The Effects of Student Aid - Evidence from Germany

DRAFT - Master's Thesis
in Economics (Science Track)

by

Fynn Lohre
(Student number h12232560)

Supervisor: Univ. Prof. Dr. Martin Halla
Submission date: 31.07.2024

For the newest version check
https://github.com/VARFynn/University_Contributions/tree/main/01_Master/01_Masterthesis/01_Masterthesis.pdf

GitHub

Abstract

LIPSUM

Acknowledgement

Contents

List of Tables

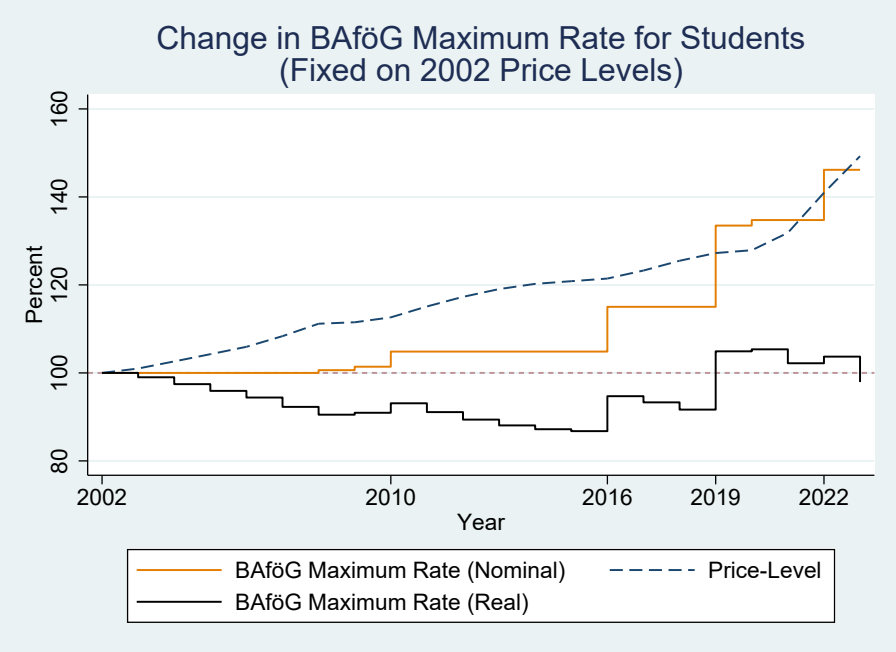
List of Figures

1 Introduction

2 Theoretical Framework

2.1 BAfoeG in Germany

- **Means-Based Testing**: Explaining the "Calculation Algorithm".
- **Algorithm Overview:** Brief explanation highlighting the essential parameters. (Create Table of Parameters in Appendix)
- **Parameter Modifications & Policy Reforms:** Real vs. nominal changes.



Change also holds for other parameters

2.2 The Student's Decisions

1. Decision to enter the state: Study vs. Work
2. Deicision to leave state: (i) Ability to finish program &

3 Data and Descriptive Statistics

- SOEP ⇒
- Data Cleaning
  - Starting with 2002, because prior too many "filler students". Year y $\in [2002, 2019]$ ⇒ pre Covid.
  - Imputations (e.g. Heckman correction for missing wages in specific waves) ⇒ Optimal Behavior e.g. "Steuerklassen"
  - Discussion: Left- & Right-censored students & Students without Parents in Sample (*provide summary in apendix that no difference between two groups*)
  - Tax Estimation

Table 1: Summary Statistics Students (2002 - 2019)

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Individual Characteristics:					
Age	12997	23.6612	3.359	17	35
Male	12997	.4853	.4998	0	1
Migration Background	12997	.2258	.4181	0	1
First Gen	12997	.3393	.4735	0	1
Academic:					
University	12997	.7271	.4455	0	1
Polytechnic	12997	.2341	.4234	0	1
Work Academy	12997	.0279	.1646	0	1
Year in University	12997	3.3850	2.372	1	16
Income:					
Inc. Student (€, Gross, Mth.)	12997	613.2629	922.676	0	12073
Labor Supply	12997	.4977	.5	0	1
Labor Supply (Weekly Hours)	6469	21.0649	12.8832	1	40
Inc. Father (€, Gross, Mth.)	12997	4093.2365	5194.5459	0	92317.5
Inc. Mother (€, Gross, Mth.)	12997	1786.9277	2277.8298	0	72000
BAfoeG:					
Student Grants (SOEP)	12997	.2333	.4229	0	1
Student Grants (€, Mth.)	2173	430.8242	241.6607	10	3000
BAfoeG (simulated)	12997	.3144	.4643	0	1
BAfoeG (€, Mth.)	4086	360.0500	206.1949	10.3133	2599
Eligible for BAfoeG	12997	.8927	.3094	0	1

Note: This includes every individual who studied for at least one semester in the respective year. Consequently, individuals appearing in j study years influence the mean with a weighting of j/n. Student Grants include state funding (BAfoeG) as well as other forms of stipends. BAfoeG amounts are calculated under the assumption of optimal behavior and always assume an application is made if the amount is greater than zero. Therefore, these figures may be higher than the actual amounts received.

- BAfoeG Simulated vs. Actual

- See for Share actual vs. simulated details per year
- Discussion where difference might stem from
- Discussion Approach

4 Empirical Framework

The Game-Plan:

1. Plain Cost Estimation
   (a) Estimate the costs of BAfoeG per Year ⇒ suppose an Income-Tax-Change to finance this costs ⇒ take ε from the Literature ⇒ End up with Monetary + Lapor Supply Costs
2. Effects Real BAfoeG Variation
   (a) Decision to start study (first. post. sec. degree)
      - General
      - Only Students which qualify for BAfoeG (Probit/OLS - LPM)
      - Share First Generation Students
      - FH & Technical
   (b) Decision to end study in planned time
   (c) Decision to provide labor while studying (Reference to positive effects Mattana & Joensen) - both extensive & intensive margin
   (d) Take up & Non-Take-UP
      - Income Groups who drop out due to real wage inadjustment
3. Controls:
   - Average Wage (Inflation Variation might not fully relfecting Real Wage Variance)
   - Financial Crisis 2008 (2018) similar argument as above
   - Grant & Loan Share (can be calc. using sim BAF), see argument Elena Mattana & Juana Joensen: *"find that if study aid consists mostly of grants, a reduction in loans and increase in grants reduces graduation rates. However, once loans are larger than grants, further changes have little impact on dropout and graduation rates. This means that once aid is mostly provided as loans, the government can decide who bears the college cost without affecting human capital accumulation"*
   - Hochschultyp

4.1 Costs

4.2 Effects

(a)
General Regression - compressed data (Naíve Pre Reg)

$$\hat{PR}(\text{Begin} \mid \text{Eligble Non-Student}) = \beta_0 + \beta_1 \times \text{BAfoeG Maximum Rate} + \varepsilon \quad (1)$$

With Simulated individual specific Data ⇒ allows to use hypothetical BAfoeG unconditional on working decision

$$\hat{PR}_i(\text{Begin} \mid \text{Eligble Non-Student}) = \beta_0 + \beta_1 \times \text{Sim. BAfoeG}_i + \varepsilon_i \quad (2)$$

5 Results

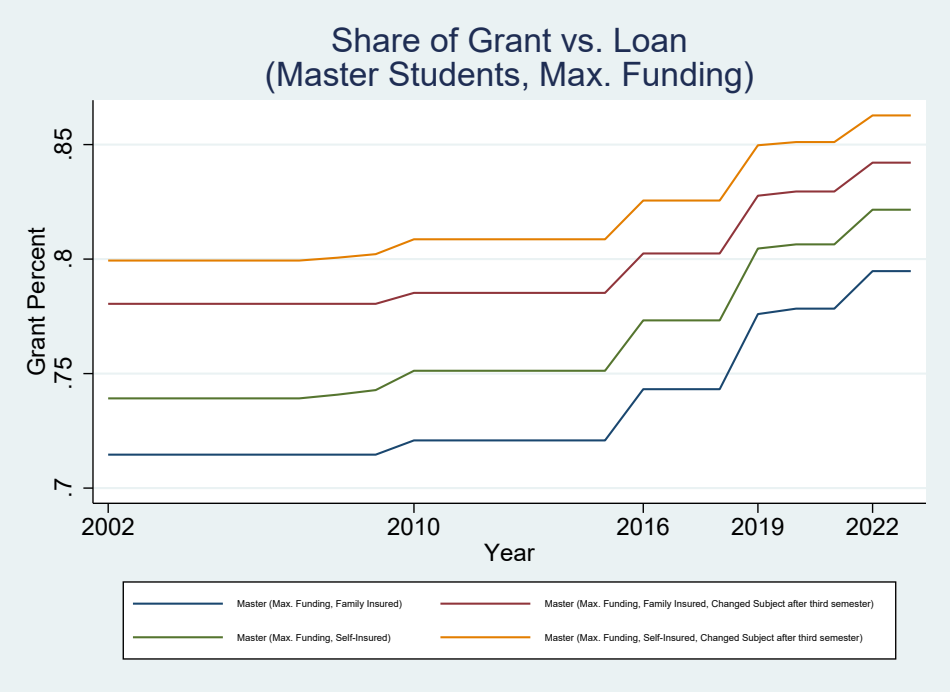
5.1 Costs

5.2 Effects

6 Discussion and Limitations

Collection of Limitations

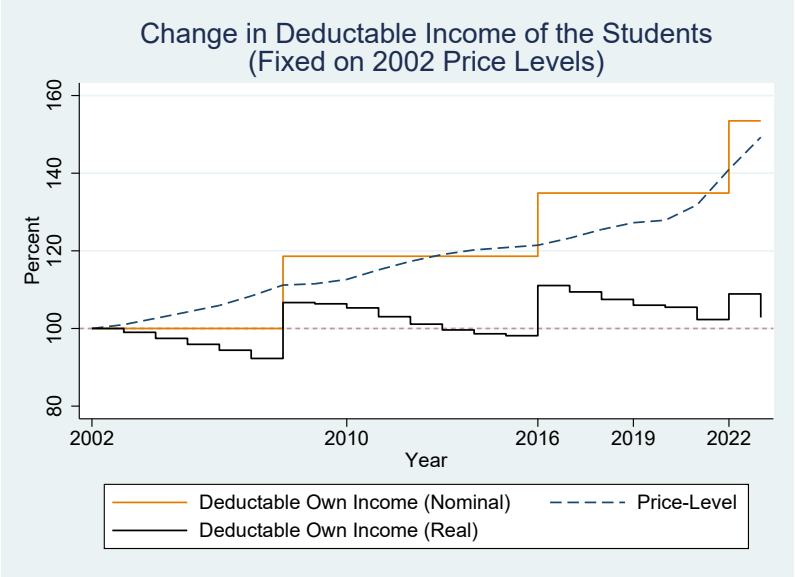
- The forgotten parameter: The "Pay-Back-Cap"

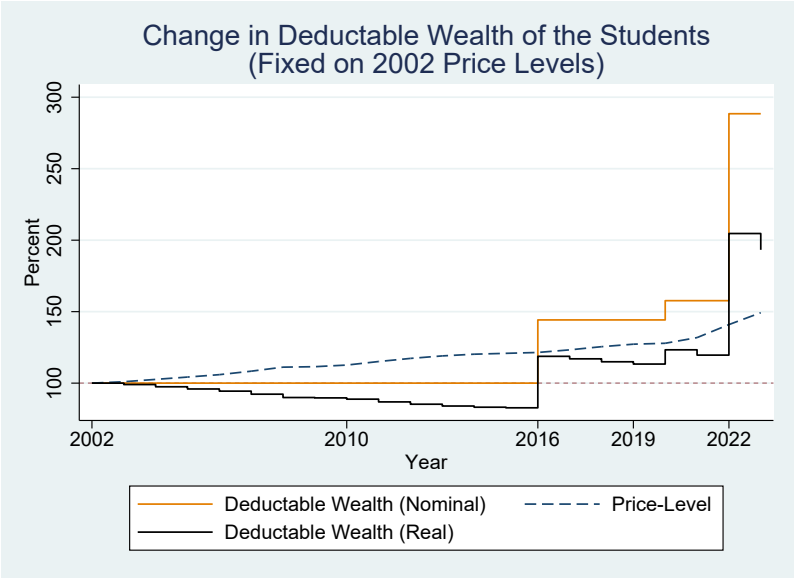


- Benefit Side cannot measure: (i) Skill (ii) Buraucrtcy costs & (iii) Effects of Uncertainty/Certainty on students
- Search & Matching in this thesis excluded.
- Causal Diagram to highlight the imposed orthogonality assumptions.

7 Summary and Concluding Remarks

A Further Figures





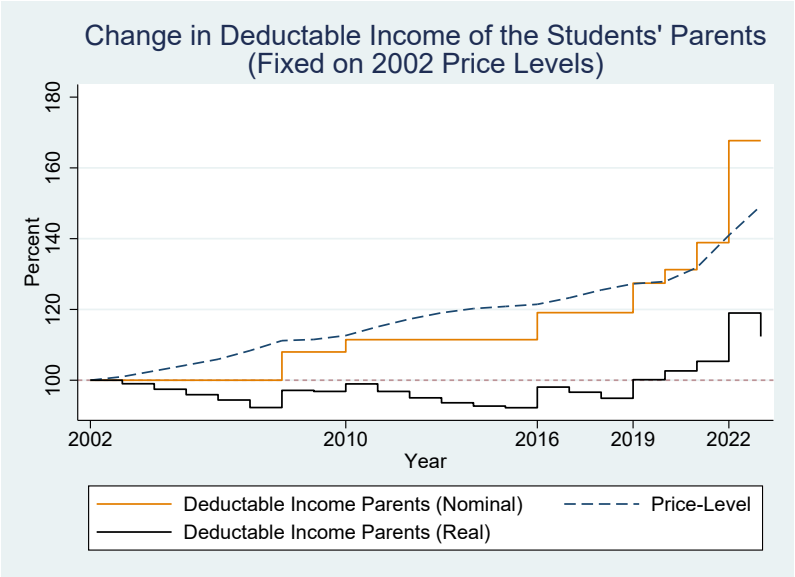

Change in Deductable Income of the Students' Parents
(Fixed on 2002 Price Levels)
Percent
100
120
140
160
180
2002
2010
2016
2019
2022
Year
Deductable Income Parents (Nominal)
Price-Level
Deductable Income Parents (Real)

Table 2: Share of BAfoeG Recipients per Year - Actual vs. Simulated

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Received Student Grants (actual)	14008	.2219	.4155	0	1
- 2002	650	.2154	.4114	0	1
- 2003	677	.2482	.4323	0	1
- 2004	721	.2455	.4307	0	1
- 2005	705	.2071	.4055	0	1
- 2006	699	.2289	.4204	0	1
- 2007	692	.2023	.402	0	1
- 2008	664	.2154	.4114	0	1
- 2009	656	.2256	.4183	0	1
- 2010	682	.2229	.4165	0	1
- 2011	718	.2493	.4329	0	1
- 2012	719	.2643	.4412	0	1
- 2013	836	.2656	.4419	0	1
- 2014	857	.2287	.4202	0	1
- 2015	906	.2230	.4165	0	1
- 2016	886	.2257	.4183	0	1
- 2017	1001	.2008	.4008	0	1
- 2018	994	.1801	.3844	0	1
- 2019	945	.1746	.3798	0	1
BAfoeG (simulated)	14008	.2939	.4556	0	1
- 2002	650	.3138	.4644	0	1
- 2003	677	.3235	.4682	0	1
- 2004	721	.2691	.4438	0	1
- 2005	705	.2454	.4306	0	1
- 2006	699	.2403	.4276	0	1
- 2007	692	.2269	.4191	0	1
- 2008	664	.2455	.4307	0	1
- 2009	656	.2607	.4393	0	1
- 2010	682	.2859	.4522	0	1
- 2011	718	.3008	.4589	0	1
- 2012	719	.3004	.4588	0	1
- 2013	836	.3553	.4789	0	1
- 2014	857	.3069	.4615	0	1
- 2015	906	.3079	.4619	0	1
- 2016	886	.3420	.4746	0	1
- 2017	1001	.3147	.4646	0	1
- 2018	994	.3048	.4606	0	1
- 2019	945	.2974	.4573	0	1

Note: Student Grants include state funding (BAfoeG) as well as other forms of stipends. BAfoeG amounts are calculated under the assumption of optimal behavior and always assume an application is made if the amount is greater than zero. Therefore, these figures may be higher than the actual amounts received.

Table 3: Summary Statistics Non-Students (2002-2019)

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Individual Characteristics:					
Age	25350	25.7273	5.0901	17	35
Male	25350	.5163	.4997	0	1
Migration Background	25350	.2709	.4444	0	1
First Gen	25350	.6968	.4597	0	1
Income:					
Inc. Student (€, Gross, Mth.)	25350	1304.9394	1291.671	0	49000
Labor Supply	25350	.7987	.401	0	1
Labor Supply (Weekly Hours)	25350	27.4225	17.4336	0	80
Inc. Father (€, Gross, Mth.)	25350	2132.5798	3163.2108	0	104000
Inc. Mother (€, Gross, Mth.)	25350	1047.101	1341.3494	0	25000

Note: A person is considered a non-student if they are under 35 years old, have earned the right to study, but are not studying in the respective year and have not finished any post-secondary degree.