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Introduction of Mandatory Vehicle Inspection and Its Impact on Health: Case of Georgia

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ABSTRACT

To fight atmospheric air pollution, the Georgian government has implemented a law about vehicle inspection. The aim of this survey is to determine under which conditions are owners of technically faulty vehicles ready to give up using technically faulty cars. Within the qualitative study the in-depth interviews were conducted. Taxi drivers think that this law is harmful to them though they appreciate the efficacy of vehicle inspections. Controls should be placed on the quality of fuel as part of the development of public transport while increasing awareness about the harmful effects of atmospheric air pollution.

Introduction

Ambient air pollution is one of the major causes of death and disease in the world. About 4.2 million premature deaths in the world are related to ambient air pollution.[1] It can cause chronic obstructive pulmonary disease,[2] asthma,[3] lung cancer,[4] acute respiratory infections in children,[5] heart disease[6,7,8]). According to WHO data from 2018, worldwide ambient air

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pollution accounts for: 25% of all deaths and disease from lung cancer, 17% of all deaths and disease from acute lower respiratory infection, 16% of all deaths from stroke, 15% of all deaths and disease from ischemic heart disease, 8% of all deaths and disease from chronic obstructive pulmonary disease.[9]

The main sources of ambient air pollution are: mobile sources (cars, buses, planes, trucks, and trains), stationary sources (power plants, oil refineries, industrial facilities, and factories), area sources (agricultural areas, cities, and wood burning fireplaces), natural sources (wind-blown dust, wildfires, and volcanoes). The main pollutants of environment are mobile sources and the primary mobile source of air pollution is the automobile.[10] Transport emissions include Green House Gases, most notably CO_2, as well as particulate matter, lead, nitrogen oxides, sulfur oxides, and volatile organic compounds. Demand for transport services is expected to rise as economic growth occurs in developing countries, revenues rise and the trend toward urbanization continues.[11] Transport is associated with environmental degradation, especially with regard to atmospheric

Pollution, that cause damage to human health, quality of life, agriculture and contribute to global climate change. Various researches confirm, that excess mortality is observed in people living across the main roads.[12]

According to statistics from 2017, there are around 1,140,000 registered cars in Georgia and among them 420 thousand are registered in Tbilisi.[13] According to 2014 census data, population of Tbilisi Aged 18 and more is 859,328.[14] This means, that every second person in Tbilisi has a car. According to data from Ministry of Internal Affairs, 44% of cars are 20 years or older and have different types of damages. According to the same source, 91% of the cars are produced before 2007. The cars of less than 3 years of age make up only 1.3% of the entire number of cars. Even though, according to WHO the level of pollution in Tbilisi is similar to many other European cities. In particular, concentration of MP2.5 in atmospheric air in Tbilisi is 24, in Berlin – 23, in Paris – 16, and in Venice – 26.[15]

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In 2017, the Parliament of Georgia has adopted a law that implies introduction of compulsory technical inspection for all categories of vehicles. Legislation has been streamlined to regulate the periodic technical inspection of vehicles. From January 2018 Georgia is starting mandatory vehicle inspections, testing the road worthiness of vehicles before they are allowed to drive on roads. The vehicle testing will be launched step-by-step and the inspection of all vehicles will take about 2 years. In the first stage powerful engine vehicles (+ 3.5 tons) and passenger vehicles (+8 seats) will be obliged to do vehicle inspections. In the next stage inspection will be undertaken for vehicles belonging to state agencies and legal entities, and then powerful engine vehicles (+ 3.0 engine) will have to do vehicle inspections as they consume more fuel and thus pose more threat to air pollution with their emissions. The vehicles will be inspected by the following criteria: brakes, steering mechanism, suspension, visibility, car lights, emissions, and tires. If a vehicle fails the inspection, the driver will be given a month to fix the problem to make it meet the standards to be allowed to drive on the roads. If the problem will not be fixed the drivers will be fined. Inspections will not be required for vehicles that are four model years old or newer.

The purpose of this research is to study opinion of citizens about introduction of mandatory vehicle inspection. The research aims to answer the question: How ready and under what circumstances are faulty vehicle owners and potential owners in Tbilisi ready to give up using their technically faulty cars in order to maintain their and other citizen's health?

Materials and methods

For this study we used a qualitative approach. Research was conducted by face to face interviews, which were maximally flexible and non-structural depending on the topic. 30 in-depth interviews were conducted with three following segments: (1) Taxi drivers, who own technically faulty vehicles (2) Users of technically faulty vehicle and (3) people who do not own a vehicle but have an opportunity to buy one. Ten individuals were interviewed in each segment. The operational definition of technically faulty vehicle for this research is a vehicle, which does not have a catalyst, or has a catalyst in non-working condition, in the result of which car is emitting excess exhaust.

We searched for a person and afterwards we used a snowball sampling method to collect the data. The research was made in Tbilisi, Georgia.

Primary data was used, where we have collected data our self, using the interviews. Units of data analyses were words and phrases, where we recorded the interview, and created a transcript afterwards.

In case of technically faulty vehicle owners, data was collected in quasi natural environment, where in depth interviews from individuals, were used as sources of information. Snowball method was used for selecting taxi drivers of technically faulty vehicles. Interviews have been conducted in May-June, 2018.

Results and discussion

Owners of technically damaged cars

From May 31st till June 11th, in depth interviews were conducted with drivers of vehicles, whose cars either have not had a catalyst or had it, but in damaged condition, and therefore their cars had excess exhaust.

Absolute majority of respondents support the law regarding vehicle inspection, and underline that, technically faulty vehicle puts population under two important problems: (1) Increases the risk of car accidents and thus poses threat to person's life (2) Has a negative impact on environment, and therefore increases risk of developing illnesses.

Nevertheless, they are not ready to voluntarily give up using technically faulty vehicles, if the following criteria is not met: (1) Public transportation needs to get organized, for vehicle owners, whose cars will not pass vehicle inspection, to be able to use alternative ways for transportation, (2) Banks with the help of the government have to issue a low rate loan, for drivers to be able to repair their damaged car or buy a new one.

Absolute majority of respondents is associating increased oncological diseases to atmospheric air pollution. They think that air pollution will bring substantial damage to future generation. One of the respondents also mentions, that in long-term, it is more profitable for government to help drivers get a new car, or assist in mending existing technically faulty car, to save money on healthcare in future, which would need to be spent on curing diseases caused by atmospheric air pollution.

We spoke with respondents about alternative cars, which do not work on petrol or gas. These cars work on solar energy and are ecologically safer than any kind of cars working on fuel. Respondents are ready to start using electric vehicle, if: (a) The availability of electric vehicles that can cover 400–500 km increases (b) The price of electric vehicles will be reduced.

Respondents say, that if their vehicles will not be able to pass vehicle inspection, it will be of a great help for them if banks, with the help of government, will provide loans with low interest rates or installments.

Taxi drivers, with their own technically faulty vehicle

Majority of taxi drivers did not have full information regarding vehicle inspection. After giving them information on criteria for vehicle inspection,

most of them note, that even though implementing vehicle inspection will affect people's health positively, this process is devastating for them, since exactly this technically faulty vehicle is the only source of income in their families.

Even though majority of taxi drivers did not have information on all criteria that will be used during the vehicle inspection, most of them knew that existence of catalyst is one of the criteria. Majority of cab drivers are speaking about their unbearable economic conditions. Due to these intolerable conditions, they are not able to afford a catalyst, even if they wanted to. Also, after providing information on all the criteria, including the wheels, respondents expect that mending their cars will cost them more, than car's self-worth. Therefore, it would be impossible to fix this condition with their own expenses, even within the month, which is the time that is given to vehicle owner, to fix a car, if their car is not able to pass the vehicle inspection. In their opinion, the government must go on compromise and give relief to drivers, whose vehicles will not be able to pass technical inspection, because in their opinion this process will be harsh for people who have financial difficulties.

After providing respondents with information, about what kind of effect atmospheric air pollution might have on health, majority of respondents mentioned, that thinking about this problem and solving it should become daily agenda; however this problem will not be solved only by vehicle inspection. Attention should be paid to such factors as: quality of the fuel and organizing the infrastructure on roads.

It is noteworthy, that cab drivers were quite sincere in their answers. In their opinion, they are posing a threat to their own selves as well to other people, who are ready to use technically faulty cabs as means of transportation, for the cheaper price. They understand, that this might be posing a threat, but they also mention that thinking about future will not feed their empty stomachs. They are waiting for some kind of compromise on government's end. They are not expecting financial support directly from the government; however, they think that, it would be of a great help if banks, with the help of government would issue loans with low interest rates or installments.

Individuals without car, who have ability to buy a car

Respondents who have ability to buy a car, but don't have one, are listing threats associated with atmospheric air pollution as a reason not to buy the car. In addition, all respondents also mention fear of driving a car as the reason of not having the car. Respondents think, that public transport has to be organized, in order for more people to say farewell to their

technically crooked cars and for those people who have cars, to star exploiting public transportation more actively.

Respondent's mention, that increasing awareness about negative effects of atmospheric air pollution is key in developing a policy against atmospheric air pollution.

As respondents mention, attention should also be paid to the creation of recreational zones. They bring "Central Park" in New York, as an example. In their opinion, building recreational zone around Eliava market territory, on the left bench of Mtkvari in Tbilisi, would give city chance to breath. Otherwise, air pollution will cause a lot of diseases overtime.

Majority of respondents, agree that introducing mandatory vehicle inspection is necessary, for person's health, as well as for the safety of driver, passenger and the pedestrian. In their opinion, however, introducing vehicle inspection is not the only solution. It is much easier, to place control on the quality of the fuel, rather than inspecting every vehicle.

The respondents emphasize that compulsory vehicle inspection is the requirement of the Association Agreement between the EU and Georgia, as it implies cooperation between the parties in the transport sector as well.

Conclusion

As research has demonstrated, respondents who own technically faulty cars, as well as respondents, who have ability to buy cars, but do not so, totally agree and support the law regarding vehicle inspection. Only taxi drivers are demonstrating different point of view and think that, even though in long term they will appreciate efficacy of vehicle inspection, due to harsh economic situation, currently introducing such law is devastating for them, since the only source of income in their household, is exactly this technically faulty car.

Based on the above-mentioned information, it is recommended to:

1. Organize Public Transport;
2. Increase awareness about harmful effects of atmospheric air pollution, and about the role that vehicles play in air pollution;
3. Issue loans with low interest rates or installments, with the help of government and banks.
4. Place control on fuel quality.

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