

تم تحميل الملف من موقع
البوصلة التقنية
www.boosla.com

جامعة الانبار
كلية الإدارة والاقتصاد
قسم الاقتصاد

مقدمة في البرنامج الاحصائي

SPSS 11.0 for Windows

إعداد

احمد حسين بتال

www.spss.com

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SPSS
Real Stats. Real Easy.™

Standard Version

2005

1425

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المقدمة :

(Statistical package for social sciences) SPSS

" "

()

SPSS

SPSS

Data files

Output files

)

SPSS

(

Analyze :

Graphs :

Utilities :

Window :

SPSS

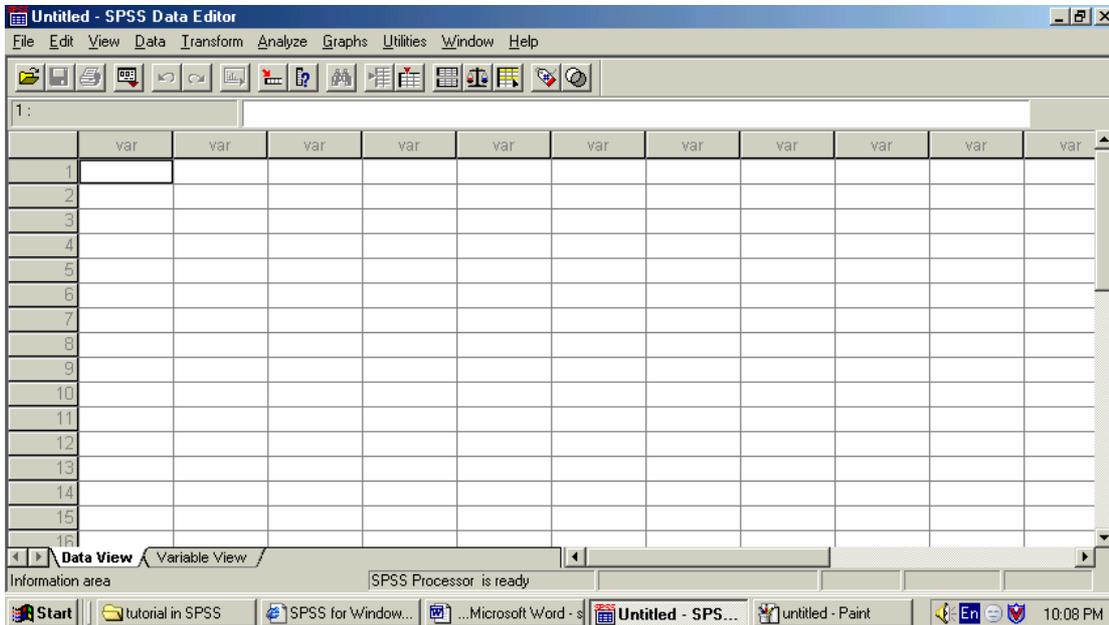
Help :

Home Page)

SPSS

(internet

SPSS



(1)

: Variable View: (

:
:Name

\$ - # @

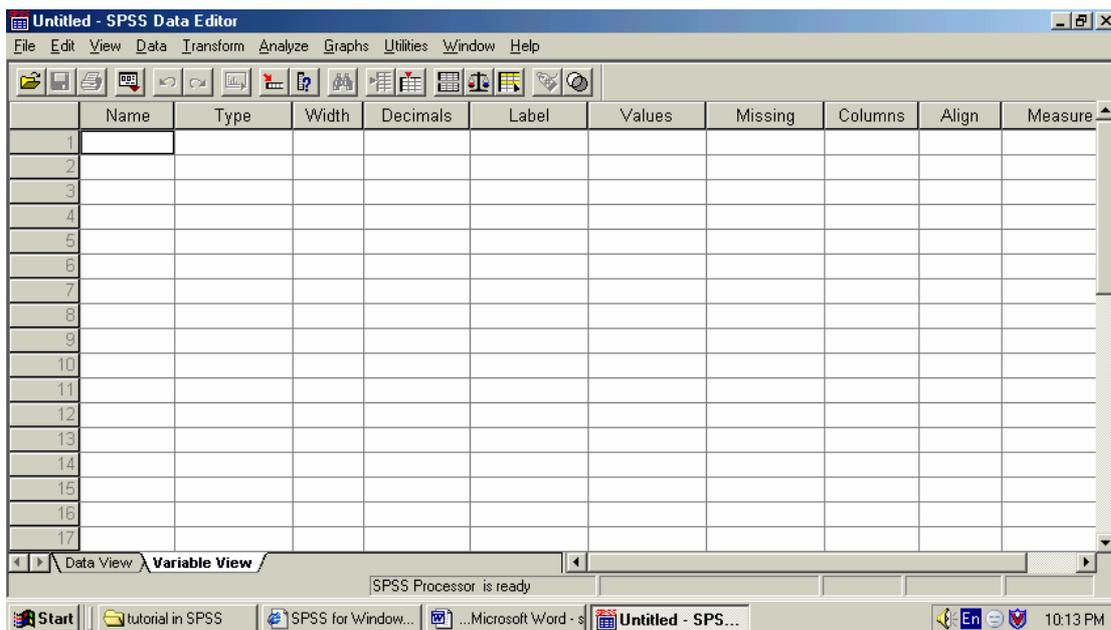
(* !:)

Type & Width :

256

Labels:

missing value:



(2)

: **Output** .2

File :

Edit:

View :

Insert :

Format :

Statistics :

Utilities :

SPSS

SPSS

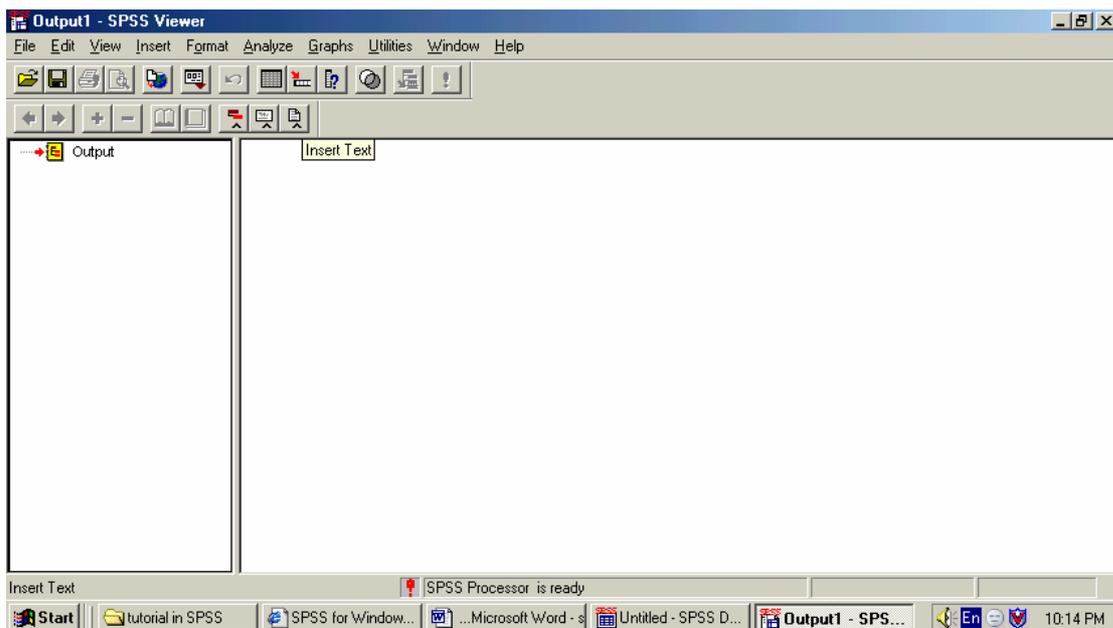
Window :

(internet

Help :

Home Page)

SPSS ,



(3)

تمارين:

1:

•

2:

•

ثانياً: التعامل مع محرر البيانات Data Editor

. SPSS

:

()

2 1 .
 (1= 2= 3= 4= missing)
 . (.)

" Variables "

" Cases "

. SPSS

)
) (.....) ,
 (... 2 1

.2 1

:

Enter

34

-1

Var0000 1

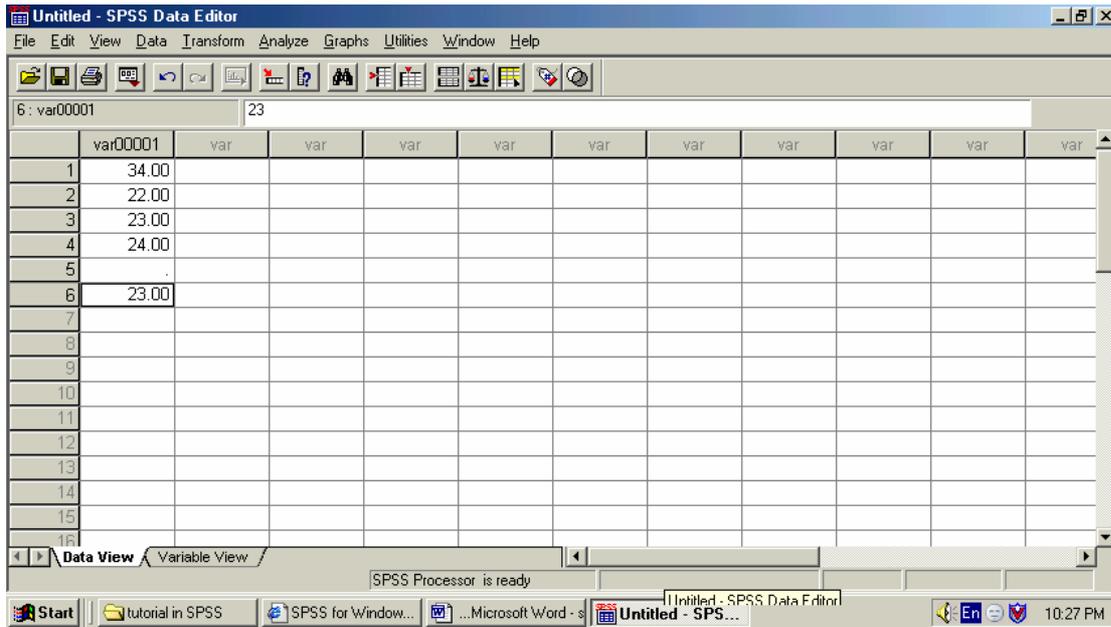
-2

22 Enter
23 Enter
24 Enter

23 : -3

Missing

(.)



(4)

: ()

: **Sex, Subject, Attitude1, Attitude2, etc.**

Var00001 -1

Define Variable Data

Age **Var00001** -2

Ok -3

Age)

| 1: age | | 34 | | | | | |
|--------|-------|-----|-----|-----|-----|-----|-----|
| | age | var | var | var | var | var | var |
| 1 | 34.00 | | | | | | |
| 2 | 22.00 | | | | | | |
| 3 | 23.00 | | | | | | |
| 4 | 24.00 | | | | | | |
| 5 | . | | | | | | |
| 6 | 23.00 | | | | | | |

SPSS

numeric

. string

-1

m

-2

-3

... Define variable Data

-4

Gender (variable name)

-5

String

Type

-6

(

Student Gender

Labels

-7

Variable Label)

Female (Value)

f

-8

Add

(Value label)

male

m

-9

" Male " "Female " =f

Add

=m

OK

-10

f m

-11

)

.(

-12

View

-13

.Value Label

Save

File

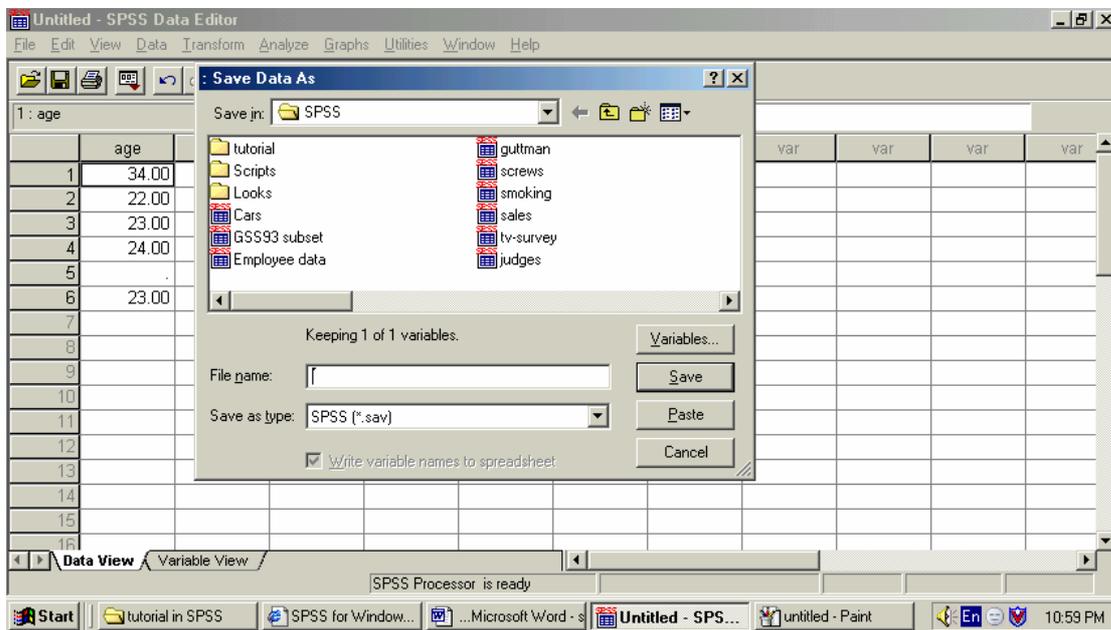
:

•

. save

Missing Values :

•



(5)

:

(

)

:1

.

()

:2

ثالثاً: التعامل مع النتائج وتعديل البيانات

Output and Modifying Data

Data

:

. Output

Output file .

Data file

:

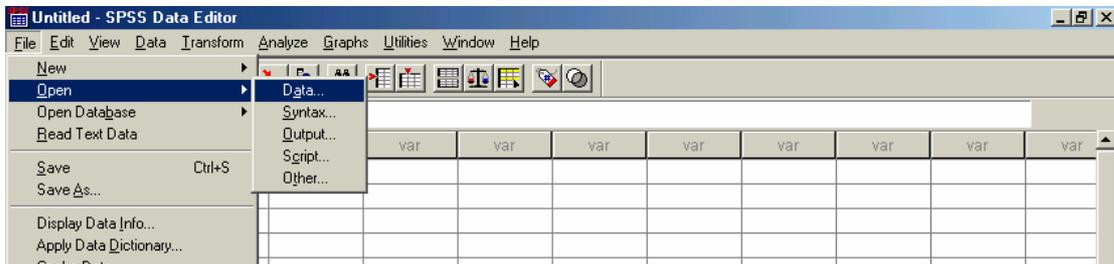
.open

file

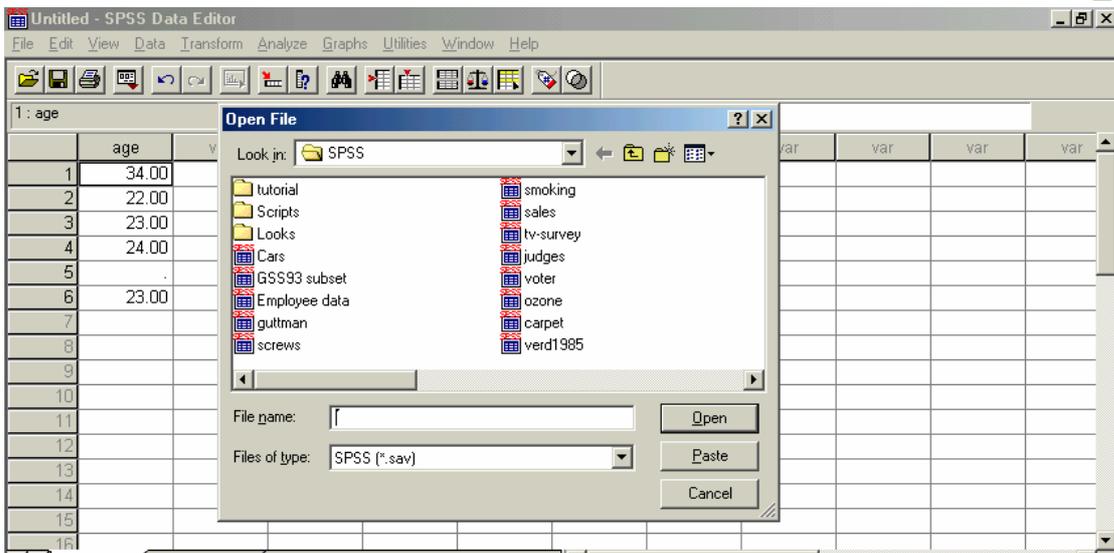
. data

open

open

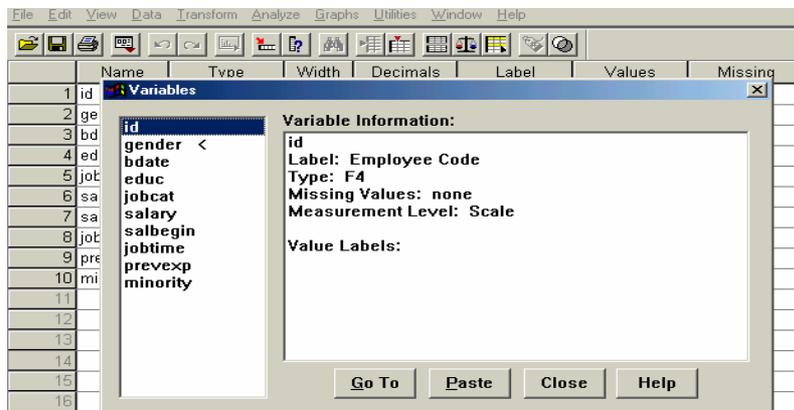
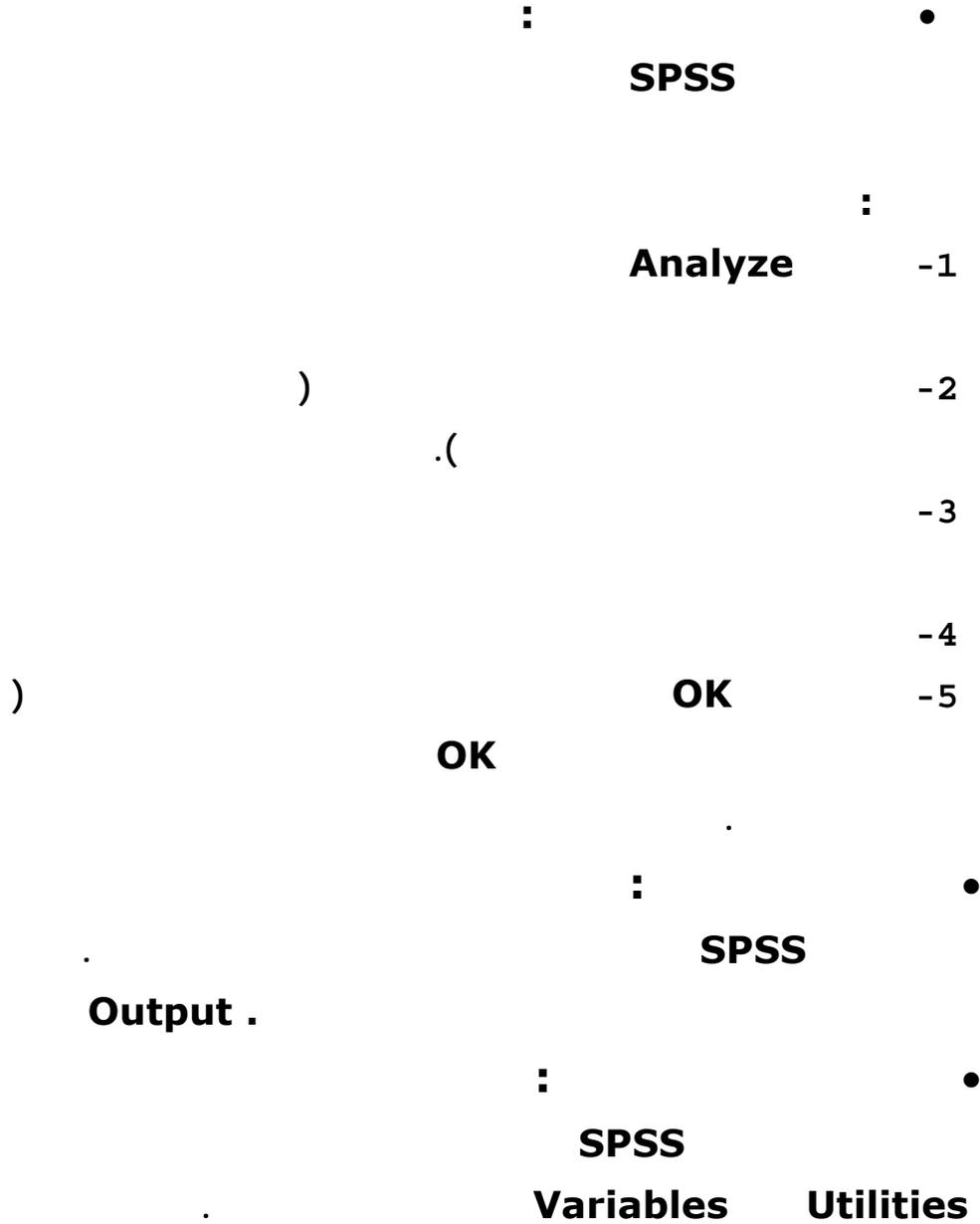


1



(6)

2



(7)

: •
SPSS

. **Computing Recoding**

Recoding : •

-:

Recode Transform -1

Into same variables -2

() -3

Old and new) -4

(values

(Old value) -5

(New value) -6

(System-Missing)

Add -7

-8

Continue -9

OK -10

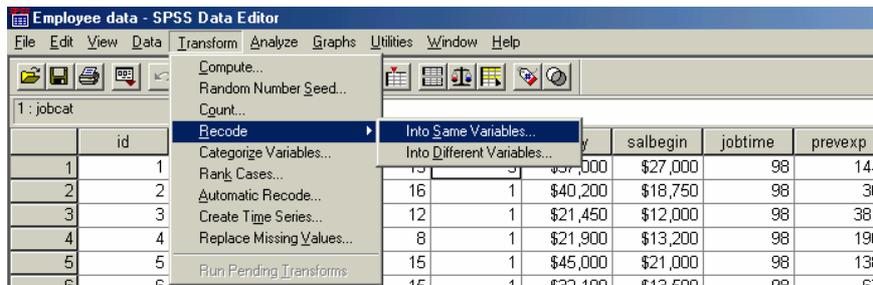
Range -11

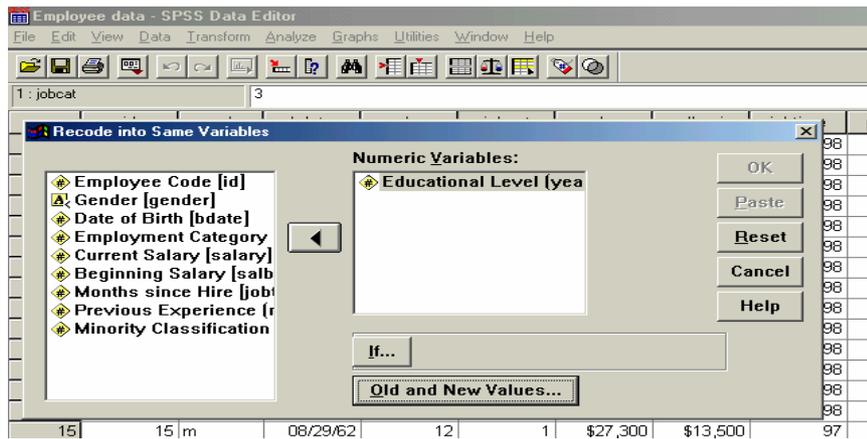
Lowest through Range -12

. -13

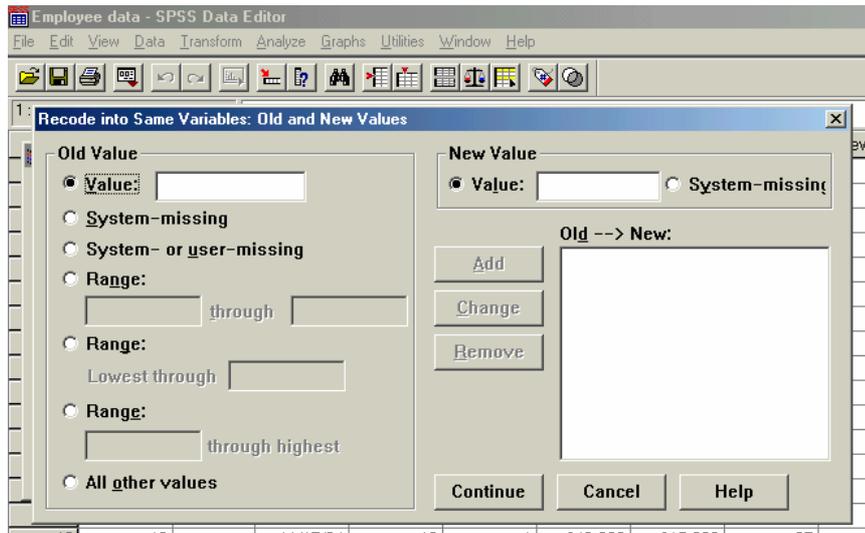
:

1





2



(8)

3

:

•

SPSS

()

-:

Compute Transform -1

Target variable (-2

)

Numeric () -3

:

Expression

((-4

. / * - + -5

OK

| Employee data - SPSS Data Editor | | | |
|--|----|----|--------|
| File Edit View Data Transform Analyze Graphs Utilities Window Help | | | |
| 1 : jobcat | | | |
| | id | uc | jobcat |
| 1 | 1 | 15 | 3 |
| 2 | 2 | 16 | 1 |
| 3 | 3 | 12 | 1 |
| 4 | 4 | 8 | 1 |
| 5 | 5 | 15 | 1 |
| 6 | 6 | 15 | 1 |
| 7 | 7 | 15 | 1 |
| 8 | 8 | 12 | 1 |

1

Employee data - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Window Help

1 : jobcat 3

Compute Variable

Target Variable: =

Numeric Expression:

Type&Label...

Employee Code [id]
Gender [gender]
Date of Birth [bdate]
Educational Level [year]
Employment Category [cat]
Current Salary [salary]
Beginning Salary [salb]
Months since Hire [jobt]
Previous Experience [n]
Minority Classification [m]

Functions:
ABS(numexpr)
ANY(test,value,value,...)
ARSIN(numexpr)
ARTAN(numexpr)
CDFNORM(zvalue)
CDF.BERNOULLI(q,p)

OK Paste Reset Cancel Help

(9)

2

: Functions

70

SPSS

.(9)

:

()

:1

رابعاً: الاختبارات الإحصائية (Analyze) Statistics

SPSS

SPSS

• Report :

• Summarizing Data :

-1 Frequencies :

Summary statistics

histogram

• Frequencies :

Analyze
salary

employee data.sav

SPSS
frequencies

charts

chart

histogram frequencies
statistics

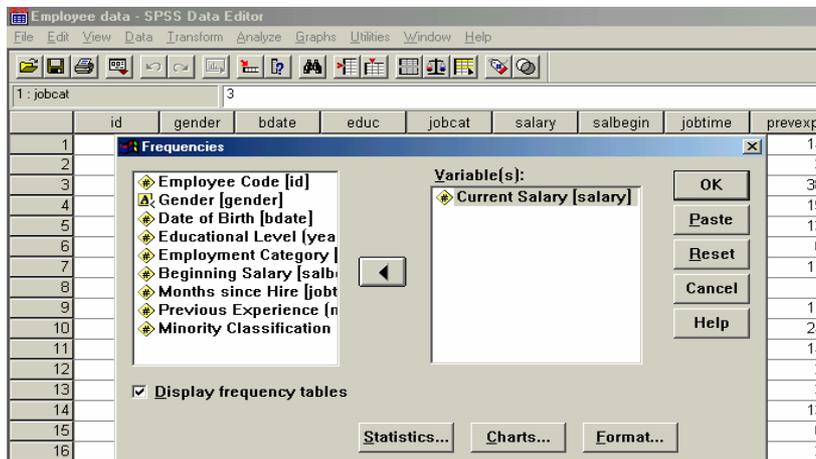
salary

chart

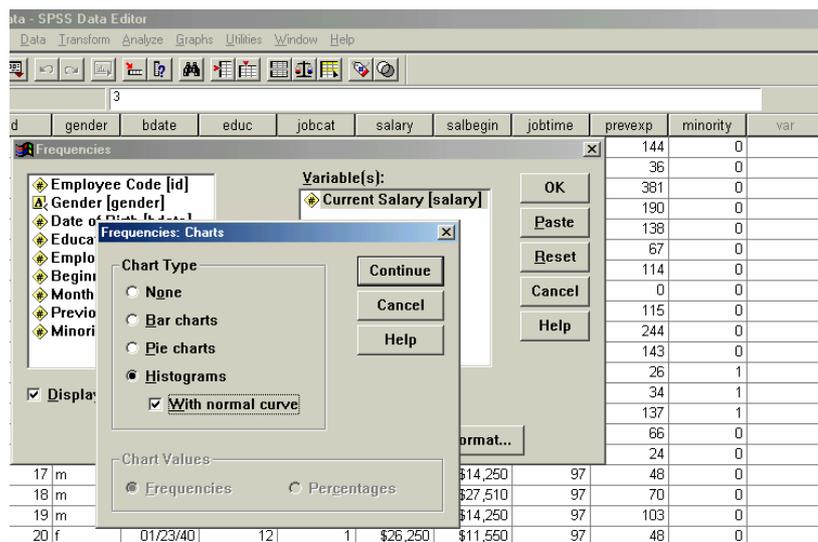
bar

rang midpoints

frequencies

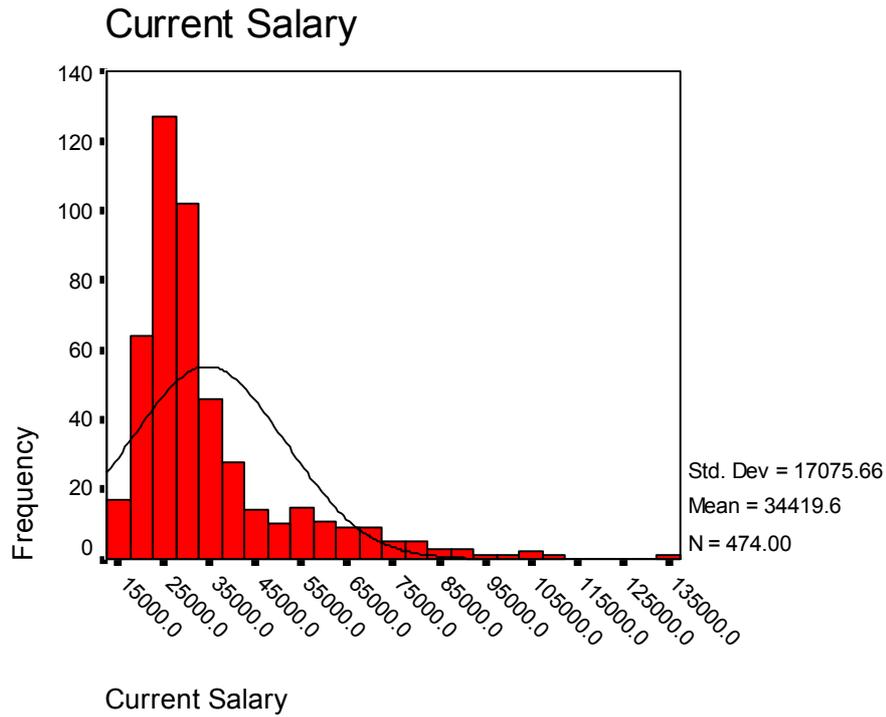


1



(10)

2



Salary

(11)

Descriptive :

- 2

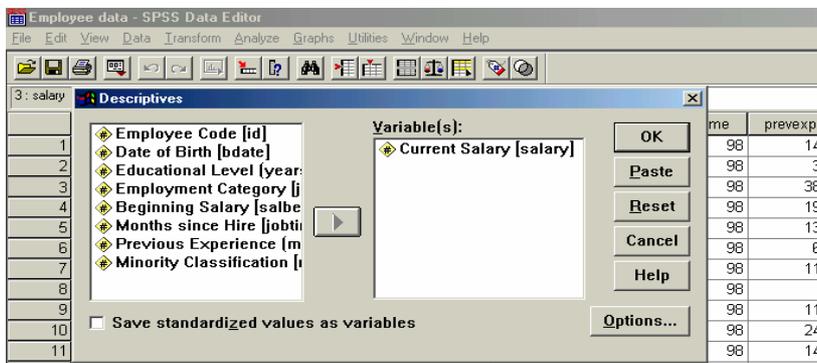
Descriptive

SPSS

**Analyze
salary**

employee data.sav

Descriptive



Descriptive

(12)

Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--------------------|-----|----------|-----------|-------------|----------------|
| Current Salary | 474 | \$15,750 | \$135,000 | \$34,419.57 | \$17,075.661 |
| Valid N (listwise) | 474 | | | | |

descriptive (13)

Explorer : -3

jobcat

categories

salary Explorer statistics

factor jobcat dependent list

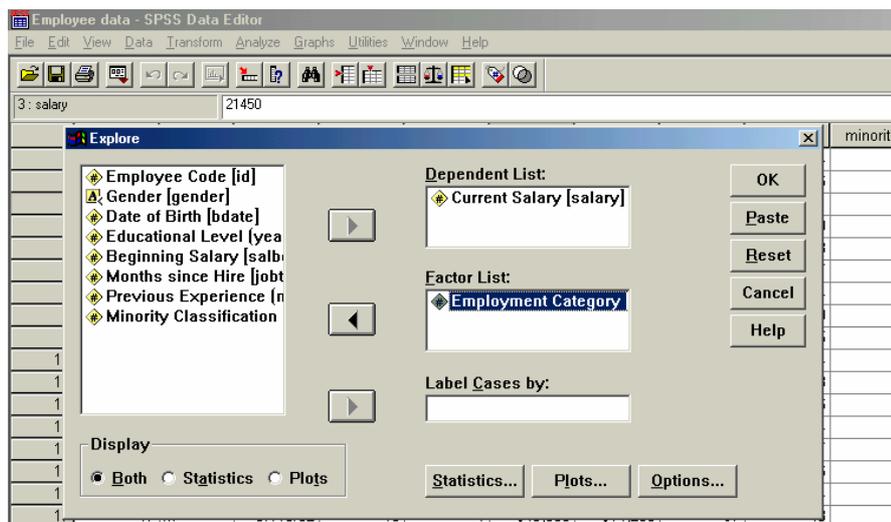
list

stem _and _leaf plot descriptive statistics

job category ()

median job categories

*** 0 (th 75 th 25 interquartile rang**



Explore (14)

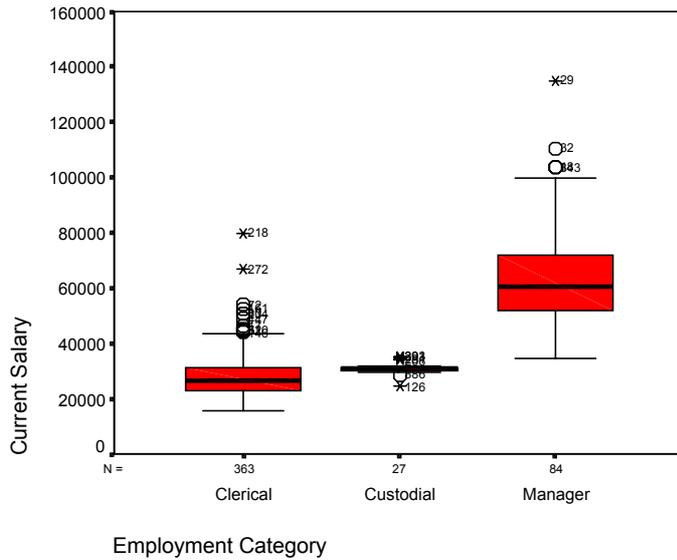
Case Processing Summary

| Employment Category | | Cases | | | | | |
|---------------------|-----------|-------|---------|---------|---------|-------|---------|
| | | Valid | | Missing | | Total | |
| | | N | Percent | N | Percent | N | Percent |
| Current Salary | Clerical | 363 | 100.0% | 0 | .0% | 363 | 100.0% |
| | Custodial | 27 | 100.0% | 0 | .0% | 27 | 100.0% |
| | Manager | 84 | 100.0% | 0 | .0% | 84 | 100.0% |

1

Descriptives

| Employment Category | | | Statistic | Std. Error |
|----------------------------------|----------------------------|----------------------------------|----------------------------|------------|
| Current Salary | Clerical | Mean | \$27,838.54 | \$397.217 |
| | | 95% Confidence Interval for Mean | Lower Bound \$27,057.40 | |
| | | | Upper Bound \$28,619.68 | |
| | | 5% Trimmed Mean | \$27,290.50 | |
| | | Median | \$26,550.00 | |
| | | Variance | 57274548 | |
| | | Std. Deviation | \$7,567.995 | |
| | | Minimum | \$15,750 | |
| | | Maximum | \$80,000 | |
| | | Range | \$64,250 | |
| | | Interquartile Range | \$8,400.00 | |
| | | Skewness | 1.905 | .128 |
| | | Kurtosis | 7.977 | .255 |
| | | | Custodial | Mean |
| 95% Confidence Interval for Mean | Lower Bound \$30,102.37 | | | |
| | Upper Bound \$31,775.40 | | | |
| 5% Trimmed Mean | \$31,007.72 | | | |
| Median | \$30,750.00 | | | |
| Variance | 4471602.6 | | | |
| Std. Deviation | \$2,114.616 | | | |
| Minimum | \$24,300 | | | |
| Maximum | \$35,250 | | | |
| Range | \$10,950 | | | |
| Interquartile Range | \$1,200.00 | | | |
| Skewness | -.368 | | | .448 |
| Kurtosis | 3.652 | | | .872 |
| | Manager | | | Mean |
| | | 95% Confidence Interval for Mean | Lower Bound \$60,018.44 | |
| | | | Upper Bound \$67,937.16 | |
| | | 5% Trimmed Mean | \$62,728.31 | |
| | | Median | \$60,500.00 | |
| | | Variance | 332871850 | |
| | | Std. Deviation | \$18,244.776 | |
| | | Minimum | \$34,410 | |
| | | Maximum | \$135,000 | |
| | | Range | \$100,590 | |
| | | Interquartile Range | \$20,475.00 | |
| | | Skewness | 1.181 | .263 |
| | | Kurtosis | 2.107 | .520 |



3

Explore (15)

Cross tabs : -4

```

: employee data.sav SPSS
. id
m=male,f=female , gender
0= 1= Minority
. ... 16= 12= Educ
Jobcat 3=manager , 2=custodial ,1=clerical
Salbeqin
Job time
Preveexp

```

**jobcatogory,gender,minority
corsstabulation**

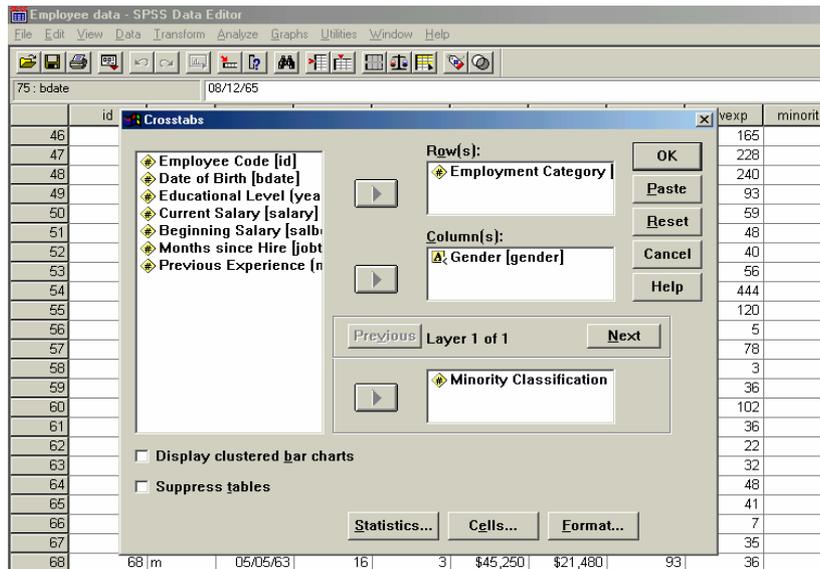
gender

jobcatogory

minority

expected count

count



corsstabulation

(16)

Case Processing Summary

| | Cases | | | | | |
|--|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Employment Category * Gender * Minority Classification | 474 | 100.0% | 0 | .0% | 474 | 100.0% |

Employment Category * Gender * Minority Classification Crosstabulation

| Count | | | Gender | | Total |
|-------|---------------------|-----------|--------|------|-------|
| | | | Female | Male | |
| No | Employment Category | Clerical | 166 | 110 | 276 |
| | | Custodial | | 14 | 14 |
| | | Manager | 10 | 70 | 80 |
| | Total | | 176 | 194 | 370 |
| Yes | Employment Category | Clerical | 40 | 47 | 87 |
| | | Custodial | | 13 | 13 |
| | | Manager | | 4 | 4 |
| | Total | | 40 | 64 | 104 |

corsstabulation

(17)

:List of Cases .5

() **SPSS**

Comparing .6

**SPSS
:Means**

:

: Paired-Sample T Test -1

()

beginning salary , current salary

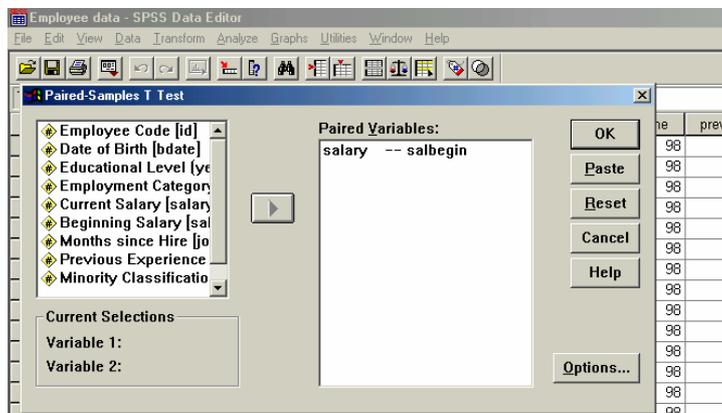
(T)

Compare mean

Paired-Sample T Test

beginning salary , current salary .analyze

. Ok paired variable



paired sample T test

(18)

Paired Samples Statistics

| | | Mean | N | Std. Deviation | Std. Error Mean |
|--------|------------------|-------------|-----|----------------|-----------------|
| Pair 1 | Current Salary | \$34,419.57 | 474 | \$17,075.661 | \$784.311 |
| | Beginning Salary | \$17,016.09 | 474 | \$7,870.638 | \$361.510 |

Paired Samples Test

| | | Paired Differences | | | | t | df | Sig. (2-tailed) | |
|--------|-----------------------------------|--------------------|----------------|-----------------|---|-------------|--------|-----------------|-------|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | | | | Upper |
| Pair 1 | Current Salary - Beginning Salary | \$17,403.48 | \$10,814.620 | \$496.732 | \$16,427.41 | \$18,379.56 | 35.036 | 473 | .000 |

Paired sample T test (19)

: Independent-Samples T Test

-2

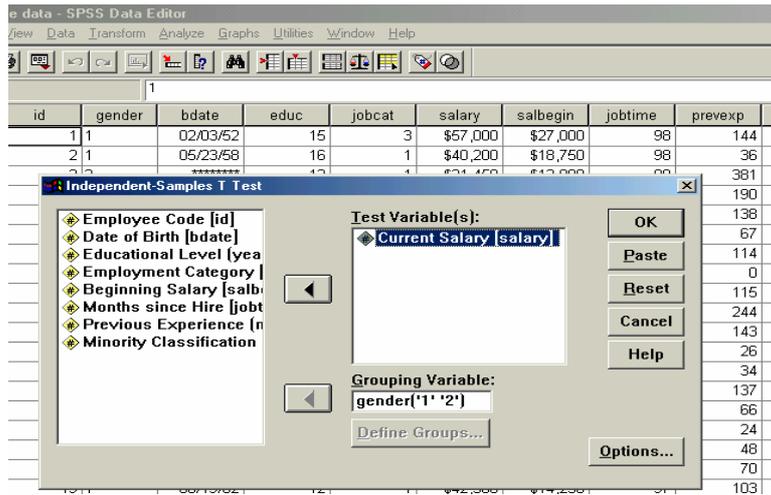
...

(T)

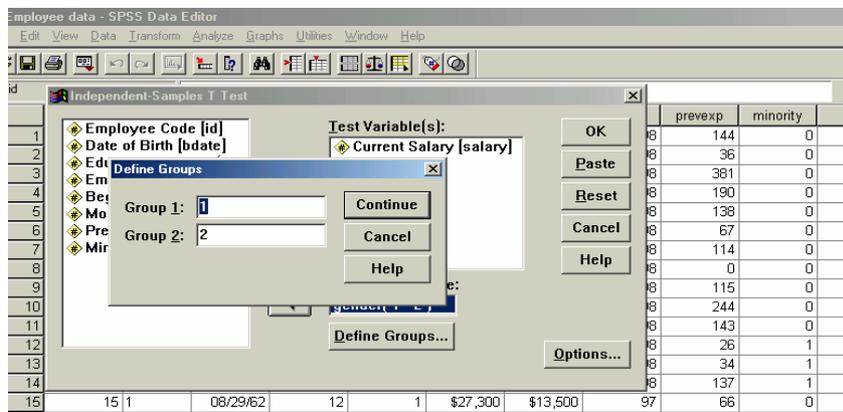
Gender

Independent-Samples T Test

Test . Analyze Compare means
 group variable salary variable
 1 gender
 Define groups 2
 : . Ok



1



2

Group Statistics

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|----------------|--------|-----|-------------|----------------|-----------------|
| Current Salary | 1 | 258 | \$41,441.78 | \$19,499.214 | \$1,213.968 |
| | 2 | 216 | \$26,031.92 | \$7,558.021 | \$514.258 |

Independent Samples Test

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|----------------|---|------|------------------------------|---------|-----------------|-----------------|-----------------------|---|-------|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Current Salary | 119.669 | .000 | 10.945 | 472 | .000 | \$15,409.86 | \$1,407.906 | \$12,643.322 | ***** |
| | | | 11.688 | 344.262 | .000 | \$15,409.86 | \$1,318.400 | \$12,816.728 | ***** |

Independent-Samples T Test

(20)

: One-Sample -3

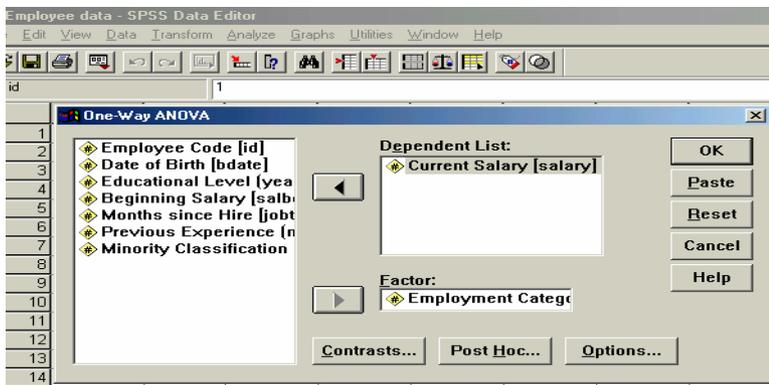
: One-Way Anova -4

()

Jobcat

One-Way

Analyze Compare means Anova
 Factor salary dependent list
 : . Ok Jobcat



One-Way Anova (21)

ANOVA

Current Salary

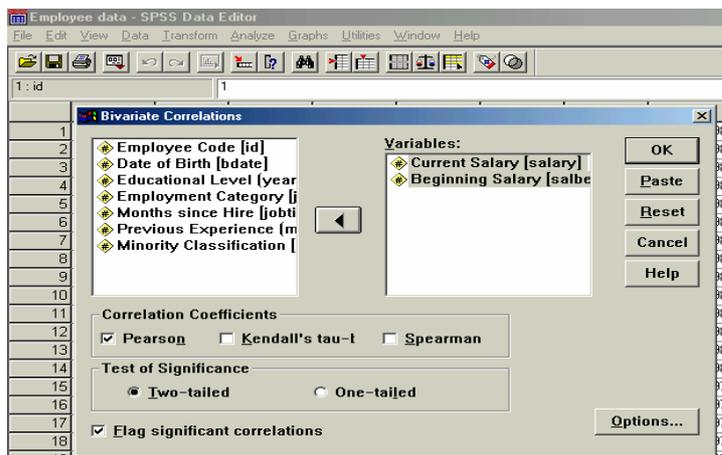
| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|-----|-------------|---------|------|
| Between Groups | 8.94E+10 | 2 | 4.472E+10 | 434.481 | .000 |
| Within Groups | 4.85E+10 | 471 | 102925714.5 | | |
| Total | 1.38E+11 | 473 | | | |

One-Way Anova (22)

Correlate - 7

Bivariate Correlations : .1

analyze Correlate Bivariate
beginning salary , current salary
: . Ok Variable



Bivariate Correlations (23)

Correlations

| | | Current Salary | Beginning Salary |
|------------------|---------------------|----------------|------------------|
| Current Salary | Pearson Correlation | 1 | .880** |
| | Sig. (2-tailed) | . | .000 |
| | N | 474 | 474 |
| Beginning Salary | Pearson Correlation | .880** | 1 |
| | Sig. (2-tailed) | .000 | . |
| | N | 474 | 474 |

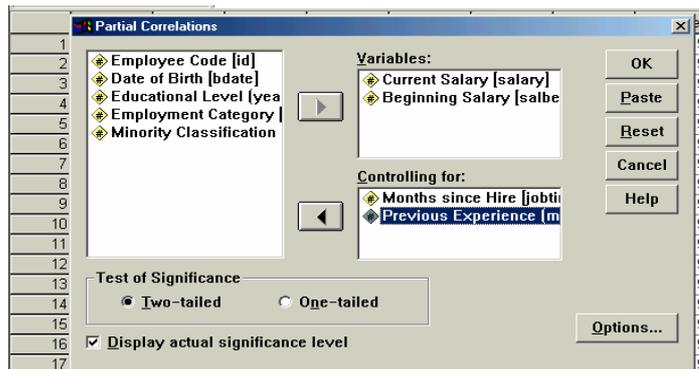
** . Correlation is significant at the 0.01 level (2-tailed).

Bivariate Correlations (23)

Correlations Partial : .2

(controlling) jobtime & prevexp ,

Partial correlate analyze
 Salbegin prevepx job time salary
 . Ok control variable



(24)

| P A R T I A L C O R R E L A T I O N C O E F F I C I E N T S | | |
|---|---------|----------|
| Controlling for.. | JOBTIME | PREVEXP |
| | SALARY | SALBEGIN |
| SALARY | 1.0000 | .8947 |
| | (0) | (470) |
| | P= . | P= .000 |
| SALBEGIN | .8947 | 1.0000 |
| | (470) | (0) |
| | P= .000 | P= . |
| (Coefficient / (D.F.) / 2-tailed Significance) | | |

(25)

Regression -8

Linear Regression -1

()

()

()

.education ,

:

analyze

linear

salary

salbegin, jobtime,

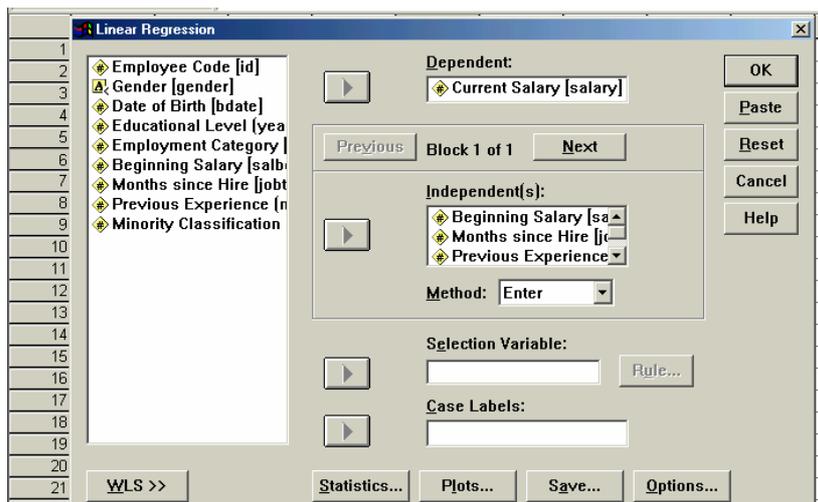
Regression

Regression

Ok

prevexp

significance column



(26)

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .897 ^a | .804 | .803 | \$7,586.187 |

a. Predictors: (Constant), Previous Experience (months), Months since Hire, Beginning Salary

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|---------|-------------------|
| 1 | Regression | 1.11E+11 | 3 | 3.696E+10 | 642.151 | .000 ^a |
| | Residual | 2.70E+10 | 470 | 57550239.51 | | |
| | Total | 1.38E+11 | 473 | | | |

a. Predictors: (Constant), Previous Experience (months), Months since Hire, Beginning Salary

b. Dependent Variable: Current Salary

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------------------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -10266.6 | 2959.838 | | -3.469 | .001 |
| | Beginning Salary | 1.927 | .044 | .888 | 43.435 | .000 |
| | Months since Hire | 173.203 | 34.677 | .102 | 4.995 | .000 |
| | Previous Experience (months) | -22.509 | 3.339 | -.138 | -6.742 | .000 |

a. Dependent Variable: Current Salary

(27)

Data Reduction

-9

Factor Analysis :**Factors**

5

40

Nonparametric Tests

- 10

analyze

Chi-Square -1

()

gender
.(% 50 %50)

Nonparametric Tests analyze

gender2

Chi-Square

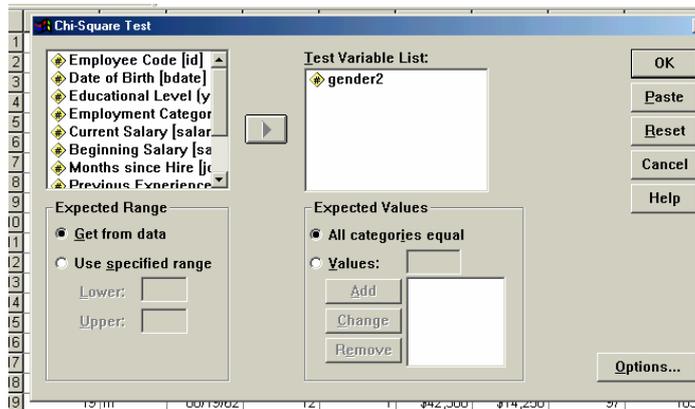
All

Expected values

test variable

categories equal

categories.



(28)

GENDER2

| | Observed N | Expected N | Residual |
|-------|------------|------------|----------|
| 1.00 | 258 | 237.0 | 21.0 |
| 2.00 | 216 | 237.0 | -21.0 |
| Total | 474 | | |

Test Statistics

| | GENDER2 |
|-------------------------|---------|
| Chi-Square ^a | 3.722 |
| df | 1 |
| Asymp. Sig. | .054 |

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 237.0.

(29)

Binomial: -2

.
 . **K-S** - •
 . **K-S** - **U** •
 . **Kruskal-Wallis** - •
 . **Wilcoxon signed-rank** •
Friedman, Kindall`s W, and •
 . **Cochern`s Q**

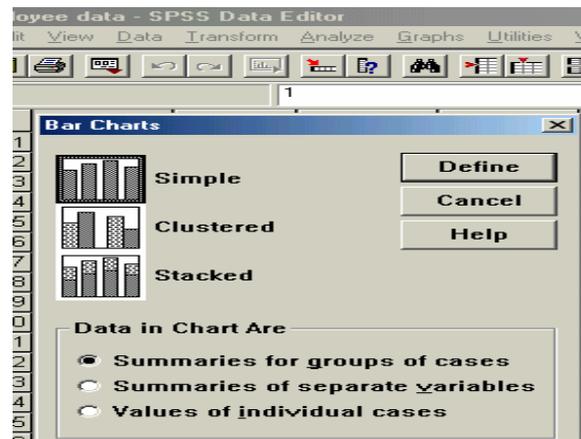
:

:1

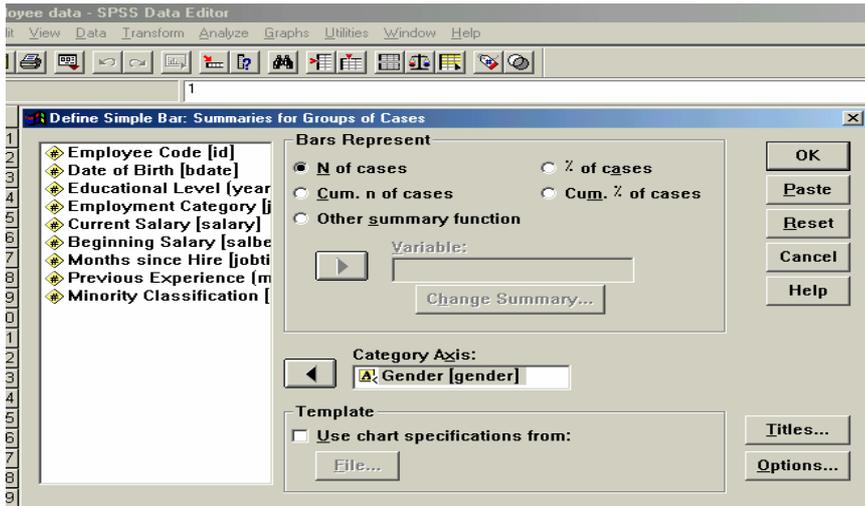
Creating and Modifying Charts **خامساً: إعداد الرسوم البيانية SPSS**

| | | |
|---|--------------------------------------|----|
| . | : | • |
| | Bar Graphs | -1 |
| | | -2 |
| | Summaries for groups of cases | |
| | Define | -3 |
| | Other summary function | -4 |
| | Variable | -5 |
| | Category Axis | -6 |
| | OK | -7 |

| | | |
|----------------------|---------------|---------------|
| . | : | • |
| Bar | | |
| Category Axis | Define | Graph |
| : | Ok | Gender |

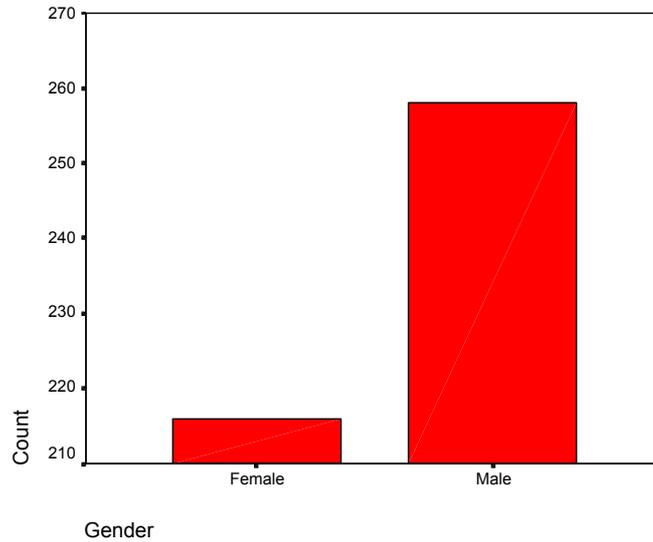


1



(30)

2



() Bar (31)

:

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Bar Graphs

-1

Summaries of a separate variable

-2

Define

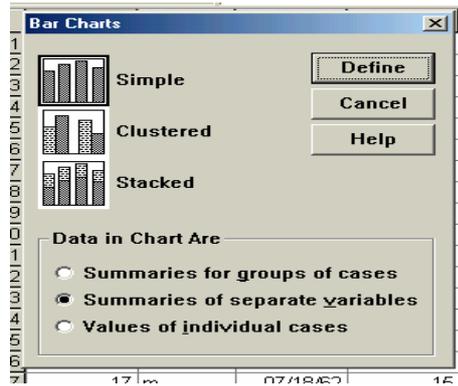
-3

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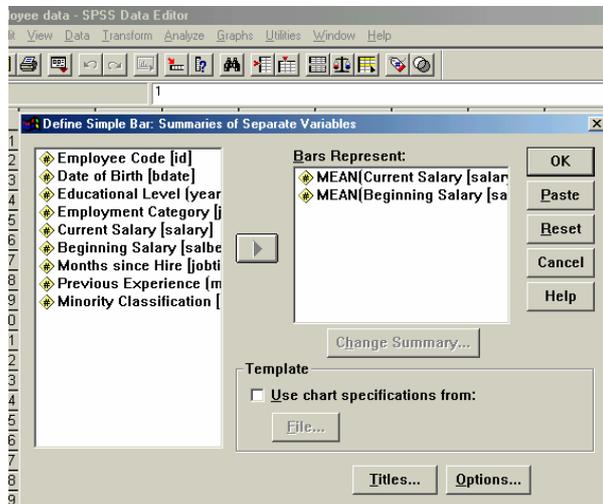
-4

Summaries of a Bar Graph
Define separate variable
Ok salbegin salary

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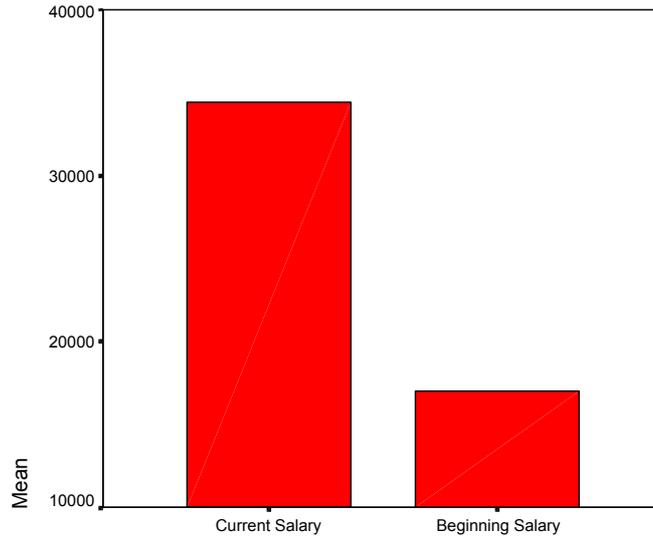


1



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(32)

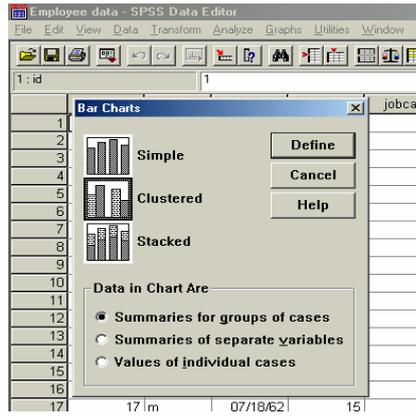


(33)

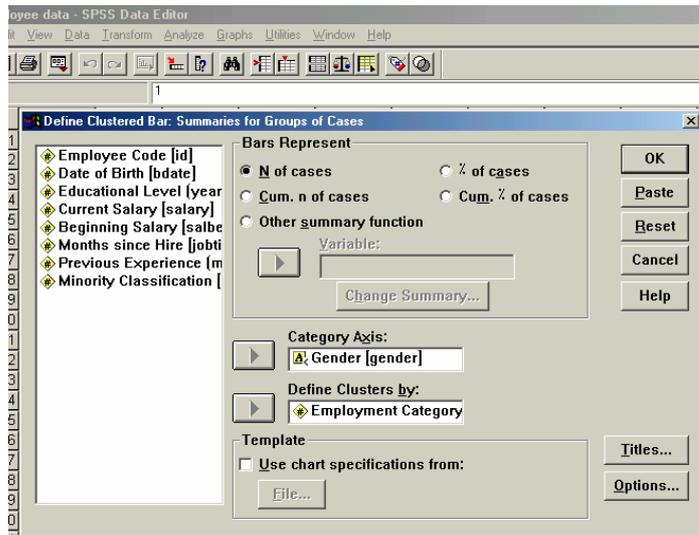
Creating a clustered Bar Chart :

- Bar Graphs -1
- Clustered -2
- Summaries for groups of cases -3
- Define -4
- : Category Axis -5
- : Define Clusters by -6
- OK -7

Bar Graph
 summaries for groups clustered
 category axis Define cases
 Ok jobcat gender

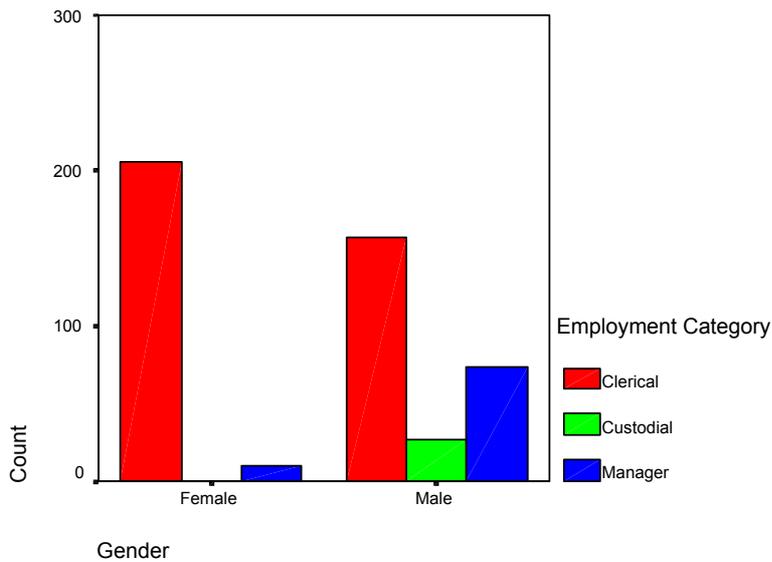


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2

(34)



(35)

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Copy Edit -1

-2

Past special Edit -3

Bitmap . Picture -4

:

:1

:2

•

•

: 1

()

:2

:

() ()

•

: 4

•

:5

() () .()

: 6

() () .

Statistical Functions (1)

- **CFVAR(numexpr,numexpr[,...])**)
- (
-
- **LAG(variable)**
-
- **MAX(value,value[,...])**
-
- **MIN(value,value[,...])**
-
-
- **MEAN(numexpr,numexpr[,...])]**
-
- **SD(numexpr,numexpr[,...])]**
-
- **SUM(numexpr,numexpr[,...])**
-
- **VARIANCE(numexpr,numexpr[,...])]**
-
-

Missing Value Functions (2)

NMISS(variable[,...]) •

•

MISSING(variable) •

:

•

SYSMIS(numvar) •

:

•

VALUE(variable) •

•

Arithmetic Functions (3)

ABS(numexpr) •

•

ARSIN(numexpr) •

.1+ 1-

ARTAN(numexpr) •

•

COS(radians) •

•

e

EXP(numexpr) •

(x e

x

)

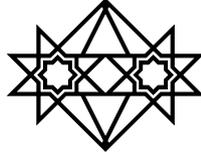
LN(numexpr) •

e

•

- **LG10(numexpr)**
- 10
- **MOD(numexpr,modulus)**
- 2 5
- 0.5 2.5
- **RND(numexpr)**
- 5
- **SIN(radians)**
- **SQRT(numexpr)**
- **TRUNC(numexpr)**

وانه ولي التوفيق



﴿والله أعلم، وصلى الله على نبينا محمد وسلم﴾