

«Μεθοδολογία Έρευνας και Στατιστική II»

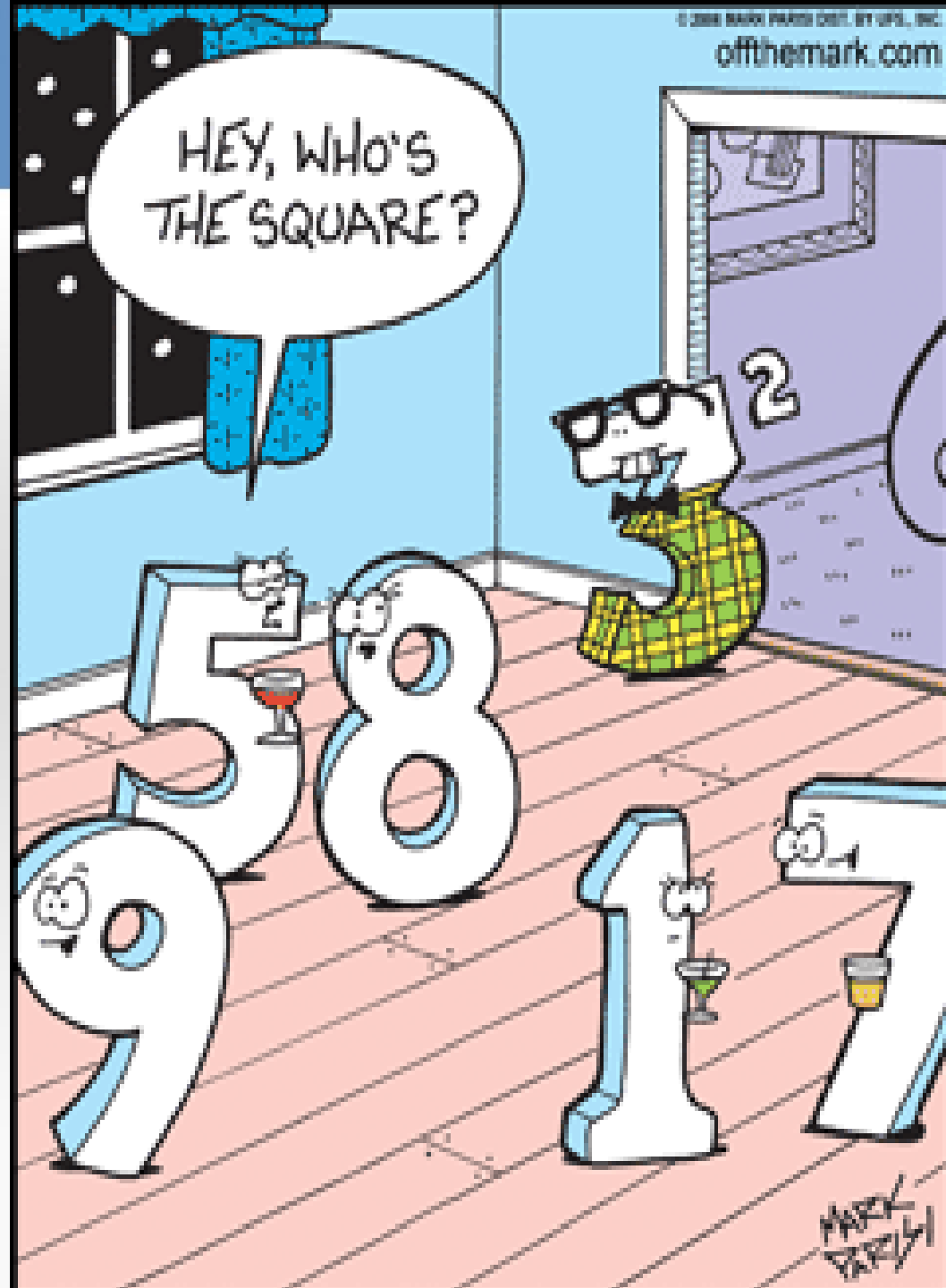
Γωγώ Κουμουνδούρου, Σύμβουλος Σταδιοδρομίας, PhD

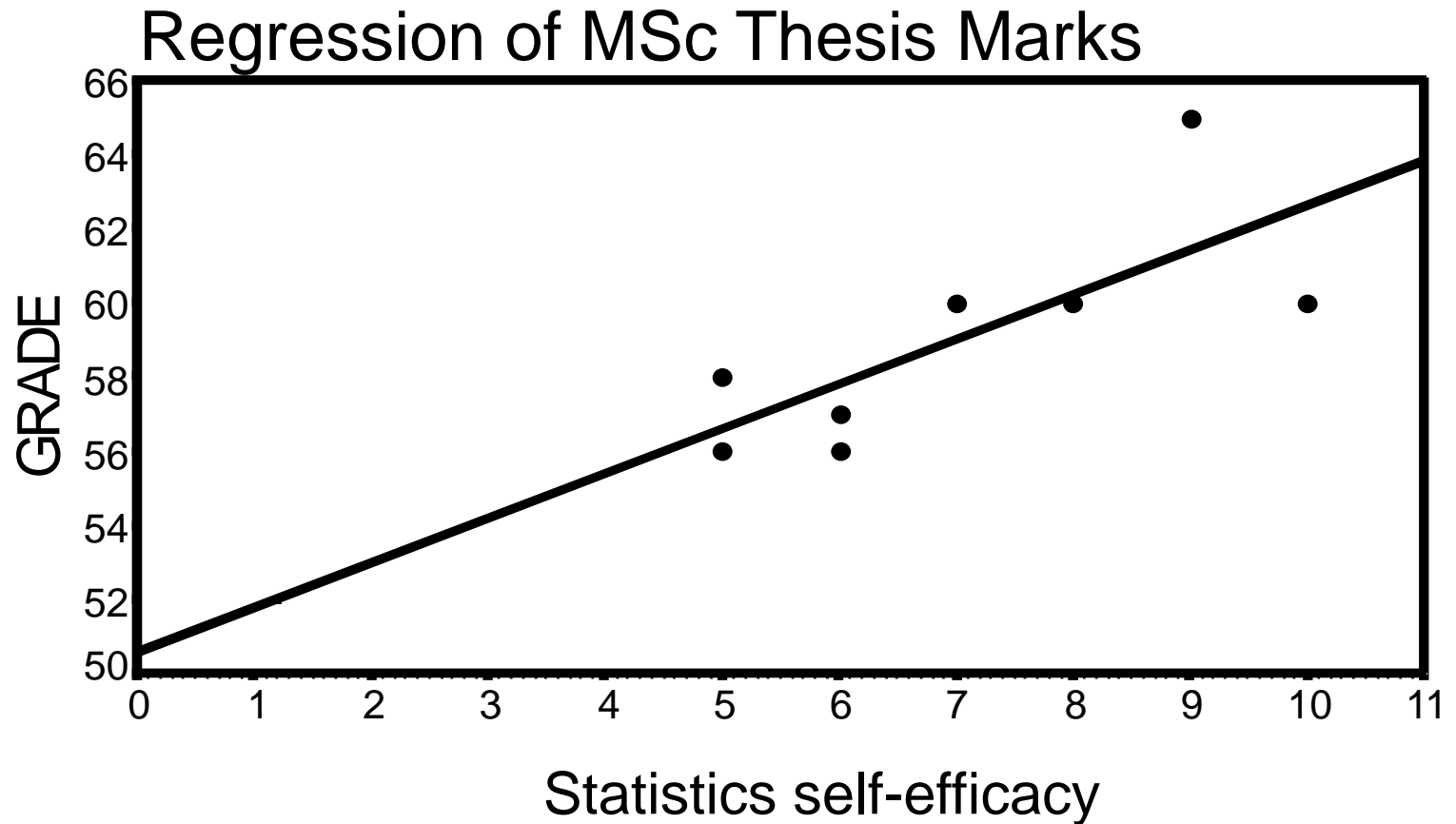
g.koumoun@ppp.uoa.gr / gkoumoundourou@orientum.gr



- Ερ.: Μπορώ να προβλέψω τις τιμές μιας μεταβλητής από τις τιμές μιας άλλης ?
- Απ.: Εύκολα!!

Λίγα μαθηματικά







$$Y' = a + bX$$

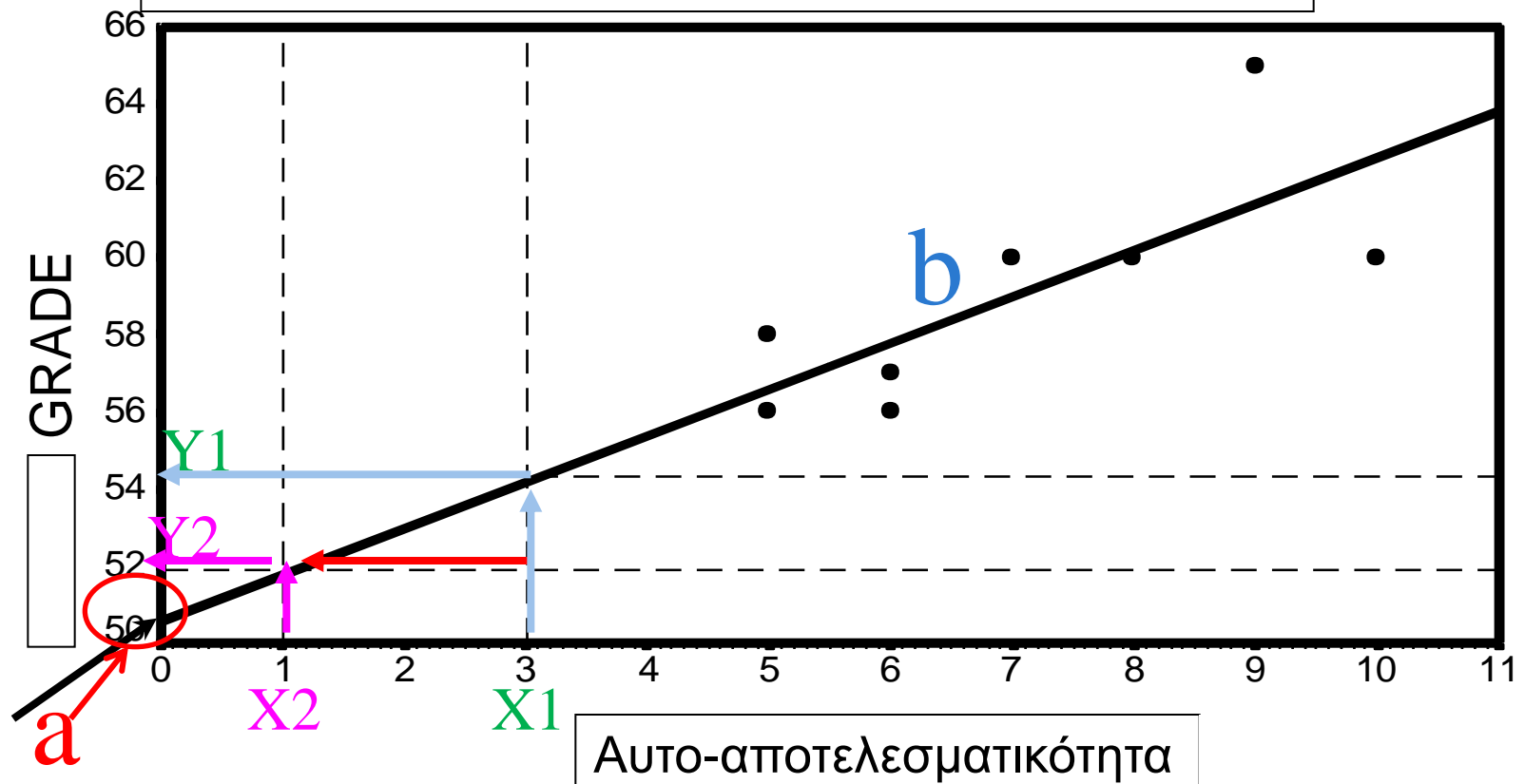
Βαθμός
Διπλωματικής

Σταθερά

Κλίση Γραμμής
Παλινδρόμησης/
Τιμή self-efficacy



Πρόβλεψη Βαθμολογίας Βαθμού Διπλωματικής από Αυτο-αποτελεσματικότητα!



Linear regression example



a (the *Y-intercept*) = περίπου 50.5

$$\begin{aligned} b \text{ (the slope): } & \frac{Y1 - Y2}{X1 - X2} = \frac{54.1 - 51.7}{3 - 1} = \frac{2.4}{2} \\ & = \text{περίπου } 1.2 \end{aligned}$$

$$a = 50.5$$

$$b = 1.2$$



$$Y' = 50,5 + 1,2 * X$$

Βαθμός
Διπλωματικής

Σταθερά

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Παλινδρόμησης/
Τιμή self-efficacy



$$b = \frac{N(\sum XY) - (\sum X)(\sum Y)}{N(\sum X^2) - (\sum X)^2}$$



BIVARIATE LINEAR REGRESSION

Τυπικό σφάλμα εκτίμησης (διασπορά τιμών γύρω από γραμμή παλινδρόμησης)

$$\frac{\sum(Y - Y_{pr})^2}{N-2}$$

$s_{XY} = \text{square } r$

N-2

Adjusted R square –

Διορθωμένο R square ως προς το μέγεθος δείγματος και αριθμό ανεξάρτητων μεταβλητών

R square – ποσό ερμηνευόμενης διακύμανσης για κριτήριο 57%

$$\frac{\sum(Y_{pr} - Y_m)^2}{\sum(Y - Y_m)^2}$$

R square

$$\sum(Y - Y_m)^2$$

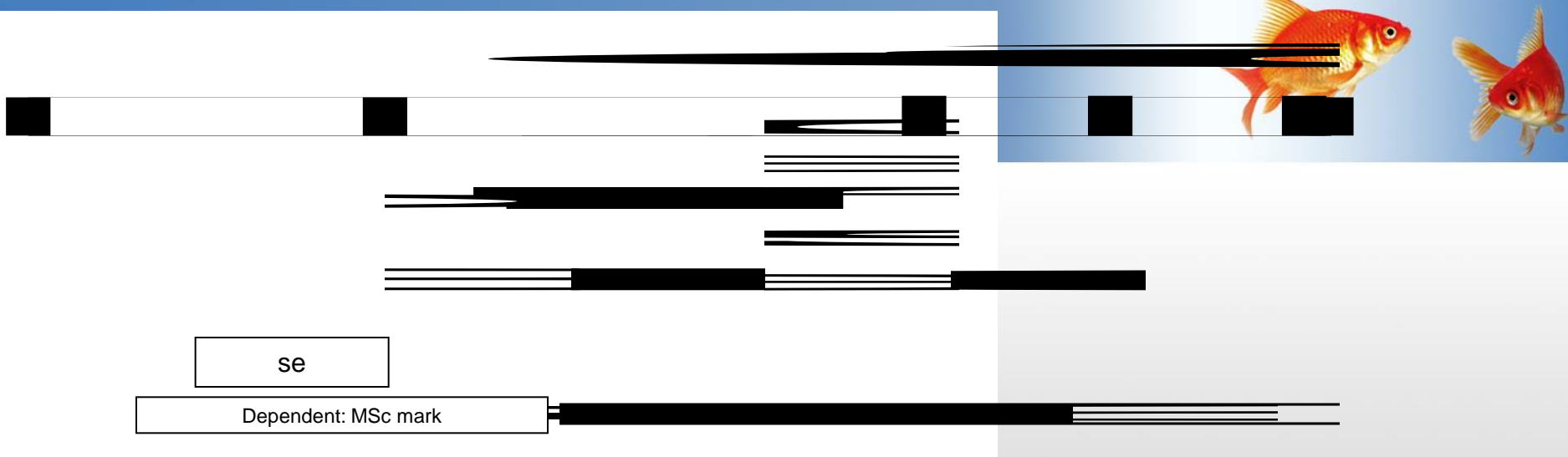
ANOVA – ελέγχει

πόσο καλά προβλέπουν οι ανεξάρτητες μεταβλητές στο μοντέλο (συνολικά) το κριτήριο)

$$(F(1,6)=7.80, p<.05)$$

se

Dependent: MSc mark



- Constant – η τιμή του κριτηρίου όταν η τιμή της ανεξάρτητης είναι = 0.
- $B(b)$ – *μη τυποποιημένος δείκτης μερικής συνάφειας*.
- SE B – Τυπικό Σφάλμα B .
- Beta – Τυποποιημένος συντελεστής παλινδρόμησης: πόσες τυπικές αποκλίσεις θα αλλάξει (αυξηθεί-μειωθεί) η εξαρτημένη μεταβλητή για κάθε αλλαγή μιας τυπικής απόκλισης της ανεξάρτητης
- t and Sig t tests υποδεικνύουν τη στατιστική σημαντικότητα της μερικής συνάφειας μεταξύ ανεξάρτητης και εξαρτημένης

Οι αντιλήψεις ΑΑ αναδείχθηκαν σε στατιστικά σημαντικό προβλεπτικό παράγοντα του βαθμού διπλωματικής εργασίας ($B = .75$, $t = 2.79$, $p < .05$). Δηλαδή, όσο υψηλότερη είναι η αυτο-αποτελεσματικότητα που αναγνωρίζουν οι φοιτητές στη στατιστική και την έρευνα, τόσο υψηλότερος είναι και ο βαθμός της διπλωματικής τους εργασίας

	Name	Type	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric		{1, agori}...	None	8	Right	Scale
2	age	Numeric		None	None	8	Right	Scale
3	place	Numeric		{1, megarat}...	None	8	Right	Scale
4	class	Numeric		{1, a}...	None	8	Right	Scale
5	school	Numeric		{1, 1o}...	None	8	Right	Scale
6	fathereduc	Numeric		{1, dbmetile}...	None	8	Right	Scale
7	mothereduc	Numeric				8	Right	Scale
8	direction	Numeric				8	Right	Scale
9	se_total	Numeric				10	Right	Scale
10	identity_diffi...	Numeric				15	Right	Scale
11	M_Care	Numeric				10	Right	Scale
12	M_Protect	Numeric				11	Right	Scale
13	M_authorit	Numeric				12	Right	Scale
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- Reports
- Descriptive Statistics
- Tables
- Compare Means
- General Linear Model
- Generalized Linear Models
- Mixed Models
- Correlate
- Regression**
- Loglinear
- Neural Networks
- Classify
- Dimension Reduction
- Scale
- Nonparametric Tests
- Forecasting
- Survival
- Multiple Response
- Missing Value Analysis...
- Multiple Imputation
- Complex Samples
- Quality Control
- ROC Curve...
- IBM SPSS Amos...

- Automatic Linear Modeling...
- Linear...**
- Curve Estimation...
- Partial Least Squares...
- Binary Logistic...
- Multinomial Logistic...
- Ordinal...
- Probit...
- Nonlinear...
- Weight Estimation...
- 2-Stage Least Squares...
- Optimal Scaling (CATREG)...



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
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4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
8	direction	Numeric	8	0						
9	se_total	Numeric	8	2						
10	identity_diffi...	Numeric	8	2						
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Linear Regression

Dependent: identity_difficulties

Block 1 of 1

Independent(s): se_total

Method: Enter

Selection Variable:

Case Labels:

WLS Weight:

OK Paste Reset Cancel Help

Statistics... Plots... Save... Options... Bootstrap...



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
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Linear Regression

Dependent:

Linear Regression: Plots

DEPENDNT

- *ZPRED
- *ZRESID
- *DRESID
- *ADJPRED
- *SRESID
- *SDRESID

Scatter 1 of 1

Previous Next

Y: *ZRESID

X: *ZPRED

Standardized Residual Plots

☒ Histogram

☐ Normal probability plot

☐ Produce all partial plots

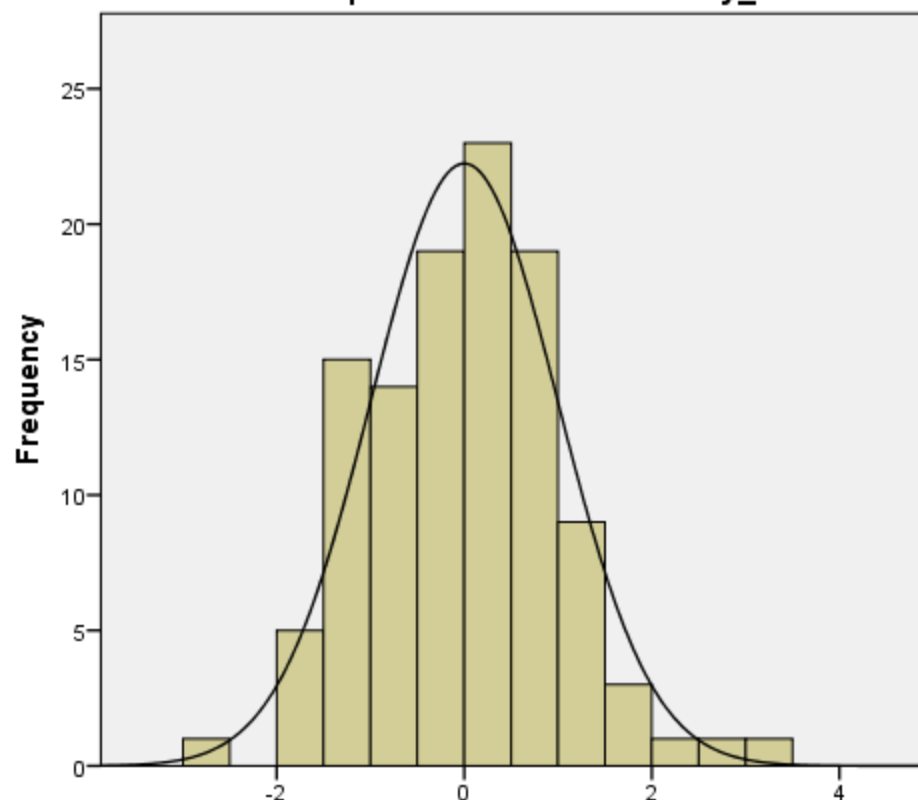
Continue Cancel Help

OK Paste Reset Cancel Help



- Output
 - Log
 - Regression
 - Title
 - Notes
 - Active Dataset
 - Variables Entered
 - Model Summary
 - ANOVA
 - Coefficients
 - Residuals Statistics
 - Charts
 - Title
 - *zresid Histogram
 - *zresid by *zp

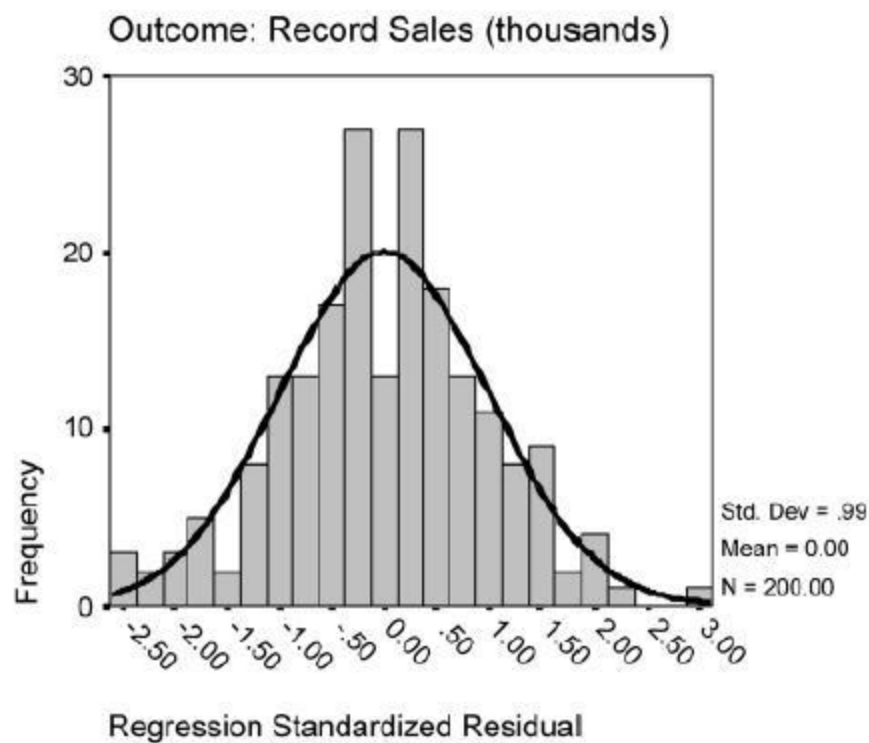
Histogram
Dependent Variable: identity_difficulties



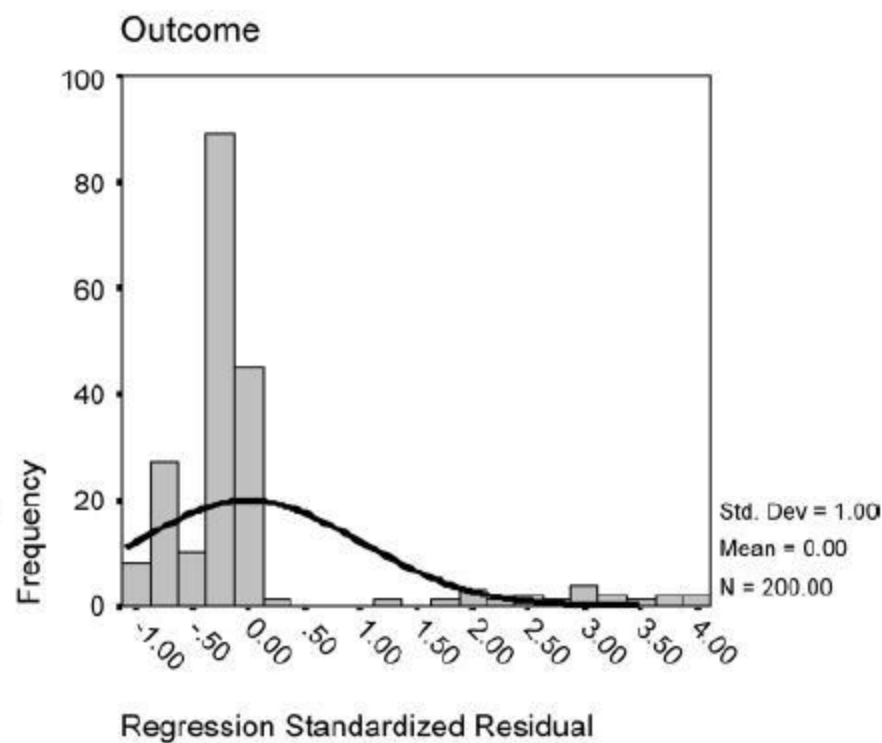
Mean = -3,71E-16
Std. Dev. = 0,995
N = 111

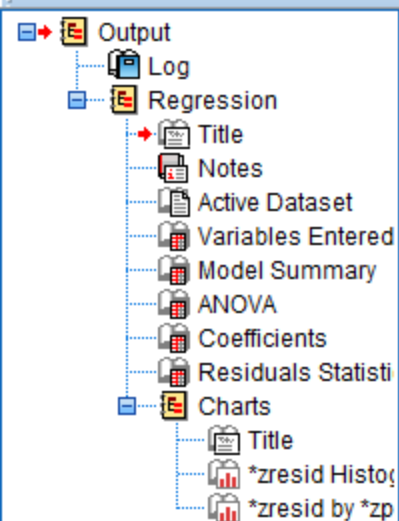
CHAPTER 7 REGRESSION

(a) Normality assumed

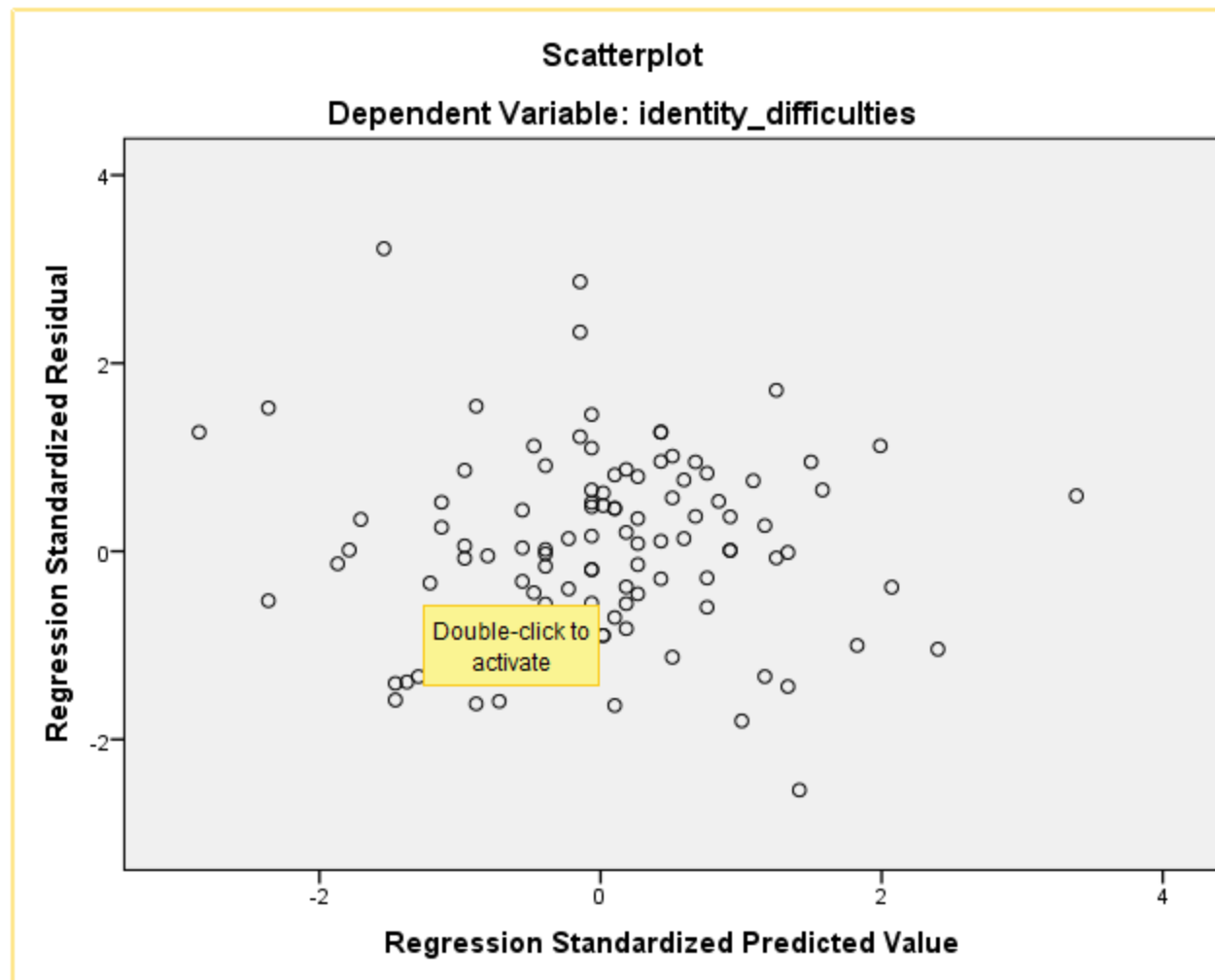


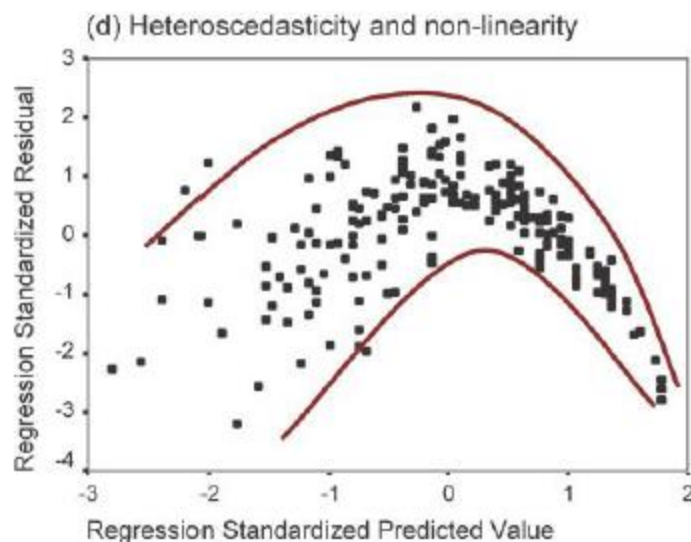
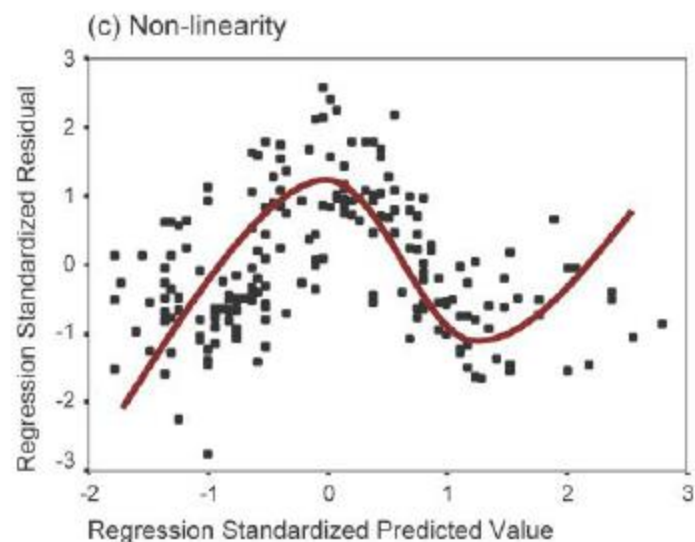
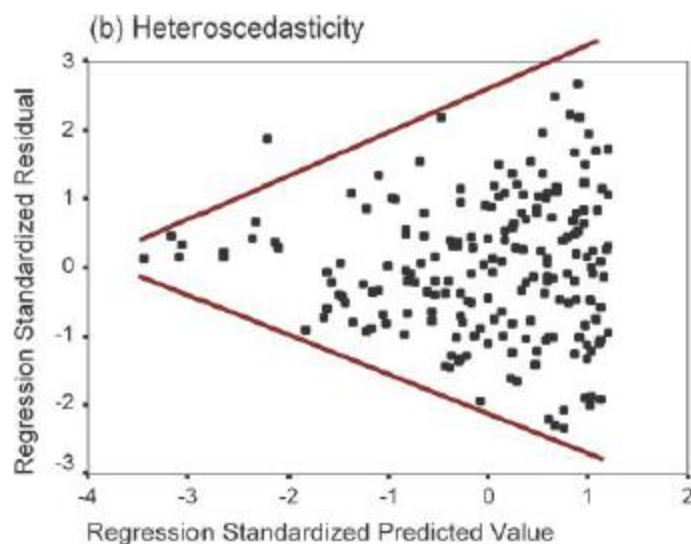
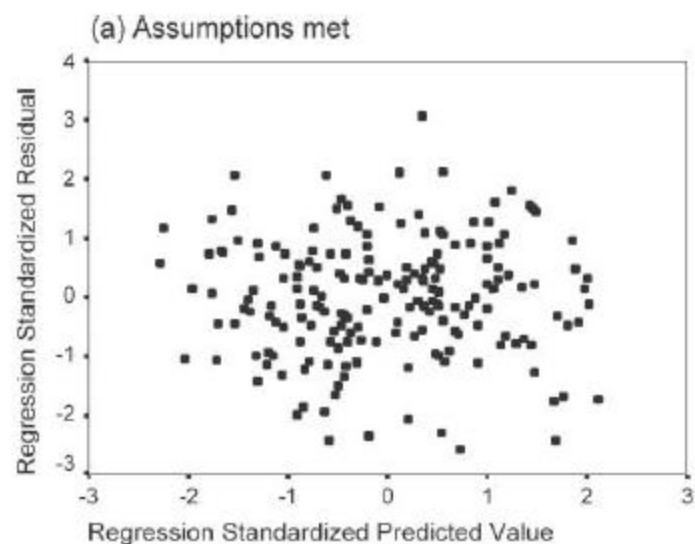
(b) Non-normal





Regression Standardized Residual





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Convert P
online.

Select PDF

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Recognize
Change

► Create

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Regression
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Notes
Active Dataset
Variables Entered
Model Summary
ANOVA
Coefficients
Residuals Statistics
Charts
Title
*zresid Histogram
*zresid by *zp

[DataSet1] F:\Documents\Orientum_Questionnaires\XAPOKONEIO\WORKSHOP_9x4\1-2\regression_test

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	se_total ^b	.	Enter

a. Dependent Variable: identity_difficulties

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,356 ^a	,127	,119	1,31988

a. Predictors: (Constant), se_total

b. Dependent Variable: identity_difficulties

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27,610	1	27,610	15,849	,000 ^b
	Residual	189,886	109	1,742		
	Total	217,496	110			

a. Dependent Variable: identity_difficulties

b. Predictors: (Constant), se_total



- Output
 - Log
 - Regression
 - Title
 - Notes
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 - Variables Entered
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 - *zresid by *zp

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7,943	,941		8,442	,000
	se_total	-1,029	,258	-,356	-3,981	,000

a. Dependent Variable: identity_difficulties

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2,7996	5,9268	4,2305	,50099	111
Residual	-3,35105	4,24788	,00000	1,31386	111
Std. Predicted Value	-2,856	3,386	,000	1,000	111
Std. Residual	-2,539	3,218	,000	,995	111

a. Dependent Variable: identity_difficulties

Charts

Histogram

Dependent Variable: identity_difficulties





Output
Log
Regression
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Coefficients
Residuals Statistics
Charts
Title
*zresid Histogram
*zresid by *zp

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care, M_authorit ^b	.	Enter

a. Dependent Variable: identity_difficulties

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,604 ^a	,365	,322	1,16080

a. Predictors: (Constant), F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care, M_authorit

b. Dependent Variable: identity_difficulties

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79,055	7	11,294	8,381	,000 ^b
	Residual	137,441	102	1,347		
	Total	216,496	109			

a. Dependent Variable: identity_difficulties

b. Predictors: (Constant), F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care,

Κι αν θέλω πολλές προβλεπτικές μεταβλητές?



- **Multiple Regression!!**

- **Προυποθέσεις:**

- μεγάλο δείγμα, 20 άτομα ανά προβλεπτική
- Bare minimum 5 per predictor

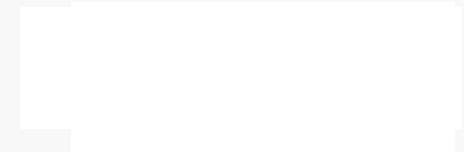
- **Είδη:**

- Forced entry
- Stepwise (forward / backward / stepwise)
- Hierarchical

Multiple Regression: Forced Entry



- Όλοι οι παράγοντες μπαίνουν ταυτόχρονα στην εξίσωση!
- Πώς?





	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
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Linear Regression

Dependent: identity_difficulties

Block 1 of 1

Independent(s): se_total, M_Care, M_Protect

Method: Enter

Selection Variable:

Case Labels:

WLS Weight:

OK Paste Reset Cancel Help

Statistics... Plots... Save... Options... Bootstrap...



Output
Log
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Title
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*zresid by *zp

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care, M_authorit ^b	.	Enter

a. Dependent Variable: identity_difficulties

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,604 ^a	,365	,322	1,16080

a. Predictors: (Constant), F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care, M_authorit

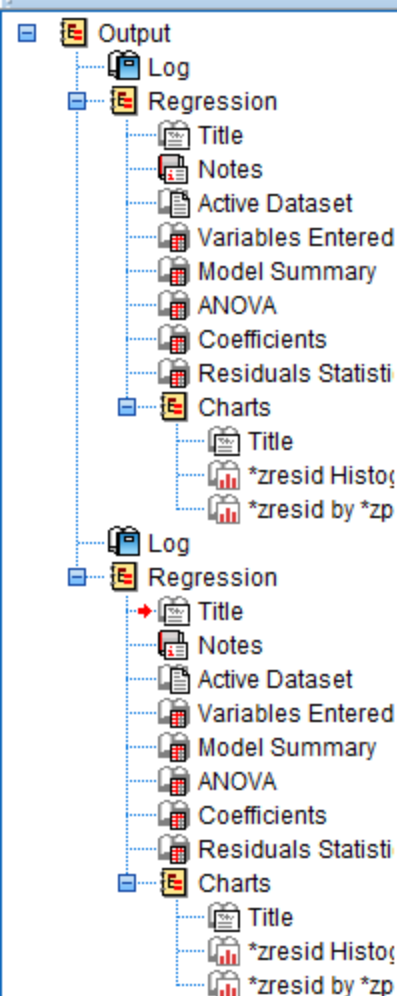
b. Dependent Variable: identity_difficulties

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79,055	7	11,294	8,381	,000 ^b
	Residual	137,441	102	1,347		
	Total	216,496	109			

a. Dependent Variable: identity_difficulties

b. Predictors: (Constant), F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care,



a. Dependent Variable: identity_difficulties

b. Predictors: (Constant), F_authorit, M_Protect, se_total, M_Care, F_Protect, F_Care, M_authorit

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,669	1,502		4,440	,000
	se_total	-,668	,252	-,232	-2,654	,009
	M_Care	-,727	,282	-,254	-2,579	,011
	M_Protect	,654	,228	,267	2,863	,005
	M_authorit	,276	,225	,131	1,230	,222
	F_Care	,044	,231	,020	,190	,850
	F_Protect	,194	,214	,084	,903	,369
	F_authorit	-,125	,236	-,062	-,530	,597

a. Dependent Variable: identity_difficulties

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2,2319	7,3418	4,2396	,85163	110
Residual	-2,44042	3,57442	,00000	1,12291	110
Std. Predicted Value	-2,357	3,643	,000	1,000	110
Std. Residual	-2,102	3,079	,000	,967	110

a. Dependent Variable: identity_difficulties



- Από όλους τους παράγοντες, ποιοι είναι σημαντικοί στην πρόβλεψη της εξαρτημένης-κριτηρίου?
- Πώς?



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
8	direction	Numeric	8	0						
9	se_total	Numeric	8	2						
10	identity_diffi...	Numeric	8	2						
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12	M_Protect	Numeric	8	2						
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15	F_Protect	Numeric	8	2						
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Linear Regression

Dependent: identity_difficulties

Block 1 of 1

Independent(s):

Method: Enter

Selection Variable:

Case Labels:

WLS Weight:

OK Paste Reset Cancel Help

Statistics... Plots... Save... Options... Bootstrap...



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
8	direction	Numeric	8	0						
9	se_total	Numeric	8	2						
10	identity_diffi...	Numeric	8	2						
11	M_Care	Numeric	8	2						
12	M_Protect	Numeric	8	2						
13	M_authorit	Numeric	8	2						
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Linear Regression

Dependent: identity_difficulties

Block 1 of 1

Independent(s): se_total, M_Care, M_Protect

Method: Stepwise

Selection Variable:

Case Labels:

WLS Weight:

OK Paste Reset Cancel Help

Statistics... Plots... Save... Options... Bootstrap...

Enter Stepwise Remove Backward Forward



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
8	direction	Numeric	8	0						
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Linear Regression

Dependent: gender

Linear Regression: Statistics

Regression Coefficients

☒ Estimates

☐ Confidence intervals

Level(%): 95

☐ Covariance matrix

☒ Model fit

☒ R squared change

☒ Descriptives

☐ Part and partial correlations

☒ Collinearity diagnostics

Residuals

☐ Durbin-Watson

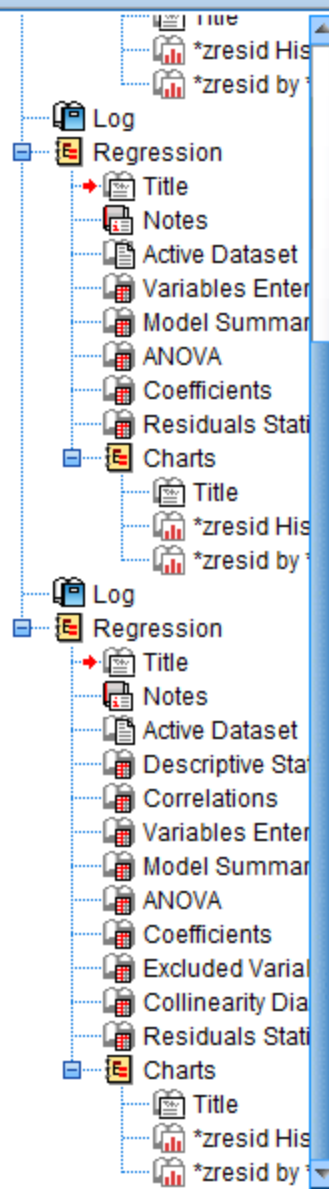
☐ Casewise diagnostics

☒ Outliers outside: 3 standard deviations

☒ All cases

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Model Summary^d

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,465 ^a	,217	,209	1,25317	,217	29,857	1	108	
2	,545 ^b	,297	,284	1,19243	,081	12,283	1	107	
3	,593 ^c	,352	,333	1,15073	,054	8,896	1	106	

a. Predictors: (Constant), M_Care

b. Predictors: (Constant), M_Care, M_Protect

c. Predictors: (Constant), M_Care, M_Protect, se_total

d. Dependent Variable: identity_difficulties

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46,888	1	46,888	29,857	,000 ^b
	Residual	169,608	108	1,570		
	Total	216,496	109			
2	Regression	64,354	2	32,177	22,630	,000 ^c
	Residual	152,142	107	1,422		
	Total	216,496	109			
3	Regression	76,134	3	25,378	19,165	,000 ^d
	Residual	140,362	106	1,324		
	Total	216,496	109			

a. Dependent Variable: identity_difficulties

b. Predictors: (Constant), M_Care

c. Predictors: (Constant), M_Care, M_Protect



Tree view showing the structure of the output document:

- Log
 - *zresid His
 - *zresid by
- Regression
 - Title
 - Notes
 - Active Dataset
 - Variables Enter
 - Model Summar
 - ANOVA
 - Coefficients
 - Residuals Stati
 - Charts
 - Title
 - *zresid His
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 - ANOVA
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 - Excluded Variab
 - Collinearity Dia
 - Residuals Stati
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 - *zresid His
 - *zresid by

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	8,399	,770		10,901	,000		
	M_Care	-1,334	,244	-,465	-5,464	,000	1,000	1,000
2	(Constant)	5,853	1,032		5,672	,000		
	M_Care	-1,022	,249	-,357	-4,109	,000	,872	1,147
	M_Protect	,744	,212	,304	3,505	,001	,872	1,147
3	(Constant)	7,685	1,170		6,569	,000		
	M_Care	-,802	,251	-,280	-3,190	,002	,796	1,256
	M_Protect	,758	,205	,310	3,698	,000	,872	1,147
	se_total	-,706	,237	-,245	-2,983	,004	,906	1,104

a. Dependent Variable: identity_difficulties

Excluded Variables^a

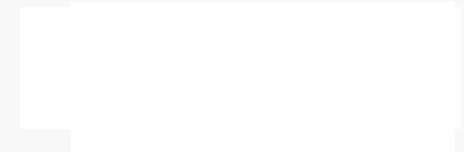
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	se_total	-,238 ^b	-2,742	,007	-,256	,906	1,103	,906
	M_Protect	,304 ^b	3,505	,001	,321	,872	1,147	,872
	M_authorit	,211 ^b	2,278	,025	,215	,817	1,224	,817
	F_Care	-,106 ^b	-1,089	,278	-,105	,770	1,299	,770
	F_Protect	,176 ^b	2,062	,042	,196	,962	1,040	,962
	F_authorit	,133 ^b	1,507	,135	,144	,920	1,087	,920
2	se_total	-,245 ^c	-2,983	,004	-,278	,906	1,104	,796
	M_authorit	,148 ^c	1,622	,108	,156	,776	1,288	,766
	F_Care	-,045 ^c	-,479	,633	-,046	,742	1,348	,725



- .. Όταν ο ερευνητής έχει άποψη!

Δηλαδή?

- Οι παράγοντες μπαίνουν σε βήματα, σύμφωνα με μία θεωρία (στοιχεία αιτιώδους σχέσης)
- Ο ερευνητής θέλει να ελέγξει κατά πόσο μία-πολλές μεταβλητές ερμηνεύουν το κριτήριο, πέρα και πάνω από ήδη γνωστές προβλεπτικές μεταβλητές (over & above)
- Πώς?





	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
8	direction	Numeric	8	0						
9	se_total	Numeric	8	2						
10	identity_diffi...	Numeric	8	2						
11	M_Care	Numeric	8	2						
12	M_Protect	Numeric	8	2						
13	M_authorit	Numeric	8	2						
14	F_Care	Numeric	8	2						
15	F_Protect	Numeric	8	2						
16	F_authorit	Numeric	8	2						
17										
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26										

Linear Regression

Dependent: identity_difficulties

Block 1 of 1

Independent(s):

Method: Enter

Selection Variable:

Case Labels:

WLS Weight:

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Statistics... Plots... Save... Options... Bootstrap...



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fathereduc	Numeric	8	0						
7	mothereduc	Numeric	8	0						
8	direction	Numeric	8	0						
9	se_total	Numeric	8	2						
10	identity_diffi...	Numeric	8	2						
11	M_Care	Numeric	8	2						
12	M_Protect	Numeric	8	2						
13	M_authorit	Numeric	8	2						
14	F_Care	Numeric	8	2						
15	F_Protect	Numeric	8	2						
16	F_authorit	Numeric	8	2						
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Linear Regression

Dependent: identity_difficulties

Block 2 of 2

Independent(s): se_total

Method: Enter

Selection Variable:

Case Labels:

WLS Weight:

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Statistics... Plots... Save... Options... Bootstrap...



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	gender	Numeric	8	0		{1, agori}...	None	8	Right	Scale
2	age	Numeric	8	0		None	None	8	Right	Scale
3	place	Numeric	8	0						
4	class	Numeric	8	0						
5	school	Numeric	8	0						
6	fatheduc	Numeric	8	0						
7	motheduc	Numeric	8	0						
8	direction	Numeric	8	0						
9	se_total	Numeric	8	2						
10	identity_diffi...	Numeric	8	2						
11	M_Care	Numeric	8	2						
12	M_Protect	Numeric	8	2						
13	M_authorit	Numeric	8	2						
14	F_Care	Numeric	8	2						
15	F_Protect	Numeric	8	2						
16	F_authorit	Numeric	8	2						
17										
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Linear Regression

Dependent: gender

Linear Regression: Statistics

Regression Coefficients

☒ Estimates
☐ Confidence intervals
 Level(%): 95
☐ Covariance matrix

☒ Model fit
☒ R squared change
☒ Descriptives
☐ Part and partial correlations
☒ Collinearity diagnostics

Residuals

☐ Durbin-Watson
☐ Casewise diagnostics
☒ Outliers outside: 3 standard deviations
☒ All cases

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Variables Entered/Removed^a

a. Dependent Variable: identity_difficulties

b. All requested variables entered.

Model Summary^c

a. Predictors: (Constant), F_authorit, M_Protect, M_Care, F_Protect, F_Care, M_authorit

b. Predictors: (Constant), F authorit, M Protect, M Care, F Protect, F Care, M authorit, se total

c. Dependent Variable: identity difficulties

ANOVA^a



Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,567 ^a	,321	,282	1,19438	,321	8,127	6	103	
2	,604 ^b	,365	,322	1,16080	,044	7,045	1	102	

a. Predictors: (Constant), F_authorit, M_Protect, M_Care, F_Protect, F_Care, M_authorit

b. Predictors: (Constant), F_authorit, M_Protect, M_Care, F_Protect, F_Care, M_authorit, se_total

c. Dependent Variable: identity_difficulties

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69,563	6	11,594	8,127	,000 ^b
	Residual	146,933	103	1,427		
	Total	216,496	109			
2	Regression	79,055	7	11,294	8,381	,000 ^c
	Residual	137,441	102	1,347		
	Total	216,496	109			

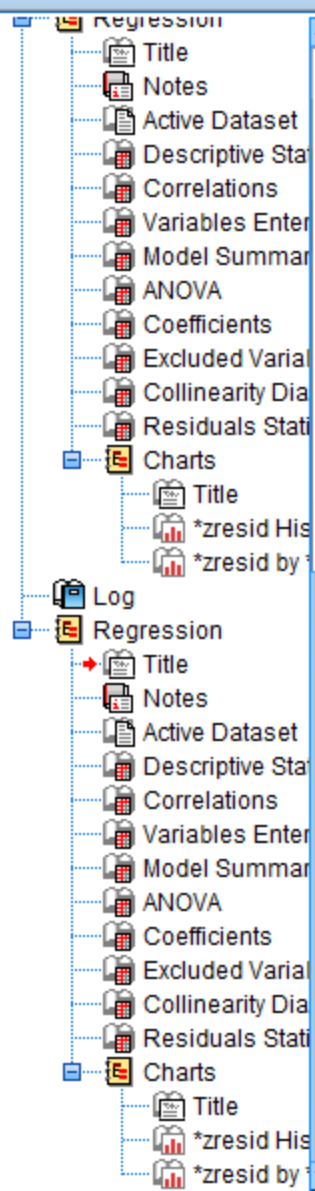
a. Dependent Variable: identity_difficulties

b. Predictors: (Constant), F_authorit, M_Protect, M_Care, F_Protect, F_Care, M_authorit

c. Predictors: (Constant), F_authorit, M_Protect, M_Care, F_Protect, F_Care, M_authorit, se_total

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF





M_authorit, se_total

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,756	1,356		3,508	,001		
	M_Care	-,831	,287	-,290	-2,894	,005	,657	1,522
	M_Protect	,582	,233	,238	2,495	,014	,724	1,381
	M_authorit	,345	,230	,164	1,504	,136	,557	1,795
	F_Care	-,063	,234	-,029	-,271	,787	,575	1,739
	F_Protect	,223	,220	,097	1,011	,315	,712	1,404
	F_authorit	-,088	,242	-,044	-,365	,716	,451	2,218
2	(Constant)	6,669	1,502		4,440	,000		
	M_Care	-,727	,282	-,254	-2,579	,011	,644	1,552
	M_Protect	,654	,228	,267	2,863	,005	,714	1,401
	M_authorit	,276	,225	,131	1,230	,222	,550	1,819
	F_Care	,044	,231	,020	,190	,850	,557	1,794
	F_Protect	,194	,214	,084	,903	,369	,710	1,408
	F_authorit	-,125	,236	-,062	-,530	,597	,449	2,226
	se_total	-,668	,252	-,232	-2,654	,009	,815	1,227

a. Dependent Variable: identity_difficulties

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	se_total	-,232 ^b	-2,654	,009	-,254	,815	1,227	,449