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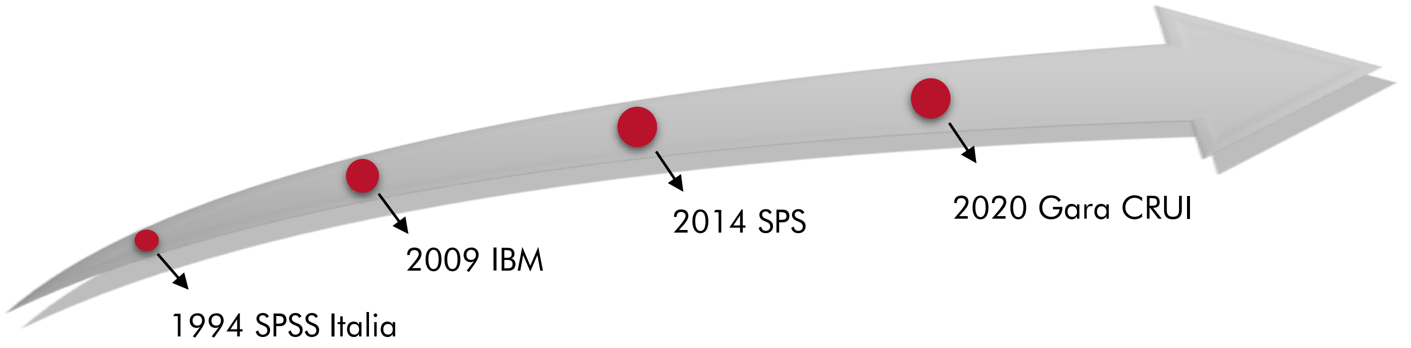
Expert
Data Science &
Business Analytics

Webinar

la ricerca Socio Economica con IBM SPSS Statistics

Webinar | SPS Srl

Roadmap



1994 SPSS Italia

2009 IBM

2014 SPS

2020 Gara CRUI

Posizionamento

- +25 anni di esperienza sui prodotti SPSS
- IBM BP **Software Support Provider** con competenza IBM Expert in Data Science and Business Analytics
- Gold Business Partner IBM

Presenza sul mercato

- **Scuole e Università**
- **Enti di ricerca (CNR, ISS, CREA ecc.)**
- Sanità (IRCCS, AO, AOU ecc.)
- Pubblica Amministrazione
- Associazioni, Fondazioni
- Aziende (GdO, Finance, Retail, ecc.)

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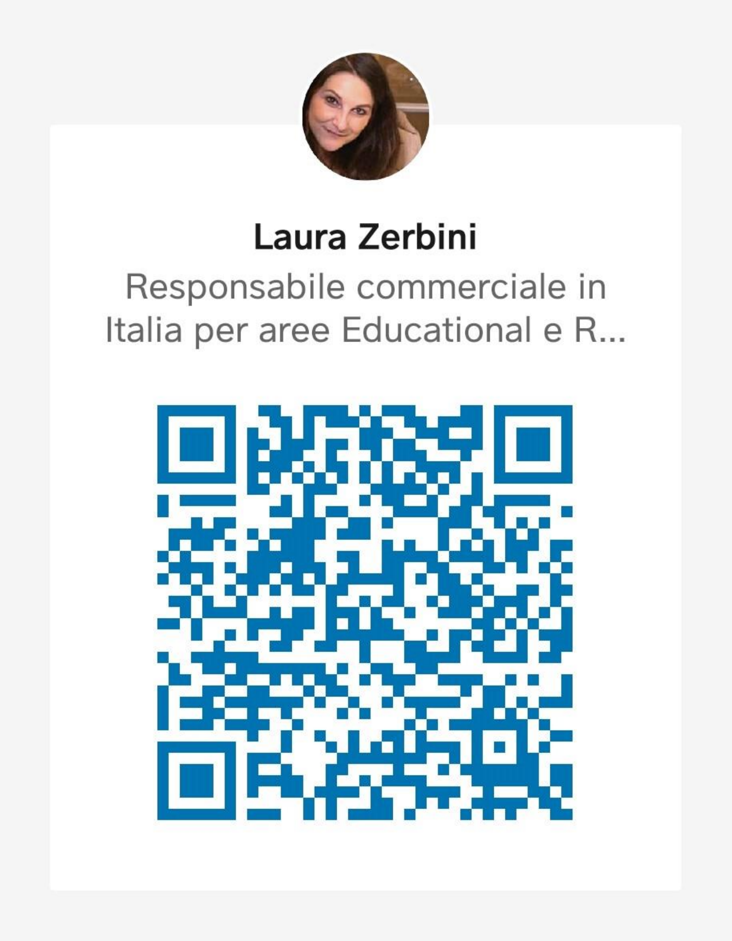
Il contratto stipulato tra CRUI e SPS S.r.l. in data 21 ottobre 2019 si riferisce alla fornitura licenze Campus IBM SPSS Statistics del "Catalogo licenze CRUI Campus PA" e di licenze aggiuntive IBM SPSS Amos e IBM SPSS Statistics per usi amministrativi.

Tutte le informazioni sul contratto sono disponibili al link
https://www.spss.it/crui-universita-italiane

Il referente commerciale per l'esecuzione contratto in SPS Srl è:
Laura Zerbini (+39 335 1360538, laura.zerbini@spss.it)



Laura Zerbini
Responsabile commerciale in Italia per aree Educational e R...

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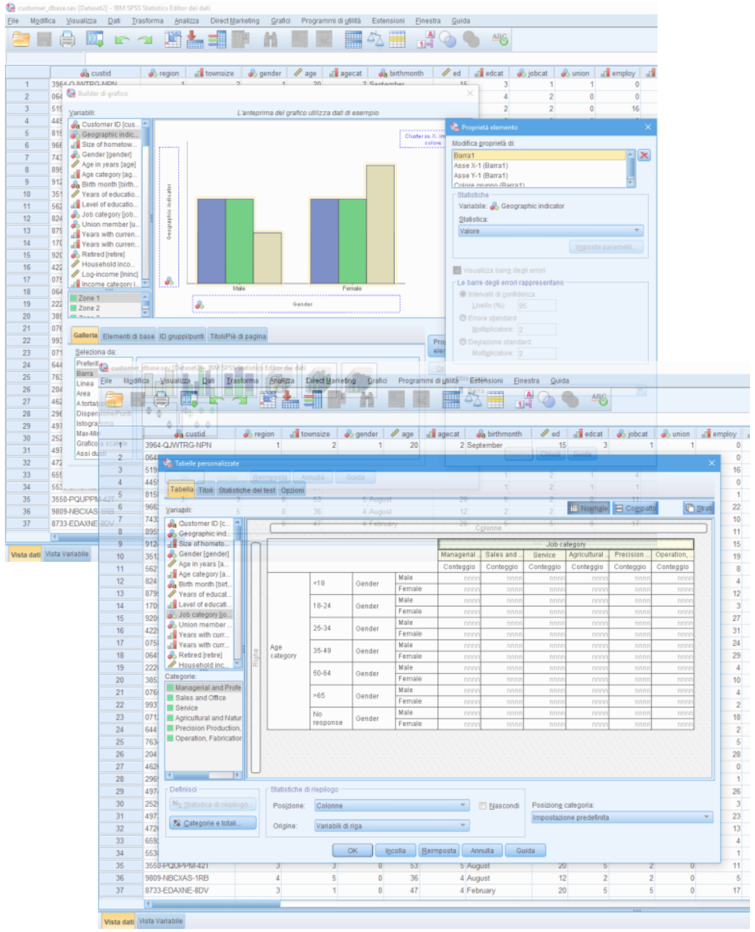
Arianna Azzellino docente @SPS



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Panoramica su alcune statistiche di sintesi

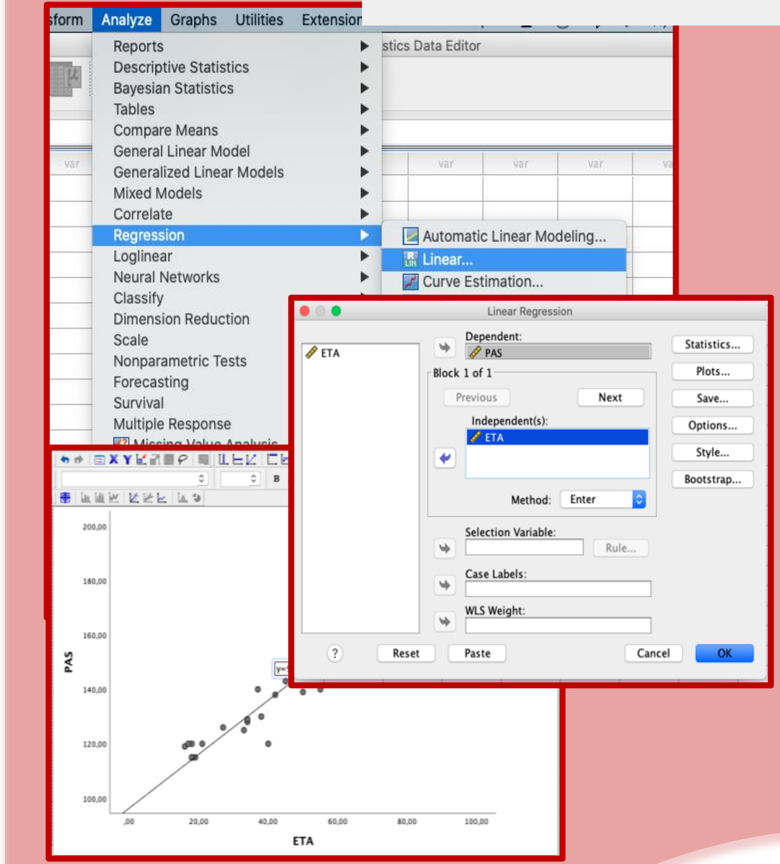
Introduzione alle principali tecniche di sintesi e di indagine nell'analisi dei dati socio-economici

Esempio di Analisi Fattoriale/Regressione

Come individuare la tabella/ grafico ottimale in relazione al tipo di dati e agli obiettivi dell'analisi

Interpretazione dell'Output

Interpretare in modo opportuno i risultati dell'analisi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Bayesian Statistics
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General Linear Model
Generalized Linear Models
Mixed Models
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Scale
Nonparametric Tests
Forecasting
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Multiple Response
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Curve Estimation...
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Plots...
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Options...
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Bootstrap...
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Dependent: PAS

Independent(s): ETA

Method: Enter

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Esempio: Turismo in Europa

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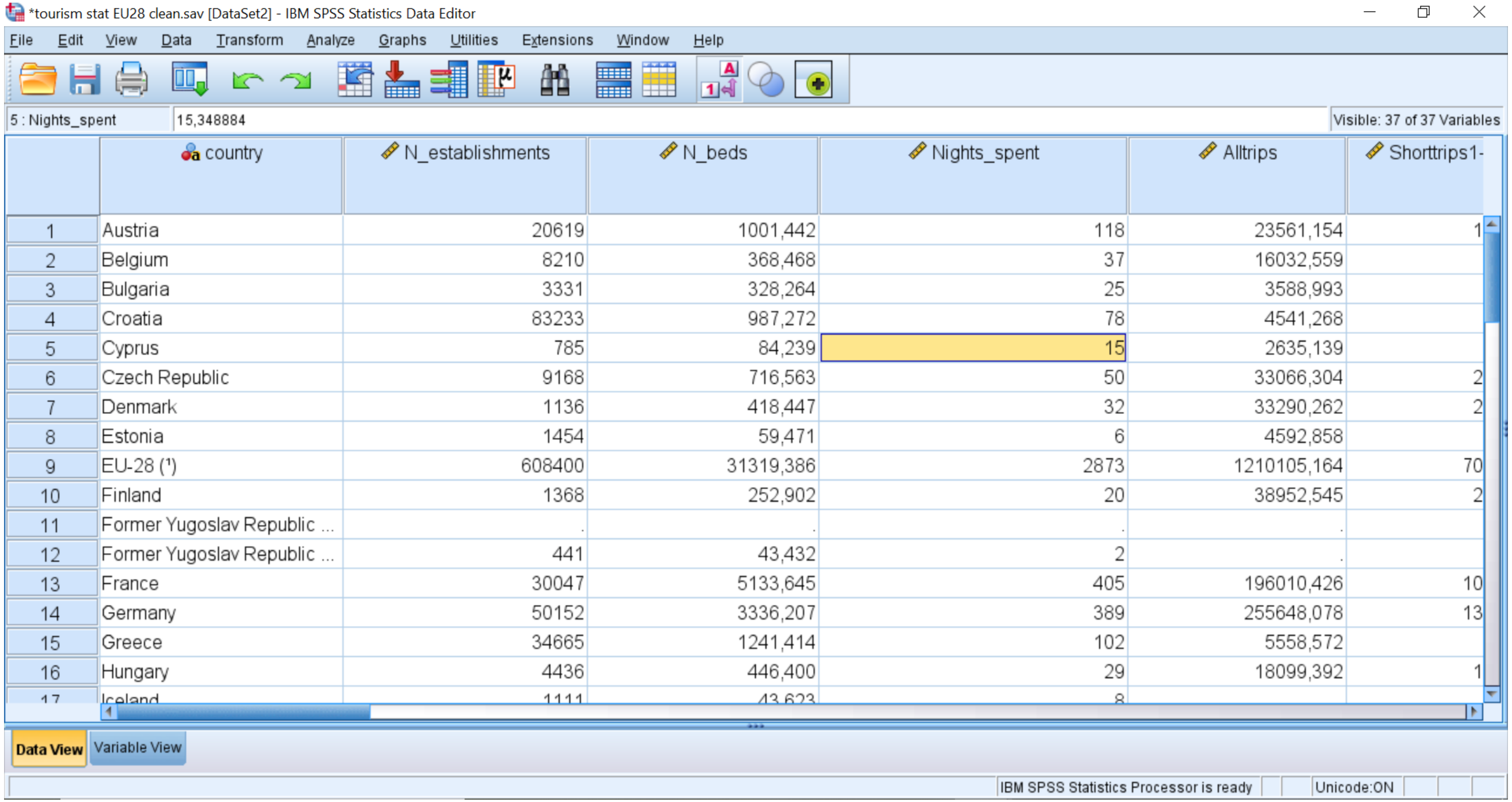
*tourism stat EU28 clean.sav [DataSet2] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help
Data View
Variable View
IBM SPSS Statistics Processor is ready
Unicode:ON

5 : Nights_spent 15,348884

Visible: 37 of 37 Variables

	country	N_establishments	N_beds	Nights_spent	Alltrips	Shorttrips1-
1	Austria	20619	1001,442	118	23561,154	1
2	Belgium	8210	368,468	37	16032,559	
3	Bulgaria	3331	328,264	25	3588,993	
4	Croatia	83233	987,272	78	4541,268	
5	Cyprus	785	84,239	15	2635,139	
6	Czech Republic	9168	716,563	50	33066,304	2
7	Denmark	1136	418,447	32	33290,262	2
8	Estonia	1454	59,471	6	4592,858	
9	EU-28 (¹)	608400	31319,386	2873	1210105,164	70
10	Finland	1368	252,902	20	38952,545	2
11	Former Yugoslav Republic ...	.	.	.	.	
12	Former Yugoslav Republic ...	441	43,432	2	.	
13	France	30047	5133,645	405	196010,426	10
14	Germany	50152	3336,207	389	255648,078	13
15	Greece	34665	1241,414	102	5558,572	
16	Hungary	4436	446,400	29	18099,392	1
17	Iceland	1111	43,623	8		

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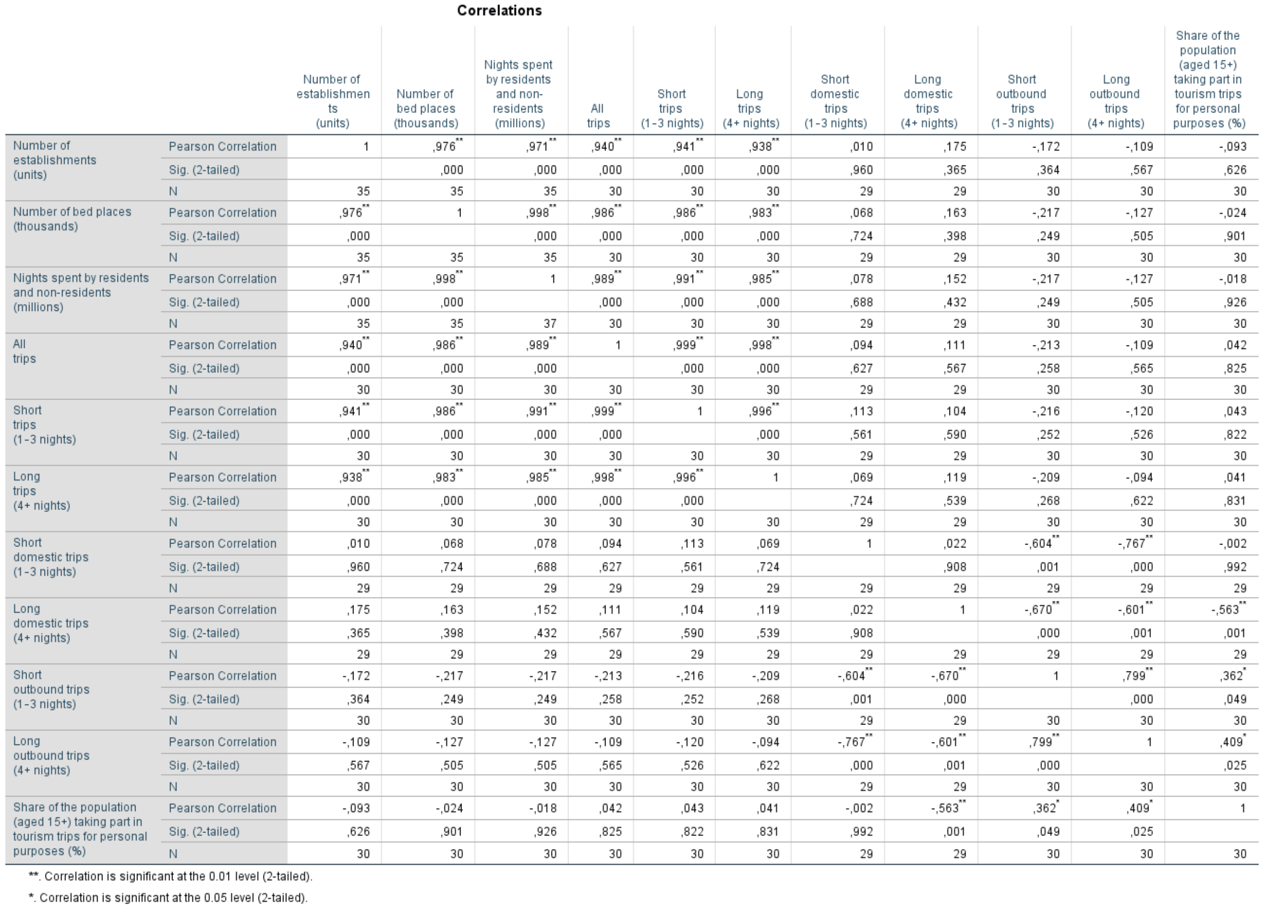
Esempio: Turismo in Europa



Correlations

		Number of establishments (units)	Number of bed places (thousands)	Nights spent by residents and non-residents (millions)	All trips	Short trips (1-3 nights)	Long trips (4+ nights)	Short domestic trips (1-3 nights)	Long domestic trips (4+ nights)	Short outbound trips (1-3 nights)	Long outbound trips (4+ nights)	Share of the population (aged 15+) taking part in tourism trips for personal purposes (%)
Number of establishments (units)	Pearson Correlation	1	,976**	,971**	,940**	,941**	,938**	,010	,175	-,172	-,109	-,093
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,960	,365	,364	,567	,626
	N	35	35	35	30	30	30	29	29	30	30	30
Number of bed places (thousands)	Pearson Correlation	,976**	1	,998**	,986**	,986**	,983**	,068	,163	-,217	-,127	-,024
	Sig. (2-tailed)	,000		,000	,000	,000	,000	,724	,398	,249	,505	,901
	N	35	35	35	30	30	30	29	29	30	30	30
Nights spent by residents and non-residents (millions)	Pearson Correlation	,971**	,998**	1	,989**	,991**	,985**	,078	,152	-,217	-,127	-,018
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,688	,432	,249	,505	,926
	N	35	35	37	30	30	30	29	29	30	30	30
All trips	Pearson Correlation	,940**	,986**	,989**	1	,999**	,998**	,094	,111	-,213	-,109	,042
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,627	,567	,258	,565	,825
	N	30	30	30	30	30	30	29	29	30	30	30
Short trips (1-3 nights)	Pearson Correlation	,941**	,986**	,991**	,999**	1	,996**	,113	,104	-,216	-,120	,043
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,561	,590	,252	,526	,822
	N	30	30	30	30	30	30	29	29	30	30	30
Long trips (4+ nights)	Pearson Correlation	,938**	,983**	,985**	,998**	,996**	1	,069	,119	-,209	-,094	,041
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,724	,539	,268	,622	,831
	N	30	30	30	30	30	30	29	29	30	30	30
Short domestic trips (1-3 nights)	Pearson Correlation	,010	,068	,078	,094	,113	,069	1	,022	-,604**	-,767**	-,002
	Sig. (2-tailed)	,960	,724	,688	,627	,561	,724		,908	,001	,000	,992
	N	29	29	29	29	29	29	29	29	29	29	29
Long domestic trips (4+ nights)	Pearson Correlation	,175	,163	,152	,111	,104	,119	,022	1	-,670**	-,601**	-,563**
	Sig. (2-tailed)	,365	,398	,432	,567	,590	,539	,908		,000	,001	,001
	N	29	29	29	29	29	29	29	29	29	29	29
Short outbound trips (1-3 nights)	Pearson Correlation	-,172	-,217	-,217	-,213	-,216	-,209	-,604**	-,670**	1	,799**	,362*
	Sig. (2-tailed)	,364	,249	,249	,258	,252	,268	,001	,000		,000	,049
	N	30	30	30	30	30	30	29	29	30	30	30
Long outbound trips (4+ nights)	Pearson Correlation	-,109	-,127	-,127	-,109	-,120	-,094	-,767**	-,601**	,799**	1	,409*
	Sig. (2-tailed)	,567	,505	,505	,565	,526	,622	,000	,001	,000		,025
	N	30	30	30	30	30	30	29	29	30	30	30
Share of the population (aged 15+) taking part in tourism trips for personal purposes (%)	Pearson Correlation	-,093	-,024	-,018	,042	,043	,041	-,002	-,563**	,362*	,409*	1
	Sig. (2-tailed)	,626	,901	,926	,825	,822	,831	,992	,001	,049	,025	
	N	30	30	30	30	30	30	29	29	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

ANALISI DELLE COMPONENTI PRINCIPALI

L'obiettivo dell'analisi fattoriale è l'identificazione di una struttura sottostante ad un insieme di variabili rilevate

Famiglia di relazioni lineari:

$$F_i = w_{i1}X_1 + w_{i2}X_2 + \ldots + w_{ip}X_p$$

Dove *w* sono detti *coefficienti di punteggio fattoriali*

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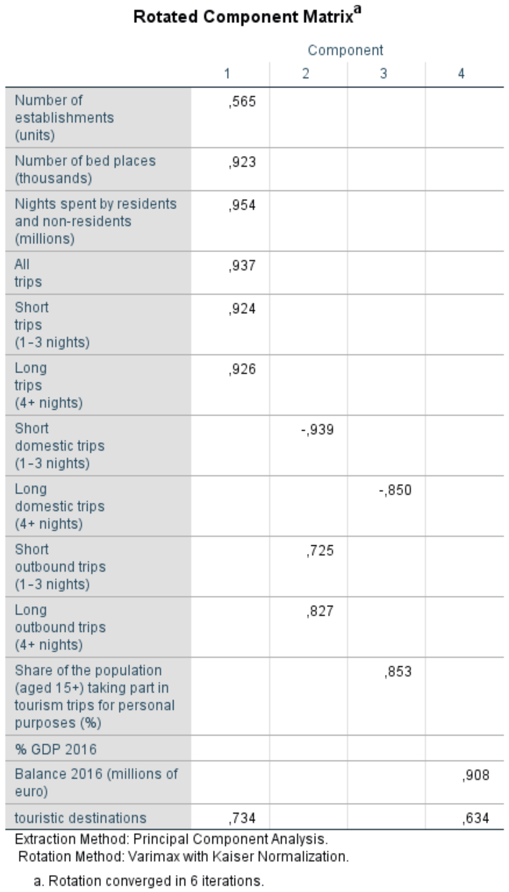
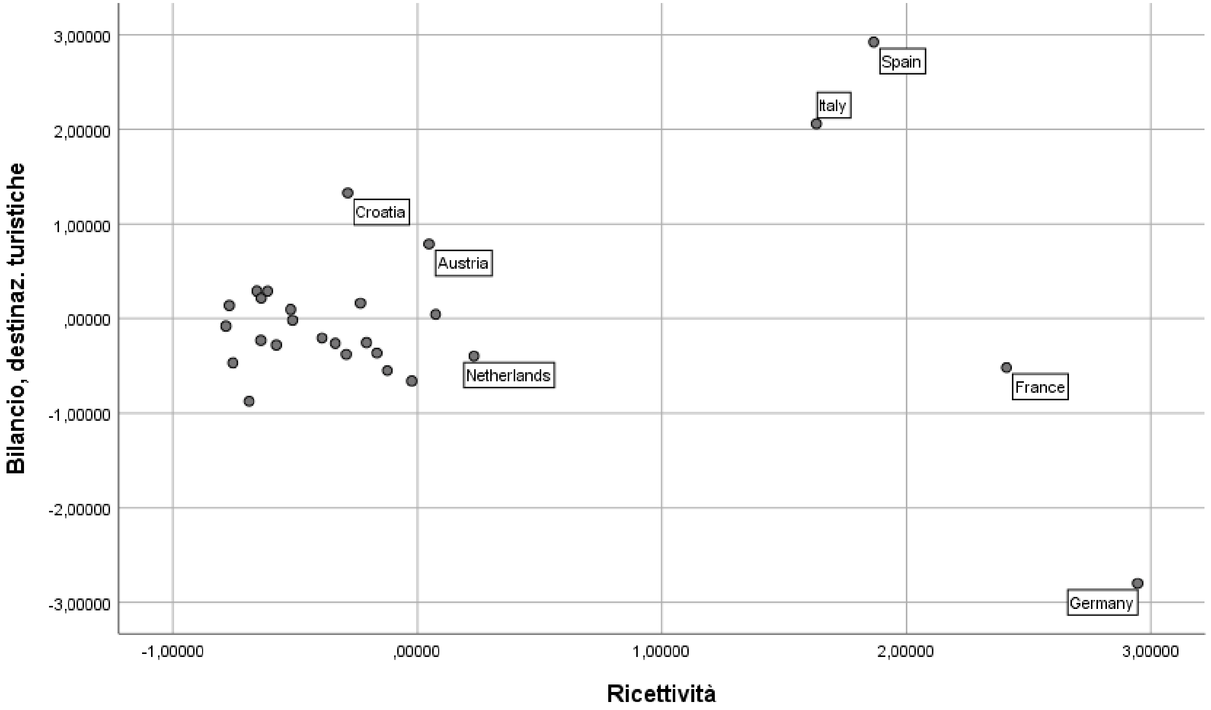


Rotated Component Matrix[a]

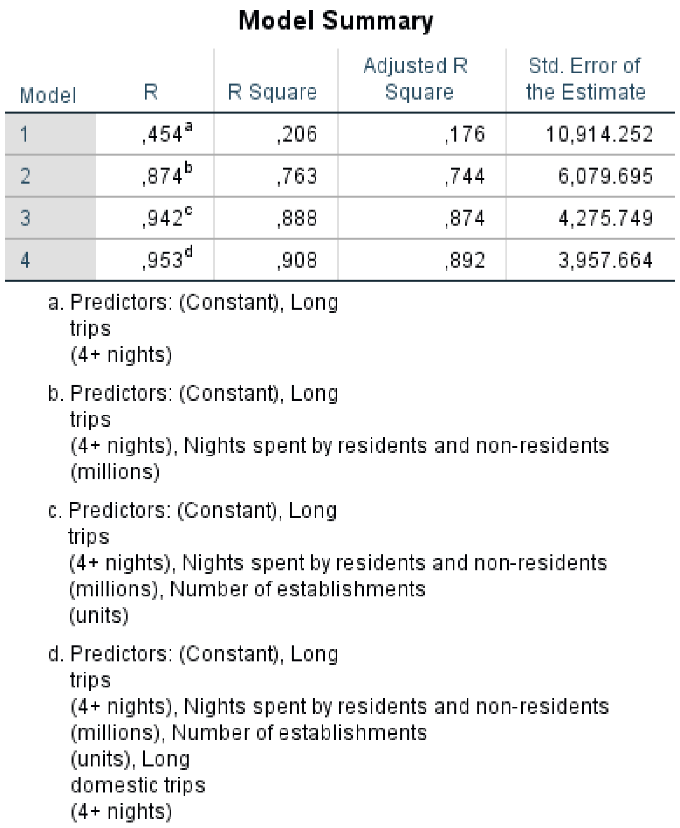
	Component 1	2	3	4
Number of establishments (units)	,565			
Number of bed places (thousands)	,923			
Nights spent by residents and non-residents (millions)	,954			
All trips	,937			
Short trips (1-3 nights)	,924			
Long trips (4+ nights)	,926			
Short domestic trips (1-3 nights)		-,939		
Long domestic trips (4+ nights)			-,850	
Short outbound trips (1-3 nights)		,725		
Long outbound trips (4+ nights)		,827		
Share of the population (aged 15+) taking part in tourism trips for personal purposes (%)			,853	
% GDP 2016				
Balance 2016 (millions of euro)				,908
touristic destinations	,734			,634

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.



Dove *w* sono detti *coefficienti di punteggio fattoriali*



Model Summary

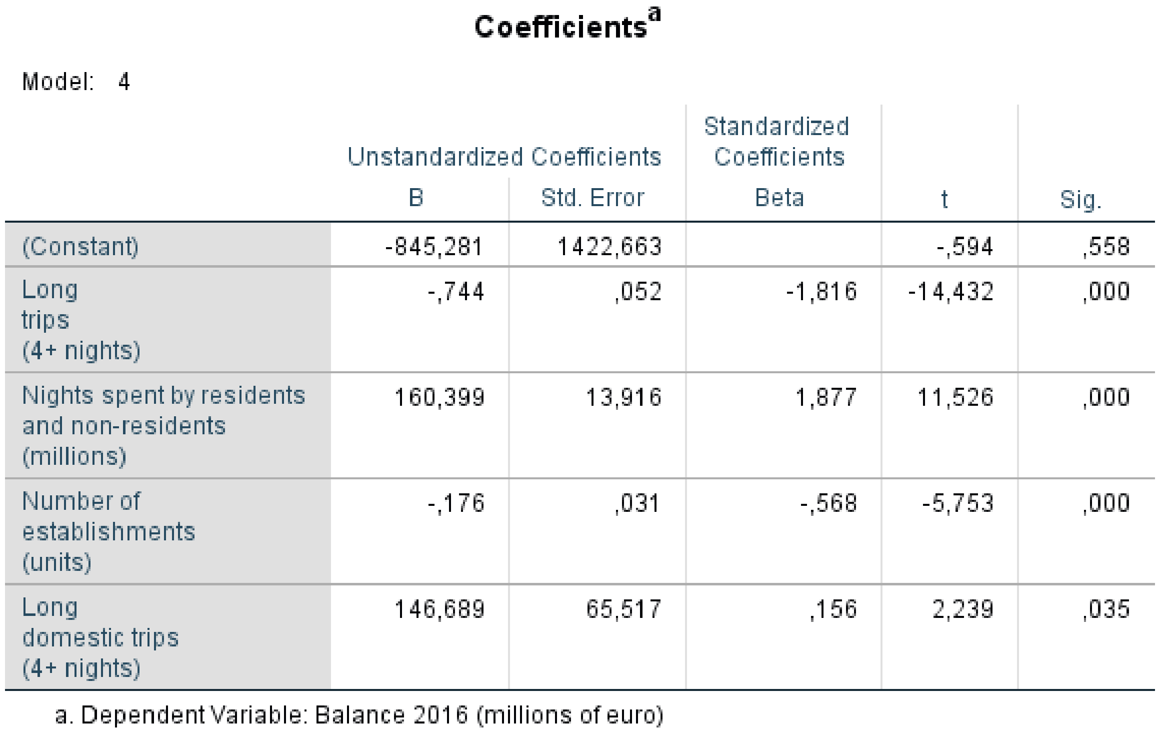
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,454[a]	,206	,176	10,914.252
2	,874[b]	,763	,744	6,079.695
3	,942[c]	,888	,874	4,275.749
4	,953[d]	,908	,892	3,957.664

a. Predictors: (Constant), Long trips (4+ nights)

b. Predictors: (Constant), Long trips (4+ nights), Nights spent by residents and non-residents (millions)

c. Predictors: (Constant), Long trips (4+ nights), Nights spent by residents and non-residents (millions), Number of establishments (units)

d. Predictors: (Constant), Long trips (4+ nights), Nights spent by residents and non-residents (millions), Number of establishments (units), Long domestic trips (4+ nights)



Coefficients[a]

Model: 4

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-845,281	1422,663		-,594	,558
Long trips (4+ nights)	-,744	,052	-1,816	-14,432	,000
Nights spent by residents and non-residents (millions)	160,399	13,916	1,877	11,526	,000
Number of establishments (units)	-,176	,031	-,568	-5,753	,000
Long domestic trips (4+ nights)	146,689	65,517	,156	2,239	,035

a. Dependent Variable: Balance 2016 (millions of euro)

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Ringraziamenti e Conclusioni

Laura Zerbini @SPS

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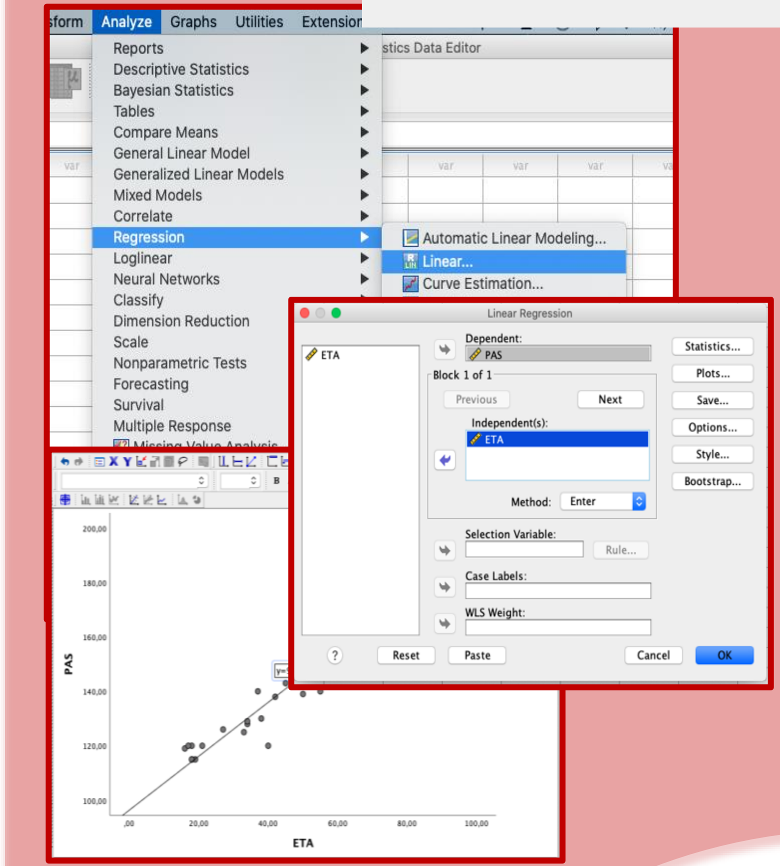
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Dependent: PAS

Independent(s): ETA

Method: Enter

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