Trabajo Estadística Bayesiana

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Francisco Villarroel¶

2022-08-26

Introducción

HOLA ESTE ES UN TRABAJO MUY BACán

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

Driff Diffution model

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.ç

Explicación del experimento

Se observó el comportamiento de veinte personas mientras participaban en un juego de ruleta. Su tarea era apostar por uno de los dos colores (naranjo o celeste). Cada uno de los colores se identifica con la probabilidad de obtener un premio determinado. Algunas ruletas cuentan con un área gris (máscara) que oculta el verdadero color de la sección (ambigüedad).

#Modelación

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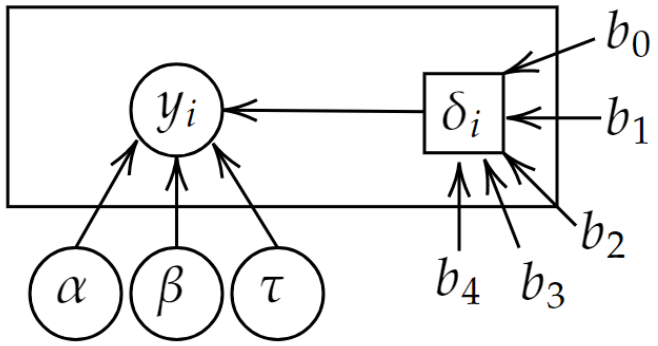
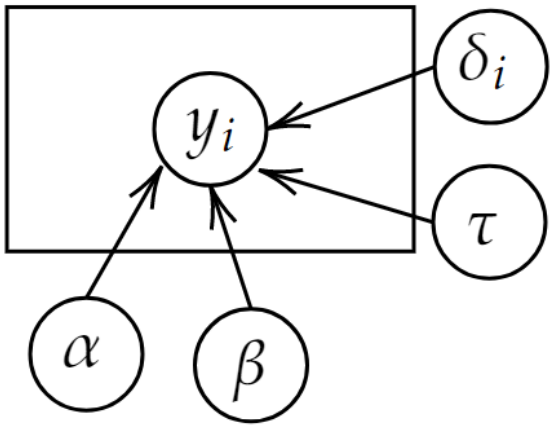


$$y_i \sim \ wiener\ (\alpha, \beta, \tau, \delta_i)$$
$$\delta_i = f(p, o)$$
$$\alpha \sim unif$$
$$\beta \sim unif$$
$$\tau \sim unif$$
$$b \sim norm(\mu, \sigma)$$



$$y_i \sim wiener(\alpha, \beta, \tau, \delta)$$
$$\delta_i = unif$$
$$\alpha \sim unif$$
$$\beta \sim unif$$
$$\tau \sim unif$$

Resultados - Modelos y tablas sumarias

Modelo 1

$$Y_{(ij)} \sim \text{ Wiener } (\alpha_{(ij)}, \beta_{(ij)}, \tau_{(ij)}, \delta_{(ij)})$$

Este modelo supone una distribucion Wiener dependiente de los parámetros alfa, beta, tay y delta en función de los sujetos estudiados y los *trials*.

Table 1: Media de los parámetros modelados

Modelo 1					
Parámetro	A	B	C	D	E
α	0.76461	0.9084	0.92244	0.93057	0.95987
β	0.46303	0.51041	0.49342	0.5304	0.54067
τ	0.0045092	0.0081149	0.001054	0.017666	0.016152
δ	0.66599	0.085327	0.36738	-0.13167	0.26716

Modelo 2

$$Y_{(ij)} \sim \text{Wiener}(\alpha_{(ij)}, \beta_{(ij)}, \tau_{(ij)}\delta_{(p_{ij}, o_{ij})})$$

Al igual que el modelo 1 se contemplan los mismos parámetros, con la excepción que el parámetro delta depende linealmente de la probabilidad y del premio normalizado

[chantar toda la wea de graficos y tablas acá]

Table 2: Media de los parámetros modelados

Modelo 2					
Parámetro	A	B	C	D	E
α	0.88527	0.9671	0.96805	0.95355	0.9938
β	0.45883	0.502	0.49792	0.52661	0.53689
τ	0.0021536	0.0061823	0.00085613	0.016333	0.015132
b_0	11.642	6.8589	5.3276	3.0593	2.7807
b_1	-13.817	-7.7817	-5.7075	-2.9145	-1.3458
b_2	-8.503	-5.3981	-4.3687	-3.2749	-4.0697

Modelo 3

$$Y_{(ij)} \sim \text{Wiener}(\alpha_{(ij)}, \beta_{(ij)}, \tau_{(ij)}, \delta_{(p_{ij}, o_{ij})})$$

En esta weá p y o dependen cuadráticamente

[chantar toda la wea de graficos y tablas acá]

Table 3: Media de los parámetros modelados

Modelo 3					
Parámetro	A	B	C	D	E
α	0.88881	0.96849	0.97048	0.95588	0.9952
β	0.45816	0.50246	0.49924	0.5284	0.53707
τ	0.0021119	0.0061697	0.0010137	0.016375	0.015178
b_0	10.486	6.9346	4.8691	1.8444	2.3766
b_1	-10.635	-7.3161	-2.0708	-0.16917	1.3034
b_2	-5.3338	-6.343	-6.2612	0.36938	-5.0773
b_3	-3.264	-0.47105	-3.4009	-2.7109	-2.5218
b_4	-3.2369	0.94515	2.0646	-3.6848	1.1816

Modelo 4

$$Y_{(ij)} \sim \text{Wiener}(\alpha_{(ij)}, \beta_{(ij)}, \tau_{(ij)}, \delta_{(p_{ij})})$$

sólo p depende cuadráticamente

Table 4: Media de los parámetros modelados

Modelo 4					
Parámetro	A	B	C	D	E
α	0.83153	0.93395	0.94481	0.93427	0.96406
β	0.46895	0.50739	0.49798	0.52976	0.53892
τ	0.0029797	0.0070839	0.0011369	0.017322	0.015736
b_0	2.5307	2.1188	0.92531	0.34464	-0.76552
b_1	1.7668	-4.2162	2.2647	-0.33574	5.1825
b_3	-8.9003	0.55325	-5.3849	-0.91345	-4.9913

Modelo 5

$$Y_{(ij)} \sim \text{Wiener}(\alpha_{(ij)}, \beta_{(ij)}, \tau_{(ij)}, \delta_{(o_{ij})})$$

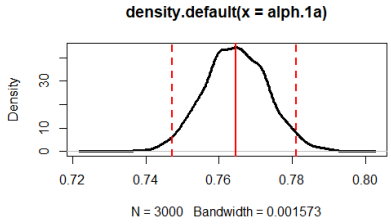
Sólo O depende cuadráticamente

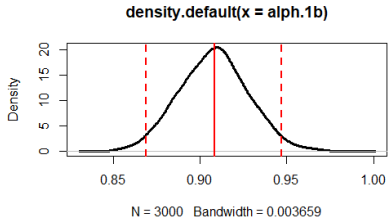
[chantar toda la wea de graficos y tablas acá]

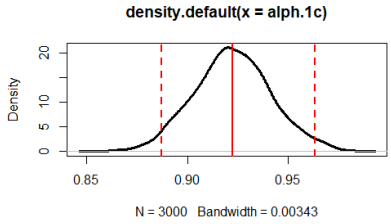
Table 5: Media de los parámetros modelados

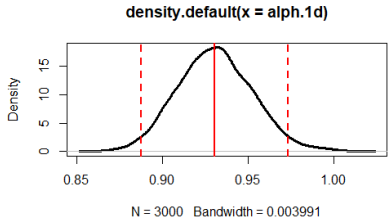
Modelo 5					
Parámetro	A	B	C	D	E
α	0.76539	0.90863	0.92702	0.9406	0.9907
β	0.46397	0.51086	0.49501	0.53197	0.53686
τ	0.0044623	0.0079759	0.0012098	0.017156	0.015165
b_0	0.3456	0.21885	1.6944	-0.073462	2.3286
b_2	0.70658	-0.45442	-5.3103	2.6437	-6.063
b_4	-0.037301	0.27331	4.1839	-4.4153	2.5567

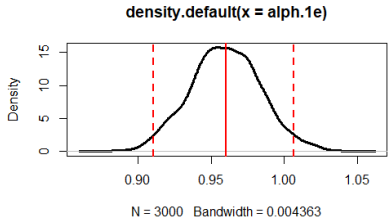
Resultados - análisis de parámetros comparados por modelo



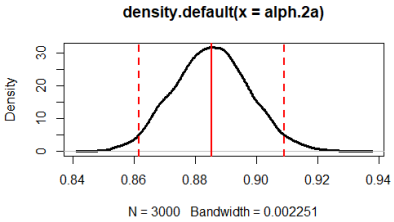


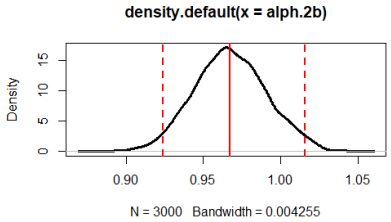


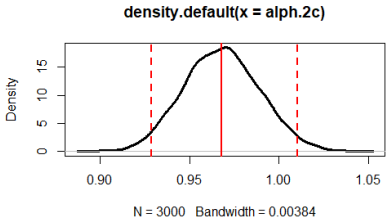


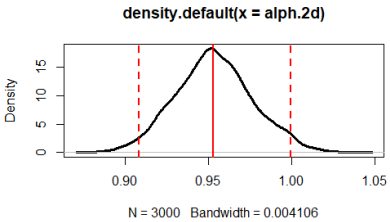


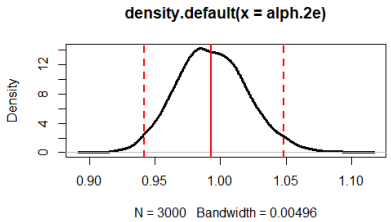
Alfa Modelo 1





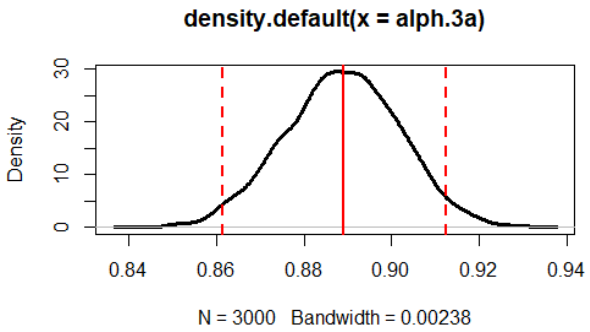


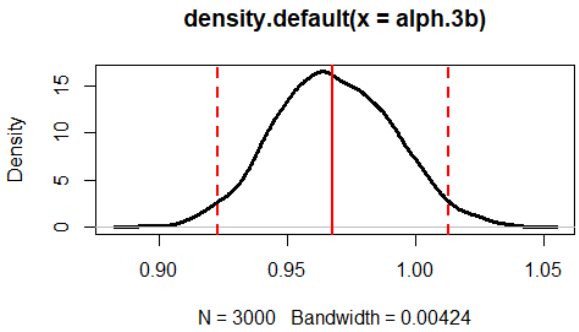


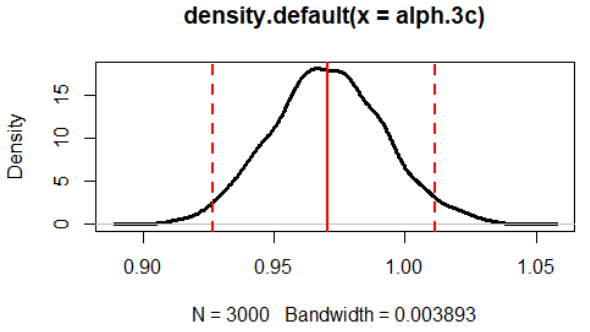


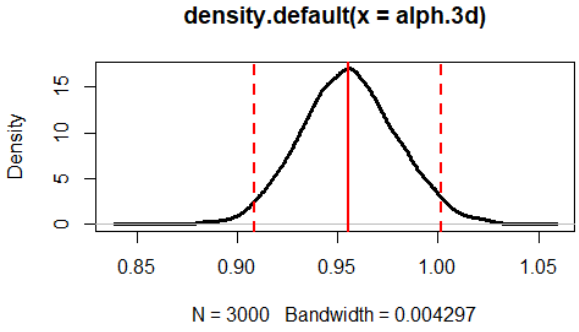
alfa modelo 2

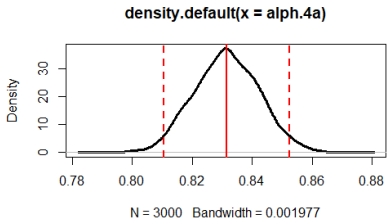
Alfa Modelo 3

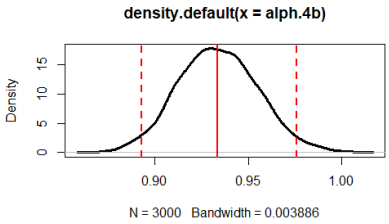


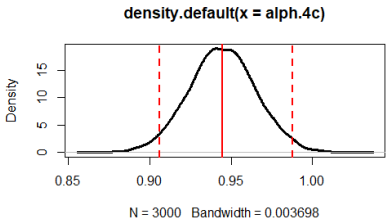


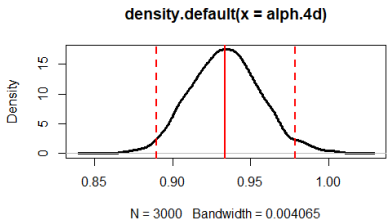


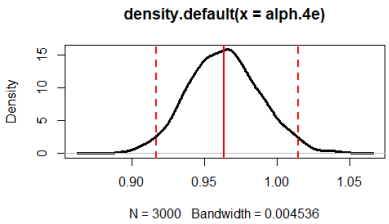












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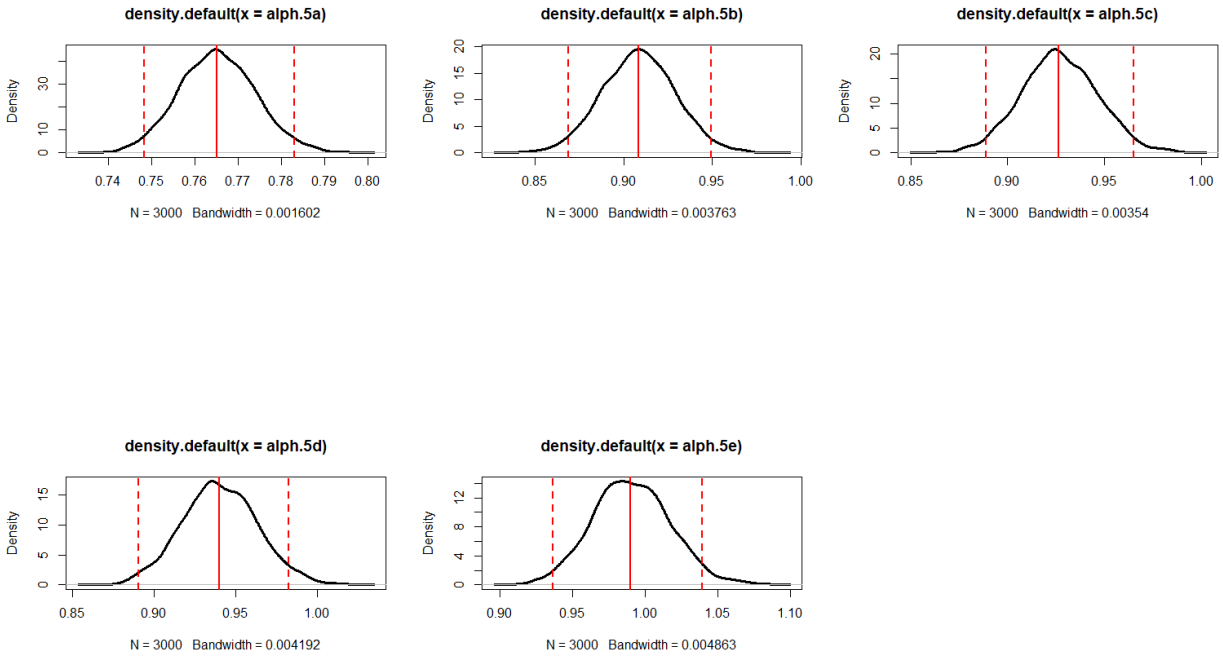
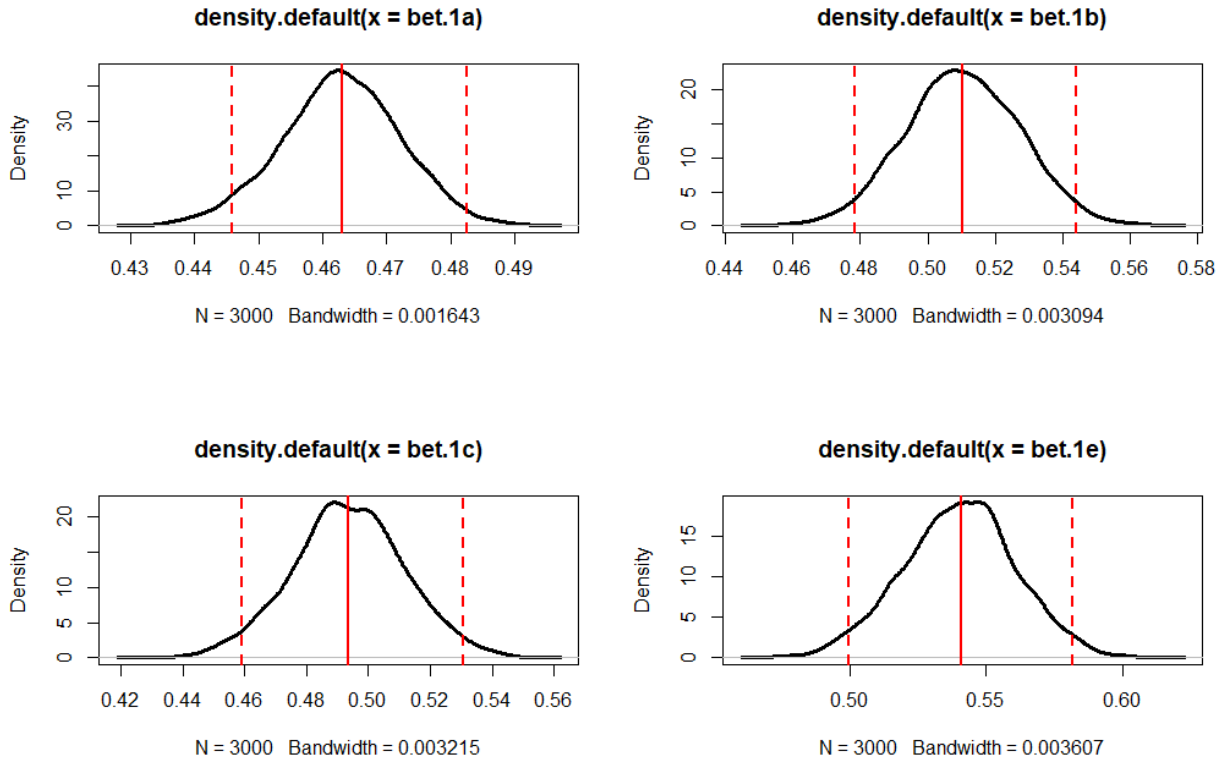


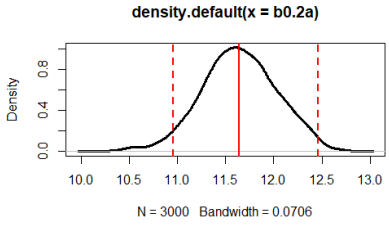
Alfa modelo 5

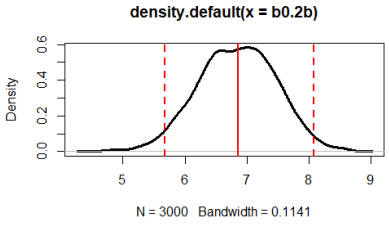
Betas

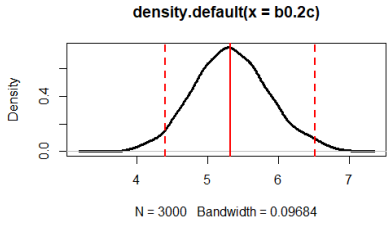


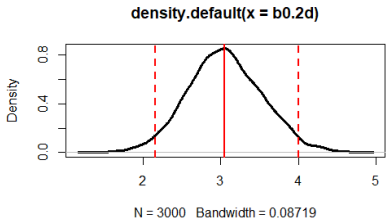
Betas modelo 1

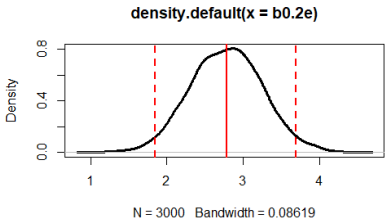
Betas modelo 2

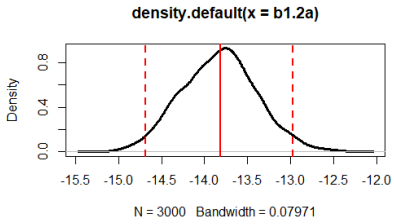


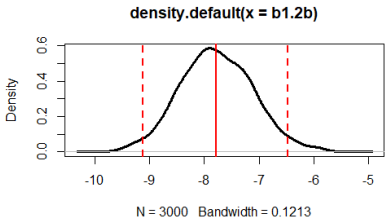


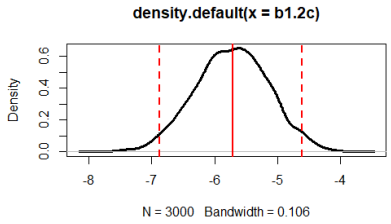


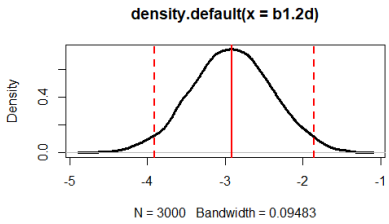


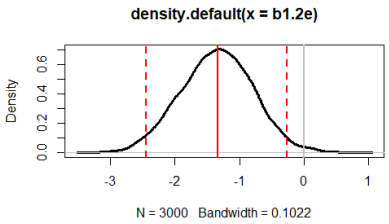


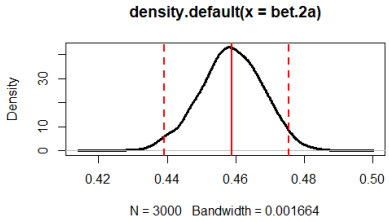








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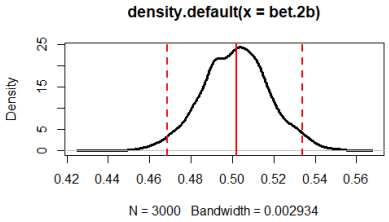
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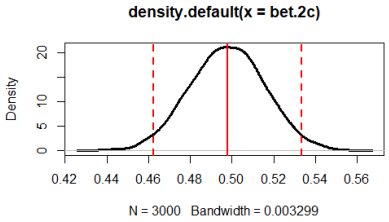
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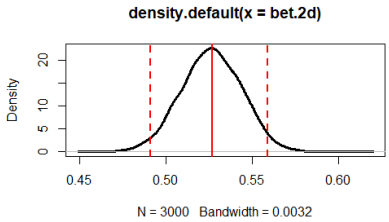
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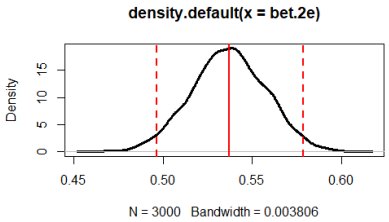
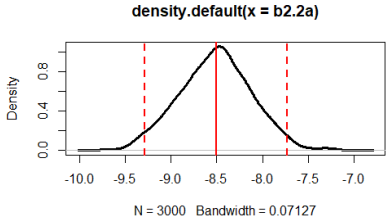
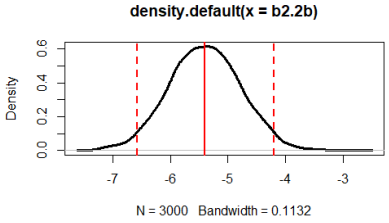
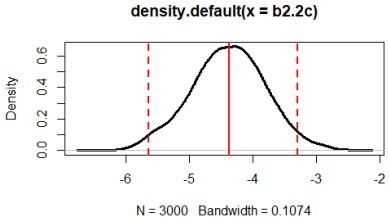
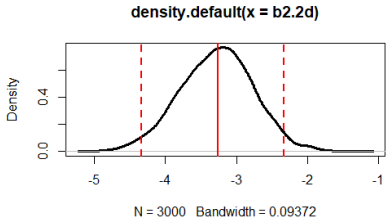
0.50
0.55
0.60
N = 3000 Bandwidth = 0.0032

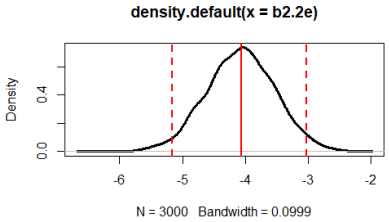

density.default(x = bet.2e)
Density
0
5
10
15
0.45
0.50
0.55
0.60
N = 3000 Bandwidth = 0.003806

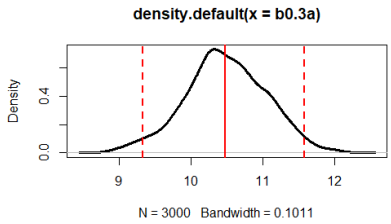

density.default(x = b2.2a)
Density
0.0
0.4
0.8
-10.0
-9.5
-9.0
-8.5
-8.0
-7.5
-7.0
N = 3000 Bandwidth = 0.07127

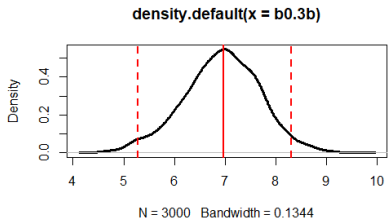

density.default(x = b2.2b)
Density
0.0
0.2
0.4
0.6
-7
-6
-5
-4
-3
N = 3000 Bandwidth = 0.1132

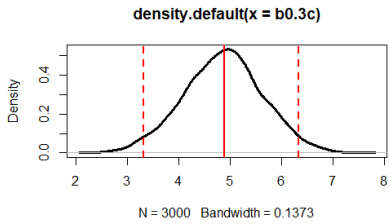

density.default(x = b2.2c)
Density
0.0
0.2
0.4
0.6
-6
-5
-4
-3
-2
N = 3000 Bandwidth = 0.1074

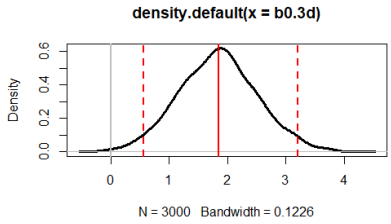

density.default(x = b2.2d)
Density
0.0
0.4
-5
-4
-3
-2
-1
N = 3000 Bandwidth = 0.09372

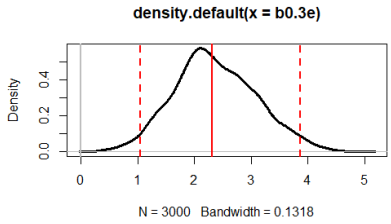

density.default(x = b2.2e)
Density
0.0
0.4
-6
-5
-4
-3
-2
N = 3000 Bandwidth = 0.0999



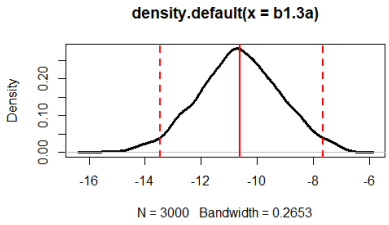


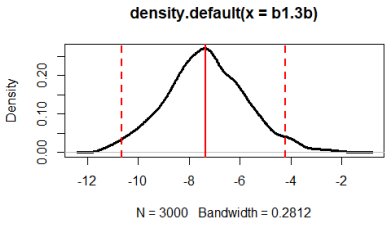


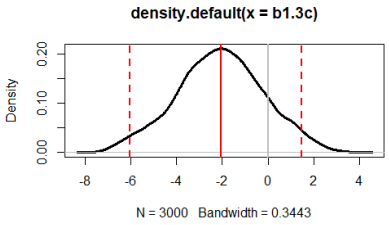


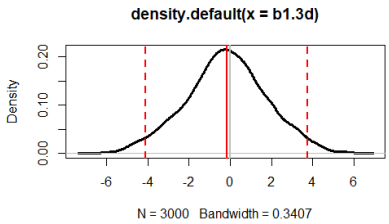


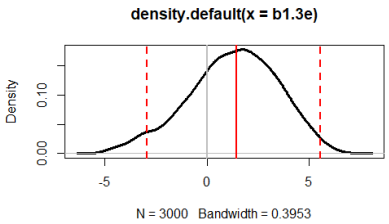
Betas modelo 3

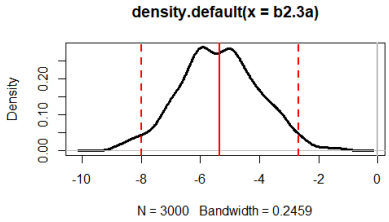


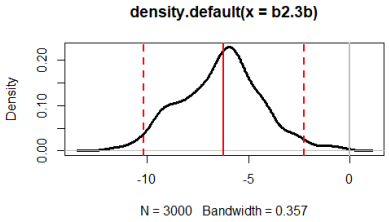


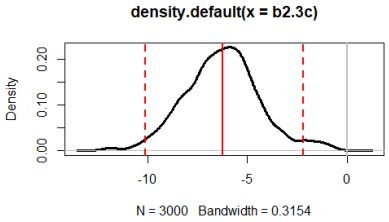


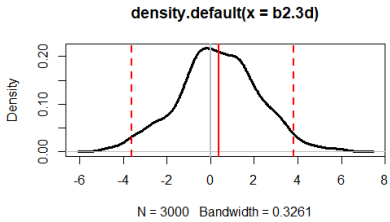


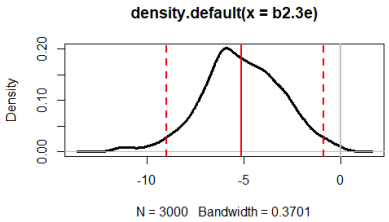


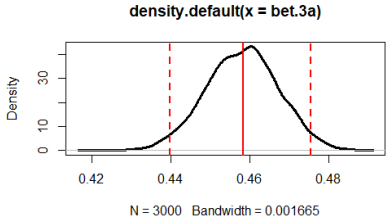

density.default(x = b2.3a)
Density
0.00
0.10
0.20
-10
-8
-6
-4
-2
0
N = 3000 Bandwidth = 0.2459

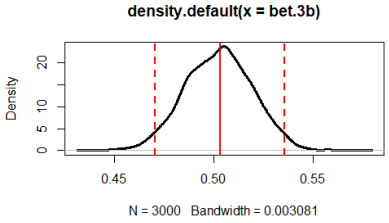

density.default(x = b2.3b)
Density
0.00
0.10
0.20
-10
-5
0
N = 3000 Bandwidth = 0.357

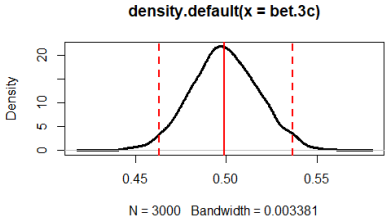

density.default(x = b2.3c)
Density
0.00
0.10
0.20
-10
-5
0
N = 3000 Bandwidth = 0.3154

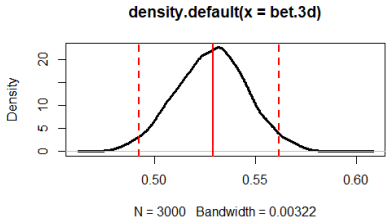

density.default(x = b2.3d)
Density
0.00
0.10
0.20
-6
-4
-2
0
2
4
6
8
N = 3000 Bandwidth = 0.3261

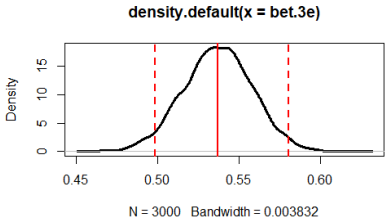

density.default(x = b2.3e)
Density
0.00
0.10
0.20
-10
-5
0
N = 3000 Bandwidth = 0.3701

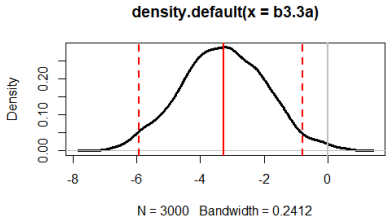

density.default(x = bet.3a)
Density
0
10
30
0.42
0.44
0.46
0.48
N = 3000 Bandwidth = 0.001665

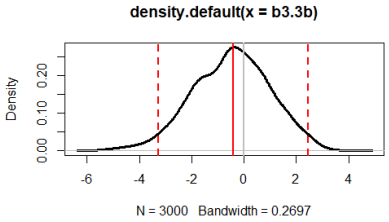

density.default(x = bet.3b)
Density
0
5
10
20
0.45
0.50
0.55
N = 3000 Bandwidth = 0.003081

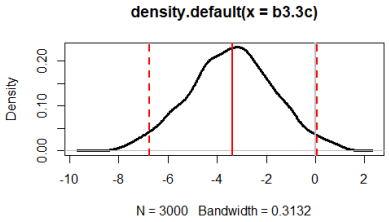

density.default(x = bet.3c)
Density
0
5
10
20
0.45
0.50
0.55
N = 3000 Bandwidth = 0.003381

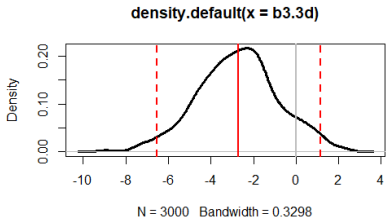

density.default(x = bet.3d)
Density
0
5
10
20
0.50
0.55
0.60
N = 3000 Bandwidth = 0.00322

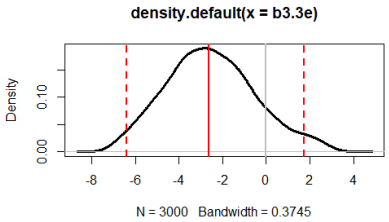

density.default(x = bet.3e)
Density
0
5
10
15
0.45
0.50
0.55
0.60
N = 3000 Bandwidth = 0.003832

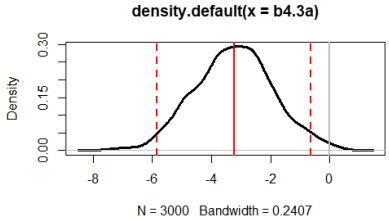

density.default(x = b3.3a)
Density
N = 3000 Bandwidth = 0.2412

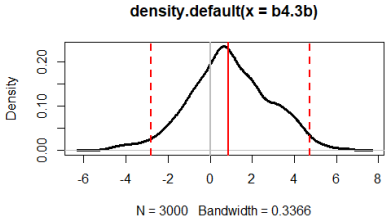

density.default(x = b3.3b)
Density
N = 3000 Bandwidth = 0.2697

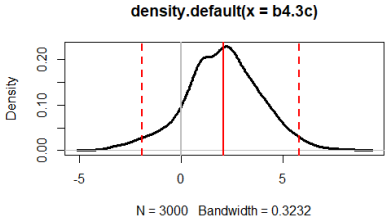

density.default(x = b3.3c)
Density
N = 3000 Bandwidth = 0.3132

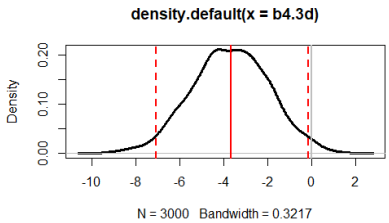

density.default(x = b3.3d)
Density
N = 3000 Bandwidth = 0.3298

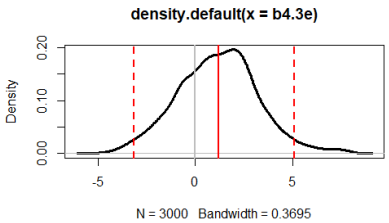

density.default(x = b3.3e)
Density
N = 3000 Bandwidth = 0.3745

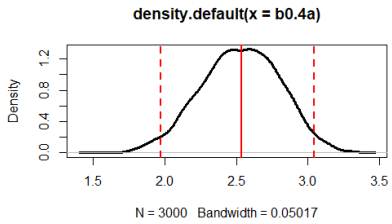

density.default(x = b4.3a)
Density
N = 3000 Bandwidth = 0.2407

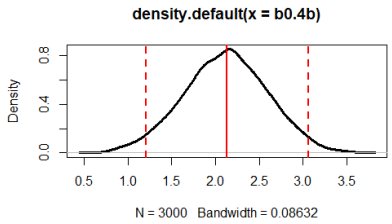

density.default(x = b4.3b)
Density
N = 3000 Bandwidth = 0.3366

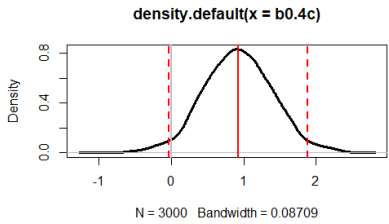

density.default(x = b4.3c)
Density
N = 3000 Bandwidth = 0.3232

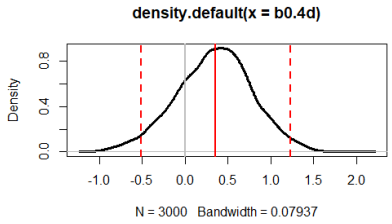

density.default(x = b4.3d)
Density
N = 3000 Bandwidth = 0.3217

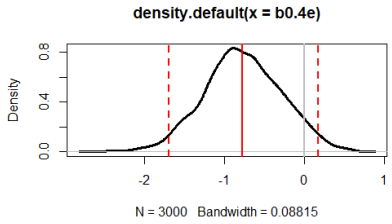

density.default(x = b4.3e)
Density
N = 3000 Bandwidth = 0.3695



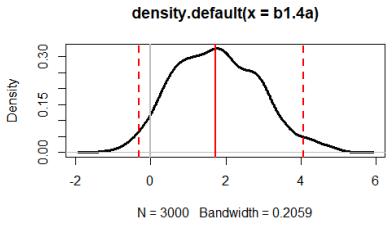


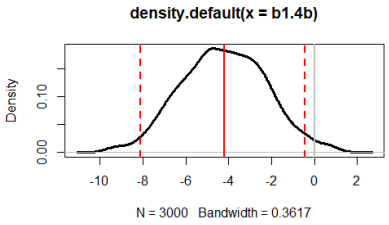


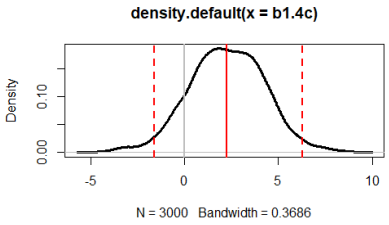


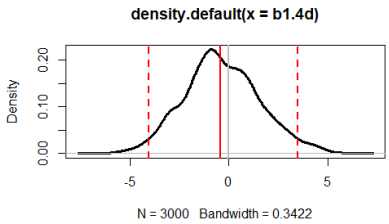


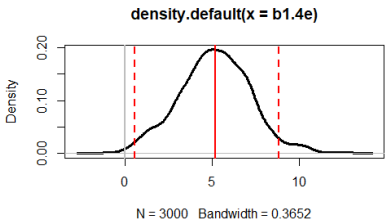
Betas modelo 4

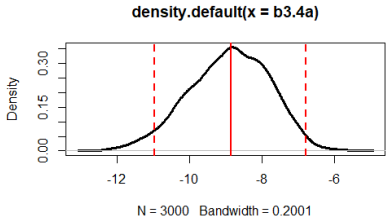








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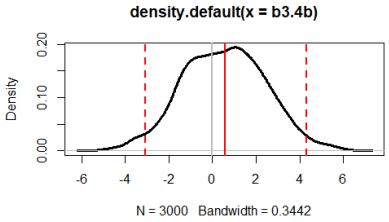
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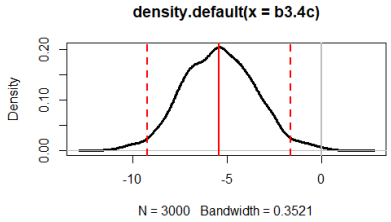
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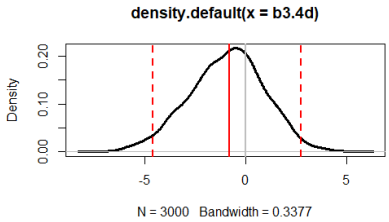
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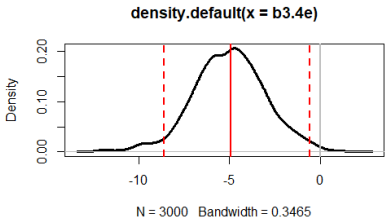
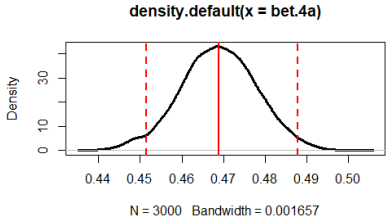

density.default(x = b3.4e)
Density
N = 3000 Bandwidth = 0.3465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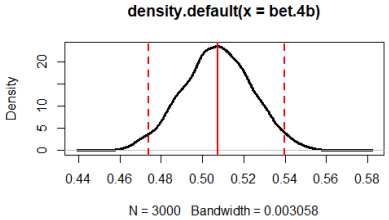
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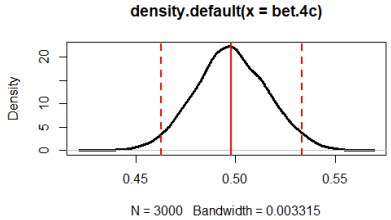
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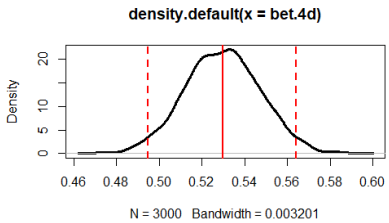
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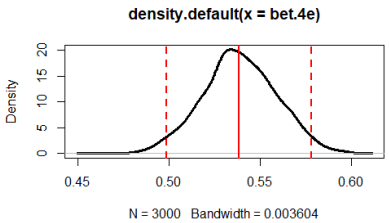
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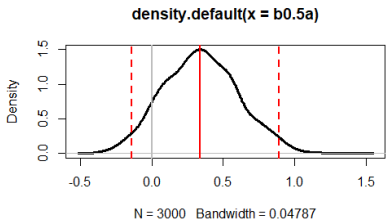
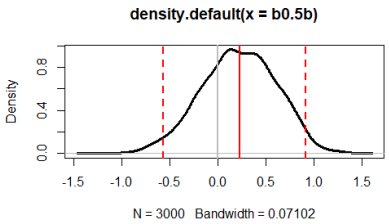
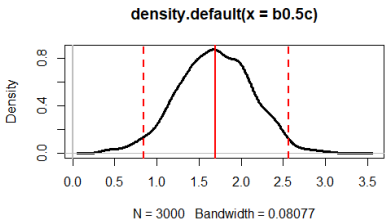
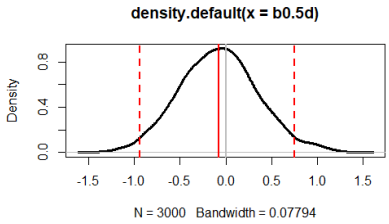
Betas modelo 5

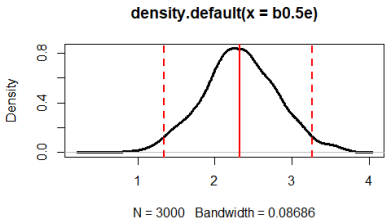
Beta0

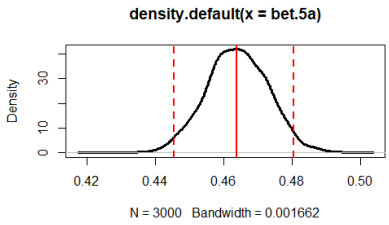


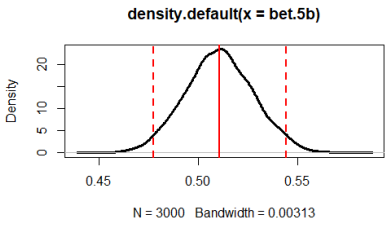


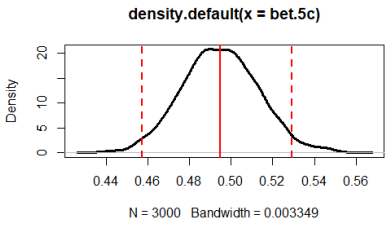


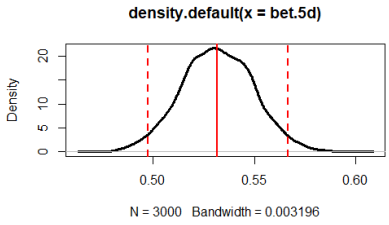


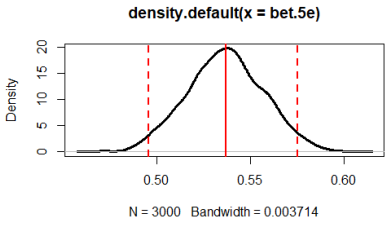


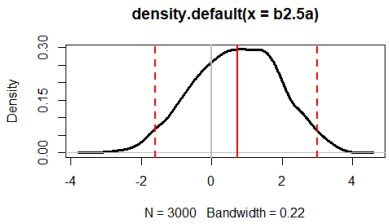








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Density
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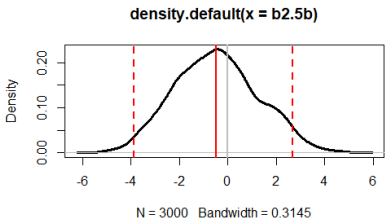
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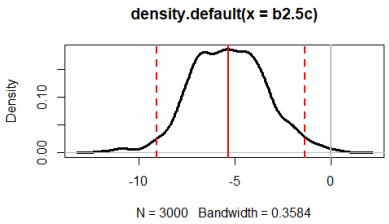
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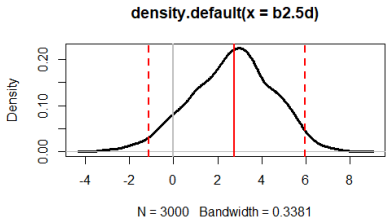
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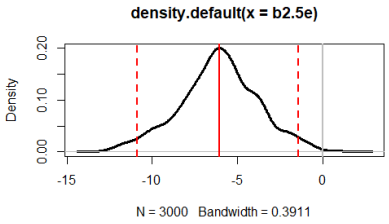
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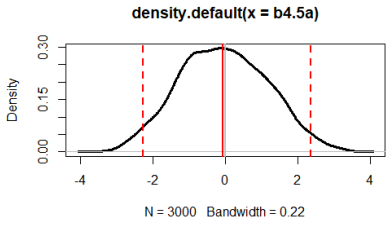
No hay beta3 (???)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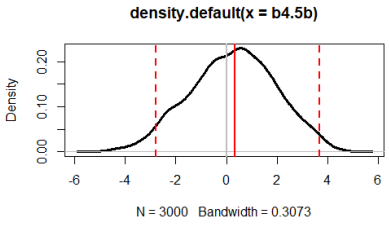
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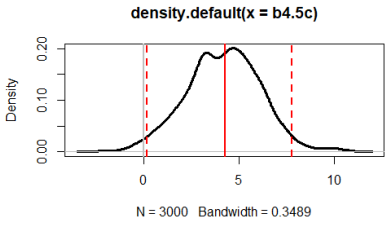
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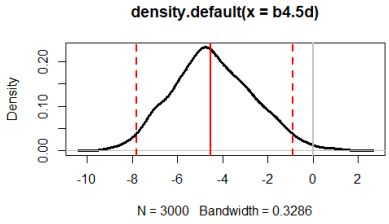
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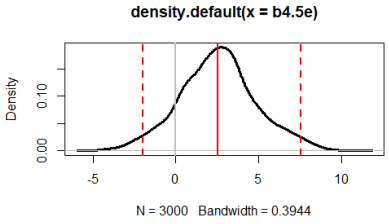
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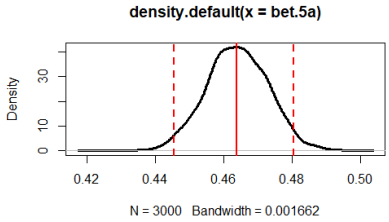
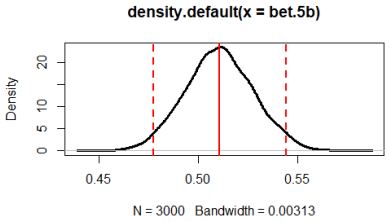
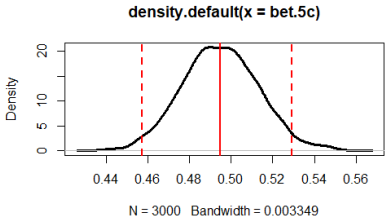
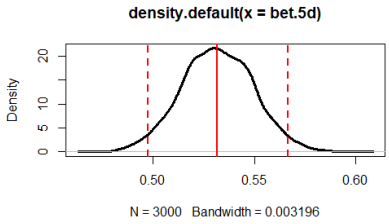
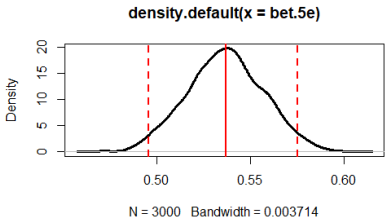




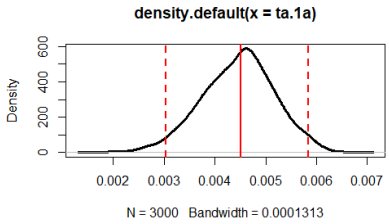


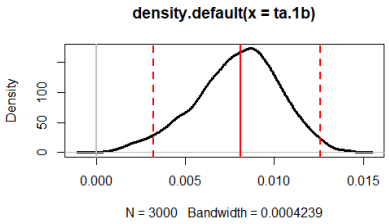


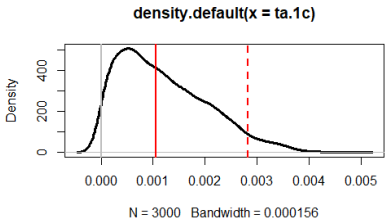


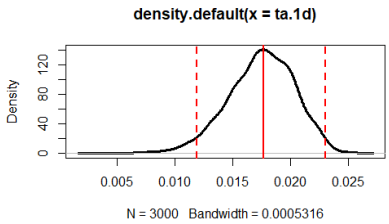
Tau

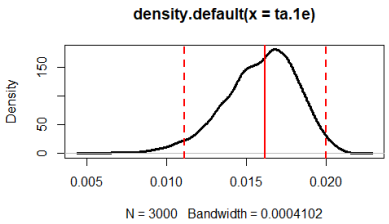
Tau modelo 1



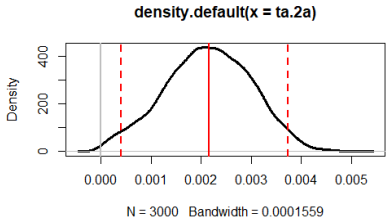


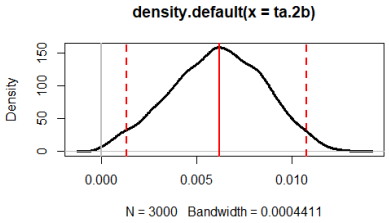


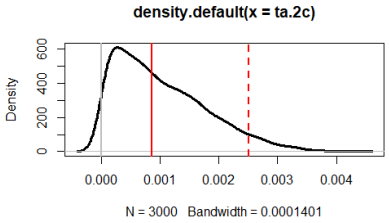


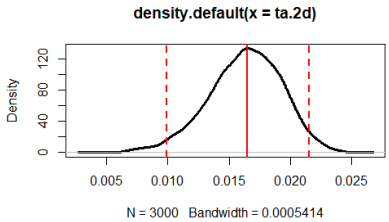


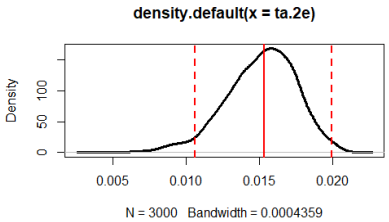
Tau Modelo 2



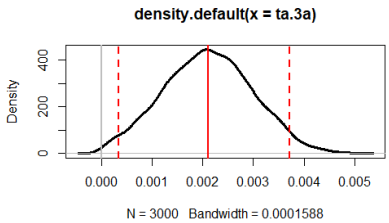


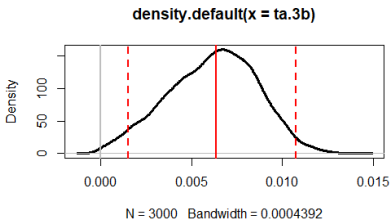


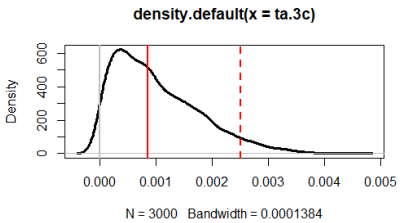


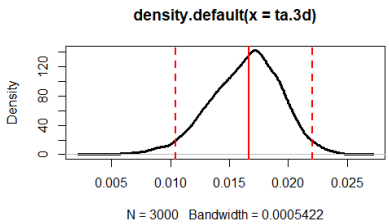


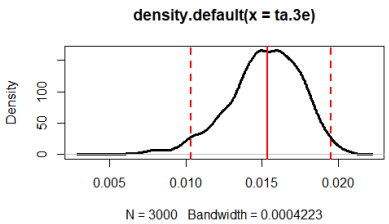
Tau modelo 3



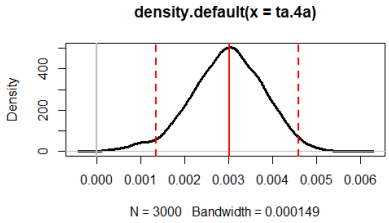


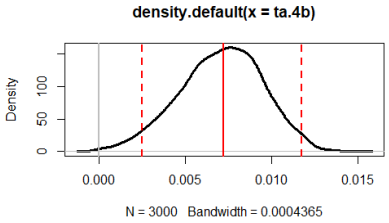


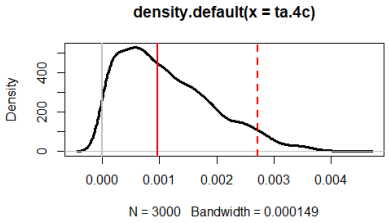


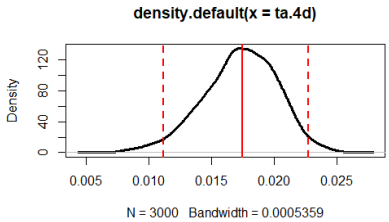


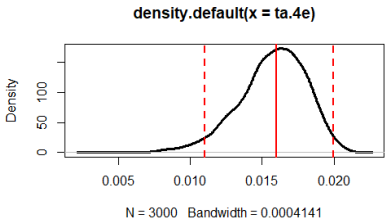
Tau modelo 4



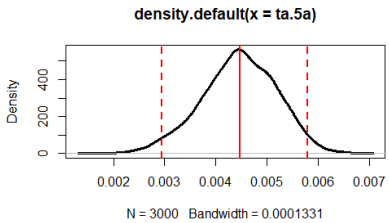


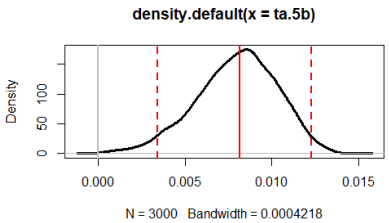


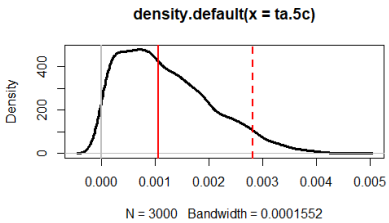


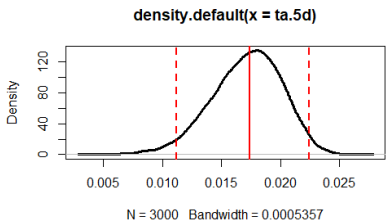


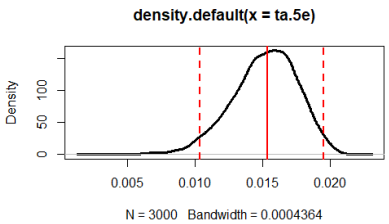
Tau modelo 5



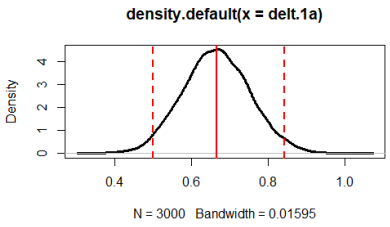


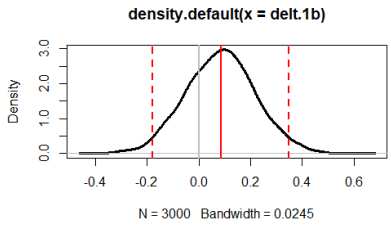


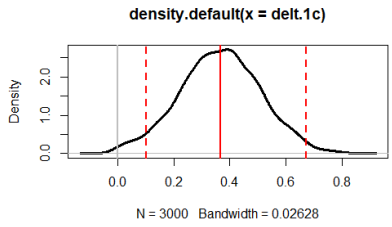


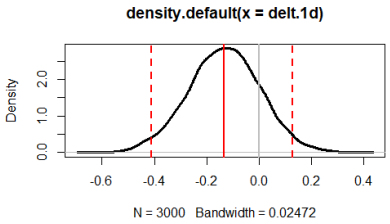


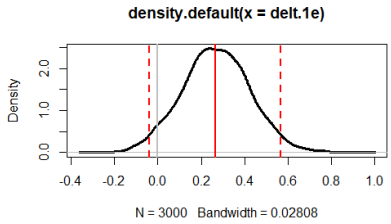
Delta











Delta modelo 1

[chantar toda la wea de graficos y tablas acá]

Comentarios finales