

# From conventional to organic farming with the help of organic flagship regions: a policy evaluation study

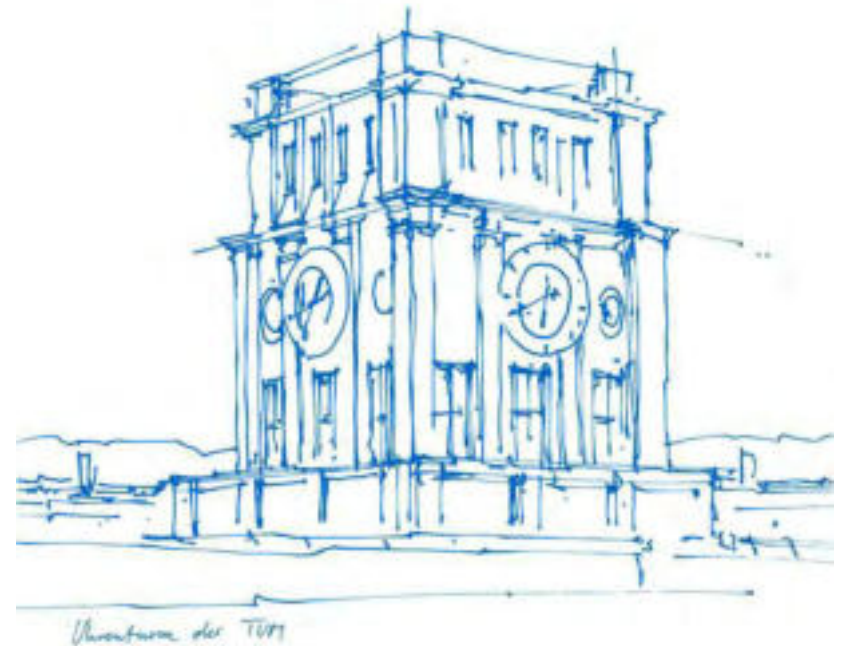
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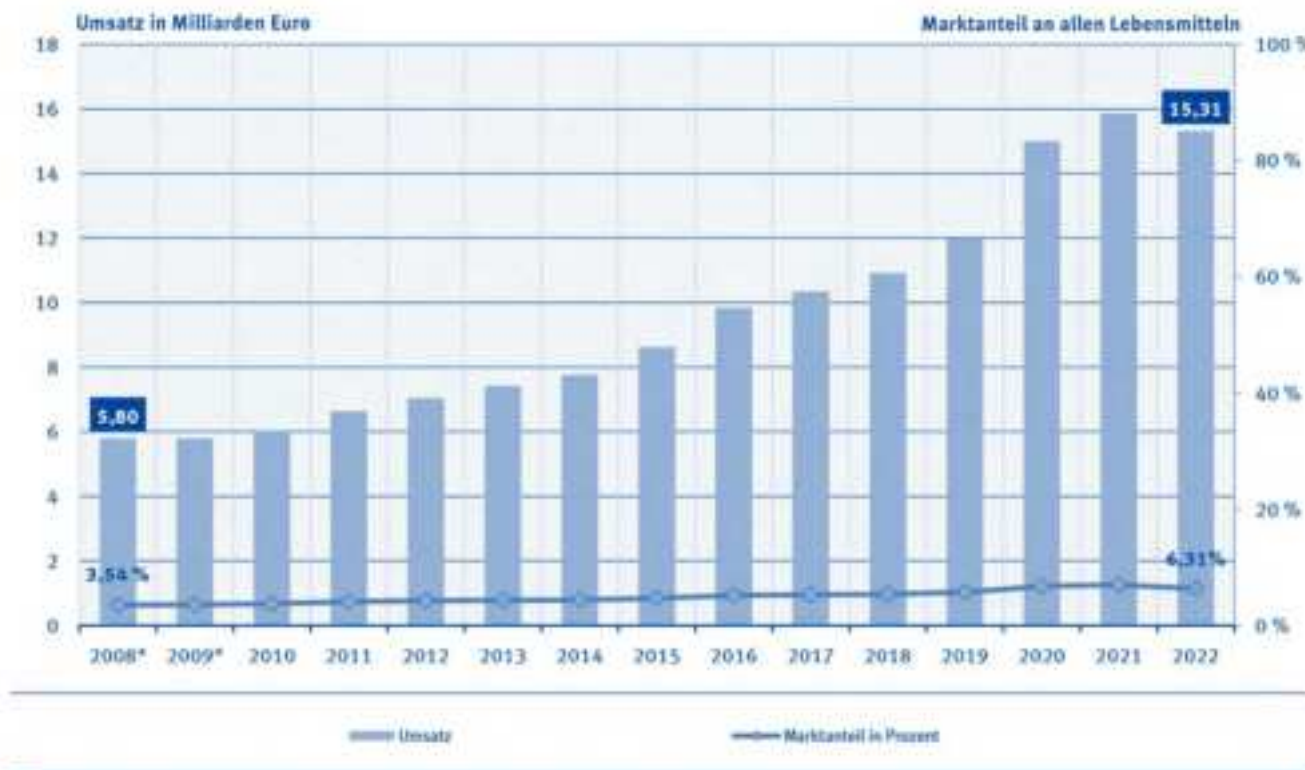
TUM School of Life Sciences

Agricultural Production and Resource Economics

29/01/2019



# (1) Motivation

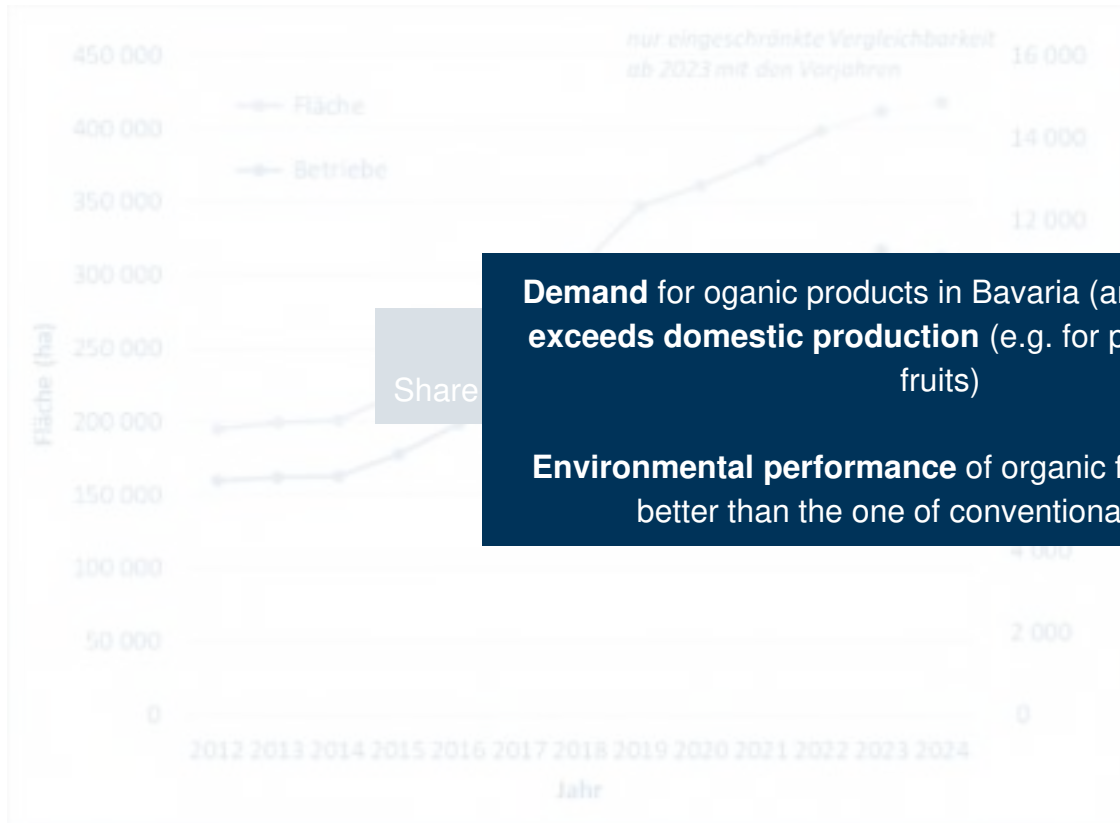


**Sales and market share of organic food in Germany (2008-2022)**

Steady increase in demand for organic food in Germany

Drop in 2022 seems to be temporary one (linked to high inflation)

# (1) Motivation



**Demand** for organic products in Bavaria (and Germany) still **exceeds domestic production** (e.g. for pork, vegetables, fruits)

**Environmental performance** of organic farming per area better than the one of conventional farming

Organic farming in Bavaria (2012-2024): Number of organic farms and agricultural area farmed organically

13.6%

## (1) Motivation



Policy goal for organic agriculture in Bavaria: **30% of the total agricultural area shall be farmed organically by 2030** (BioRegio 2030)

# (1) Motivation



**Main aim:** Doubling organic food production by 2020

Marketing

Subsidies

Education

Knowledge transfer

Research

Submeasure:  
Model organic regions  
– 12 Bavarian municipalities were selected as flagship regions for organic production



# (1) Motivation



Against the background of spending public money for the organic flagship regions program: Did the policy measure *organic flagship regions* („Öko-Modellregionen“) achieve its primary goal of motivating farmers to switch to organic production?

**Research question**

## (2) Background

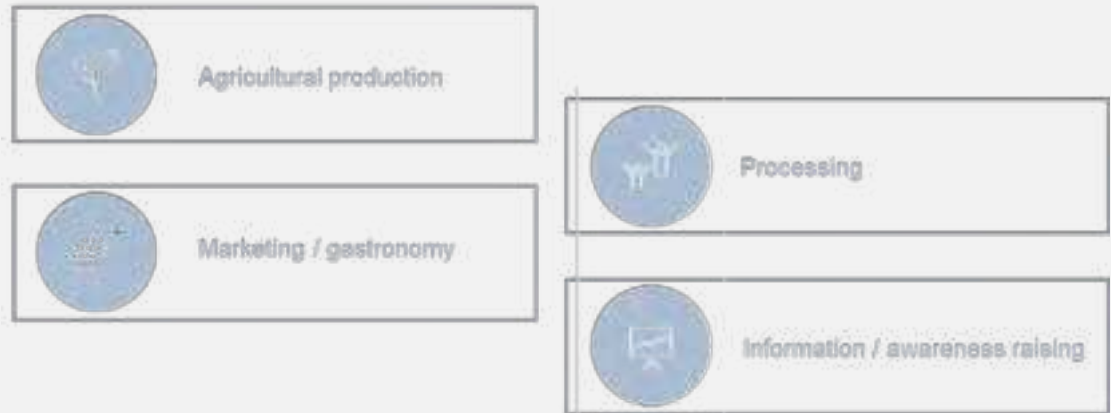
- In 2012 and 2013, Bavarian municipalities could apply to be selected as organic flagship regions; needed to develop **innovative projects and concepts** to strengthen organic production along the value chain
- In 2014 and 2015 **twelve of the applying municipalities** were selected by the Bavarian State Ministry of Food, Agriculture and Forestry (StMELF)
- Until 2016 all selected municipalities began to implement their concepts
- Meanwhile: three more competition rounds in order to become a flagship region (2014, 2018, 2022)



The first 12 Bavarian organic flagship regions

## (2) Background

- In each model organic region a **project manager** was instated that coordinates projects and supports locals in developing their own concepts.
- Projects are implemented in the following areas:





## (2) Background



Oberrheinische Museen

Bio-Erlebnistag 2018: "Bio-Milch"

ZUS

Der die  
Angebot  
dem f  
nicht  
Denar  
für die  
gewante  
Region  
Anstalt  
der Bio-Milch  
Gespäch  
nach ein  
Flasche  
Ordnung  
Nach auf  
Florian Schen  
Ordnung  
Bio-  
Hofschul  
Projektman  
die Polaris  
Milchvieh

Informing consumers about agricultural production on exhibitions



Oberes Wiesental

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Anba

Wirtschaft  
wirtschaft  
im Widen

Nahrungsangebot für bienenbestäubende Insekten in eine Ackerbauregion? Eine Möglichkeit ist der Anbau von entsprechend bestäuber bedenkenden Kulturen. Am Montag, 28.01.2019 um 19:30 Uhr im Landgasthof „Zum Rebeleck“ Kirschtal 38, 97440 Werneck-Steinbach findet dazu ein Informationsabend statt. Vorgelegt werden verschiedene Kleinkarten und Körner-Leguminosen sowie Leinöl- und Senfarten und Buchweizen.

Informing farmers about wide crop rotations and new varieties in evening event



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und un

Erwin Scheuch, Träger des Akademienpreises 2018 der Bayerischen Akademie der Wissenschaften, referiert über Wildbienen – erster Vortragsabend zum Wettbewerb „Insektenfreundlicher Garten/Balkon im Landkreis Mühldorf 2019“ am 30.1. in Landgasthof Eder, Habersham/Lohrkirchen

Presentation of expert about wild bees for interested public as evening event

Examples for projects/activities implemented in flagship regions

### (3) Materials and methods

**Repeated cross section farm-level data** (2015 and 2017) from a questionnaire mailed out to farmers **in model organic regions and neighbouring regions**

Questionnaire contained **questions concerning farm management, socio-economic information, attitude towards organic farming** and a **choice experiment** concerning farm type preferences

Assumption: Farmers from our sample were **not involved in developing the concepts** that were part of the municipalities' application -> policy measure "Öko-Modellregionen" can be considered a treatment in a randomized controlled trial

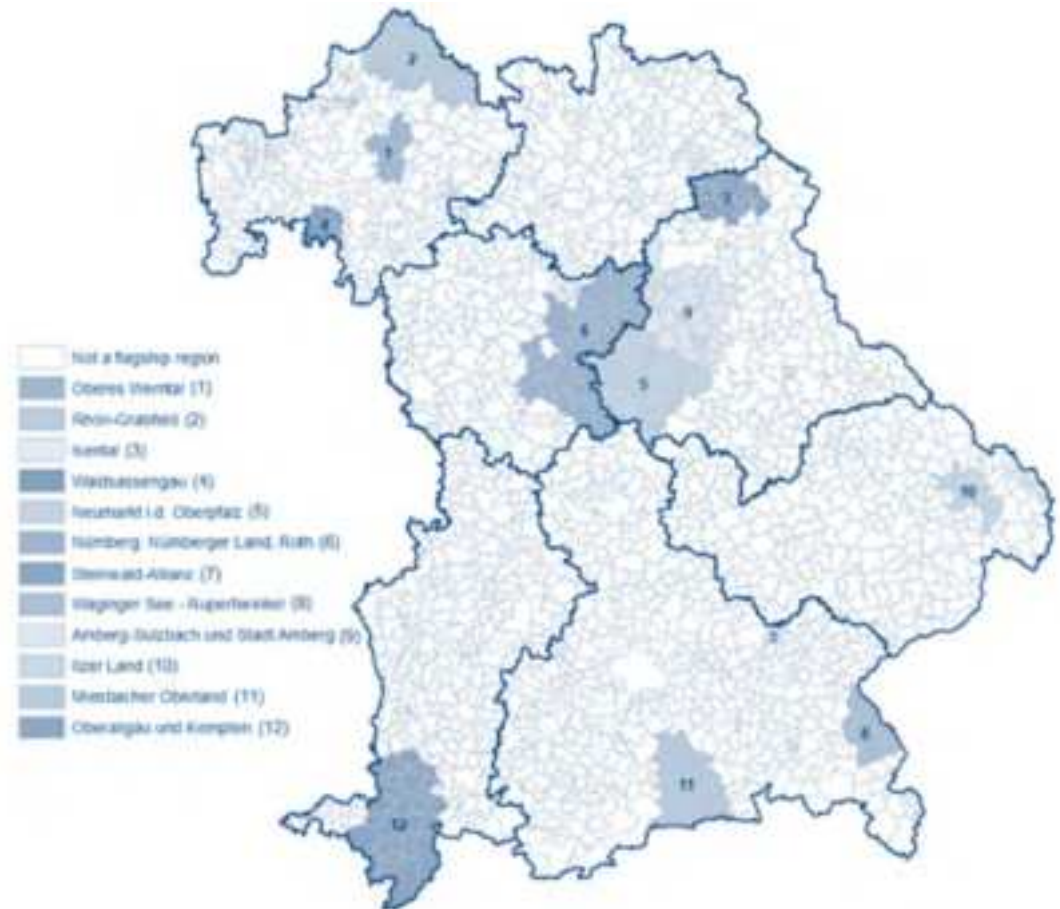
Before-after and inside-outside model organic region information:  
*Difference-in-difference estimation* -> which outcome variable to choose?

**Data used for evaluation**

### (3) Materials and methods

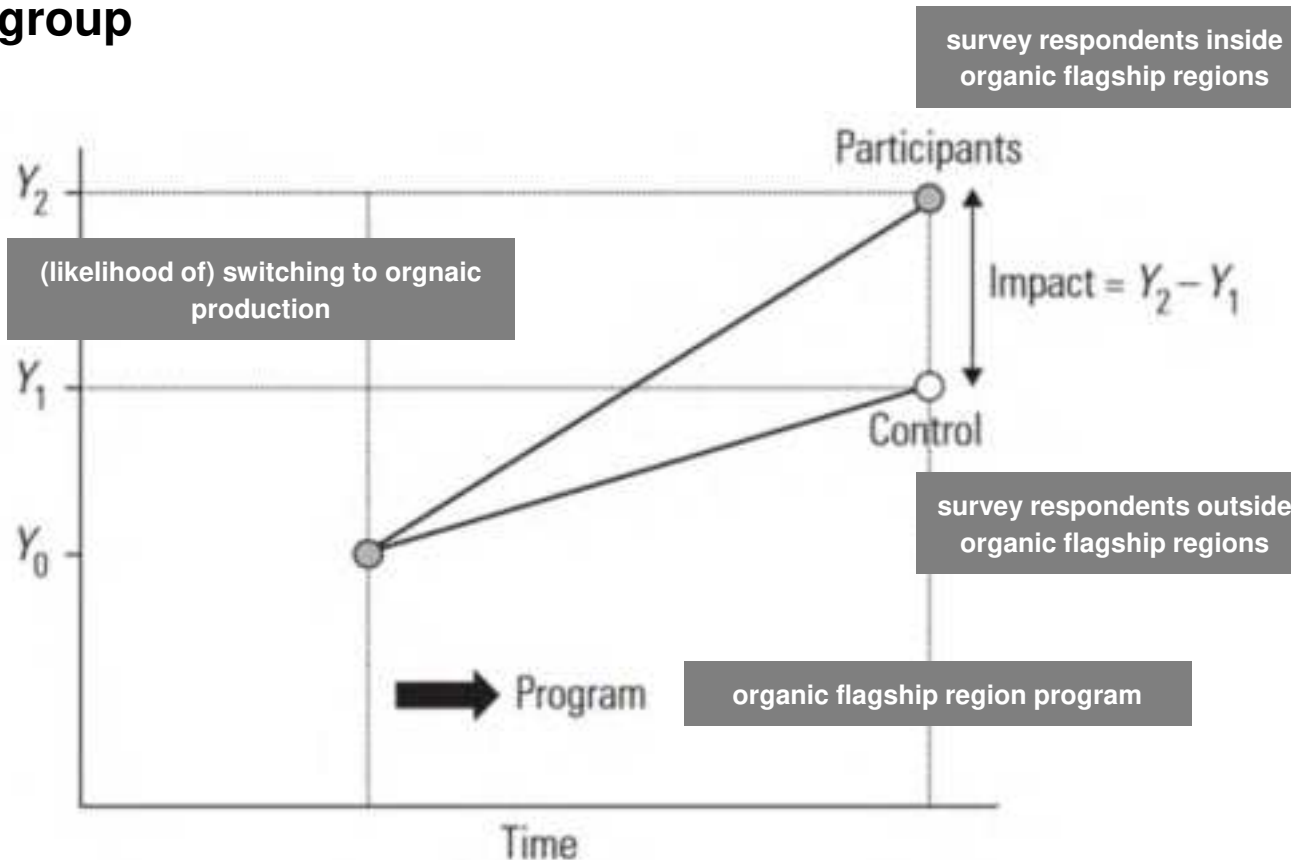
Both surveys were carried out in **nine organic flagship regions** (Oberallgäu und Kempten, Miesbacher Oberland, Ilzer Land, Amberg-Sulzbach und Stadt Amberg, Waginger See – Rupertiwinkel, Steinwald-Allianz, Nürnberg – Nürnberger Land – Roth, Neumarkt i.d. Oberpfalz, and Waldsassengau) and in **neighbouring, non-treated municipalities** in these regions.

Out of **3,002 questionnaires** sent out in May 2016, **423 were completed** and returned. In the second round in March/April 2018, the same questionnaire was sent to the same farmers, of whom **403 returned a completed questionnaire**. Due to data protection regulations, it was not possible to identify farmers who participated in both rounds.



### (3) Materials and methods

#### Ideal experiment with an equivalent control group



Fundamental problem of impact evaluation

same individual cannot be observed in **two distinct situations**

One solution

defining a **control group** (in our case farmers in neighbouring regions) and using the *Difference-in-Difference* method

## (3) Results

Difference-in-Difference regression estimation for the outcome variable “probability of switching to organic production”

	(1)	(2)	(3)	(4)	(5)	(6)
Post-intervention (PI)	0.017 (0.001)***	0.017 (0.001)***	0.017 (0.001)***	0.017 (0.001)***	0.017 (0.001)***	0.017 (0.001)***
OFR					0.002 (0.001)	-0.002 (0.001)*
PI*OFR	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.002)	-0.001 (0.002)	-0.000 (0.002)

**Bavarian organic flagship region program did not motivate farmers to switch to organic production.**

## (4) Discussion and conclusion

- **no statistical significant effect** as regards farmers switching to organic production does not directly mean ineffective spending of public funds
- **average treatment effect** over all regions was estimated; for specific regions effect might exist
- two years between surveys **rather short time period**, effect might appear later
- **spillover effects** might exist
- parallel **analysis for consumers** revealed significant effect as regards buying more organic food
- program managers might want to offer more activities targeting at farmers (many survey respondents were not aware that their region was an organic flagship region)
- **program monitoring** and **gathering data continuously** (even before program start) is crucial, follow-up surveys and a panel structure are beneficial
- evaluation steps and methods integral part of whole program





Thank you very much for your attention.

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Detailed information on the evaluation:

Mennig, P., Sauer, J. (2022). Promoting organic food production through flagship regions, *Q Open*, Volume 2, Issue 1, 2022, qoac010, <https://doi.org/10.1093/qopen/qoac010>.