Multivariate exploration of the questionnaire and typology of the surveyed people

The results are provided by the
EnQuireR package

July 28, 2010

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1 Quick overview of the questionnaire

The analysis was performed on 166 individuals described by 20 variables:

- Image (very bad , bad , normal , good , very good)
- Expensive (not expensive , a little expensive , average , quite expensive , very expensive)
- Good.value.for.money (very bad , bad , average , good , very good)
- Kind.of.consumer (very bad , bad , normal , good , very good)
- Not.balanced.meals (not balanced , badly balanced , average , quite well balanced , well balanced)
- Products.appreciation (not at all , not much , average , quite a lot , enormously)
- Not.enough.to.eat (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)
- Poor.nutritionnal.quality (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)
- Pleasure (no pleasure , not much pleasure , average , quite a lot pleasure , great pleasure)
- Fast.food.pollute (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)
- Convivial (not convivial , not much convivial , average , quite convivial , very convivial)
- Practical (not much practical , average , quite practical , very practical)
- Pleasant.side (nothing pleasant , few pleasant things , average , some pleasant things , a lot of pleasant things)
- Not.varied.enough (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)
- Adapted.to.everybody (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)
- Would.be.missed.if.gone (not at all , not much , average , quite a lot , enormously)
- Feel.bad.about.oneself (not at all , a little , average , not much)
- Diet.after.fastfood (never , rarely , sometimes , often , always)
- Products.not.satisfying (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)
- Cheaper.meal (disagree , slightly disagree , neither agree nor disagree , slightly agree , agree)

Moreover, the dataset contained 0% of missing values.

2 Multivariate exploration of the questionnaire

2.1 Graphical representations of the questionnaire

The following results are obtained by performing a Multiple Correspondence Analysis (MCA) on the previous 20 variables. This method provides two important graphical displays, a representation of the individuals (surveyed people) and a representation of the categories (answers given by the surveyed people). The first two main axes of variability explain 10.77% of the information contained in the dataset (6.58% for the first factorial axis and 4.19% for the second one). In some cases the analyst may want to introduce supplementary quantitative variables.

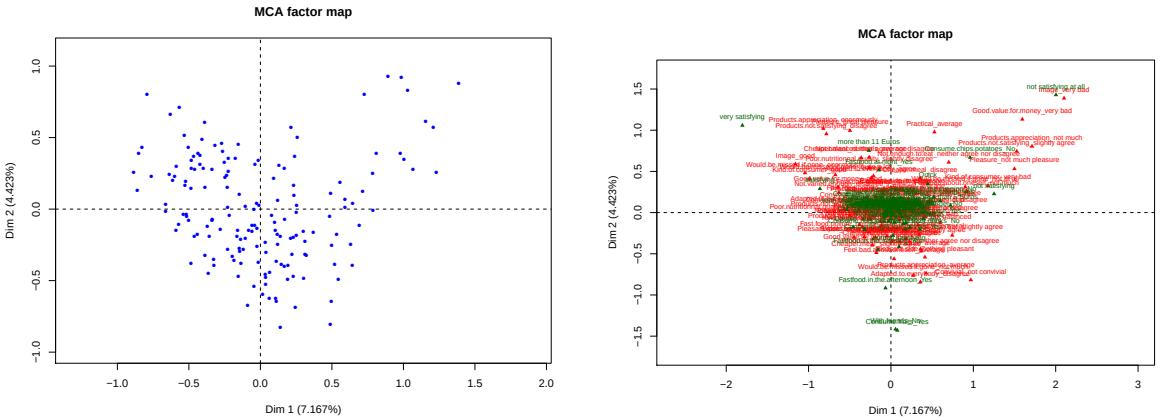

Figure 1: Representations of the individuals and of the categories on axes 1 and 2

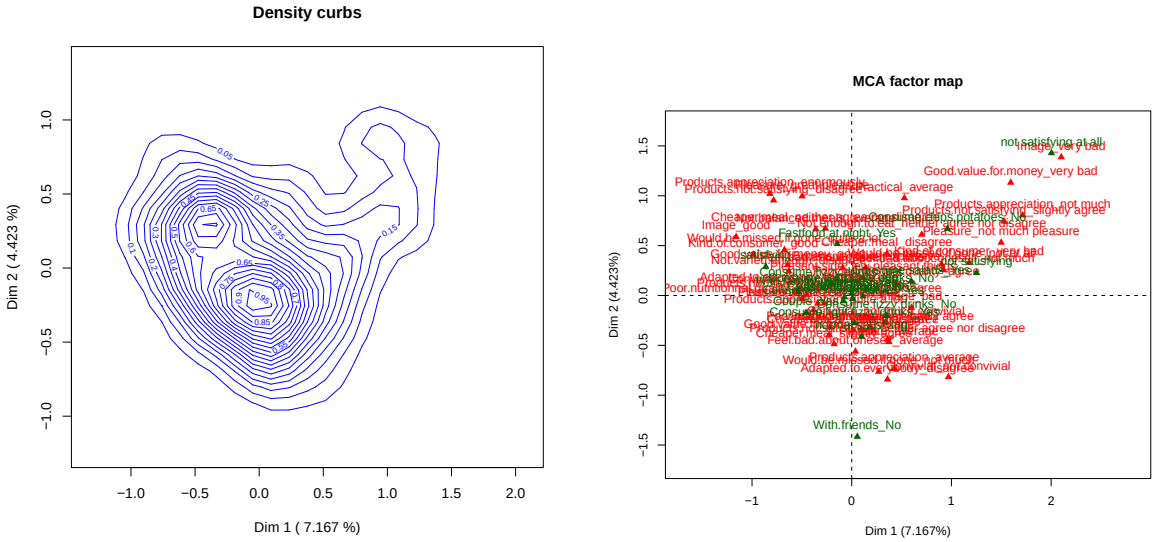

Figure 2: Representation of the individuals using density curbs and enhanced representation of the categories

2.2 Highlights on the two principal axes of variability

2.2.1 Characterization of the first factorial axis

The most meaningful variables characterizing the first factorial axis are:

- `Image`
- `Products.appreciation`
- `Products.not.satisfying`
- `Pleasure`
- `Kind.of.consumer`
- `Good.value.for.money`
- `Would.be.missed.if.gone`
- `Convivial`
- `Not.balanced.meals`
- `Not.varied.enough`
- `Poor.nutritionnal.quality`
- `Not.enough.to.eat`
- `Practical`
- `Adapted.to.everybody`
- `Fast.food.pollute`
- `Pleasant.side`
- `Feel.bad.about.oneself`

The most meaningful categories characterizing the positive side of the first axis are:

- `Image_very bad`
  - Contribution: 6.62
  - V-Test: 7.73
  - Frequency in the population: 6.02 %
- `Kind.of.consumer_very bad`
  - Contribution: 5.8
  - V-Test: 7.89
  - Frequency in the population: 21.08 %
- `Products.not.satisfying_agree`
  - Contribution: 3.61
  - V-Test: 5.56
  - Frequency in the population: 1.2 %
- `Would.be.missed.if.gone_not at all`
  - Contribution: 3.75
  - V-Test: 6.5

  - Frequency in the population: 24.7 %

- `Good.value.for.money_very bad`
  - Contribution: 4.19
  - V-Test: 6.14
  - Frequency in the population: 6.02 %
- `Pleasure_no pleasure`
  - Contribution: 4.01
  - V-Test: 5.93
  - Frequency in the population: 3.61 %
- `Products.appreciation_not much`
  - Contribution: 6.62
  - V-Test: 8.02
  - Frequency in the population: 12.65 %
- `Products.appreciation_not at all`
  - Contribution: 2.03
  - V-Test: 4.18
  - Frequency in the population: 1.2 %
- `Not.balanced.meals_well balanced`
  - Contribution: 1.96
  - V-Test: 4.09
  - Frequency in the population: 0.6 %
- `Image_bad`
  - Contribution: 1.78
  - V-Test: 4.58
  - Frequency in the population: 28.31 %

The most meaningful categories characterizing the negative side of the first axis are:

- `Products.not.satisfying_slightly disagree`
  - Contribution: 2.01
  - V-Test: -5.4
  - Frequency in the population: 41.57 %
- `Products.not.satisfying_disagree`
  - Contribution: 1.21
  - V-Test: -3.38
  - Frequency in the population: 10.24 %
- `Products.appreciation_quite a lot`
  - Contribution: 1.33
  - V-Test: -4.84
  - Frequency in the population: 51.81 %
- `Products.appreciation_enormously`

  - Contribution: 1.88
  - V-Test: -4.29
  - Frequency in the population: 13.25 %
- `Pleasure_quite a lot pleasure`
  - Contribution: 1.27
  - V-Test: -4.67
  - Frequency in the population: 50.6 %
- `Image_good`
  - Contribution: 3.17
  - V-Test: -5.69
  - Frequency in the population: 16.87 %
- `Pleasure_great pleasure`
  - Contribution: 0.95
  - V-Test: -3.01
  - Frequency in the population: 11.45 %
- `Image_very good`
  - Contribution: 0.94
  - V-Test: -2.85
  - Frequency in the population: 1.81 %
- `Kind.of.consumer_good`
  - Contribution: 2.73
  - V-Test: -5.31
  - Frequency in the population: 18.07 %
- `Convivial_quite convivial`
  - Contribution: 1.69
  - V-Test: -4.66
  - Frequency in the population: 34.34 %

2.2.2 Characterization on the second factorial axis

The most meaningful variables characterizing the second factorial axis are:

- `Products.not.satisfying`
- `Products.appreciation`
- `Image`
- `Pleasure`
- `Good.value.for.money`
- `Kind.of.consumer`
- `Would.be.missed.if.gone`
- `Not.balanced.meals`
- `Practical`

- Cheaper.meal
- Adapted.to.everybody
- Pleasant.side
- Not.enough.to.eat
- Diet.after.fastfood
- Feel.bad.about.oneself
- Expensive

The most meaningful categories characterizing the positive side of the second axis are:

- Products.not.satisfying_agree
  - Contribution: 6.98
  - V-Test: 6.17
  - Frequency in the population: 1.2 %
- Image_very good
  - Contribution: 5.19
  - V-Test: 5.34
  - Frequency in the population: 1.81 %
- Not.balanced.meals_well balanced
  - Contribution: 4.23
  - V-Test: 4.79
  - Frequency in the population: 0.6 %
- Kind.of.consumer_very good
  - Contribution: 2.78
  - V-Test: 3.91
  - Frequency in the population: 1.81 %
- Good.value.for.money_very good
  - Contribution: 3
  - V-Test: 4.04
  - Frequency in the population: 1.2 %
- Would.be.missed.if.gone_enormously
  - Contribution: 1.68
  - V-Test: 3.1
  - Frequency in the population: 6.02 %
- Practical_average
  - Contribution: 1.76
  - V-Test: 3.26
  - Frequency in the population: 10.84 %
- Products.appreciation_not at all

  - Contribution: 1.64
  - V-Test: 2.99
  - Frequency in the population: 1.2 %
- `Pleasant.side_a lot of pleasant things`
  - Contribution: 1.48
  - V-Test: 2.85
  - Frequency in the population: 1.81 %
- `Pleasure_great pleasure`
  - Contribution: 3.72
  - V-Test: 4.76
  - Frequency in the population: 11.45 %

The most meaningful categories characterizing the negative side of the second axis are:

- `Products.not.satisfying_neither agree nor disagree`
  - Contribution: 2.76
  - V-Test: -4.9
  - Frequency in the population: 37.95 %
- `Image_bad`
  - Contribution: 1.44
  - V-Test: -3.29
  - Frequency in the population: 28.31 %
- `Products.appreciation_average`
  - Contribution: 3.72
  - V-Test: -5.04
  - Frequency in the population: 21.08 %
- `Image_normal`
  - Contribution: 0.63
  - V-Test: -2.54
  - Frequency in the population: 46.99 %
- `Products.not.satisfying_slightly disagree`
  - Contribution: 0.03
  - V-Test: -0.51
  - Frequency in the population: 41.57 %
- `Pleasure_average`
  - Contribution: 2.13
  - V-Test: -3.93
  - Frequency in the population: 25.9 %
- `Good.value.for.money_average`
  - Contribution: 0.79

  - V-Test: -2.64
  - Frequency in the population: 38.55 %
- `Good.value.for.money_bad`
  - Contribution: 0.4
  - V-Test: -1.79
  - Frequency in the population: 32.53 %
- `Products.appreciation_quite a lot`
  - Contribution: 0.53
  - V-Test: -2.43
  - Frequency in the population: 51.81 %
- `Kind.of.consumer_bad`
  - Contribution: 1.46
  - V-Test: -3.28
  - Frequency in the population: 27.11 %

3 Typology on the individuals

3.1 Choice of the number of clusters

The ascendant hierarchical clustering (AHC) lead to a partition made of 3 clusters. Those clusters are displayed in the following representations: a graphical representation of the individuals according to the cluster they belong to, a representation of the center of gravity of each group enhanced by a confidence ellipse, a representation of the individuals according to the cluster they belong to by the use of density curbs.

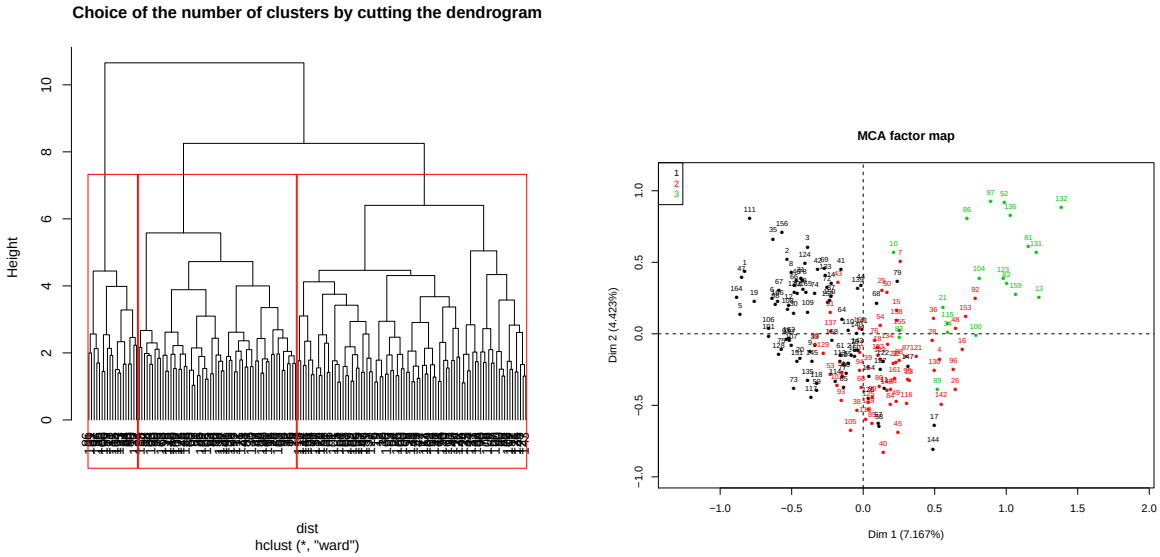

Figure 3: Number of clusters chosen by the analyst; representation of the individuals according to their cluster

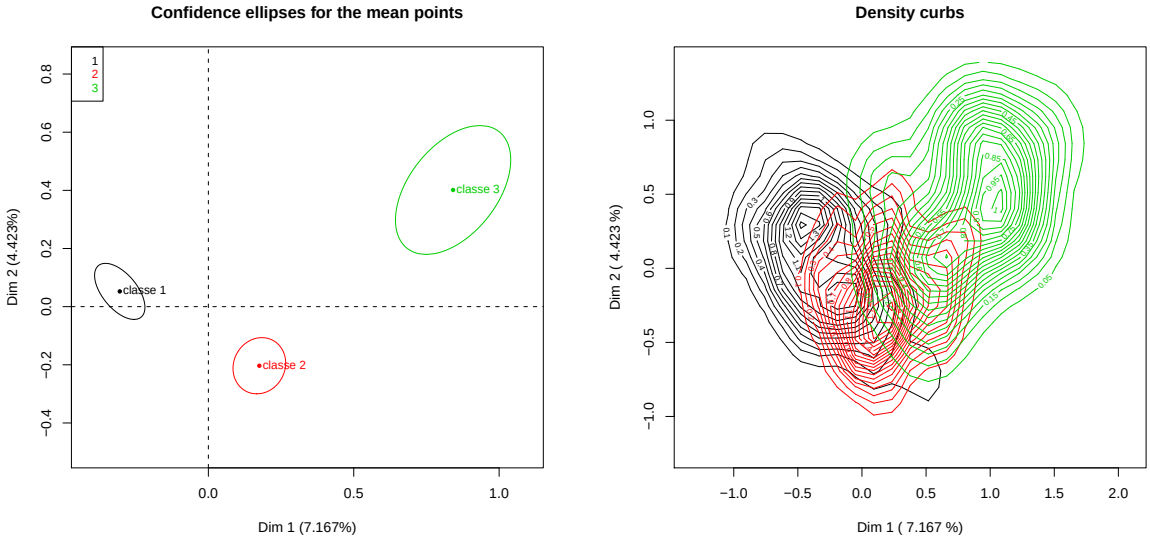

Figure 4: Centers of gravity with confidence ellipses; representation of the individuals according to their cluster with density curbs

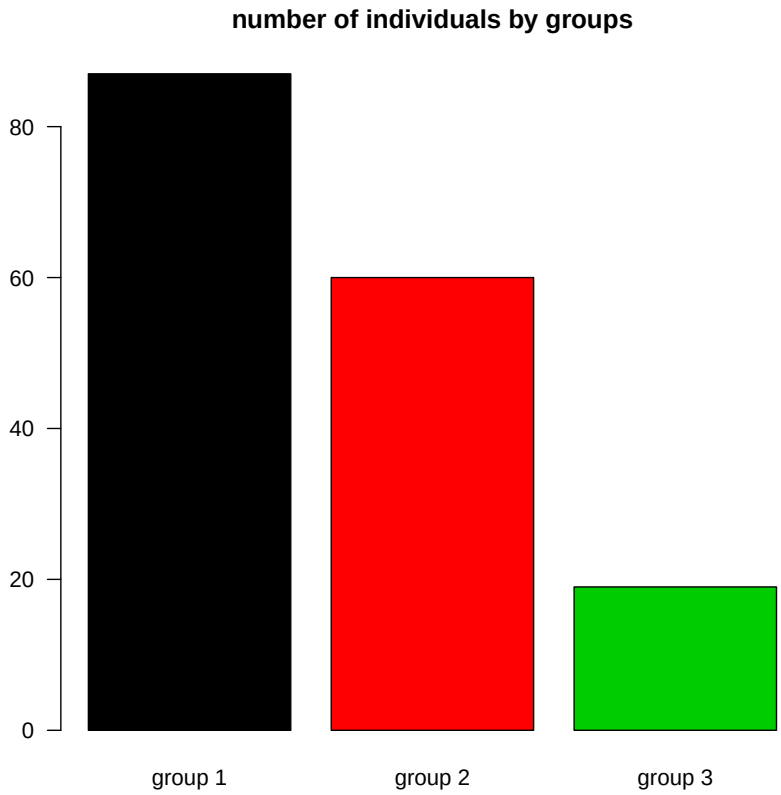

Figure 5: Number of individuals per cluster

3.2 Simultaneous comparison of the clusters with respect with the most relevant variables

3.2.1 Number of individuals by cluster for the variable Products.not.satisfying

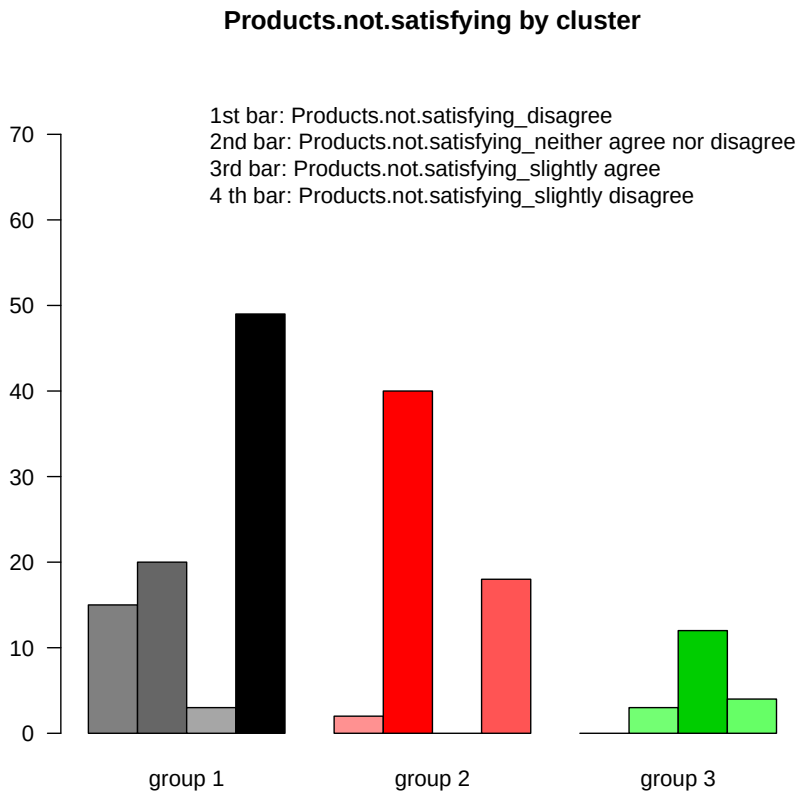

Figure 6: Variable Products.not.satisfying

3.2.2 Number of individuals by cluster for the variable Global.appreciation

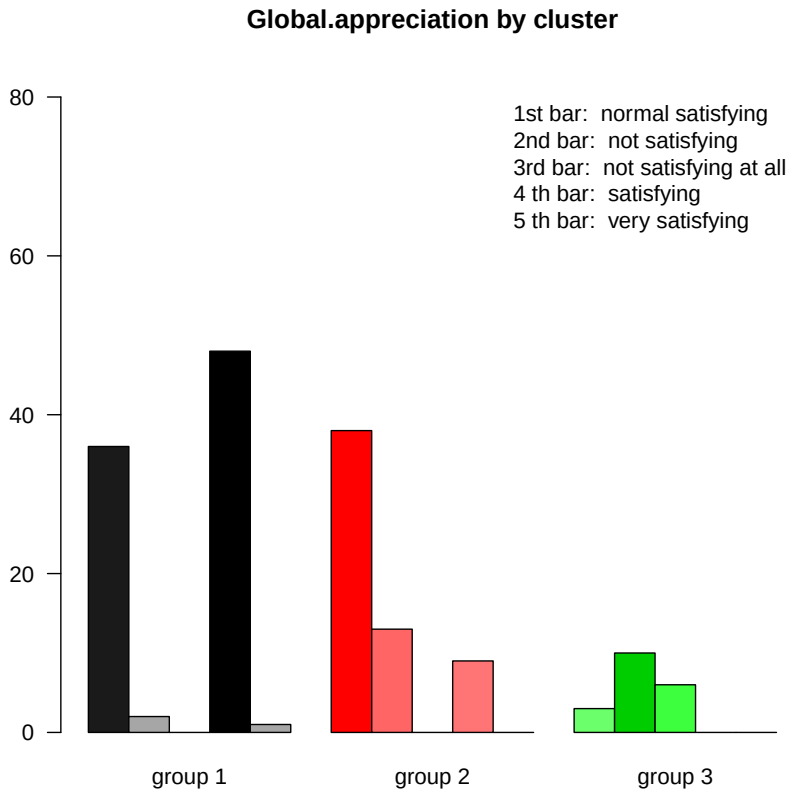

Figure 7: Variable Global.appreciation

3.2.3 Number of individuals by cluster for the variable Products.appreciation

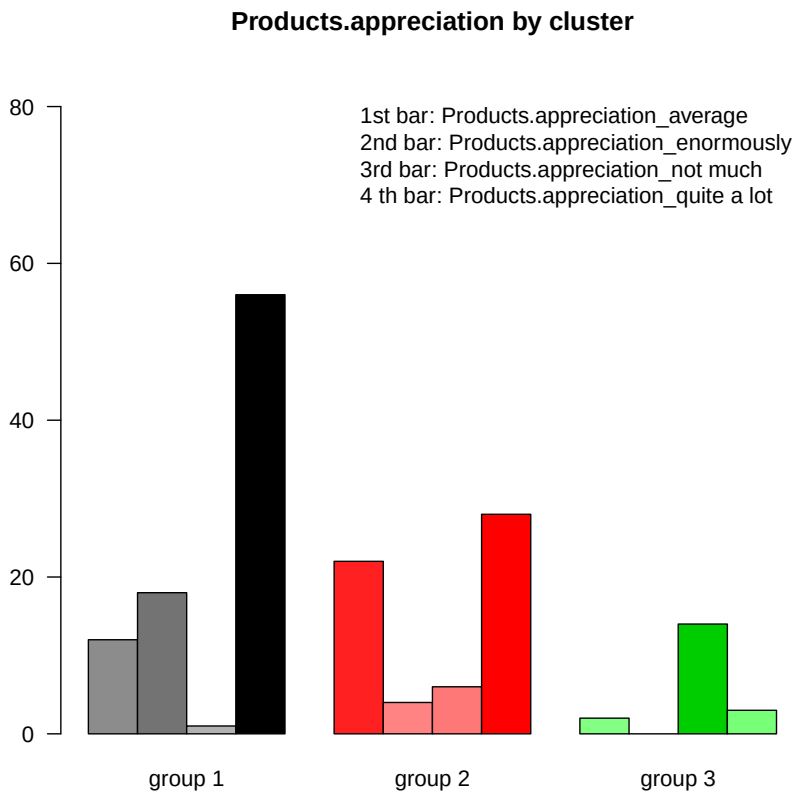

Figure 8: Variable Products.appreciation

3.2.4 Number of individuals by cluster for the variable Image

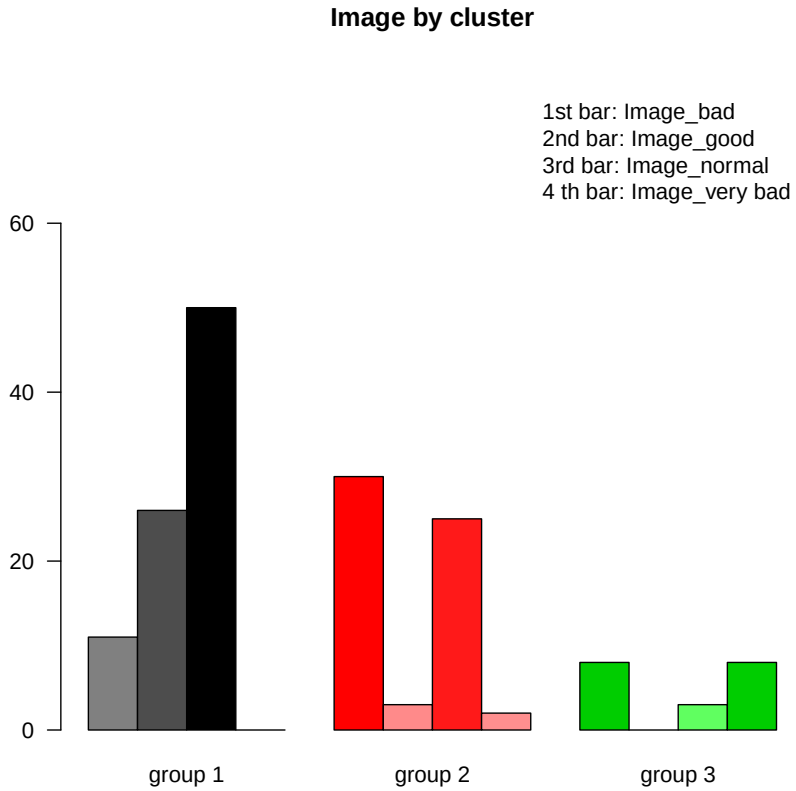

Figure 9: Variable Image

3.2.5 Number of individuals by cluster for the variable Kind.of.consumer

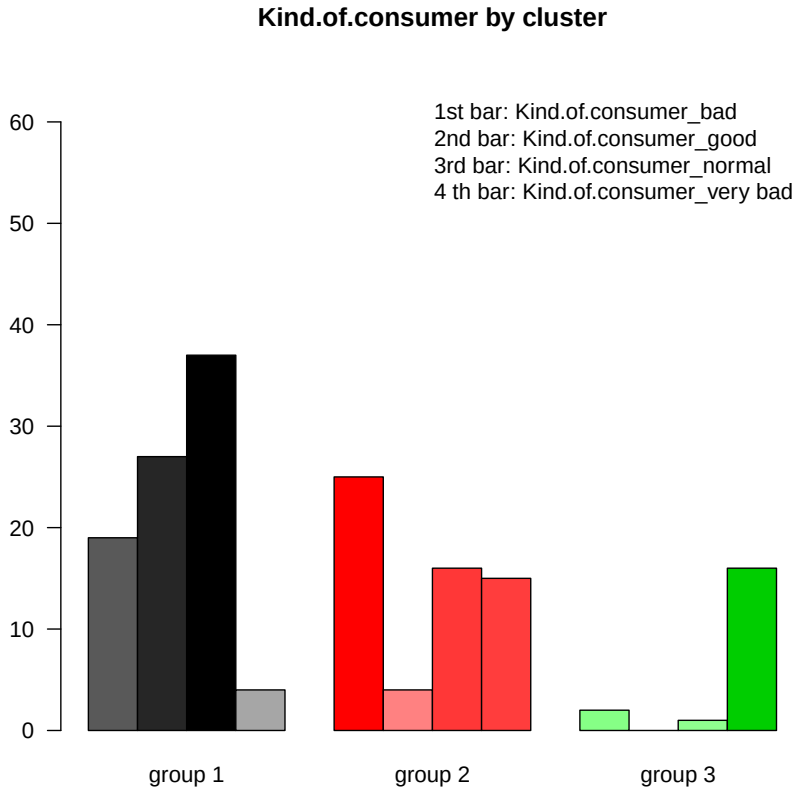

Figure 10: Variable Kind.of.consumer

3.2.6 Number of individuals by cluster for the variable Would.be.missed.if.gone

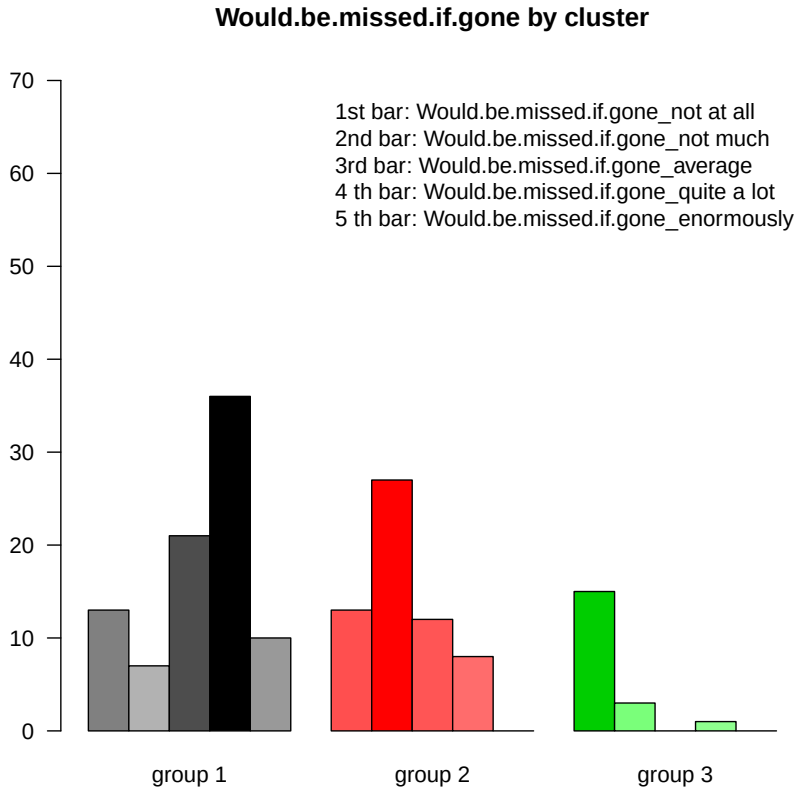

Figure 11: Variable Would.be.missed.if.gone

3.2.7 Number of individuals by cluster for the variable Good.value.for.money

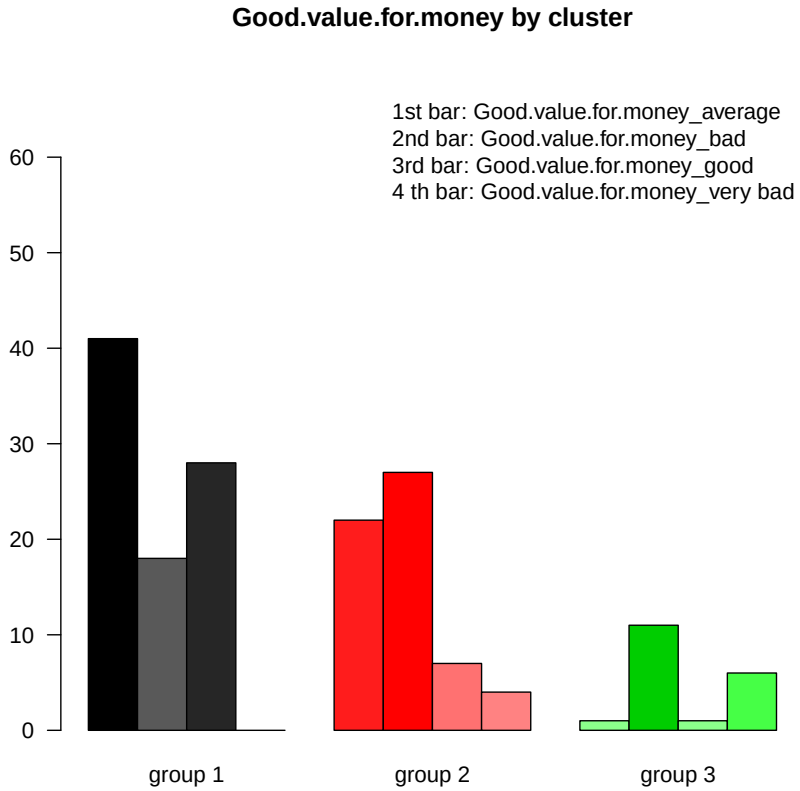

Figure 12: Variable Good.value.for.money

3.2.8 Number of individuals by cluster for the variable Pleasure

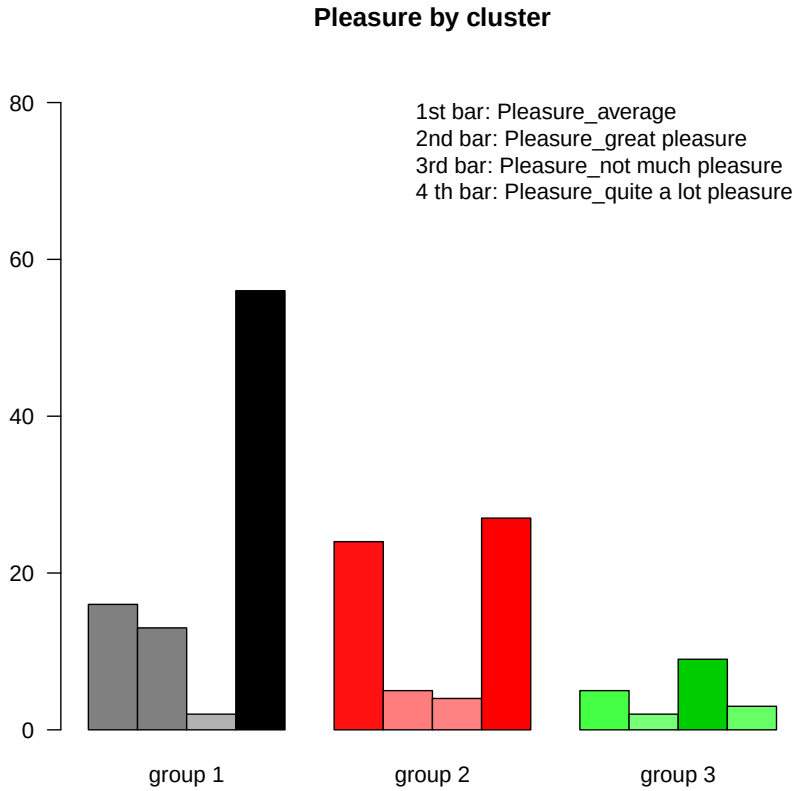

Figure 13: Variable Pleasure

3.2.9 Number of individuals by cluster for the variable Poor.nutritionnal.quality

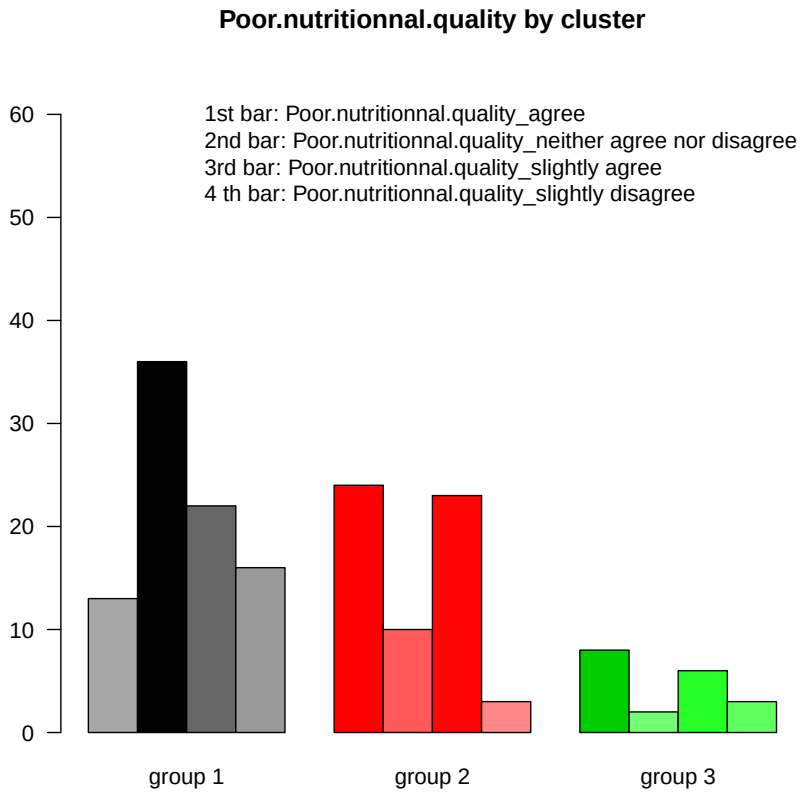

Figure 14: Variable Poor.nutritionnal.quality

3.2.10 Number of individuals by cluster for the variable Consume.chips.potatoes

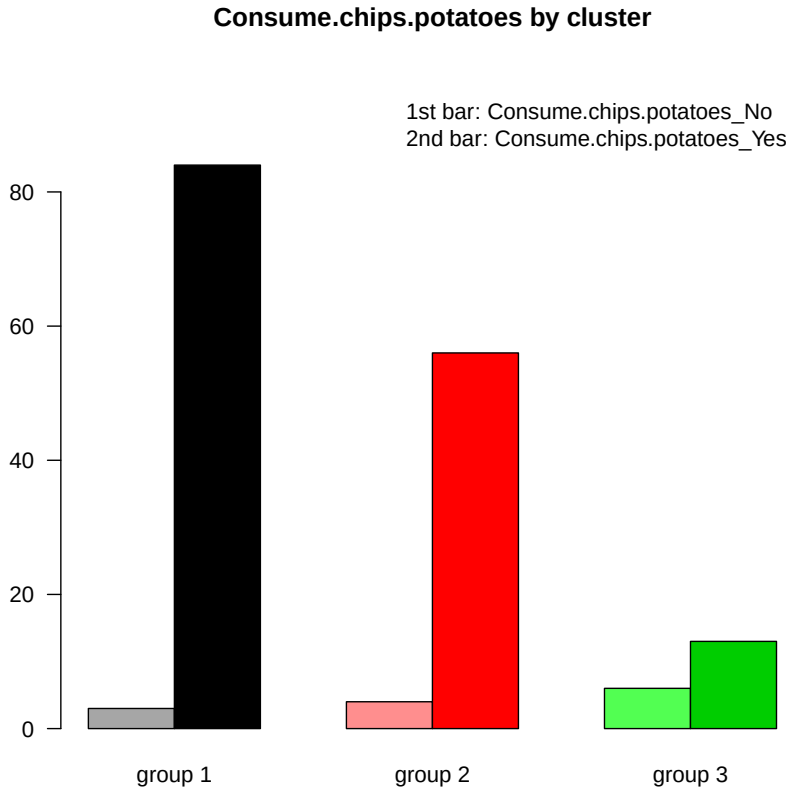

Figure 15: Variable Consume.chips.potatoes

3.3 Automatic description of each cluster

The cluster 1 (87 individuals) includes the individuals possessing the following categories:

- `Global.appreciation= satisfying`

  34.34 % of the individuals possess this category in the global population versus 55.17 % in the cluster 1 .

  Moreover, 84.21 % of the individuals possessing this category belong to the cluster 1 .

- `Image=Image_good`

  17.47 % of the individuals possess this category in the global population versus 29.89 % in the cluster 1 .

  Moreover, 89.66 % of the individuals possessing this category belong to the cluster 1 .

- `Kind.of.consumer=Kind.of.consumer_good`

  18.67 % of the individuals possess this category in the global population versus 31.03 % in the cluster 1 .

  Moreover, 87.1 % of the individuals possessing this category belong to the cluster 1 .

- `Would.be.missed.if.gone=Would.be.missed.if.gone_quite a lot`

  27.11 % of the individuals possess this category in the global population versus 41.38 % in the cluster 1 .

  Moreover, 80 % of the individuals possessing this category belong to the cluster 1 .

- `Poor.nutritionnal.quality=Poor.nutritionnal.quality_neither agree nor disagree`

  28.92 % of the individuals possess this category in the global population versus 41.38 % in the cluster 1 .

  Moreover, 75 % of the individuals possessing this category belong to the cluster 1 .

- `Products.not.satisfying=Products.not.satisfying_slightly disagree`

  42.77 % of the individuals possess this category in the global population versus 56.32 % in the cluster 1 .

  Moreover, 69.01 % of the individuals possessing this category belong to the cluster 1 .

- `Good.value.for.money=Good.value.for.money_good`

  21.69 % of the individuals possess this category in the global population versus 32.18 % in the cluster 1 .

  Moreover, 77.78 % of the individuals possessing this category belong to the cluster 1 .

- `Pleasure=Pleasure_quite a lot pleasure`

  51.81 % of the individuals possess this category in the global population versus 64.37 % in the cluster 1 .

  Moreover, 65.12 % of the individuals possessing this category belong to the cluster 1 .

- `Convivial=Convivial_quite convivial`

  34.34 % of the individuals possess this category in the global population versus 45.98 % in the cluster 1 .

  Moreover, 70.18 % of the individuals possessing this category belong to the cluster 1 .

- `Adapted.to.everybody=Adapted.to.everybody_slightly agree`

  24.1 % of the individuals possess this category in the global population versus 34.48 % in the cluster 1 .

  Moreover, 75 % of the individuals possessing this category belong to the cluster 1 .

The cluster 2 (60 individuals) includes the individuals possessing the following categories:

- `Products.not.satisfying=Products.not.satisfying_neither agree nor disagree`

  37.95 % of the individuals possess this category in the global population versus 66.67 % in the cluster 2 .

  Moreover, 63.49 % of the individuals possessing this category belong to the cluster 2 .

- `Would.be.missed.if.gone=Would.be.missed.if.gone_not much`

  22.29 % of the individuals possess this category in the global population versus 45 % in the cluster 2 .

  Moreover, 72.97 % of the individuals possessing this category belong to the cluster 2 .

- `Image=Image_bad`

  29.52 % of the individuals possess this category in the global population versus 50 % in the cluster 2 .

  Moreover, 61.22 % of the individuals possessing this category belong to the cluster 2 .

- `Cheaper.meal=Cheaper.meal_slightly disagree`

  36.75 % of the individuals possess this category in the global population versus 55 % in the cluster 2 .

  Moreover, 54.1 % of the individuals possessing this category belong to the cluster 2 .

- `Expensive=Expensive_very expensive`

  6.02 % of the individuals possess this category in the global population versus 15 % in the cluster 2 .

  Moreover, 90 % of the individuals possessing this category belong to the cluster 2 .

- `Products.appreciation=Products.appreciation_average`

  21.69 % of the individuals possess this category in the global population versus 36.67 % in the cluster 2 .

  Moreover, 61.11 % of the individuals possessing this category belong to the cluster 2 .

- `Global.appreciation= normal satisfying`

  46.39 % of the individuals possess this category in the global population versus 63.33 % in the cluster 2 .

  Moreover, 49.35 % of the individuals possessing this category belong to the cluster 2 .

- `Adapted.to.everybody=Adapted.to.everybody_disagree`

  15.66 % of the individuals possess this category in the global population versus 28.33 % in the cluster 2 .

  Moreover, 65.38 % of the individuals possessing this category belong to the cluster 2 .

- `Kind.of.consumer=Kind.of.consumer_bad`

  27.71 % of the individuals possess this category in the global population versus 41.67 % in the cluster 2 .

  Moreover, 54.35 % of the individuals possessing this category belong to the cluster 2 .

- `Pleasure=Pleasure_average`

  27.11 % of the individuals possess this category in the global population versus 40 % in the cluster 2 .

  Moreover, 53.33 % of the individuals possessing this category belong to the cluster 2 .

The cluster 3 (19 individuals) includes the individuals possessing the following categories:

- `Products.appreciation=Products.appreciation_not much`

  12.65 % of the individuals possess this category in the global population versus 73.68 % in the cluster 3 .

  Moreover, 66.67 % of the individuals possessing this category belong to the cluster 3 .

- `Products.not.satisfying=Products.not.satisfying_slightly agree`

  9.04 % of the individuals possess this category in the global population versus 63.16 % in the cluster 3 .

  Moreover, 80 % of the individuals possessing this category belong to the cluster 3 .

- `Kind.of.consumer=Kind.of.consumer_very bad`

  21.08 % of the individuals possess this category in the global population versus 84.21 % in the cluster 3 .

  Moreover, 45.71 % of the individuals possessing this category belong to the cluster 3 .

- `Would.be.missed.if.gone=Would.be.missed.if.gone_not at all`

  24.7 % of the individuals possess this category in the global population versus 78.95 % in the cluster 3 .

  Moreover, 36.59 % of the individuals possessing this category belong to the cluster 3 .

- `Image=Image_very bad`

  6.02 % of the individuals possess this category in the global population versus 42.11 % in the cluster 3 .

  Moreover, 80 % of the individuals possessing this category belong to the cluster 3 .

- `Global.appreciation= not satisfying at all`

  3.61 % of the individuals possess this category in the global population versus 31.58 % in the cluster 3 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 3 .

- `Pleasure=Pleasure_not much pleasure`

  9.04 % of the individuals possess this category in the global population versus 47.37 % in the cluster 3 .

  Moreover, 60 % of the individuals possessing this category belong to the cluster 3 .

- `Global.appreciation= not satisfying`

  15.06 % of the individuals possess this category in the global population versus 52.63 % in the cluster 3 .

  Moreover, 40 % of the individuals possessing this category belong to the cluster 3 .

- `Good.value.for.money=Good.value.for.money_very bad`

  6.02 % of the individuals possess this category in the global population versus 31.58 % in the cluster 3 .

  Moreover, 60 % of the individuals possessing this category belong to the cluster 3 .

- `Consume.chips.potatoes=Consume.chips.potatoes_No`

  7.83 % of the individuals possess this category in the global population versus 31.58 % in the cluster 3 .

  Moreover, 46.15 % of the individuals possessing this category belong to the cluster 3 .