

Estimating the Cost of Vehicle Damage due to Road Traffic Accidents in Lahore, Pakistan

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Abstract Road Traffic accidents and their worst effects are increasing exponentially worldwide and in Pakistan as well. According to World Health Organization (WHO) it is one of the leading causes of deaths in developing countries. But unfortunately it is a neglected problem in Pakistan and no deliberate efforts have been made to assess the socio economic losses (tangible or intangible) due to road traffic accidents in Pakistan. This study was conducted in second largest city of Pakistan to highlight one of the economic losses that occur in result of road traffic accidents that is Vehicle damage cost. Lahore is the second highest populated city of Pakistan and more than 30000 thousand accidents occur in Lahore every year. This study reveals that average vehicle damage cost in fatal, major, minor and property damage only (PDO) is 243,336, 116,127, 12,841 and 13,632 respectively. This study also reveals that losses of 1.5 billion Rs occurred in Lahore in 2016 in terms of vehicle damage cost due to road traffic accidents.

Keywords Road Traffic Accidents, Economic Losses, Fatal Accidents, Major Accidents, Minor Accidents, Property Damage Only (PDO)

1. Introduction

Now days, road traffic accidents are one of the foremost source of deaths in worldwide. It has adverse effects not only on human life but also on the economy of a country. [5] According to WHO road traffic accidents are one of the leading cause of deaths in middle and low-income countries. Low and middle-income country bear the loses of almost 65 billion USD in road traffic accidents. Nearly 1.2 million people killed every year in road traffic accidents globally and 20-50 million of people injured every year. [8] Apart from casualties, Other losses are also associated with RTAS such as vehicle damages, road side furniture, public owned properties damage and also it has bad psychological impacts on the victims survived in a road traffic accident as well as the families and friends of the casualties. [5]

Situation of road traffic accidents in Pakistan is very alarming; according to a report almost 10 people killed daily in road traffic accidents in Pakistan. The economic (WHO, 2015) losses of road traffic accidents in Pakistan are estimated to be more than 100 billion rupees per year [8]. Lahore being the second largest income generating city after Karachi. Road Traffic Accident situation in Lahore is even worse than any other city in Pakistan. More than 40000

accidents occurred every year in Lahore in which hundreds of people died and thousands of people become permanent disable. People lost Billions of rupees in terms of vehicle damages. This study will highlight the vehicle damage cost in Lahore in detail.

2. Data Acquisition

To collect the accident data, an emergency response service Named Rescue 1122 was contacted. They provide the data of the accidents with their severity and the kind of vehicle involved in the accidents. A questionnaire was designed to obtain the vehicle repair cost data. Almost 50 Motor mechanics and drivers/owners of the vehicle were contacted to fill out the questionnaire. Vehicle Insurance data is not used due to the confidentiality of the data.

3. Data Analysis

Based on the data provided by the emergency response service Rescue 1122, the accidents types are classified in fatal, major injury, minor injury and property damage only (PDO) accidents. Then the type of vehicle and numbers of vehicles involved in an accident are identified. Based on the data provided by mechanics and owners of the vehicle, average repair cost involved in any type of the accident is calculated. Then the average repair cost as per the severity of the accident is calculated. In the end, based upon the data and

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calculations of the average repair cost and severity of the accidents, the total repair cost in each category of the accident is calculated.

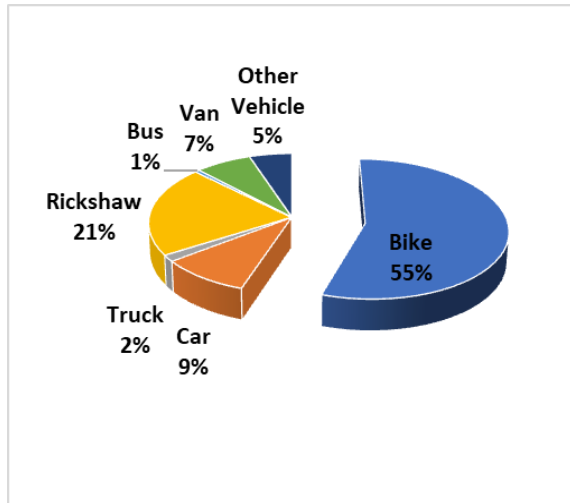


Figure 1. Shows involvement of different types of vehicles in road traffic accidents in Lahore, Pakistan during the year 2016

Table 1. Average repair Cost of Vehicles Involved in Minor Accidents

Motor Bike	1000
Rickshaw	1500
Car	35000
Van/Coaster	18000
Bus	65000
Truck/Oil Tankers	25000

4. Results

The data was analyzed and the repair cost per severity of the crash is calculated. Tables given below shows the calculated cost of vehicle repair per severity of the crash. It was observed that average vehicle repair cost in minor injury crash and PDO is almost same. So, In PDO average repair cost of minor injury crash is used.

Table 2. Average Repair Cost of Vehicle during Fatal Accident

Average Repair Cost per vehicle	Rs. 193124
No. of vehicles involved in a fatal accident	1.26
Repair cost per fatal crash	Rs. 243336

Table 3. Average Repair Cost of Vehicle during Major Accident

Average Repair Cost per vehicle	Rs. 71244
No. of vehicles involved in a fatal accident	1.63
Repair cost per Major Injury Crash	Rs. 116127

Table 4. Average Repair Cost of Vehicle during Minor Accident

Average Repair Cost per vehicle	Rs. 8795
No. of vehicles involved in a fatal accident	1.46
Repair cost per Minor Injury Crash	Rs. 12841

Table 5. Average Repair Cost of Vehicle per PDO

Average Repair Cost per vehicle	Rs. 8795
No. of vehicles involved in a PDO	1.55
Repair cost per PDO	Rs. 13632

5. Conclusions

Due to road traffic accidents, 1.5 billion rupees of economic loss occurred in the year of 2016. This situation is very alarming and Government authority should have to take the preventive measures to avoid such road accidents.

Road traffic accidents can be avoided by:

1. Educating the road users

A course and informative seminars should be arranged to educate the road users regarding the safety of commuters and if they follow the traffic rules, it will benefit them as well as other users who are using the roads to commute.

2. Design of road intersections and enforcement of traffic laws

Accidents can be avoided if the intersections are designed properly. It has been observed that some intersections need to be upgraded. Also, roads need to be design according to the design speed and the speed limit need to be enforced also. Traffic accidents can be avoided by enforcing the traffic users to follow the traffic rules e.g speed limit, seat belts.

3. Integrated Public Transport System

It has been observed in the study that the number of public transport vehicles involved in the accidents is minimum. So by making an integrated public transport system for the city, number of vehicles on the roads decreases and so are the accidents.

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