



This report was generated by the EnQuireR package

Cadoret M., Fournier O., Fournier G., Le Poder F., Bouche J., Lê S.

Agrocampus Ouest

November 4, 2009





## EnQuireR: Multivariate Exploratory Analysis of Questionnaires

### Multivariate exploration of the questionnaire

How is my dataset "structured"?

How does my dataset look like?

How can the main axes of variability be interpreted?

### Typology of the individuals

How many groups are there in my dataset?

How can the groups be displayed?

How different are the groups?

How can the groups be described?



## EnQuireR: Multivariate Exploratory Analysis of Questionnaires

### Multivariate exploration of the questionnaire

How is my dataset "structured"?

How does my dataset look like?

How can the main axes of variability be interpreted?

### Typology of the individuals

How many groups are there in my dataset?

How can the groups be displayed?

How different are the groups?

How can the groups be described?



How is my dataset "structured"?

## Percentages of variance explained by the first five axes

Axis	Eigenvalue	Percentage of variance
1	0.14827	9.88%
2	0.12155	8.1%
3	0.09001	6%
4	0.07805	5.2%
5	0.07375	4.92%

**Table:** Eigenvalues associated with the first five axes

How does my dataset look like?

## Representation of the individuals

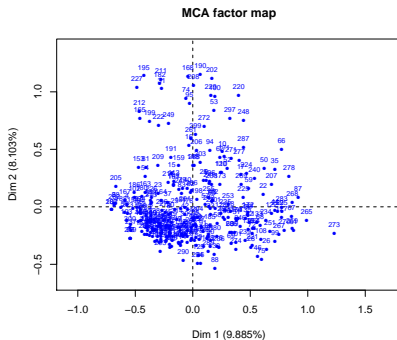


Figure: Raw representation of the individuals on axes 1 and 2

How does my dataset look like?

## Representation of the categories

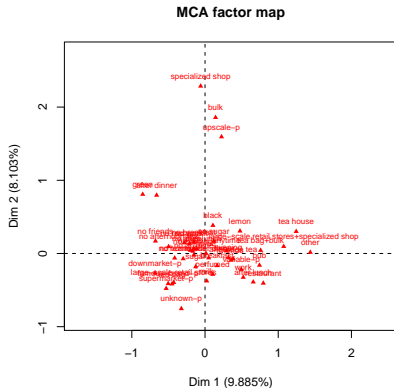


Figure: Raw representation of the categories on axes 1 and 2



## Description of the first axis: positive side ( 1 / 2 )

The following categories are meaningful for the first axis (positive side):

- tea house
- large-scale retail stores+specialized shop
- friends
- restaurant
- afternoon tea
- tea bag+bulk
- pub
- work
- variable-p
- after lunch



## Description of the first axis: positive side ( 2 / 2 )

The following categories are meaningful for the first axis (positive side):

- evening
- other
- anytime
- upscale-p
- black
- no after dinner
- perfumed
- breakfast
- no sugar

## Description of the first axis: negative side ( 1 / 2 )

The following categories are meaningful for the first axis (negative side):

- no tea house
- no friends
- large-scale retail stores
- no restaurant
- tea bag
- no afternoon tea
- no pub
- no work
- green
- no after lunch



## Description of the first axis: negative side ( 2 / 2 )

The following categories are meaningful for the first axis (negative side):

- pure
- no evening
- no anytime
- milk
- after dinner
- specialized shop
- no breakfast
- famous-brand-p
- sugar



## Description of the second axis: positive side ( 1 / 2 )

The following categories are meaningful for the second axis (positive side):

- specialized shop
- upscale-p
- bulk
- green
- no restaurant
- after dinner
- no work
- no sugar
- no after lunch
- no breakfast



How can the main axes of variability be interpreted?

## Description of the second axis: positive side ( 2 / 2 )

The following categories are meaningful for the second axis (positive side):

- tea house
- no friends



How can the main axes of variability be interpreted?

## Description of the second axis: negative side ( 1 / 2 )

The following categories are meaningful for the second axis (negative side):

- large-scale retail stores
- tea bag
- large-scale retail stores+specialized shop
- tea bag+bulk
- perfumed
- restaurant
- unknown-p
- no after dinner
- famous-brand-p
- work



How can the main axes of variability be interpreted?

## Description of the second axis: negative side ( 2 / 2 )

The following categories are meaningful for the second axis (negative side):

- sugar
- supermarket-p
- milk
- after lunch
- breakfast
- no tea house
- friends



# EnQuireR: Multivariate Exploratory Analysis of Questionnaires

## Multivariate exploration of the questionnaire

How is my dataset "structured"?

How does my dataset look like?

How can the main axes of variability be interpreted?

## Typology of the individuals

How many groups are there in my dataset?

How can the groups be displayed?

How different are the groups?

How can the groups be described?





How can the groups be displayed?

## Representation of the individuals according to the group they belong to

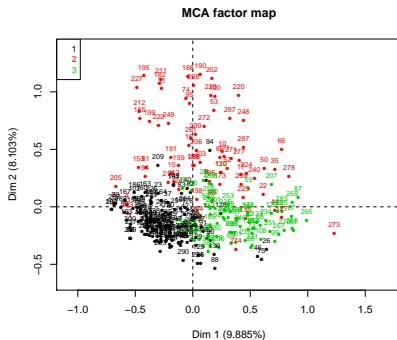


Figure: Correspondence map displaying clusters

How can the groups be displayed?

Simplified representation of the individuals according to the group they belong to

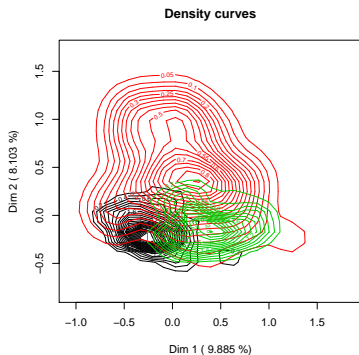


Figure: Levelling curves around each cluster

How can the groups be displayed?

## Representation of the barycenter of each group enhanced with confidence ellipses

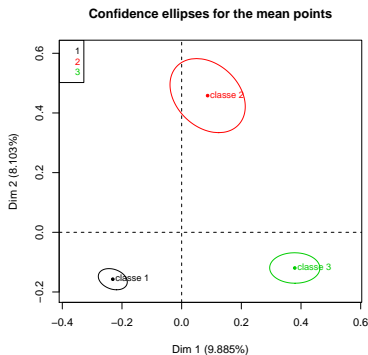


Figure: Confidence ellipses around each cluster

How different are the groups?

## Number of individuals per cluster

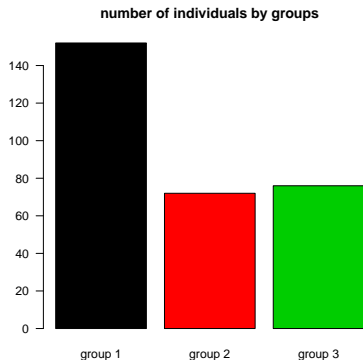


Figure: Number of individuals by cluster



How different are the groups?

## Distribution of the individuals per cluster for the variable location.of.purchase



Figure: Variable location.of.purchase





How different are the groups?

## Distribution of the individuals per cluster for the variable after.lunch



Figure: Variable after.lunch

How different are the groups?

## Distribution of the individuals per cluster for the variable after.dinner



Figure: Variable after.dinner

How different are the groups?

## Distribution of the individuals per cluster for the variable tea.type

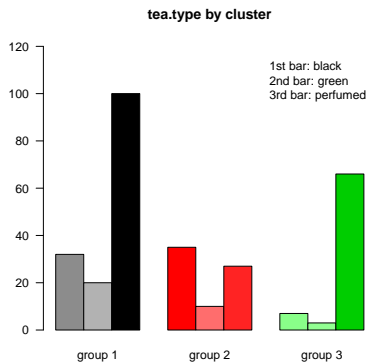


Figure: Variable tea.type

How different are the groups?

## Distribution of the individuals per cluster for the variable tea.house

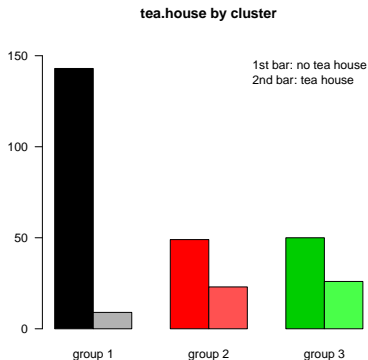


Figure: Variable tea.house

How different are the groups?

## Distribution of the individuals per cluster for the variable friends

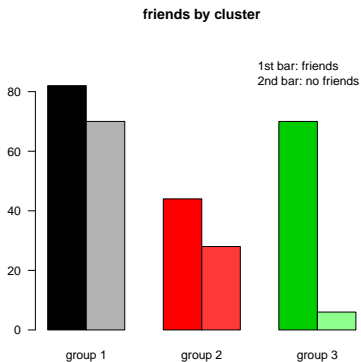


Figure: Variable friends



How different are the groups?

## Distribution of the individuals per cluster for the variable pub

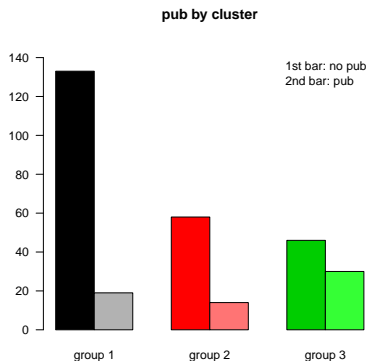


Figure: Variable pub



## Description of cluster 1 ( 1 / 3 )

The following modalities are meaningful for cluster 1 :

- **location.of.purchase=large-scale retail stores**  
64 % of the individuals possess this category in the global population versus 94.74% of the individuals within cluster 1;  
75 % individuals possessing this category belong to cluster 1
- **shape=tea bag**  
56.67 % of the individuals possess this category in the global population versus 82.89% of the individuals within cluster 1;  
74.12 % individuals possessing this category belong to cluster 1
- **price=famous-brand-p**  
31.67 % of the individuals possess this category in the global population versus 48.68% of the individuals within cluster 1;  
77.89 % individuals possessing this category belong to cluster 1
- **tea.house=no tea house**  
80.67 % of the individuals possess this category in the global population versus 94.08% of the individuals within cluster 1;  
59.09 % individuals possessing this category belong to cluster 1
- **price=supermarket-p**  
7 % of the individuals possess this category in the global population versus 13.16% of the individuals within cluster 1;  
95.24 % individuals possessing this category belong to cluster 1





## Description of cluster 1 ( 2 / 3 )

The following modalities are meaningful for cluster 1 :

- **after.lunch=no after lunch**  
85.33 % of the individuals possess this category in the global population versus 94.08% of the individuals within cluster 1;  
55.86 % individuals possessing this category belong to cluster 1
- **friends=no friends**  
34.67 % of the individuals possess this category in the global population versus 46.05% of the individuals within cluster 1;  
67.31 % individuals possessing this category belong to cluster 1
- **pub=no pub**  
79 % of the individuals possess this category in the global population versus 87.5% of the individuals within cluster 1;  
56.12 % individuals possessing this category belong to cluster 1
- **price=unknown-p**  
4 % of the individuals possess this category in the global population versus 7.89% of the individuals within cluster 1;  
100 % individuals possessing this category belong to cluster 1
- **after.dinner=no after dinner**  
93 % of the individuals possess this category in the global population versus 98.03% of the individuals within cluster 1;  
53.41 % individuals possessing this category belong to cluster 1

## Description of cluster 1 ( 3 / 3 )

The following modalities are meaningful for cluster 1 :

- **sugar=sugar**  
48.33 % of the individuals possess this category in the global population versus 56.58% of the individuals within cluster 1;  
59.31 % individuals possessing this category belong to cluster 1
- **restaurant=no restaurant**  
73.67 % of the individuals possess this category in the global population versus 80.92% of the individuals within cluster 1;  
55.66 % individuals possessing this category belong to cluster 1
- **how=milk**  
21 % of the individuals possess this category in the global population versus 26.32% of the individuals within cluster 1;  
63.49 % individuals possessing this category belong to cluster 1
- **afternoon.tea=no afternoon tea**  
43.67 % of the individuals possess this category in the global population versus 50% of the individuals within cluster 1;  
58.02 % individuals possessing this category belong to cluster 1



## Description of cluster 2 ( 1 / 2 )

The following modalities are meaningful for cluster 2 :

- price=upscale-p**  
 17.67 % of the individuals possess this category in the global population versus 62.5% of the individuals within cluster 2;  
 84.91 % individuals possessing this category belong to cluster 2
- location.of.purchase=specialized shop**  
 10 % of the individuals possess this category in the global population versus 37.5% of the individuals within cluster 2;  
 90 % individuals possessing this category belong to cluster 2
- shape=bulk**  
 12 % of the individuals possess this category in the global population versus 40.28% of the individuals within cluster 2;  
 80.56 % individuals possessing this category belong to cluster 2
- after.dinner=after dinner**  
 7 % of the individuals possess this category in the global population versus 23.61% of the individuals within cluster 2;  
 80.95 % individuals possessing this category belong to cluster 2
- tea.type=black**  
 24.67 % of the individuals possess this category in the global population versus 48.61% of the individuals within cluster 2;  
 47.3 % individuals possessing this category belong to cluster 2



## Description of cluster 2 ( 2 / 2 )

The following modalities are meaningful for cluster 2 :

- **how=other**

3 % of the individuals possess this category in the global population versus 12.5% of the individuals within cluster 2;

100 % individuals possessing this category belong to cluster 2

- **after.lunch=no after lunch**

85.33 % of the individuals possess this category in the global population versus 95.83% of the individuals within cluster 2;

26.95 % individuals possessing this category belong to cluster 2

- **tea.house=tea house**

19.33 % of the individuals possess this category in the global population versus 31.94% of the individuals within cluster 2;

39.66 % individuals possessing this category belong to cluster 2

- **sugar=no sugar**

51.67 % of the individuals possess this category in the global population versus 63.89% of the individuals within cluster 2;

29.68 % individuals possessing this category belong to cluster 2



## Description of cluster 3 ( 1 / 3 )

The following modalities are meaningful for cluster 3 :

- price=variable-p**  
 37.33 % of the individuals possess this category in the global population versus 75% of the individuals within cluster 3;  
 50.89 % individuals possessing this category belong to cluster 3
- location.of.purchase=large-scale retail stores+specialized shop**  
 26 % of the individuals possess this category in the global population versus 60.53% of the individuals within cluster 3;  
 58.97 % individuals possessing this category belong to cluster 3
- shape=tea bag+bulk**  
 31.33 % of the individuals possess this category in the global population versus 67.11% of the individuals within cluster 3;  
 54.26 % individuals possessing this category belong to cluster 3
- after.lunch=after lunch**  
 14.67 % of the individuals possess this category in the global population versus 42.11% of the individuals within cluster 3;  
 72.73 % individuals possessing this category belong to cluster 3
- friends=friends**  
 65.33 % of the individuals possess this category in the global population versus 92.11% of the individuals within cluster 3;  
 35.71 % individuals possessing this category belong to cluster 3



## Description of cluster 3 ( 2 / 3 )

The following modalities are meaningful for cluster 3 :

- **tea.type=perfumed**  
64.33 % of the individuals possess this category in the global population versus 86.84% of the individuals within cluster 3;  
34.2 % individuals possessing this category belong to cluster 3
- **pub=pub**  
21 % of the individuals possess this category in the global population versus 39.47% of the individuals within cluster 3;  
47.62 % individuals possessing this category belong to cluster 3
- **tea.house=tea house**  
19.33 % of the individuals possess this category in the global population versus 34.21% of the individuals within cluster 3;  
44.83 % individuals possessing this category belong to cluster 3
- **restaurant=restaurant**  
26.33 % of the individuals possess this category in the global population versus 42.11% of the individuals within cluster 3;  
40.51 % individuals possessing this category belong to cluster 3
- **work=work**  
29 % of the individuals possess this category in the global population versus 42.11% of the individuals within cluster 3;  
36.78 % individuals possessing this category belong to cluster 3



How can the groups be described?

## Description of cluster 3 ( 3 / 3 )

The following modalities are meaningful for cluster 3 :

- **how=lemon**  
11 % of the individuals possess this category in the global population versus 19.74% of the individuals within cluster 3;  
45.45 % individuals possessing this category belong to cluster 3
- **after.dinner=no after dinner**  
93 % of the individuals possess this category in the global population versus 98.68% of the individuals within cluster 3;  
26.88 % individuals possessing this category belong to cluster 3
- **afternoon.tea=afternoon tea**  
56.33 % of the individuals possess this category in the global population versus 67.11% of the individuals within cluster 3;  
30.18 % individuals possessing this category belong to cluster 3