Multivariate exploration of the questionnaire and typology of the surveyed people

The results are provided by the
EnQuireR package

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Contents

List of Figures

1 Quick overview of the questionnaire

The analysis was performed on 100 individuals described by 49 variables:

- buy.cheese (hard discount , hypermarket , market , nowhere , specialized stores , supermarket)
- buy.white.meat (hard discount , hypermarket , market , nowhere , specialized stores , supermarket)
- buy.red.meat (hard discount , hypermarket , market , nowhere , specialized stores , supermarket)
- buy.fish (hard discount , hypermarket , market , nowhere , specialized stores , supermarket)
- buy.alcoholic.drinks (hard discount , hypermarket , nowhere , specialized stores , supermarket)
- buy.soft.drinks (hard discount , hypermarket , nowhere , specialized shops , supermarket)
- buy.chocolate (hard discount , hypermarket , nowhere , specialized shops , supermarket)
- buy.fruit.and.vegetables (hard discount , hypermarket , market , specialized shops , supermarket)
- buy.eggs (hard discount , hypermarket , market , nowhere , specialized shops , supermarket)
- buy.dairy.products (hard discount , hypermarket , market , nowhere , specialized shops , supermarket)
- buy.coffee.tea (hard discount , hypermarket , nowhere , specialized shops , supermarket)
- label.decisive.criterion (no , yes)
- recognize.label.AB (no , yes)
- recognize.label.AOC (no , yes)
- recognize.label.AOP (no , yes)
- recognize.label.IGP (no , yes)
- recognize.label.LR (no , yes)
- recognize.no.label (no , yes)
- buying.labelled.cheese (no , yes)
- buying.labelled.white.meat (no , yes)
- buying.labelled.red.meat (no , yes)
- buying.labelled.fish (no , yes)
- buying.labelled.alcoholic.drink (no , yes)
- buying.labelled.soft.drink (no , yes)
- buying.labelled.fruits.and.vegetables (no , yes)
- buying.labelled.chocolate (no , yes)
- buying.labelled.eggs (no , yes)

- buying.labelled.dairy.products (no , yes)
- buying.labelled.coffee.tea (no , yes)
- no.labelled.product (no , yes)
- label.a.quality.product (no , yes)
- label.certainty.on.the.origin (no , yes)
- label.a.specification (no , yes)
- label.a.lifestyle (no , yes)
- label.a.preservation.of.the.gastronomy (no , yes)
- label.local.products (no , yes)
- label.a.tradition (no , yes)
- label.a.better.taste (no , yes)
- price.guarantee.of.quality (no , yes)
- price.margin.for.the.industrialist (no , yes)
- price.earnings.for.the.producer (no , yes)
- price.emphasis.of.the.label (no , yes)
- price.unjustified.superiority (no , yes)
- labelled.products.as.part.of.daily.diet (no , yes)
- labelled.products.as.part.of.reception.of.guests (no , yes)
- labelled.products.as.part.of.promotional.offers (no , yes)
- labelled.products.as.part.of.discovery (no , yes)
- not.buying.labelled.products (no , yes)
- sex (man , woman)

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 49 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 17.79% of the information contained in the dataset (9.64% for the first factorial axis and 8.16% for the second one). In some cases the analyst may want to introduce supplementary quantitative variables.

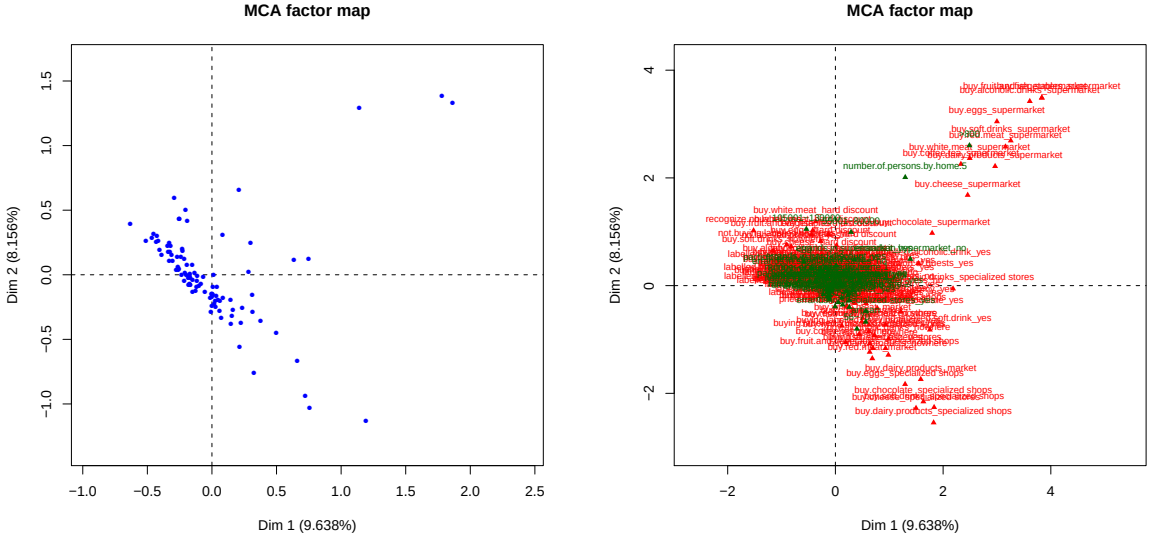

Figure 1: Representations of the individuals and of the categories on axes 1 and 2

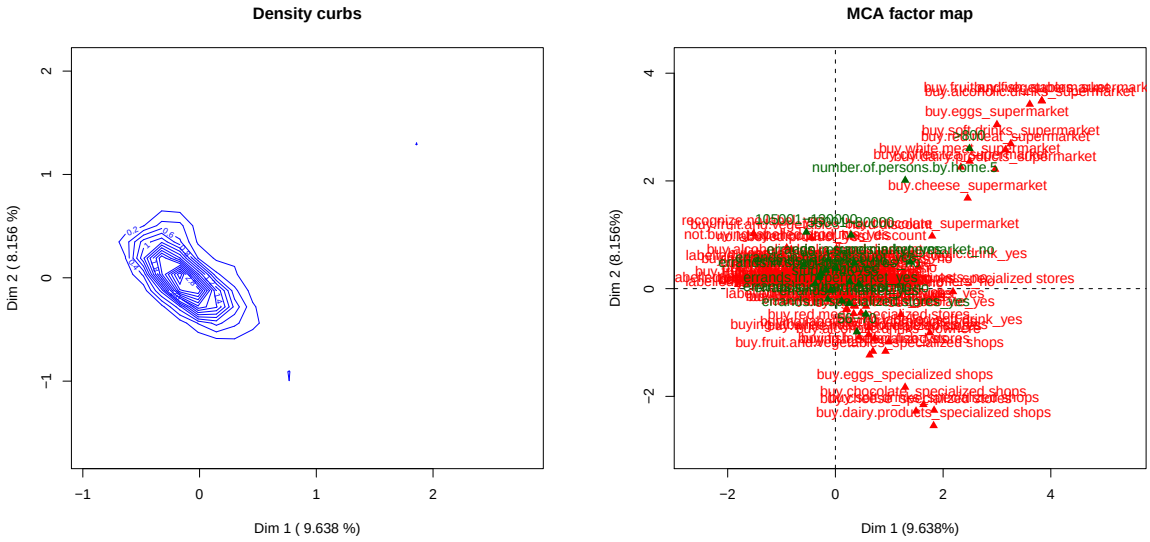

Figure 2: Representation of the individuals using density curbs and enhanced representation of the categories

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:

- buy.dairy.products
- buy.soft.drinks
- buy.fruit.and.vegetables
- buy.fish
- buy.alcoholic.drinks
- buy.cheese
- buy.eggs
- buy.red.meat
- buy.chocolate
- buy.white.meat
- buy.coffee.tea
- buying.labelled.alcoholic.drink
- buying.labelled.soft.drink
- buying.labelled.cheese
- no.labelled.product
- labelled.products.as.part.of.daily.diet
- buying.labelled.chocolate
- not.buying.labelled.products
- buying.labelled.eggs
- buying.labelled.dairy.products
- buying.labelled.red.meat
- label.local.products
- label.decisive.criterion
- buying.labelled.coffee.tea
- buying.labelled.fruits.and.vegetables
- price.margin.for.the.industrialist
- labelled.products.as.part.of.reception.of.guests
- label.a.specification
- label.a.preservation.of.the.gastronomy
- buying.labelled.white.meat
- labelled.products.as.part.of.discovery
- label.certainty.on.the.origin

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

- `buy.fruit.and.vegetables_supermarket`
  - Contribution: 5.2
  - V-Test: 6.71
  - Frequency in the population: 3 %
- `buy.soft.drinks_supermarket`
  - Contribution: 5
  - V-Test: 6.61
  - Frequency in the population: 4 %
- `buy.fish_supermarket`
  - Contribution: 5.2
  - V-Test: 6.71
  - Frequency in the population: 3 %
- `buy.eggs_supermarket`
  - Contribution: 4.24
  - V-Test: 6.09
  - Frequency in the population: 4 %
- `buy.red.meat_supermarket`
  - Contribution: 3.53
  - V-Test: 5.53
  - Frequency in the population: 3 %
- `buy.dairy.products_supermarket`
  - Contribution: 5.18
  - V-Test: 6.77
  - Frequency in the population: 5 %
- `buy.alcoholic.drinks_supermarket`
  - Contribution: 3.07
  - V-Test: 5.13
  - Frequency in the population: 2 %
- `buy.cheese_supermarket`
  - Contribution: 4.27
  - V-Test: 6.17
  - Frequency in the population: 6 %
- `buying.labelled.alcoholic.drink_yes`
  - Contribution: 2.8
  - V-Test: 5.11
  - Frequency in the population: 10 %
- `buy.white.meat_supermarket`
  - Contribution: 2.93
  - V-Test: 5.06

  - Frequency in the population: 4 %

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

- `buy.dairy.products_hypermarket`
  - Contribution: 0.71
  - V-Test: -4.63
  - Frequency in the population: 72 %
- `buy.alcoholic.drinks_hypermarket`
  - Contribution: 0.48
  - V-Test: -4.72
  - Frequency in the population: 82 %
- `buy.fruit.and.vegetables_hypermarket`
  - Contribution: 0.94
  - V-Test: -3.83
  - Frequency in the population: 46 %
- `buy.eggs_hypermarket`
  - Contribution: 0.8
  - V-Test: -4.21
  - Frequency in the population: 62 %
- `buy.dairy.products_hard discount`
  - Contribution: 0.12
  - V-Test: -1.08
  - Frequency in the population: 16 %
- `buy.red.meat_hypermarket`
  - Contribution: 1.08
  - V-Test: -5.09
  - Frequency in the population: 65 %
- `buy.fish_hypermarket`
  - Contribution: 0.7
  - V-Test: -4.95
  - Frequency in the population: 76 %
- `buy.white.meat_hypermarket`
  - Contribution: 0.95
  - V-Test: -5.15
  - Frequency in the population: 70 %
- `buy.soft.drinks_hypermarket`
  - Contribution: 0.46
  - V-Test: -3.99
  - Frequency in the population: 76 %
- `buy.alcoholic.drinks_hard discount`
  - Contribution: 0.12
  - V-Test: -1.05
  - Frequency in the population: 7 %

2.2.2 Characterization on the second factorial axis

The most meaningful variables characterizing the second factorial axis are:

- buy.eggs
- buy.fruit.and.vegetables
- buy.soft.drinks
- buy.dairy.products
- buy.fish
- buy.red.meat
- buy.cheese
- buy.white.meat
- buying.labelled.fruits.and.vegetables
- buy.chocolate
- buy.alcoholic.drinks
- buying.labelled.dairy.products
- buy.coffee.tea
- buying.labelled.white.meat
- no.labelled.product
- label.decisive.criterion
- labelled.products.as.part.of.daily.diet
- buying.labelled.eggs
- buying.labelled.fish
- not.buying.labelled.products
- label.a.specification
- buying.labelled.red.meat
- price.earnings.for.the.producer
- buying.labelled.cheese
- buying.labelled.soft.drink

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

- buy.eggs_supermarket
  - Contribution: 5.17
  - V-Test: 6.19
  - Frequency in the population: 4 %
- buy.fruit.and.vegetables_supermarket
  - Contribution: 5.08

  - V-Test: 6.1
  - Frequency in the population: 3 %
- `buy.dairy.products_supermarket`
  - Contribution: 3.42
  - V-Test: 5.06
  - Frequency in the population: 5 %
- `buy.fish_supermarket`
  - Contribution: 5.08
  - V-Test: 6.1
  - Frequency in the population: 3 %
- `buy.soft.drinks_supermarket`
  - Contribution: 4.04
  - V-Test: 5.47
  - Frequency in the population: 4 %
- `buy.red.meat_supermarket`
  - Contribution: 2.78
  - V-Test: 4.51
  - Frequency in the population: 3 %
- `buy.white.meat_supermarket`
  - Contribution: 3.12
  - V-Test: 4.8
  - Frequency in the population: 4 %
- `buying.labelled.fruits.and.vegetables_no`
  - Contribution: 1.03
  - V-Test: 5.31
  - Frequency in the population: 74 %
- `buy.alcoholic.drinks_supermarket`
  - Contribution: 3.27
  - V-Test: 4.87
  - Frequency in the population: 2 %
- `buy.cheese_supermarket`
  - Contribution: 2.36
  - V-Test: 4.22
  - Frequency in the population: 6 %

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

- `buy.eggs_specialized shops`
  - Contribution: 3.27
  - V-Test: -5

  - Frequency in the population: 7 %

- `buy.soft.drinks_specialized shops`
  - Contribution: 2.84
  - V-Test: -4.59
  - Frequency in the population: 4 %
- `buy.fruit.and.vegetables_specialized shops`
  - Contribution: 1.27
  - V-Test: -3.1
  - Frequency in the population: 6 %
- `buy.fruit.and.vegetables_market`
  - Contribution: 0.77
  - V-Test: -2.95
  - Frequency in the population: 37 %
- `buying.labelled.fruits.and.vegetables_yes`
  - Contribution: 2.94
  - V-Test: -5.31
  - Frequency in the population: 26 %
- `buy.cheese_specialized stores`
  - Contribution: 2.88
  - V-Test: -4.62
  - Frequency in the population: 4 %
- `buy.dairy.products_specialized shops`
  - Contribution: 2.71
  - V-Test: -4.45
  - Frequency in the population: 3 %
- `buy.fish_specialized stores`
  - Contribution: 1.32
  - V-Test: -3.18
  - Frequency in the population: 7 %
- `buy.chocolate_specialized shops`
  - Contribution: 2.58
  - V-Test: -4.37
  - Frequency in the population: 4 %
- `buying.labelled.dairy.products_yes`
  - Contribution: 2.22
  - V-Test: -4.49
  - Frequency in the population: 22 %

3 Typology on the individuals

3.1 Choice of the number of clusters

The ascendant hierarchical clustering (AHC) lead to a partition made of 4 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.

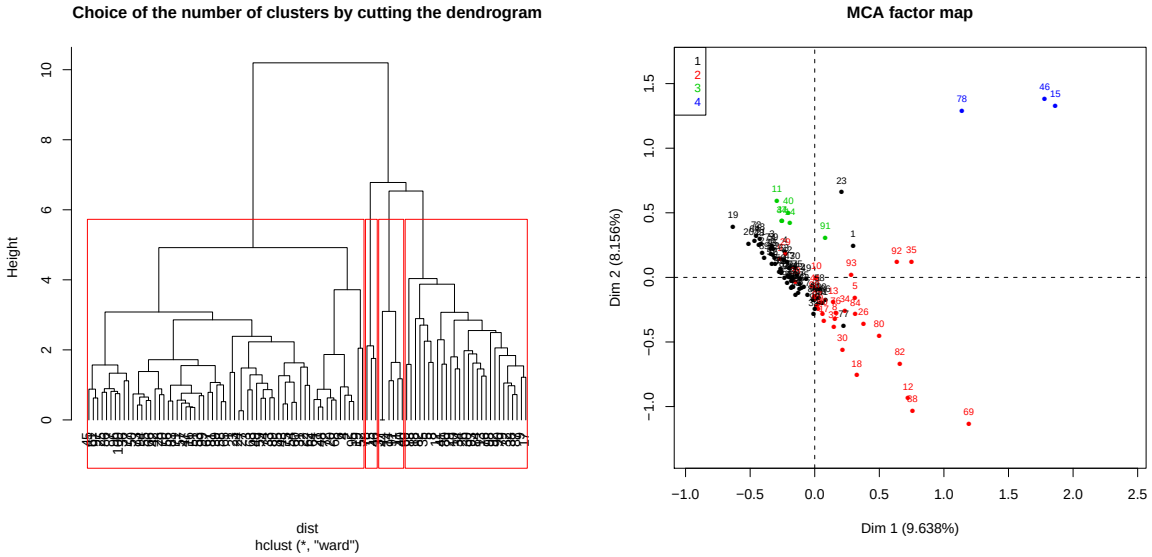

Figure 3: Number of clusters chosen by the analyst; representation of the individuals according to their cluster

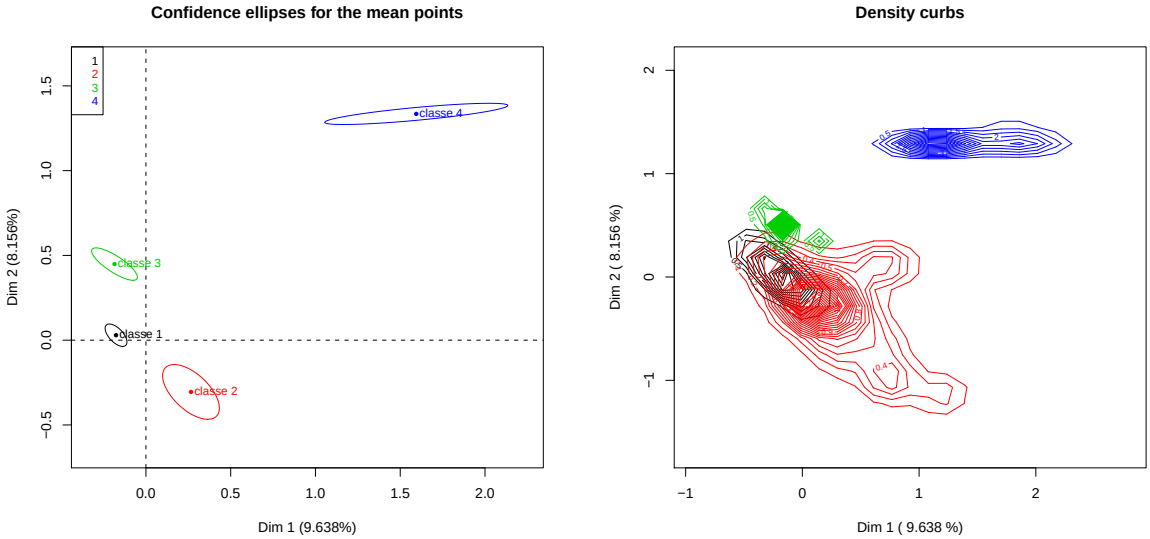

Figure 4: Centers of gravity with confidence ellipses; representation of the individuals according to their cluster with density curbs

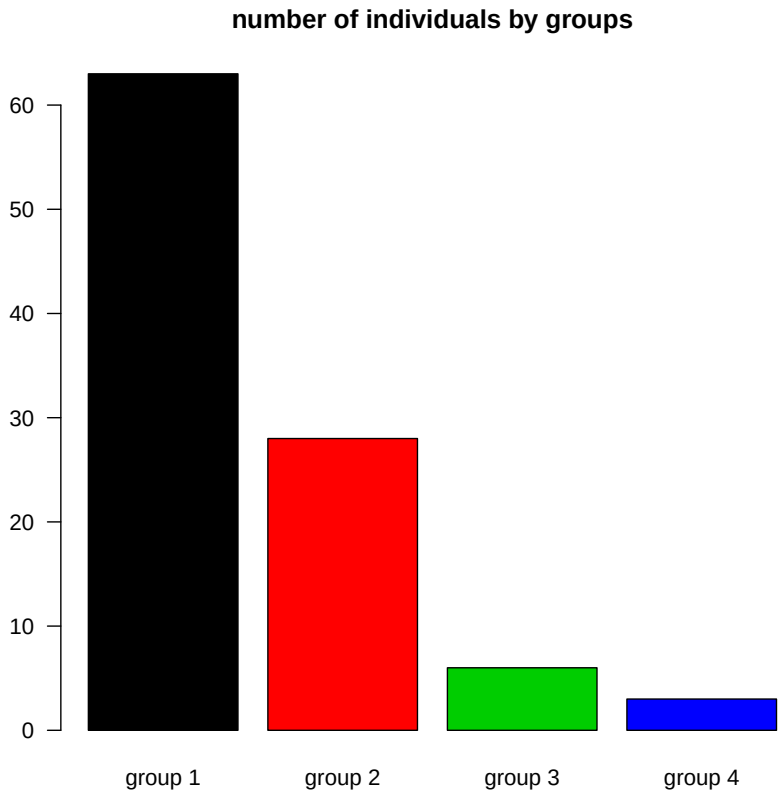

Figure 5: Number of individuals per cluster

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 buy.fruit.and.vegetables

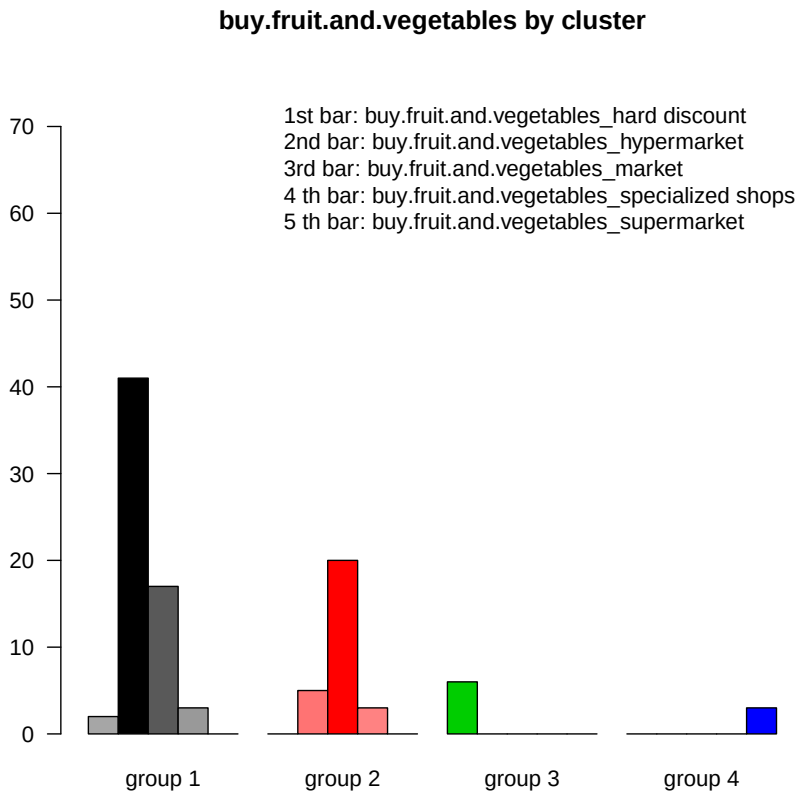

Figure 6: Variable buy.fruit.and.vegetables

3.2.2 Number of individuals by cluster for the variable buy.eggs

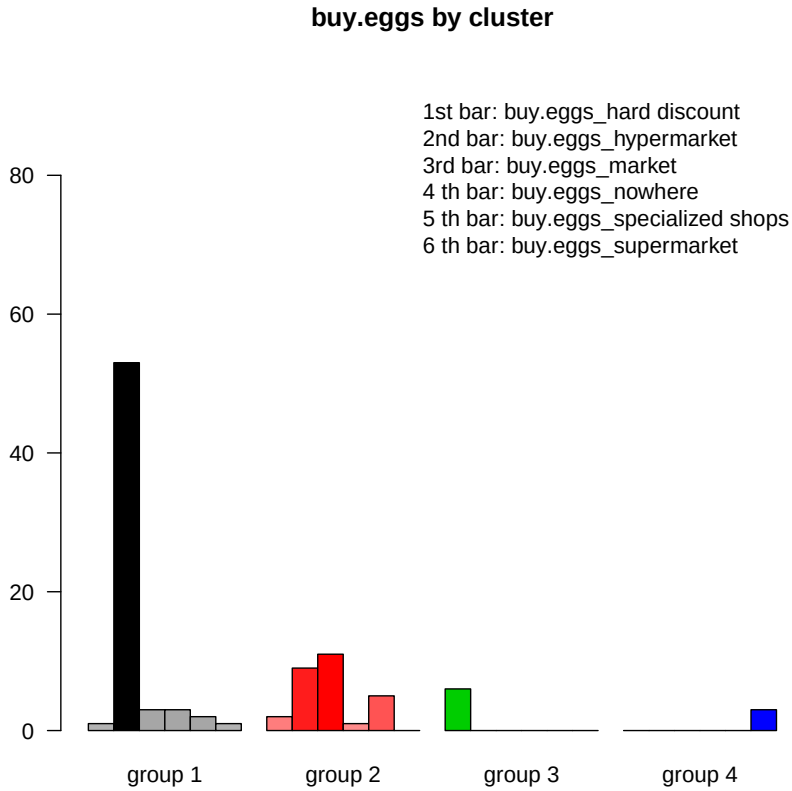

Figure 7: Variable buy.eggs

3.2.3 Number of individuals by cluster for the variable buy.white.meat

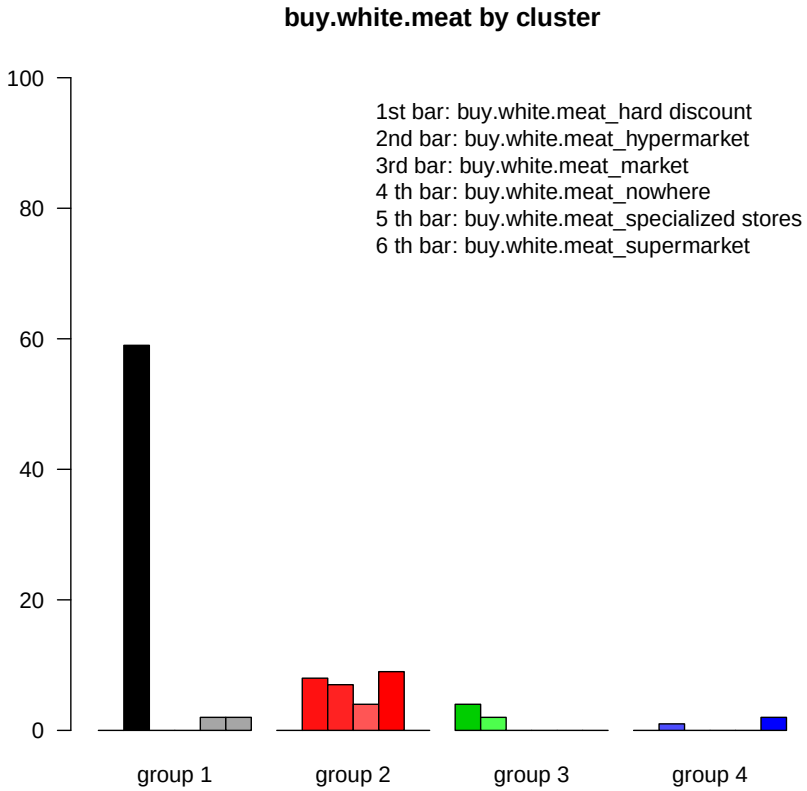

Figure 8: Variable buy.white.meat

3.2.4 Number of individuals by cluster for the variable buy.red.meat

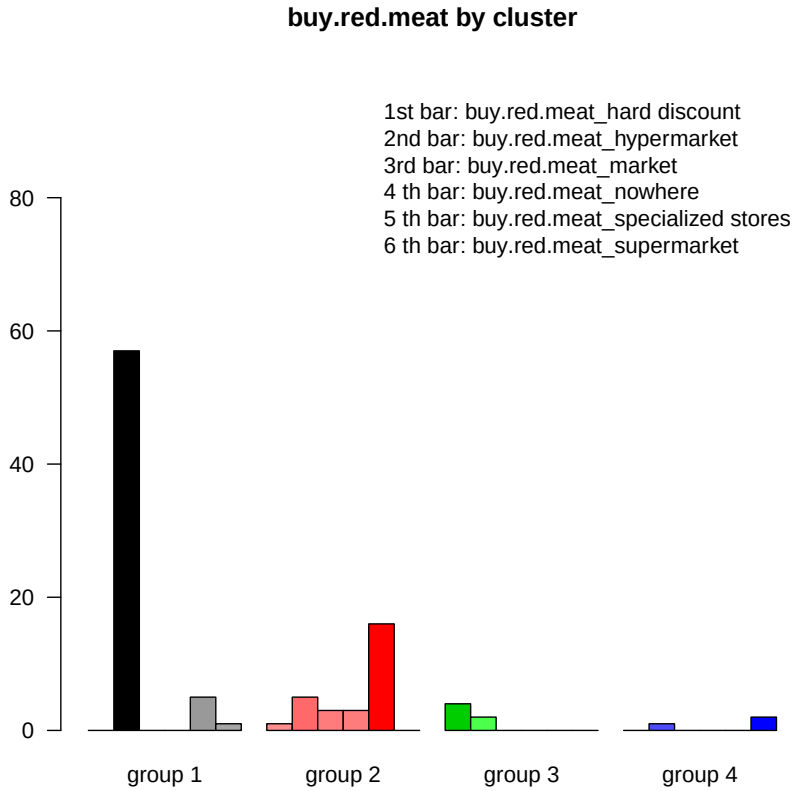

Figure 9: Variable buy.red.meat

3.2.5 Number of individuals by cluster for the variable buy.fish

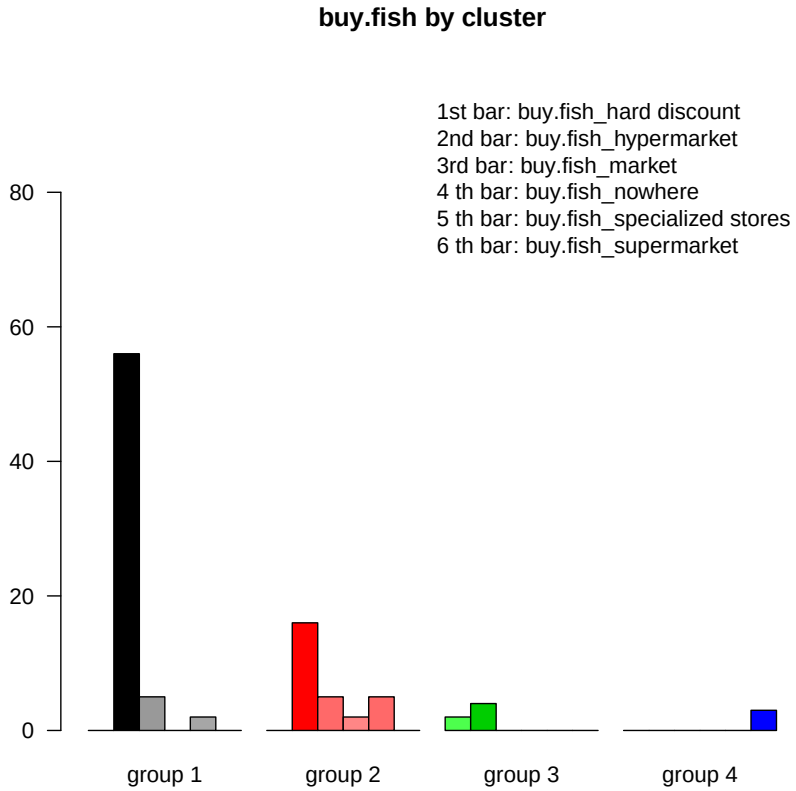

Figure 10: Variable buy.fish

3.2.6 Number of individuals by cluster for the variable buy.cheese

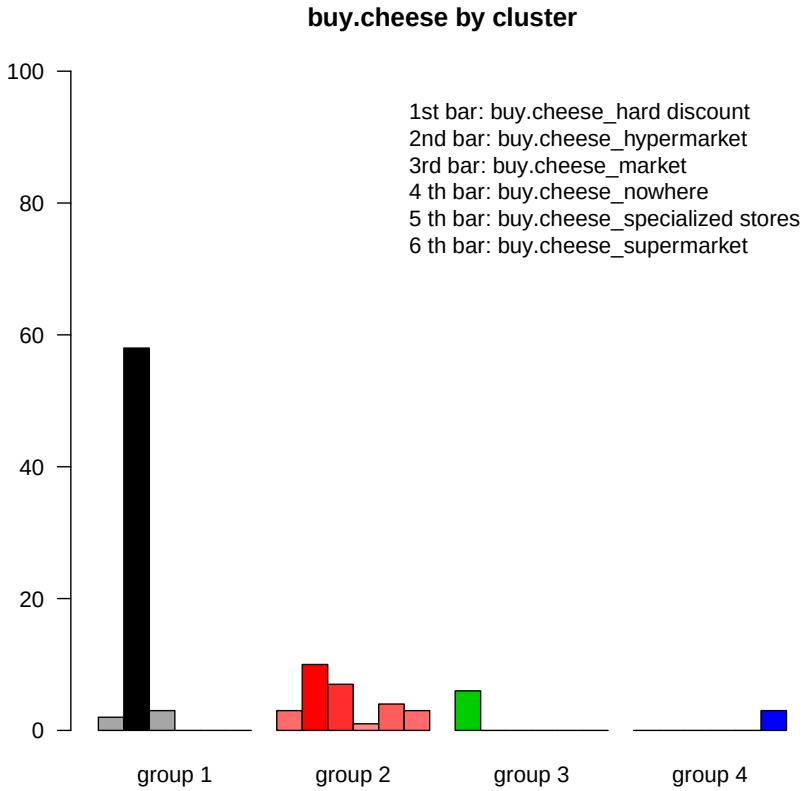

Figure 11: Variable buy.cheese

3.2.7 Number of individuals by cluster for the variable buy.dairy.products

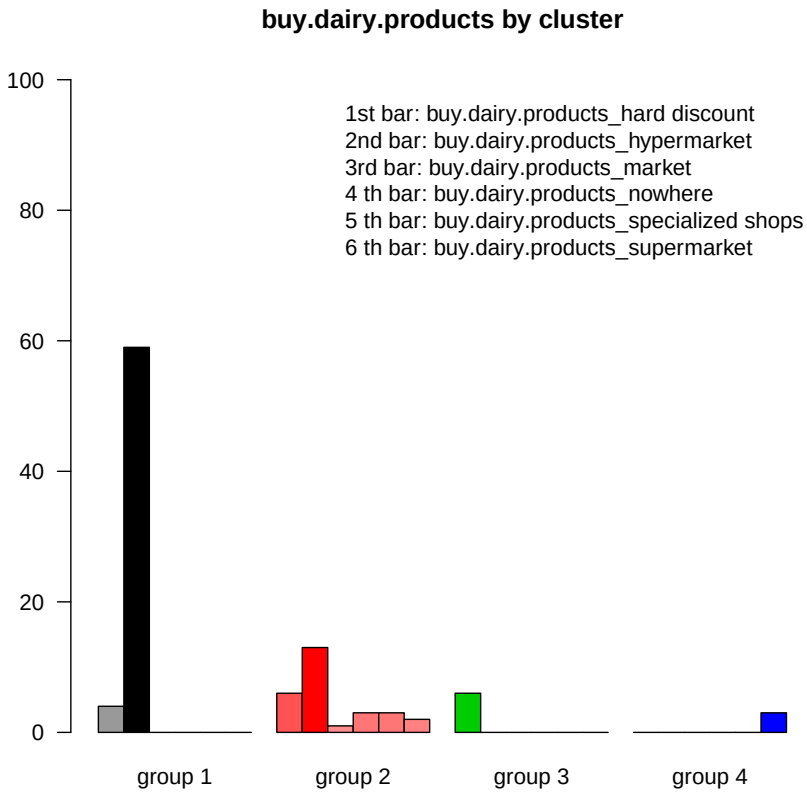

Figure 12: Variable buy.dairy.products

3.2.8 Number of individuals by cluster for the variable buy.alcoholic.drinks

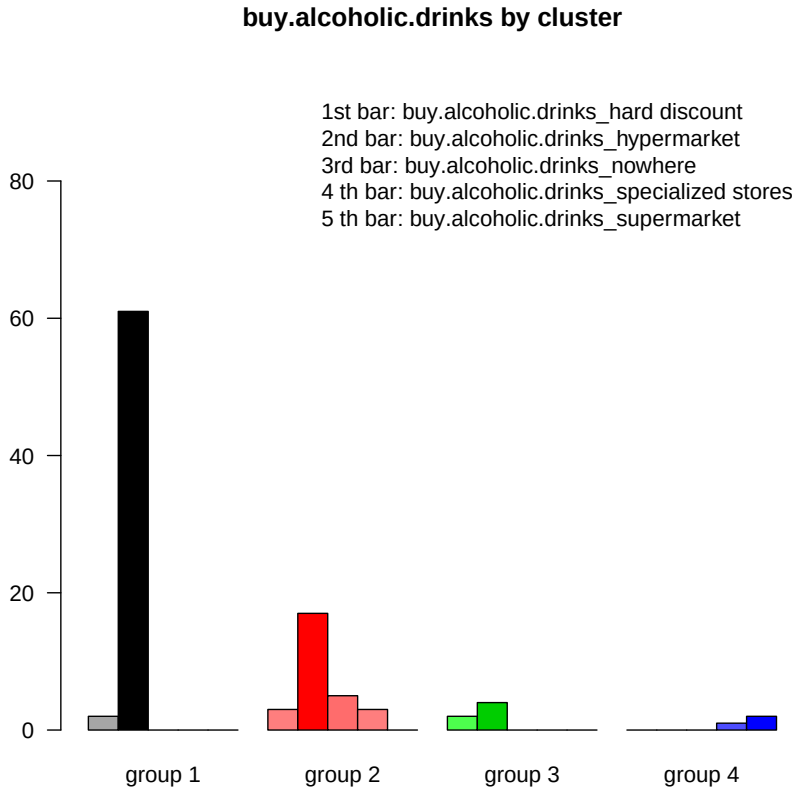

Figure 13: Variable buy.alcoholic.drinks

3.2.9 Number of individuals by cluster for the variable buy.soft.drinks

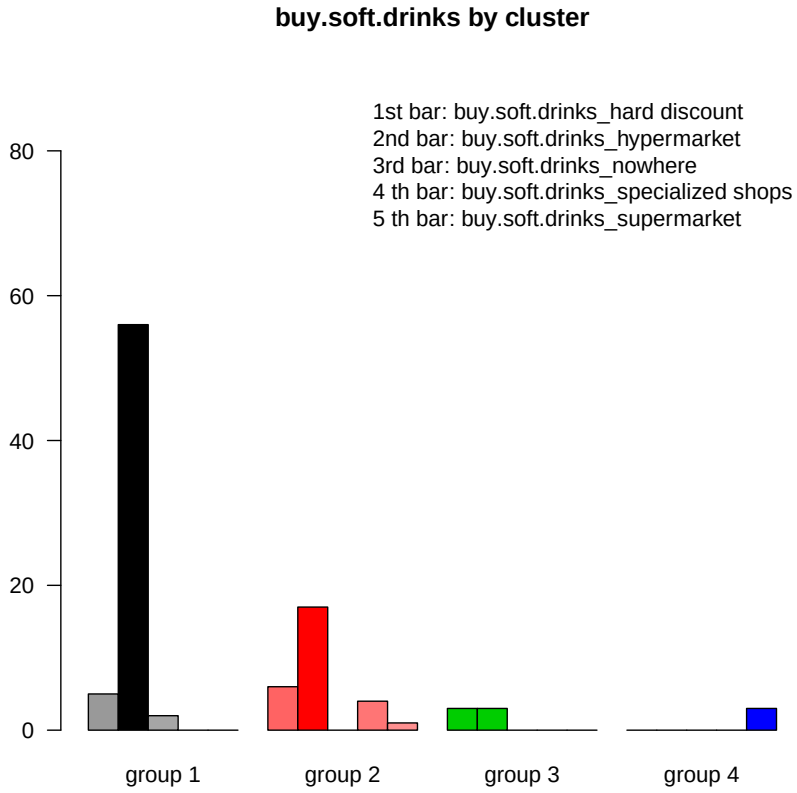

Figure 14: Variable buy.soft.drinks

3.2.10 Number of individuals by cluster for the variable buy.chocolate

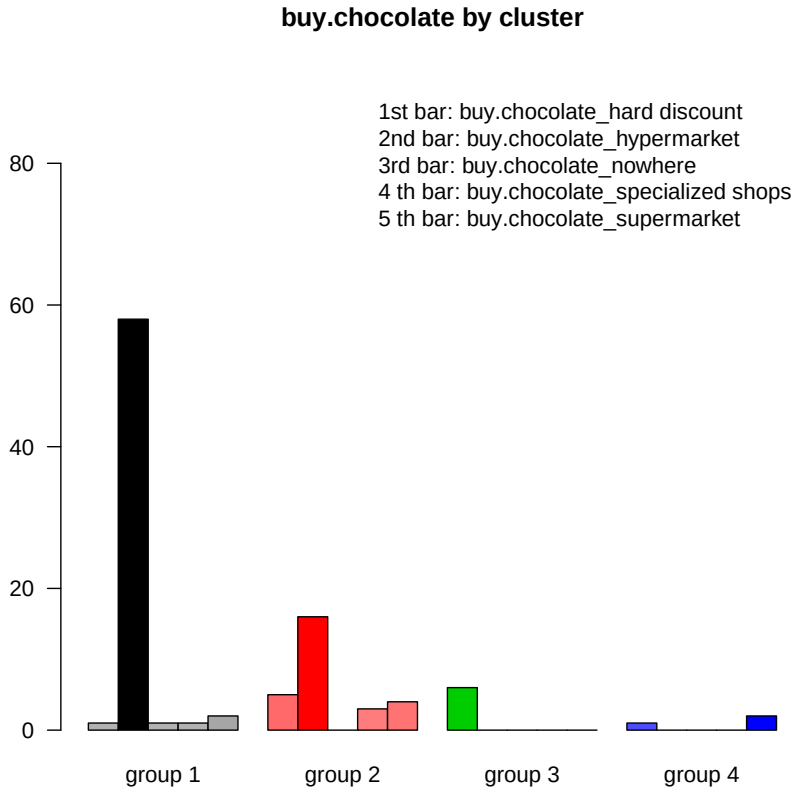

Figure 15: Variable buy.chocolate

3.3 Automatic description of each cluster

The cluster 1 (63 individuals) includes the individuals possessing the following categories:

- `buy.red.meat=buy.red.meat_hypermarket`

  65 % of the individuals possess this category in the global population versus 90.48 % in the cluster 1 .

  Moreover, 87.69 % of the individuals possessing this category belong to the cluster 1 .

- `buy.cheese=buy.cheese_hypermarket`

  68 % of the individuals possess this category in the global population versus 92.06 % in the cluster 1 .

  Moreover, 85.29 % of the individuals possessing this category belong to the cluster 1 .

- `buy.white.meat=buy.white.meat_hypermarket`

  70 % of the individuals possess this category in the global population versus 93.65 % in the cluster 1 .

  Moreover, 84.29 % of the individuals possessing this category belong to the cluster 1 .

- `buy.dairy.products=buy.dairy.products_hypermarket`

  72 % of the individuals possess this category in the global population versus 93.65 % in the cluster 1 .

  Moreover, 81.94 % of the individuals possessing this category belong to the cluster 1 .

- `buy.eggs=buy.eggs_hypermarket`

  62 % of the individuals possess this category in the global population versus 84.13 % in the cluster 1 .

  Moreover, 85.48 % of the individuals possessing this category belong to the cluster 1 .

- `buy.coffee.tea=buy.coffee.tea_hypermarket`

  67 % of the individuals possess this category in the global population versus 87.3 % in the cluster 1 .

  Moreover, 82.09 % of the individuals possessing this category belong to the cluster 1 .

- `buy.chocolate=buy.chocolate_hypermarket`

  74 % of the individuals possess this category in the global population versus 92.06 % in the cluster 1 .

  Moreover, 78.38 % of the individuals possessing this category belong to the cluster 1 .

- `buy.fruit.and.vegetables=buy.fruit.and.vegetables_hypermarket`

  46 % of the individuals possess this category in the global population versus 65.08 % in the cluster 1 .

  Moreover, 89.13 % of the individuals possessing this category belong to the cluster 1 .

- `buy.alcoholic.drinks=buy.alcoholic.drinks_hypermarket`

  82 % of the individuals possess this category in the global population versus 96.83 % in the cluster 1 .

  Moreover, 74.39 % of the individuals possessing this category belong to the cluster 1 .

- `errands.in.specialized.stores=errands.in.specialized.stores_no`

  66 % of the individuals possess this category in the global population versus 82.54 % in the cluster 1 .

  Moreover, 78.79 % of the individuals possessing this category belong to the cluster 1 .

The cluster 2 (28 individuals) includes the individuals possessing the following categories:

- `errands.in.specialized.stores=errands.in.specialized.stores_yes`

  34 % of the individuals possess this category in the global population versus 75 % in the cluster 2 .

  Moreover, 61.76 % of the individuals possessing this category belong to the cluster 2 .

- `buy.red.meat=buy.red.meat_specialized stores`

  21 % of the individuals possess this category in the global population versus 57.14 % in the cluster 2 .

  Moreover, 76.19 % of the individuals possessing this category belong to the cluster 2 .

- `buying.labelled.fruits.and.vegetables=buying.labelled.fruits.and.vegetables_yes`

  26 % of the individuals possess this category in the global population versus 60.71 % in the cluster 2 .

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

- `buy.fruit.and.vegetables=buy.fruit.and.vegetables_market`

  37 % of the individuals possess this category in the global population versus 71.43 % in the cluster 2 .

  Moreover, 54.05 % of the individuals possessing this category belong to the cluster 2 .

- `buy.eggs=buy.eggs_market`

  14 % of the individuals possess this category in the global population versus 39.29 % in the cluster 2 .

  Moreover, 78.57 % of the individuals possessing this category belong to the cluster 2 .

- `labelled.products.as.part.of.daily.diet=labelled.products.as.part.of.daily.diet_yes`

  54 % of the individuals possess this category in the global population versus 85.71 % in the cluster 2 .

  Moreover, 44.44 % of the individuals possessing this category belong to the cluster 2 .

- `buy.white.meat=buy.white.meat_market`

  7 % of the individuals possess this category in the global population versus 25 % in the cluster 2 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 2 .

- `errands.in.market=errands.in.market_yes`

  51 % of the individuals possess this category in the global population versus 82.14 % in the cluster 2 .

  Moreover, 45.1 % of the individuals possessing this category belong to the cluster 2 .

- `buy.white.meat=buy.white.meat_specialized stores`

  11 % of the individuals possess this category in the global population versus 32.14 % in the cluster 2 .

  Moreover, 81.82 % of the individuals possessing this category belong to the cluster 2 .

- `label.decisive.criterion=label.decisive.criterion_yes`

  40 % of the individuals possess this category in the global population versus 67.86 % in the cluster 2 .

  Moreover, 47.5 % of the individuals possessing this category belong to the cluster 2 .

The cluster 3 (6 individuals) includes the individuals possessing the following categories:

- `buy.fruit.and.vegetables=buy.fruit.and.vegetables_hard discount`

  8 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 75 % of the individuals possessing this category belong to the cluster 3 .

- `buy.eggs=buy.eggs_hard discount`

  9 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

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

- `buy.cheese=buy.cheese_hard discount`

  11 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 54.55 % of the individuals possessing this category belong to the cluster 3 .

- `buy.chocolate=buy.chocolate_hard discount`

  13 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

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

- `buy.white.meat=buy.white.meat_hard discount`

  4 % of the individuals possess this category in the global population versus 66.67 % in the cluster 3 .

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

- `buy.dairy.products=buy.dairy.products_hard discount`

  16 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 37.5 % of the individuals possessing this category belong to the cluster 3 .

- `buy.red.meat=buy.red.meat_hard discount`

  5 % of the individuals possess this category in the global population versus 66.67 % in the cluster 3 .

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

- `price.unjustified.superiority=price.unjustified.superiority_yes`

  16 % of the individuals possess this category in the global population versus 83.33 % in the cluster 3 .

  Moreover, 31.25 % of the individuals possessing this category belong to the cluster 3 .

- `buy.fish=buy.fish_hard discount`

  2 % of the individuals possess this category in the global population versus 33.33 % in the cluster 3 .

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

- `errands.in.hard.discount=errands.in.hard.discount_yes`

  40 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 15 % of the individuals possessing this category belong to the cluster 3 .

The cluster 4 (3 individuals) includes the individuals possessing the following categories:

- `buy.fruit.and.vegetables=buy.fruit.and.vegetables_supermarket`

  3 % of the individuals possess this category in the global population versus 100 % in the cluster 4 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 4 .

- `buy.fish=buy.fish_supermarket`

  3 % of the individuals possess this category in the global population versus 100 % in the cluster 4 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 4 .

- `buy.eggs=buy.eggs_supermarket`

  4 % of the individuals possess this category in the global population versus 100 % in the cluster 4 .

  Moreover, 75 % of the individuals possessing this category belong to the cluster 4 .

- `buy.soft.drinks=buy.soft.drinks_supermarket`

  4 % of the individuals possess this category in the global population versus 100 % in the cluster 4 .

  Moreover, 75 % of the individuals possessing this category belong to the cluster 4 .

- `buy.dairy.products=buy.dairy.products_supermarket`

  5 % of the individuals possess this category in the global population versus 100 % in the cluster 4 .

  Moreover, 60 % of the individuals possessing this category belong to the cluster 4 .

- `buy.cheese=buy.cheese_supermarket`

  6 % of the individuals possess this category in the global population versus 100 % in the cluster 4 .

  Moreover, 50 % of the individuals possessing this category belong to the cluster 4 .

- `buy.alcoholic.drinks=buy.alcoholic.drinks_supermarket`

  2 % of the individuals possess this category in the global population versus 66.67 % in the cluster 4 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 4 .

- `buy.red.meat=buy.red.meat_supermarket`

  3 % of the individuals possess this category in the global population versus 66.67 % in the cluster 4 .

  Moreover, 66.67 % of the individuals possessing this category belong to the cluster 4 .

- `buy.coffee.tea=buy.coffee.tea_supermarket`

  4 % of the individuals possess this category in the global population versus 66.67 % in the cluster 4 .

  Moreover, 50 % of the individuals possessing this category belong to the cluster 4 .

- `buy.white.meat=buy.white.meat_supermarket`

  4 % of the individuals possess this category in the global population versus 66.67 % in the cluster 4 .

  Moreover, 50 % of the individuals possessing this category belong to the cluster 4 .