

THE CENTRAL SPEED LIMIT PROBLEM. A Global Social Responsibility in the Automotive Industry.

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ABSTRACT

As one of the most significant inventions in the modern world, the automobile has been not only a mean of communication and transportation facility, but also a symbol of economic power, comfort and social class pertaining. Regretfully, the automobile also has been present in the statistical records of death and the associated velocity is a frequently mentioned risk factor in fatal car accidents.

The purpose of this paper is to show how, despite of its multiple technological improvements, the car usage still being a matter of pending points, mainly related with insufficient mechanical speed control and ineffective social regulations. Some other issues in relation with car speed are discussed and finally, a set of public policies is proposed and a specific agenda point for R&D in the auto industry is suggested.

Key words: Speed limits. Mechanical engineering research. Product regulation and law enforcement congruency

INTRODUCTION

Independently of the undeniable practical value in our everyday life –so many people couldn't live without it- the car also has a remarkable esthetical value, attracting customers with the fascinating new car odor, the shining colors and the design line. As time goes by, different yearly models remain as eponymous witness of the social evolution becoming "classics". You may, for instance, identify the epoch of a movie or a TV production because of the cars showed on them. The people in the film and TV industries know very well how to produce a specific year environment and also marks the production year just by the cars circulating in the projected images.

Some people, like me, still missing the sport MG cars from the 1950 decade, the 1956 convertible Ford Victoria, the 1957 Bel-Air Chevy and, of course the 1965 Ford Mustang, -the last three with those big V-8 engines, monuments to fuel dispend- are just a few examples of the seductive attraction of these fabulous machines.

The automobile is the target of multiple technological improvements. It has been attended for instance, fuel economy, power brakes systems, carburetor systems, electronic ignition, automatic transmissions and specifically the automobile industry has been

producing units with capacity to reach one hundred km per hour in ten seconds.

The fastest cars may show capacity to reach 240 to 300 km per hour. Some of the smallest cars in the 2011 automobile market, like the Japanese Sentra or the U.S. Dodge Attitude, both with four cylinders engine, show in their speedometer that they may reach 220 km. per hour, which mean exactly the double than the maximum speed limit in the best Mexican highways: 110 km. per hour.

Besides the entire utility or the glamorous charm the cars may signify, still being a subjacent issue to be considered: the people security. Since the beginning of the use of vehicles for transportation, a main concern has been the velocity these machines could reach, increased with successive stages of technological improvement. The urban life with its demanding time urgency and the growing necessities of fast connecting people inside and amongst cities, were modeling a complicated net of interrelations where the automobile, the heavy transportation trucks and the buses, rapidly become indispensable mean. The overcrowded cities and busy roads rapidly showed an increasing rate of accidents, evidencing they couldn't be used without an order and a mandatory set of rules. One of them is about the speed limit.

The facts

If we think of car speed as an important factor about people security, we may consider convenient a revision of the established limits. Are they appropriate for the modern road conditions? Are they suitable for the technological capabilities of modern autos? Should those limits be lowered or raised?

There are many factors to be considered to sustain an opinion on this subject, the highways design and construction, the accumulated experience, the standing of driving rules, the technological improvements in automobile production, and the driver's capabilities, amongst others.

The highways design has being improved along the years, the possibilities of modern technology leads us to expect better and more secure roads. In Mexico, the traditional best four tracks highways were the ones connecting Mexico City with Queretaro and Mexico City with Cuernavaca; some others have been improved like Mexico City-Puebla, Mexico City-Toluca and Mexico City-Pachuca. All of them state the maximum speed limit in 110 Km per hour. Nowadays Mexico's national road net is fortunately much more extensive but in every highway the maximum speed limit is the same, 110 Km per hour. The bad thing is that this regulation is scarcely respected. You may see circulating modern cars at vertiginous pace and if you want to maintain the 110 km rule, you are exposed to all kinds of dangerous pressure from them.

The very well known efforts to limit the velocity of passenger buses in the highways to 95 kilometers per hour in Mexico, using a kind of signal when that maximum is trespassed, fails when the dispositive doesn't work or may be arranged not to work. I keep watching so many passengers' buses "flying" in the highways far upper the 110 km per hour limit. In the 1998 Malibu, the GM provides a similar dispositive with ineffective results, since everybody could easily modify it.

In the best highways of China and in Canada, the maximum speed limit is also 110 km/h and in the USA is about 100 km/h (65 miles). While some countries, like Germany, have no speed limits, others, like France, are considering to decrease the maximum speed from 130 to 110 km/h. In this country, high speed, alcohol abuse and the use of cell phones while driving –to talk or text- are

pointed out as major issues to be solved by severe law enforcement. (Wyderko,2011).

No doubt the mechanical engineering has been doing its job to design beautiful and efficient new cars every year, but the final result, even when appealing to the consumer, must be customized to ensure people's safety and manufactured accordingly to each country regulation.

Considering that driver's abilities are reduced at high speeds, and that the prevalence of speeding – by itself or in combination with other factors- in traffic crashes has terrible effects in terms of money, and more importantly, in human lives (NHTSA,2004), shouldn't the automotive industry assume a stronger commitment with everybody's safety? What are the chances for Mexican law to double speed limits and, in any case, with current domestic road conditions, law enforcement practices, medical attention services and driving/pedestrian culture and capabilities, how safe would that be?

Table 1.
MAXIMUM MARK IN SPEEDOMETER
OF SELECTED BRANDS

BRAND	MODEL	KM/HR
Chevrolet	Malibu	220
Chevrolet	Camaro	300
Chrysler	Dodge Avenger	240
Chrysler	Dodge Attitude	220
Nissan	Altima	260
Nissan	Maxima	260
Nissan	Sport 370Z	280
Nissan	Sentra	220
Nissan	Tiida	220
Honda	Accord	260
Honda	Civic	220
Ford	Mustang	260
Ford	Fussion	200
Volkswagen	Tiguan	240
Volkswagen	Classic GT	260
Volkswagen	Jetta	240

Source: Information collected by this author directly from selected brand dealers in Mexico City, 2011.

As we may appreciate in table 1, all of these cars seem to have been built to break the law and appear to be specially equipped to violate the maximum speed limit in the world.

Each version of each model concentrate the best efforts in engineering design for power performance, efforts which are very appreciated by the market, buying the most rapid vehicles.

Beside of sports cars built to race in high velocity competitions, the commercial versions of every car in the world are following the same pattern, all the models available in the market today may reach at least 180 km per hour according with the figures showed in their speedometers.

That is in the small cars category, but what about the big tourism cars like the General Motors Malibu –with a six cylinders engine registering 260 km per hour in the speedometer- or the sportive cars like the General Motors Camaro, with 8 cylinders engine registering 300 km per hour in its speedometer?

From the oriental part of the world, the Honda Accord, Mitsubishi Galant, Suzukies and Nissan Altima for instance, may reach the 260 km per hour. No to talk about the expensive luxury cars like the US Cadillac, the UK Bentley or German cars like Mercedes Benz or BMW.

One of the most meaningful fields of car improvement has been the security area. Effectively, let us mention some issues like the seat belts –for years we didn't even know about them-or the air bags -waiting for improvement-. Both have been the salvation of lives, and also, when improperly used, the trigger of serious injuries for some persons.

In response to the United Nations initiative for a decade of actions toward the improvement of world's road safety, 2011-2020 (IMESEVI, 2011), several countries signed the Mexico's Declaration on Road Safety (2011). In this document, speeding, alcohol abuse and failure to use seatbelts are considered as important causes of vehicular accidents and emphasis was made in the urge for technological and scientifically based public policies to attack this social, economical and health problem.

According to the World Health Organization (2011) traffic injuries affect people all around the world. Millions get disabled every year, thousands die every day and entire families are suddenly impoverished by a financial unexpected burden.

In Mexico, after heart failure, diabetes and cancer, accidents are the fourth cause of death, playing

road traffic a major role amongst them. The yearly car accidents records show 24 thousand deaths and 40 thousand injured people with total or partial physical incapacity. (Saavedra,2008. INEGI, 2008. CENAPRA, 2011).

Around the world, the economical consequences of road traffic injuries are, every year, multimillionaire. Only in Mexico, medical attention, material costs and the waste of productive life years add up to more than 1.2% of the Gross Domestic Product, which is more than 130 thousand millions of pesos (Mendoza, 2011). Just to make a comparison, this year, Mexico's budget for science is the 0.5% of its GDP. (Melesio, 2010).

Discussion

As mentioned before, the seat belts and the air bags included in the modern cars to protect their occupants, as well as the improved power break systems to stop more efficiently the cars, are valuable attempts to decrease risks; but now we have to question ourselves: Is security just a matter of remedies or a matter to make every effort to impede dangerous acts to be performed?

If car companies are working in these security devices, it means that they are aware of the frightening facts, then, why no to work to avoid them, or at least no to increase them?

Millions of clients during a century of very profitable market in the world deserve a serious effort working to preserve the safest use of one of the most useful inventions in the civilization. The R&D efforts should face this challenge since the automotive industry invests huge amounts of money to develop faster cars each year, but I had never heard of a serious program, if any, to research about how to effectively control the velocity of these machines.

The rules to drive safely, issued by the authorities in every country, are lacking sense if the possibilities to be obeyed depend on the good will of the citizens and its enforcement is only a probabilistic issue.

There are two important points in conflict, in one hand the mandatory rules the government has being issuing for so many years in the speed limit matter and, in the other hand, THE OFFICIAL AUTHORIZATION TO PRODUCE GOODS IN FRANK VIOLATION OF THE RULES THE

VERY SAME GOVERNMENTS HAVE STABLISHED. Since this is not a light conflict but a clear and strong contradiction, it is time to assume full responsibility of each actor in the security affair:

- The automakers from the design to the end of production line.
- The driver's competences and health conditions.
- The government's congruency between rules and law enforcement.

IMPLICATIONS FOR THE FUTURE

Since the Automobile Industry works under global market basis, requires also a global social commitment to improve its performance in solving and preventing the problems that may appear. In the case of the speed limit problem, we are suggesting to reinforce three lines of action:

1. The automobile producers

- The industry could be engaged in profound R&D programs to develop autos with the suitable mechanic devises to operate within the speed norms.
- Design specific programs to develop car engine prototypes with all the modern technological advances but incapables to accelerate beyond the legal speed limits.
- The development of fast cars takes large amounts of money but it seems that no effort has been done to invest, even minor budget,

to develop cars with technological impossibility to break the speed limits.

2. The drivers

- Conduct safely adopting all the measures to prevent accidents.
- Strictly obey the entire traffic regulations avoiding to surpass the legal speed limits.
- Avoid alcohol and all kind of drug consuming as operating a motorized vehicle.

3. The government

- Review the highways design to guarantee a secure driving on them.
- Review speed limits according with geography, weather and concentration of traffic in urban and highways environments.
- Review the tech improvements to decide the convenience to allow a faster or slower driving.
- To seek an international agreement to install public policies tending to find out how to keep the speed capacity bellow the legal limits.
- To establish public policies in order that R&D programs of the producing firms, dedicate a significant budget to develop effective control mechanisms to avoid excesses in dangerous fast driving.

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