# APPENDIX

Masterthesis Urban Geography

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| Observee | Sex | Age | Company | Walking speed | Walking direction | Standing | Sitting | Entering store | Window shopping | Item bought? | Looking around? | Interaction strangers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1=Male<br>2=Female | 1=<25<br>2=25-35<br>3=35-45<br>4=45-55<br>5=55-65<br>6=>65 | 1=Alone<br>2=With one other person<br>3=With more than one other person | 1=Slow<br>2=Normal<br>3=Fast | 1=Straight line<br>2=Slight detour<br>3=No clear direction | 1=Yes<br>2=No | 1=Yes (public seating)<br>2=Yes (private seating)<br>3=No | 1=Yes<br>2=No | 1=Yes<br>2=No | 1=Yes<br>2=No | 1=Yes<br>2=No | 1=None<br>2=Brief<br>3=Elaborate |
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| 39 | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |

**Enquête binnenstad**

Deze enquête is opgesteld als onderdeel van mijn masterscriptie Stadsgeografie op de Universiteit Utrecht. De enquête omvat een onderzoek naar de invloed van de fysieke en sociale omgeving op het gebruik van verschillende delen van de binnenstad.

De enquête zal niet langer dan vijf minuten in beslag nemen, en de resultaten zullen anoniem worden verwerkt.

**Alvast hartelijk dank voor uw deelname!**

_____

**1.     Bent u woonachtig in de gemeente Utrecht?**
O     Ja
O     Nee

**2.     Hoe vaak bezoekt u de binnenstad van Utrecht gemiddeld ongeveer? (één optie aanvinken)**
O     Dagelijks
O     Meerdere keren per week
O     Eén keer per week
O     Meerdere keren per maand
O     Eén keer per maand
O     Minder dan één keer per maand

**3.     Hoe vaak bezoekt u <u>dit deel</u> (deze straat of dit plein) van de binnenstad van Utrecht gemiddeld ongeveer? (één optie aanvinken)**
O     Dagelijks
O     Meerdere keren per week
O     Eén keer per week
O     Meerdere keren per maand
O     Eén keer per maand
O     Minder dan één keer per maand

_____
De volgende twee vragen gaan over de redenen van uw bezoek aan de Utrechtse binnenstad. _**U kunt hier meerdere opties aanvinken.**_

**4.     Wat is/zijn voor u de reden(en) om vandaag de binnenstad van Utrecht te bezoeken?**
O     Ik ben onderweg ergens anders naartoe (buiten de binnenstad)
O     Dagelijkse boodschappen
O     Op zoek naar één specifiek product
O     Winkelen voor het plezier
O     Een ontspannende wandeling
O     Bekenden ontmoeten
O     Gebruik maken van een horecagelegenheid
O     Werk/studie
O     Anders, namelijk………..

_**De vragen gaan verder op de achterzijde van dit blad**_

**5. Wat is/zijn voor u de reden(en) om nu <u>dit deel</u> (deze straat of dit plein) van de binnenstad van Utrecht te bezoeken?**

O Ik ben onderweg ergens anders naartoe (buiten de binnenstad)
O Ik ben onderweg ergens anders naartoe (binnen de binnenstad), namelijk ……..
O Dagelijkse boodschappen
O Op zoek naar één specifiek product
O Winkelen voor het plezier
O Een ontspannende wandeling
O Bekenden ontmoeten
O Gebruik maken van een horecagelegenheid
O Werk/studie
O Anders, namelijk………..

De volgende vragen gaan over hoe u de **directe omgeving** (van deze straat of dit plein) waardeert. Er worden telkens twee tegenovergestelde waarderingen genoemd, waarbij u het bolletje aanvinkt die het meest overeenkomt met uw waardering.

*Ik ervaar de directe omgeving als:*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **6.** | **Mooi** | O | O | O | O | O | **Lelijk** |
| **7.** | **Spannend** | O | O | O | O | O | **Saai** |
| **8.** | **Kleurrijk** | O | O | O | O | O | **Grauw** |
| **9.** | **Gezellig** | O | O | O | O | O | **Ongezellig** |
| **10.** | **Historisch** | O | O | O | O | O | **Modern** |
| **11.** | **Comfortabel** | O | O | O | O | O | **Oncomfortabel** |

Tot slot vraag ik u naar enkele persoonskenmerken:

**12. Wat is uw geslacht?**
O Man
O Vrouw

**13. Wat is uw leeftijd?**
O Jonger dan 18
O 18 – 25
O 26 – 35
O 36 – 45
O 46 – 55
O 56 – 65
O Ouder dan 65

Hartelijk dank voor uw deelname! Heeft u eventueel nog vragen of opmerkingen, dan kunt u ze hieronder noteren. Mocht u interesse hebben in de resultaten van dit onderzoek, dan kunt u hieronder uw e-mailadres invoeren en dan stuur ik u rond juli een kopie van het onderzoek op.

**Survey inner-city**

This survey is held as a part of my Master's degree in urban geography at Utrecht University. It entails a research of the influence of the environment on the use of different parts of the inner-city. It won't take longer than five minutes, and the results will be anonymous.

**Thanks for participating!**

_____

**1.      Do you live in Utrecht?**
O      Yes
O      No

**2.      How often do you visit the inner-city of Utrecht? (one answer possible)**
O      Daily
O      Several times per week
O      Once a week
O      Several times per month
O      Once a month
O      Less than once a month

**3.      How often do you visit <u>this part</u> (this street or square) of Utrecht's inner-city? (one answer possible)**
O      Daily
O      Several times per week
O      Once a week
O      Several times per month
O      Once a month
O      Less than once a month
_____
The next set of questions involves the reason for visiting. _**More than one answer possible**_

**4.      What are the reasons for visiting Utrecht's inner-city today?**
O      On my way to somewhere else (outside inner-city)
O      Daily groceries
O      Looking for one specific product
O      Shopping for fun
O      A relaxing walk
O      Meeting someone
O      Visiting a bar/restaurant/café
O      Work/study
O      Other, namely ……..

**5.**   **What are the reasons for visiting <u>this part</u> (this square or street) of Utrecht's inner-city today?**
O       On my way to somewhere else (outside inner-city)
O       On my way to somewhere else (within inner city), namely …..
O       Daily groceries
O       Looking for one specific product
O       Shopping for fun
O       A relaxing walk
O       Meeting someone
O       Visiting a bar/restaurant/café
O       Work/study
O       Other, namely ……..

The next questions involve your appreciation of the **<u>direct environment</u>** (of this street or square). Two opposite terms will be used each time, where you have to mark which circle represents your appreciation best.

*I consider the direct environment as:*

| **6.** | **Pretty** | O | O | O | O | O | **Ugly** |
|---|---|---|---|---|---|---|---|
| **7.** | **Exciting** | O | O | O | O | O | **Boring** |
| **8.** | **Colourful** | O | O | O | O | O | **Bleak** |
| **9.** | **Atmospheric** | O | O | O | O | O | **Unatmospheric** |
| **10.** | **Historical** | O | O | O | O | O | **Modern** |
| **11.** | **Comfortable** | O | O | O | O | O | **Uncomfortable** |

To conclude I will ask some personal information.

**12.**   **What is your gender?**
O       Male
O       Female

**13.**   **What is your age?**
O       Under 18
O       18 – 25
O       26 – 35
O       36 – 45
O       46 – 55
O       56 – 65
O       Older than 65

Thanks for filling in this survey! If you have some questions are remarks, you can put them down below. If you are interested in the results of this research, you can put down your e-mail adress below, and I will send the end report somewhere in July.

# APPENDIX 3: Statistics

*In this appendix, the statistical tests that are described in chapter 5 are presented, along with the output tables from SPSS. Each test uses a confidence level of 95% (α =0,05).*

**5.1**

For this test, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because this test is about a comparison between a categorical variable (research areas) with another categorical variable (living in Utrecht yes/no), a Chi² test has been done. None of the expected cell counts are lower than five, so the rules for this test are met. The null hypothesis and alternative hypothesis is as follows:

***H0***: *There is <u>no</u> difference between the areas in terms of people living in Utrecht or not.*
***HA***: *There is a difference between the areas in terms of people living in Utrecht or not.*

From the Chi² test (table A1 and A2), it is apparent that there is **a significant difference** between the four research areas and the amount of people living in Utrecht (chi² = 9.752 and Sig. = .021). Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected.

### Research area * Does respondent live in Utrecht? Crosstabulation

| | | | Does respondent live in Utrecht? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| Research area | Vredenburgplein | Count | 30 | 32 | 62 |
| | | % within Research area | 48,4% | 51,6% | 100,0% |
| | Achter Clarenburg | Count | 24 | 36 | 60 |
| | | % within Research area | 40,0% | 60,0% | 100,0% |
| | Mariaplaats | Count | 38 | 22 | 60 |
| | | % within Research area | 63,3% | 36,7% | 100,0% |
| | Zadelstraat | Count | 23 | 38 | 61 |
| | | % within Research area | 37,7% | 62,3% | 100,0% |
| Total | | Count | 115 | 128 | 243 |
| | | % within Research area | 47,3% | 52,7% | 100,0% |

Table A 1

### Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 9,752[a] | 3 | ,021 |
| Likelihood Ratio | 9,830 | 3 | ,020 |
| Linear-by-Linear Association | ,101 | 1 | ,750 |
| N of Valid Cases | 243 | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 28,40.

Table A 2

**5.2**

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two variables and a ratio-variable (Average Likert-score), Student's T-tests have been done. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is <u>no</u> difference in average Likert-score for attitude towards the environment between the areas.*
*HA: There is a difference in average Likert-score for attitude towards the environment between the areas.*

From the Student's T-test (table A3 and A4), it is apparent that there is a **significant difference** between the two bigger areas and average Likert-score for attitude towards the environment (t=13.583 and Sig. = .000). Because the Sig. Is smaller than α (=0,05), the null hypothesis that there is no difference, will be rejected.

**Group Statistics**

|  | bigarea | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Likertattitude | Vredenburg/Clarenburg | 115 | 3,2290 | ,70173 | ,06544 |
|  | Mariaplaats/Zadelstraat | 109 | 2,1193 | ,51073 | ,04892 |

Table A 3

**Independent Samples Test**

|  |  | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  | | 95% Confidence Interval of the Difference | |
|  |  | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Likertattitude | Equal variances assumed | 14,314 | ,000 | 13,471 | 222 | ,000 | 1,10972 | ,08238 | ,94737 | 1,27207 |
|  | Equal variances not assumed |  |  | 13,583 | 208,342 | ,000 | 1,10972 | ,08170 | ,94865 | 1,27079 |

Table A 4

From the Student's T-test (Table A5 and A6), it is apparent that there is a **significant difference** between the two squares and average Likert-score for attitude towards the environment (t=11.364 and Sig. = .000). Because the Sig. Is smaller than α (=0,05), the null hypothesis that there is no difference, will be rejected.

**Group Statistics**

|  | Research area | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Likertattitude | Vredenburgplein | 57 | 3,4298 | ,63382 | ,08395 |
|  | Mariaplaats | 53 | 2,1541 | ,53494 | ,07348 |

Table A 5

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Likertattitude | Equal variances assumed | 1,432 | ,234 | 11,364 | 108 | ,000 | 1,27574 | ,11226 | 1,05322 | 1,49825 |
| | Equal variances not assumed | | | 11,435 | 107,024 | ,000 | 1,27574 | ,11157 | 1,05457 | 1,49691 |

Table A 6

From the Student's T-test (Table A7 and A8), it is apparent that there is a **significant difference** between the two squares and average Likert-score for attitude towards the environment (t=8.268 and Sig. = .000). Because the Sig. Is smaller than α (=0,05), the null hypothesis that there is no difference, will be rejected.

**Group Statistics**

| | Research area | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Likertattitude | Achter Clarenburg | 58 | 3,0316 | ,71428 | ,09379 |
| | Zadelstraat | 56 | 2,0863 | ,48927 | ,06538 |

Table A 7

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Likertattitude | Equal variances assumed | 7,267 | ,008 | 8,216 | 112 | ,000 | ,94530 | ,11506 | ,71732 | 1,17328 |
| | Equal variances not assumed | | | 8,268 | 101,114 | ,000 | ,94530 | ,11433 | ,71850 | 1,17209 |

Table A 8

## 5.3 Motives

For each motive to be in the research areas, except for daily groceries, because those amounts are negligible, a chi-square test has been done. The tests have been done comparing the bigger areas with each other. A chi-square test has been chosen because all tests have more than 30 cases and categorical variables are compared with each other. No expected cell counts are below five. The results of the motives that did not differ significantly per bigger area (Vredenburplein/Achter Clarenburg vs. Mariaplaats/Zadelstraat) are presented below, without output tables to avoid confusion and abundance of tables. Hypothesis are as follows for all tests:

*H0: There is no difference between the areas in terms of motives for visiting.*
*HA: There is a difference between the areas in terms of motives for visiting.*

| | |
|---|---|
| *Underway outside inner city:* | chi²= 3.421 and sig. = .064 |
| *Underway within inner city:* | chi² = .832 and sig. = .362 |
| *Looking for specific product:* | chi² = .001 and sig. = .971 |
| *Shopping for fun:* | chi² = .109 and sig. = .742 |
| *Meeting someone:* | chi² = 1.720 and sig. = .190 |
| *Eating or drinking something:* | chi² = .001 and sig. = .975 |
| *Job/study:* | chi² = 2.016 and sig. = .156 |

In these cases, because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

The motive 'relaxing walk' does however differ significantly between the two areas (chi² = 5.782 and sig. = .016). Because the Sig. is lower than α (=0,05), the null hypothesis that there is not difference, will be rejected. The chi² test is presented below (Table A9 and A10).

**bigarea * Is respondent in specific area for a relaxing walk? Crosstabulation**

| | | | Is respondent in specific area for a relaxing walk? | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| bigarea | Vredenburg/Clarenburg | Count | 108 | 14 | 122 |
| | | % within bigarea | 88,5% | 11,5% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 93 | 28 | 121 |
| | | % within bigarea | 76,9% | 23,1% | 100,0% |
| Total | | Count | 201 | 42 | 243 |
| | | % within bigarea | 82,7% | 17,3% | 100,0% |

Table A 9

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 5,782[a] | 1 | ,016 | | |
| Continuity Correction[b] | 4,995 | 1 | ,025 | | |
| Likelihood Ratio | 5,874 | 1 | ,015 | | |
| Fisher's Exact Test | | | | ,018 | ,012 |
| Linear-by-Linear Association | 5,758 | 1 | ,016 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 20,91.

b. Computed only for a 2x2 table

Table A 10

**Necessary Activities**

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with two other categorical variables (necessary activities yes/no), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is no difference between the areas in terms of people performing necessary activities*
*HA: There is a difference between the areas in terms of people performing necessary activities*

From the Chi² test (table A11 and A12), it is apparent that there is **no significant difference** between the two bigger areas and the amount of people performing necessary activities (chi² =0.353 and Sig. = .553). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**bigarea * does respondent perform a necessary activities Crosstabulation**

| | | | does respondent perform a necessary activities | | |
| --- | --- | --- | --- | --- | --- |
| | | | No | Yes | Total |
| bigarea | Vredenburg/Clarenburg | Count | 85 | 37 | 122 |
| | | % within bigarea | 69,7% | 30,3% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 80 | 41 | 121 |
| | | % within bigarea | 66,1% | 33,9% | 100,0% |
| Total | | Count | 165 | 78 | 243 |
| | | % within bigarea | 67,9% | 32,1% | 100,0% |

Table A 11

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
| --- | --- | --- | --- | --- | --- |
| Pearson Chi-Square | ,353[a] | 1 | ,553 | | |
| Continuity Correction[b] | ,208 | 1 | ,648 | | |
| Likelihood Ratio | ,353 | 1 | ,553 | | |
| Fisher's Exact Test | | | | ,584 | ,324 |
| Linear-by-Linear Association | ,351 | 1 | ,554 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 38,84.

b. Computed only for a 2x2 table

Table A 12

From the Chi² test (table A13 and A14), it is apparent that there is **no significant difference** between the two squares and the amount of people performing necessary activities (chi² =0.101 and Sig. = .750). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**Research area * does respondent perform a necessary activities Crosstabulation**

| | | | does respondent perform a necessary activities | | |
|---|---|---|---|---|---|
| | | | No | Yes | Total |
| Research area | Vredenburgplein | Count | 43 | 19 | 62 |
| | | % within Research area | 69,4% | 30,6% | 100,0% |
| | Mariaplaats | Count | 40 | 20 | 60 |
| | | % within Research area | 66,7% | 33,3% | 100,0% |
| Total | | Count | 83 | 39 | 122 |
| | | % within Research area | 68,0% | 32,0% | 100,0% |

Table A 13

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,101[a] | 1 | ,750 | | |
| Continuity Correction[b] | ,015 | 1 | ,901 | | |
| Likelihood Ratio | ,101 | 1 | ,750 | | |
| Fisher's Exact Test | | | | ,847 | ,451 |
| Linear-by-Linear Association | ,100 | 1 | ,751 | | |
| N of Valid Cases | 122 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 19,18.

b. Computed only for a 2x2 table

Table A 14

From the Chi² test (table A15 and A16), it is apparent that there is **no significant difference** between the two streets and the amount of people performing necessary activities (chi² =0.271 and Sig. = .602). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**Research area * does respondent perform a necessary activities Crosstabulation**

| | | | does respondent perform a necessary activities | | |
|---|---|---|---|---|---|
| | | | No | Yes | Total |
| Research area | Achter Clarenburg | Count | 42 | 18 | 60 |
| | | % within Research area | 70,0% | 30,0% | 100,0% |
| | Zadelstraat | Count | 40 | 21 | 61 |
| | | % within Research area | 65,6% | 34,4% | 100,0% |
| Total | | Count | 82 | 39 | 121 |
| | | % within Research area | 67,8% | 32,2% | 100,0% |

Table A 15

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,271[a] | 1 | ,602 | | |
| Continuity Correction[b] | ,107 | 1 | ,744 | | |
| Likelihood Ratio | ,272 | 1 | ,602 | | |
| Fisher's Exact Test | | | | ,698 | ,372 |
| Linear-by-Linear Association | ,269 | 1 | ,604 | | |
| N of Valid Cases | 121 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 19,34.

b. Computed only for a 2x2 table

Table A 16

**Optional Activities**

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with two other categorical variables (optional activities yes/no), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is no difference between the areas in terms of people performing optional activities*
*HA: There is a difference between the areas in terms of people performing optional activities*

From the Chi² test (table A17 and A18), it is apparent that there is **no significant difference** between the two bigger areas and the amount of people performing optional activities (chi² = 1.829 and Sig. = .176) Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**bigarea * does respondent perform optional activities Crosstabulation**

| | | | does respondent perform optional activities | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| bigarea | Vredenburg/Clarenburg | Count | 63 | 59 | 122 |
| | | % within bigarea | 51,6% | 48,4% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 52 | 69 | 121 |
| | | % within bigarea | 43,0% | 57,0% | 100,0% |
| Total | | Count | 115 | 128 | 243 |
| | | % within bigarea | 47,3% | 52,7% | 100,0% |

Table A 17

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 1,829[a] | 1 | ,176 | | |
| Continuity Correction[b] | 1,498 | 1 | ,221 | | |
| Likelihood Ratio | 1,832 | 1 | ,176 | | |
| Fisher's Exact Test | | | | ,200 | ,110 |
| Linear-by-Linear Association | 1,822 | 1 | ,177 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 57,26.

b. Computed only for a 2x2 table

Table A 18

From the Chi² test (table A19 and A20), it is apparent that there is **no significant difference** between the two squares and the amount of people performing optional activities (chi² = 3.337 and Sig. = .068). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**Research area * does respondent perform optional activities Crosstabulation**

| | | | does respondent perform optional activities | | |
|---|---|---|---|---|---|
| | | | No | Yes | Total |
| Research area | Vredenburgplein | Count | 34 | 28 | 62 |
| | | % within Research area | 54,8% | 45,2% | 100,0% |
| | Mariaplaats | Count | 23 | 37 | 60 |
| | | % within Research area | 38,3% | 61,7% | 100,0% |
| Total | | Count | 57 | 65 | 122 |
| | | % within Research area | 46,7% | 53,3% | 100,0% |

Table A 19

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 3,337[a] | 1 | ,068 | | |
| Continuity Correction[b] | 2,707 | 1 | ,100 | | |
| Likelihood Ratio | 3,354 | 1 | ,067 | | |
| Fisher's Exact Test | | | | ,073 | ,050 |
| Linear-by-Linear Association | 3,310 | 1 | ,069 | | |
| N of Valid Cases | 122 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 28,03.

b. Computed only for a 2x2 table

Table A 20

From the Chi² test (table A21 and A22), it is apparent that there is **no significant difference** between the two squares and the amount of people performing optional activities (chi² = 0.008 and Sig. = .930). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**Research area * does respondent perform optional activities Crosstabulation**

| | | | does respondent perform optional activities | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| Research area | Achter Clarenburg | Count | 29 | 31 | 60 |
| | | % within Research area | 48,3% | 51,7% | 100,0% |
| | Zadelstraat | Count | 29 | 32 | 61 |
| | | % within Research area | 47,5% | 52,5% | 100,0% |
| Total | | Count | 58 | 63 | 121 |
| | | % within Research area | 47,9% | 52,1% | 100,0% |

Table A 21

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,008[a] | 1 | ,930 | | |
| Continuity Correction[b] | ,000 | 1 | 1,000 | | |
| Likelihood Ratio | ,008 | 1 | ,930 | | |
| Fisher's Exact Test | | | | 1,000 | ,538 |
| Linear-by-Linear Association | ,008 | 1 | ,931 | | |
| N of Valid Cases | 121 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 28,76.

b. Computed only for a 2x2 table

Table A 22

**Social**

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with two other categorical variables (social activities yes/no), Chi² tests should be done. This is true for the first two tests, where None of the expected cell counts are lower than five in all cases, so the rules for this test are met. The third test does not meet the requirements for a Chi² test, since more than 20% (namely 50%) of the expected cell counts are less than 5. So in that case the Fisher's exact test will be used. For all three tests done however, the null hypothesis and alternative hypothesis are as follows:

*H0: There is no difference between the areas in terms of people performing optional activities*
*HA: There is a difference between the areas in terms of people performing optional activities*

From the Chi² test (table A23 and A24), it is apparent that there is **no significant difference** between the two bigger areas and the amount of people in the area to meet someone (chi² = 1.720 and Sig. = .190). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**bigarea * Is respondent in specific area to meet someone? Crosstabulation**

| | | | Is respondent in specific area to meet someone? | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| bigarea | Vredenburg/Clarenburg | Count | 113 | 9 | 122 |
| | | % within bigarea | 92,6% | 7,4% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 106 | 15 | 121 |
| | | % within bigarea | 87,6% | 12,4% | 100,0% |
| Total | | Count | 219 | 24 | 243 |
| | | % within bigarea | 90,1% | 9,9% | 100,0% |

Table A 23


**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 1,720[a] | 1 | ,190 | | |
| Continuity Correction[b] | 1,202 | 1 | ,273 | | |
| Likelihood Ratio | 1,736 | 1 | ,188 | | |
| Fisher's Exact Test | | | | ,205 | ,136 |
| Linear-by-Linear Association | 1,713 | 1 | ,191 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 11,95.

b. Computed only for a 2x2 table

Table A 24

From the Chi² test (table A25 and A26), it is apparent that there is **no significant difference** between the two squares and the amount of people in the area to meet someone (chi² = 0.368 and Sig. = .544). Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.


**Research area * Is respondent in specific area to meet someone? Crosstabulation**

| | | | Is respondent in specific area to meet someone? | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| Research area | Vredenburgplein | Count | 55 | 7 | 62 |
| | | % within Research area | 88,7% | 11,3% | 100,0% |
| | Mariaplaats | Count | 51 | 9 | 60 |
| | | % within Research area | 85,0% | 15,0% | 100,0% |
| Total | | Count | 106 | 16 | 122 |
| | | % within Research area | 86,9% | 13,1% | 100,0% |

Table A 25

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,368[a] | 1 | ,544 | | |
| Continuity Correction[b] | ,115 | 1 | ,735 | | |
| Likelihood Ratio | ,369 | 1 | ,544 | | |
| Fisher's Exact Test | | | | ,600 | ,368 |
| Linear-by-Linear Association | ,365 | 1 | ,546 | | |
| N of Valid Cases | 122 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 7,87.

b. Computed only for a 2x2 table

Table A 26

From the Fisher's exact test (table A27 and A28) it is apparent that there is **no significant difference** between the two streets and the amount of people in the area to meet someone [Sig. = .272 (two-sided) or .142 (one-sided)]. Because the Sig. is bigger than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected.

**Research area * Is respondent in specific area to meet someone? Crosstabulation**

| | | | Is respondent in specific area to meet someone? | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| Research area | Achter Clarenburg | Count | 58 | 2 | 60 |
| | | % within Research area | 96,7% | 3,3% | 100,0% |
| | Zadelstraat | Count | 55 | 6 | 61 |
| | | % within Research area | 90,2% | 9,8% | 100,0% |
| Total | | Count | 113 | 8 | 121 |
| | | % within Research area | 93,4% | 6,6% | 100,0% |

Table A 27

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 2,072[a] | 1 | ,150 | | |
| Continuity Correction[b] | 1,152 | 1 | ,283 | | |
| Likelihood Ratio | 2,164 | 1 | ,141 | | |
| Fisher's Exact Test | | | | ,272 | ,142 |
| Linear-by-Linear Association | 2,054 | 1 | ,152 | | |
| N of Valid Cases | 121 | | | | |

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,97.

b. Computed only for a 2x2 table

Table A 28

**5.4**

**5.4.1 Standing**
For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with two other categorical variables (standing still in area yes/no), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

**H0**: *There is <u>no</u> difference between the areas in terms of people standing still.*
**HA**: *There is a difference between the areas in terms of people standing still.*

From the Chi² test (table A29 and A30), it is apparent that there is **a significant difference** between the two bigger areas and the amount of people standing still (chi² = 12.468 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the two bigger areas and the amount of people standing still.

**biggerarea * Does observee stand still in the area? Crosstabulation**

| | | | Does observee stand still in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 43 | 206 | 249 |
| | | % within biggerarea | 17,3% | 82,7% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 75 | 168 | 243 |
| | | % within biggerarea | 30,9% | 69,1% | 100,0% |
| Total | | Count | 118 | 374 | 492 |
| | | % within biggerarea | 24,0% | 76,0% | 100,0% |

Table A 29

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 12,468[a] | 1 | ,000 | | |
| Continuity Correction[b] | 11,733 | 1 | ,001 | | |
| Likelihood Ratio | 12,582 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 12,442 | 1 | ,000 | | |
| N of Valid Cases | 492 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 58,28.

b. Computed only for a 2x2 table

Table A 30

From the Chi² test (table A31 and A32), it is apparent that there is **no significant difference** between the two squares and the amount of people standing still (chi² = 0.399 and Sig. = .527) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected. So there is **no** significant difference between Vredenburgplein and Mariaplaats, and the amount of people standing still.

**areaobserved * Does observee stand still in the area? Crosstabulation**

| | | | Does observee stand still in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Vredenburgplein | Count | 24 | 103 | 127 |
| | | % within areaobserved | 18,9% | 81,1% | 100,0% |
| | Mariaplaats | Count | 27 | 95 | 122 |
| | | % within areaobserved | 22,1% | 77,9% | 100,0% |
| Total | | Count | 51 | 198 | 249 |
| | | % within areaobserved | 20,5% | 79,5% | 100,0% |

Table A 31

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,399[a] | 1 | ,527 | | |
| Continuity Correction[b] | ,226 | 1 | ,635 | | |
| Likelihood Ratio | ,399 | 1 | ,527 | | |
| Fisher's Exact Test | | | | ,535 | ,317 |
| Linear-by-Linear Association | ,398 | 1 | ,528 | | |
| N of Valid Cases | 249 | | | | |

Table A 32

From the Chi² test (table A33 and A34), it is apparent that there is a significant difference between the two streets and the amount of people standing still (chi² = 17.662 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will not be rejected. So there is a significant difference between Achter Clarenburg and the Zadelstraat, and the amount of people standing still.

**areaobserved * Does observee stand still in the area? Crosstabulation**

| | | | Does observee stand still in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Achter Clarenburg | Count | 19 | 103 | 122 |
| | | % within areaobserved | 15,6% | 84,4% | 100,0% |
| | Zadelstraat | Count | 48 | 73 | 121 |
| | | % within areaobserved | 39,7% | 60,3% | 100,0% |
| Total | | Count | 67 | 176 | 243 |
| | | % within areaobserved | 27,6% | 72,4% | 100,0% |

Table A 33

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 17,662[a] | 1 | ,000 | | |
| Continuity Correction[b] | 16,476 | 1 | ,000 | | |
| Likelihood Ratio | 18,111 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 17,589 | 1 | ,000 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 33,36.

b. Computed only for a 2x2 table

Table A 34

### 5.4.2 Walking speed

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with another categorical variable (Walking slower, walking normal, or walking faster), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is no difference between the areas in terms of walking speed.*
*HA: There is a difference between the areas in terms of walking speed.*

From the Chi² test (table A35 and A36), it is apparent that there is **no significant difference** between the two bigger areas and walking speed (chi² = 2.960 and Sig. = .228) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected. So there is **no** significant difference between the two bigger areas in terms of walking speed.

Table A 35

**biggerarea * walkingspeed Crosstabulation**

| | | | walkingspeed | | | Total |
|---|---|---|---|---|---|---|
| | | | Slow | Normal | Fast | |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 17 | 218 | 14 | 249 |
| | | % within biggerarea | 6,8% | 87,6% | 5,6% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 27 | 205 | 11 | 243 |
| | | % within biggerarea | 11,1% | 84,4% | 4,5% | 100,0% |
| Total | | Count | 44 | 423 | 25 | 492 |
| | | % within biggerarea | 8,9% | 86,0% | 5,1% | 100,0% |

**Chi-Square Tests**

|  | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 2,960[a] | 2 | ,228 |
| Likelihood Ratio | 2,980 | 2 | ,225 |
| Linear-by-Linear Association | 2,560 | 1 | ,110 |
| N of Valid Cases | 492 |  |  |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 12,35.

Table A 36

From the Chi² test (table A37 and A38), it is apparent that there is **no significant difference** between the two squares and walking speed (chi² = 30142 and Sig. = .208) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected. So there is **no** significant difference between Vredenburgplein and Mariaplaats in terms of walking speed.

**areaobserved * walkingspeed Crosstabulation**

|  |  |  | walkingspeed | | | Total |
|---|---|---|---|---|---|---|
|  |  |  | Slow | Normal | Fast |  |
| areaobserved | Vredenburgplein | Count | 11 | 107 | 9 | 127 |
|  |  | % within areaobserved | 8,7% | 84,3% | 7,1% | 100,0% |
|  | Mariaplaats | Count | 9 | 110 | 3 | 122 |
|  |  | % within areaobserved | 7,4% | 90,2% | 2,5% | 100,0% |
| Total |  | Count | 20 | 217 | 12 | 249 |
|  |  | % within areaobserved | 8,0% | 87,1% | 4,8% | 100,0% |

Table A 37

**Chi-Square Tests**

|  | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 3,142[a] | 2 | ,208 |
| Likelihood Ratio | 3,281 | 2 | ,194 |
| Linear-by-Linear Association | ,543 | 1 | ,461 |
| N of Valid Cases | 249 |  |  |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 5,88.

Table A 38

From the Chi² test (table A39 and A40), it is apparent that there is **a significant difference** between the two streets and walking speed (chi² = 7.931 and Sig. = .019) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the two streets in terms of walking speed.

**areaobserved * walkingspeed Crosstabulation**

| | | | walkingspeed | | | Total |
|---|---|---|---|---|---|---|
| | | | Slow | Normal | Fast | |
| areaobserved | Achter Clarenburg | Count | 6 | 111 | 5 | 122 |
| | | % within areaobserved | 4,9% | 91,0% | 4,1% | 100,0% |
| | Zadelstraat | Count | 18 | 95 | 8 | 121 |
| | | % within areaobserved | 14,9% | 78,5% | 6,6% | 100,0% |
| Total | | Count | 24 | 206 | 13 | 243 |
| | | % within areaobserved | 9,9% | 84,8% | 5,3% | 100,0% |

Table A 39

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 7,931[a] | 2 | ,019 |
| Likelihood Ratio | 8,217 | 2 | ,016 |
| Linear-by-Linear Association | 2,232 | 1 | ,135 |
| N of Valid Cases | 243 | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected

count is 6,47.

Table A 40

The next two Chi-square tests have been done on the street level to specifically test the amount of people walking faster between the two streets and the amount of people walking slower. For walking slower, the null hypothesis and alternative hypothesis are as follows:

**H0**: *There is <u>no</u> difference between the streets in terms of people walking slower.*
**HA**: *There is a difference between the streets in terms of people walking slower.*

From the Chi² test (table A41 and A42), it is apparent that there is **a significant difference** between the two streets and people walking slower (chi² = 7.175 and Sig. = .007) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the Zadelstraat and Achter Clarenburg in terms of people walking slower or at normal speed.

**areaobserved * walkingspeed Crosstabulation**

| | | | walkingspeed | | Total |
|---|---|---|---|---|---|
| | | | Slow | Normal | |
| areaobserved | Achter Clarenburg | Count | 6 | 111 | 117 |
| | | % within areaobserved | 5,1% | 94,9% | 100,0% |
| | Zadelstraat | Count | 18 | 95 | 113 |
| | | % within areaobserved | 15,9% | 84,1% | 100,0% |
| Total | | Count | 24 | 206 | 230 |
| | | % within areaobserved | 10,4% | 89,6% | 100,0% |

Table A 41

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 7,175[a] | 1 | ,007 | | |
| Continuity Correction[b] | 6,066 | 1 | ,014 | | |
| Likelihood Ratio | 7,453 | 1 | ,006 | | |
| Fisher's Exact Test | | | | ,009 | ,006 |
| Linear-by-Linear Association | 7,144 | 1 | ,008 | | |
| N of Valid Cases | 230 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 11,79.

b. Computed only for a 2x2 table

Table A 42

For walking faster, the null hypothesis and alternative hypothesis are as follows:

*H0: There is <u>no</u> difference between the streets in terms of people walking faster.*
*HA: There is a difference between the streets in terms of people walking faster.*

From the Chi² test (table A43 and A44), it is apparent that there is **no significant difference** between the two streets and people walking faster (chi² = 10167 and Sig. = .280) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected. So there is **no** significant difference between the Zadelstraat and Achter Clarenburg in terms of people walking faster or at normal speed.

**areaobserved * walkingspeed Crosstabulation**

| | | | walkingspeed | | Total |
|---|---|---|---|---|---|
| | | | Normal | Fast | |
| areaobserved | Achter Clarenburg | Count | 111 | 5 | 116 |
| | | % within areaobserved | 95,7% | 4,3% | 100,0% |
| | Zadelstraat | Count | 95 | 8 | 103 |
| | | % within areaobserved | 92,2% | 7,8% | 100,0% |
| Total | | Count | 206 | 13 | 219 |
| | | % within areaobserved | 94,1% | 5,9% | 100,0% |

Table A 43

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 1,167[a] | 1 | ,280 | | |
| Continuity Correction[b] | ,630 | 1 | ,427 | | |
| Likelihood Ratio | 1,170 | 1 | ,279 | | |
| Fisher's Exact Test | | | | ,392 | ,214 |
| Linear-by-Linear Association | 1,162 | 1 | ,281 | | |
| N of Valid Cases | 219 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 6,11.

b. Computed only for a 2x2 table

Table A 44

**Walking Route**

For all two tests done here, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all two tests are about a comparison between two categorical variables (research areas) with another categorical variable (Straight line/detour/no clear direction), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For both tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is <u>no</u> difference between the areas in terms of pedestrians walking in a straight line or not.*
*HA: There is a difference between the areas in terms of pedestrians walking in a straight line or not.*

From the Chi² test (table A45 and A46), it is apparent that there is **a significant difference** between the two bigger areas and walking direction (chi² = 9.145 and Sig. = .010) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the two bigger areas in terms of whether pedestrians are walking in a straight line or taking a detour.

**biggerarea * Does observee have a clear walking direction? Crosstabulation**

| | | | Does observee have a clear walking direction? | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | Straight | Slight detour | No clear direction | Total |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 200 | 39 | 10 | 249 |
| | | % within biggerarea | 80,3% | 15,7% | 4,0% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 167 | 64 | 12 | 243 |
| | | % within biggerarea | 68,7% | 26,3% | 4,9% | 100,0% |
| Total | | Count | 367 | 103 | 22 | 492 |
| | | % within biggerarea | 74,6% | 20,9% | 4,5% | 100,0% |

Table A 45

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
| --- | --- | --- | --- |
| Pearson Chi-Square | 9,145[a] | 2 | ,010 |
| Likelihood Ratio | 9,209 | 2 | ,010 |
| Linear-by-Linear Association | 6,435 | 1 | ,011 |
| N of Valid Cases | 492 | | |

Table A 46

From the Chi² test (table A47 and A48), it is apparent that there is **a significant difference** between the two streets and walking direction (chi² = 17.968 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between Achter Clarenburg and the Zadelstraat in terms of whether pedestrians are walking in a straight line or taking a detour.

**areaobserved * Does observee have a clear walking direction? Crosstabulation**

| | | | Does observee have a clear walking direction? | | | Total |
|---|---|---|---|---|---|---|
| | | | Straight | Slight detour | No clear direction | |
| areaobserved | Achter Clarenburg | Count | 102 | 18 | 2 | 122 |
| | | % within areaobserved | 83,6% | 14,8% | 1,6% | 100,0% |
| | Zadelstraat | Count | 72 | 40 | 9 | 121 |
| | | % within areaobserved | 59,5% | 33,1% | 7,4% | 100,0% |
| Total | | Count | 174 | 58 | 11 | 243 |
| | | % within areaobserved | 71,6% | 23,9% | 4,5% | 100,0% |

Table A 47

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 17,968[a] | 2 | ,000 |
| Likelihood Ratio | 18,570 | 2 | ,000 |
| Linear-by-Linear Association | 17,372 | 1 | ,000 |
| N of Valid Cases | 243 | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected

count is 5,48.

Table A 48

### 5.4.3 Looking around

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with another categorical variable (looking around yes/no), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is no difference between the areas in terms of looking around.*
*HA: There is a difference between the areas in terms of looking around.*

From the Chi² test (table A49 and A50), it is apparent that there is a **significant difference** between the two bigger areas and pedestrians looking around (chi² = 21.623 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the two bigger areas and the tendency for pedestrians to look around or not.

**biggerarea * Does observee look around? Crosstabulation**

| | | | Does observee look around? | | |
|---|---|---|---|---|---|
| | | | Yes | No | Total |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 151 | 98 | 249 |
| | | % within biggerarea | 60,6% | 39,4% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 194 | 49 | 243 |
| | | % within biggerarea | 79,8% | 20,2% | 100,0% |
| Total | | Count | 345 | 147 | 492 |
| | | % within biggerarea | 70,1% | 29,9% | 100,0% |

Table A 49

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 21,623[a] | 1 | ,000 | | |
| Continuity Correction[b] | 20,716 | 1 | ,000 | | |
| Likelihood Ratio | 21,950 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 21,579 | 1 | ,000 | | |
| N of Valid Cases | 492 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 72,60.

b. Computed only for a 2x2 table

Table A 50

From the Chi² test (table A51 and A52), it is apparent that there is a **significant difference** between the two bigger areas and pedestrians looking around (chi² = 6.466 and Sig. = .011) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between Vredenburgplein and Mariaplaats and the tendency for pedestrians to look around or not.

**areaobserved * Does observee look around? Crosstabulation**

| | | | Does observee look around? | | |
|---|---|---|---|---|---|
| | | | Yes | No | Total |
| areaobserved | Vredenburgplein | Count | 79 | 48 | 127 |
| | | % within areaobserved | 62,2% | 37,8% | 100,0% |
| | Mariaplaats | Count | 94 | 28 | 122 |
| | | % within areaobserved | 77,0% | 23,0% | 100,0% |
| Total | | Count | 173 | 76 | 249 |
| | | % within areaobserved | 69,5% | 30,5% | 100,0% |

Table A 51

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 6,466[a] | 1 | ,011 | | |
| Continuity Correction[b] | 5,785 | 1 | ,016 | | |
| Likelihood Ratio | 6,527 | 1 | ,011 | | |
| Fisher's Exact Test | | | | ,013 | ,008 |
| Linear-by-Linear Association | 6,440 | 1 | ,011 | | |
| N of Valid Cases | 249 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 37,24.

b. Computed only for a 2x2 table

Table A 52

From the Chi² test (table A53 and A54), it is apparent that there is a **significant difference** between the two streets and pedestrians looking around (chi² = 16.399 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between Achter Clarenburg and the Zadelstraat and the tendency for pedestrians to look around or not.

**areaobserved * Does observee look around? Crosstabulation**

| | | | Does observee look around? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Achter Clarenburg | Count | 72 | 50 | 122 |
| | | % within areaobserved | 59,0% | 41,0% | 100,0% |
| | Zadelstraat | Count | 100 | 21 | 121 |
| | | % within areaobserved | 82,6% | 17,4% | 100,0% |
| Total | | Count | 172 | 71 | 243 |
| | | % within areaobserved | 70,8% | 29,2% | 100,0% |

Table A 53

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 16,399[a] | 1 | ,000 | | |
| Continuity Correction[b] | 15,277 | 1 | ,000 | | |
| Likelihood Ratio | 16,773 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 16,332 | 1 | ,000 | | |
| N of Valid Cases | 243 | | | | |

Table A 54

**5.4.4 Shopping Behaviour**

**Windowshopping**
For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with another categorical variable (windowshopping yes/no), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is <u>no</u> difference between the areas in terms of windowshopping.*
*HA: There is a difference between the areas in terms of windowshopping.*

From the Chi² test (table A55 and A56), it is apparent that there is a **significant difference** between the two bigger areas and pedestrians windowshopping (chi² = 24.574 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the two bigger areas and the tendency for pedestrians to windowshop or not.

**biggerarea * Does observee windowshop in the area? Crosstabulation**

| | | | Does observee windowshop in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 42 | 207 | 249 |
| | | % within biggerarea | 16,9% | 83,1% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 89 | 154 | 243 |
| | | % within biggerarea | 36,6% | 63,4% | 100,0% |
| Total | | Count | 131 | 361 | 492 |
| | | % within biggerarea | 26,6% | 73,4% | 100,0% |

Table A 55

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 24,574[a] | 1 | ,000 | | |
| Continuity Correction[b] | 23,573 | 1 | ,000 | | |
| Likelihood Ratio | 24,981 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 24,524 | 1 | ,000 | | |
| N of Valid Cases | 492 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 64,70.

b. Computed only for a 2x2 table

Table A 56

From the Chi² test (table A57 and A58), it is apparent that there is **no significant difference** between the two squares and pedestrians windowshopping (chi² = 1.973 and Sig. = .160) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will **not** be rejected. So there is no significant difference between Vredenburgplein and Mariaplaats and the tendency for pedestrians to windowshop or not.

**areaobserved * Does observee windowshop in the area? Crosstabulation**

| | | | Does observee windowshop in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Vredenburgplein | Count | 14 | 113 | 127 |
| | | % within areaobserved | 11,0% | 89,0% | 100,0% |
| | Mariaplaats | Count | 21 | 101 | 122 |
| | | % within areaobserved | 17,2% | 82,8% | 100,0% |
| Total | | Count | 35 | 214 | 249 |
| | | % within areaobserved | 14,1% | 85,9% | 100,0% |

Table A 57

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 1,973[a] | 1 | ,160 | | |
| Continuity Correction[b] | 1,494 | 1 | ,222 | | |
| Likelihood Ratio | 1,982 | 1 | ,159 | | |
| Fisher's Exact Test | | | | ,202 | ,111 |
| Linear-by-Linear Association | 1,965 | 1 | ,161 | | |
| N of Valid Cases | 249 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 17,15.

b. Computed only for a 2x2 table

Table A 58

From the Chi² test (table A59 and A60), it is apparent that there is a **significant difference** between the two streets and pedestrians windowshopping (chi² = 28.098 and Sig. = .000) Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected. So there is a significant difference between the two streets and the tendency for pedestrians to windowshop or not.

**areaobserved * Does observee windowshop in the area? Crosstabulation**

| | | | Does observee windowshop in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Achter Clarenburg | Count | 28 | 94 | 122 |
| | | % within areaobserved | 23,0% | 77,0% | 100,0% |
| | Zadelstraat | Count | 68 | 53 | 121 |
| | | % within areaobserved | 56,2% | 43,8% | 100,0% |
| Total | | Count | 96 | 147 | 243 |
| | | % within areaobserved | 39,5% | 60,5% | 100,0% |

Table A 59

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 28,098[a] | 1 | ,000 | | |
| Continuity Correction[b] | 26,724 | 1 | ,000 | | |
| Likelihood Ratio | 28,770 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 27,983 | 1 | ,000 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 47,80.

b. Computed only for a 2x2 table

Table A 60

**Entering store**

For all three tests, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all three tests are about a comparison between two categorical variables (research areas) with another categorical variable (entering store yes/no), Chi² tests have been done. In one of the cases, the squares, more than 20% the expected cell counts are lower than five, so the rules for this test are met for the others, and the square will be tested using the Fisher's exact test. . For all three tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is no difference between the areas in terms of entering stores.*
*HA: There is a difference between the areas in terms of entering stores.*

From the Chi² test (table A61 and A62), it is apparent that there is **no significant difference** between the two bigger areas and pedestrians entering stores (chi² = 0.058 and Sig. = .810) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will not be rejected. So there is no significant difference between the two bigger areas and the tendency for pedestrians to enter a store or not.

**biggerarea * Does observee enter a store in the area? Crosstabulation**

| | | | Does observee enter a store in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 25 | 224 | 249 |
| | | % within biggerarea | 10,0% | 90,0% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 26 | 217 | 243 |
| | | % within biggerarea | 10,7% | 89,3% | 100,0% |
| Total | | Count | 51 | 441 | 492 |
| | | % within biggerarea | 10,4% | 89,6% | 100,0% |

Table A 61

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,058$^a$ | 1 | ,810 | | |
| Continuity Correction$^b$ | ,008 | 1 | ,927 | | |
| Likelihood Ratio | ,058 | 1 | ,810 | | |
| Fisher's Exact Test | | | | ,883 | ,463 |
| Linear-by-Linear Association | ,057 | 1 | ,811 | | |
| N of Valid Cases | 492 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 25,19.

b. Computed only for a 2x2 table

Table A 62

From the Fisher's exact test (table A63 and A64), it is apparent that there is **no significant difference** between the two squares and pedestrians entering stores [Sig. = .501(two-sided) and Sig. =.270 (one-sided)]. Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will not be rejected. So there is no significant difference between the squares and the tendency for pedestrians to enter a store or not.

**areaobserved * Does observee enter a store in the area? Crosstabulation**

| | | | Does observee enter a store in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Vredenburgplein | Count | 6 | 121 | 127 |
| | | % within areaobserved | 4,7% | 95,3% | 100,0% |
| | Mariaplaats | Count | 3 | 119 | 122 |
| | | % within areaobserved | 2,5% | 97,5% | 100,0% |
| Total | | Count | 9 | 240 | 249 |
| | | % within areaobserved | 3,6% | 96,4% | 100,0% |

Table A 63

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,917$^a$ | 1 | ,338 | | |
| Continuity Correction$^b$ | ,382 | 1 | ,537 | | |
| Likelihood Ratio | ,936 | 1 | ,333 | | |
| Fisher's Exact Test | | | | ,501 | ,270 |
| Linear-by-Linear Association | ,913 | 1 | ,339 | | |
| N of Valid Cases | 249 | | | | |

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 4,41.

b. Computed only for a 2x2 table

Table A 64

From the Chi² test (table A65 and A66), it is apparent that there is **no significant difference** between the two streets and pedestrians entering stores (chi² = 0.501 and Sig. = .479) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will not be rejected. So there is no significant difference between the two streets and the tendency for pedestrians to enter a store or not.

**areaobserved * Does observee enter a store in the area? Crosstabulation**

| | | | Does observee enter a store in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| areaobserved | Achter Clarenburg | Count | 19 | 103 | 122 |
| | | % within areaobserved | 15,6% | 84,4% | 100,0% |
| | Zadelstraat | Count | 23 | 98 | 121 |
| | | % within areaobserved | 19,0% | 81,0% | 100,0% |
| Total | | Count | 42 | 201 | 243 |
| | | % within areaobserved | 17,3% | 82,7% | 100,0% |

**Table A 65**

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | ,501[a] | 1 | ,479 | | |
| Continuity Correction[b] | ,290 | 1 | ,590 | | |
| Likelihood Ratio | ,502 | 1 | ,479 | | |
| Fisher's Exact Test | | | | ,502 | ,295 |
| Linear-by-Linear Association | ,499 | 1 | ,480 | | |
| N of Valid Cases | 243 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 20,91.

b. Computed only for a 2x2 table

**Table A 66**

**Entering store and standing still**
For the test done here, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because the test is about comparison between a catorigal variables (standing still yes/no) with another categorical variable (entering store yes/no), a chi² tests has been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. The null hypothesis and alternative hypothesis are as follows:

*H0: There is no relation between standing still and entering a store.*
*HA: There is a relation between standing still and entering a store.*

From the Chi² test (table A67 and A68), it is apparent that there is a **significant difference** between people who stand still and don't stand still, in terms of entering stores or not (chi² = 16.617 and Sig. = .000). Because the Sig. is lower than α (=0,05), the null hypothesis that there is no difference, will be rejected.

**Does observee stand still in the area? * Does observee enter a store in the area? Crosstabulation**

| | | | Does observee enter a store in the area? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| Does observee stand still in the area? | Yes | Count | 24 | 94 | 118 |
| | | % within Does observee stand still in the area? | 20,3% | 79,7% | 100,0% |
| | No | Count | 27 | 347 | 374 |
| | | % within Does observee stand still in the area? | 7,2% | 92,8% | 100,0% |
| Total | | Count | 51 | 441 | 492 |
| | | % within Does observee stand still in the area? | 10,4% | 89,6% | 100,0% |

Table A 67

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 16,617[a] | 1 | ,000 | | |
| Continuity Correction[b] | 15,235 | 1 | ,000 | | |
| Likelihood Ratio | 14,587 | 1 | ,000 | | |
| Fisher's Exact Test | | | | ,000 | ,000 |
| Linear-by-Linear Association | 16,584 | 1 | ,000 | | |
| N of Valid Cases | 492 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 12,23.

b. Computed only for a 2x2 table

Table A 68

### 5.4.5. Social behavior

**Company**
For all two tests done here, there are more than 30 cases for each area, so the distribution of values can be considered normal. Because all two tests are about a comparison between two categorical variables (research areas) with another categorical variable (alone/two people/more than two people), Chi² tests have been done. None of the expected cell counts are lower than five in all cases, so the rules for this test are met. For both tests done, the null hypothesis and alternative hypothesis are as follows:

*H0: There is <u>no</u> difference between the areas in terms of the company of pedestrians.*
*HA: There is a difference between the areas in terms of the company of pedestrians.*

From the Chi² test (table A69 and A70), it is apparent that there is **no significant difference** between the two bigger areas and company (chi² = 1.975 and Sig. = .372) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will not be rejected. So there is no significant difference between the two bigger areas in terms of whether pedestrians are alone, with someone else or with more than one other person.

**biggerarea * how many people? Crosstabulation**

| | | | how many people? | | | |
|---|---|---|---|---|---|---|
| | | | Alone | With one other person | With more than one other | Total |
| biggerarea | Vredenburg/Achter Clarenburg | Count | 110 | 113 | 26 | 249 |
| | | % within biggerarea | 44,2% | 45,4% | 10,4% | 100,0% |
| | Mariaplaats/Zadelstraat | Count | 93 | 125 | 25 | 243 |
| | | % within biggerarea | 38,3% | 51,4% | 10,3% | 100,0% |
| Total | | Count | 203 | 238 | 51 | 492 |
| | | % within biggerarea | 41,3% | 48,4% | 10,4% | 100,0% |

Table A 69

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 1,975[a] | 2 | ,372 |
| Likelihood Ratio | 1,977 | 2 | ,372 |
| Linear-by-Linear Association | ,965 | 1 | ,326 |
| N of Valid Cases | 492 | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected

count is 25,19.

Table A 70

From the Chi² test (table A71 and A72), it is apparent that there is **no significant difference** between the two squares and company (chi² = 2.907 and Sig. = .234) Because the Sig. is higher than α (=0,05), the null hypothesis that there is no difference, will not be rejected. So there is no significant difference between the two observed squares in terms of whether pedestrians are alone, with someone else or with more than one other person.

**areaobserved * how many people? Crosstabulation**

| | | | how many people? | | | |
|---|---|---|---|---|---|---|
| | | | Alone | With one other person | With more than one other | Total |
| areaobserved | Vredenburgplein | Count | 62 | 51 | 14 | 127 |
| | | % within areaobserved | 48,8% | 40,2% | 11,0% | 100,0% |
| | Mariaplaats | Count | 48 | 62 | 12 | 122 |
| | | % within areaobserved | 39,3% | 50,8% | 9,8% | 100,0% |
| Total | | Count | 110 | 113 | 26 | 249 |
| | | % within areaobserved | 44,2% | 45,4% | 10,4% | 100,0% |

Table A 71

**Chi-Square Tests**

|  | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 2,907[a] | 2 | ,234 |
| Likelihood Ratio | 2,913 | 2 | ,233 |
| Linear-by-Linear Association | ,984 | 1 | ,321 |
| N of Valid Cases | 249 |  |  |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 12,74.

# APPENDIX 4

Position of research areas relative to Utrechts Inner-City and Central station.
(Source: Google Maps, 2015)