

Trip Generation Model For Apple's Truck Trip From J&K To Other States

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Abstract- *The main aim of this study is to develop a truck trip generation model for the apple's truck travelling from Jammu and Kashmir to various states of India. The Model has been developed using linear regression analysis. The Objective of study is to analyses truck trip enrooted between Jammu and Kashmir to various states of India by considering various parameters. Secondly, to identity various problems faces by truck industries. In this study, Road side Interview and Detailed Questionnaire Survey of Truck Drivers and whole Apple market is done. Data to be collected are O&D, Goods vehicle survey. Then data analysis by considering various factors like Income, Travel Time, Travel Length, Age, Work Shift. I will prepare a Trip Generation Model with the help of SPSS and Microsoft Excel.*

I. INTRODUCTION

Freight Transportation is a major factor contributing to economic growth and development. It is usually considered that urban goods transport proceeds from a complex system. Freight transportation encompasses the movement of a wide variety of products, from raw materials to finished goods, from comparatively low value-to-weight commodities such as coal, grain, and gravel to high value-to-weight items such as computer parts and pharmaceuticals. It includes transport system, infrastructures and urban planning, firm's logistic strategies. The main stakes of urban goods movement (UGM) can be considered at different topics and scales: reliability of the different logistic chains, local traffic growth, local traffic congestion, urban centres economic support, environmental nuisances (noise, pollutant emissions), urban logistic centres optimal location, greenhouse gas saving, but also urban spread effects and changes in the consumer behaviour, among others. There are two types of truck trip generation models, vehicle-based and commodity based. In vehicle-based truck trip generation models, the most common approach to estimating trip generation rates is by land use as a function of employment. Commodity-based trip generation models generally, estimate commodity flow tonnage, county-to-county or state-to-state flows and then converted to daily truck trips using payload factors.

1.1 Aim

The main aim of this study is to develop a truck trip generation model for the apple's truck travelling from Jammu and Kashmir to various states of India by considering various parameters, to identify various problems faces by truck industries from Jammu and Kashmir to various states of India.

1.2 Objectives

- To analyse truck trips enrooted between Jammu and Kashmir to various states of India by considering various parameters.
- To identity various problems faces by truck industries.
- To develop the most suitable model for truck trips in studyarea.
- To prepare a model with the help of SPSS to validate study.

II. STUDY AREA

The state of Jammu and Kashmir comprising of temperate, cold, arid and hilly areas, is located in the North-Western region of India and faces more complex problems in agriculture development than that of plains due to extreme agro-climatic conditions, topographic situation and numerous other factors. Jammu and Kashmir is known as temperate fruit bowl of India and is bestowed by nature with the production of variety of apples (Delicious, American, Maharaji, Hazratbali, Razakwari, Kesari and others) in considerable quantity. In India majority of cultivated varieties of apple (*Malus domestica*) were introduced by British officers way back in 1865. The horticulture sector of the state of Jammu and Kashmir is spread over an area of 3.70 lakh hectares with an annual production of 19.13 lakh metric tonnes. Apple from Kashmir occupies the dominant position and holds about 70.39 per cent of total apple production in India. Between 1974-75 and 2013-14, the area under apple production has gone up from 46189 hectares to 1432815 hectares. Kashmiri apple has lived up to its reputation for being one of the choicest fruits from among various fruits available in different markets of India.



III. APPLE'S PRODUCTION IN INDIA

Among all the states in India, Jammu and Kashmir ranks first in apple production with a total production of 1348 MTS followed by Himachal Pradesh (412 MTS) and Uttarakhand (123 MTS) during the year 2012-2013.

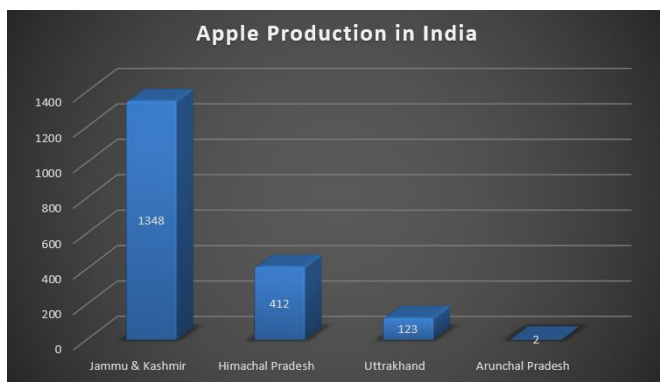


Chart 3.1 Apple Production in India

IV. LITERATURE REVIEW

H.R. Varia(2017), Due to urbanization process developing cities are surrounded by different types of industrial and recreational activities. These activities giving impact on existing road network by increased vehicular trips. It can create traffic congestion, delay, air and noise pollution etc. Hence, it is necessary to estimate these types of vehicular trips generated by industrial or recreational activities. In India few researches have been carried out to develop the industrial trip generation model. Keeping this in view the study is aimed to develop industrial trip generation model for the developing city like Himatnagar. Himatnagar city is facing urbanization

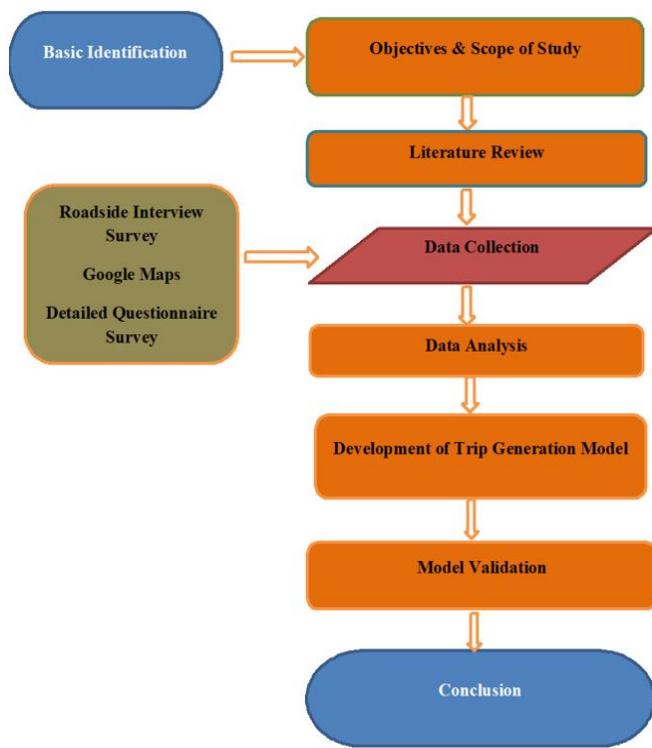
problems due to increased outer growth of the area. Due to ceramic industries, packaging industries, laminates industries, agriculture industries, GIDC, and Sabar Dairy, trips by industrial employees, goods vehicle trips for raw material (in coming trips) and finished material (outgoing trips) creating traffic congestion on existing road network.

H.K. Dave(2017), Freight transportation is very important for development of nation. Generally Freight Transportation on highway is conceded out by trucks. The aim of this paper is to developed truck trip generation model for Gozaria and Visnagar GIDC. The company travel diary survey has been accepted out by company by the survey. The model has been developed using multiple linear regression analysis by Regression Tool of MS Excel, which inaugurates relationship between the daily number of truck trips per day generated by the total floor area of industries, total weight of production in ton and total weight of raw material in tonne. A general model for truck trip generation has been developed. The model result gave an effective value of R2 equal to 0.9421, representative that the explanatory variables included in the model explain 94.21% of the dependent variable. The model also validated by Mehsana GIDC. Accurate predicting of future truck trips using this model can be done. In linear regression analysis, $R^2 = 0.9421$ indicates very good linear relationship. The significant parameters are, total weight of production, total weight of raw material and total floor are of industry for generation of truck trips per day. Total truck trips observed in Gozaria and Visnagar GIDC is 534 /day, out of which 278 are incoming trips/day and 256 are outgoing trips/day. The maximum companies in GIDC are of plastic, stonework, machinery and chemicals.

H.R. Varia(2016), Background/Objectives: The aim of this research work is to determine the factors affecting trip generation for the selected groups of industries within the region and to develop trip generation model. Methods/Statistical Analysis: To develop trip generation model considering all the affecting parameters for the future trips estimation, the industries are classified based on the plot area and numbers of employee. The model has been developed using several regression analyses by means of Statistical Package for the Social Sciences (SPSS), which establishes relationship between numbers of trips each activity produces or attract by the employees and their socioeconomic attributes. Findings: A general model for trip generation has been developed. The model result gave an effective value of R2 equal to 0.99, indicating that the explanatory variables such as area of industries, income of employee, travel distance, travel time and travel cost included in the model explain 99% of the dependent variable. Travel cost and travel time are the main factors affecting trip generation. A more detailed research

work is necessary to use this model for planning purpose. Reliable forecasting of future trips using this model can be done. The following conclusions are made from this study. In this study, trip generation model is developed using linear regression analysis from the collected data, in linear regression analysis, as a dependent variable (Y) total daily one-way industrial trips is consider and as the independent variables (X's) attributes of the firms are consider. Seven industrial estates from the GIDC were used in the analysis. The general trip generation model has reasonable explanatory power with R2 value of 0.99, indicating that the explanatory variables entered into the model explain 99% of the variation in the daily trips per industry.

V. METHODOLOGY & DATA COLLECTION



5.1 ROADSIDE INTERVIEW SURVEY

This interview includes directing vehicles into a designated area and asking a series of sort questions. This technique is widely used and has a very high response rate but sometimes implementation is difficult due to disruption of traffic. In this method investment cost is low but requires high labour and personnel requirements. This method has a broad geographical coverage as it includes vehicles from outside the study area also, but implementation can be for limited locations and hence sampling may be biased.

Table 5.1: Roadside Interview Survey

Sr. No	Origin	Vehicle Type	Carrying	Unladen Weight Of Vehicle	Weight Of Goods	How Full is Your Vehicle	Destination	Next Pick up	How often on this section of road?	Breaks From Driving	Technology
1	Jammu	OGV	Apple	6331 KG	20 Tons	¾ Full	Amritsar	Not Confirm	Once a Week	Yes	Yes
2	Jammu	OGV	Apple	9778 KG	30Tons	Full	Rohiak	Confirm	Once a Week	Yes	No
3	Jammu	OGV	Apple	6331 KG	20 Tons	Full	Dehradun	Not Confirm	Once a Week	Yes	Yes
4	Jammu	OGV	Apple	6331 KG	18 Tons	¾ Full	Kolkata	Not Confirm	Once a Month	Yes	No
5	Jammu	OGV	Apple	6331 KG	20 Tons	Full	Mandi	Confirm	Once a Week	Yes	No
6	Jammu	OGV	Apple	6331 KG	20 Tons	Full	Kolkata	Not Confirm	Once a Week	Yes	Yes

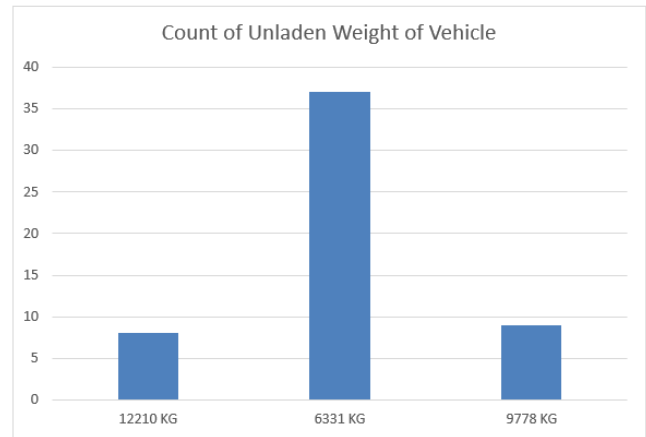


Chart 5.1 Count of Unladen Weight of Vehicle

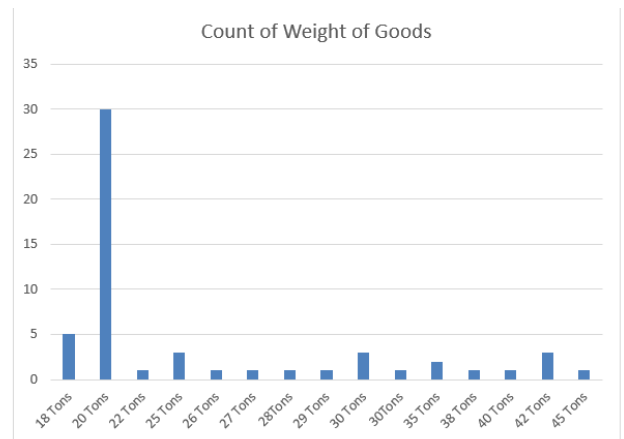


Chart 5.2 Count of Weight of Goods

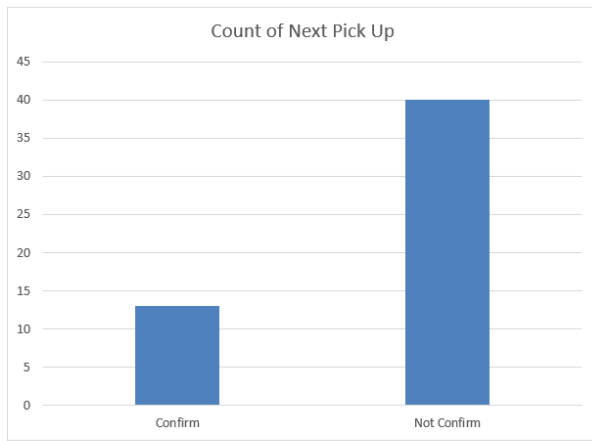
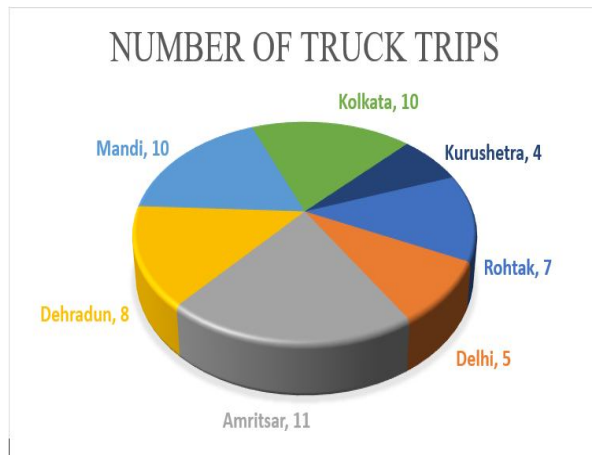


Chart 5.5 Count of Next Pick up

5.2 PIE CHART OF TOTAL TRIPS



VI. GOOGLE MAPS

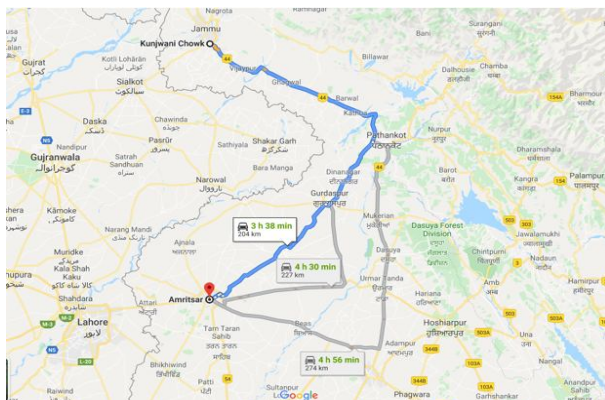


Figure 6.1 Jammu To Amritsar

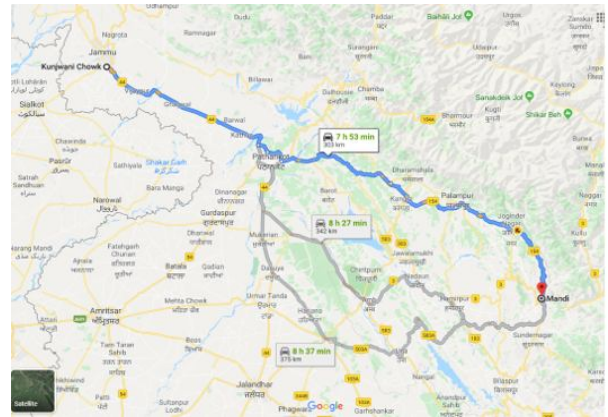


Figure 6.2 Jammu To Mandi

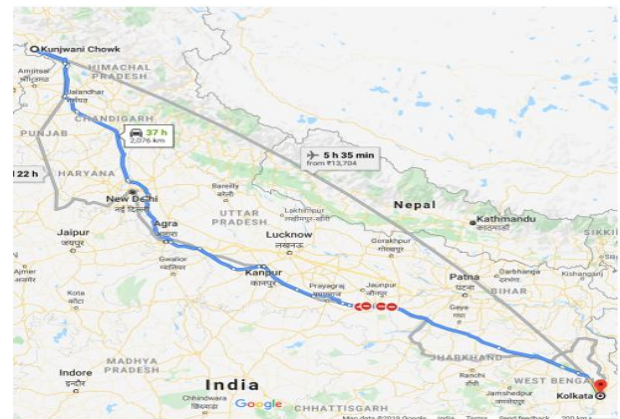


Figure 6.3 Jammu To Kolkata

VII. CONCLUSION

This is the first survey of my Thesis. This is initial stage of my dissertation. The data collected by me is shown in this research paper. The secondary survey is still in progress and further Model validation is still pending. Which I will do in another research paper.

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