#### Masterarbeit

## Räumlich Autoregressive Modelle zur Messung von Verdrängung in Berlin

eingereicht beim Betreuer

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vorgelegt von

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Zur Erlangung des akademischen Grades eines Master of Science (M.Sc.) in Statistik
Berlin, der 31. Juni 2015

# Danksagung

I would like to thank

### **Abstract**

This is the template for a thesis at the Chair of Econometrics of Humboldt–Universität zu Berlin. A popular approach to write a thesis or a paper is the IMRAD method (Introduction, Methods, Results and Discussion). This approach is not mandatory! You can find more information about formal requirements in the booklet 'Hinweise zur Gestaltung der äußeren Form von Diplomarbeiten' which is available in the office of studies.

The abstract should not be longer than a paragraph of around 10 to 15 lines (or about 150 words). The abstract should contain a concise description of the econometric/economic problem you analyse and of your results. This allows the busy reader to obtain quickly a clear idea of the thesis content.

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## Abkürzungsverzeichnis

 ${\bf CPI} \qquad \quad {\bf Consumer\ Price\ Index} \qquad \quad {\bf ETF} \qquad \quad {\bf Equity\ Traded\ Funds}$ 

ETH Eat the Horse XLM Xetra Liquidity

# Abbildungsverzeichnis

## Tabellenverzeichnis

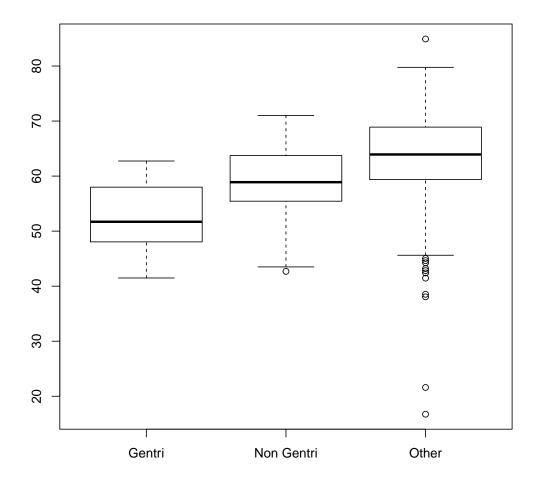
1	Some descriptive statistics of location and dispersion for 2100 observed swap	
	rates for the period from February 15, 1999 to March 2, 2007. Swap rates	
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	measured as 3.12 (instead of 0.0312)	9

### 1 Introduction

- What is the subject of the study? Describe the economic/econometric problem.
- What is the purpose of the study (working hypothesis)?
- What do we already know about the subject (literature review)? Use citations: shows that... Alternative Forms of the Wald test are considered
- What is the innovation of the study?
- Provide an overview of your results.
- The introduction should not be longer than 4 pages.

### 2 Method/Model/Theory

- How was the data analyzed?
- Present the underlying economic model/theory and give reasons why it is suitable to answer the given problem.
- Present econometric/statistical estimation method and give reasons why it is suitable to answer the given problem.
- Allows the reader to judge the validity of the study and its findings.
- Depending on the topic this section can also be split up into separate sections.



#### 3 Data

- Describe the data and its quality.
- How was the data sample selected?
- Provide descriptive statistics such as:
  - time period,
  - number of observations, data frequency,
  - mean, median,
  - min, max, standard deviation,
  - skewness, kurtosis, Jarque-Bera statistic,
  - time series plots, histogram.

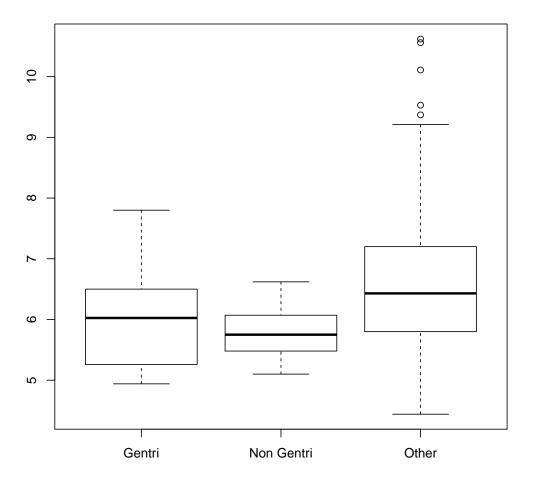
#### • For example:

	3m	6m	1yr	2yr	3yr	5yr	7yr	10yr	12yr	15yr
Mean	3.138	3.191	3.307	3.544	3.756	4.093	4.354	4.621	4.741	4.878
$\operatorname{StD}$	0.915	0.919	0.935	0.910	0.876	0.825	0.803	0.776	0.768	0.762

Tabelle 1: Some descriptive statistics of location and dispersion for 2100 observed swap rates for the period from February 15, 1999 to March 2, 2007. Swap rates measured as 3.12 (instead of 0.0312). See Table 2 in the appendix for more details.

• Allows the reader to judge whether the sample is biased or to evaluate possible impacts of outliers, for example.

##	PLZ		Z	Zeit		te_H1	Miete_H2		
##	10115	:	11	Min.	:2004	Min.	: 3.700	Min.	: 3.800
##	10117	:	11	1st Qu	.:2006	1st Qu	.: 5.500	1st Qu	.: 5.500
##	10119	:	11	Median	:2009	Median	: 6.300	Median	: 6.400
##	10178	:	11	Mean	:2009	Mean	: 6.586	Mean	: 6.712
##	10179	:	11	3rd Qu	.:2012	3rd Qu	.: 7.300	3rd Qu	.: 7.500
##	10243	:	11	Max.	:2014	Max.	:14.000	Max.	:14.000
##	(Other)	):2	024			NA's	:34	NA's	:27



Wyly u. a., 2010 is auchs schön

### 4 Results

- Organize material and present results.
- Use tables, figures (but prefer visual presentation):
  - Tables and figures should supplement (and not duplicate) the text.
  - Tables and figures should be provided with legends.
  - Tables and graphics may appear in the text or in the appendix, especially if there are many simulation results tabulated, but is also depends on the study and number of tables resp. figures. The key graphs and tables must appear in the text!
- Latex is really good at rendering formulas:

  Equation (1) represents the ACs of a stationary stochastic process:

$$f_y(\lambda) = (2\pi)^{-1} \sum_{j=-\infty}^{\infty} \gamma_j e^{-i\lambda j} = (2\pi)^{-1} \left( \gamma_0 + 2 \sum_{j=1}^{\infty} \gamma_j \cos(\lambda j) \right)$$
 (1)

where  $i = \sqrt{-1}$  is the imaginary unit,  $\lambda \in [-\pi, \pi]$  is the frequency and the  $\gamma_j$  are the autocovariances of  $y_t$ .

#### • Discuss results:

- Do the results support or do they contradict economic theory ?
- What does the reader learn from the results?
- Try to give an intuition for your results.
- Provide robustness checks.
- Compare to previous research.

This document was produced in RS tudio using the knitr package (Robson u. a., 2009). Freeman (2005) is auch schön

### Literatur

- Freeman, Lance (2005). "Displacement or Succession? Residential Mobility in Gentrifying Neighborhoods". In: *Urban Affairs Review* 40.4. 00183, S. 463–491.
- Robson, Brian T. u. a. (2009). A typology of the functional roles of deprived neighbourhoods. 00008. Wetherby: Communities und Local Government.
- Wyly, Elvin u. a. (2010). "Displacing New York". In: Environment and Planning 42.11. 00019, S. 2602-2623.

# A Abbildungen

hier kommen dann die Abbildungen hin

## B Tables

	3m	6m	1yr	2yr	3yr	5yr	7yr	10yr	12yr	15yr
Mean	3.138	3.191	3.307	3.544	3.756	4.093	4.354	4.621	4.741	4.878
Median	3.013	3.109	3.228	3.490	3.680	3.906	4.117	4.420	4.575	4.759
Min	1.984	1.950	1.956	2.010	2.240	2.615	2.850	3.120	3.250	3.395
Max	5.211	5.274	5.415	5.583	5.698	5.805	5.900	6.031	6.150	6.295
$\operatorname{StD}$	0.915	0.919	0.935	0.910	0.876	0.825	0.803	0.776	0.768	0.762

Tabelle 2: Detailed descriptive statistics of location and dispersion for 2100 observed swap rates for the period from February 15, 1999 to March 2, 2007. Swap rates measured as 3.12 (instead of 0.0312).

Eigenständigkeitserklärung

Ich erkläre ausdrücklich, dass es sich bei dieser Abschlussarbeit um eine von mir erstma-

lig, selbstständig und ohne fremde Hilfe verfasste Arbeit handelt. Ich erkläre ausdrücklich,

dass ich sämtliche in der oben genannten Arbeit verwendeten fremden Quellen, auch aus dem

Internet (einschließlich Tabellen, Grafiken u. Ä.) als solche kenntlich gemacht habe. Insbeson-

dere bestätige ich, dass ich ausnahmslos sowohl bei wörtlich übernommenen Aussagen bzw.

unverändert übernommenen Tabellen, Grafiken u. Ä. (Zitaten) als auch bei in eigenen Wor-

ten wiedergegebenen Aussagen bzw. von mir abgewandelten Tabellen, Grafiken u. Ä. anderer

Autorinnen und Autoren (Paraphrasen) die Quelle angegeben habe. Mir ist bewusst, dass

Verstöße gegen die Grundsätze der Selbstständigkeit als Täuschung betrachtet und entspre-

chend der fachspezifischen Prüfungsordnung und/oder der Allgemeinen Satzung für Studien-

und Prüfungsangelegenheiten der HU (ASSP) bzw. der Fächerübergreifenden Satzung zur Re-

gelung von Zulassung, Studium und Prüfung der Humboldt-Universität (ZSP-HU) geahndet

werden.

Berlin, den 30. Juni 2015

Guido Schulz