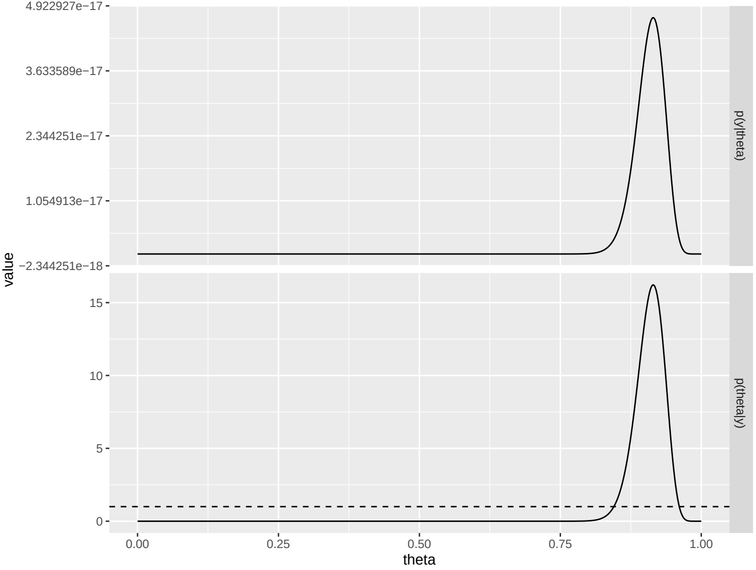
Statistics 360/601 – Modern Bayesian Theory

Alexander Volfovsky

Lecture 5 - Sept 11, 2018

One parameter families



How often do we see Poisson data?

Google

poisson model count data

Scholar

About 400,000 results (**0.12** sec)

Articles

Case law

My library

Any time

Since 2017

Since 2016

Since 2013

Custom range...

Sort by relevance

Sort by date

include patents

include citations

Zero-truncated and zero-inflated models for count data

AF Zuur, EN Ieno, NJ Walker, AA Saveliev… - Mixed effects **models** …, 2009 - Springer

... However, the ZIP **model** uses a **Poisson distribution** for the counts, and the ordinary **P**
GLM applied on **...** If the overdispersion in a **Poisson GLM** is caused by the excessive nun
zeros, then the **...** is not caused by the zeros, then the ZIP is not the appropriate **model** eith

Cited by 7587 Related articles All 14 versions Cite Save More

[HTML] **Differential expression analysis for sequence count data**

S Anders, W Huber - Genome biology, 2010 - genomebiology.biomedcentral.com

... Thus, the **count** value K ij , conditioned on R ij = r ij , is **Poisson** distributed with rate s j
in Equation (3). Furthermore, if the higher moments of R ij are modeled according to a gam
distribution, the marginal **distribution** of K ij is **...** The **model** has three sets of parameter

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Econometric models based on count data. Comparisons and applica some estimators and tests

AC Cameron, PK Trivedi - Journal of applied econometrics, 1986 - Wiley Online Library

... Var(y, I X,, 8) = p1 + up!, for given I where the **distribution** for y, under HA may not nece
be **...** HA, the value 1 = 1 corresponds to the Negbin I **model** and I = 2 to the Negbin I1 **mo**
the variance of y, equals pl when y, is **Poisson** distributed, tests of H a against HA are **...**

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Poisson data example

- Problem of interest: understand different causes of death

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- Specific problem: studying the asthma mortality rate

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- Specific problem: studying the asthma mortality rate
- (Why? Policy implications for pollution caps?)
- Studying a single city with population 200,000
- Object (parameter) of interest: asthma mortality per 100,000
- Observed data: 3 deaths in the city.
- Crude estimate: 1.5 deaths per 100,000.

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- $y = 3$, $x = 2$ and θ is unknown.

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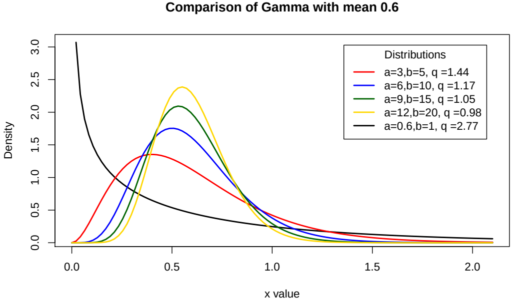

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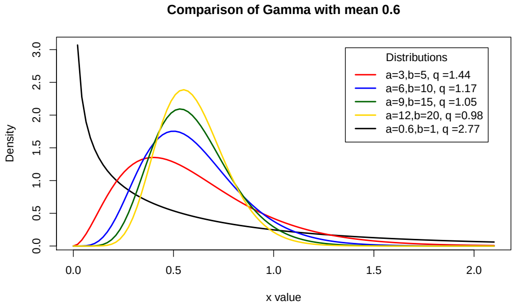

- (What did we do? Set the prior mean $\alpha/\beta = 0.6$ and play with the parameters)

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- Posterior is given by $Gamma(\alpha + y, \beta + x)$
- In this data example the posterior is $Gamma(6, 7)$
- Posterior mean is 0.86, shrinking the data substantially towards the global mean.