

APPENDIX Q - Variables of Interest R Script.R

```
# This is the script for the Variables of Interest analysis following the second
# stepwise multiple
# regression process.

# Start by creating the correlation matrix of all 95 variables (minus altstadt)

# ALL_QUANTVAR_relevancesorted is the full set of variables sorted by their
# adjusted R squared values.

library(readr)
ALL_QUANTVAR_relevancesorted <- read_csv("ALL_QUANTVAR_relevancesorted.csv")
View(ALL_QUANTVAR_relevancesorted)
corset_all <- cor(ALL_QUANTVAR_relevancesorted[,2:95])
write.csv((corset_all), file = "CorrelationALLVAR.csv")

# Go through the process of trimming down this set to the 10 variables described in
# the methods section.

# Test the resultant 10 variables individually in stepwise multiple regression with
# the final set of variables
# from the second stepwise multiple regression process.

attach(all95_quantvar)
fittest1 <-
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+pop_density.d
ev, data = all95_quantvar)

# The added variable simply became the least significant variable in the multiple
# regression, caused
# other variables to be less significant than before, and was very much not
# significant itself.

# Move on to next variable

fittest2 <-
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+roadways_area
, data = all95_quantvar)
summary(fittest2)

# The added variable simply became the least significant variable in the multiple
# regression, caused
# other variables to be less significant than before, and was very much not
# significant itself.

# Move on to next variable

fittest3 <-
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+med_tramdist,
```

APPENDIX Q - Variables of Interest R Script.R

```
data = all95_quantvar)
summary(fittest3)

# Interestingly, med_tramdist was more significant than culturalsocial_1km, so
# stepwise regression continued
# with this variable.

fittest4 <- lm(cyclingrate~-1+ALG_15to65+bldgofdev+tertiary_dev+med_tramdist, data =
all95_quantvar)

# All variables significant, and the R-squared value is slightly higher than the
# original set of 4!

# Move on to next variable

fittest5 <-
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+autobahn_dev,
data = all95_quantvar)
summary(fittest5)

# The added variable simply became the least significant variable in the multiple
# regression, caused
# other variables to be less significant than before, and was very much not
# significant itself.

# Move on to next variable

fittest6 <-
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+devoftotal,
data = all95_quantvar)
summary(fittest6)

# The added variable simply became the least significant variable in the multiple
# regression, caused
# other variables to be less significant than before, and was very much not
# significant itself.

# Move on to next variable

fittest7 <-
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+cyclestreet_d
ev, data = all95_quantvar)
summary(fittest7)

# The added variable simply became the least significant variable in the multiple
# regression, caused
# other variables to be less significant than before, and was very much not
# significant itself.
```

APPENDIX Q - Variables of Interest R Script.R

Move on to next variable

```
fittest8 <-  
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+busstops_1km,  
data = all95_quantvar)  
summary(fittest8)
```

The added variable simply became the least significant variable in the multiple regression, caused
other variables to be less significant than before, and was very much not significant itself.

Move on to next variable

```
fittest9 <-  
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+motorizationr  
ate, data = all95_quantvar)  
summary(fittest9)
```

Interestingly, the variable was significant, and so were all the original variables as well!
No further analysis on this variable needed.

Move on to next variable

```
fittest10 <-  
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+med_ubahndist  
, data = all95_quantvar)  
summary(fittest10)
```

The added variable simply became the least significant variable in the multiple regression, caused
other variables to be less significant than before, and was very much not significant itself.

Move on to next variable

```
fittest11 <-  
lm(cyclingrate~-1+culturalsocial_1km+ALG_15to65+bldgofdev+tertiary_dev+jobs_housing1  
1, data = all95_quantvar)  
summary(fittest11)
```

The added variable simply became the least significant variable in the multiple regression, caused
other variables to be less significant than before, and was very much not significant itself.

APPENDIX Q - Variables of Interest R Script.R

Analysis complete.