



*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*

## **Forced Sales and Farmland Prices**

**Martin Odening, Simon Jetzinger**

Farm Management Group  
Department of Agricultural Economics, Humboldt Universität zu Berlin, Germany  
Invalidenstrasse 110, D-10115 Berlin

**Silke Huettel\***

Quantitative Agricultural Economics  
Department of Agricultural Economics, Humboldt Universität zu Berlin, Germany  
Invalidenstrasse 42, D-10115 Berlin

\*Corresponding author:  
E-mail: [silke.huettel@agrار.hu-berlin.de](mailto:silke.huettel@agrار.hu-berlin.de)  
Tel +49 (0)30 2093 6459

Selected Poster prepared for presentation at the Agricultural & Applied Economics Association's 2013 AAEA & CAES Joint Annual Meeting, Washington, DC, August 4-6, 2013.

*Copyright 2013 by Huettel, Odening, Jetzinger. 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.*



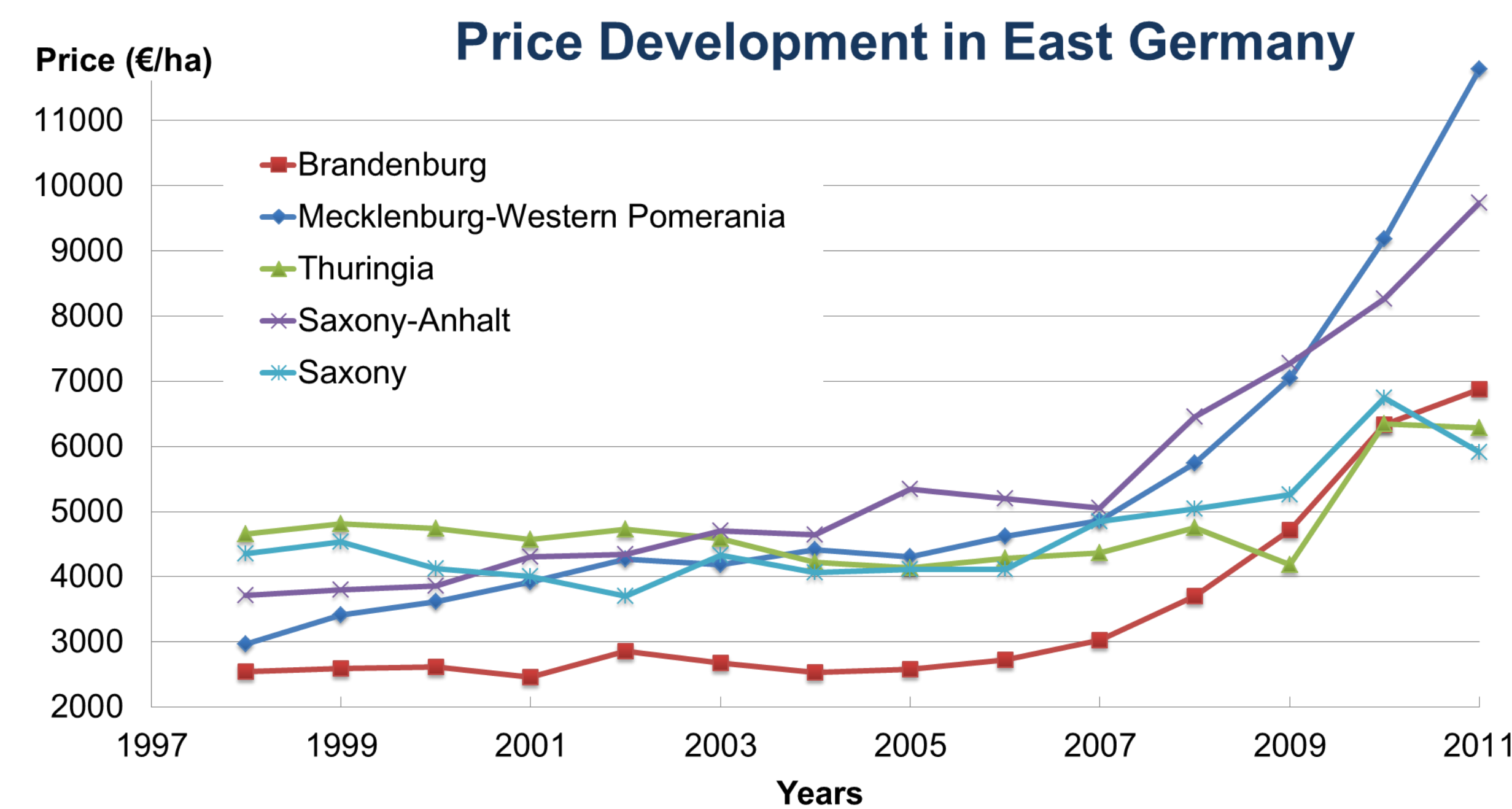
## MOTIVATION

### Loan value for agricultural land

- Common practice price discount  
Limit: 60 % < loan value: 80 % < market value: 100 %
- Need: value independent of market fluctuations

### Forced sales in Germany

- First-price auction
- Sale under time pressure
- Public tender: local land market



## LITERATURE

### Price Determinants

- Procedure: hedonic price model
- Plot characteristics e.g. soil quality
- Local characteristics e.g. precipitation

### Price effect of forced sales?

- Pressured sale: price ↓  
less pronounced in market booms
- First-price auction effect: price ↑
- Public tenders: attracts potential bidders: price ↑ / ↓

➔ **Net effect?**

## OBJECTIVE

Quantify the net average price effect of a forced sale

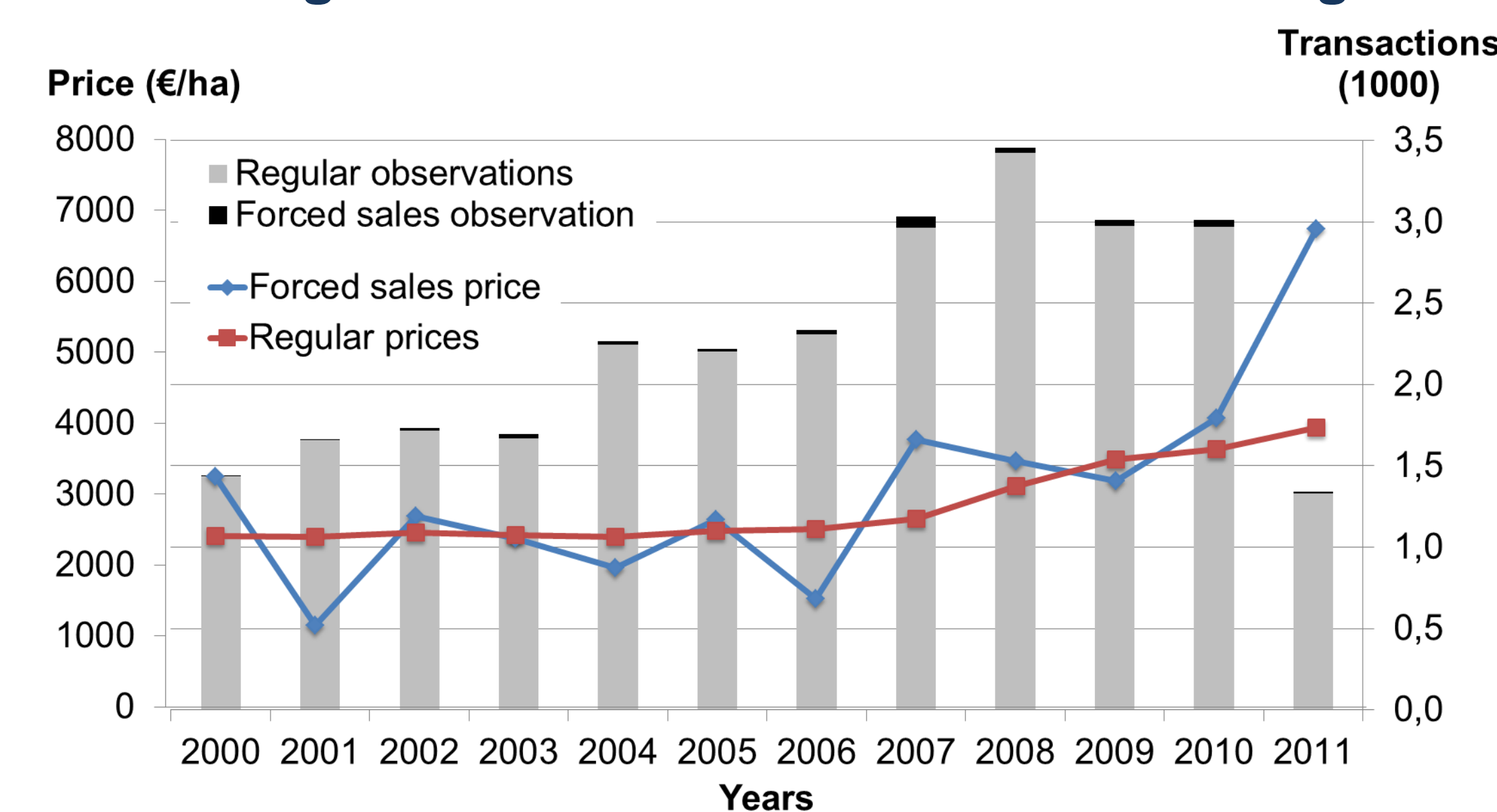
## DATA

- Source: "Oberer Gutachterausschuss im Land Brandenburg"
- Observations: 19,234 'regular' ( $n^0$ ), 211 forced sales ( $n^1$ )
- 35.6 % of overall sold farmland Jan/2000 – Sept/2011
- Variables  $x$ : price, soil quality index, plot size, administrative district, date of sale



	Mean price (€/ha)	Mean soil quality [1,102]	Mean plot size (ha)
$n^0$	2,986	32	5
$n^1$	3,370	33	4

### Regular and forced sales in Brandenburg



## METHODOLOGY

### Average treatment effect of the treated ATET

- Average price discount / increase of plot  $i$  sold within a foreclosure
- Need: hypothetical price of a forced sale plot sold under 'regular' conditions
- Problem: lot sold either regular or as forced sale

## MEASURING THE TREATMENT EFFECT

### Rubin Causal Model

- Indicator:  $d_i = \begin{cases} 1 & \text{if forced sale} \\ 0 & \text{otherwise} \end{cases}$
- Observed price:  $p_i = d_i \cdot p_i^1 + (1 - d_i) \cdot p_i^0$
- $ATET = E[p_i^1 - p_i^0 | d_i = 1]$

### Estimation

- Unconfoundedness:  $p_i^0 \perp d_i | x \rightarrow E[p_i^0 | d_i = 1] = E[p_i^0 | d_i = 0]$   
 $ATET = \frac{1}{n^1} \sum_{i=1}^{n^1} (p_i^1 - E[p_i^0 | d_i = 1])$
- Use  $n^0$ : estimate  $E[\cdot]$

### Regression $ATET_{reg}$

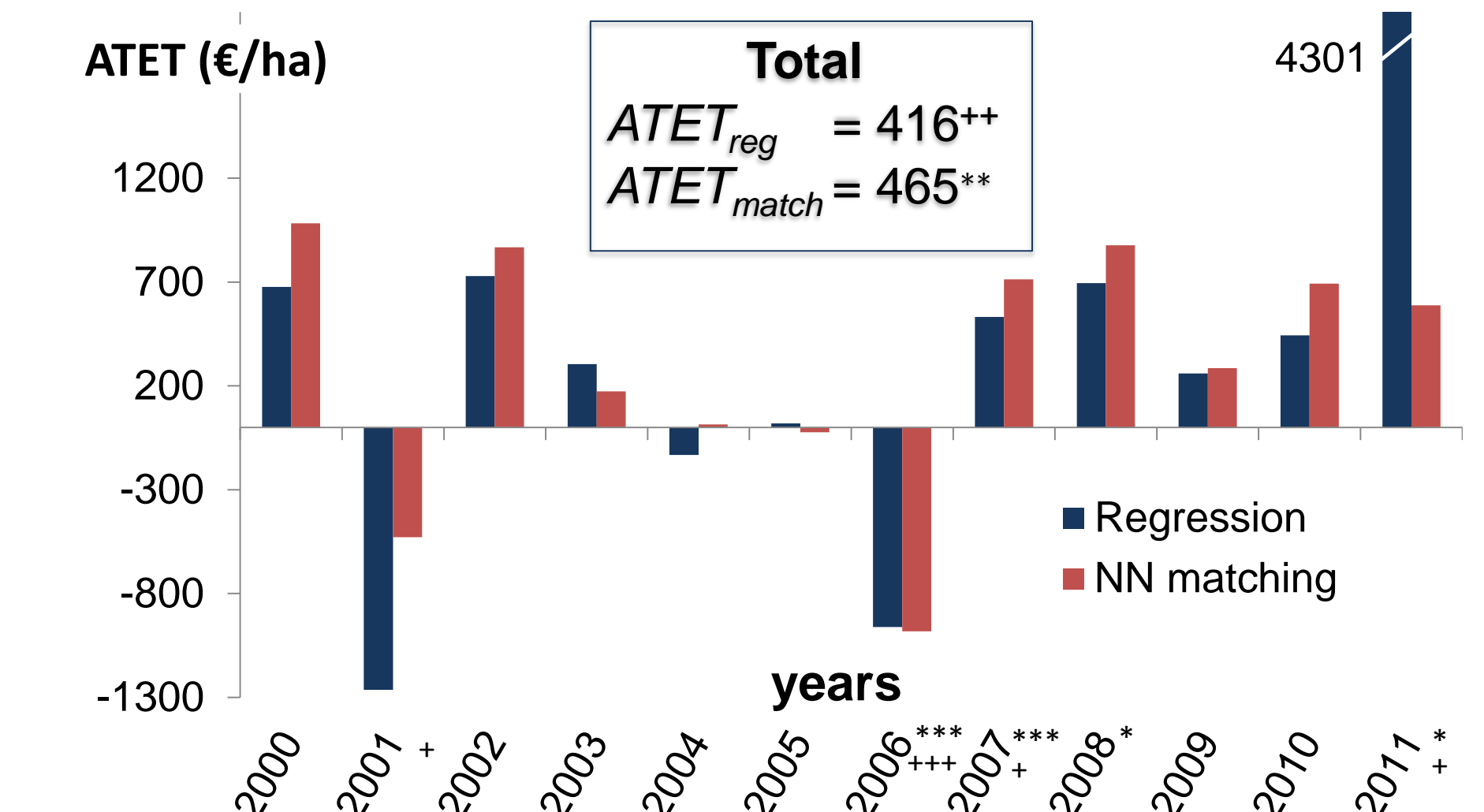
- Use  $n^0$  for  $p_j^0 = x_j^0 \beta^0 + error_j$

$$E[p_i^0 | d_i = 1]_{reg} = \frac{1}{n^1} \sum_{i=1}^{n^1} x_i^1 \hat{\beta}^0$$

### Nearest Neighbor Matching $ATET_{match}$

- Use 3 most similar  $n^0$  based on Mahalanobis distance  $M_{ij}$
- $E[p_i^0 | d_i = 1]_{match} = \sum_{j=1}^3 \frac{1}{3} \cdot p_j^0$  with  $j \in \min |M_{ij}|$

## RESULTS



NN-Matching: Abadie-Imbens standard errors; \*\*\*, \* denote significance at the 1 and 10% level, respectively. Regression: +++, ++ and + denote significance at the 1, 5 and 10% level, respectively.

## CONCLUSIONS

- Overall positive price effect of a forced sales procedure
- Dominating first price auction effect
- Current market situation relevant
- Price discount on the safe side