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Contents

Poisson and Negative Binomial Regression

> *Poisson regression* models count variables that assumes poisson distribution. When the count variable is over dispersed, having to much variation, *Negative Binomial* regression is more suitable.

Introduction

A count variable is something that can take only non-negative integer values. Some examples of count variables could be: 1. Number of vehicles manufactured. 1. Number of phone calls arriving at a call center. 1. Number of patents granted.

How to Implement Poisson Regression?

Poisson regression can be implemented in a similar manner as other *Generalised Linear Models (GLMs)*, by adjusting the family argument to `poisson`.

```
library (MASS)
poissonModel <- glm(countResponse ~ pred1 + pred2, family="poisson", data=inputData) # p
oisson Model
summary (poissonModel) # model summary
predict(poissonModel, newdata, type="response") # predict on new data
```

How to Implement Negative Binomial Regression?

```
library (MASS)
negBinomModel <- glm.nb(countResponse ~ pred1 + pred2, data = inputData)) # negative Bin
omial model
summary (negBinomModel) # Model summary
predict (negBinomModel, newdata, type="response") # predict on new data
```