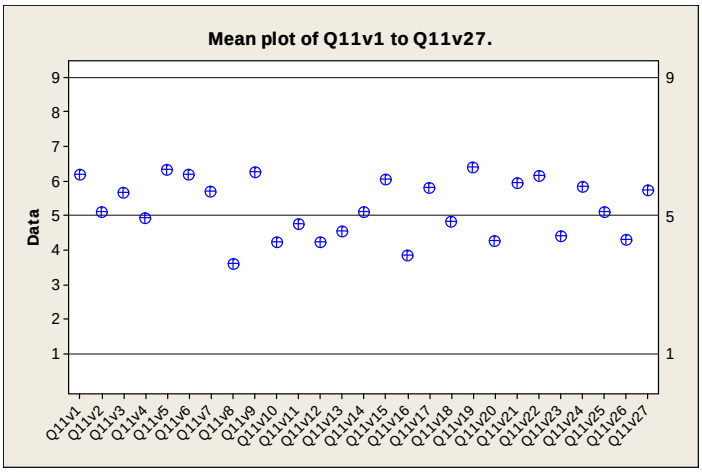
Customer Satisfaction - Solution

This case provides numerous opportunities for analysis, and many difficult decisions on how to proceed. The “solution” given below only pretends to give some insights to the possibilities. The interpretation of results may also need some more knowledge of the subject matter. We will mainly refer to the variables by number and not go into details of their verbal descriptions. The questionnaire should be at hand to provide the practical interpretations as we go along.

Descriptive Statistics: Q11v1 to Q11v27

Variable	N	N*	Mean	StDev
Q11v1	619	22	6.2003	1.0727
Q11v2	599	42	5.1202	1.5374
Q11v3	606	35	5.6716	1.2044
Q11v4	587	54	4.9250	1.7036
Q11v5	614	27	6.3436	0.9320
Q11v6	616	25	6.1997	1.0237
Q11v7	617	24	5.6985	1.2287
Q11v8	571	70	3.6095	1.6189
Q11v9	602	39	6.2757	0.9876
Q11v10	594	47	4.2323	1.6861
Q11v11	598	43	4.7759	1.5226
Q11v12	581	60	4.2410	1.6610
Q11v13	583	58	4.5489	1.6665
Q11v14	595	46	5.1076	1.4857
Q11v15	605	36	6.0645	1.1426
Q11v16	584	57	3.8562	1.7365
Q11v17	586	55	5.8208	1.2677
Q11v18	584	57	4.8322	1.6512
Q11v19	604	37	6.4073	0.9356
Q11v20	591	50	4.2826	1.6914
Q11v21	593	48	5.9578	1.1389
Q11v22	602	39	6.1528	1.0526
Q11v23	598	43	4.4214	1.5584
Q11v24	589	52	5.8540	1.4600
Q11v25	589	52	5.1307	1.4931
Q11v26	562	79	4.3149	2.1409
Q11v27	597	44	5.7270	1.3918



We note that a substantial number of respondents have not answered some of the part questions of Question 11. This may cause trouble when analysing them jointly. In fact 151 of the 641 respondents have not answered one or more of the 27 part questions.

We see that the highest importance are given to v-variables: 19, 5, 9, 1, 22, 15,
and the lowest importance to v-variables: 8, 16, 10, 12, 20, 26

Questions 14 to 17 are all related to total satisfaction, answers on all four are coded on an 11-point scale. We may aggregate this to a total satisfaction score SatScore by adding the scores on Questions 14 to 17. The fact that Question 14 and 15 use a -5 to 5 scale and Question 16 and 17 use a 1 to 11 scale does not matter for our purpose of relating the total score to explanatory variables. However, if we want to have an average score and interpret the level in isolation, we should bring the scores on a common scale, say by subtracting the scores on Question 16 and 17 by 5.

We can now do a regression analysis where we explain SatScore by the 27 specific satisfactions scores (Question 12)

Regression Analysis: SatScore versus Q12v1; Q12v2; ...

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The regression equation is
SatScore = 9.91 + 0.816 Q12v1 + 0.153 Q12v2 + 0.417 Q12v3 - 0.178 Q12v4
           + 1.08 Q12v5 + 0.151 Q12v6 + 0.470 Q12v7 - 0.006 Q12v8 - 0.626 Q12v9
           - 0.509 Q12v10 + 0.698 Q12v11 - 0.322 Q12v12 - 0.132 Q12v13
           + 0.852 Q12v14 - 0.287 Q12v15 + 0.033 Q12v16 + 1.21 Q12v17
           - 1.04 Q12v18 + 1.08 Q12v19 - 0.382 Q12v20 - 0.908 Q12v21
           - 0.103 Q12v22 + 0.252 Q12v23 + 0.098 Q12v24 + 0.646 Q12v25
           + 0.092 Q12v26 + 0.729 Q12v27

92 cases used, 549 cases contain missing values

Predictor     Coef  SE Coef      T      P
Constant     9.911    2.541   3.90  0.000
Q12v1       0.8161   0.5694   1.43  0.157
Q12v2       0.1528   0.3268   0.47  0.642
Q12v3       0.4165   0.3902   1.07  0.290
Q12v4      -0.1778   0.2457  -0.72  0.472
Q12v5       1.0837   0.8929   1.21  0.229
Q12v6       0.1511   0.6000   0.25  0.802
Q12v7       0.4695   0.4299   1.09  0.279
Q12v8      -0.0058   0.3415  -0.02  0.986
Q12v9      -0.6257   0.7939  -0.79  0.433
Q12v10     -0.5093   0.3728  -1.37  0.177
Q12v11      0.6976   0.4028   1.73  0.088
Q12v12     -0.3219   0.3949  -0.82  0.418
Q12v13     -0.1322   0.3906  -0.34  0.736
Q12v14      0.8516   0.4697   1.81  0.075
Q12v15     -0.2874   0.3661  -0.79  0.435
Q12v16      0.0333   0.3685   0.09  0.928
Q12v17      1.2067   0.4063   2.97  0.004
Q12v18     -1.0383   0.4392  -2.36  0.021
Q12v19      1.0815   0.4625   2.34  0.023
Q12v20     -0.3819   0.3919  -0.97  0.333
Q12v21     -0.9077   0.4981  -1.82  0.073
Q12v22     -0.1033   0.2371  -0.44  0.665
Q12v23      0.2519   0.3336   0.76  0.453
Q12v24      0.0983   0.2567   0.38  0.703
Q12v25      0.6461   0.2609   2.48  0.016
Q12v26      0.0924   0.2821   0.33  0.744
Q12v27      0.7290   0.2273   3.21  0.002

S = 4.38505   R-Sq = 75.3%   R-Sq(adj) = 64.8%
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It turns out that out of the 641 respondents, only 92 had responded on all questions involved in the regression analysis. This is clearly unsatisfactory: We are both loosing valuable information and those who responded to all may be atypical in some sense. There are different ways to overcome this. One may be to leave out some the part questions with both low response rate and stated or found not important. Another possibility is to replace the missing code in the data by the neutral position, zero in the case of Question 12. However, it turns out that averages of those responded are well positive, and we may argue that it is more reasonable to replace a missing on a part question by the average of those responded. In a sense this will adapt to respondent usage of the scale for that particular part question. None of these suggestions are quite satisfactory.

For comparison we summarize regression results for three cases (A) no recoding (B) recoding of explanatory variables and (C) recoding of all variables (full output at the end). In the table below we report for each the number of observations behind the regression, the R-square and (R-square adjusted), i.e. penalized for the number of explanatory variables. For each of the 27 explanatory satisfaction variables we have marked significance at the 5% level by *, and significance at 10% level by (*). The alternative B' of replacing missing values of the

explanatory variables by taking zero as the neutral position, gave lower R-square, and is omitted.

	n	R2	(R2)	1	2	3	4	5	6	7	8	9	10	11	12
A	92	75.3	64.8											(*)	
B	572	52.8	50.4	*	(*)					*					*
C	641	50.3	48.1	*						*	(*)	*			*
	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
A		(*)			*	*	*		(*)				*		*
B		*		*			*								*
C		*		*			*						*		*

We see that only variables numbered 19, 27 and (14) come out significant whatever choice of regression, and that the variables numbered 1, 7, 12 and 16 came out significant after recoding for both B and C. We see some peculiarities that some variables, notably 17 and 18, were significant in A, but lost their significance when recoded. The variables that show no significance whatever method are 3, 4, 5, 6, 10, 13, 15, 20, 22, 23, 24 and 26. Leaving out these variables will increase the number of respondents from 92 to 125, not much of an improvement. In the regression analysis the variables 11, 17, 21, 25 and 27 now turn out significant, the others not. The R-square 64.4% (59.9%) is not an improvement over A, and we can dismiss this effort.

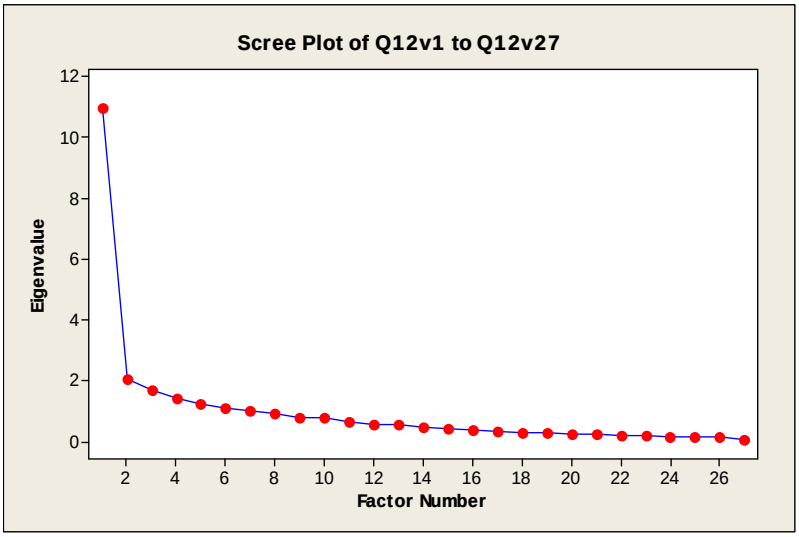
We have until now just discussed significance. We have to look at the size of the regression coefficients and their signs as well. For all analyses above many variables came out with negative regression coefficients. In the case of analysis A: 4, 8, 9, 10, 12, 13, 15, 18, 20, 21, 22. However, these were all statistically non-significant at 5% level, except 18. The negative sign of the latter variable is large (but is small in analysis B and C). For analysis A the variables with largest positive sign are 17, 5, 19, 14, 1, 27, where we note large size does not necessarily imply statistical significance. We may compare this with the stated importance in Question 11, where on average the most importance of the variables were in this order: 19, 5, 9, 1, 22, 15. We see that only variable 5 and 19 are conforming, i.e. personnel politeness and cleaning and maintenance of the room.

It may be interest to run a stepwise regression (on the original data) by forward inclusion of variables. The following variables entered in the following order: 7, 27, 25, 19, 17 and 18. Full stepwise regression (allowing for removals) arrived at the same solution. The corresponding R-square was 67.8% (adjusted 65.3%).

For regression analysis of the kind above we face the problem whether a variable should be left out for some reason: wrong sign, non-significance or since it strongly covaries with other variables, which makes results harder to interpret and may cause variance inflation. Stepwise regression handles to some extent the latter issues, but not the first. Knowledge in the specific field may be necessary to make a wise choice with respect to recoding and/or variable selection, and we will not go further into this here. The issue is partly overcome when taking the third approach, creating explanatory variables by factor analysis

In the following we restrict our analysis to respondents with no missing on the variables involved.

We may perform a factor analysis extracting a number of factors underlying the 27 variables associated with Question 12. The question is how many factors to extract may be tentatively judged by a so-called Scree plot of eigenvalues of the correlation matrix.



Here where we go out as far as the eigenvalues are still above one, and thus explain more than a single variable separately. We see here that we tentatively may go up to six, but not any further. After performing a factor analysis with 5 and 6 factors and rotating the factors so that the variation is more evenly distributed among them, it turns out that 5-factor solution is easier to interpret. We list here the variables with moderate to large loadings on a specific factor (moderate in parenthesis). This is the basis for our interpretation of the factors.

Factor	Variables loaded on	Interpretation
1	1, 5, 9, 21	Service-mindedness
2	7, 11, 12!, 15, 19, (21,22), 23	Comfort & Appearance
3	2, 4, 10, 13, (14), 26, (27)	Activity availability
4	3, 6, 8, (14), 24, 25	Hotel environment & Food
5	(8), 16, 17, 18, 20, (21)	Urbane needs?

With 5 factors we are able to account for 64.2% of the (co)variation in the 27 variables. With a 6-factor solution we will account for 68.3%.

We can now use these factors as explanatory variables in a regression explaining the total satisfaction measured by SatScore. The data are then the computed factor scores for each factor for all respondents with no missing. The result turned out to be:

Regression Analysis: SatScore versus Factor1 to Factor5

```
The regression equation is
SatScore = 23.5 + 2.18 Factor1 + 3.34 Factor2 - 2.23 Factor3 - 3.14 Factor4
           + 0.546 Factor5

92 cases used, 549 cases contain missing values

Predictor      Coef  SE Coef      T      P
Constant   23.4732   0.5213  45.02  0.000
Factor1     2.1786   0.5215   4.18  0.000
Factor2    -3.3423   0.5225  -6.40  0.000
Factor3    -2.2256   0.5363  -4.15  0.000
Factor4     3.1422   0.5211   6.03  0.000
Factor5     0.5456   0.5391   1.01  0.314

S = 4.99679   R-Sq = 56.8%   R-Sq(adj) = 54.3%
```

We see that we have explained 56.8% of the variation in SatScore by the five factors

Note that we can just as well reverse the sign of all factors, so that the minus-signs of Factor 2 and 3 bear no significance. We may rank the importance of the factors for explaining the total satisfaction by the absolute value of their regression coefficients or alternatively by their t-value. There is little difference as long as the standard errors are about the same. We see that the factors come out in this order: 2, 4, 3, 1, 5. The first four factors come out clearly significant, while the last one is not significant, and thus may invite a 4-factor solution.

Note that this does not conform particularly well with the stated importance in Question 11, where we have seen above that on average the six most importance of the variables were in this order: 19 (Factor 2) , 5, 9, 1 (Factor 1), 22 , 15 (Factor 2). This is hard to explain, and gives opportunities for further analysis.

If we redo the factor analysis with four factors we get, with slightly different interpretations

Factor	Variables	Interpretation
1	2, 4, 8, 10, 13, 16, 17, 18, 22, 25, 26, (27)	Activity availability
2	1, 5, 9, 16, 17, 21	Service-mindedness
3	7, 11, 12, 15, 19, 22, 23, (27)	Comfort
4	3, 6, 14, 23, 24, 25, (27)	Food & Hotel environment

In both the 4- and 5-factor solution the communality of variable 27 is low, but will be picked up in a 6-factor solution

A regression explaining the total satisfaction by the four derived factors turned out as follows:

Regression Analysis: SatScore versus Factor_1 to Factor_4

```
The regression equation is
SatScore = 23.5 + 1.84 Factor_1 - 1.86 Factor_2 + 3.39 Factor_3 - 3.36 Factor_4

92 cases used, 549 cases contain missing values

Predictor      Coef  SE Coef      T      P
Constant    23.5079   0.5301  44.35  0.000
Factor_1     1.8393   0.5312   3.46  0.001
Factor_2    -1.8634   0.5365  -3.47  0.001
Factor_3     3.3913   0.5309   6.39  0.000
Factor_4    -3.3643   0.5310  -6.34  0.000

S = 5.08327   R-Sq = 54.8%   R-Sq(adj) = 52.7%
```

We see that we have explained 54.8% of the variation in SatScore by the four factors, and that all factors are significant and important in the order 3, 4, 2, 1.

The splitting of respondents into segments may be done in many different ways, depending on the aims and background knowledge for the study. Splits with respect to gender, frequent traveller or not, lone traveller or not are straightforward and may be followed by analyses as above within each segment. We may also make segments based on the factor scores from a factor analysis of the variables of Question 11. Since they average to zero for each factor, we may conveniently split according to positive or negative factor scores. We can also split to obtain about equally many in each group and split into more than two groups. We are then able to study segments according to the underlying dimensions. We can study segments for one dimension at a time or combinations thereof.

Another possibility to make segments is by *cluster analysis.* Software may offer so-called *k-means clustering*, with an option to specify the number of clusters wanted, and allocate one typical respondent in each cluster according to a perceived target customer profile, say found by a factor analysis. The remaining respondents are then allocated by nearness criteria.

We limit the exposition here to making segments based on a factor analysis of the variables of Question 11. The four-factor solution below provided rotated factors that are bravely interpreted as Factor 1: Service, Factor 2: Entertainment & Food, Factor 3: Location & Comfort, Factor 4: Activities. Further splits may be obtained by a five or six factor solution, and may be preferred if the dimensions can be given a reasonable interpretation.

Factor Analysis: Q11v1 to Q11v27

```
Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities

… edited away

Variance   8.4006   2.3687   1.7305   1.4050      13.9047
% Var       0.311    0.088    0.064    0.052        0.515

Rotated Factor Loadings and Communalities
Varimax Rotation

Variable  Factor1  Factor2  Factor3  Factor4  Communality
Q11v1       0.747    0.066    0.180   -0.139        0.614
Q11v2       0.215    0.176    0.206   -0.613        0.496
Q11v3       0.101    0.120    0.559   -0.187        0.372
Q11v4       0.109    0.142    0.006   -0.638        0.439
Q11v5       0.780    0.089    0.163   -0.143        0.663
Q11v6       0.575    0.193    0.299   -0.115        0.470
Q11v7       0.252    0.258    0.619    0.033        0.514
Q11v8      -0.020    0.613    0.132   -0.228        0.446
Q11v9       0.806    0.130    0.144   -0.046        0.689
Q11v10      0.207    0.794    0.005   -0.035        0.675
Q11v11      0.151    0.491    0.446   -0.028        0.463
Q11v12     -0.105    0.292    0.346   -0.511        0.477
Q11v13      0.182    0.319    0.191   -0.559        0.484
Q11v14      0.329    0.508    0.336   -0.128        0.496
Q11v15      0.437    0.187    0.576    0.083        0.565
Q11v16      0.166    0.790   -0.066   -0.118        0.670
Q11v17      0.701    0.232    0.021   -0.212        0.590
Q11v18      0.347    0.516    0.148   -0.156        0.433
Q11v19      0.576    0.087    0.476    0.077        0.572
Q11v20      0.100    0.481    0.267   -0.292        0.398
Q11v21      0.722    0.272    0.093   -0.090        0.612
Q11v22      0.452    0.028    0.566   -0.108        0.536
Q11v23      0.061    0.399    0.571   -0.245        0.550
Q11v24      0.451   -0.046    0.358   -0.282        0.413
Q11v25      0.170    0.072    0.437   -0.428        0.408
Q11v26      0.082    0.028   -0.011   -0.701        0.499
Q11v27      0.124   -0.147    0.498   -0.273        0.360

Variance   4.6527   3.3743   3.2705   2.6073      13.9047
% Var       0.172    0.125    0.121    0.097        0.515

Factor Scores saved for further computation
```

From the factor scores we define indicators whether score is positive (1) or negative (0)
As a check we may compute the mean scores on all the variables of Question 11 for the two segments defined by their importance placed on Service. We see that the group means are larger for (1) than (0) for the variables related to service.

Tabulated statistics: Fac1group

```
Rows: Fac1group

       Q11v1  Q11v2  Q11v3  Q11v4  Q11v5  Q11v6  Q11v7  Q11v8  Q11v9  Q11v10
        Mean   Mean   Mean   Mean   Mean   Mean   Mean   Mean   Mean    Mean

0      5.333  4.745  5.461  4.706  5.583  5.525  5.289  3.426  5.495   3.706
1      6.762  5.371  5.724  5.143  6.846  6.584  5.934  3.668  6.843   4.510

     Q11v11  Q11v12  Q11v13  Q11v14  Q11v15  Q11v16  Q11v17  Q11v18  Q11v19
       Mean    Mean    Mean    Mean    Mean    Mean    Mean    Mean    Mean

0     4.422   4.225   4.083   4.471   5.578   3.387   4.975   4.181   5.922
1     4.958   4.112   4.787   5.420   6.423   4.143   6.430   5.213   6.748

     Q11v20  Q11v21  Q11v22  Q11v23  Q11v24  Q11v25  Q11v26  Q11v27
       Mean    Mean    Mean    Mean    Mean    Mean    Mean    Mean

0     3.990   5.118   5.721   4.172   5.333   4.902   4.000   5.480
1     4.378   6.538   6.521   4.493   6.231   5.294   4.444   5.871
```

We may now compare groups with respect to satisfaction. We limit the exposition here to the total satisfaction defined by the computed SatScore (sum of scores on Questions 14-17).
For these analyses the number of observations may differ according to the missing rate for the variables that defines the groups.

As a simple example take the total satisfaction defined by SatScore above for the two groups of weight placed on Service. We get using the standard t-test

Two-Sample T-Test and CI: SatScore; Fac1group

```
Two-sample T for SatScore

Fac1group    N   Mean  StDev  SE Mean
0          192  22.71   7.46     0.54
1          267  25.27   7.44     0.46


Difference = mu (0) - mu (1)
Estimate for difference:  -2.558
95% CI for difference:  (-3.944; -1.171)
T-Test of difference = 0 (vs not =): T-Value = -3.63  P-Value = 0.000  DF = 410
```

We see that the group which place the most emphasis on service are on the average more satisfied with the current hotel experience than those who place less emphasis on service.
The result is clearly statistically significant.

We can also look at the total satisfaction in segments defined directly by the supplementary variables in the questionnaire. We take as example Question 9 on how the vacation trip was organized: Packaged (1) Individual book at agency (2) Individual not booked at agency (3). Analyzing this as a one-factor analysis of variance (ANOVA) problem, we get:

One-way ANOVA: SatScore versus Q9

```
Source   DF       SS    MS     F      P
Q9        2    179.2  89.6  1.71  0.182
Error   540  28303.0  52.4
Total   542  28482.2

S = 7.240   R-Sq = 0.63%   R-Sq(adj) = 0.26%


                          Individual 95% CIs For Mean Based on
                          Pooled StDev
Level    N    Mean  StDev  ---------+---------+---------+---------+
1       52  26.577  5.862              (------------*------------)
2       71  24.268  7.987  (----------*----------)
3      420  24.795  7.260           (---*----)
                          ---------+---------+---------+---------+
                                24.0      25.5      27.0      28.5

Pooled StDev = 7.240
```

We see that although the mean SatScore is largest in group 1, the differences are not statistically significant. If we instead look at the six groups defined by Question 7 on who are in the respondents company, we get the following:

One-way ANOVA: SatScore versus Q7

```
Source   DF       SS     MS     F      P
Q7        5    611.1  122.2  2.33  0.041
Error   557  29171.2   52.4
Total   562  29782.3

S = 7.237   R-Sq = 2.05%   R-Sq(adj) = 1.17%


                          Individual 95% CIs For Mean Based on
                          Pooled StDev
Group    N    Mean  StDev  ---------+---------+---------+---------+
1       43  22.279  7.385  (---------*----------)
2      238  24.366  7.371                (----*---)
3       48  25.396  5.859                (---------*---------)
4       31  24.742  7.229           (------------*-----------)
5       36  24.139  8.929         (-----------*-----------)
6      167  26.048  6.957                           (----*-----)
                          ---------+---------+---------+---------+
                                22.0      24.0      26.0      28.0

Pooled StDev = 7.237
```

We see that the hypothesis of equal satisfaction level for the six groups is rejected at the 5% level. Those travelling alone (group 1) are definitely less satisfied than the one travelling with spouse/partner (Group 6).

It is also possible to study the differences in total satisfaction among subgroups defined by two categorical questions and perform two-factor ANOVA.

More output

Factor Analysis: Q12v1 to Q12v27

Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities
93 cases used 548 cases contain missing values

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Communality
Q12v1	0.625	-0.515	-0.188	0.041	0.220	0.742
Q12v2	0.607	0.334	-0.285	0.012	0.244	0.620
Q12v3	0.583	-0.132	-0.014	-0.462	-0.234	0.626
Q12v4	0.560	0.313	-0.189	0.111	0.360	0.589
Q12v5	0.713	-0.533	-0.159	0.077	0.165	0.851
Q12v6	0.574	-0.079	-0.052	-0.459	0.227	0.601
Q12v7	0.704	-0.247	0.329	-0.156	0.290	0.773
Q12v8	0.632	0.190	-0.230	-0.155	-0.184	0.546
Q12v9	0.720	-0.584	-0.172	-0.028	0.069	0.894
Q12v10	0.604	0.084	-0.221	0.266	0.264	0.562
Q12v11	0.607	-0.008	0.554	0.304	0.123	0.784
Q12v12	0.608	0.126	0.308	0.150	-0.308	0.597
Q12v13	0.744	0.214	-0.125	0.195	-0.008	0.653
Q12v14	0.628	0.296	0.138	-0.177	0.118	0.547
Q12v15	0.554	0.027	0.366	0.016	0.188	0.477
Q12v16	0.655	-0.023	-0.263	0.236	-0.104	0.565
Q12v17	0.676	-0.086	-0.364	0.208	-0.256	0.705
Q12v18	0.617	0.073	-0.221	0.239	-0.370	0.629
Q12v19	0.668	-0.076	0.442	0.329	-0.071	0.761
Q12v20	0.698	0.023	0.072	-0.061	-0.465	0.713
Q12v21	0.783	-0.304	0.024	0.178	-0.135	0.756
Q12v22	0.662	0.238	0.175	-0.043	0.034	0.529
Q12v23	0.592	0.006	0.390	-0.274	-0.145	0.599
Q12v24	0.657	0.001	-0.163	-0.406	-0.016	0.624
Q12v25	0.609	0.314	-0.090	-0.333	-0.093	0.597
Q12v26	0.495	0.599	-0.108	0.147	0.157	0.662
Q12v27	0.519	0.174	0.107	-0.075	0.086	0.324
Variance	10.943	2.034	1.683	1.428	1.239	17.326
% Var	0.405	0.075	0.062	0.053	0.046	0.642

Rotated Factor Loadings and Communalities
Varimax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Communality
Q12v1	0.809	-0.145	-0.144	0.156	0.144	0.742
Q12v2	0.174	-0.061	-0.702	0.249	0.176	0.620
Q12v3	0.252	-0.136	0.027	0.690	0.260	0.626
Q12v4	0.191	-0.149	-0.715	0.122	0.072	0.589
Q12v5	0.839	-0.216	-0.142	0.171	0.228	0.851
Q12v6	0.375	-0.122	-0.251	0.613	-0.084	0.601
Q12v7	0.504	-0.580	-0.166	0.384	-0.089	0.773
Q12v8	0.123	-0.057	-0.354	0.463	0.433	0.546
Q12v9	0.844	-0.178	-0.047	0.277	0.268	0.894
Q12v10	0.376	-0.172	-0.585	0.000	0.221	0.562
Q12v11	0.192	-0.834	-0.201	-0.009	0.108	0.784
Q12v12	-0.004	-0.570	-0.118	0.206	0.465	0.597
Q12v13	0.212	-0.292	-0.543	0.182	0.442	0.653
Q12v14	0.040	-0.378	-0.443	0.446	0.085	0.547
Q12v15	0.193	-0.582	-0.239	0.209	-0.011	0.477
Q12v16	0.365	-0.135	-0.362	0.097	0.523	0.565
Q12v17	0.397	-0.045	-0.284	0.149	0.666	0.705
Q12v18	0.171	-0.143	-0.256	0.131	0.705	0.629
Q12v19	0.238	-0.763	-0.129	0.020	0.324	0.761
Q12v20	0.111	-0.352	-0.053	0.444	0.614	0.713
Q12v21	0.547	-0.419	-0.120	0.187	0.481	0.756
Q12v22	0.072	-0.453	-0.394	0.353	0.199	0.529

Q12v23	0.084	-0.535	-0.008	0.532	0.149	0.599
Q12v24	0.301	-0.070	-0.262	0.650	0.195	0.624
Q12v25	-0.004	-0.128	-0.385	0.608	0.253	0.597
Q12v26	-0.149	-0.192	-0.739	0.123	0.203	0.662
Q12v27	0.092	-0.322	-0.332	0.301	0.104	0.324
Variance	3.6934	3.6890	3.5462	3.3245	3.0730	17.3261
% Var	0.137	0.137	0.131	0.123	0.114	0.642

Factor Score Coefficients

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Q12v1	0.316	0.057	-0.002	-0.054	-0.081
Q12v2	0.011	0.104	-0.286	-0.001	-0.067
Q12v3	-0.013	0.070	0.174	0.331	0.051
Q12v4	0.039	0.037	-0.320	-0.079	-0.134
Q12v5	0.308	0.035	0.023	-0.066	-0.039
Q12v6	0.100	0.072	-0.040	0.271	-0.228
Q12v7	0.141	-0.178	0.016	0.077	-0.256
Q12v8	-0.069	0.120	-0.033	0.152	0.145
Q12v9	0.298	0.063	0.090	0.009	-0.005
Q12v10	0.115	0.030	-0.241	-0.170	-0.032
Q12v11	-0.011	-0.362	-0.003	-0.174	-0.075
Q12v12	-0.150	-0.197	0.105	-0.018	0.202
Q12v13	-0.023	-0.003	-0.145	-0.079	0.111
Q12v14	-0.087	-0.073	-0.112	0.134	-0.112
Q12v15	0.006	-0.218	-0.036	-0.008	-0.156
Q12v16	0.062	0.068	-0.063	-0.107	0.196
Q12v17	0.060	0.129	0.001	-0.073	0.301
Q12v18	-0.056	0.057	0.027	-0.071	0.356
Q12v19	-0.017	-0.304	0.069	-0.165	0.074
Q12v20	-0.123	-0.039	0.179	0.129	0.289
Q12v21	0.116	-0.069	0.096	-0.073	0.148
Q12v22	-0.085	-0.112	-0.073	0.061	-0.032
Q12v23	-0.096	-0.170	0.150	0.214	-0.025
Q12v24	0.027	0.124	0.003	0.277	-0.038
Q12v25	-0.124	0.077	-0.055	0.255	0.020
Q12v26	-0.140	-0.002	-0.310	-0.063	-0.008
Q12v27	-0.043	-0.068	-0.077	0.065	-0.067