



INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

» Operação Estatística - IUT

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DMSI / ME



Abril de 2020



» Fases da Operação Estatística

- **Concepção**
- **Operação**
- **Difusão**



OE/Concepção

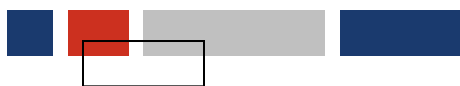


» Concepção

Objectivo Compreender a realidade a partir de dados.

Tipo Recenseamento, Amostragem, Estudo estatístico.

Fonte Questionários, Dados administrativos.

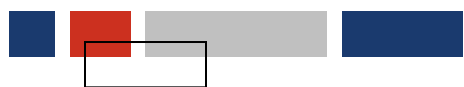


OE/Operação



» Operação

- **Recolha:** Directa (Presencial, Telefónica, Web) ou Indirecta.
- **Tratamento:** Formatação, Validação, *Outliers*, Imputação.
- **Análise:** Gráficos, Medidas descritivas, Modelos.



OE/Operação/Análise

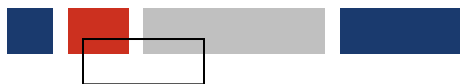


» Análise

Gráficos *Pie chart, Barplot, Boxplot, Histogram, Countplot.*

Medidas descritivas Tendência central, Dispersão.

Modelos Regressão linear, Regressão logística.



» Difusão

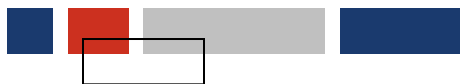
Indicadores Resultados dos inquéritos, para público em geral.

Microdados Base de dados dos inquéritos, para investigadores.

Destaques *Press release* curta, harmonizada, calendarizada.

Publicações/Boletins Documento longo, calendarizado.

Estudos Documento longo, não-calendarizado.



» Inquérito à Utilização do Telemóvel

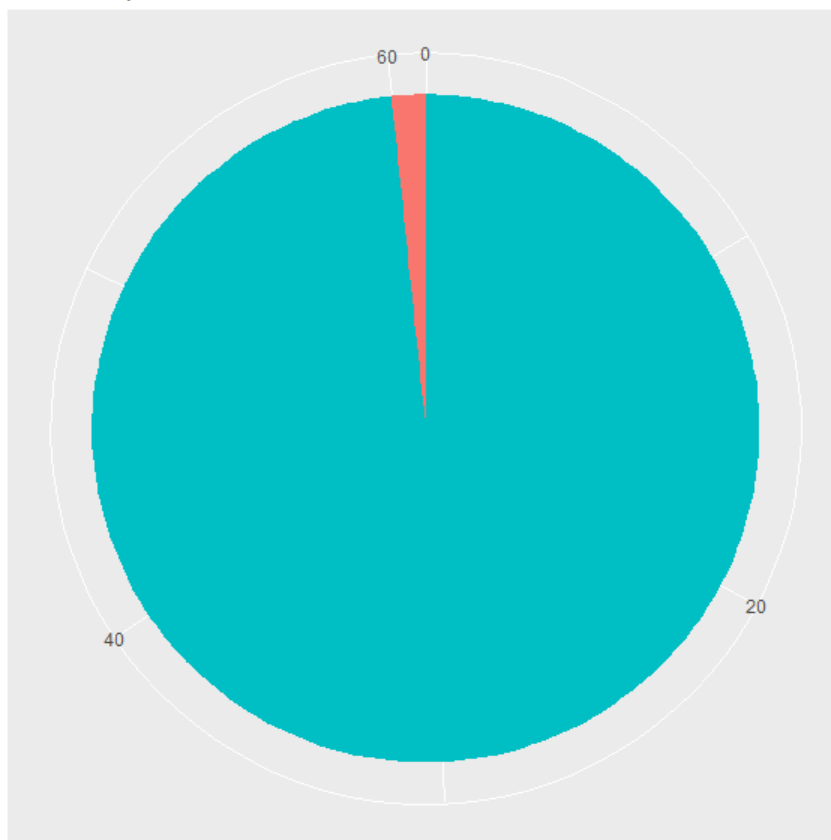
- Vídeo: ..\media\OE-IUT_20180411.mp4
- Questionário: <https://docs.google.com/forms/.../viewform>
- Análise: <https://r2.ine.pt/>



IUT/Análise/Exploração



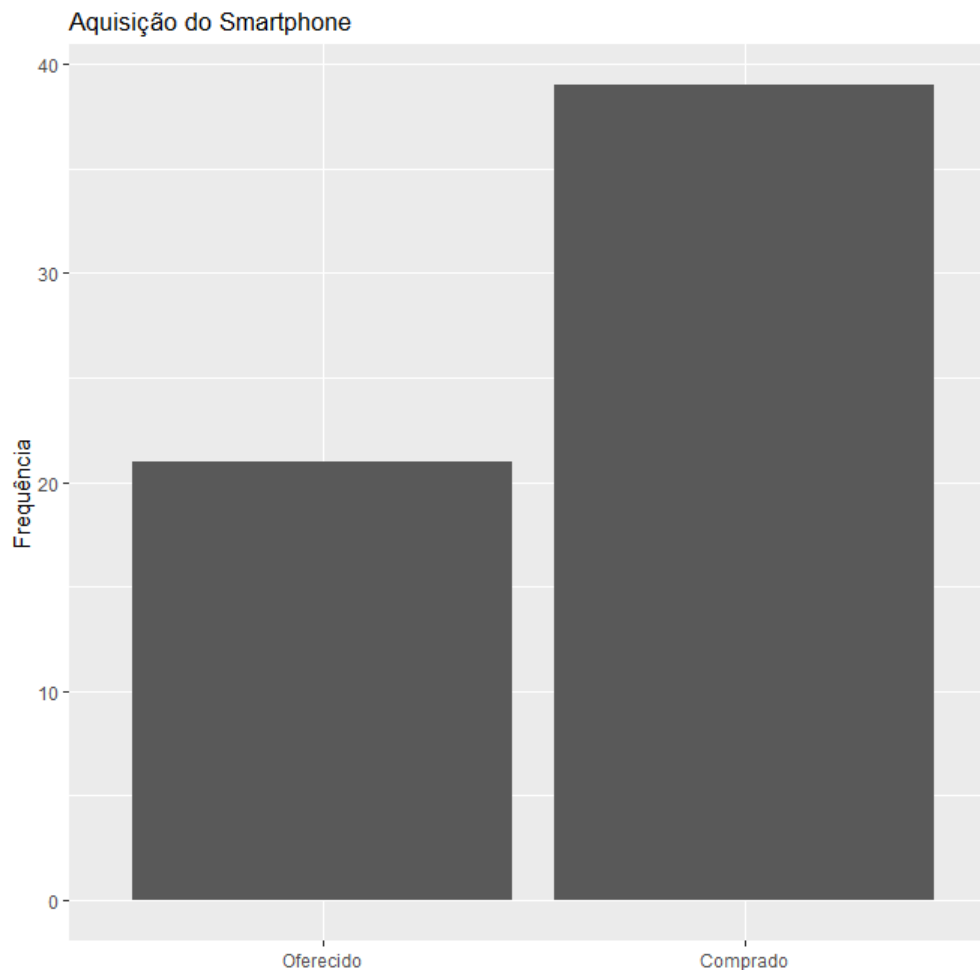
Tem Smartphone?

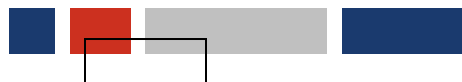


Não
Sim



IUT/Análise/Exploração

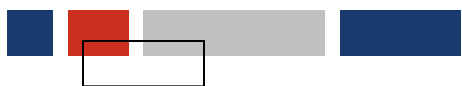




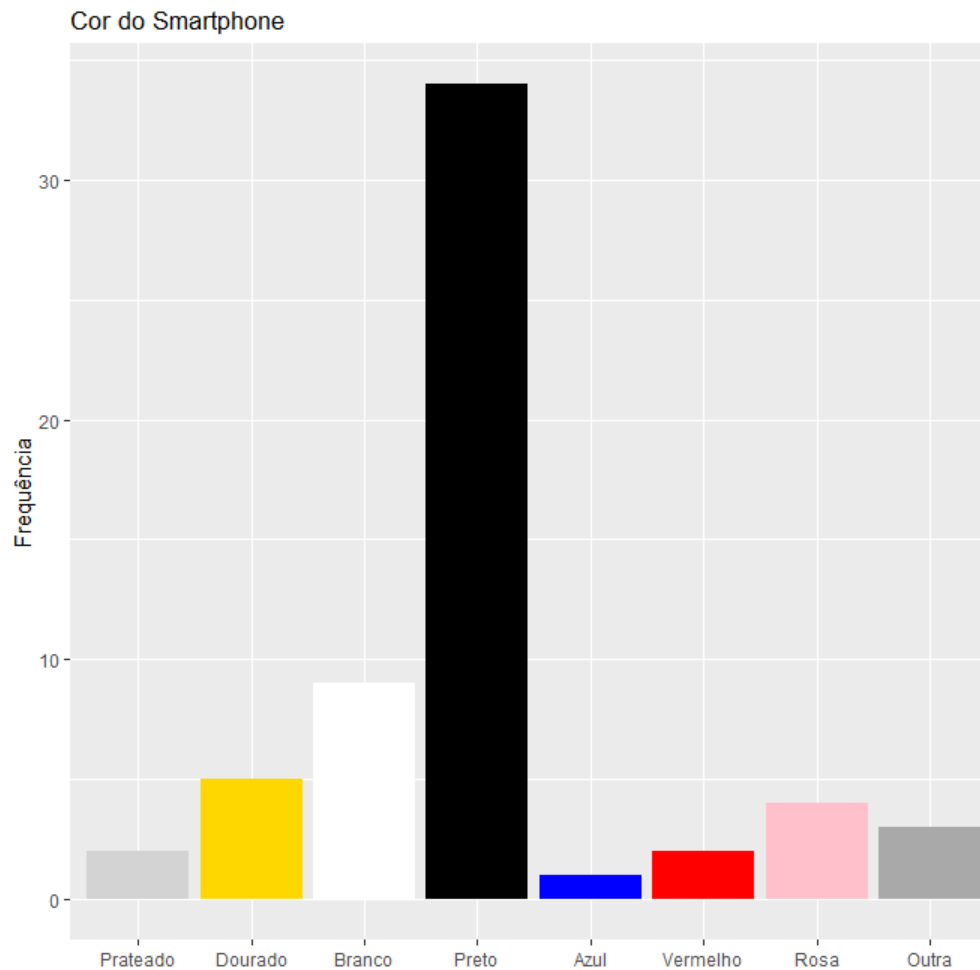
IUT/Análise/Exploração



AGE_FIRST	Freq	Cumul	Rel	RelCumul
6	3	3	0.07	0.07
7	1	4	0.02	0.09
9	7	11	0.15	0.24
10	6	17	0.13	0.37
11	10	27	0.22	0.59
12	11	38	0.24	0.83
13	3	41	0.07	0.89
14	1	42	0.02	0.91
15	3	45	0.07	0.98
16	1	46	0.02	1.00

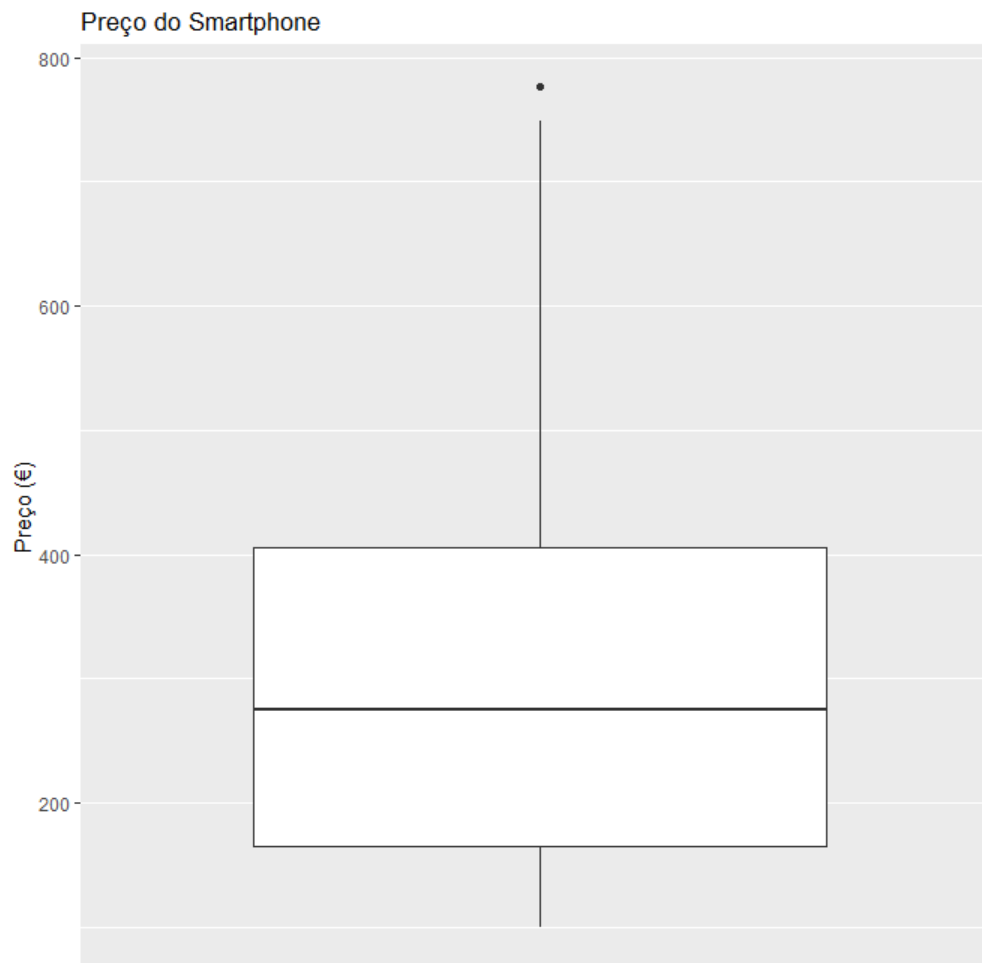


IUT/Análise/Exploração



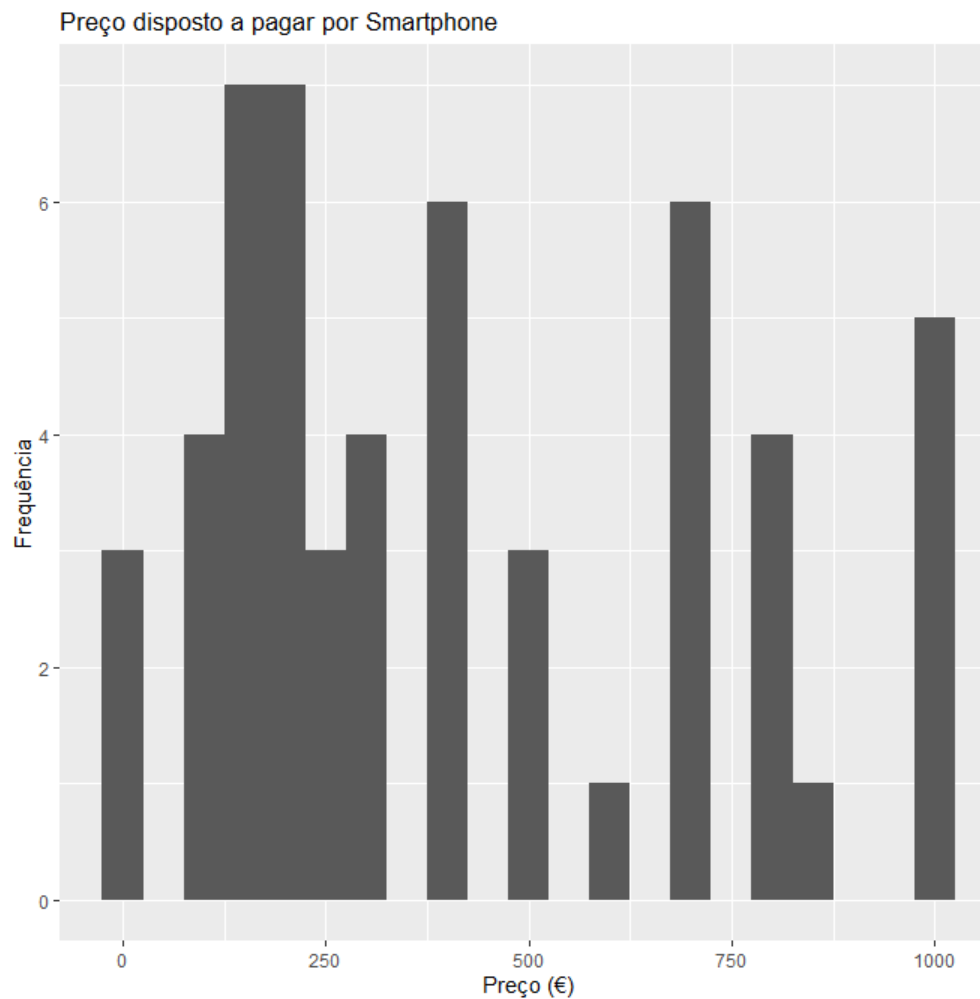


IUT/Análise/Exploração



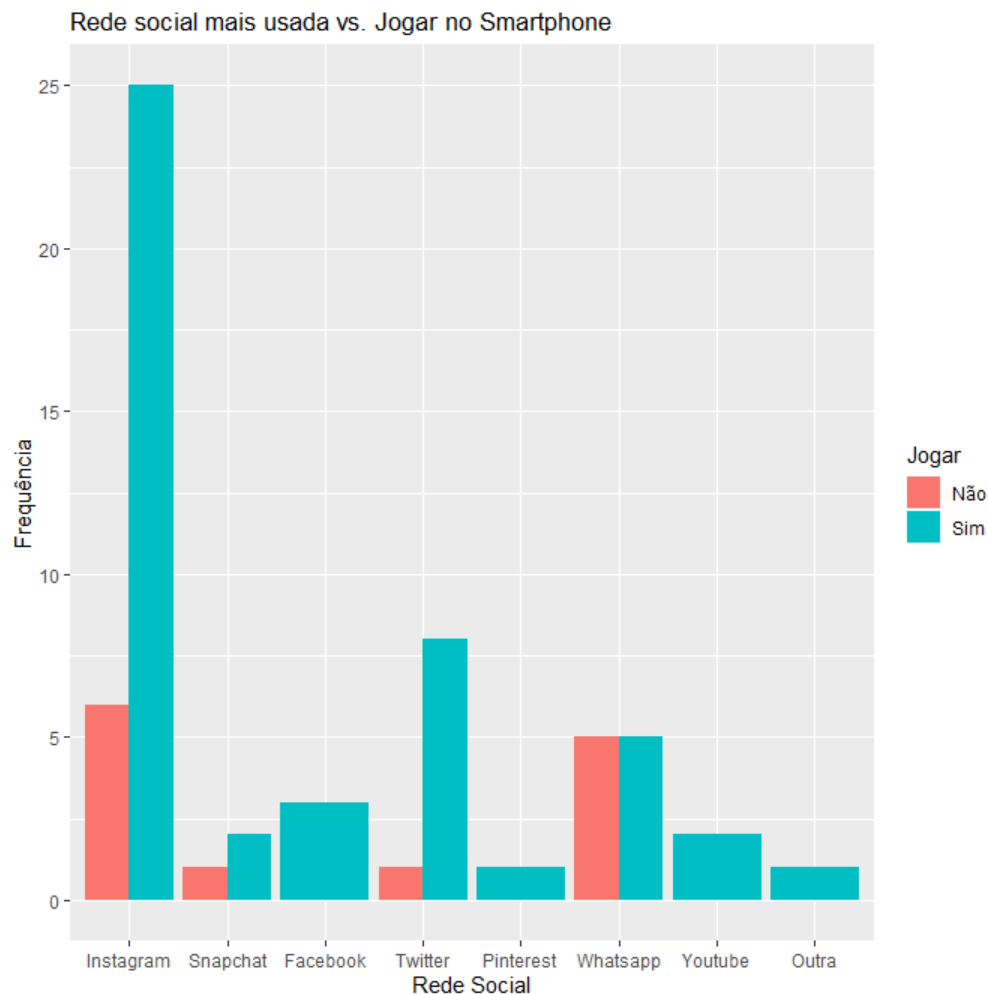


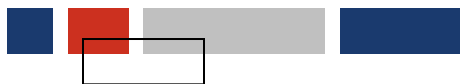
IUT/Análise/Exploração



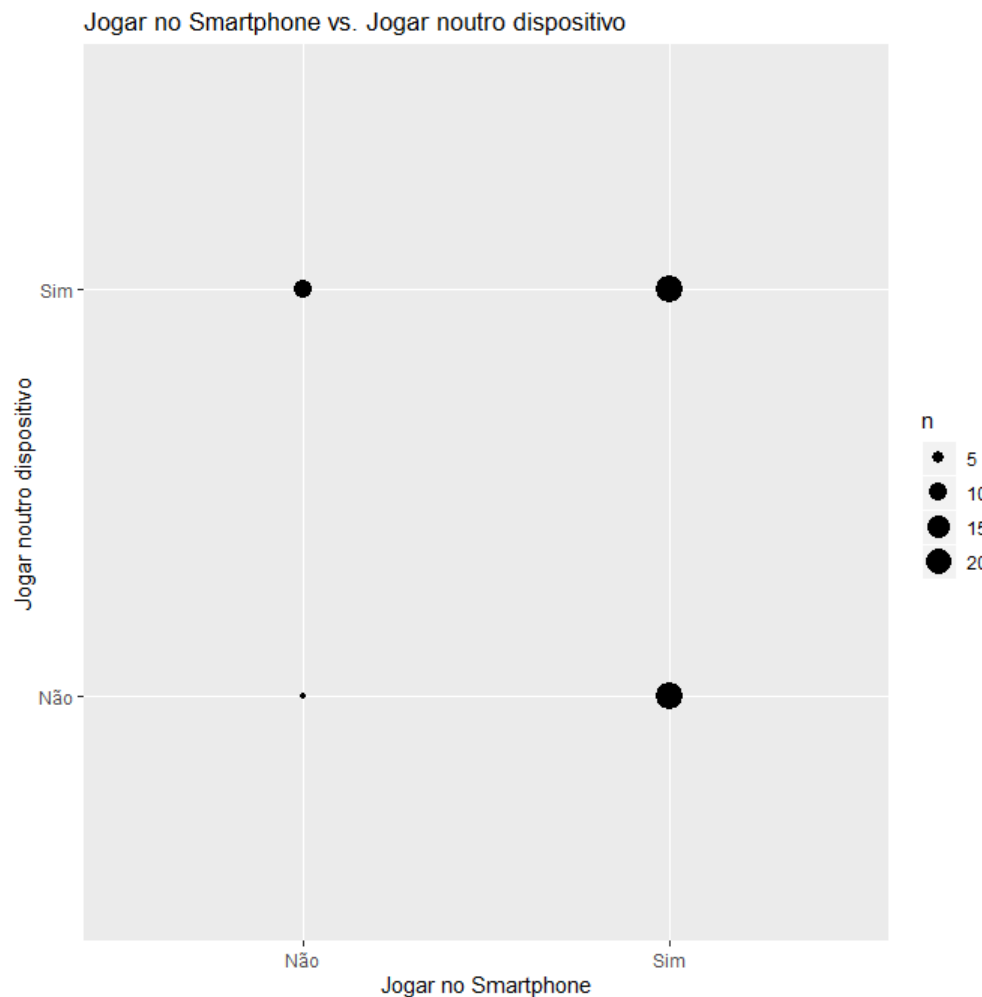


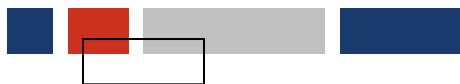
IUT/Análise/Exploração



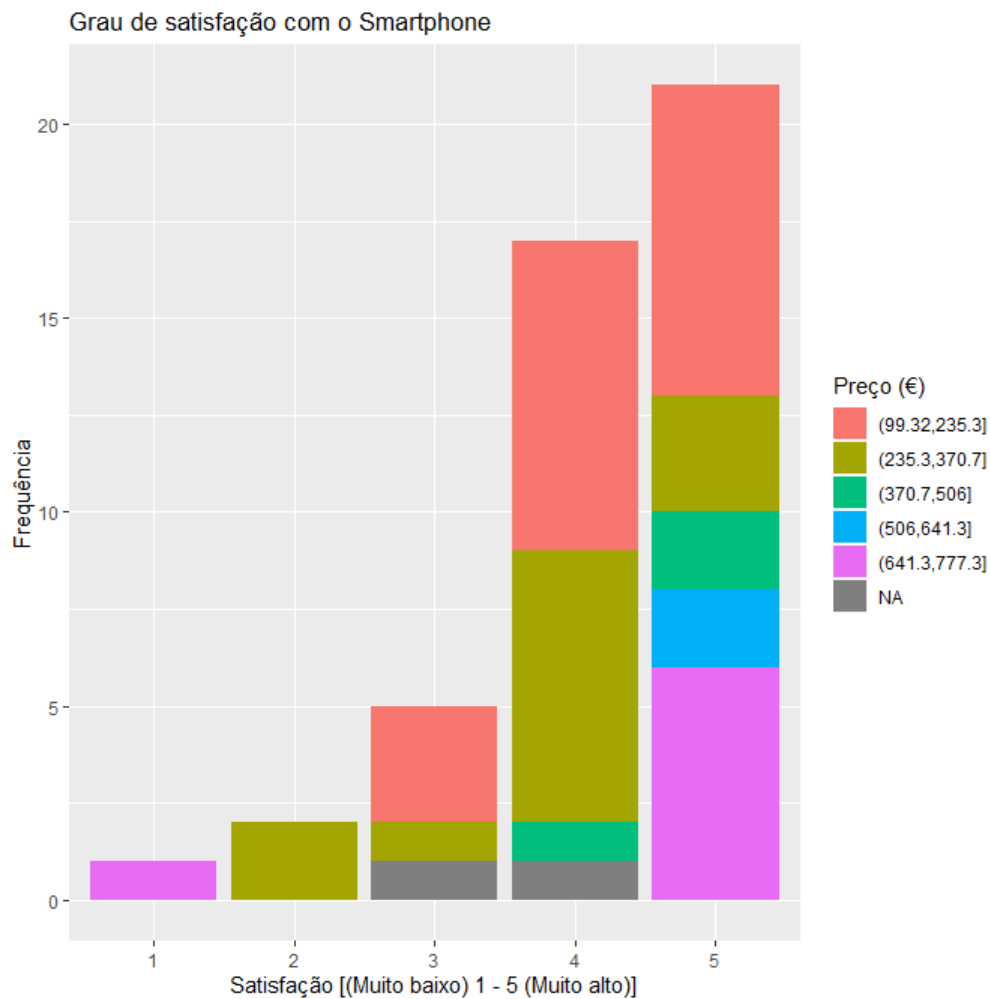


IUT/Análise/Exploração





IUT/Análise/Exploração





IUT/Análise/Exploração



	AGE_FIRST	PRICE	PRICE_NEW
Mean	10.96	328.19	418.81
Median	11.00	274.50	300.00
Mode	12.00	350.00	200.00
	AGE_FIRST	PRICE	PRICE_NEW
StDev	2.26	202.57	302.92
IQR	2.00	239.75	521.75
Range	10.00	676.65	1000.00



Call:

```
lm(formula = PRICE_NEW ~ PRICE, data = d5)
```

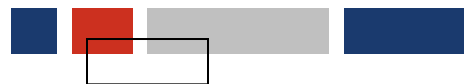
Min	1Q	Median	3Q	Max
-799.12	-118.16	-76.15	175.56	698.42

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	170.6449	79.5767	2.144	0.038290
PRICE	0.8729	0.2072	4.212	0.000145

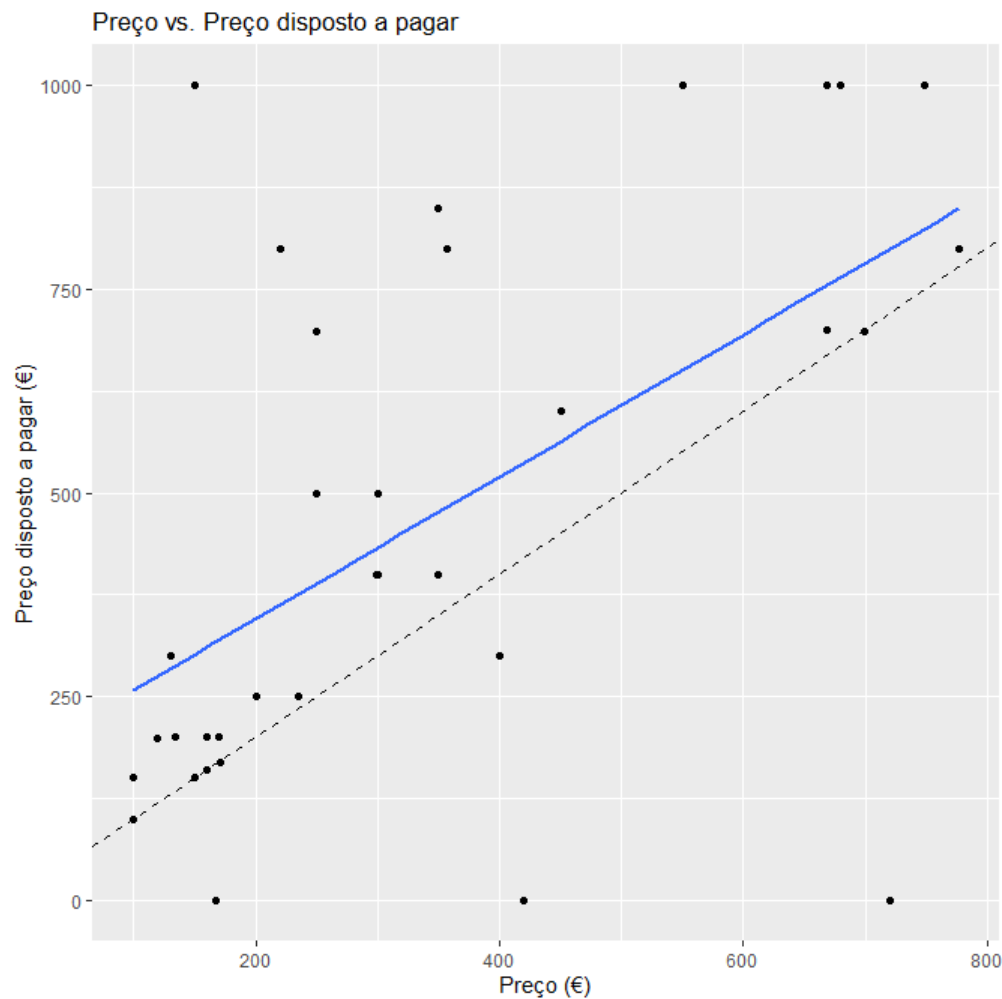
Residual standard error: 268.5 on 39 degrees of freedom

Multiple R-squared: 0.3127, Adjusted R-squared: 0.295

F-statistic: 17.74 on 1 and 39 DF, p-value: 0.0001446



IUT/Análise/Modelos





Call:

```
lm(formula = PRICE_NEW ~ PRICE + PLAY_PHONE, data = d5)
```

Min	1Q	Median	3Q	Max
-788.77	-119.99	-75.87	185.65	656.48

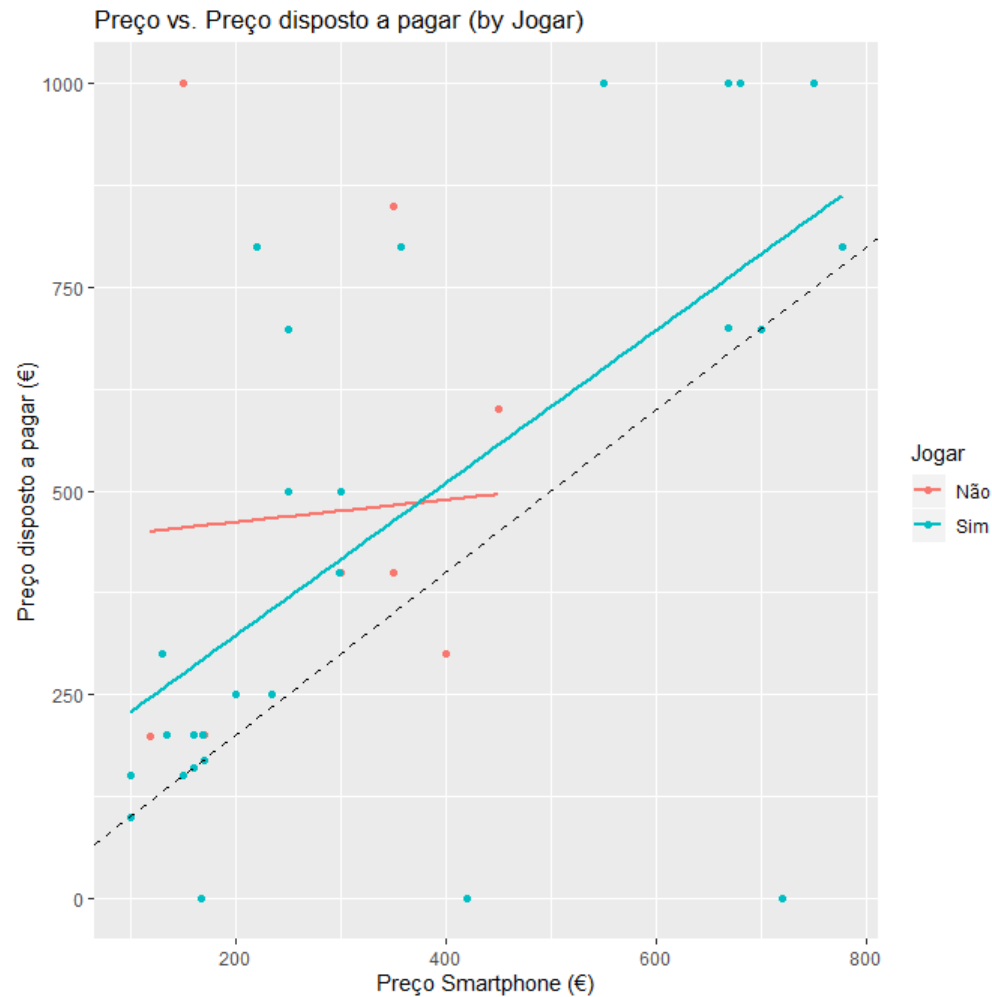
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	211.1753	106.1082	1.990	0.053800
PRICE	0.8823	0.2096	4.209	0.000151
PLAY_PHONETRUE	-57.6763	98.7720	-0.584	0.562715

Residual standard error: 270.8 on 38 degrees of freedom

Multiple R-squared: 0.3188, Adjusted R-squared: 0.2829

F-statistic: 8.891 on 2 and 38 DF, p-value: 0.00068

IUT/Análise/Modelos





Call:

```
glm(formula = PLAY_PHONE ~ PRICE, family = "binomial", data = d5)
```

Min	1Q	Median	3Q	Max
-1.76108	0.02866	0.73603	0.82165	0.87292

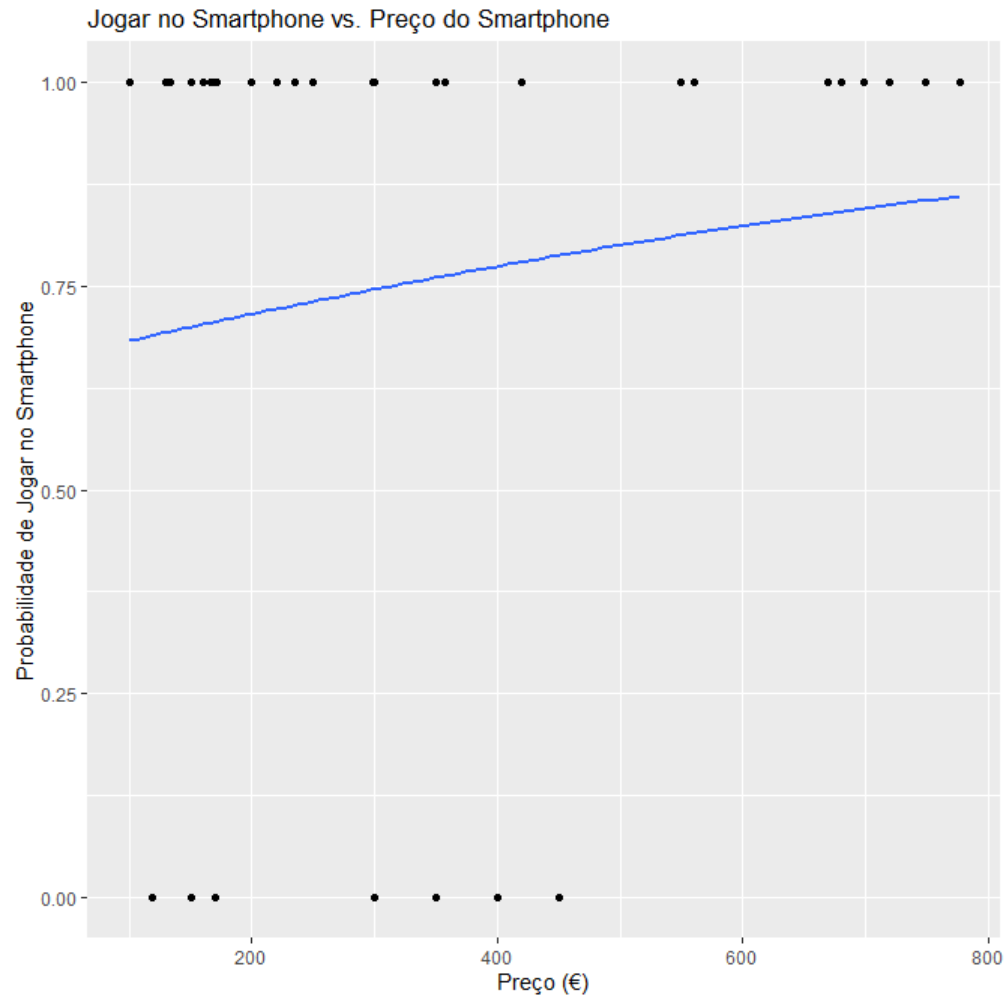
	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	0.613052	0.668808	0.917	0.359
PRICE	0.001554	0.001918	0.810	0.418

Null deviance: 49.485 on 43 degrees of freedom

Residual deviance: 48.777 on 42 degrees of freedom

AIC: 52.777

	OR	2.5%	97.5%
PRICE	1.00	1.00	1.01





Call:

```
glm(formula = PLAY_PHONE ~ PRICE + SOCIALNET, family = "binomial", data = d5)
```

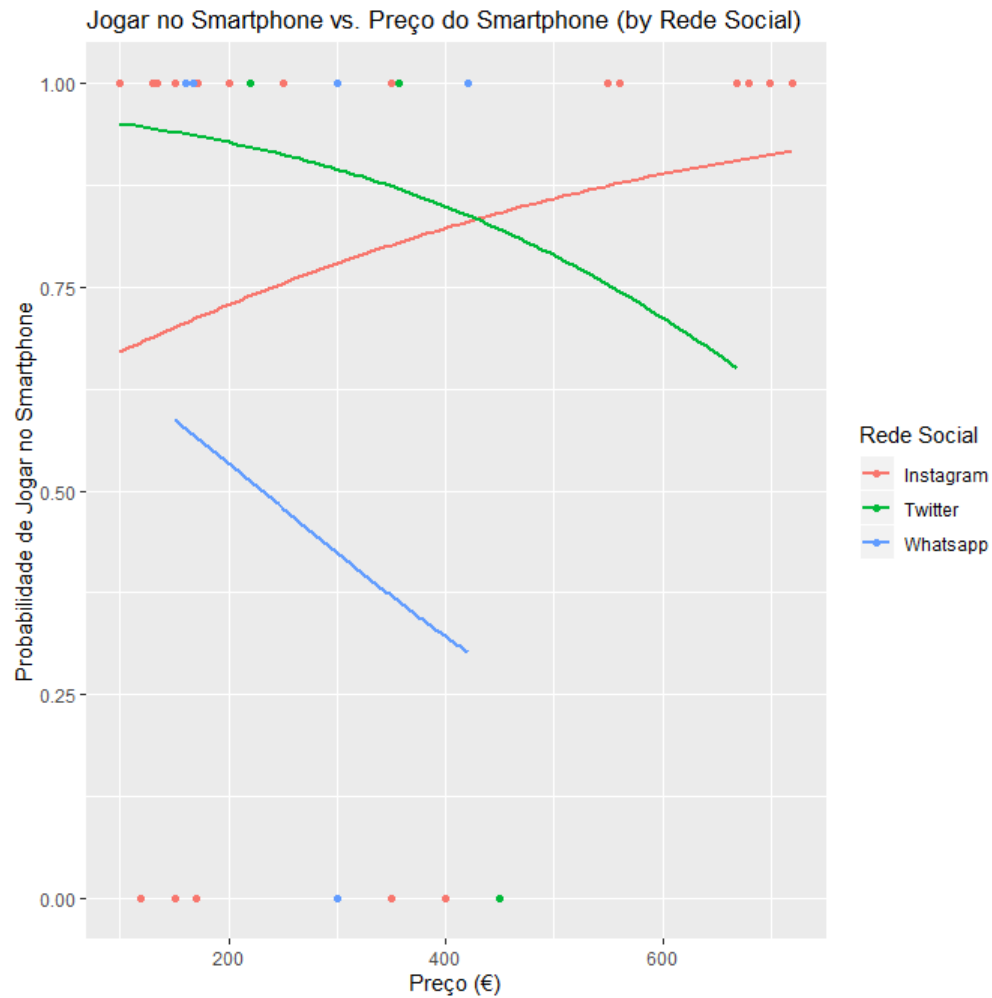
Min	1Q	Median	3Q	Max
-2.0257	-1.0754	0.6047	0.7671	1.3301

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	0.902978	0.829170	1.089	0.2761
PRICE	0.001043	0.002219	0.470	0.6384
SOCIALNETTwitter	0.541800	1.198184	0.452	0.6511
SOCIALNETWhatsapp	-1.421800	0.844095	-1.684	0.0921

Null deviance: 45.728 on 37 degrees of freedom
Residual deviance: 41.459 on 34 degrees of freedom
AIC: 49.459

	OR	2.5 %	97.5 %
PRICE	1.00	1.00	1.01
SOCIALNETTwitter	1.72	0.16	18.00
SOCIALNETWhatsapp	0.24	0.05	1.26

IUT/Analise/Modelos





Obrigado

<https://www.r-project.org/>

<https://rstudio.com/>

<https://github.com/jsollari/OE-IUT2020>