



INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

» Operação Estatística - IUT

João Lopes
Filipe Santos

DMSI / ME



Outubro de 2022



OE



» 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.

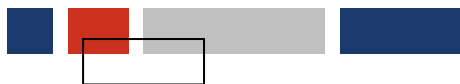


OE/Operação



» 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

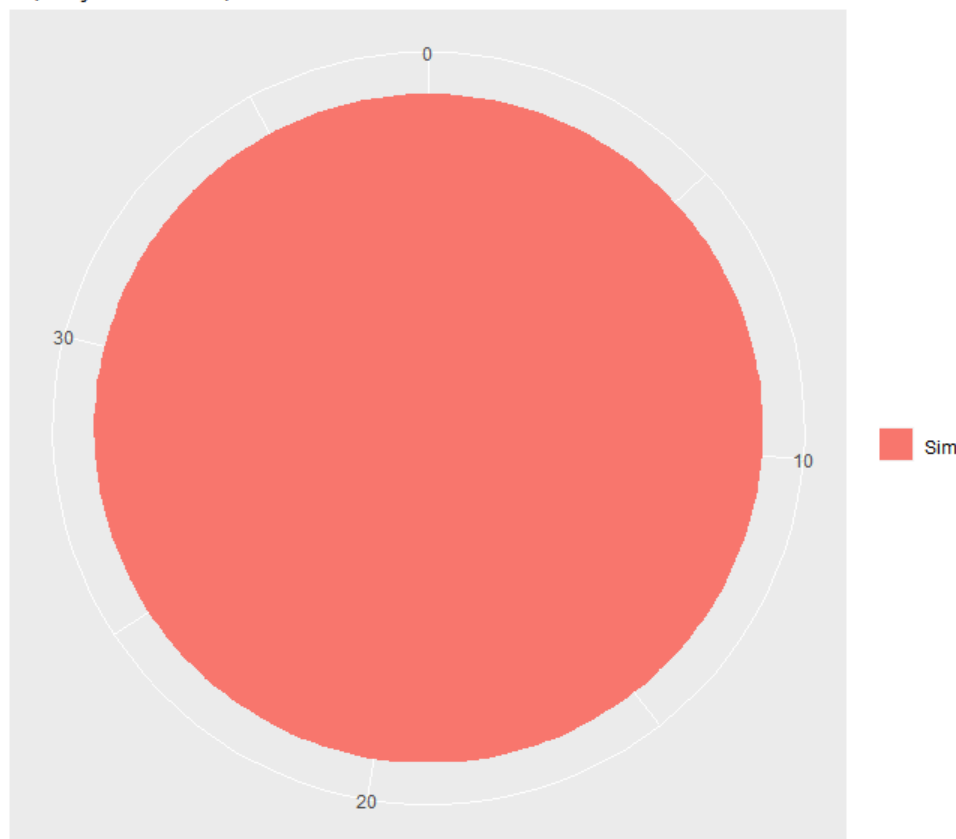
- Vídeo: ..\media\OE-IUT_20180411.mp4
- Questionário: <https://docs.google.com/forms/.../viewform>
- Análise: <https://r2.ine.pt/>

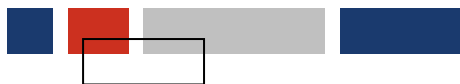


IUT/Análise/Exploração

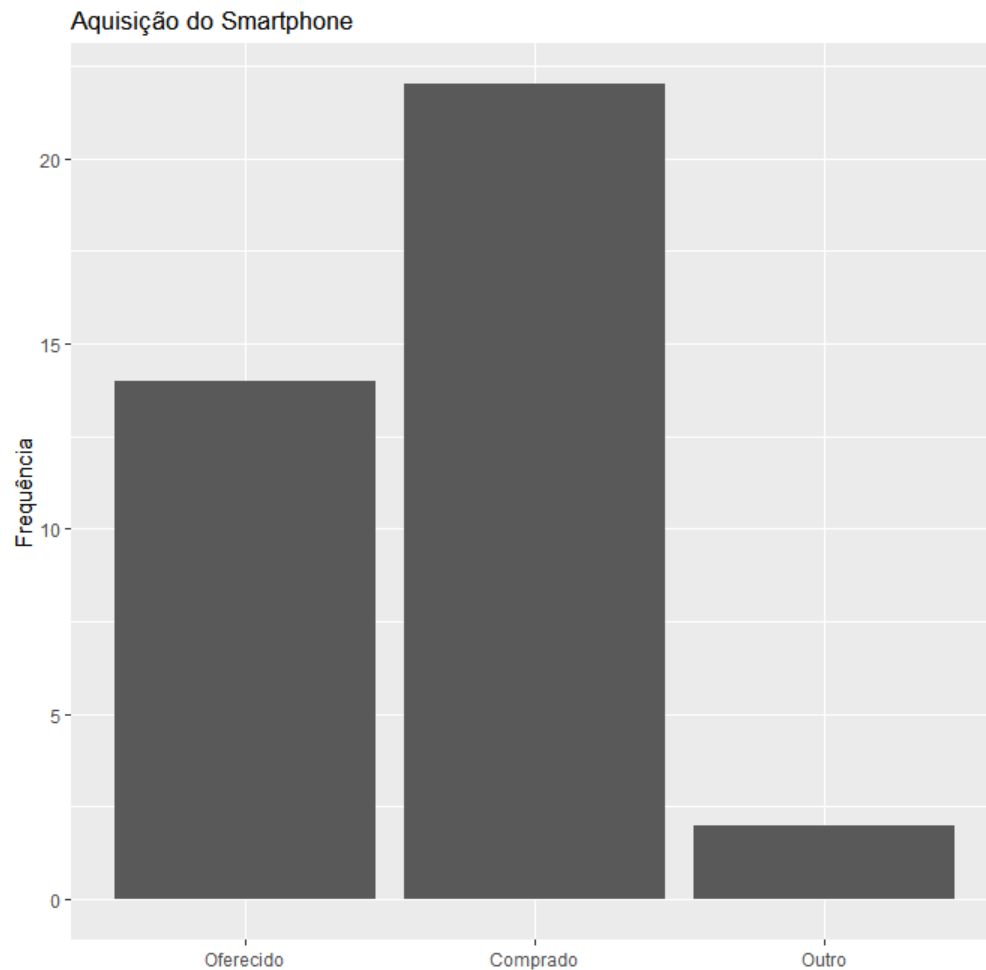


Aquisição do Smartphone





IUT/Análise/Exploração

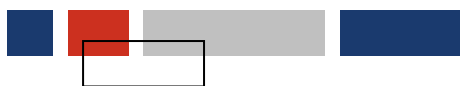




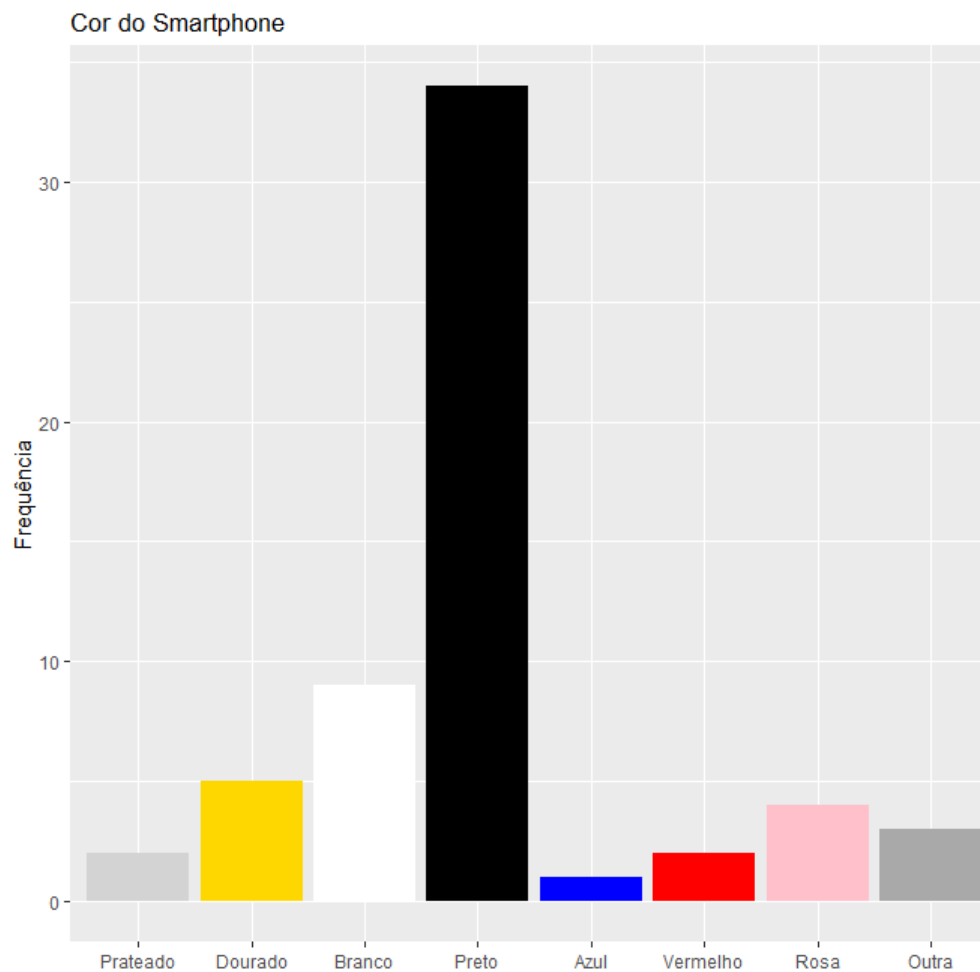
IUT/Analise/Exploração



AGE_FIRST	Freq	Cumul	Rel	RelCumul
5	1	1	0.04	0.04
9	5	6	0.19	0.22
10	9	15	0.33	0.56
11	2	17	0.07	0.63
12	5	22	0.19	0.81
13	2	24	0.07	0.89
14	1	25	0.04	0.93
15	1	26	0.04	0.96
18	1	27	0.04	1.00

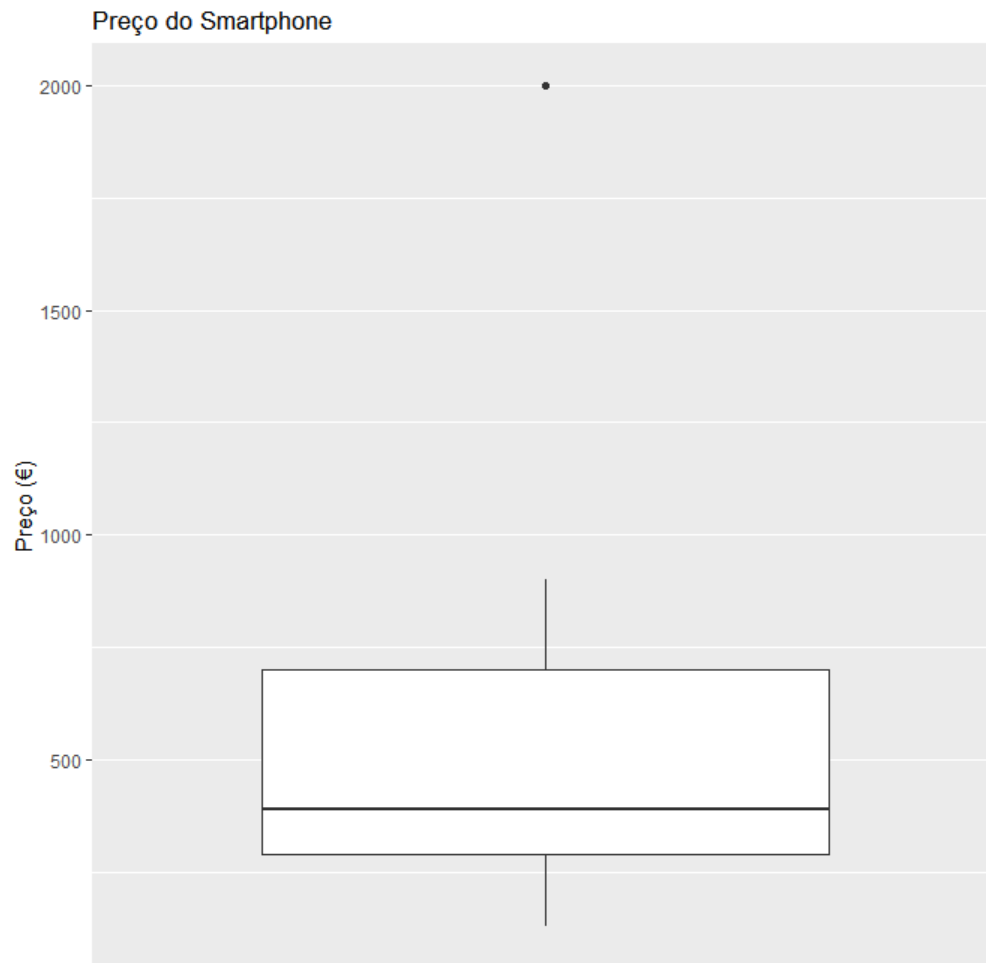


IUT/Análise/Exploração

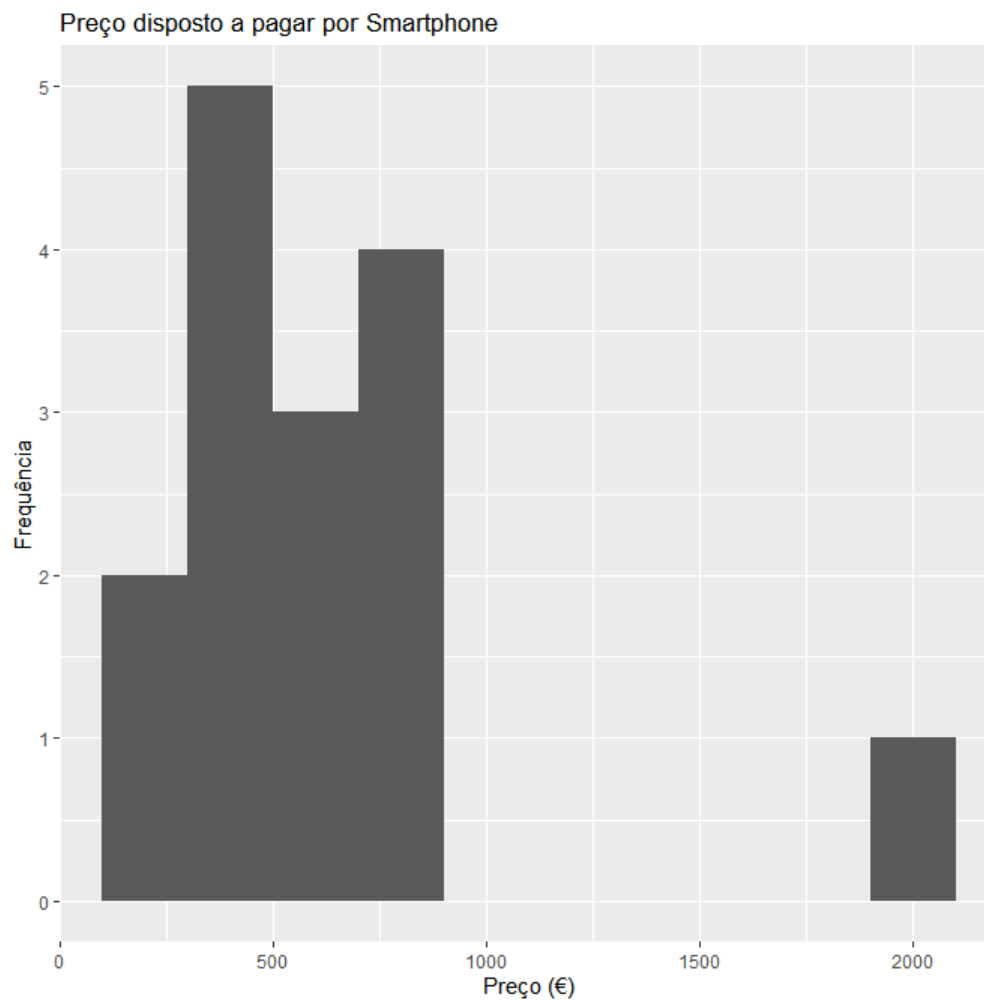




IUT/Análise/Exploração

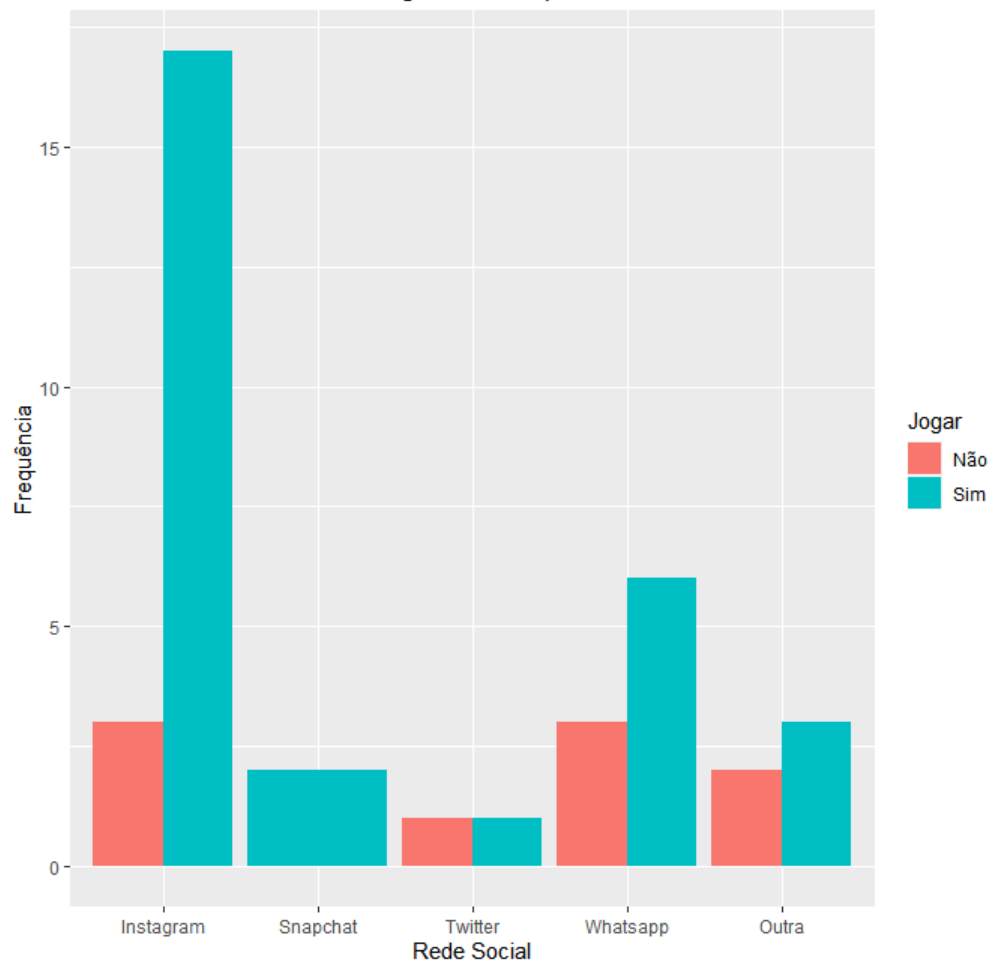


IUT/Análise/Exploração

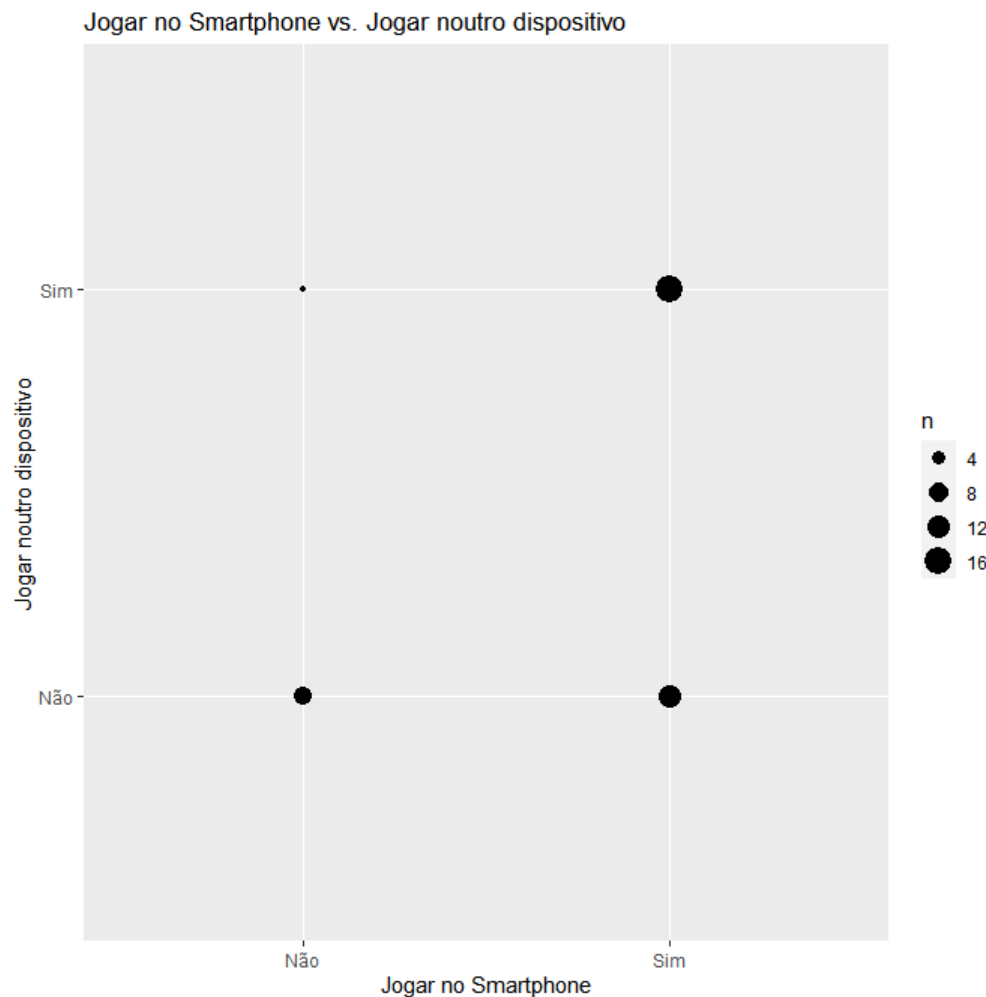


IUT/Análise/Exploração

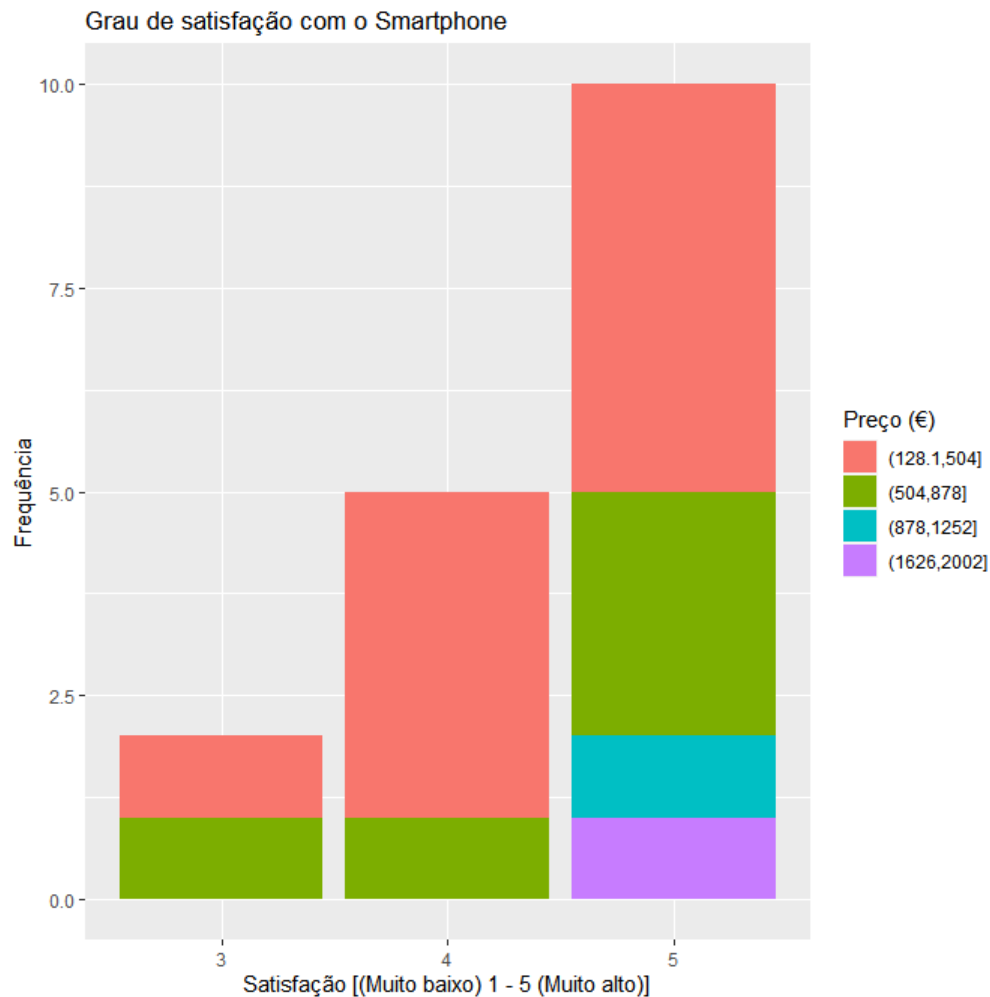
Rede social mais usada vs. Jogar no Smartphone

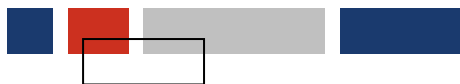


IUT/Análise/Exploração



IUT/Análise/Exploração





IUT/Analise/Exploração



	AGE_FIRST	PRICE	PRICE_NEW
Mean	10.93	543.29	418.81
Median	10.00	389.99	300.00
Mode	10.00	240.00	200.00
	AGE_FIRST	PRICE	PRICE_NEW
StDev	2.42	442.27	437.06
IQR	2.00	411.00	375.00
Range	13.00	1870.00	1850.00



IUT/Analise/Modelos



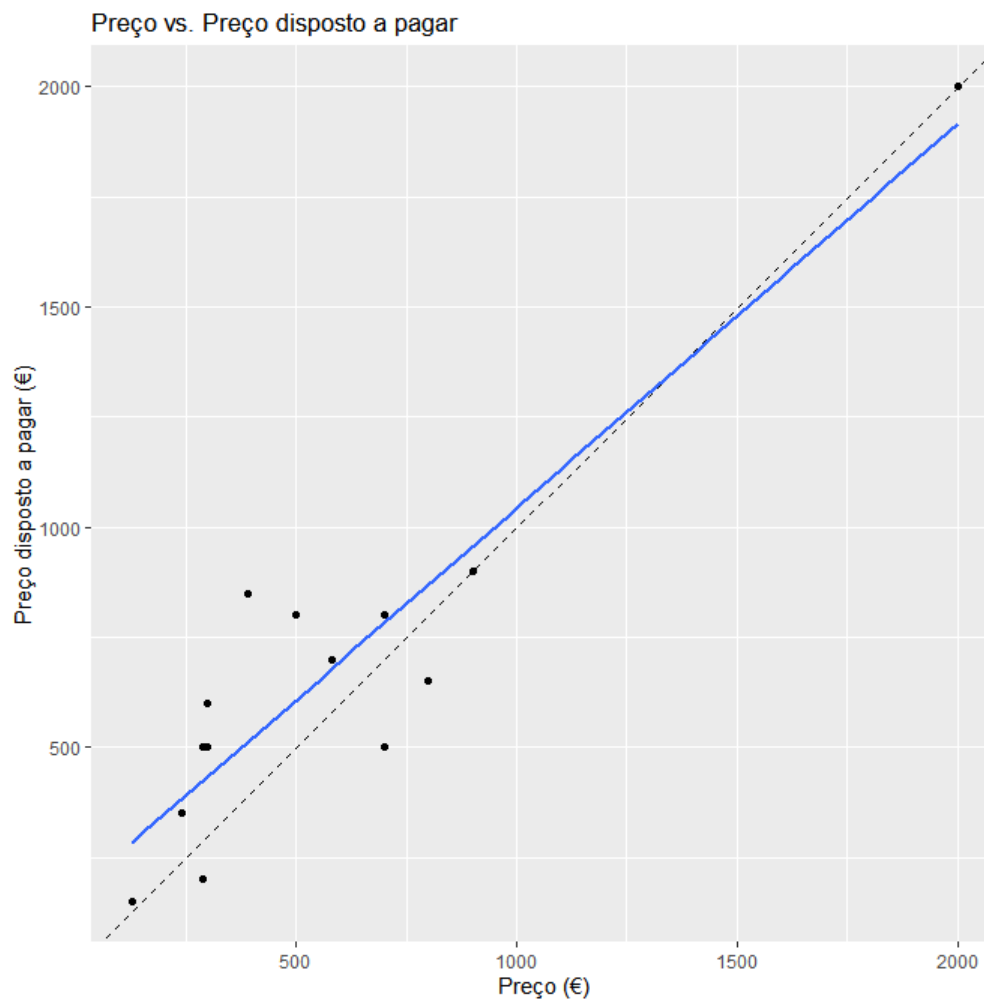
```
lm(formula = PRICE_NEW ~ PRICE, data = d5)
```

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	170.5232	72.3290	2.358	0.0347	*
PRICE	0.8724	0.1013	8.612	9.88e-07	***

Multiple R-squared: 0.8509, Adjusted R-squared: 0.8394



IUT/Análise/Modelos





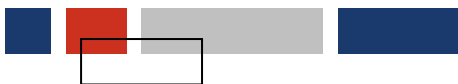
IUT/Analise/Modelos



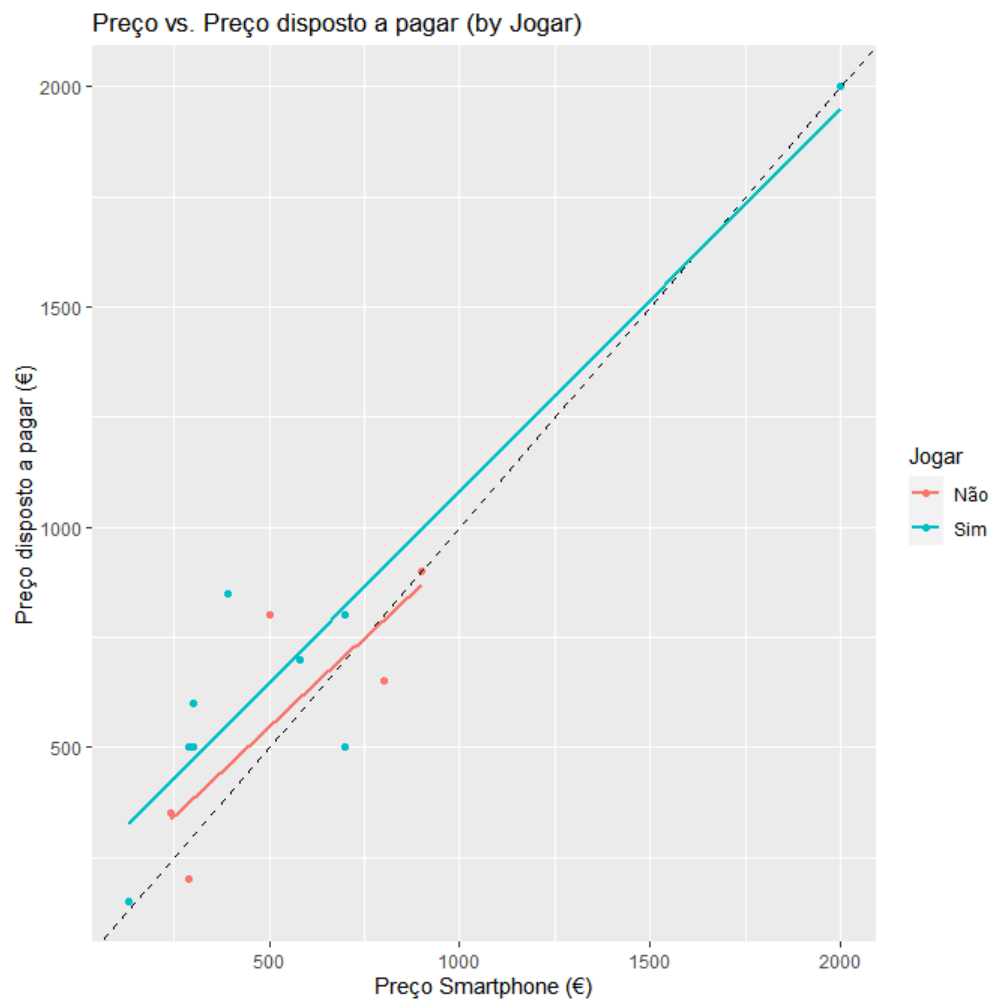
```
lm(formula = PRICE_NEW ~ PRICE + PLAY_OTHER, data = d5)
```

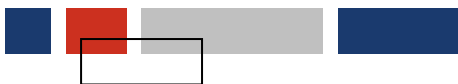
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	116.1796	86.7306	1.340	0.205
PRICE	0.8596	0.1010	8.508	1.99e-06 ***
PLAY_OTHERTRUE	102.4634	92.0777	1.113	0.288

Multiple R-squared: 0.8648, Adjusted R-squared: 0.8423



IUT/Análise/Modelos





IUT/Analise/Modelos

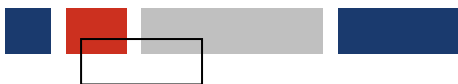


```
glm(formula = PLAY_OTHER ~ PRICE, family = "binomial", data = d5)
```

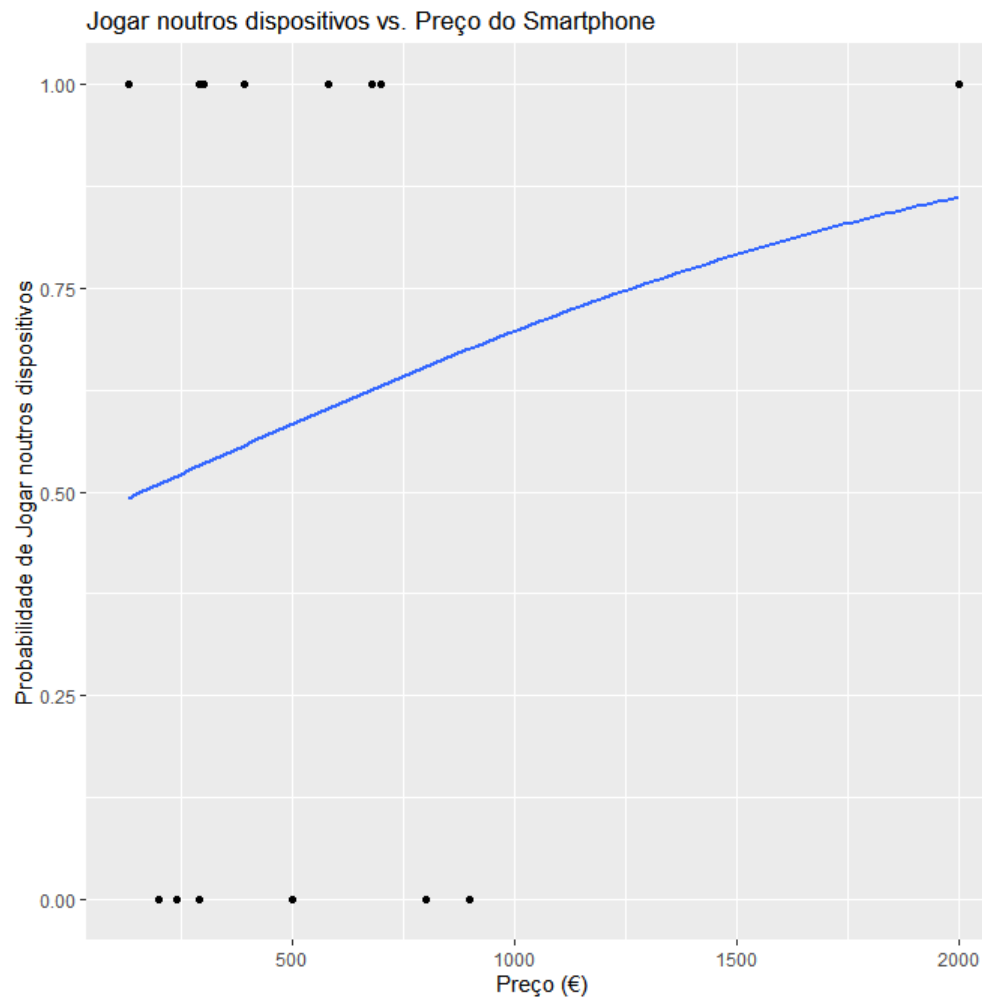
	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-0.1598261	0.8627955	-0.185	0.853
PRICE	0.0009962	0.0014348	0.694	0.487

AIC: 26.45

	OR	2.5%	97.5%
PRICE	1.00	1.00	1.00



IUT/Analise/Modelos





IUT/Analise/Modelos



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

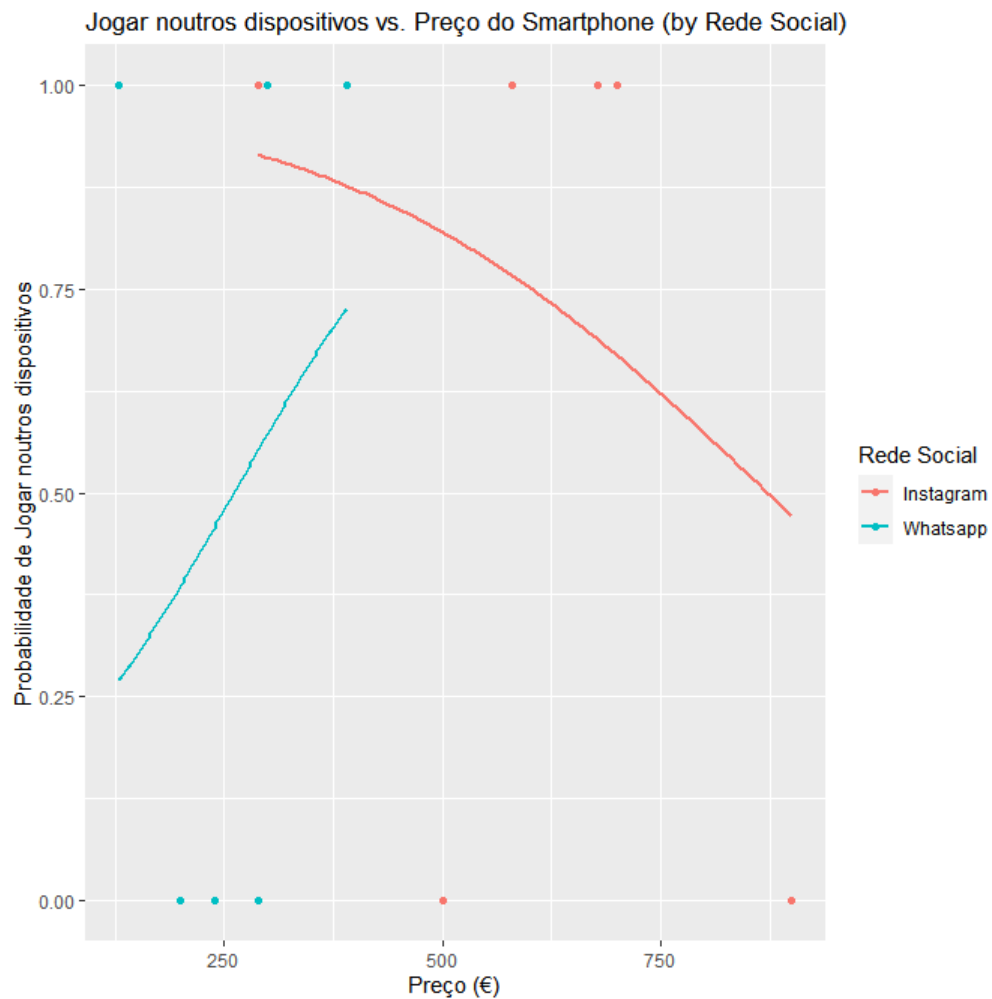
	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	1.883446	2.947073	0.639	0.523
PRICE	-0.001532	0.004401	-0.348	0.728
SOCIALNETWhatsapp	-1.483451	2.004146	-0.740	0.459

AIC: 25.341

	OR	2.5 %	97.5 %
PRICE	1.00	0.99	1.01
SOCIALNETWhatsapp	0.23	0.00	11.53



IUT/Analise/Modelos





OE-IUT



Obrigado

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

<https://rstudio.com/>

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

