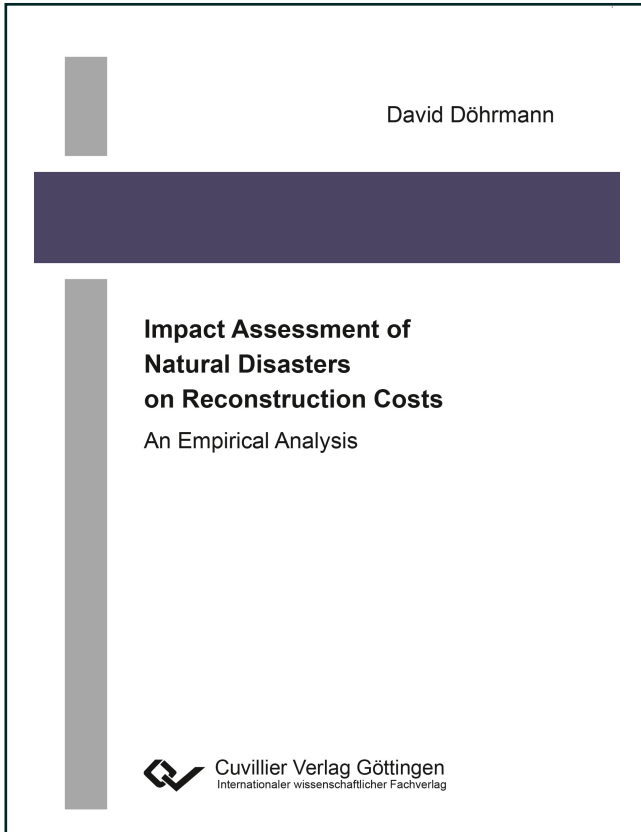




David Döhrmann (Autor)
**Impact Assessment of Natural Disasters on
Reconstruction Costs**



<https://cuvillier.de/de/shop/publications/6996>

Copyright:
Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany
Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>



Contents

1	Introduction	1
1.1	Problem Definition and Objectives of This Work	1
1.2	Course of Investigation	3
2	Fundamentals of Catastrophe Risk	6
2.1	Economics of Natural Disasters	6
2.2	Catastrophe Risk Management	11
3	Demand Surge	16
3.1	General Definitions	16
3.2	Historical Evidence	17
3.3	Regulatory Framework	20
3.4	Impact on Labor and Material Prices	20
3.5	Demand Surge Models in Theory and Practice	23
3.5.1	Commercial Models	24
3.5.1.1	AIR	24
3.5.1.2	EQECAT	26
3.5.1.3	RMS	28
3.5.1.4	Risk Frontiers	30
3.5.2	Public Model	31
3.5.2.1	Florida Public Hurricane Loss Model	31
3.5.3	Scientific Models	33
3.5.3.1	Hallegatte et al. (2008)	34
3.5.3.2	Olsen and Porter (2011a)	35
3.5.3.3	Catastrophe Models including Demand Surge	37
3.6	Measurement of Demand Surge	38
3.7	Appendix	41
3.7.1	Proof of Inequality 3.12	41
4	Insured Loss Inflation and Demand Surge	43
4.1	Fundamentals and Research Questions	43



4.2	Hypotheses	44
4.3	Empirical Analysis	47
4.3.1	Quantifying Demand Surge	47
4.3.2	EM-DAT Catastrophe Database	53
4.3.2.1	Demand Surge Drivers	54
4.3.2.2	Descriptive Statistics	58
4.3.2.3	Empirical Results	63
4.3.2.3.1	Demand Surge Effect for Large Catastrophes . .	63
4.3.2.3.2	Demand Surge Effect for Extreme Catastrophes	66
4.3.2.3.3	Robustness Checks	69
4.3.3	SHELDUS Catastrophe Database	74
4.3.3.1	Demand Surge Drivers	74
4.3.3.2	Descriptive Statistics	76
4.3.3.3	Empirical Results	81
4.3.3.3.1	Demand Surge Effect for Large Catastrophes . .	81
4.3.3.3.2	Demand Surge Effect for Extreme Catastrophes	84
4.3.3.3.3	Robustness Checks	86
4.4	Interim Results	91
4.5	Appendix	94
4.5.1	Mapping Algorithm	94
4.5.2	Cluster-Robust Standard Errors	95
5	Impact of Natural Disasters on Reconstruction Labor Wages	96
5.1	Fundamentals and Research Questions	96
5.2	Literature Review	97
5.3	Affected Market Participants	99
5.4	Hypotheses	101
5.5	Data and Empirical Strategy	104
5.5.1	Catastrophe Events and Demand Surge	104
5.5.2	Empirical Strategy	106
5.5.3	Demand Surge Drivers	108
5.5.4	Descriptive Statistics	115
5.6	Empirical Results	120
5.6.1	Under which Conditions Do Catastrophes Lead to Demand Surge Effects?	120
5.6.2	What are the Determinants for the Magnitude of the Demand Surge Effect?	124
5.6.3	Robustness Checks	127



5.7	Interim Results	131
5.8	Appendix	133
5.8.1	Logit Analysis	133
6	Conclusion	136