# SECTION 1

The setting for this study is a large car manufacturing company who have recently expanded to two production sites, with some employees required to move from the old site to the new site, the factory at which had been built very quickly and on a small budget. Suspecting a decrease in production quality and an increase in staff turnover, the company hired some researchers to try to investigate whether the problem was in the new or old site, and if so, why this might be.

The researchers collected data from 50 volunteers from each site, via a survey which contained questions on worker’s intention to quit, work demands, and perceived support from colleagues and the wider company.

Specifically, the measures collected and entered into SPSS were as follows. The ranges indicate the maximum and minimum scores possible on each of the scales.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable name** | **Variable Response coding / further description information** | | **N** | **Mean** | **SD** |
| SITE | Respondent’s Site 1 – New site, 0 – Old site | | 100 | .50 | .50 |
| TENURE | How long respondent Measured in years  has worked for the company | | 100 | 33.05 | 7.89 |
| QUIT | Intention to quit | Mean scale score taken over 15 items. Range 1-7. High  Score = high intention to quit. | 100 | 4.76 | .86 |
| WKSUPP | Work-related support given by co-workers | Mean scale score taken over 5 items. Range 0-5. High score = high support. | 100 | 2.79 | .89 |
| CPSUPP | Work-related support given by company management | Mean scale score taken over 5 items. Range 0-5. High score = high support. | 100 | 3.50 | .72 |
| WKDEM | Extent of work demands | Mean scale score taken over 6 items. Range 1-6. High Score = high demands. | 100 | 3.42 | 1.02 |

**Q1.1) From this initial description of the study above only (i.e. ignoring the description of the analyses and the SPSS output below), briefly outline any design flaws with regard to its aim of discovering whether, and why the move to a new site might have increased worker’s likelihood of quitting the company.**

## [ MARKS - 2]

The following statistical analyses were then carried out to investigate whether, and why the new site might have increased intention to quit:

Analysis 1: Multiple regression analysis predicting intention to quit (QUIT) from site and tenure.

Analysis 2: A pair of multiple regression analysis respectively predicting perceived colleague support and perceived company support (WKSUPP and CPSUPP) from site and tenure.

Analysis 3: Multiple regression analysis predicting intention to quit (QUIT) from site, tenure, perceived colleague support and perceived company support, along with calculation of indirect effects of site on intention to quit, via perceived colleague support and perceived company support.

The output from these analyses is given below. Having looked at the output, answer the following questions

**Q1.2) Briefly describe and interpret the results from analysis 1.**

**[ MARKS - 2]**

**Q1.3) Briefly describe and interpret the results from analysis 2.**

## [ MARKS - 4]

**Q1.4) Briefly describe and interpret the results from analysis 3. Sketch a path diagram of the model collectively being tested by analysis parts 1, 2 and 3.**

## [ MARKS - 5]

A further analyses was then performed to test whether, regardless of site, there was an effect of work demands on intention to quit, and, if so, whether this varied by levels of colleague support received.

Analysis 4: A multiple regression analysis predicting intention to quit from work demands, colleague support, and the interaction between them (WKDxSUPP), whilst controlling for tenure.

**Q1.5) Briefly describe and interpret the results from analysis 4. Sketch a path diagram of the model being tested by analysis part 4. Which transformation of WKSUPP could have been applied to aid interpretation of the results before carrying out this particular analysis?**

## [ MARKS - 4]

**Q1.6) Calculate intercept and slope values for the effect of work demands on intention to quit (adjusted for tenure), for high, medium and low values of colleague support (pick three appropriate values; the descriptive statistics given at the start of the question may help here). Please show your calculations in full.**

## [ MARKS - 2]

**Q1.7) Sketch a line graph illustrating how support from colleagues moderates the effect of work demands on intention to quit (adjusted for tenure).**

**[ MARKS - 2]**

## Analysis 1

### Variables Entered/Removeda

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Variables Entered | Variables  Removed |  | Method |
| 1 | SITE Site, TENURE Years worked for companyb |  | . | Enter |

1. Dependent Variable: QUIT MEAN SCALE SCORE - Intention to quit
2. All requested variables entered.

**Model Summary**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | .311a | .097 | .078 | .82295 | .097 | 5.190 | 2 | 97 | .007 |

a. Predictors: (Constant), SITE Site, TENURE Years worked for company

**Coefficientsa**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model |  | Unstandardized Coefficients | | Standardized  Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
| B | Std. Error | Beta | Lower Bound | Upper Bound |
| 1 | (Constant) | 3.977 | .358 |  | 11.119 | .000 | 3.267 | 4.687 |
| TENURE Years worked for company  SITE Site | -.018 | .011 | .167 | -1.636 | .105 | -.040 | .004 |
| .362 | .174 | .212 | 2.076 | .041 | .016 | .708 |

a. Dependent Variable: QUIT MEAN SCALE SCORE - Intention to quit

## Analysis 2

**Variables Entered/Removeda**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Variables Entered | Variables  Removed |  | Method |
| 1 | SITE Site, TENURE Years worked for companyb |  | . | Enter |

1. Dependent Variable: WKSUPP MEAN SCALE SCORE -

Perceived colleague support

1. All requested variables entered.

**Model Summary**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | .174a | .030 | .010 | .71386 | .030 | 1.515 | 2 | 97 | .225 |

a. Predictors: (Constant), SITE Site, TENURE Years worked for company

**Coefficientsa**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model |  | Unstandardized Coefficients | | Standardized  Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
| B | Std. Error | Beta | Lower Bound | Upper Bound |
| 1 | (Constant)  TENURE Years worked for company | 3.076 | .310 |  | 9.913 | .000 | 2.460 | 3.692 |
| -.011 | .010 | -.119 | -1.122 | .265 | -.030 | .008 |
| SITE Site | -.134 | .151 | -.094 | -.884 | .379 | -.434 | .167 |

a. Dependent Variable: WKSUPP MEAN SCALE SCORE - Perceived colleague support  **Variables Entered/Removeda**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Variables Entered | Variables  Removed |  | Method |
| 1 | SITE Site, TENURE Years worked for companyb |  | . | Enter |

1. Dependent Variable: CPSUPP MEAN SCALE SCORE - perceived company support for workers
2. All requested variables entered.

**Model Summary**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | .256a | .066 | .047 | .85356 | .066 | 3.416 | 2 | 97 | .037 |

a. Predictors: (Constant), SITE Site, TENURE Years worked for company

**Coefficientsa**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model |  | Unstandardized Coefficients | | Standardized  Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
| B | Std. Error | Beta | Lower Bound | Upper Bound |
| 1 | (Constant) | 2.872 | .371 |  | 7.740 | .000 | 2.135 | 3.608 |
| TENURE Years worked for company | -.006 | .012 | -.056 | -.537 | .593 | -.029 | .017 |
| SITE Site | -.404 | .181 | -.233 | -2.235 | .028 | -.764 | .045 |

a. Dependent Variable: CPSUPP MEAN SCALE SCORE - perceived company support for workers

## Analysis 3

### Variables Entered/Removeda

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Variables Entered | Variables  Removed |  | Method |
| 1 | CPSUPP MEAN SCALE SCORE - perceived company support for workers, SITE Site, TENURE Years worked for company, WKSUPP MEAN SCALE SCORE - Perceived colleague support |  | . | Enter |

a. Dependent Variable: QUIT MEAN SCALE SCORE - Intention to quit b. All requested variables entered.

### Model Summary

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R  Square | Std. Error of the  Estimate |  | Change Statisti | | cs |  |
| R Square  Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .661a | .437 | .414 | .65622 | .437 | 18.468 | 4 | 95 | .000 |

a. Predictors: (Constant), CPSUPP MEAN SCALE SCORE - perceived company support for workers, SITE Site, TENURE Years worked for company, WKSUPP MEAN SCALE SCORE - Perceived colleague support

### Coefficientsa

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model |  | Unstandardized  Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval  for B | |
| B | Std. Error | Beta | Lower Bound | Upper Bound |
| 1 | (Constant) | 1.897 | .424 |  | 4.474 | .000 | 1.055 | 2.739 |
| TENURE Years worked for company | -.013 | .009 | -.118 | -1.442 | .153 | -.031 | .005 |
| SITE Site | .130 | .143 | .076 | .908 | .366 | -.154 | .413 |
| CPSUPP MEAN SCALE SCORE - perceived company support for workers | -.508 | .084 | -.518 | -6.044 | .000 | -.675 | -.341 |
| WKSUPP MEAN SCALE SCORE - Perceived colleague support | -.202 | .101 | -.169 | -2.006 | .048 | -.401 | -.002 |

a. Dependent Variable: QUIT MEAN SCALE SCORE - Intention to quit

## Analysis 3 (continued)

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**Total effect of X on Y**

Effect SE t p LLCI ULCI

.3621 .1745 2.0757 .0406 .0159 .7084

**Direct effect of X on Y**

Effect SE t p LLCI ULCI

.1296 .1427 .9082 .3661 -.1536 .4128

**Specific indirect effect contrast definitions**

(C1) WKSUPP minus CPSUPP

**Indirect effects of X on Y**

Effect Boot SE BootLLCI BootULCI

TOTAL .2326 .1153 .0310 .4677

WKSUPP .0270 .0358 -.0193 .1293

CPSUPP .2056 .1014 .0308 .4153

(C1) -.1786 .0992 -.4112 -.0110

**Ratio of indirect effects to total effect of X on Y**

Effect Boot SE BootLLCI BootULCI

TOTAL .6422 8.6633 .1147 2.7711

WKSUPP .0745 3.2705 -.1090 .6437

CPSUPP .5677 9.2462 .1399 2.4758

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

1000

Level of confidence for all confidence intervals in output:

95.00

## Analyses Part 4

### Variables Entered/Removeda

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Variables Entered | Variables Removed |  | Method |
| 1 | WKSUPP MEAN SCALE SCORE - Perceived colleague support, TENURE Years worked for company, WKDEM MEAN SCALE SCORE - Work demandsb |  | . | Enter |
| 2 | WKDxSUPP Interaction effect: Work demands x Colleague supportb |  | . | Enter |

a. Dependent Variable: QUIT MEAN SCALE SCORE - Intention to quit b. All requested variables entered.

### Model Summary

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R  Square | Std. Error of the  Estimate |  | Change Statisti | | cs |  |
| R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .649 | .421 | .403 | .66240 | .421 | 23.246 | 3 | 96 | .000 |
| 2 | .678 | .460 | .437 | .64307 | .039 | 6.860 | 1 | 95 | .010 |

a. Predictors: (Constant), WKSUPP, TENURE, WKDEM; b. Predictors: (Constant), WKSUPP, TENURE, WKDEM, WKDxSUPP

### Coefficientsa

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model |  | Unstandardized Coefficients | | Standardized  Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 2.392 | .369 |  | 6.488 | .000 |
| TENURE Years worked for company | -.017 | .009 | .154 | 1.967 | .052 |
| WKDEM MEAN SCALE SCORE - Work demands | .121 | .085 | -.144 | -1.419 | .159 |
| WKSUPP MEAN SCALE SCORE - Perceived colleague support | -.679 | .100 | .692 | 6.756 | .000 |
| 2 | (Constant) | 3.652 | 1.295 |  | 2.820 | .006 |
| TENURE Years worked for company | -.005 | .008 | -.092 | -.625 | .950 |
| WKDEM MEAN SCALE SCORE - Work demands | 1.105 | .385 | 1.320 | 2.872 | .005 |
| WKSUPP MEAN SCALE SCORE - Perceived colleague support | .345 | .403 | .352 | .856 | .394 |
| WKDxSUPP Interaction effect: Work demands x Support | -.298 | .114 | -2.025 | -2.619 | .010 |

. Dependent Variable: QUIT MEAN SCALE SCORE - Intention to quit

# SECTION 2

Printing Staff at the leading tabloid newspaper, *The Rat*, were given a questionnaire asking them for their opinions on their working climate. The questionnaire included 30 questions developed by researchers, which were designed to measure all aspects of work climate. These questions are listed below with their response scales.

Q1 *The Rat* management is quick to provide necessary changes.

Q2 Management usually let staff make own decisions.

Q3 Staff at *The Rat* are well supplied with equipment.

Q4 There is inadequate workspace at *The Rat* offices.

Q5 New ideas are readily accepted by *The Rat*’s management.

Q6 Staff skills are developed to improve job performance.

Q7 *The Rat* is never short-staffed.

Q8 Communication in *The Rat* is very good.

Q9 Information is readily passed to all staff by *The Rat* management.

Q10 Management tightly control the work of those below them.

Q11 *The Rat* is quick to spot needs for different methods.

Q12 Working at *The Rat* is characterised by quick decisions/actions.

Q13 *The Rat* strongly believes in the importance of training.

Q14 Staff can't do their job because of poor resources.

Q15 People are not properly trained in new procedures.

Q16 There are many opportunities to inform management of staff views.

Q17 Management keep too tight a rein on procedure.

Q18 Management allows people to work without interfering.

Q19 Excellent communication exists between management and staff.

Q20 Staff often do the jobs of 2 people.

Q21 Staff are always running out of supplies.

Q22 Staff are strongly encouraged to develop their skills

Q23 Different sections of *The Rat* do not keep each other informed.

Q24 Management trust people to make decisions.

Q25 Management allow people to work in the way they think best.

Q26 Staff can only develop skills in their own time.

Q27 Their is a lot of support for new ideas in the *The Rat.*

Q28 *The Rat* only gives the minimum training necessary for the job.

Q29 *The Rat* is flexible procedurally.

Q30 There is a shortage of trained staff at *The Rat.*

**Response categories / Coding:**

For questions: Q1-3, Q5-9, Q11-13, Q16, Q18-19, Q22, Q24-25, Q27 and Q29:

1. - Strongly disagree
2. - Disagree
3. - Neither agree nor disagree
4. - Agree
5. - Strongly agree

For questions: Q4, Q10, Q14-15, Q17, Q20-21, Q23, Q26, Q28, and Q30:

1. - Strongly agree
2. - agree
3. - Neither agree nor disagree
4. - Disagree
5. - Strongly disagree

In an attempt to identify a smaller number of underlying constructs and then create appropriate scales for use in further analysis, a factor analysis was carried out on the data. The results are given below.

|  |  |
| --- | --- |
| **Q2.1) Write a *concise* report on these results, making sure to address the following questions/issues:** | |
|  | * **How many factors were extracted and how much of the variance of the 30 items did they account for?** * **Which item is the least well ‘explained’ by these factors and what tells us this?** * **Are there clear concepts/constructs that define these factors, and if so what are they?** |

## [ MARKS - 6 ]

**Q2.2) Describe *briefly* any potential adjustments you might make to this exploratory factor analysis with respect to the methods/process used in extracting and interpreting of the factors?**

## [ MARKS - 4 ]

**Q2.3) Describe *briefly* any further analyses that you would recommend performing to establish the validity and reliability of these emergent factors, before using the variables loading onto each factor as scales and computing the scale mean scores?**

## [ MARKS - 4 ]

- - - - - - - - - - - F A C T O R A N A L Y S I S - - - - - - - - - - -

Analysis number 1 Listwise deletion of cases with missing values Extraction 1 for analysis 1, Principal Components Analysis (PC)

Initial Statistics:

Factor Eigenvalue Pct of Var Cum Pct

1. 9.26636 30.9 30.9
2. 2.64286 8.8 39.7
3. 2.26485 7.5 47.2
4. 1.98573 6.6 53.9
5. 1.58440 5.3 59.1
6. .93455 3.1 62.3
7. .91218 3.0 65.3
8. .82072 2.7 68.0
9. .76703 2.6 70.6
10. .70746 2.4 73.0
11. .69873 2.3 75.3
12. .62962 2.1 77.4
13. .54394 1.8 79.2
14. .52073 1.7 80.9
15. .49792 1.7 82.6
16. .47963 1.6 84.2
17. .46572 1.6 85.7
18. .41816 1.4 87.1
19. .40802 1.4 88.5
20. .37725 1.3 89.8
21. .35899 1.2 90.9
22. .34548 1.2 92.1
23. .33601 1.1 93.2
24. .32306 1.1 94.3
25. .31107 1.0 95.3
26. .29963 1.0 96.3
27. .29406 1.0 97.3
28. .28002 .9 98.2
29. .26915 .9 99.1
30. .25671 .9 100.0

PC extracted 5 factors.

Factor Matrix:

Factor 1 Factor 2 Factor 3 Factor 4 Factor 5

Q1 .63231 -.30555 -.37208 .17591 .17704 Q2 .45354 .58358 -.22512 -.05147 -.00563 Q3 .49750 .01475 .27285 .27133 .02160 Q4 .22881 .01523 .24743 .20396 .06369 Q5 .67262 -.24991 -.36830 .14629 .19151 Q6 .59986 -.12008 .24086 -.48540 .18224 Q7 .33281 .00356 .22657 .35657 -.02344 Q8 .65159 -.15603 .03317 -.05233 -.53733

Q9 .63468 -.15011 .02827 -.06238 -.53808 Q10 .28920 .66667 -.14742 -.03650 .05362 Q11 .66161 -.30722 -.36292 .15370 .17149

Q12 .56319 -.34188 -.40465 .17141 .20148 Q13 .60374 -.14364 .19711 -.47643 .19520 Q14 .51729 .08052 .41485 .42469 .10764 Q15 .51719 -.07057 .26674 -.24813 .07611 Q16 .62545 -.13431 -.00137 -.09086 -.45190 Q17 .44105 .59673 -.13954 -.05582 .06062 Q18 .53376 .57067 -.20989 -.00790 -.02549 Q19 .69832 -.11337 .02759 -.03388 -.49755

Q20 .46340 .10421 .43056 .40984 .08632

Q21 .47108 .13744 .38735 .32845 .09737 Q22 .63863 -.11833 .18144 -.46851 .16544 Q23 .42238 -.11255 .10465 .06495 -.34506 Q24 .62125 .44923 -.21495 -.06942 -.04175

Q25 .56862 .53852 -.23232 -.05036 -.03266 Q26 .51397 -.01408 .30909 -.28334 .23155 Q27 .68053 -.22423 -.32218 .08561 .13835 Q28 .61106 -.04778 .30967 -.35171 .21537 Q29 .68764 -.27661 -.35282 .16200 .13281

Q30 .45662 .08220 .36110 .40722 .11135 Final Statistics:

Variable Communality \* \*

Q1 .69391 \*

Q2 .59963 \*

Q3 .39625 \* Q4 .15947 \* Q5 .70859 \*

Q6 .70109 \*

Q7 .28980 \*

Q8 .74148 \*

Q9 .71957 \*

Q10 .55403 \*

Q11 .71685 \*

Q12 .66778 \*

Q13 .68908 \*

Q14 .63813 \*

Q15 .41098 \*

Q16 .62170 \*

Q17 .57687 \*

Q18 .65533 \*

Q19 .74996 \*

Q20 .58639 \*

Q21 .50821 \*

Q22 .70163 \*

Q23 .32530 \*

Q24 .64053 \*

Q25 .67091 \*

Q26 .49379 \*

Q27 .64367 \*

Q28 .64165 \*

Q29 .71772 \*

Q30 .52388 \*

Factor Eigenvalue Pct of Var Cum Pct

1. 9.26636 30.9 30.9
2. 2.64286 8.8 39.7
3. 2.26485 7.5 47.2
4. 1.98573 6.6 53.9
5. 1.58440 5.3 59.1 VARIMAX rotation 1 for extraction 1 in analysis 1 - Kaiser Normalization.

VARIMAX converged in 6 iterations.

Rotated Factor Matrix:

Factor 1 Factor 2 Factor 3 Factor 4 Factor 5

Q1 .79113 .08850 .13087 .13481 .15778

Q2 .10347 .75511 .07859 .06710 .08974

Q3 .16041 .10069 .15852 .54751 .18839

Q4 .03211 .00922 .08308 .38742 .03672 Q5 .78265 .15347 .16931 .14122 .15458 Q6 .15590 .09612 .79514 .07579 .17190 Q7 .11456 .03393 -.01068 .50309 .14938

Q8 .20570 .11281 .19479 .14744 .79168

Q9 .19455 .11361 .19082 .13161 .78427 Q10 -.04388 .73683 .03019 .07672 -.04884

Q11 .79429 .09744 .16212 .13622 .17779

Q12 .79752 .04078 .10189 .08456 .11203

Q13 .20132 .09043 .78110 .05613 .16465

Q14 .12021 .10862 .13736 .76309 .10351

Q15 .10045 .07872 .55792 .20588 .20257

Q16 .22107 .13555 .22186 .10536 .70295

Q17 .05871 .73531 .13037 .12251 .02717

Q18 .14623 .76712 .08705 .13274 .14242

Q19 .23190 .16832 .20946 .18503 .76795

Q20 .06166 .10403 .11798 .74078 .09538

Q21 .06082 .15578 .16048 .66851 .08707

Q22 .21057 .13006 .77218 .06384 .20010

Q23 .11304 .02932 .09286 .21116 .50838

Q24 .22794 .70335 .18033 .10847 .22268

Q25 .17946 .76353 .12619 .10029 .17247

Q26 .08842 .11630 .64298 .23576 .05866

Q27 .71549 .16884 .21190 .12692 .20550

Q28 .13150 .13060 .73576 .22321 .12701

Q29 .77810 .13000 .15518 .15560 .21698 Q30 .11750 .10453 .10073 .69552 .07250

Factor Transformation Matrix:

Factor 1 Factor 2 Factor 3 Factor 4 Factor 5

Factor 1 .52191 .39242 .47144 .39501 .44196 Factor 2 -.43922 .86090 -.13749 .10282 -.19096 Factor 3 -.61127 -.31373 .39514 .60875 .03483

Factor 4 .24769 -.08009 -.69725 .66409 -.07118 Factor 5 .31575 .00436 .34140 .14765 -.87289