when the vehicle is driven at 20km/h, but it increases to 45 percent if the speed is 50km/h (ALMQVIST, 1997).

Risk perception increases according to the degree of trust in the institutions responsible for the determination and administration of the risk, as SHORT (1984) affirms. Currently, the identified variables and the different information will be responsible for the increased perception of risk from which the drivers will guide their behavior of exceeding or not exceeding the maximum allowed speed. If the institutions responsible for determining the speed limits do not give the drivers precise indications that can make the risk perception compatible with the analysis of the speeding risks, how can the drivers guide their perception of possible risk?

To the driver, it remains an ambivalent legislation, which suggests that the PAVLOV (1970) reported an experiment that provoked an experimental neurosis: two very similar stimuli (close in terms of gradient) to which the dog found itself unable of reacting adequately. And the driver puts himself in a position to question the limits that it is not his duty to define: after all, which is the adequate speed on this road? Why? Who determines that? Why was the speed limit one thing yesterday and today it is another? Is it dangerous or not to travel at 97km/h on urban roads? To what degree (it is serious or very serious)? What determines the gravity? Why in Curitiba, on “fast ways” is the maximum speed 60km/h, while there are roads where the speed is 70km/h?

And with no answers to these questions, with no safe parameters that guide his behavior related to speed, each driver finds himself facing the alternative to decide for himself which speed is adequate at which place, taking risks to adopt inappropriate behaviors that can result in human or material harm. Besides, electronic supervision is seen in an ambivalent way from the users. The same individuals that accept the electronic supervision in banks and stores, reject it in traffic. The acceptance or rejection depends on who is supervised and who is protected by this supervision. When the supervision happens over the person who drives the car and, therefore, possibly threatening the safety of other people, it is rejected by the drivers' group. The external control in traffic is not seen as citizenship practice, but as an invasion to privacy, or as an information gathering mechanism.

The analysis of the Federal and State Law texts about driver over the speed limit shows the existence of ambiguities and may reinforce inadequate perceptions that driving "a little over the speed limit" is not a risky at all.

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