



Contents lists available at [ScienceDirect](#)

Data in Brief

journal homepage: www.elsevier.com/locate/dib



Data Article

Distance-decay functions of travel to work trips in India



Rahul Goel

UKCRC Centre for Diet and Activity Research (CEDAR), MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Cambridge, UK

ARTICLE INFO

Article history:

Received 2 January 2018

Received in revised form

6 September 2018

Accepted 30 September 2018

ABSTRACT

In 2011, for the first time, Census in India reported travel distance and mode of travel for the workers. The distance reported is in the form of aggregate counts for each mode of travel in 7 distance bins (0–1 km, 2–5 km, 6–10 km, 11–20 km, 21–30 km, 31–50 km, and > 50 km). In this data article, methods are described to model categorical count data as distance-decay functions using continuous probability distributions. The distributions have been developed for 8 categories of modes—walk, cycle, motorised two-wheelers, car, tempo/auto rickshaw/taxi, bus, train, and all modes combined, for the 33 mainland states of India and all states combined. Distance for walk is modelled using exponential distribution, and for all the other modes using lognormal or Weibull distribution. For estimating parameters of the distributions, chi-square minimization has been used in a spreadsheet program. The data presented includes parameters of the 272 (34×8) probability distributions as well as descriptive statistics of these distributions.

© 2018 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Specifications table

Subject area *Civil Engineering*
More specific subject area *Transportation Planning*

DOI of original article: <https://doi.org/10.1016/j.aap.2017.12.019>

E-mail address: rg574@medschl.cam.ac.uk

<https://doi.org/10.1016/j.dib.2018.09.096>

2352-3409/© 2018 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Type of data	<i>Tables</i>
How data was acquired	<i>Census of India website</i>
Data format	<i>Table in document and Supplementary csv files</i>
Experimental factors	
Experimental features	<i>Fitting of parametric probability distributions on categorical count data</i>
Data source location	<i>33 states of India</i>
Data accessibility	<i>Data in the article and Supplementary material</i>

Value of the data

- The data presented in this article includes the parameters of distance decay functions for 8 categories of travel modes in the forms of exponential, lognormal or Weibull distributions
 - The data also includes descriptive statistics of travel distance for each mode in the 33 mainland states of India
 - This is the first such travel-related data available for the whole of India
 - The data will find use in multiple transport-related research as well as policy making, and the method described is generic and can be applied to estimate distance-decay functions at district level
-

1. Data

The commute distance data reported by the census is in the form of aggregate counts of workers classified into 7 distance bins for each mode. The count data will be modelled as continuous probability distribution functions to estimate mean distance travelled by each mode in each state. The data presented has been used for developing an accident prediction model for the states of India [5].

2. Materials and methods

In 2011, India had 28 states and 7 Union Territories (UTs). While the former has their own elected governments at the state levels, the latter are governed directly by federal government, and are usually much smaller in size than the states. The average population of the UTs is 2.9 million while that of the states is 41 million. Two of the UTs are islands, Andaman and Nicobar Island in the east and Lakshadweep in the west, and contribute 0.04% of the total population of the country. These were excluded from this analysis. The remaining 28 states and 5 UTs will be referred to as 33 states henceforth. In addition, the analysis includes all states combined, referred to as India.

Census in independent India has been conducted every decade from 1951 using personal interviews and covers the whole population. In 2011, Census introduced two questions regarding the commute of workers [1]. The two questions on commuting included mode of travel and one-way distance (in kilometres) from residence to place of work. There are 9 options for the travel modes: (1) walk, (2) cycle, (3) moped/scooter/motorcycle, (4) car, (5) tempo/auto rickshaw/taxi, (6) bus, (7) train, (8) water transport, and (9) any other, and an option of 'No travel'. Category 3 is referred to as motorised two-wheelers (2W), and category 5 as para-transit modes or Intermediate Public Transport (IPT) such as three-wheeled auto rickshaws, common across India (for their description see [6,9]).

These questions were asked from a subset of all the workers—the category called 'other workers'. These are defined as the workers other than those involved in economic activities such as cultivation, agriculture labour, or a household-based industry. Within urban areas, the workers are classified as working in a household-based industry if the business is conducted by the household members within the premises of their household. In rural areas, workers are classified as household-based if the industry is conducted within the village. If the person was engaged in more than one economic

Download English Version:

<https://daneshyari.com/en/article/11009411>

Download Persian Version:

<https://daneshyari.com/article/11009411>

[Daneshyari.com](https://daneshyari.com)