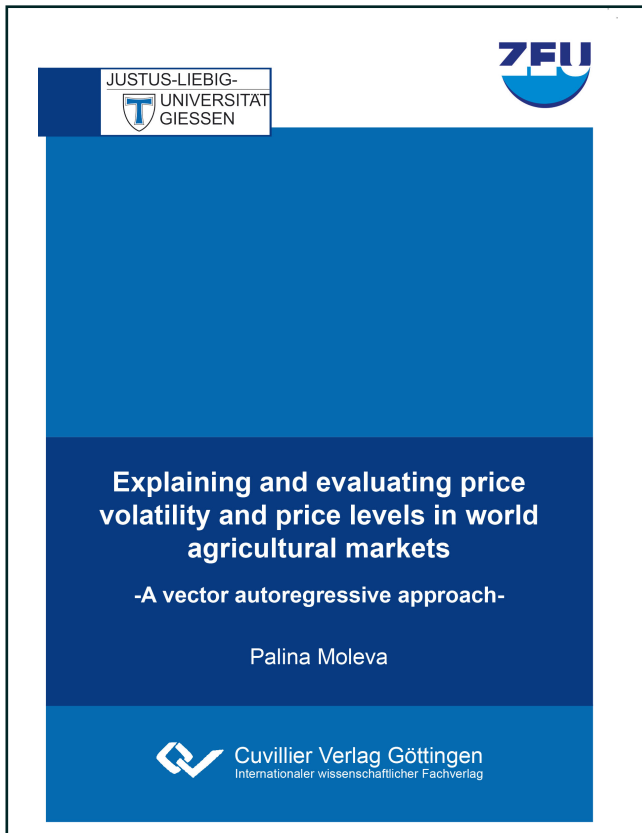




Palina Moleva (Autor)

Explaining and evaluating price volatility and price levels in world agricultural markets

A vector autoregressive approach



<https://cuvillier.de/de/shop/publications/7463>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentzsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen, Germany

Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>



Outline

| | |
|--|-------|
| Figures..... | XIV |
| Tables..... | XVIII |
| Abbreviations..... | XIX |
| 1. Introduction | 1 |
| 1.1. Problem statement and objectives of the thesis | 1 |
| 1.2. Structure of the thesis and limitations..... | 4 |
| 2. Development of international markets for agricultural commodities, biofuels and of food security | 6 |
| 2.1. Development of price levels..... | 6 |
| 2.2. Price volatilities on international markets..... | 11 |
| 2.2.1. Definition and measurement of price volatility | 11 |
| 2.2.2. Own estimations of price volatilities across time and commodities..... | 15 |
| 2.3. International biofuel markets and feedstocks..... | 19 |
| 2.4. Development of the world food situation..... | 25 |
| 2.5. Interim conclusions: correlation versus causality | 28 |
| 3. Theoretical analyses and empirical findings of price formation and price developments on international agricultural markets | 31 |
| 3.1. The treadmill theory as a starting point..... | 31 |
| 3.2. Additional partial explanatory factors for short-term and medium-term price movements | 35 |
| 3.2.1. Demand-side triggers | 35 |
| 3.2.2. Supply-side triggers | 38 |
| 3.2.3. Macroeconomic and intersectoral triggers..... | 39 |
| 3.2.4. Trade policy effects..... | 41 |
| 3.3. A brief literature survey on the effects of biofuels and speculation | 42 |
| 3.3.1. Price effects of biofuels..... | 42 |
| 3.3.2. Price effects of speculation | 46 |



| | |
|---|-----|
| 3.4. The weaknesses of the partial explanatory approach when several shocks occur simultaneously | 47 |
| 3.4.1. A macroeconomic example..... | 48 |
| 3.4.2. A sectoral example..... | 49 |
| 3.5. Excursus: on the question of price transmission and of hunger caused by high and volatile prices | 51 |
| 3.5.1. Relationship between prices and hunger..... | 51 |
| 3.5.2. Literature survey on price transmission elasticities..... | 53 |
| 3.5.3. Own estimations with a vector error correction model..... | 56 |
| 3.5.4. Home-made determinants of hunger..... | 58 |
| 3.6. Interim conclusions concerning the choice of the own empirical analysis..... | 60 |
| 4. Multivariate time series analysis as chosen methodology..... | 61 |
| 4.1. Vector autoregressive models – VARs and SVARs..... | 61 |
| 4.1.1. Identification problem and structural VAR model | 64 |
| 4.1.2. Impulse Response Functions..... | 70 |
| 4.1.3. Variance Decomposition..... | 73 |
| 4.2. Unit-roots and stationarity issues | 74 |
| 4.3. Granger causality test and cointegration..... | 78 |
| 4.4. Estimation procedure | 82 |
| 4.4.1. Data transformation..... | 82 |
| 4.4.2. Model stability and lag length specification..... | 83 |
| 4.4.3. Testing serial correlation..... | 85 |
| 5. Empirical analysis using a structural VAR model | 87 |
| 5.1. Literature review on (S)VAR analyses | 87 |
| 5.2. Data description of the used time series..... | 95 |
| 5.3. Testing and modelling the VAR system | 107 |
| 5.3.1. Unit-root test | 107 |
| 5.3.2. Structural breakpoint test | 111 |
| 5.3.3. Construction of the main SVAR model..... | 112 |



| | |
|--|-----|
| 5.3.4. Granger causality test..... | 113 |
| 5.4. Identification of contemporaneous restrictions in a SVAR context | 115 |
| 5.5. Presentation and discussion of empirical results using different variables’ combinations | 118 |
| 5.5.1. SVAR 1 with 5 variables | 119 |
| 5.5.2. SVAR 2 with 5 variables | 122 |
| 5.5.3. SVAR 3 with 5 variables | 124 |
| 5.5.4. SVAR 4 with 5 variables | 126 |
| 5.5.5. SVAR 5 with 6 variables | 129 |
| 5.5.6. SVAR 6 with 6 variables | 131 |
| 5.5.7. SVAR 7 with 7 variables | 134 |
| 5.5.8. SVAR 8 with 7 variables | 136 |
| 5.6. Interim conclusion on the empirical results | 138 |
| 6. Summary and conclusion of the thesis | 142 |
| 6.1. Background and market overview | 142 |
| 6.2. Price analysis and methodology..... | 144 |
| 6.3. Empirical Findings | 146 |
| 6.4. Policy implications..... | 148 |
| 7. Zusammenfassung und Fazit der Arbeit..... | 151 |
| 7.1. Problemstellung und Marktüberblick..... | 151 |
| 7.2. Preisanalyse und Methodenwahl..... | 153 |
| 7.3. Empirische Ergebnisse | 155 |
| 7.4. Politikimplikationen..... | 157 |
| References..... | 161 |
| Appendix I | 177 |
| Appendix II | 179 |
| Appendix III..... | 187 |
| Appendix IV..... | 189 |