A decomposition model of vertical price transmission with scanner data

Christin Schulze Bisping and Stephan von Cramon-Taubadel
Department of Agricultural Economics and Rural Development
University of Goettingen

Author email: cschulz3@gwdg.de

Selected Poster prepared for presentation at the
2016 Agricultural & Applied Economics Association Annual Meeting, Boston, MA, July 31-Aug. 2

Copyright 2016 by Christin Schulze Bisping and Stephan von Cramon-Taubadel. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
A decomposition model of vertical price transmission with scanner data

Christin Schulze Bisping\(^1\) and Stephan von Cramon-Taubadel
Faculty of Agricultural Sciences, University of Goettingen

INTRODUCTION

Food retailing is often highly concentrated: recently studied is the price-setting behavior of individual retailers looking for evidence of asymmetries in price transmission between wholesaler and retailers. Scanner data for retail prices are increasingly used therein.

However standard price transmission models based on cointegration methods are unable to account for two main characteristics of scanner prices:

1. Short-term promotional prices are included which are asymmetric in nature and can therefore bias estimates of price transmission,
2. If promotional prices are filtered out, the remaining so-called reference prices follow discontinuous jump processes.

Standard cointegration models assume continuous adjustment, thus are not appropriate for such data.

OBJECTIVES

- How to account for discontinuous jump processes of individual retail price series?
- How do retail reference prices respond to indiscrrete jumps of wholesale price changes? Role of margin?

RESULTS

\( \text{RESULTS} \)

- • German market for 250g-packaged butter • weekly retail scanner data • weekly wholesale prices • 01/2005-12/2010 • filter for reference price: 13-weeks-rolling window

METHODS

Decomposition model by Rydberg and Shephard (2003) accounts for discreteness and rare occurrence of retail price changes:

1. Modelling the probability that a retail price changes by a Firth-type penalized logistic regression

\[ \text{A}_1: \text{Modelling the probability that a retail price changes by a Firth-type penalized logistic regression} \]

2. Given that the retail price has changed, modelling the probability for an increase or decrease by a Firth-type penalized logistic regression

\[ \text{D}_2: \text{Given that the retail price has changed, modelling the probability for an increase or decrease by a Firth-type penalized logistic regression} \]

3. Given that the retail price has changed and in which direction, the size of an increase or decrease is governed by a geometric distribution

\[ \text{S}_3: \text{Given that the retail price has changed and in which direction, the size of an increase or decrease is governed by a geometric distribution} \]

CONCLUSION

- Promising: model reveals hierarchical price-setting behavior
- Margin: significant driver in retail price-setting
- Duration between two retail price changes: insignificant
- Evidence for asymmetry
- Problem: small sample size to estimate size of retail price change

REFERENCES


CONTACT

1. Georg-August-Universität Göttingen, Platz der Göttinger Sieben 5, 37073 Göttingen, cschulze2@gwdg.de

Example for part A\( _1 \)