Diffusion Curve Generator Output

21 October, 2019

# 1. Introduction

These results are produced by diffusion curve generator hosted at [insert URL] and developed by The University of Sheffield. The method underpinning the calculations is based on a paper by Sabine Grimm (see citation information at the end of this report)

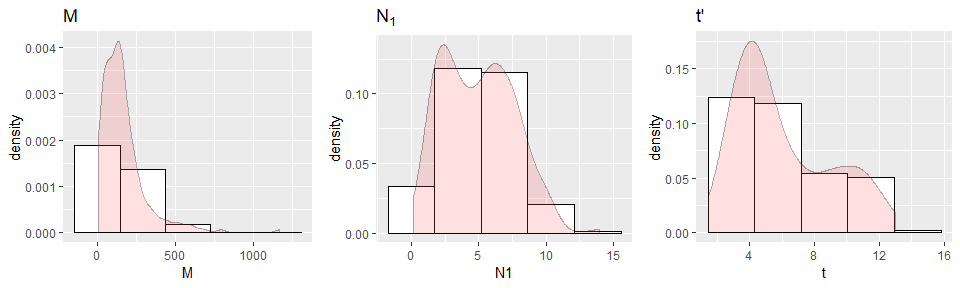
The method takes probability distributions for three diffusion parameters to generate curves based on the Bass Model of Product Diffusion. The parameters, , and , represent the maximum number of adoptions attained, the number of adoptions in the first year and the time at which the rate of diffusion reduces, respectively.

# 2. Elicitation Input

Input distributions

## Expert M N1 t'  
## 1: Expert A Gamma(3.03, 0.06) Gamma(4.19, 1.88) Gamma(22.21, 4.36)  
## 2: Expert B Gamma(12.37, 0.08) Gamma(5.08, 0.91) Gamma(38.27, 3.84)  
## 3: Expert C Gamma(2.81, 0.01) Gamma(11.1, 1.67) Gamma(14.35, 4.06)

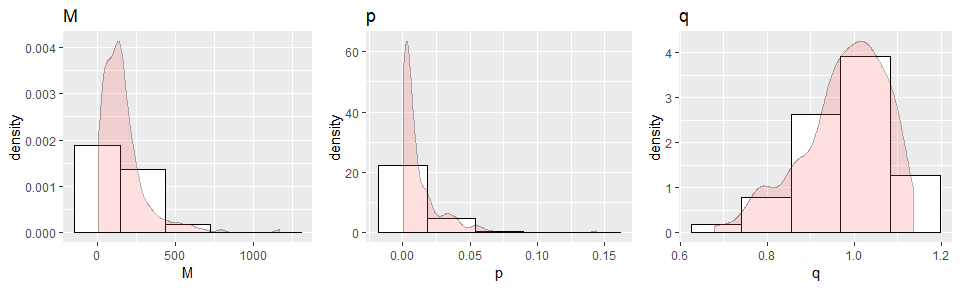
Distributions of the input parameters (200 samples). The parameters were sampled from mixture distributions.



Summary of sample input parameters

## M N1 t   
## Min. : 7.017 Min. : 0.133 Min. : 1.478   
## 1st Qu.: 72.692 1st Qu.: 2.666 1st Qu.: 3.751   
## Median : 134.970 Median : 4.956 Median : 4.907   
## Mean : 165.216 Mean : 4.971 Mean : 6.039   
## 3rd Qu.: 202.861 3rd Qu.: 6.980 3rd Qu.: 8.267   
## Max. :1166.054 Max. :13.976 Max. :12.974

# 3. Parameter fitting

Distributions of the fitted parameters (200 samples). 

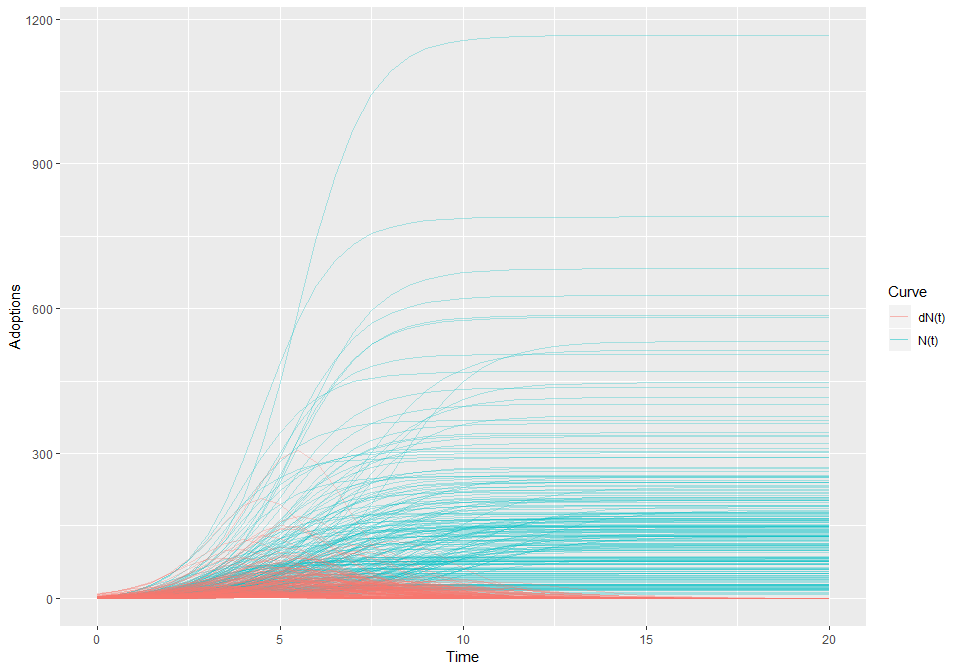
Summary of sample input parameters

## M p q   
## Min. : 7.017 Min. :0.0002257 Min. :0.6789   
## 1st Qu.: 72.692 1st Qu.:0.0019630 1st Qu.:0.9314   
## Median : 134.970 Median :0.0054897 Median :0.9912   
## Mean : 165.216 Mean :0.0117778 Mean :0.9774   
## 3rd Qu.: 202.861 3rd Qu.:0.0156785 3rd Qu.:1.0475   
## Max. :1166.054 Max. :0.1439144 Max. :1.1351

# 4. Generated diffusion curves

Generated diffusion curves.

* Number of cumulated adoptions at
* New adoptions at



Average curves (median)

## Time N dN  
## 0 0.00 0.62  
## 2 3.71 4.06  
## 4 22.93 14.07  
## 6 64.35 17.75  
## 8 96.38 11.03  
## 10 121.94 1.77  
## 12 129.95 0.25  
## 14 133.64 0.03  
## 16 134.63 0.00  
## 18 134.90 0.00  
## 20 134.96 0.00

## Reference

Grimm SE, Stevens JW, Dixon S. Estimating Future Health Technology Diffusion Using Expert Beliefs Calibrated to an Established Diffusion Model. Value Health. 2018 Aug;21(8):944-950.