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## 8

### Anexos

Abaixo teremos os anexos com o código SAS utilizado para a modelagem por Modelos Lineares Generalizados e seus resultados, alguns exemplos distribuições pertencentes à família exponencial e os dados dos planos do tipo Benefício Definido e Contribuição Definida na forma triangular.

#### 8.1

#### Modelos Lineares Generalizados (saídas do SAS)

The GENMOD Procedure

Model Information	Value	Label
Description		
Data Set	EU_TESTE_A	
Distribution	POISSON	
Link Function	LOG	
Dependent Variable	SAIDAS_C	SAIDAS_C
Frequency Weight Variable	IMPLANTA	IMPLANTA
Observations Used	96	
Sum Of Frequency Weights	8371	

Class Level Information

Class	Levels	Values
CONTR	3	1.00000 2.00000 3.00000
DIF	4	1.00000 2.00000 3.00000 4.00000
IDADE	2	1.00000 2.00000
PAGTO	2	1.00000 2.00000
SEXO	2	1.00000 2.00000

Criteria For Assessing Goodness Of Fit

Criterion	DF	Value	Value/DF
Deviance	8362	47532.3101	5.6843
Scaled Deviance	8362	8362.0000	1.0000
Pearson Chi-Square	8362	46034.2217	5.5052
Scaled Pearson X2	8362	8098.4526	0.9685
Log Likelihood	.	457169.7785	.

Analysis Of Parameter Estimates

Parameter	DF	Estimate	Std Err	Chi Square	Pr>Chi
INTERCEPT	1	2.7999	0.0164	29295.5952	0.0001
CONTR 1	1	0.2255	0.0118	363.6637	0.0001
CONTR 2	1	0.8862	0.0096	8582.4498	0.0001
CONTR 3	0	0.0000	0.0000	.	.
DIF 1	1	1.2036	0.0147	6718.4156	0.0001
DIF 2	1	1.2347	0.0142	7526.6094	0.0001
DIF 3	1	1.4983	0.0144	10769.0259	0.0001
DIF 4	0	0.0000	0.0000	.	.
IDADE 1	1	-0.0559	0.0058	94.5474	0.0001
IDADE 2	0	0.0000	0.0000	.	.
PAGTO 1	1	-1.0875	0.0116	8748.8001	0.0001

PAGTO	2	0	0.0000	0.0000		
SEXO	1	1	-0.0834	0.0057	214.3223	0.0001
SEXO	2	0	0.0000	0.0000		
SCALE		0	2.3842	0.0000		

NOTE: The scale parameter was estimated by the square root of DEVIANCE/DOF.

#### LR Statistics For Type 1 Analysis

Source	Deviance	NDF	DDF	F	Pr>F	Chi Square	Pr>Chi
INTERCEPT	300226.091	0	8362				
CONTR	212421.807	2	8362	7723.3719	0.0001	15446.7438	0.0001
DIF	118160.381	3	8362	5527.5667	0.0001	16582.7002	0.0001
IDADE	117292.087	1	8362	152.7523	0.0001	152.7523	0.0001
PAGTO	48752.2664	1	8362	12057.6926	0.0001	12057.6926	0.0001
SEXO	47532.3101	1	8362	214.6177	0.0001	214.6177	0.0001

#### LR Statistics For Type 3 Analysis

Source	NDF	DDF	F	Pr>F	Chi Square	Pr>Chi
CONTR	2	8362	7526.6432	0.0001	15053.2865	0.0001
DIF	3	8362	5145.5471	0.0001	15436.6414	0.0001
IDADE	1	8362	94.5386	0.0001	94.5386	0.0001
PAGTO	1	8362	12032.8745	0.0001	12032.8745	0.0001
SEXO	1	8362	214.6177	0.0001	214.6177	0.0001

OBS	PARM	LEVEL1	DF	ESTIMATE	STDERR	CHI SQ	PVAL	REL
1	INTERCEPT		1	2.7999	0.0164	29295.5952	0.0001	16.444
2	CONTR	1	1	0.2255	0.0118	363.6637	0.0001	1.253
3	CONTR	2	1	0.8862	0.0096	8582.4498	0.0001	2.426
4	CONTR	3	0	0.0000	0.0000	.	.	1.000
5	DIF	1	1	1.2036	0.0147	6718.4156	0.0001	3.332
6	DIF	2	1	1.2347	0.0142	7526.6094	0.0001	3.438
7	DIF	3	1	1.4983	0.0144	10769.0259	0.0001	4.474
8	DIF	4	0	0.0000	0.0000	.	.	1.000
9	IDADE	1	1	-0.0559	0.0058	94.5474	0.0001	0.946
10	IDADE	2	0	0.0000	0.0000	.	.	1.000
11	PAGTO	1	1	-1.0875	0.0116	8748.8001	0.0001	0.337
12	PAGTO	2	0	0.0000	0.0000	.	.	1.000
13	SEXO	1	1	-0.0834	0.0057	214.3223	0.0001	0.920
14	SEXO	2	0	0.0000	0.0000	.	.	1.000
15	SCALE		0	2.3842	0.0000	.	.	10.850

Programa SAS:

```
PROC IMPORT OUT= eu.teste
      DATAFILE= "C:\roberta\tese\formata\glm1.dbf"
      DBMS=dbf REPLACE;

run;

PROC CONTENTS DATA=EU.teste;
RUN;

proc univariate data=eu.teste plot;
var saidas_c;
run;

proc genmod data=eu.teste;
class contr dif idade pagto regioa sexo;
make 'obstats' out=eu.obs;
make 'parmest' out=eu.var;
freq implanta;
model saidas_c=contr dif idade pagto regioa sexo
/ dist=poisson
  link=log
  obstats
  dscale
  type1
  type3;
run;

data eu.est;
set eu.var;
  rel=round(exp(estimate),0.001);
run;

proc print data=eu.est;
run;
```

```
data graf1;
set eu.teste;
set eu.obs(keep=pred reschi resdev);
goptions ftext=swiss;
axis1 label=(angle=0 rotate=0 'Num sinistros total estimado')
minor=none;
axis2 label=(angle=0 rotate=0 'Std Residual Deviance')
minor=none;
```

```
proc gplot data = graf1;
plot resdev*pred/overlay
      frame
      haxis=axis1
      vaxis=axis2;
run;
```

```
data graf2;
set graf1;
goptions reset=all;
axis1 label=(angle=0 rotate=0 'Residuos: freq abs total');
run;
```

```
proc gchart data=graf2;
vbar resdev / midpoints=-3.5 to 3.5 by .5
      space=0
      frame
      raxis=axis1;
run;
quit;
```

## 8.2

### Distribuições pertencentes à Família Exponencial

#### Família exponencial com um parâmetro

Uma família de densidades  $f(x, \theta)$ , com um parâmetro  $\theta$ , que pode ser escrita como:

$$f(x, \theta) = a(\theta) b(x) \exp [c(\theta) d(x)] \quad x \in R \text{ e } \theta \in \Theta$$

é definida como pertencente à Família Exponencial.

Exemplo:

Distribuição de Poisson

$$f(x, \lambda) = (e^{-\lambda} \lambda^x) / x! I_{\{0, 1, \dots\}}(x), \text{ onde}$$

$$I_{\{0, 1, \dots\}}(x) = 1 \text{ para } x = 0, 1, \dots \text{ e}$$

$$I_{\{0, 1, \dots\}}(x) = 0 \text{ caso contrário}$$

$$f(x, \lambda) \text{ pode ser escrita como } f(x, \lambda) = e^{-\lambda} [(1/x!) I_{\{0, 1, \dots\}}(x)] \exp (x \log \lambda)$$

Sejam

$$a(\lambda) = e^{-\lambda}$$

$$b(x) = (1/x!) I_{\{0, 1, \dots\}}(x)$$

$$c(\lambda) = \log \lambda$$

$$d(x) = x$$

Tem-se que ,  $f(x, \lambda)$  pertence a família exponencial.

#### Família exponencial com k parâmetros

Uma família de densidades  $f(x, \theta_1, \dots, \theta_k)$ , com k parâmetros  $\theta_1, \dots, \theta_k$ , que pode ser escrita como:

$$f(x, \theta_1, \dots, \theta_k) = a(\theta_1, \dots, \theta_k) b(x) \exp \left[ \sum_{j=1}^k c_j(\theta_1, \dots, \theta_k) d_j(x) \right]$$

é definida como pertencente à Família Exponencial.

Exemplo:

Distribuição Normal

$$\theta_1 = \mu$$

$$\theta_2 = \sigma^2$$

$$f(x, \mu, \sigma^2) = (1/\sqrt{2\pi} \sigma) \exp [ (-1/2)(x-\mu)^2/\sigma^2 ]$$

Sejam

$$a(\mu, \sigma) = (1/\sqrt{2\pi} \sigma) \exp [ (-1/2)\mu^2/\sigma^2 ]$$

$$b(x) = 1$$

$$c1(\mu, \sigma) = -1/2\sigma^2$$

$$c2(\mu, \sigma) = \mu/\sigma^2$$

$$d1(x) = x^2$$

$$d2(x) = x$$

Então,  $f(x, \mu, \sigma^2)$  pertence à Família Exponencial.

Exemplo:

Distribuição Gamma

$$\theta_1 = \lambda > 0$$

$$\theta_2 = r > 0$$

$$f(x, \lambda, r) = (\lambda^r / \Gamma(r)) x^{r-1} e^{-\lambda x} I_{(0,\infty)}(x) = (\lambda^r / \Gamma(r)) I_{(0,\infty)}(x) \exp [ (r-1) \log x - \lambda x ]$$

Sejam

$$a(\lambda, r) = \lambda^r / \Gamma(r)$$

$$b(x) = I_{(0,\infty)}(x)$$

$$c1(\lambda, r) = r-1$$

$$c2(\lambda, r) = -\lambda$$

$$d1(x) = \log x$$

$$d2(x) = x$$

Então,  $f(x, \lambda, r)$  pertence à Família Exponencial.



### 8.3

#### Dados para o plano do tipo BD

Parte 1: até 30 meses

Data de implantação	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
199901	100%	100%	100%	100%	98%	95%	95%	95%	95%	95%	95%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	91%	83%	78%	74%	66%	62%	62%	60%		
199902	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	94%	84%	76%	69%	63%	59%	53%		
199903	100%	99%	98%	98%	95%	94%	94%	93%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	90%	85%	81%	66%	64%	59%	55%	53%		
199904	100%	100%	99%	99%	99%	97%	95%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	91%	88%	73%	64%	60%	56%	53%	52%		
199905	100%	99%	98%	98%	97%	97%	97%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	92%	80%	76%	71%	66%	65%	62%	60%		
199906	100%	99%	99%	98%	93%	89%	88%	87%	87%	87%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	85%	85%	85%	84%	82%	73%	66%	65%	64%	60%		
199907	99%	96%	96%	95%	92%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	86%	86%	86%	85%	82%	76%	69%	65%	61%	60%	60%		
199908	100%	100%	100%	99%	97%	97%	97%	97%	97%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	95%	89%	80%	72%	58%	54%	54%	53%		
199909	100%	100%	100%	99%	96%	96%	96%	96%	96%	96%	96%	96%	95%	95%	95%	95%	95%	93%	92%	92%	92%	92%	91%	91%	91%	84%	71%	63%	59%	52%	51%	51%	
199910	100%	100%	100%	100%	100%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	96%	82%	72%	60%	55%	54%	49%	45%	
199911	100%	100%	100%	99%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	95%	94%	94%	94%	93%	93%	93%	92%	89%	79%	68%	64%	59%	57%	55%		
199912	100%	100%	99%	97%	95%	94%	94%	94%	94%	94%	94%	94%	94%	93%	92%	92%	92%	92%	92%	90%	90%	90%	90%	89%	79%	69%	61%	56%	54%	53%	52%		
200001	100%	100%	98%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	87%	85%	78%	70%	65%	63%	63%	
200002	99%	99%	98%	97%	96%	95%	95%	95%	95%	95%	95%	95%	95%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	92%	92%	88%	86%	76%	60%	58%	53%	52%	
200003	100%	100%	100%	98%	93%	93%	93%	93%	93%	93%	93%	91%	91%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	88%	88%	84%	75%	64%	57%	54%	50%	48%	
200004	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	96%	96%	96%	94%	94%	94%	94%	94%	94%	94%	94%	94%	85%	71%	69%	63%	58%	58%	52%
200005	100%	100%	100%	100%	96%	94%	94%	94%	93%	93%	93%	93%	93%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	85%	76%	65%	61%	56%	45%	45%
200006	100%	100%	100%	100%	100%	98%	98%	98%	98%	98%	98%	98%	98%	96%	93%	93%	93%	93%	93%	93%	93%	91%	91%	91%	91%	91%	84%	78%	76%	67%	62%	62%	58%
200007	100%	100%	100%	100%	97%	96%	96%	93%	91%	91%	90%	89%	89%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	86%	81%	73%	70%	61%	56%	54%	53%	
200008	100%	100%	100%	100%	98%	98%	95%	95%	95%	95%	91%	89%	84%	84%	84%	84%	84%	84%	84%	82%	82%	80%	80%	80%	80%	80%	80%	73%	64%	61%	61%	61%	61%

200009	100%	100%	100%	100%	96%	87%	87%	87%	87%	87%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%	78%	78%	78%	70%	65%	65%	61%	57%			
200010	100%	100%	100%	100%	96%	96%	70%	61%	57%	57%	57%	57%	52%	52%	52%	52%	52%	48%	48%	48%	48%	48%	48%	48%	48%	48%	39%	35%	30%	30%	30%			
200011	100%	100%	100%	98%	97%	95%	93%	93%	92%	90%	90%	89%	89%	89%	89%	89%	85%	85%	85%	85%	85%	85%	85%	85%	85%	79%	69%	69%	56%	51%	46%	46%		
200012	100%	100%	100%	100%	100%	91%	88%	86%	83%	83%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	77%	75%	62%	58%	51%	45%	43%		
200101	100%	100%	100%	98%	98%	91%	87%	87%	85%	85%	85%	85%	85%	83%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	74%	74%	74%	65%	63%	61%	57%	43%		
200102	100%	97%	97%	97%	95%	87%	77%	74%	74%	74%	74%	72%	72%	72%	69%	69%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%		
200103	100%	100%	100%	97%	93%	85%	82%	80%	77%	77%	75%	75%	75%	70%	70%	69%	69%	69%	67%	67%	67%	67%	67%	67%	67%	67%	66%	61%	54%	52%	49%	44%	44%	
200104	100%	100%	100%	97%	97%	88%	86%	86%	86%	86%	84%	84%	83%	83%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	76%	67%	59%	47%	43%	40%	33%	
200105	100%	100%	98%	98%	93%	79%	77%	73%	73%	73%	73%	73%	71%	71%	71%	71%	71%	71%	71%	71%	71%	71%	71%	71%	71%	71%	68%	50%	45%	43%	39%	36%		
200106	100%	100%	100%	98%	89%	76%	72%	72%	70%	70%	70%	69%	69%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	
200107	100%	100%	98%	97%	89%	85%	80%	79%	74%	71%	70%	70%	68%	68%	68%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	61%	61%	61%	61%	61%	61%	61%	61%	
200108	100%	100%	100%	100%	90%	84%	81%	81%	80%	77%	76%	76%	76%	76%	75%	75%	74%	74%	74%	74%	73%	73%	73%	73%	73%	73%	70%	66%	60%	52%	50%	48%	48%	
200109	100%	100%	99%	98%	89%	82%	80%	79%	74%	72%	71%	71%	71%	68%	66%	66%	66%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	55%	51%	44%	41%	40%	35%	
200110	100%	100%	99%	98%	96%	90%	90%	87%	83%	81%	81%	80%	79%	78%	78%	77%	77%	77%	77%	76%	76%	76%	76%	76%	76%	76%	74%	60%	58%	58%	53%	50%		
200111	100%	100%	100%	100%	96%	91%	83%	81%	79%	79%	79%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%	
200112	100%	100%	100%	98%	96%	84%	80%	78%	75%	74%	74%	74%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	73%	
200201	100%	100%	99%	97%	93%	85%	81%	77%	73%	71%	70%	70%	69%	65%	64%	63%	62%	60%	58%	57%	57%	57%	57%	57%	57%	56%	53%	49%	40%	35%	35%	30%	30%	
200202	100%	100%	100%	94%	93%	74%	71%	70%	65%	62%	61%	58%	57%	57%	55%	55%	52%	52%	49%	48%	48%	48%	48%	48%	48%	46%	46%	42%	35%	30%	29%	26%	25%	
200203	100%	100%	100%	95%	92%	85%	77%	71%	70%	69%	68%	66%	65%	65%	64%	62%	61%	59%	59%	58%	57%	57%	57%	57%	56%	54%	51%	46%	40%	34%	32%	31%		
200204	100%	99%	99%	95%	84%	72%	68%	65%	64%	64%	64%	64%	61%	60%	59%	58%	57%	56%	56%	56%	55%	55%	55%	55%	55%	55%	55%	49%	42%	35%	31%	27%	26%	24%
200205	100%	100%	98%	98%	95%	85%	83%	75%	75%	75%	75%	74%	74%	74%	72%	72%	69%	69%	69%	69%	69%	69%	69%	69%	69%	69%	68%	63%	57%	48%	40%	40%	40%	38%
200206	100%	99%	96%	95%	81%	72%	72%	72%	68%	67%	67%	67%	65%	62%	61%	61%	59%	59%	58%	58%	58%	58%	58%	58%	58%	58%	58%	53%	49%	35%	32%	32%	29%	28%
200207	100%	100%	100%	97%	97%	95%	92%	92%	90%	87%	84%	81%	79%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	71%	65%	56%	52%	46%	43%	40%
200208	100%	99%	96%	93%	91%	88%	82%	79%	79%	76%	75%	75%	75%	75%	75%	75%	75%	75%	73%	73%	73%	72%	72%	72%	72%	72%	72%	67%	63%	57%	46%	42%	42%	42%
200209	100%	100%	95%	93%	88%	79%	75%	71%	71%	69%	69%	68%	68%	67%	65%	64%	64%	64%	64%	64%	64%	64%	64%	64%	64%	62%	62%	62%	62%	62%	62%	62%	62%	62%
200210	100%	100%	99%	95%	90%	88%	84%	79%	77%	75%	75%	75%	74%	70%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	64%	64%	64%	64%	64%	64%	64%
200211	100%	100%	98%	98%	95%	90%	85%	83%	81%	81%	80%	80%	80%	80%	80%	80%	80%	80%	79%	79%	77%	76%	76%	76%	76%	76%	76%	72%	67%	63%	58%	54%	53%	46%











### 8.4

### Dados para o plano do tipo CD

Parte 1: até 36 meses

Data de Implantação	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
200105	100%	100%	100%	100%	100%	99%	98%	97%	97%	96%	95%	95%	95%	95%	95%	95%	94%	92%	92%	90%	88%	88%	87%	71%	70%	68%	58%	57%	55%	55%	54%	53%	50%	49%	48%	47%	46%
200106	100%	100%	100%	100%	100%	99%	98%	98%	96%	96%	95%	95%	93%	92%	92%	89%	88%	87%	86%	85%	85%	64%	63%	62%	56%	54%	53%	53%	52%	50%	49%	47%	46%	46%	46%	46%	
200107	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	98%	97%	96%	95%	95%	91%	90%	89%	88%	87%	87%	68%	67%	65%	58%	56%	55%	53%	52%	51%	48%	47%	46%	44%	43%	42%	41%
200108	100%	100%	100%	99%	99%	99%	99%	98%	98%	97%	97%	96%	96%	94%	94%	93%	91%	89%	88%	87%	68%	66%	65%	60%	59%	58%	57%	57%	56%	53%	52%	51%	50%	49%	49%	47%	47%
200109	100%	100%	100%	99%	99%	99%	98%	98%	97%	97%	96%	96%	95%	93%	92%	91%	90%	89%	87%	73%	72%	70%	65%	63%	61%	59%	58%	58%	56%	56%	55%	53%	53%	52%	50%	49%	48%
200110	100%	100%	100%	99%	99%	99%	99%	98%	98%	97%	97%	97%	94%	93%	92%	91%	90%	90%	72%	71%	70%	63%	63%	61%	60%	59%	58%	56%	55%	54%	53%	53%	51%	51%	50%	50%	49%
200111	100%	100%	100%	99%	99%	99%	99%	99%	98%	98%	97%	95%	93%	91%	90%	90%	89%	74%	73%	70%	65%	63%	63%	63%	62%	61%	59%	59%	56%	55%	55%	53%	51%	49%	49%	48%	47%
200112	100%	99%	99%	99%	99%	99%	99%	98%	97%	97%	94%	93%	90%	90%	89%	88%	78%	77%	74%	64%	62%	62%	61%	60%	59%	58%	55%	54%	52%	52%	50%	49%	49%	48%	48%	48%	47%
200201	100%	100%	100%	99%	99%	99%	98%	97%	97%	95%	94%	93%	92%	91%	90%	79%	77%	74%	62%	61%	60%	60%	59%	58%	57%	56%	55%	54%	53%	52%	51%	50%	49%	49%	49%	48%	48%
200202	100%	100%	99%	98%	98%	97%	97%	95%	93%	91%	90%	89%	88%	87%	78%	77%	74%	66%	65%	64%	62%	61%	60%	58%	57%	56%	54%	53%	51%	50%	48%	47%	46%	46%	46%	45%	45%
200203	100%	100%	99%	99%	99%	98%	97%	93%	92%	90%	88%	87%	86%	75%	75%	73%	64%	63%	61%	61%	60%	60%	58%	57%	55%	54%	53%	50%	50%	49%	49%	48%	48%	47%	46%	45%	45%
200204	100%	100%	100%	99%	99%	99%	93%	92%	88%	87%	86%	85%	73%	71%	70%	63%	61%	60%	59%	59%	58%	57%	56%	56%	55%	54%	53%	53%	52%	52%	50%	50%	49%	49%	49%	47%	47%
200205	100%	100%	100%	99%	99%	95%	94%	93%	91%	90%	89%	79%	78%	76%	66%	64%	62%	61%	61%	60%	59%	57%	55%	54%	52%	52%	51%	50%	49%	49%	48%	48%	47%	47%	45%	44%	43%
200206	100%	100%	100%	99%	99%	98%	93%	92%	90%	89%	83%	81%	80%	72%	71%	69%	69%	68%	67%	66%	65%	62%	61%	60%	59%	58%	57%	56%	56%	55%	54%	53%	52%	50%	50%	49%	49%
200207	100%	100%	100%	99%	98%	97%	93%	91%	90%	84%	83%	80%	72%	71%	69%	68%	68%	67%	64%	64%	63%	61%	60%	60%	59%	58%	58%	57%	56%	56%	55%	55%	54%	53%	52%	52%	51%
200208	100%	100%	100%	99%	98%	98%	94%	93%	86%	85%	81%	76%	72%	70%	69%	68%	67%	65%	63%	62%	62%	60%	58%	58%	57%	57%	55%	55%	54%	54%	53%	51%	51%	50%	49%	48%	47%
200209	100%	100%	99%	98%	97%	96%	95%	90%	89%	85%	77%	75%	73%	71%	70%	68%	66%	64%	62%	62%	60%	59%	58%	57%	56%	55%	55%	55%	54%	53%	53%	52%	51%	50%	49%	48%	47%
200210	100%	99%	99%	98%	98%	97%	94%	91%	88%	80%	78%	75%	74%	72%	70%	67%	67%	64%	64%	62%	61%	60%	59%	58%	58%	58%	58%	57%	56%	55%	54%	54%	52%	51%	51%	50%	50%
200211	100%	100%	98%	97%	96%	95%	93%	88%	77%	75%	73%	72%	71%	70%	69%	68%	66%	65%	65%	64%	63%	62%	62%	61%	60%	60%	59%	58%	57%	57%	56%	55%	54%	53%	52%	52%	51%
200212	100%	100%	99%	99%	96%	94%	91%	80%	78%	76%	74%	73%	72%	71%	69%	67%	66%	65%	64%	63%	63%	62%	61%	60%	60%	59%	59%	58%	57%	57%	56%	55%	55%	54%	53%	53%	52%
200301	100%	100%	99%	98%	97%	95%	86%	85%	84%	82%	81%	79%	78%	77%	76%	75%	74%	74%	73%	72%	72%	71%	70%	70%	68%	67%	66%	66%	64%	64%	63%	62%	62%	62%	61%	59%	58%
200302	100%	100%	99%	98%	96%	91%	87%	83%	81%	79%	78%	76%	74%	73%	72%	71%	70%	68%	68%	67%	67%	66%	66%	66%	65%	63%	63%	62%	60%	59%	58%	58%	57%	57%	56%	55%	







