Regulatory Compliance, Regulatory Compliance Scale, and Program Quality Data Distributions

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This research abstract will depict the differences in regulatory compliance violation (RSV) data, regulatory compliance scale (RCS) data, and program quality (PQ) data distributions. This is an important distinction amongst the three data sets to determine how best to make licensing decisions. A series of previous research abstracts and technical research notes will be compared with the latest research on the newly proposed regulatory compliance scales (RCS).

The 2018 technical research note provides descriptive statistics for regulatory compliance and program quality data. It clearly demonstrates how the two data sets are very different from each other and the issues for measurement when it comes to regulatory compliance data.

The 2019 technical research note provides basic characteristics of the data distributions for many of the databases in the RIKI/PSU Early Childhood Program Quality Improvement and Indicator Model's international Database.

The 2024 research abstract presents the regulatory compliance scale and its relationship to program quality scores and regulatory compliance violation data. In this abstract, several RCS models are introduced in which various thresholds are used in the RSV data in determining the RCS levels. What is clear from the abstract is that the RCS models provide a clearer picture of the overall data distribution over the use of the RSV data display. This is graphically displayed in the abstract.

The three papers show the progression made over time in attempting to better analyze regulatory compliance data distributions. The major issue with RSV data is that the data distribution is severely skewed with the majority of the scores being at the full or substantial regulatory compliance levels. This is not the case with PQ data distributions which are more normally distributed. The RCS data distributions help to smooth out the skewness to a certain degree in moving the RSV nominally measured data to an ordinally measured data distribution. This helps in making the data more understandable, for example, the one thing that jumps out is the ceiling effect in moving from substantial to full regulatory compliance which is not as clear in the RSV data distribution.

The three papers follow here:

Regulatory Compliance Skewness

Richard Fiene, Ph.D.

June 2018

In dealing with regulatory compliance data distributions, one is always impressed with the skewness of the data distribution. This is a major disadvantage of working with these data distributions because it eliminates utilizing parametric statistics. These short comings have been dealt with in the past by using non-parametric statistics, the dichotomization of data distributions, moving from a nominal to ordinal scaling, and risk assessment/weighting. These adjustments have been successful in helping to analyze the data but are not ideal and will never approach a normally distributed curve. However, that is not the intent of regulatory compliance data, the data distribution should demonstrate a good deal of skewness because these data are demonstrating protections for clients and not quality services. One would not want the data to be normally distributed.

This short paper/technical research note delineates the state of the art with an international regulatory compliance data base that has been created over the past 40 years at the Research Institute for Key Indicators (RIKILLC). In it, I provide basic descriptive statistics to demonstrate to other researchers the nature of the data distributions so that they can be aware of the shortcomings of the data when it comes to statistical analyses. I have employed various scaling methods to help with the skewness of the data but it still does not approximate normally distributed data. This will be self-evident in the data displays.

	KI	PQ	RC	PQ 1-5	RC 1-5
Mean	1.68	3.42	5.51	2.96	3.48
SD	1.61	0.86	5.26	0.90	1.43
Sum	175	348	573	302	362
Variance	3.61	0.74	27.63	0.81	2.06
Range	6.00	4.11	25.00	4.00	4.00
Minimum	0	1.86	0	1.00	1.00
Maximum	6.00	5.97	25.00	5.00	5.00
SE Mean	0.16	0.09	0.52	0.09	0.14
Kurtosis	0.073	-0.134	2.112	-0.388	-1.097
Skewness	0.898	0.467	1.468	0.327	-0.494

Legend:

KI = Key Indicators

PQ = Program Quality (ERS Scale)

RC = Regulatory Compliance (State Comprehensive Review Checklist)

PQ 1-5 = Program Quality using 1-5 scale

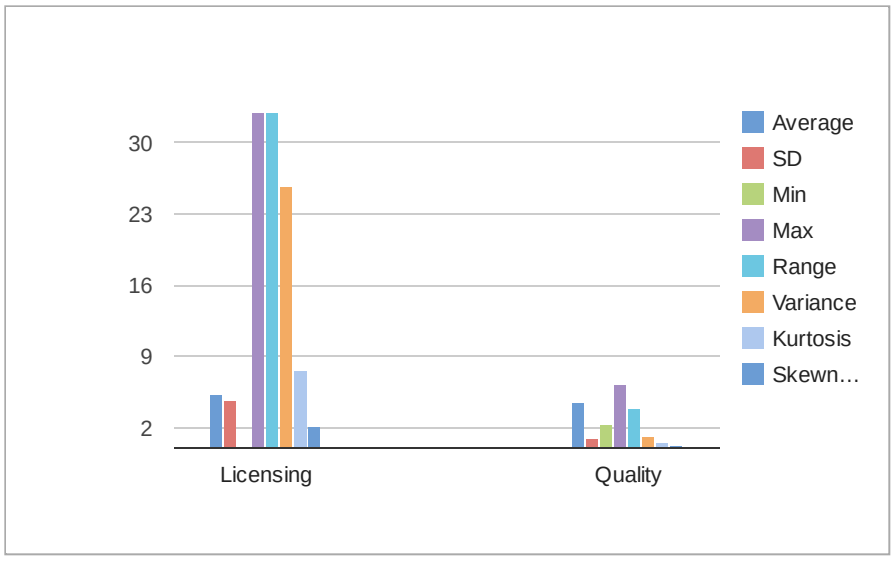
RC 1-5 = Regulatory Compliance using 1-5 scale (1 = Low RC; 2-4 = Med Level RC; 5 = High/Substantial RC)

Richard Fiene, Ph.D., Research Psychologist, Research Institute for Key Indicators (RIKILLC); Professor of Psychology (ret), Penn State University; Senior Research Consultant, National Association for Regulatory Administration (NARA)

This display presents descriptive statistics for licensing and quality studies averaged from several states and national data
The data are displayed in both chart and graphic forms.
It clearly demonstrates the differences between licensing and quality data in which licensing data are much more skewed

Licensing and Quality Descriptive Statistics

	Average	SD	Min	Max	Range	Variance	Kurtosis	Skewnes	Programs
Licensing	5.35	4.76	0	33	33	25.66	7.72	2.22	3452
Quality	4.58	1.07	2.32	6.33	4.01	1.17	0.67	0.26	1371



Regulatory Compliance (RC) and Program Quality (PQ) Data Distributions

Richard Fiene, Ph.D.

July 2019

This report will provide the data distributions for a series of regulatory compliance (RC) and program quality (PQ) studies which show dramatically different frequencies and centralized statistics. The regulatory compliance data distributions have some very important limitations that will be noted as well as some potential adjustments that can be made to the data sets to make statistical analyses more meaningful. These data distributions are from the USA and Canada.

For purposes of reading the following Table 1, a Legend is provided:
Data Set = the study that the data are drawn from.
Sites = the number of sites in the particular study.
mean = the average of the scores.
sd = standard deviation.
p0 = the average score at the 0 percentile.
p25 = the average score at the 25th percentile.
p50 = the average score at the 50th percentile or the median.
p75 = the average score at the 75th percentile.
p100 = the average score at the 100th percentile.

Table 1

Data Set	Sites	mean	sd	p0	p25	p50	p75	p100	PQ or RC
ECERS total score	209	4.24	0.94	1.86	3.52	4.27	4.98	6.29	PQ
FDCRS total score	163	3.97	0.86	1.71	3.36	4.03	4.62	5.54	PQ
ECERS and FDCRS totals	372	4.12	0.91	1.71	3.43	4.12	4.79	6.29	PQ
ECERS prek	48	4.15	0.74	2.56	3.6	4.15	4.65	5.56	PQ
ECERS preschool	102	3.42	0.86	1.86	2.82	3.26	4.02	5.97	PQ
ITERS	91	2.72	1.14	1.27	1.87	2.34	3.19	5.97	PQ
FDCRS	146	2.49	0.8	1.21	1.87	2.42	2.93	4.58	PQ
CCC RC	104	5.51	5.26	0	2	4	8	25	RC
FCC RC	147	5.85	5.71	0	2	4	8.5	33	RC
CCC RC	482	7.44	6.78	0	2	6	11	38	RC
FDC RC	500	3.52	4.05	0	0	2	5	34	RC
CI Total Violations	422	3.33	3.77	0	1	2	5	24	RC – PQ
CLASS ES	384	5.89	0.36	4.38	5.69	5.91	6.12	6.91	PQ
CLASS CO	384	5.45	0.49	3.07	5.18	5.48	5.77	6.56	PQ
CLASS IS	384	2.98	0.7	1.12	2.5	2.95	3.37	5.74	PQ
CLASS TOTAL OF THREE SCALES	384	14.33	1.32	8.87	13.52	14.33	15.11	17.99	PQ
ECERS Average	362	4.52	1.05	1.49	3.95	4.58	5.25	7	PQ
FDCRS Average	207	4.5	1	1.86	3.83	4.66	5.31	6.71	PQ
CCC RC	585	5.3	5.33	0	2	4	8	51	RC

QRIS	585	2.78	1.24	0	2	3	4	4	PQ
FDC RC	2486	2.27	3.42	0	0	1	3	34	RC
FDC PQ	2486	1.35	1.26	0	0	1	2	4	PQ
CCC RC	199	7.77	8.62	0	3	6	10	61	RC
CCC RC	199	6.69	10.32	0	1	4	8	98	RC
CCC RC	199	6.77	7.91	0	1.5	4	8.5	57	RC
QRIS	199	1.06	1.32	0	0	1	2	4	PQ
CCC RC	199	7.08	6.96	0	2.33	5.67	9.84	52	RC
QRIS	381	2.55	0.93	0	2	3	3	4	PQ
CCC RC	1399	1.13	2.1	0	0	0	1	20	RC
CCC RC	153	5.28	5.97	0	1	3	6	32	RC
FDC RC	82	3.52	4.36	0	0	2	4	21	RC

It is obvious when one observes the PQ as versus the RC data distributions that the RC data distributions are much more skewed, medians and means are significantly different, and kurtosis values are much higher which means that the data contain several outliers. These data distributions are provided for researchers who may be assessing regulatory compliance (RC) data for the first time. There are certain limitations of these data which are not present in more parametric data distributions which are more characteristic of program quality (PQ) data.

To deal with the level of skewness of RC data, weighted risk assessments have been suggested in order to introduce additional variance into the data distributions. Also, dichotomization of data has been used successfully with very skewed data distributions as well. One of the problems with very skewed data distributions is that it is very difficult to distinguish between high performing providers and mediocre preforming providers. Skewed data distributions provide no limitations in distinguishing low preforming providers from their more successful providers.

Regulatory Compliance Scale Trials and Tribulations (Enhanced Version)

Richard Fiene PhD

Research Institute for Key Indicators Data Lab/Penn State University

January 2024

The Regulatory Compliance Scale (RCS) was introduced several years ago and has been used in a couple of validation studies for differential monitoring and regulatory compliance's ceiling effect phenomenon. RCS buckets or thresholds were statistically generated based upon these studies, but it is time to validate those buckets and thresholds to determine if they are really the best model in creating a regulatory compliance scale. Since proposing the RCS, there has been a great deal of interest from jurisdictions in particular from Asian and African nations. Additional statistically based trials were conducted, and this brief report is the compilation of those trials over the past year.

The data used are from several jurisdictions that are part of the international database maintained at the Research Institute for Key Indicators Data Laboratory at Penn State University focusing on program quality scores and rule violation frequency data. These data from the respective databases were recoded into various thresholds to determine the best model. The jurisdictions were all licensing agencies in the US and Canada geographically dispersed where both regulatory compliance and program quality data was obtained from a sample of early care and education programs.

METHODOLOGY

The following methodology was used starting with the original RCS buckets/thresholds of Full, Substantial, Medium, and Low regulatory compliance:

Table 1: RCS Models used for analyses

RCS				**Models**			
		Original	***1***	***2***	***3***	***4***	***5***
	Full	100	100	100	100	100	100
Scaling	***Substantial***	99-98	99-97	99-97	99-98	99-98	99-97
	Medium	97-90	96-90	96-93	97-95	97-85	96-85
	Low	89>	89>	92>	94>	84>	84>

Five alternate models were used to compare the results to the original RCS. The numbers indicate the number of violations subtract from a perfect score of 100. Full regulatory compliance indicates no violations and a score of 100 on the scale. The next bucket of 99-98 indicates that there were 1 or 2

regulatory compliance violations which resulted in a 99-98 score on the scale. This logic continues with each of the models.

The scale score was determined in the following manner: Full Regulatory Compliance = 7; Substantial Regulatory Compliance = 5; Medium Regulatory Compliance = 3; and Low Regulatory Compliance =1. This rubric is how the original RCS scaling was done on a Likert type scale similar to other ECE program quality scales, such as the Environmental Rating Scales.

RESULTS

The following results are correlations amongst the respective RCS Models from Table 1 compared to the respective jurisdictions program quality tool (Quality1-3): ERS or CLASS Tools.

Table 2: RCS Model Results compared to Quality Scales

RCS results	Models	Quality1	Quality2	Quality3
Jurisdiction1	**RCS0**	**.26***	**.39***	**.39***
	RCS3	.21	.32*	.33*
	RCS5	.20	.36*	.33*
Jurisdiction2	**RCS0**	**.76****	**.46****	**---**
	RCS3	.12	-.07	---
	RCS5	.18	-.02	---
	RCSF1	.55**	.29*	---
	RCSF2	.63**	.34	---
Jurisdiction3	RCS0	.19	.18	.16
	RCS3	**.21**	**.21**	**.15**
	RCS5	.18	.16	.07
	RCSF1	.17	.17	.10
	RCSF2	.18	.18	.19
Jurisdiction4	RCS0	.24*	---	---
	RCS3	.28*	---	---
	RCS5	**.30***	**---**	**---**
	RCSF1	.21	---	---
	RCSF2	.29*	---	---
Jurisdiction5	RCS0	.06	-.02	.07
	RCS3	.06	-.01	.05
	RCS5	**.08**	**.00**	**.09**
	RCSF1	.00	-.03	.05
	RCSF2	.05	-.03	.05

*Statistically significant .05 level;

**Statistically significant .01 level.

In the above table starting under Jurisdiction2, two new models were introduced based upon the Fibonacci Sequence (Fibonacci1 = RCSF1; Fibonacci2 = RCSF2) and their model structure is in the

following Table 3. The reason for doing this is that the Fibonacci Sequence introduces additional variation into the scaling process.

Table 3: RCS Fibonacci Models

RCS Fibonacci			**Models**	
		Original	***Fibonacci1***	***Fibonacci2***
	Full	100	100	100
Scaling	***Substantial***	99-98	40	90
	Medium	97-90	20	20
	Low	89>	13	13

A second series of analyses were completed in comparing the RCS models with program quality (Quality1) by running ANOVAs with the RCS models as the independent variable and program quality as the dependent variable (Table 4). The reason for doing this was the nature of the data distribution in which there was a ceiling effect phenomenon identified which would have had an impact on the correlations in Table 2 above. All results are significant at $p < .05$ level with the exception of Jurisdiction2.

Table 4: ANOVAs Comparing the RCS Models with Program Quality

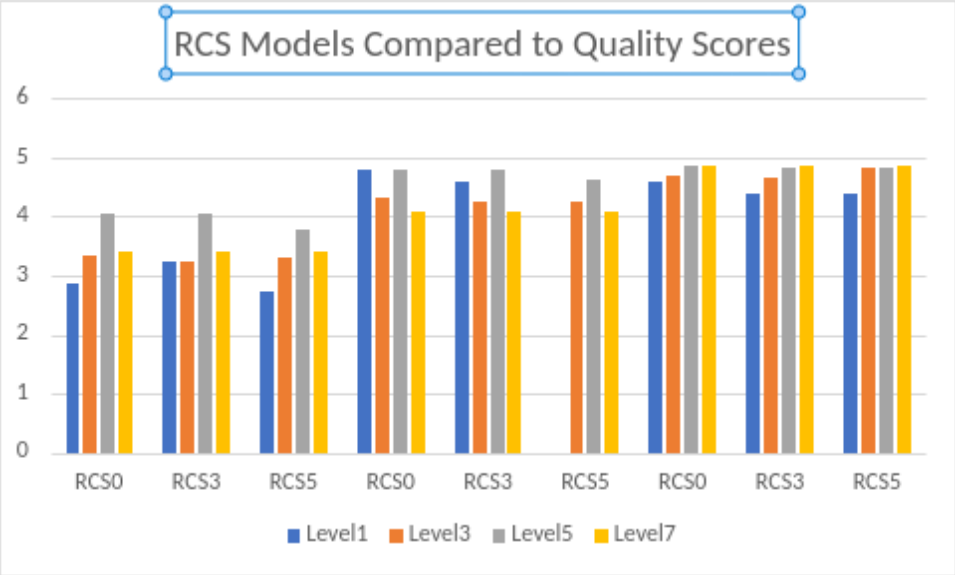
Jurisdictions	**Model**	**Level 1**	**Level 3**	**Level 5**	**Level 7**
Jurisdiction1	**RCS0**	**2.85**	**3.34**	**4.05**	**3.40**
	RCS3	3.24	3.23	4.05	3.40
	RCS5	2.73	3.32	3.77	3.40
Jurisdiction2	RCS0	4.81	4.31	4.80	4.10
	RCS3	**4.59**	**4.25**	**4.80**	**4.10**
	RCS5	---	4.26	4.64	4.10
Jurisdiction3	RCS0	4.59	4.68	4.86	4.87
	RCS3	**4.38**	**4.67**	**4.83**	**4.87**
	RCS5	4.38	4.83	4.83	4.87
Jurisdiction4	RCS0	37.81	37.01	44.28	41.96
	RCS3	36.57	38.60	44.28	41.96
	RCS5	**33.46**	**36.53**	**43.10**	**41.96**
Jurisdiction5	RCS0	3.93	4.17	4.28	4.07
	RCS3	4.02	4.24	4.28	4.07
	RCS5	**3.75**	**4.13**	**4.26**	**4.07**

DISCUSSION

Based upon the above results, it appears that the original RCS model proposed in 2021 is still the best model to be used, although the Fibonacci Sequence model is a close second in some of the jurisdictions. This model will need further exploration in determining its efficacy as a replacement or enhancement to the original RCS Model.

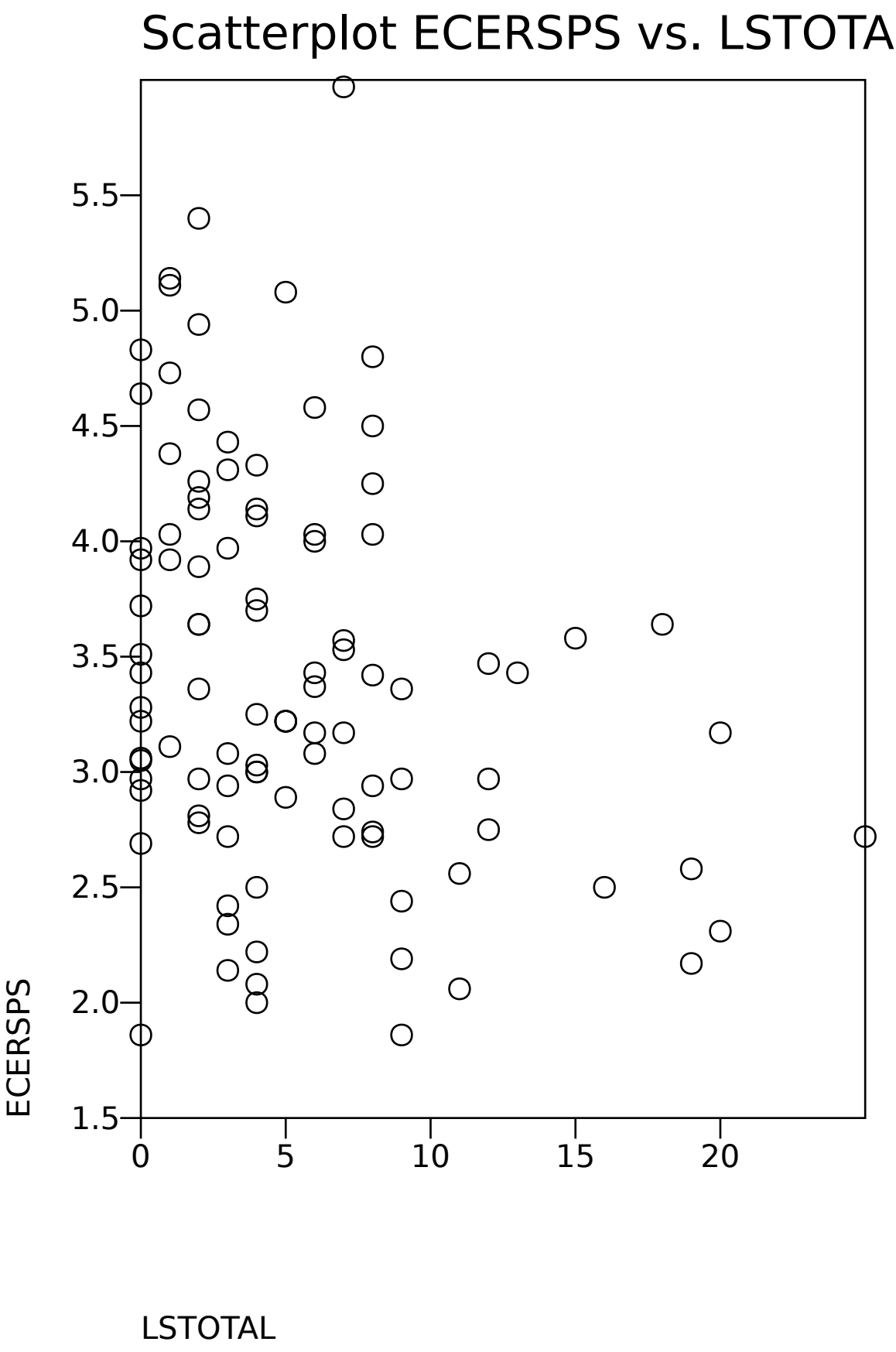
The bottom line is that the original RCS Model is as good as any and no other model is consistently better than all the rest. The RCS Model does have a slight edge over Regulatory Compliance Violation RCV frequency counts in some jurisdictions but not in others. It is much easier to interpret the relationship between quality and the RCS models than it is to interpret the results from the quality scores and the RCV data distribution. So, the recommendation would be for licensing agencies to think in terms of using this new scaling technique in one of its model formats in order to determine its efficacy. Pairing up RCS and RCV data side by side by licensing agencies would be important studies to determine which approach is the better approach.

The below graphic depicts the relationship between the RCS Models (0, 3, 5) when compared to the quality scores (1-6) clearly showing the ceiling effect and diminishing returns effect phenomenon so typical of regulatory compliance data when compared to program quality. These graphs are from the first three jurisdictions (1, 2, 3) from the above tables.



Richard Fiene PhD, Research Psychologist/Regulatory Scientist, Research Institute for Key Indicators Data Laboratory/Penn State University, email: rfiene@rikinstitute.com websites: https://rikinstitute.com or https://prevention.psu.edu/person/rick-fiene/

The below appendices present graphic displays of moving from nominal RCV to ordinal RSC measurement which really captures the differences in how the data are displayed and the ease in which viewing the data becomes in making such a move. Also, basic descriptive statistics are displayed to clearly demonstrate the differences in the various RCS Models.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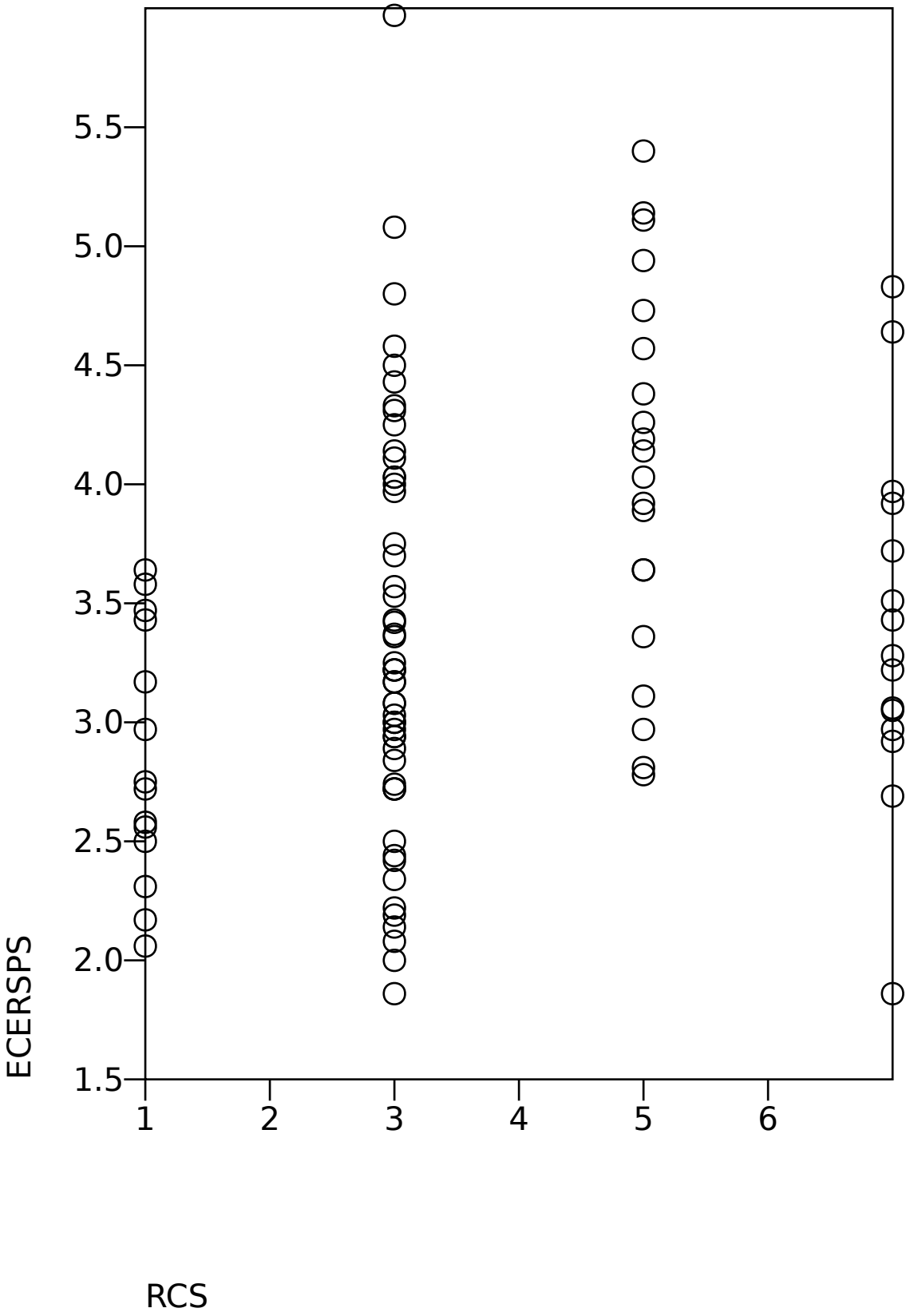
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
0
5
10
15
20
LSTOTAL

Scatterplot ECERSPS vs. RCS



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Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	15	14.42	14.42	14.42
	3.00	54	51.92	51.92	66.35
	5.00	20	19.23	19.23	85.58
	7.00	15	14.42	14.42	100.00
	Total	104	100.0	100.0	

RCS

N	*Valid*	104
	Missing	0
Mean		3.67
Std Dev		1.80

RCS3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	41	39.42	39.42	39.42
	3.00	28	26.92	26.92	66.35
	5.00	20	19.23	19.23	85.58
	7.00	15	14.42	14.42	100.00
	Total	104	100.0	100.0	

RCS3

N	*Valid*	104
	Missing	0
Mean		3.17
Std Dev		2.16

RCS5

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	8	7.69	7.69	7.69
	3.00	52	50.00	50.00	57.69
	5.00	29	27.88	27.88	85.58
	7.00	15	14.42	14.42	100.00
	Total	104	100.0	100.0	

RCS5

N	*Valid*	104
	Missing	0
Mean		3.98
Std Dev		1.67

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RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	75	18.61	18.61	18.61
	3.00	171	42.43	42.43	61.04
	5.00	72	17.87	17.87	78.91
	7.00	85	21.09	21.09	100.00
	Total	403	100.0	100.0	

RCS0

N	*Valid*	403
	Missing	0
Mean		3.83
Std Dev		2.04

RCS3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	161	39.95	39.95	39.95
	3.00	85	21.09	21.09	61.04
	5.00	72	17.87	17.87	78.91
	7.00	85	21.09	21.09	100.00
	Total	403	100.0	100.0	

RCS3

N	*Valid*	403
	Missing	0
Mean		3.40
Std Dev		2.35

RCS5

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	32	7.94	7.94	7.94
	3.00	178	44.17	44.17	52.11
	5.00	108	26.80	26.80	78.91
	7.00	85	21.09	21.09	100.00
	Total	403	100.0	100.0	

RCS5

N	*Valid*	403
	Missing	0
Mean		4.22
Std Dev		1.81

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RCS

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	15	14.42	14.42	14.42
	3.00	54	51.92	51.92	66.35
	5.00	20	19.23	19.23	85.58
	7.00	15	14.42	14.42	100.00
	Total	104	100.0	100.0	

RCS

N	*Valid*	104
	Missing	0
Mean		3.67
Std Dev		1.80

RCS3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	41	39.42	39.42	39.42
	3.00	28	26.92	26.92	66.35
	5.00	20	19.23	19.23	85.58
	7.00	15	14.42	14.42	100.00
	Total	104	100.0	100.0	

RCS3

N	*Valid*	104
	Missing	0
Mean		3.17
Std Dev		2.16

RCS5

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	8	7.69	7.69	7.69
	3.00	52	50.00	50.00	57.69
	5.00	29	27.88	27.88	85.58
	7.00	15	14.42	14.42	100.00
	Total	104	100.0	100.0	

RCS5

N	*Valid*	104
	Missing	0
Mean		3.98
Std Dev		1.67

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RCO0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	22	5.21	5.21	5.21
	3.00	167	39.57	39.57	44.79
	5.00	149	35.31	35.31	80.09
	7.00	84	19.91	19.91	100.00
	Total	422	100.0	100.0	

RCO0

N	*Valid*	422
	Missing	0
Mean		4.40
Std Dev		1.69

RCO5

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	7	1.66	2.48	2.48
	3.00	5	1.18	1.77	4.26
	5.00	186	44.08	65.96	70.21
	7.00	84	19.91	29.79	100.00
	.	140	33.18	Missing	
	Total	422	100.0	100.0	

RCO5

N	*Valid*	282
	Missing	140
Mean		5.46
Std Dev		1.21

RCS3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	7	1.66	1.66	1.66
	3.00	145	34.36	34.36	36.02
	5.00	186	44.08	44.08	80.09
	7.00	84	19.91	19.91	100.00
	Total	422	100.0	100.0	

RCS3

N	*Valid*	422
	Missing	0
Mean		4.64
Std Dev		1.52

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RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	32	14.61	14.61	14.61
	3.00	71	32.42	32.42	47.03
	5.00	36	16.44	16.44	63.47
	7.00	80	36.53	36.53	100.00
	Total	219	100.0	100.0	

RCS0

N	*Valid*	219
	Missing	0
Mean		4.50
Std Dev		2.21

RCS3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	68	31.05	31.05	31.05
	3.00	35	15.98	15.98	47.03
	5.00	36	16.44	16.44	63.47
	7.00	80	36.53	36.53	100.00
	Total	219	100.0	100.0	

RCS3

N	*Valid*	219
	Missing	0
Mean		4.17
Std Dev		2.53

RCS5

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	13	5.94	5.94	5.94
	3.00	66	30.14	30.14	36.07
	5.00	60	27.40	27.40	63.47
	7.00	80	36.53	36.53	100.00
	Total	219	100.0	100.0	

RCS5

N	*Valid*	219
	Missing	0
Mean		4.89
Std Dev		1.90

```
GET

GET FILE="/home/MyDropbox/RCS Trials/SUMMARY/CENTRAL
PROVINCE RCS SUM.sav".


FREQUENCIES

FREQUENCIES
      /VARIABLES= Rank RCS13 RCS3 RCS5 RCS0
      /FORMAT=AVALUE TABLE
      /STATISTICS=MEAN STDDEV.
```

RCS

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	18	30.00	30.00	30.00
	3.00	22	36.67	36.67	66.67
	5.00	12	20.00	20.00	86.67
	7.00	8	13.33	13.33	100.00
	Total	60	100.0	100.0	

RCS

N	*Valid*	60
	Missing	0
Mean		3.33
Std Dev		2.02

RCS1-3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	18	30.00	30.00	30.00
	3.00	22	36.67	36.67	66.67
	5.00	20	33.33	33.33	100.00
	Total	60	100.0	100.0	

RCS1-3

N	*Valid*	60
	Missing	0
Mean		3.07
Std Dev		1.60

RCS3

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	10	16.67	17.86	17.86

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	3.00	22	36.67	39.29	57.14
	5.00	12	20.00	21.43	78.57
	7.00	12	20.00	21.43	100.00
	.	4	6.67	Missing	
	Total	60	100.0	100.0	

RCS3

N	*Valid*	56
	Missing	4
Mean		3.93
Std Dev		2.05

RCS5

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	3.00	20	33.33	35.71	35.71
	5.00	24	40.00	42.86	78.57
	7.00	12	20.00	21.43	100.00
	.	4	6.67	Missing	
	Total	60	100.0	100.0	

RCS5

N	*Valid*	56
	Missing	4
Mean		4.71
Std Dev		1.50

RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	2	3.33	3.57	3.57
	3.00	30	50.00	53.57	57.14
	5.00	12	20.00	21.43	78.57
	7.00	12	20.00	21.43	100.00
	.	4	6.67	Missing	
	Total	60	100.0	100.0	

RCS0

N	*Valid*	56
	Missing	4
Mean		4.21
Std Dev		1.73

```
FREQUENCIES

FREQUENCIES
      /VARIABLES= PTQLevel GRANDTOTALS RCS0
      /FORMAT=AVALUE TABLE
      /STATISTICS=DEFAULT VARIANCE SKEWNESS RANGE MODE
KURTOSIS MEDIAN SUM.
```

PTQ Level

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	34	5.81	5.81	5.81
	1	92	15.73	15.73	21.54
	2	45	7.69	7.69	29.23
	3	212	36.24	36.24	65.47
	4	202	34.53	34.53	100.00
	Total	585	100.0	100.0	

PTQ Level

N	*Valid*	585
	Missing	0
Mean		2.78
Mode		3.00
Std Dev		1.24
Variance		1.53
Kurtosis		-.48
Skewness		-.82
Range		4.00
Minimum		.00
Maximum		4.00
Sum		1626.00
Percentiles	50 (Median)	3

GRAND TOTALS

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	73	12.48	12.48	12.48
	1	53	9.06	9.06	21.54
	2	73	12.48	12.48	34.02
	3	69	11.79	11.79	45.81
	4	62	10.60	10.60	56.41
	5	45	7.69	7.69	64.10
	6	36	6.15	6.15	70.26
	7	27	4.62	4.62	74.87
	8	38	6.50	6.50	81.37
	9	20	3.42	3.42	84.79

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	10	17	2.91	2.91	87.69
	11	15	2.56	2.56	90.26
	12	10	1.71	1.71	91.97
	13	6	1.03	1.03	92.99
	14	7	1.20	1.20	94.19
	15	5	.85	.85	95.04
	16	3	.51	.51	95.56
	17	3	.51	.51	96.07
	18	4	.68	.68	96.75
	19	3	.51	.51	97.26
	20	3	.51	.51	97.78
	21	2	.34	.34	98.12
	22	3	.51	.51	98.63
	23	1	.17	.17	98.80
	24	2	.34	.34	99.15
	25	2	.34	.34	99.49
	28	1	.17	.17	99.66
	31	1	.17	.17	99.83
	51	1	.17	.17	100.00
	Total	585	100.0	100.0	

GRAND TOTALS

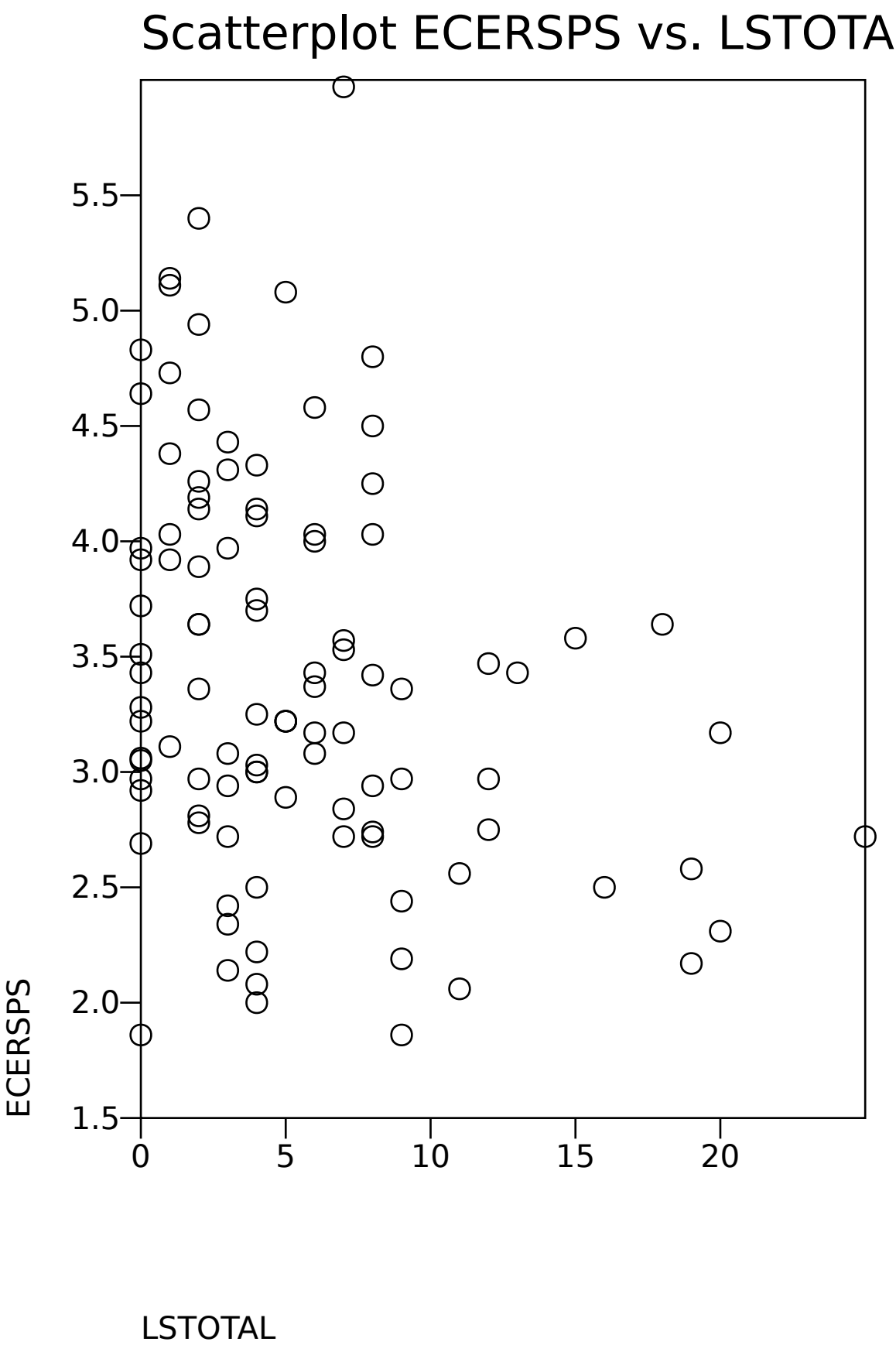
N	*Valid*	585
	Missing	0
Mean		5.30
Mode		.
Std Dev		5.33
Variance		28.44
Kurtosis		11.42
Skewness		2.45
Range		51.00
Minimum		.00
Maximum		51.00
Sum		3101.00
Percentiles	50 (Median)	4

RCS0

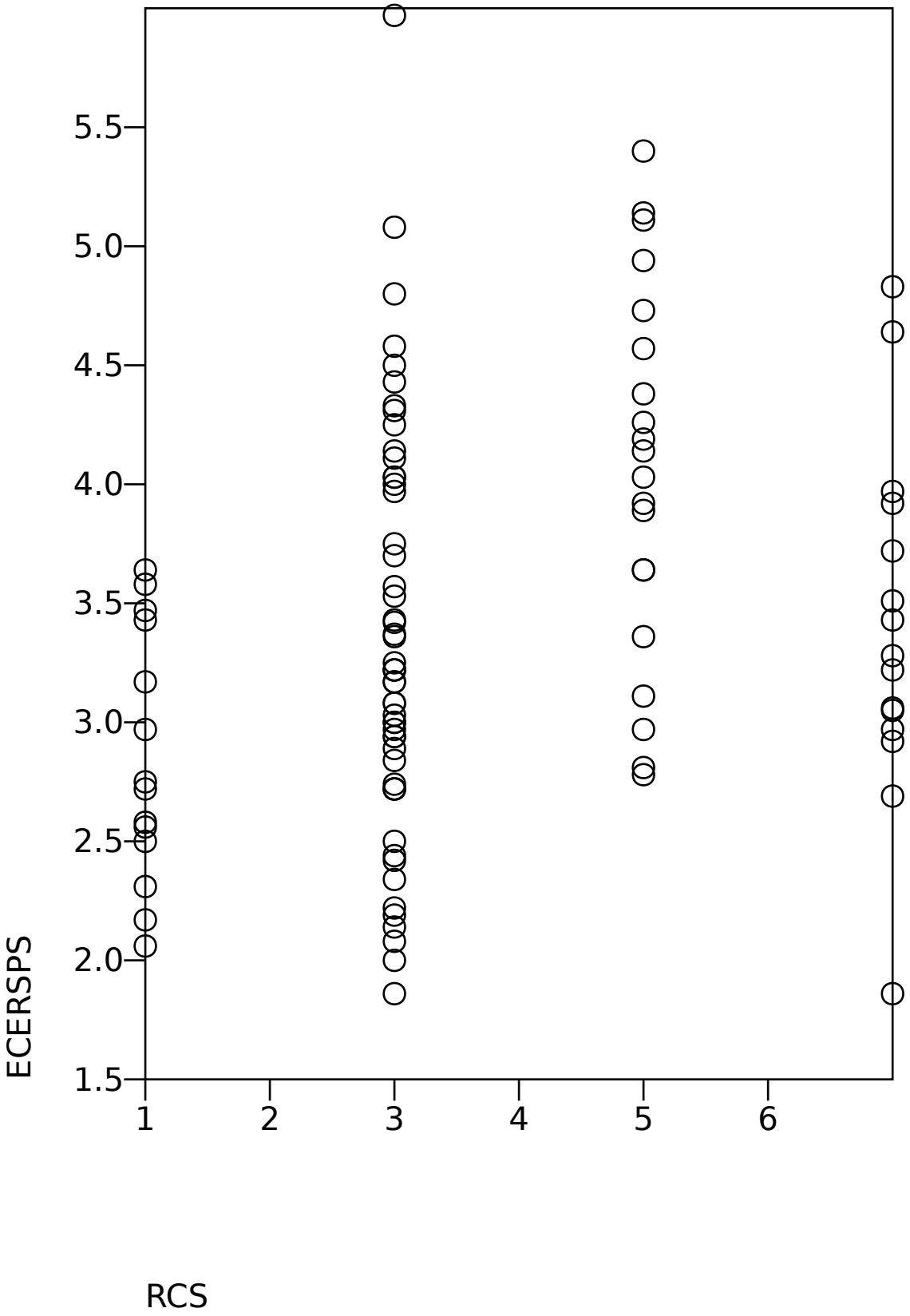
Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	72	12.31	12.31	12.31
	3.00	314	53.68	53.68	65.98
	5.00	126	21.54	21.54	87.52
	7.00	73	12.48	12.48	100.00
	Total	585	100.0	100.0	

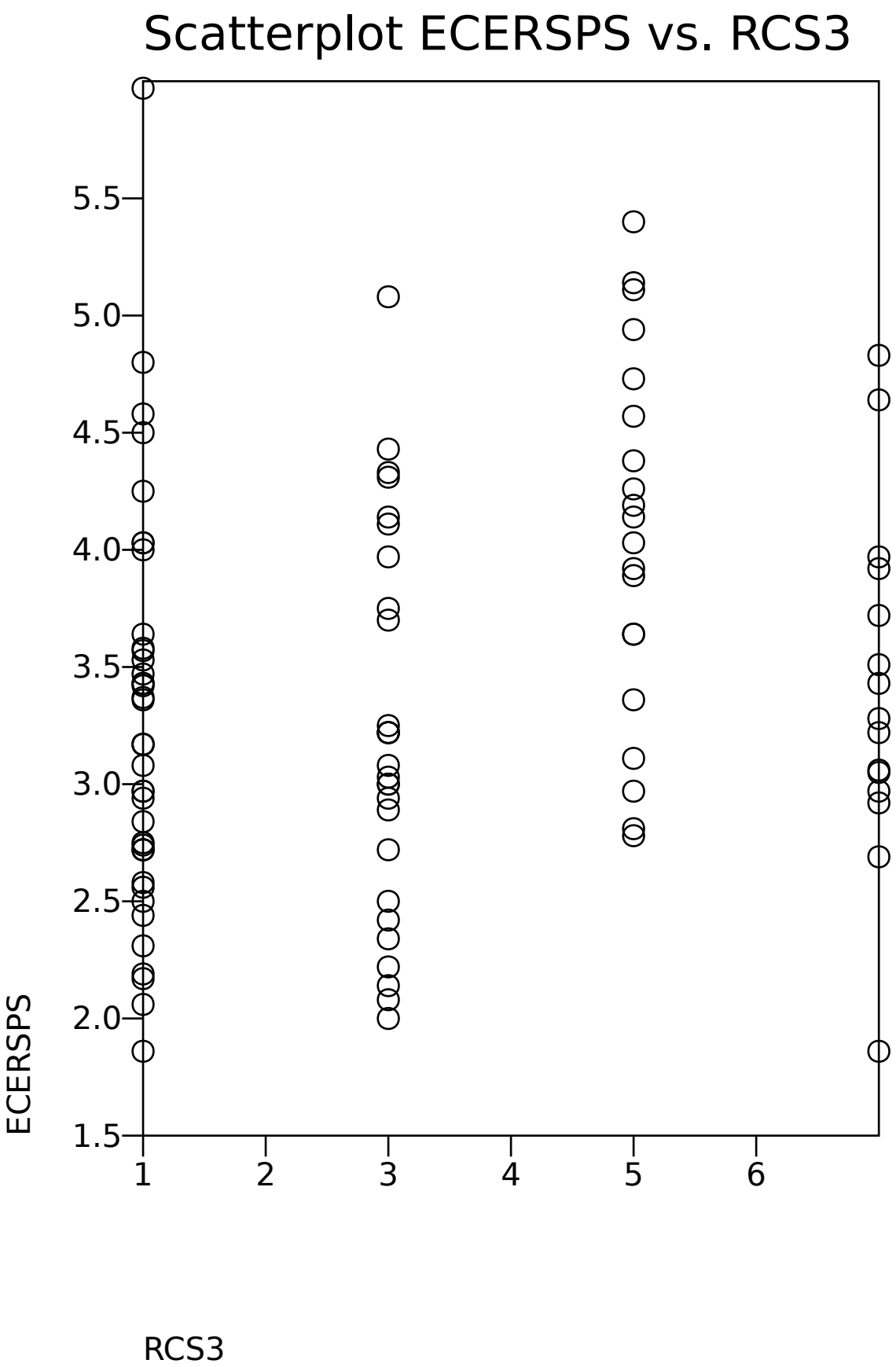
RCS0

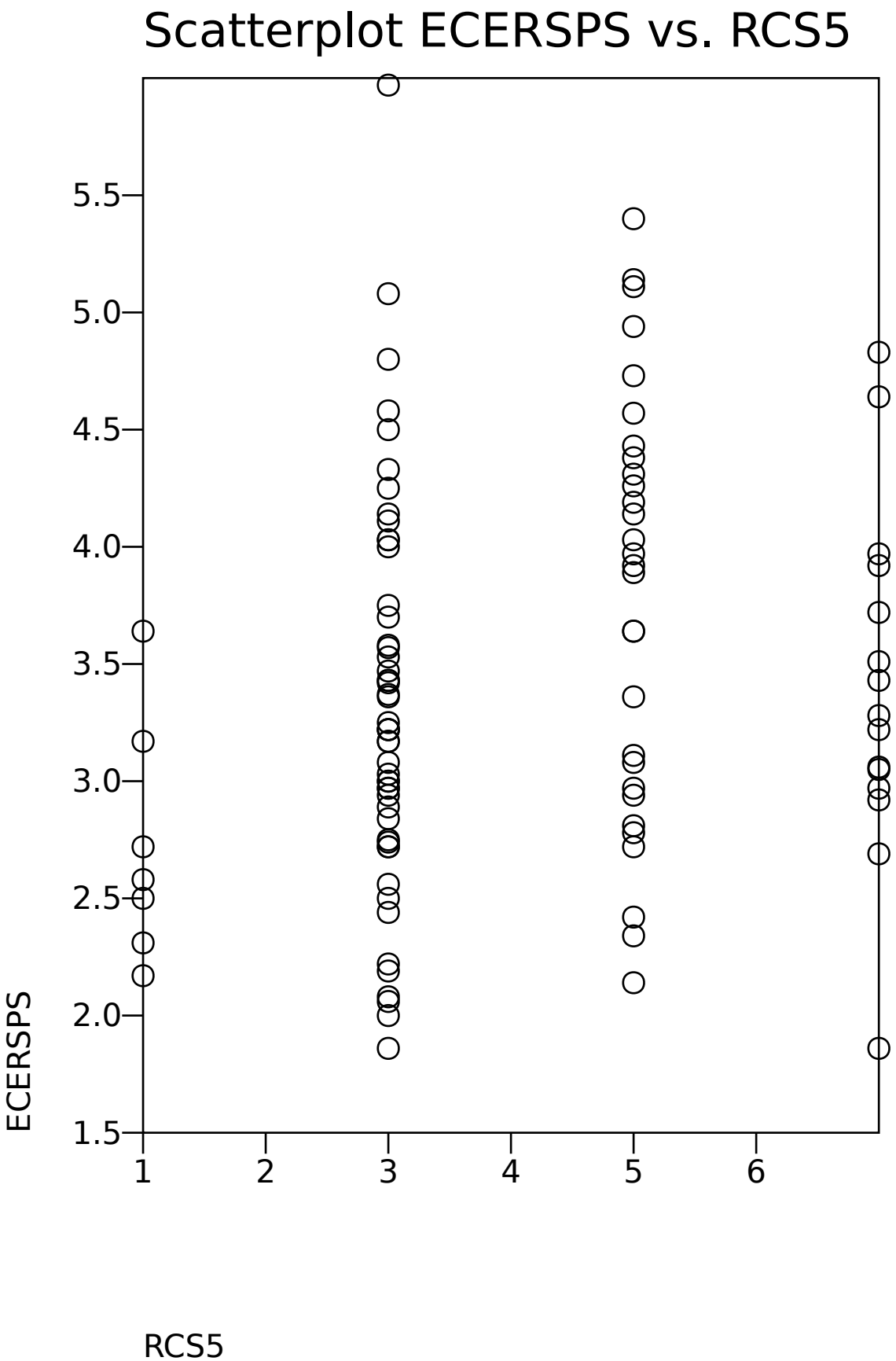
N	*Valid*	585
	Missing	0
Mean		3.68
Mode		3.00
Std Dev		1.70
Variance		2.89
Kurtosis		-.32
Skewness		.51
Range		6.00
Minimum		1.00
Maximum		7.00
Sum		2155.00
Percentiles	50 (Median)	3.00

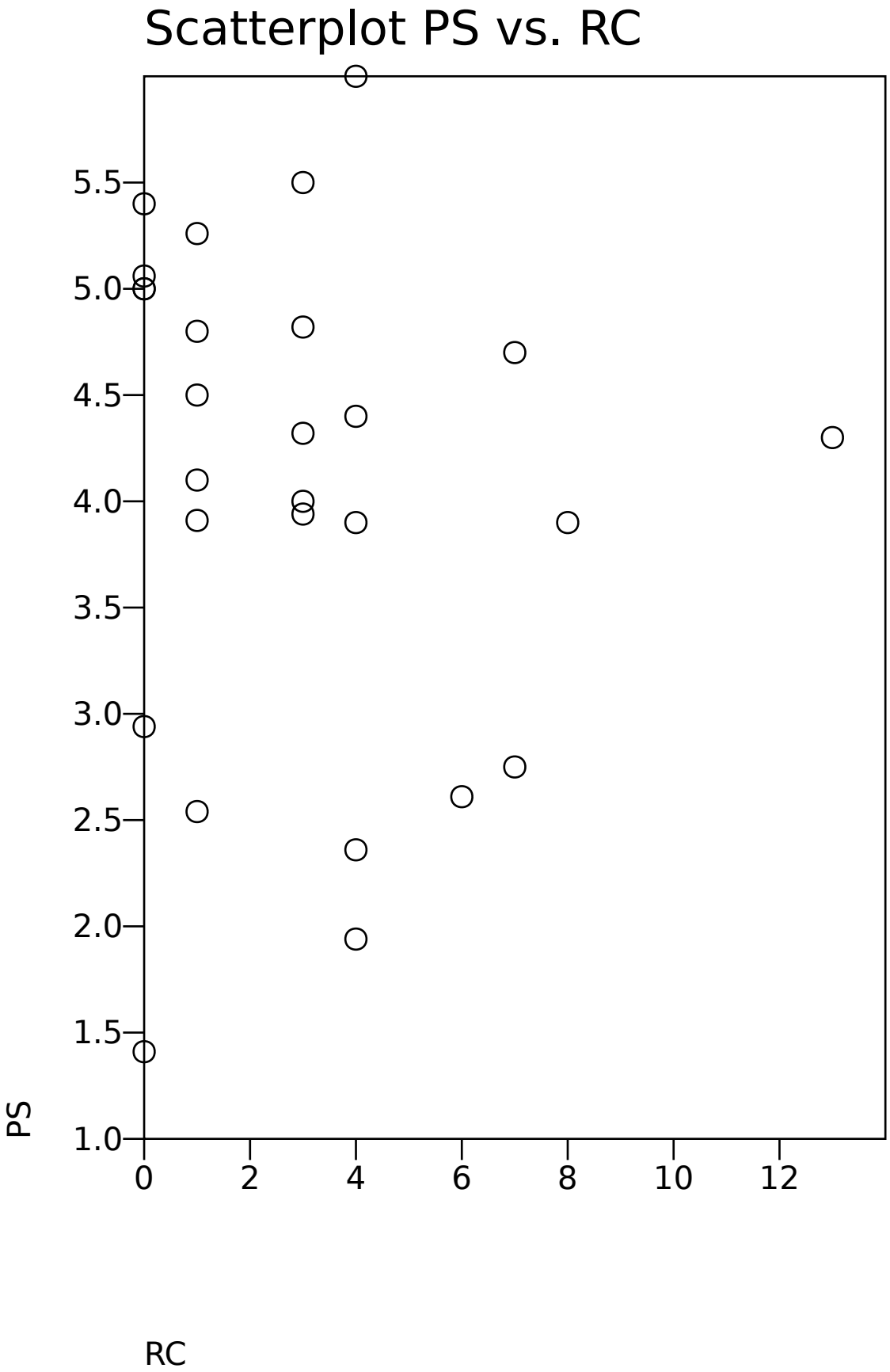

Scatterplot ECERSPS vs. LSTOTAL
ECERSPS
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
0
5
10
15
20
LSTOTAL

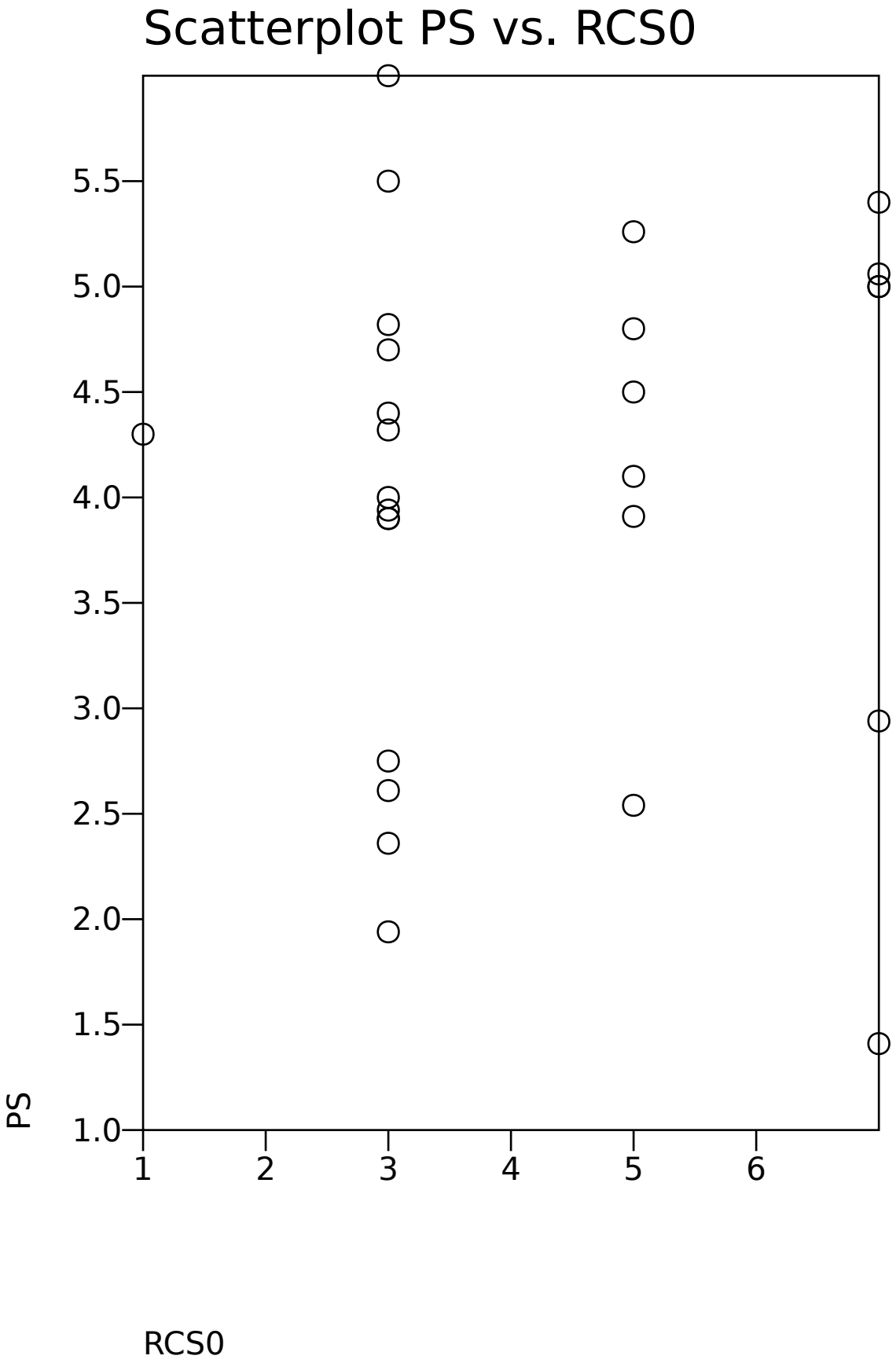
Scatterplot ECERSPS vs. RCS

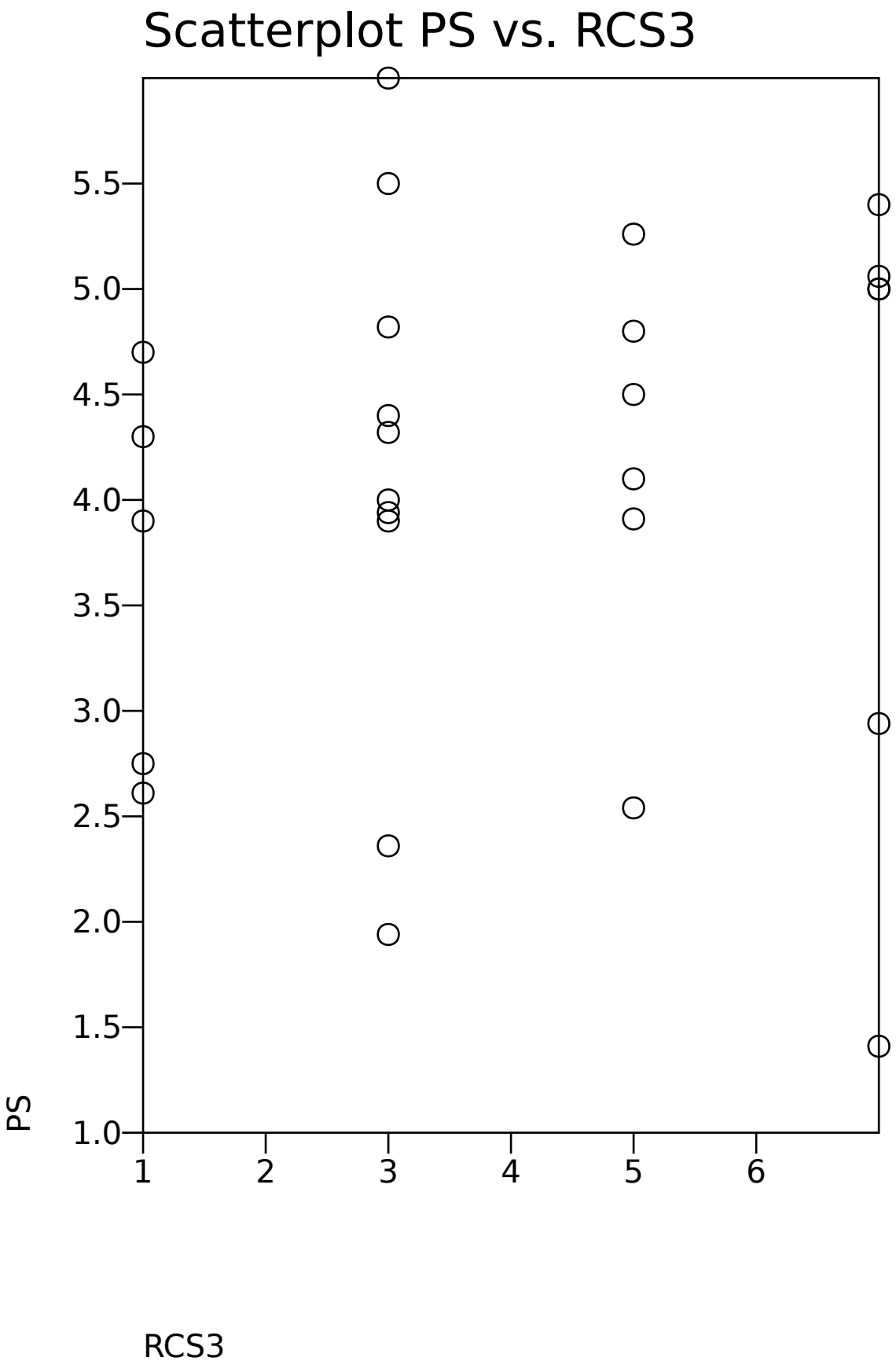


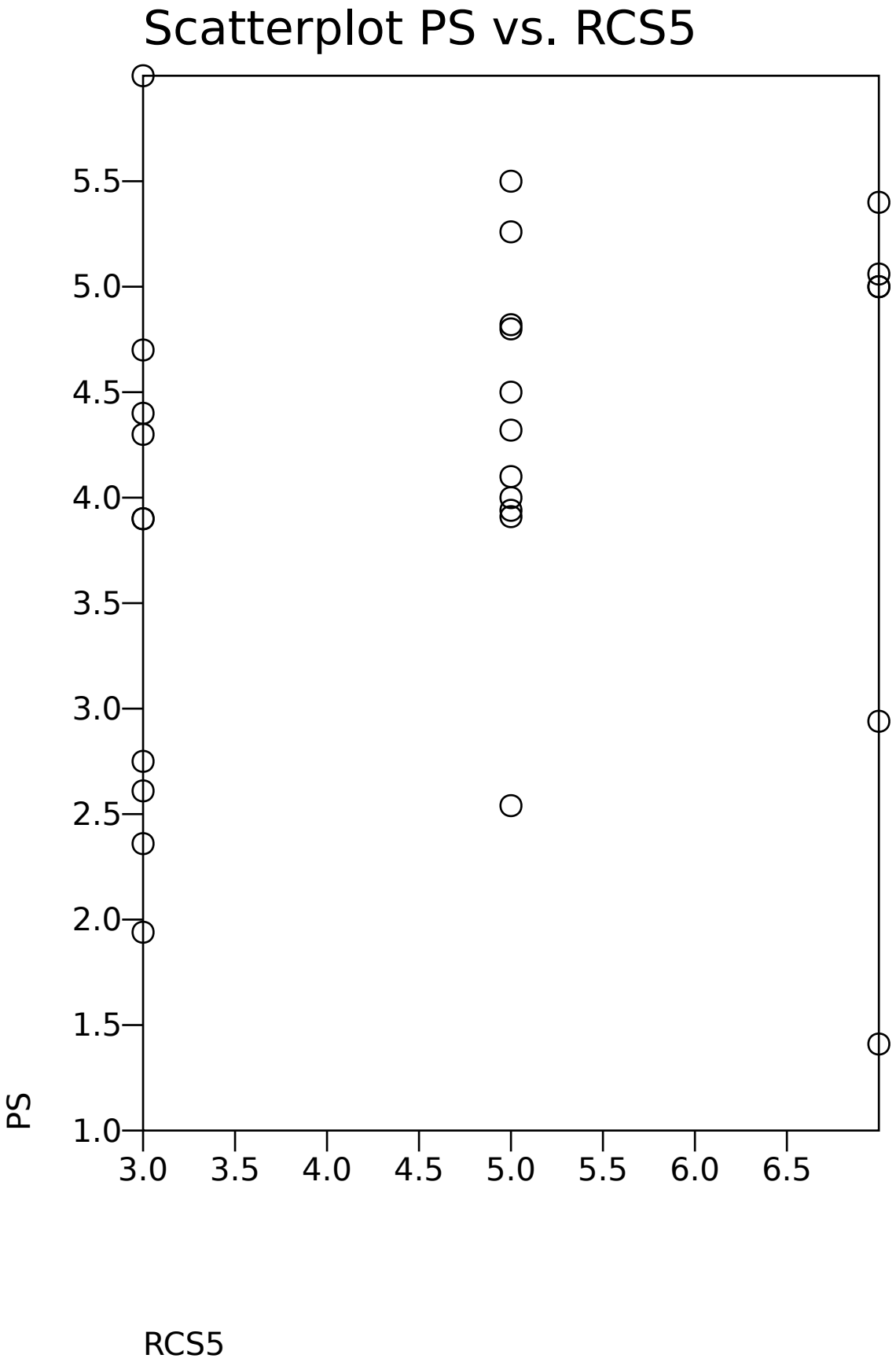

Scatterplot ECERSPS vs. RCS3
ECERSPS
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1
2
3
4
5
6
RCS3

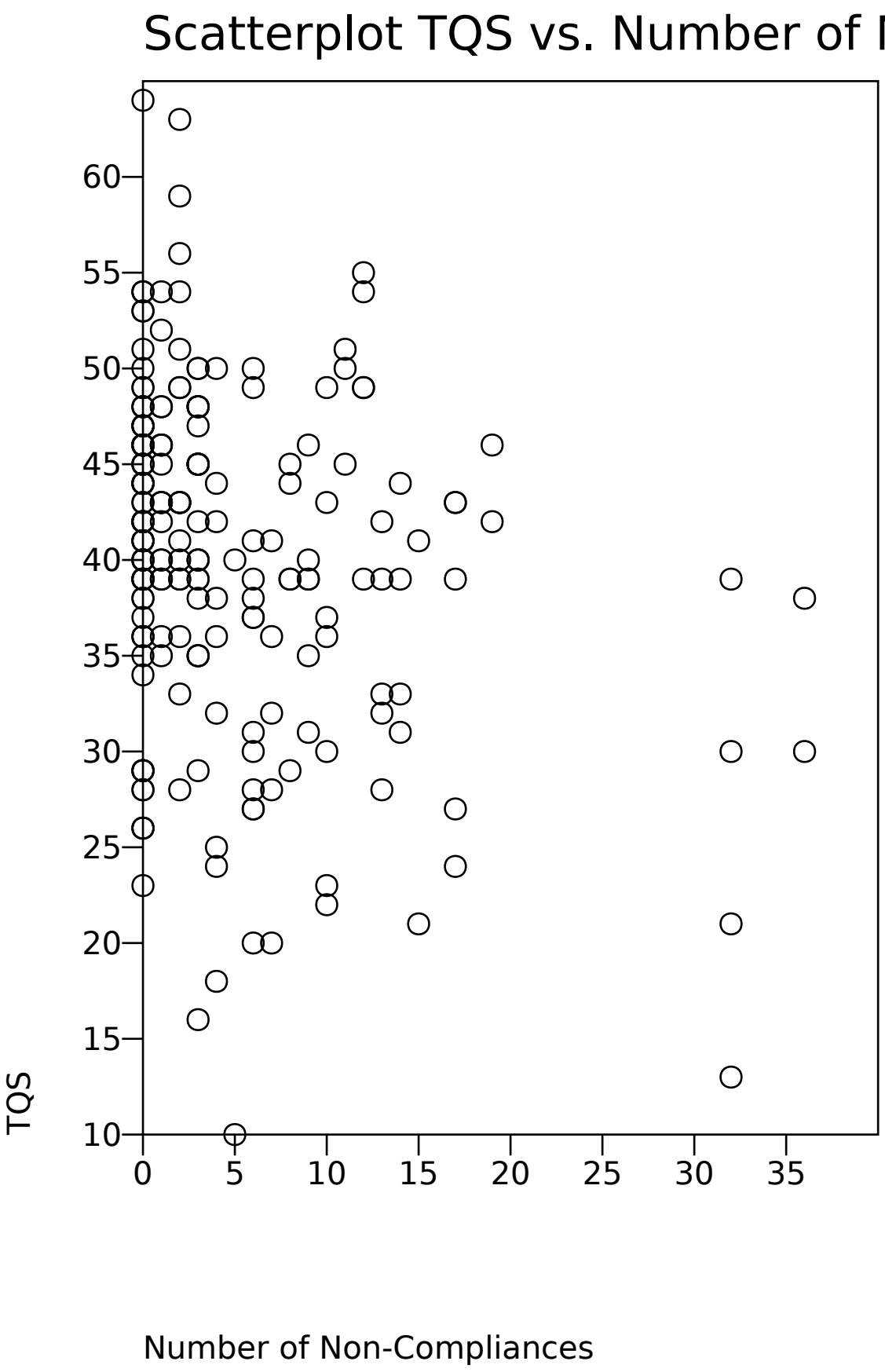

Scatterplot ECERSPS vs. RCS5
ECERSPS
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1
2
3
4
5
6
RCS5


Scatterplot PS vs. RC
PS
RC
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0
2
4
6
8
10
12

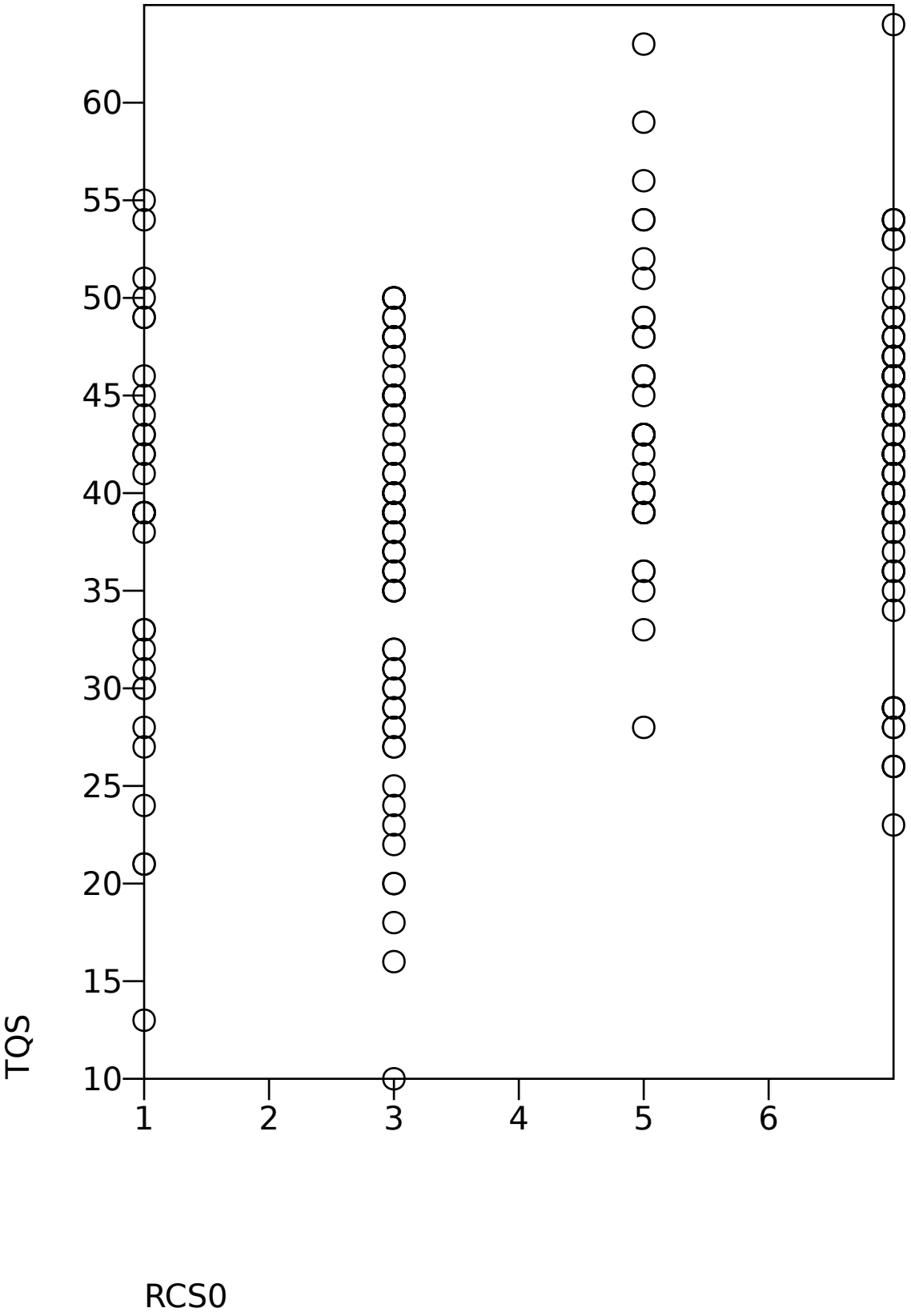

Scatterplot PS vs. RCS0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
PS
1
2
3
4
5
6
RCS0


Scatterplot PS vs. RCS3
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
PS
1
2
3
4
5
6
RCS3

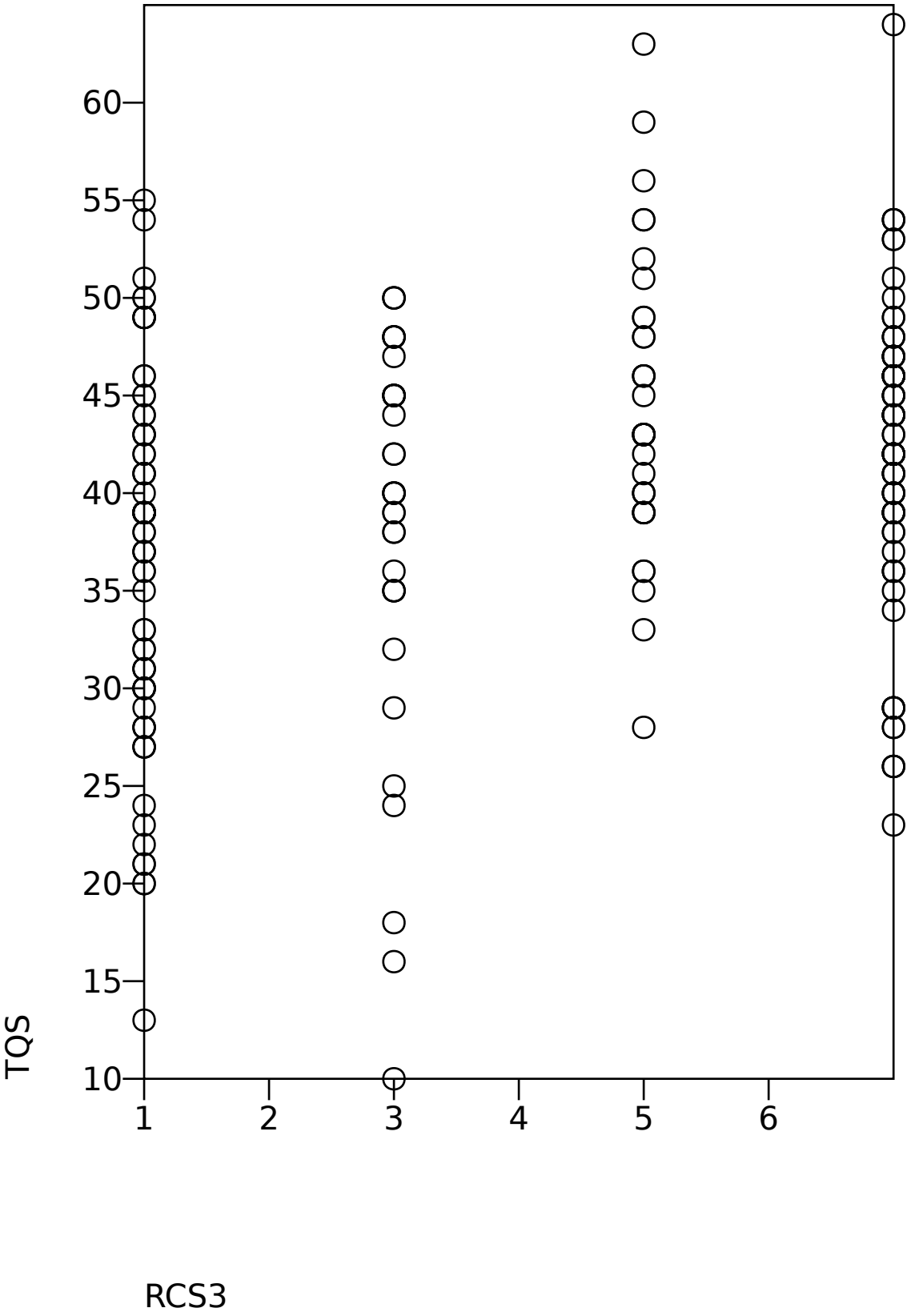

Scatterplot PS vs. RCS5
PS
RCS5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5


Scatterplot TQS vs. Number of Non-Complia
TQS
Number of Non-Compliances
60
55
50
45
40
35
30
25
20
15
10
0
5
10
15
20
25
30
35

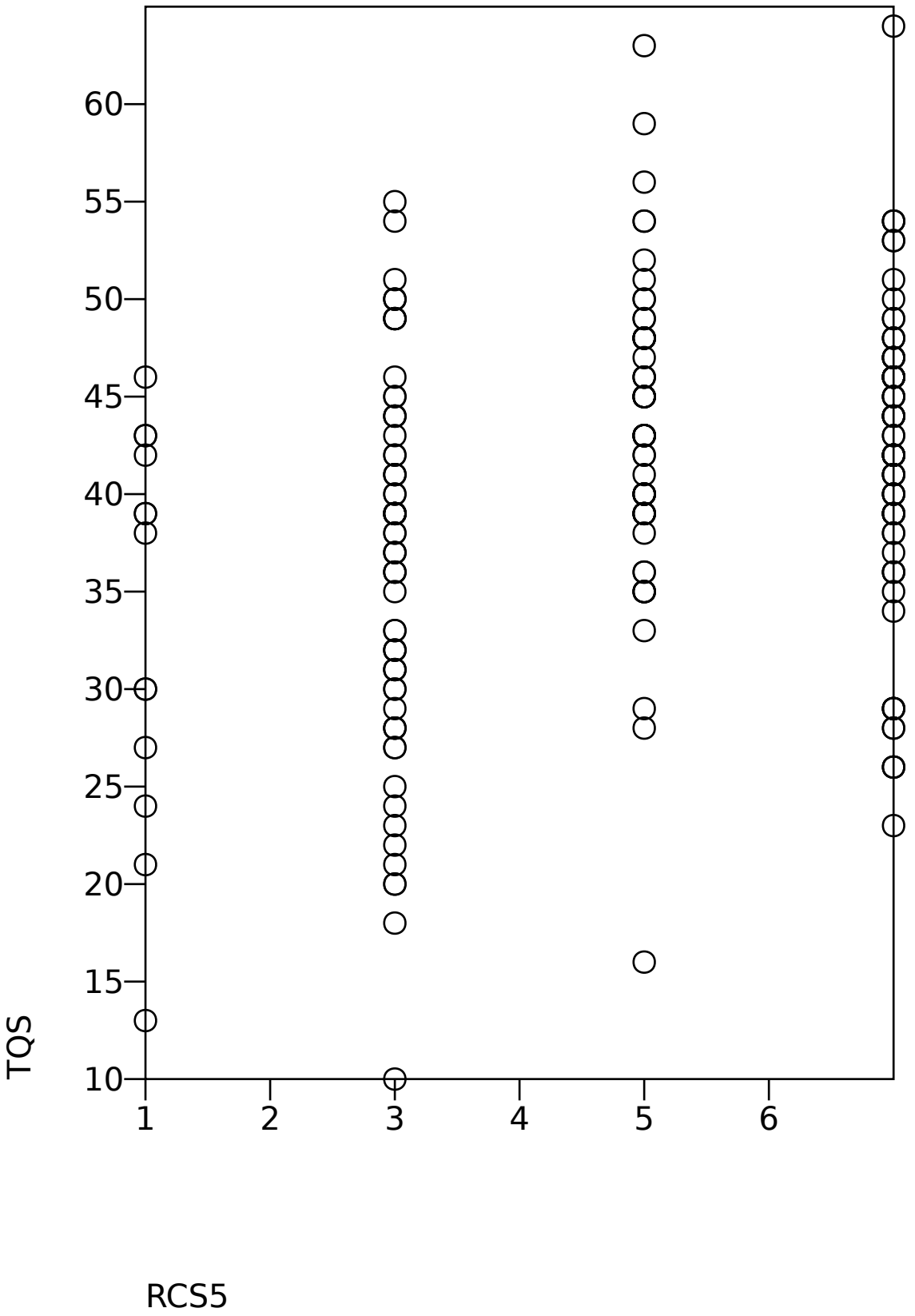
Scatterplot TQS vs. RCS0

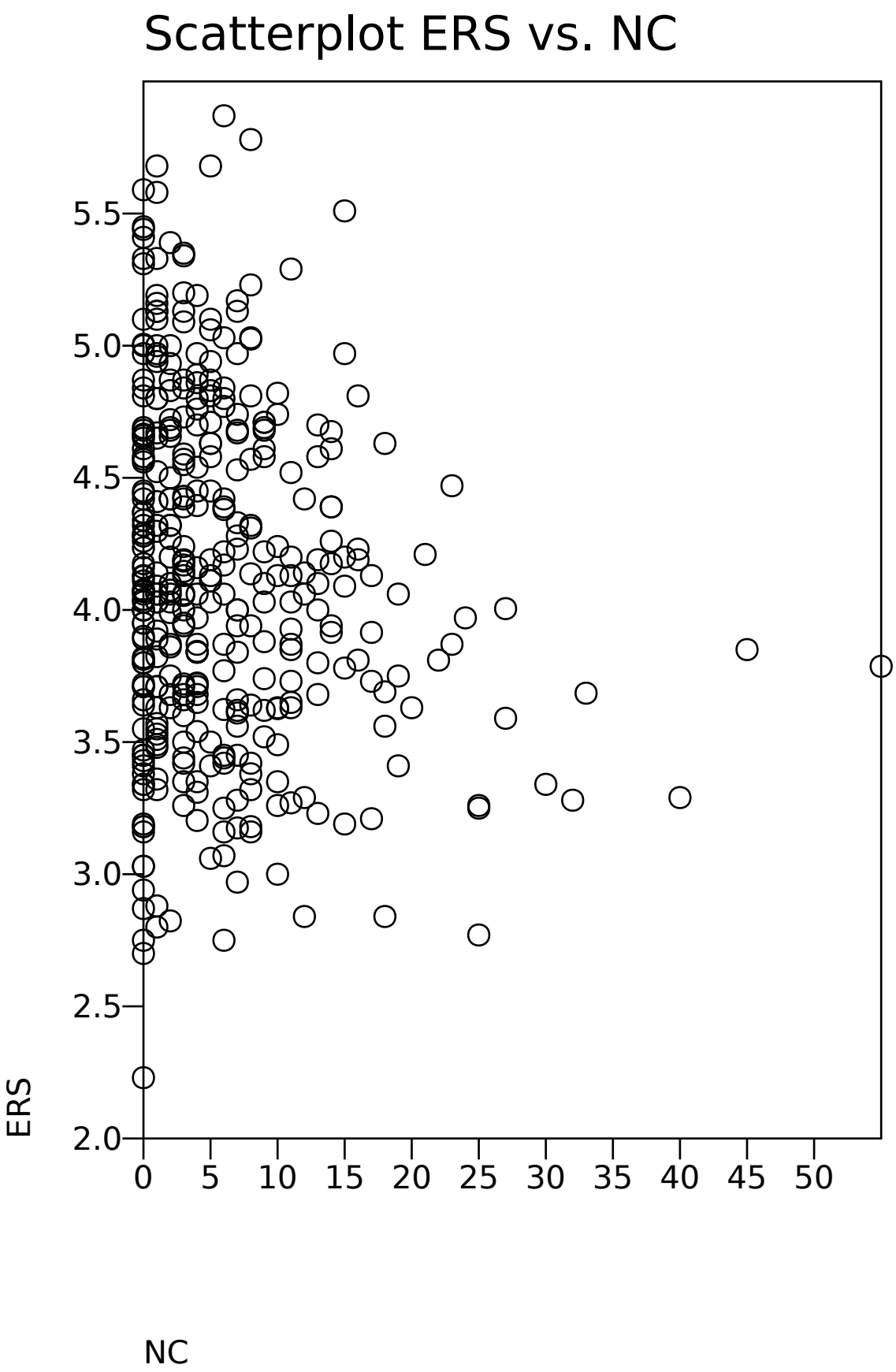


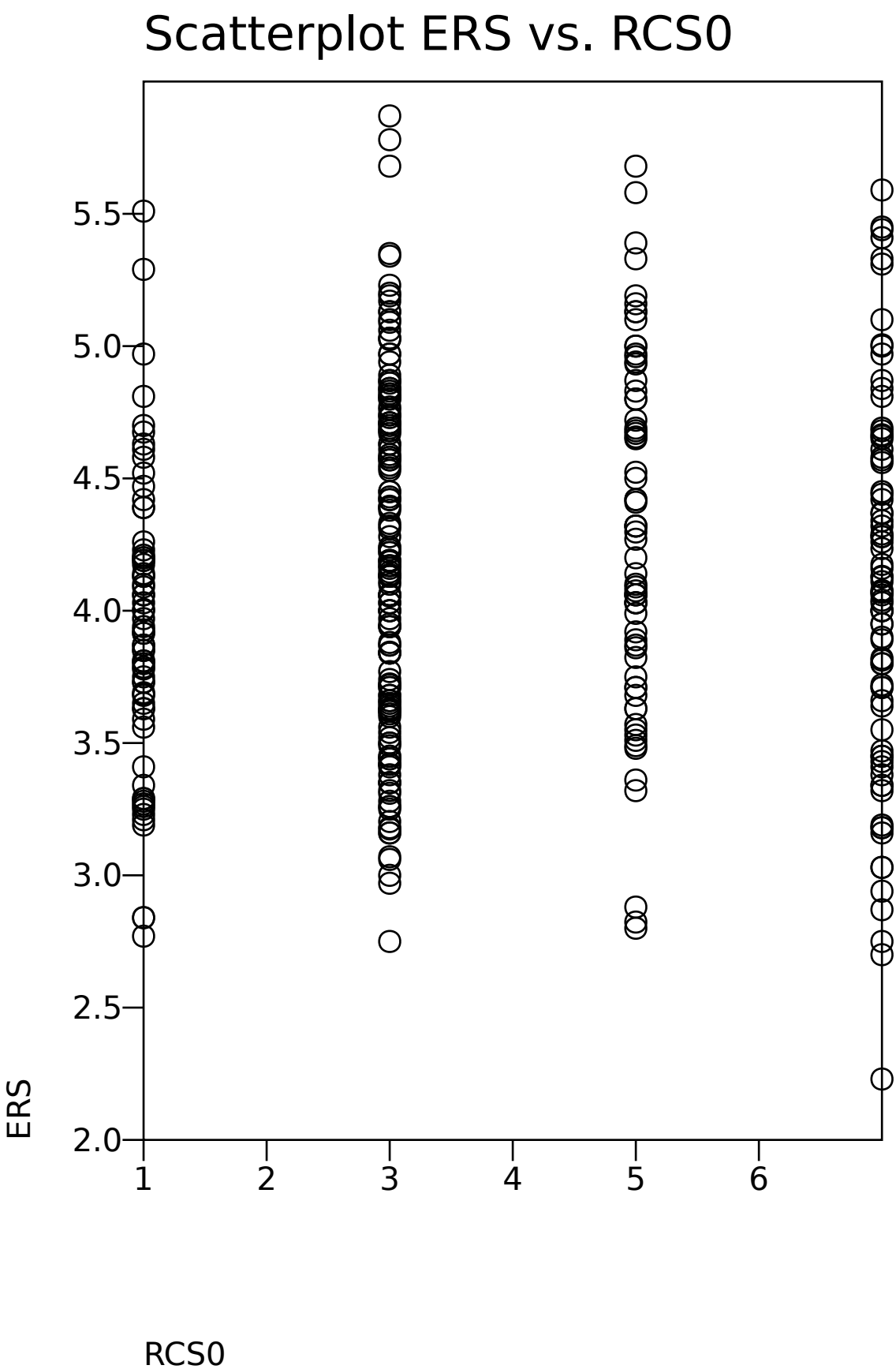
Scatterplot TQS vs. RCS3

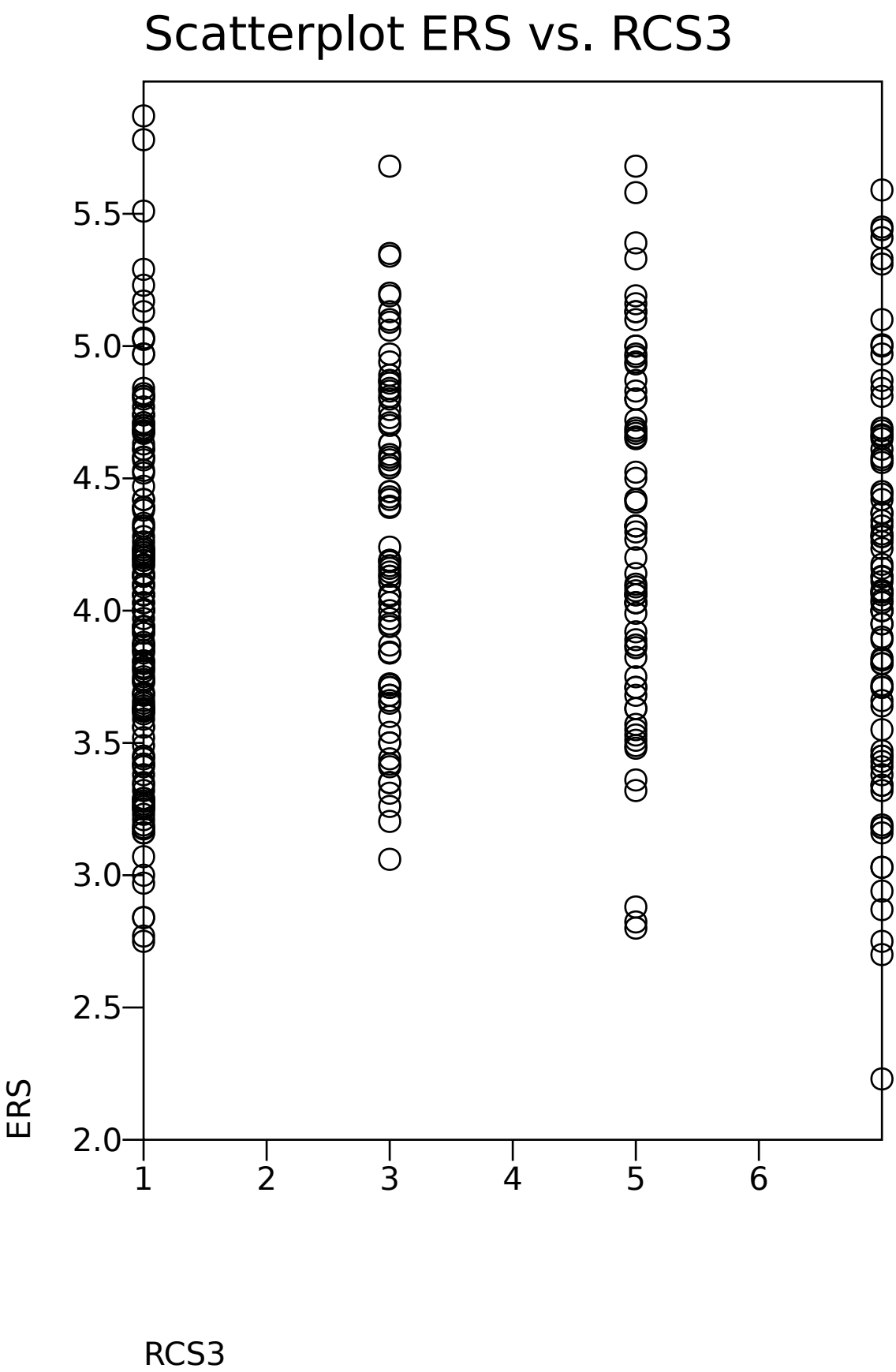


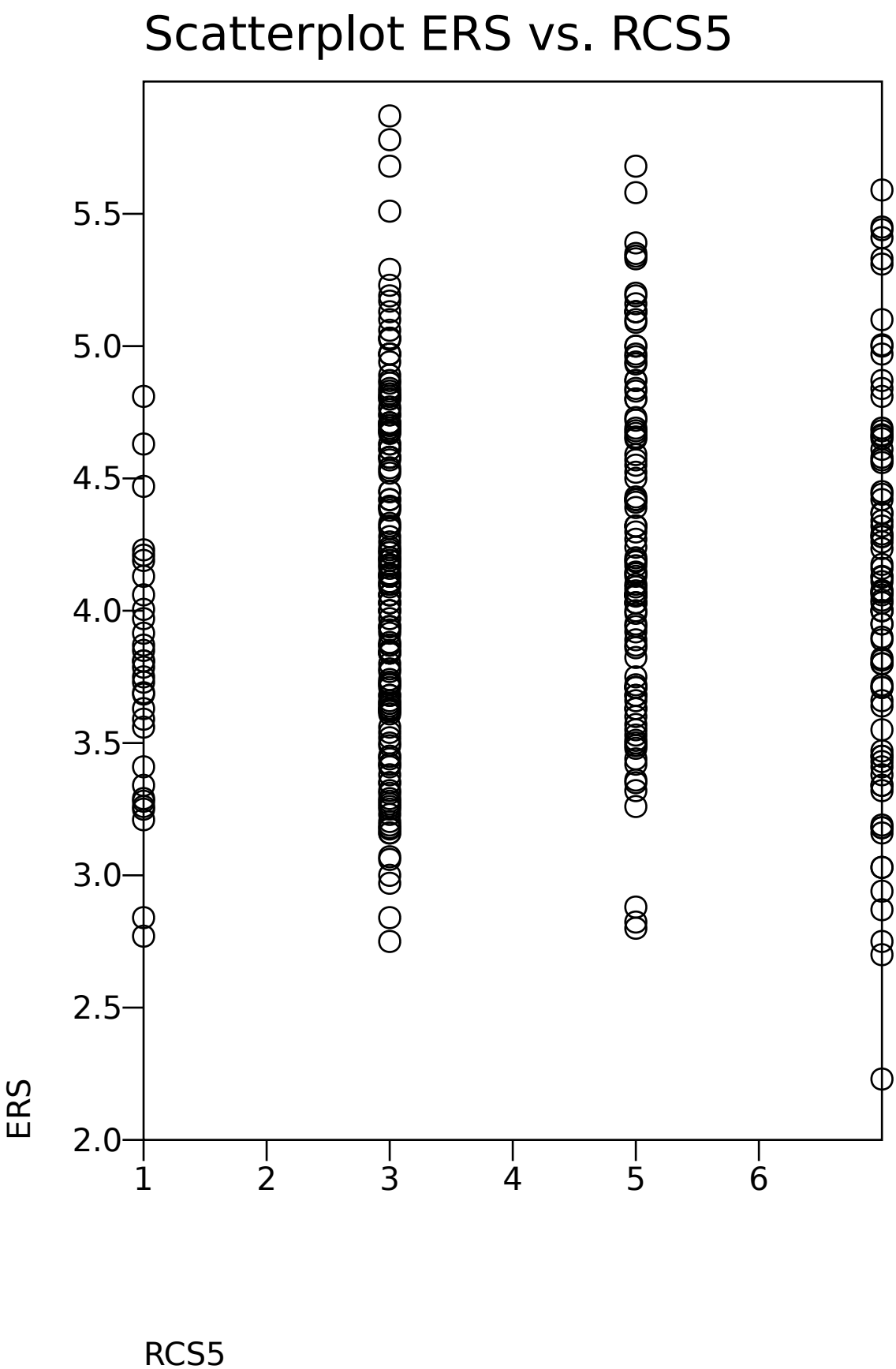
Scatterplot TQS vs. RCS5

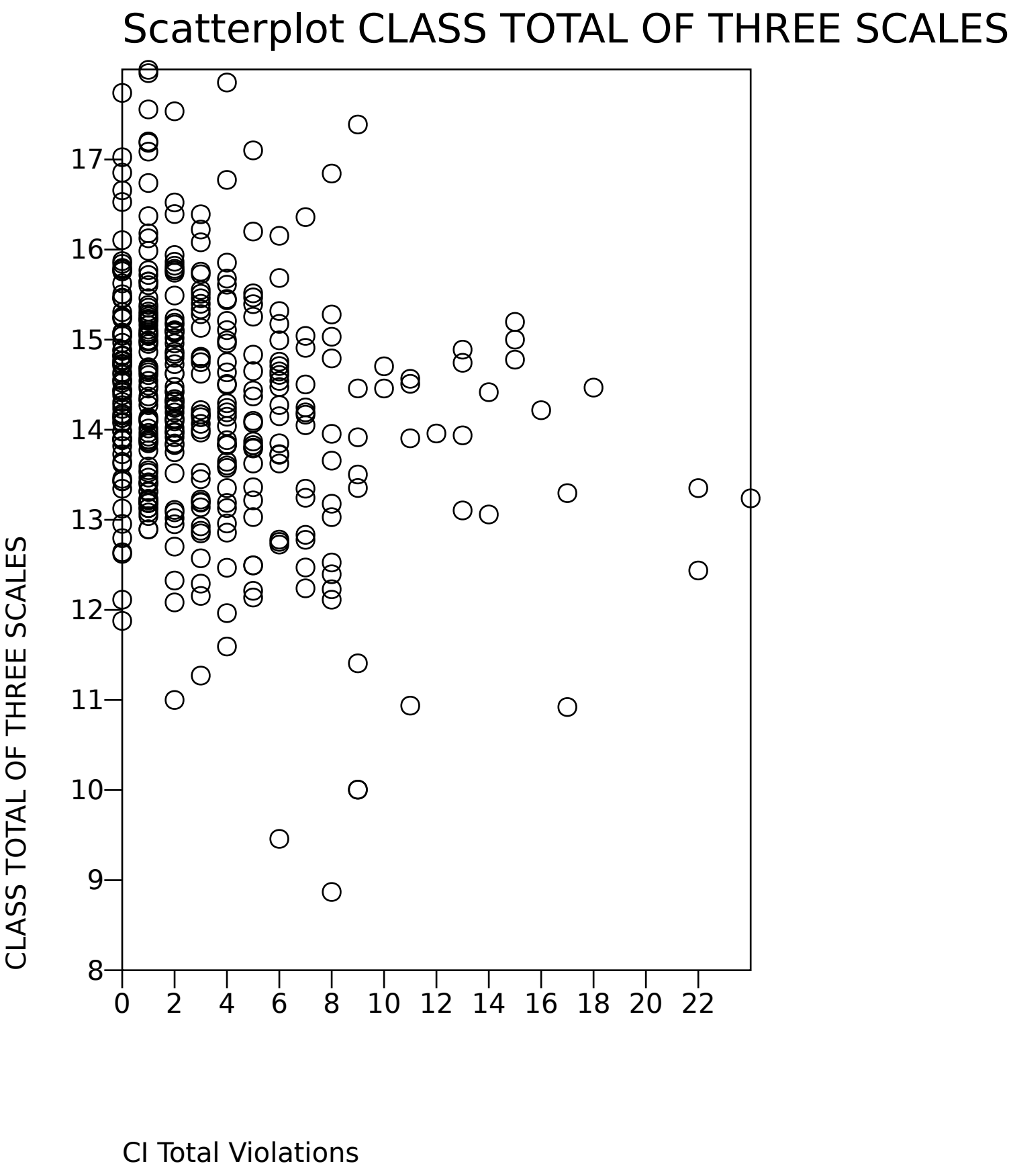


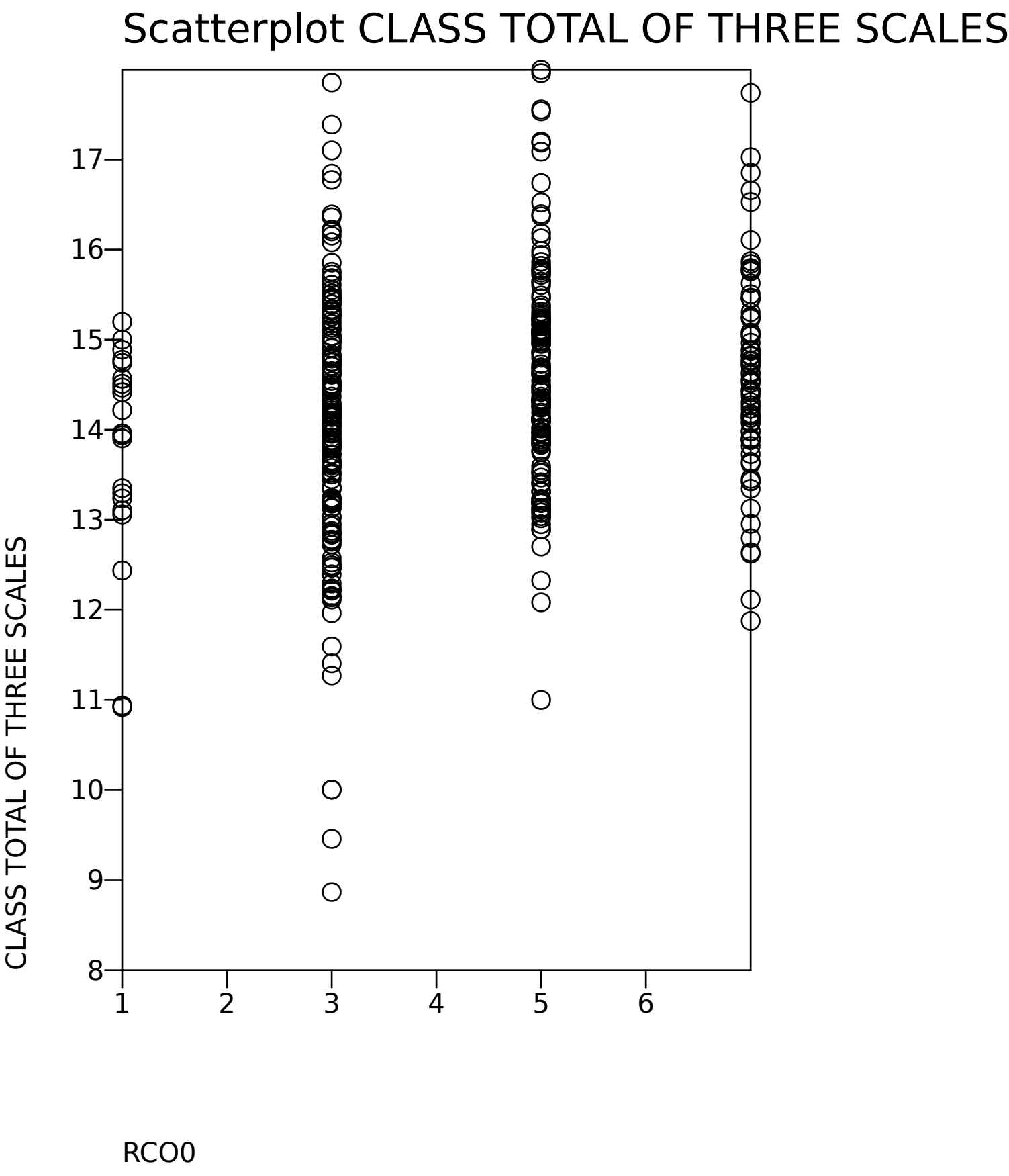

Scatterplot ERS vs. NC
ERS
NC
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
0
5
10
15
20
25
30
35
40
45
50

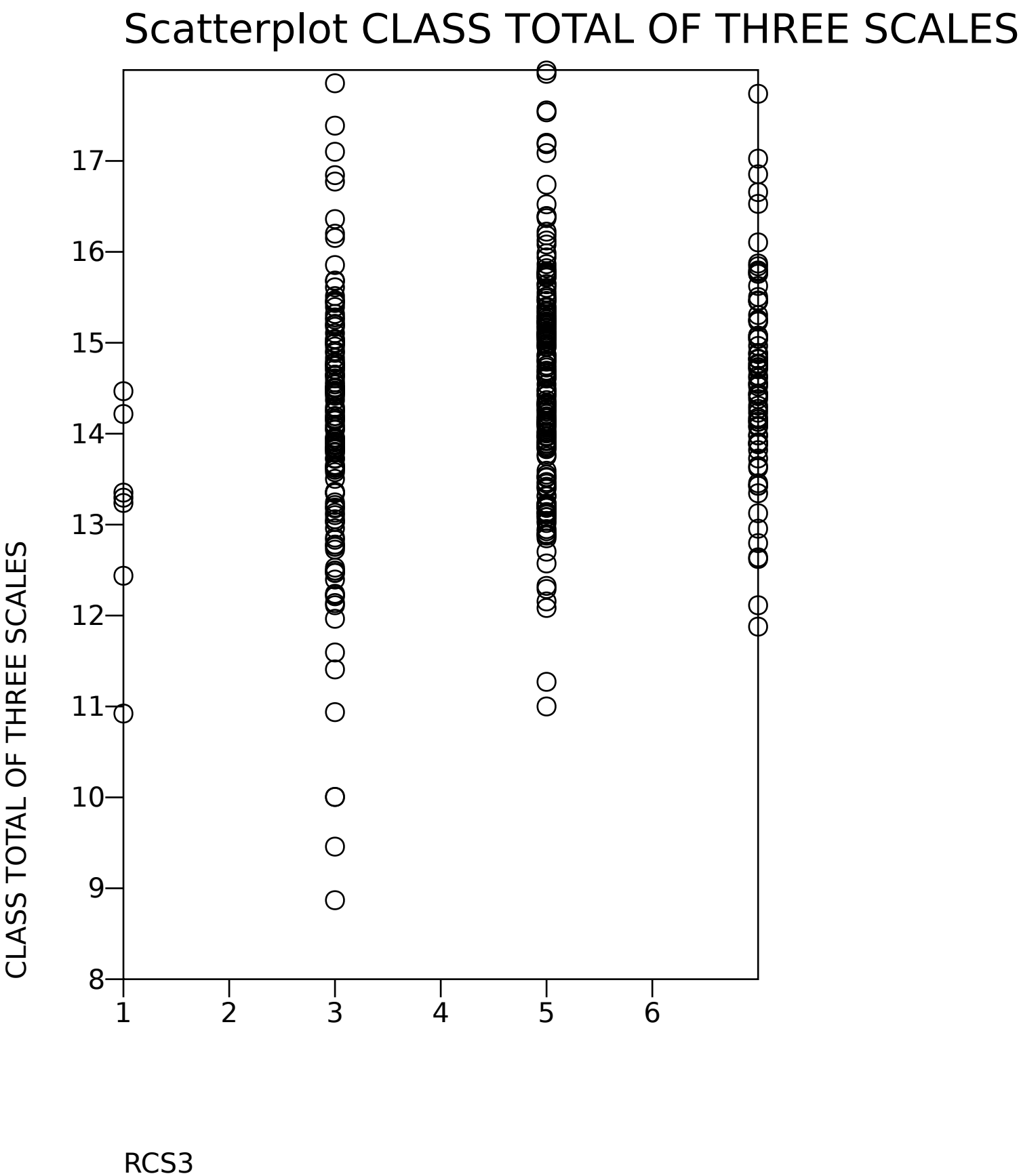

Scatterplot ERS vs. RCS0
ERS
RCS0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1
2
3
4
5
6

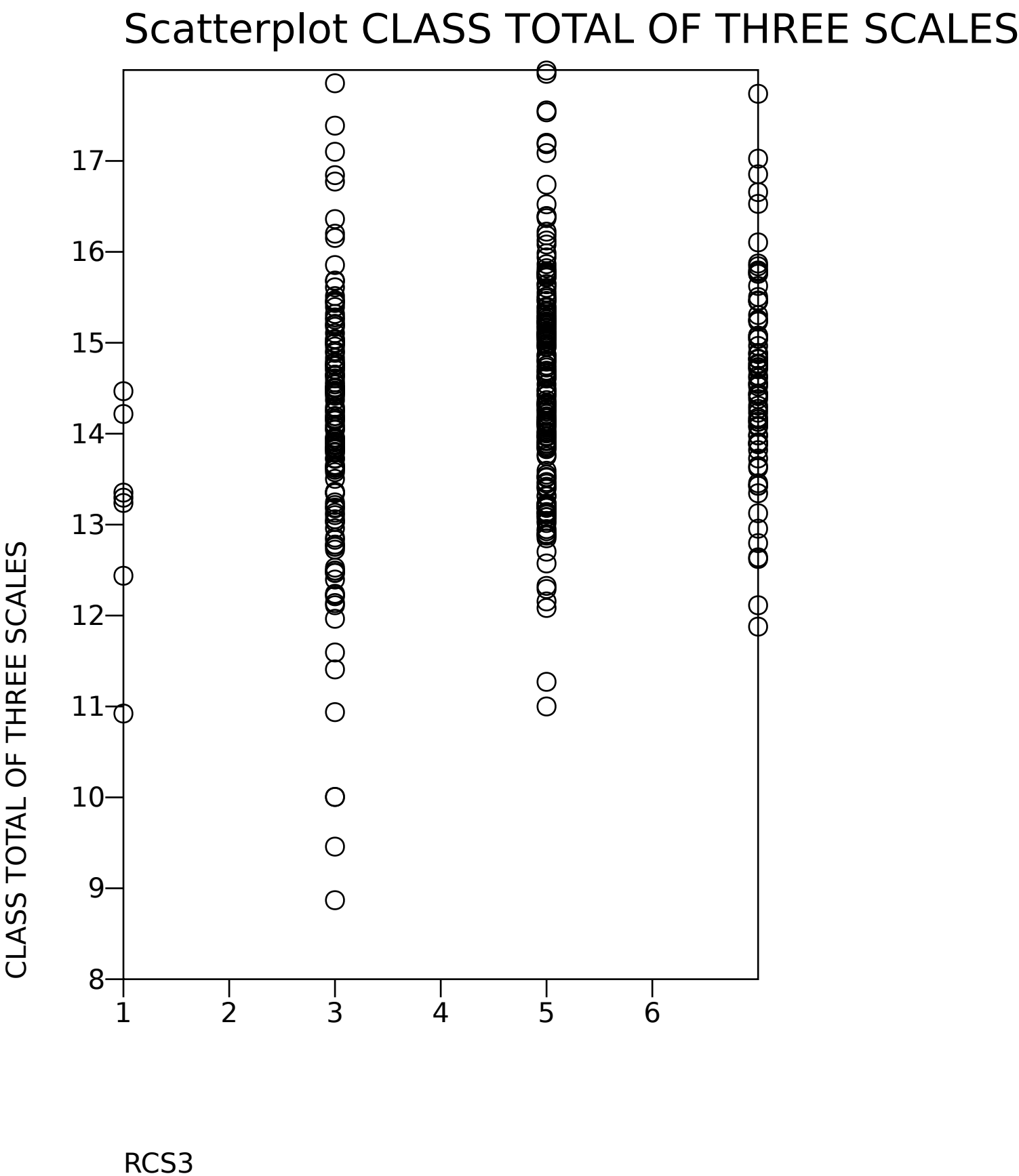

Scatterplot ERS vs. RCS3
ERS
RCS3
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
1
2
3
4
5
6

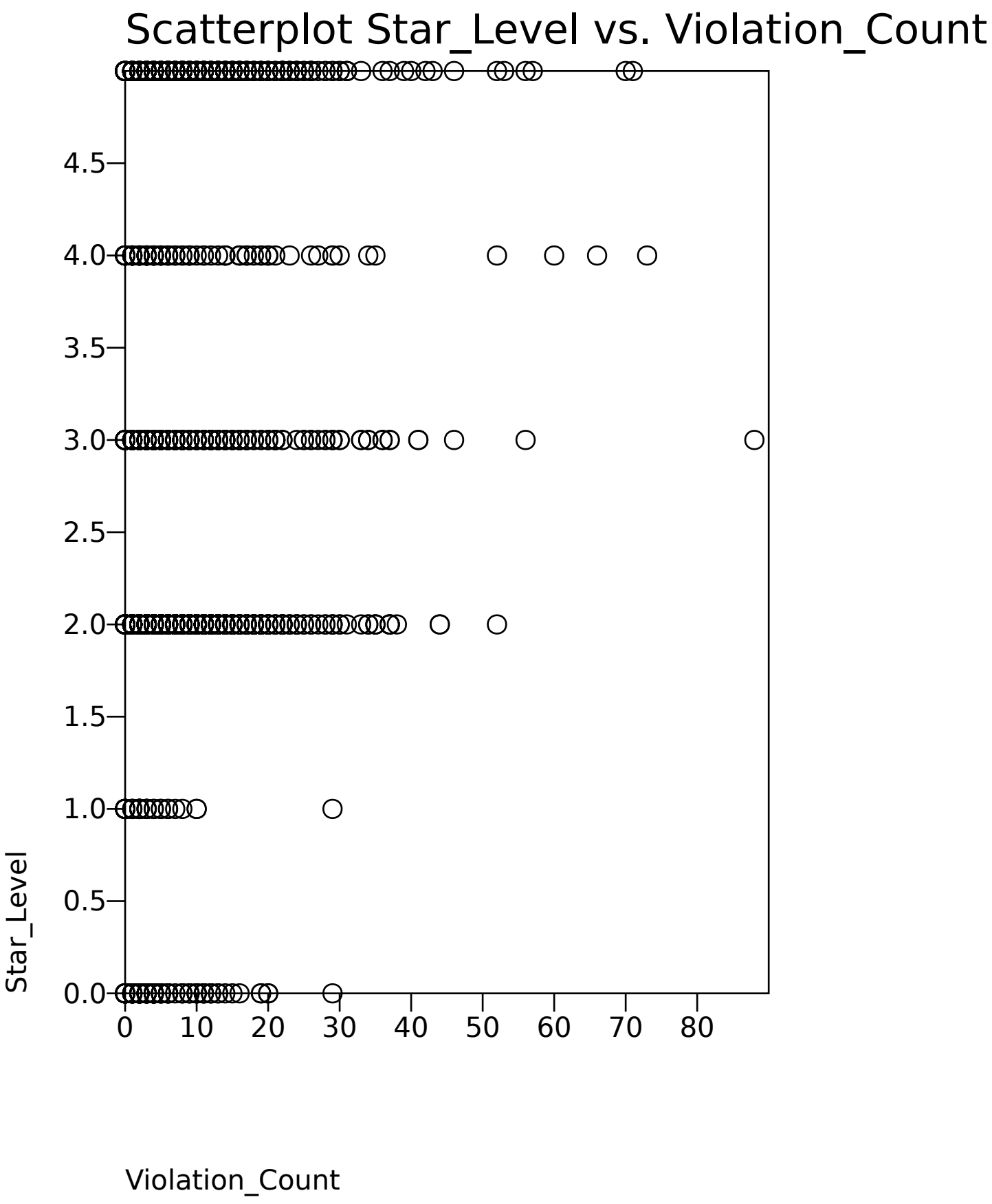

Scatterplot ERS vs. RCS5
ERS
RCS5
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1
2
3
4
5
6


Scatterplot CLASS TOTAL OF THREE SCALES
CLASS TOTAL OF THREE SCALES
CI Total Violations
17
16
15
14
13
12
11
10
9
8
0
2
4
6
8
10
12
14
16
18
20
22


Scatterplot CLASS TOTAL OF THREE SCALES
CLASS TOTAL OF THREE SCALES
RCO0
8
9
10
11
12
13
14
15
16
17
1
2
3
4
5
6


Scatterplot CLASS TOTAL OF THREE SCALES
CLASS TOTAL OF THREE SCALES
RCS3
8
9
10
11
12
13
14
15
16
17
1
2
3
4
5
6


Scatterplot CLASS TOTAL OF THREE SCALES
CLASS TOTAL OF THREE SCALES
RCS3
8
9
10
11
12
13
14
15
16
17
1
2
3
4
5
6


Scatterplot Star_Level vs. Violation_Count
Star_Level
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
Violation_Count

```
FREQUENCIES

FREQUENCIES
      /VARIABLES= NC RCS0
      /FORMAT=AVALUE TABLE
      /STATISTICS=DEFAULT VARIANCE SKEWNESS RANGE MODE
KURTOSIS MEDIAN SUM.
```

NC

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	36	14.12	14.12	14.12
	1	57	22.35	22.35	36.47
	2	32	12.55	12.55	49.02
	7	30	11.76	11.76	60.78
	8	23	9.02	9.02	69.80
	9	18	7.06	7.06	76.86
	10	15	5.88	5.88	82.75
	11	9	3.53	3.53	86.27
	12	14	5.49	5.49	91.76
	13	7	2.75	2.75	94.51
	14	4	1.57	1.57	96.08
	15	2	.78	.78	96.86
	16	4	1.57	1.57	98.43
	17	1	.39	.39	98.82
	18	2	.78	.78	99.61
	19	1	.39	.39	100.00
	Total	255	100.0	100.0	

NC

N	*Valid*	255
	Missing	0
Mean		5.52
Mode		1.00
Std Dev		4.93
Variance		24.27
Kurtosis		-.91
Skewness		.49
Range		19.00
Minimum		.00
Maximum		19.00
Sum		1407.00
Percentiles	50 (Median)	7

RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	44	17.25	17.25	17.25
	3.00	86	33.73	33.73	50.98
	5.00	89	34.90	34.90	85.88
	7.00	36	14.12	14.12	100.00
	Total	255	100.0	100.0	

RCS0

N	*Valid*	255
	Missing	0
Mean		3.92
Mode		5.00
Std Dev		1.88
Variance		3.52
Kurtosis		-.88
Skewness		.00
Range		6.00
Minimum		1.00
Maximum		7.00
Sum		999.00
Percentiles	50 (Median)	3.00

FREQUENCIES

FREQUENCIES
/VARIABLES= TOTAL RCS0
/FORMAT=AVALUE TABLE
/STATISTICS=MEAN STDDEV VARIANCE SKEWNESS KURTOSIS.

TOTAL

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	.000000000000	844	60.33	60.33	60.33
	1.000000000000	212	15.15	15.15	75.48
	2.000000000000	125	8.93	8.93	84.42
	3.000000000000	72	5.15	5.15	89.56
	4.000000000000	45	3.22	3.22	92.78
	5.000000000000	25	1.79	1.79	94.57
	6.000000000000	28	2.00	2.00	96.57
	7.000000000000	15	1.07	1.07	97.64
	8.000000000000	14	1.00	1.00	98.64
	9.000000000000	4	.29	.29	98.93
	10.000000000000	4	.29	.29	99.21
	11.000000000000	4	.29	.29	99.50
	12.000000000000	2	.14	.14	99.64
	13.000000000000	3	.21	.21	99.86
	14.000000000000	1	.07	.07	99.93
	20.000000000000	1	.07	.07	100.00
	Total	1399	100.0	100.0	

TOTAL

N	*Valid*	1399
	Missing	0
Mean		1.13
Std Dev		2.10
Variance		4.40
Kurtosis		11.67
Skewness		2.92

RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	11	.79	.79	.79
	3.00	207	14.80	14.80	15.58
	5.00	337	24.09	24.09	39.67
	7.00	844	60.33	60.33	100.00

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	Total	1399	100.0	100.0	

RCS0

N	*Valid*	1399
	Missing	0
Mean		5.88
Std Dev		1.54
Variance		2.36
Kurtosis		-.17
Skewness		-1.04

```
GET

GET FILE="/home/MyDropbox/RCS Trials/RCS Only/MN RCS Only1.sav".


FREQUENCIES

FREQUENCIES
      /VARIABLES= V433 RCS0
      /FORMAT=AVALUE TABLE
      /STATISTICS=DEFAULT VARIANCE SKEWNESS RANGE MODE
KURTOSIS MEDIAN SUM.
```

V433

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	1863	88.04	88.29	88.29
	1	107	5.06	5.07	93.36
	2	48	2.27	2.27	95.64
	3	34	1.61	1.61	97.25
	4	12	.57	.57	97.82
	5	8	.38	.38	98.20
	6	8	.38	.38	98.58
	7	5	.24	.24	98.82
	8	7	.33	.33	99.15
	9	2	.09	.09	99.24
	10	1	.05	.05	99.29
	11	8	.38	.38	99.67
	12	1	.05	.05	99.72
	14	2	.09	.09	99.81
	15	2	.09	.09	99.91
	17	1	.05	.05	99.95
	23	1	.05	.05	100.00
	.	6	.28	Missing	
	Total	2116	100.0	100.0	

V433

N	*Valid*	2110
	Missing	6
Mean		.36
Mode		.00
Std Dev		1.50
Variance		2.25
Kurtosis		62.04
Skewness		6.92

Range		23.00
Minimum		.00
Maximum		23.00
Sum		758.00
Percentiles	50 (Median)	0

RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	15	.71	.71	.71
	3.00	77	3.64	3.65	4.36
	5.00	155	7.33	7.35	11.71
	7.00	1863	88.04	88.29	100.00
	.	6	.28	Missing	
	Total	2116	100.0	100.0	

RCS0

N	*Valid*	2110
	Missing	6
Mean		6.66
Mode		7.00
Std Dev		1.01
Variance		1.02
Kurtosis		10.91
Skewness		-3.29
Range		6.00
Minimum		1.00
Maximum		7.00
Sum		14062.00
Percentiles	50 (Median)	7.00

FREQUENCIES

FREQUENCIES
/VARIABLES= TotalNonCompliantCount RCS0
/FORMAT=AVALUE TABLE
/STATISTICS=DEFAULT VARIANCE SKEWNESS RANGE MODE KURTOSIS MEDIAN SUM.

TotalNonCompliantCount

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	53	11.00	11.00	11.00
	1	37	7.68	7.68	18.67
	2	35	7.26	7.26	25.93
	3	31	6.43	6.43	32.37
	4	47	9.75	9.75	42.12
	5	33	6.85	6.85	48.96
	6	26	5.39	5.39	54.36
	7	32	6.64	6.64	61.00
	8	22	4.56	4.56	65.56
	9	19	3.94	3.94	69.50
	10	23	4.77	4.77	74.27
	11	11	2.28	2.28	76.56
	12	18	3.73	3.73	80.29
	13	18	3.73	3.73	84.02
	14	9	1.87	1.87	85.89
	15	18	3.73	3.73	89.63
	16	7	1.45	1.45	91.08
	17	6	1.24	1.24	92.32
	18	5	1.04	1.04	93.36
	19	4	.83	.83	94.19
	20	6	1.24	1.24	95.44
	21	2	.41	.41	95.85
	22	1	.21	.21	96.06
	23	2	.41	.41	96.47
	25	2	.41	.41	96.89
	26	1	.21	.21	97.10
	27	4	.83	.83	97.93
	29	3	.62	.62	98.55
	30	2	.41	.41	98.96
	31	2	.41	.41	99.38
	33	1	.21	.21	99.59
	35	1	.21	.21	99.79
	38	1	.21	.21	100.00
	Total	482	100.0	100.0	

TotalNonCompliantCount

N	*Valid*	482
	Missing	0
Mean		7.44
Mode		.00
Std Dev		6.78
Variance		46.03
Kurtosis		2.48
Skewness		1.44
Range		38.00
Minimum		.00
Maximum		38.00
Sum		3586.00
Percentiles	50 (Median)	6

RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	124	25.73	25.73	25.73
	3.00	233	48.34	48.34	74.07
	5.00	72	14.94	14.94	89.00
	7.00	53	11.00	11.00	100.00
	Total	482	100.0	100.0	

RCS0

N	*Valid*	482
	Missing	0
Mean		3.22
Mode		3.00
Std Dev		1.83
Variance		3.34
Kurtosis		-.28
Skewness		.65
Range		6.00
Minimum		1.00
Maximum		7.00
Sum		1554.00
Percentiles	50 (Median)	3.00

```
FREQUENCIES

FREQUENCIES
      /VARIABLES= Total_Non_Compliance RCS0
      /FORMAT=AVALUE TABLE
      /STATISTICS=DEFAULT VARIANCE SKEWNESS RANGE KURTOSIS
MEDIAN.
```

Total_Non_Compliance

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	0	1137	37.04	37.04	37.04
	1	461	15.02	15.02	52.05
	2	306	9.97	9.97	62.02
	3	233	7.59	7.59	69.61
	4	177	5.77	5.77	75.37
	5	135	4.40	4.40	79.77
	6	98	3.19	3.19	82.96
	7	95	3.09	3.09	86.06
	8	75	2.44	2.44	88.50
	9	56	1.82	1.82	90.33
	10	56	1.82	1.82	92.15
	11	47	1.53	1.53	93.68
	12	32	1.04	1.04	94.72
	13	26	.85	.85	95.57
	14	27	.88	.88	96.45
	15	15	.49	.49	96.94
	16	14	.46	.46	97.39
	17	9	.29	.29	97.69
	18	16	.52	.52	98.21
	19	3	.10	.10	98.31
	20	9	.29	.29	98.60
	21	7	.23	.23	98.83
	22	7	.23	.23	99.06
	23	4	.13	.13	99.19
	24	3	.10	.10	99.28
	25	2	.07	.07	99.35
	26	3	.10	.10	99.45
	27	3	.10	.10	99.54
	28	1	.03	.03	99.58
	30	3	.10	.10	99.67
	31	2	.07	.07	99.74
	32	4	.13	.13	99.87
	33	1	.03	.03	99.90
	36	2	.07	.07	99.97

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	40	1	.03	.03	100.00
	Total	3070	100.0	100.0	

Total_Non_Compliance

N	*Valid*	3070
	Missing	0
Mean		3.24
Std Dev		4.81
Variance		23.10
Kurtosis		9.04
Skewness		2.58
Range		40.00
Minimum		.00
Maximum		40.00
Percentiles	50 (Median)	1

RCS0

Value Label	*Value*	*Frequency*	*Percent*	*Valid Percent*	*Cum Percent*
	1.00	241	7.85	7.85	7.85
	3.00	925	30.13	30.13	37.98
	5.00	767	24.98	24.98	62.96
	7.00	1137	37.04	37.04	100.00
	Total	3070	100.0	100.0	

RCS0

N	*Valid*	3070
	Missing	0
Mean		4.82
Std Dev		1.98
Variance		3.91
Kurtosis		-1.14
Skewness		-.31
Range		6.00
Minimum		1.00
Maximum		7.00
Percentiles	50 (Median)	5.00