Stochastic Models (Online)

Assignment 1

Set: September 19th, 2016.
Due: October 5th, 2016

Data

Data were collected on the number of houses in 1200 small (equal sized) areas in Japan. The number of houses per region were as follows:

Number	Frequency
0	584
1	398
2	168
3	35
4	9
5	4
7	1
9	1

We want to find a suitable model for the number of houses per region.

Assignment

1. (a) Find a method of moments estimate of the Poisson-Gamma model parameters.

   (b) Fit the Poisson-Gamma model to the data using maximum likelihood.

   (c) Fit the Poisson model to the data using maximum likelihood.

   (d) Explain whether the Poisson or Poisson-Gamma model provide a better model for the data.

   (e) Propose a method for assessing the fit of the models to the data and compare the method using your method.

Write a concise report on your model and results. Your code can be included in your report. This must be submitted as a single file (pdf, Word, or similar).