VALUMICS
Food Systems Dynamics

Final Conference Event 21/09/2021

VALUMICS H2020 PROJECT - Understanding food value chain and network dynamics

Tomato value chain governance and productivity dynamics: the multiactor perspective

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 727243

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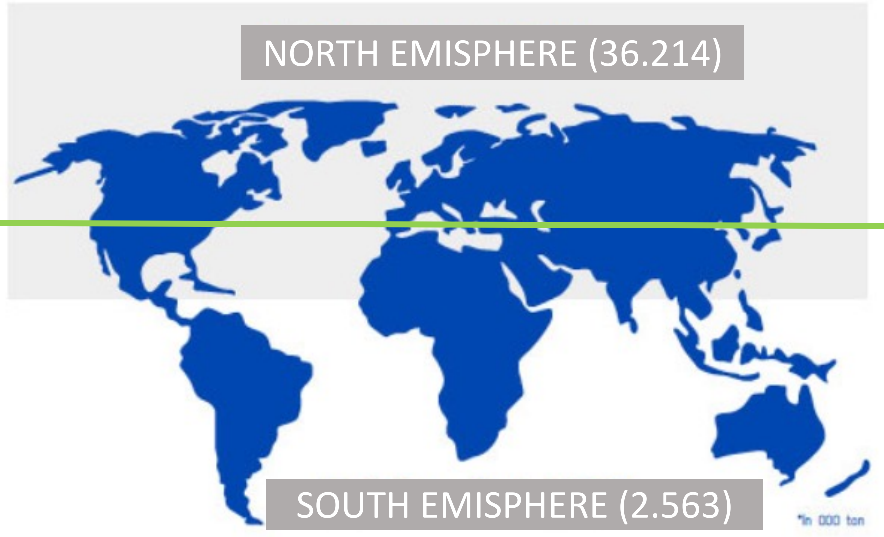
PROCESSED TOMATO: GLOBAL PRODUCTION (2020)

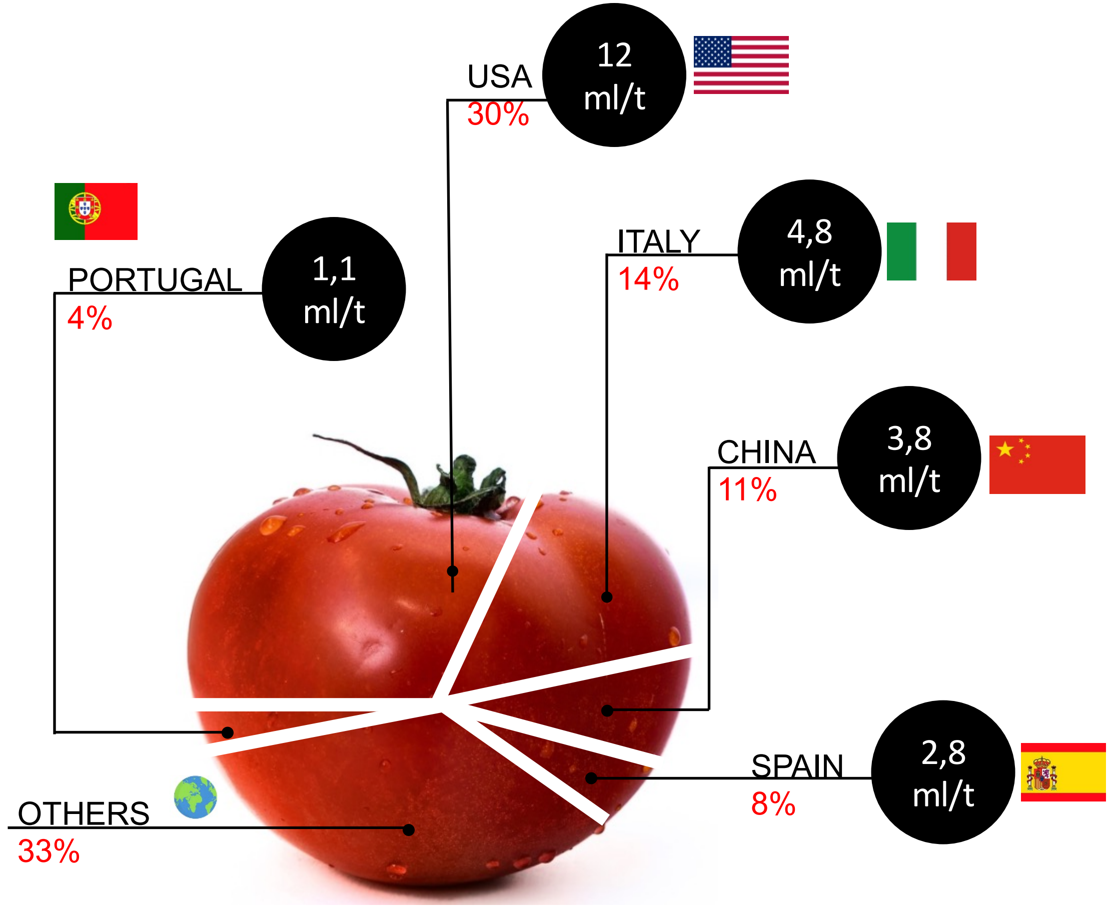


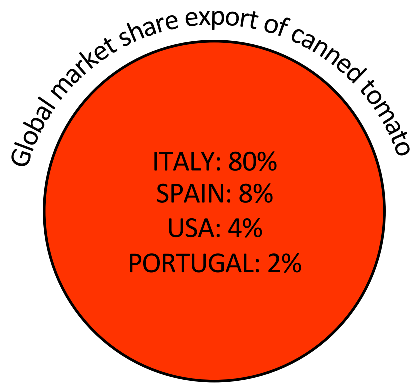
Top 10 *in 000 ton

CALIFORNIA	10.258
CINA	5.800
ITALIA	5.166
SPAGNA	2.650
TURCHIA	2.500
BRASILE	1.400
IRAN	1.300
PORTOGALLO	1.262
ALGERIA	1.000
TUNISIA	961

GLOBAL PRODUCTION
38.777 (000 TONS)

PRODUCTION of Processed Tomato (2020)





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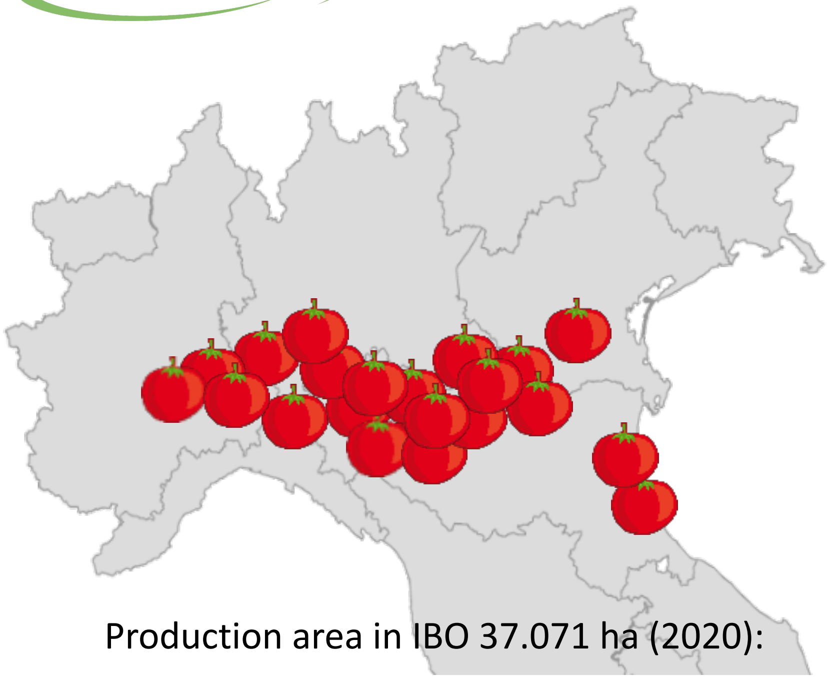
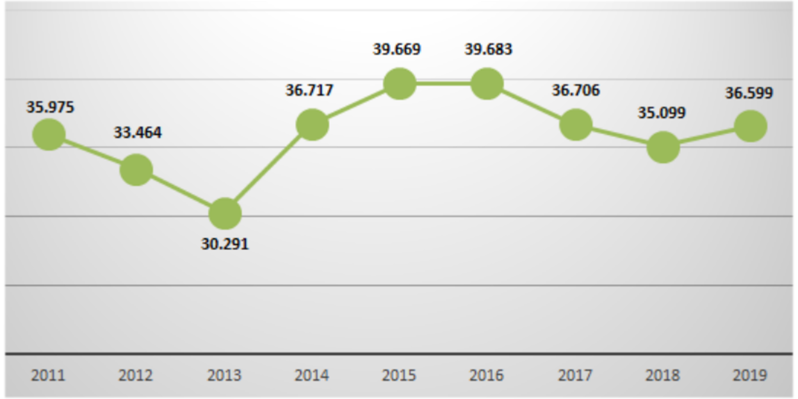
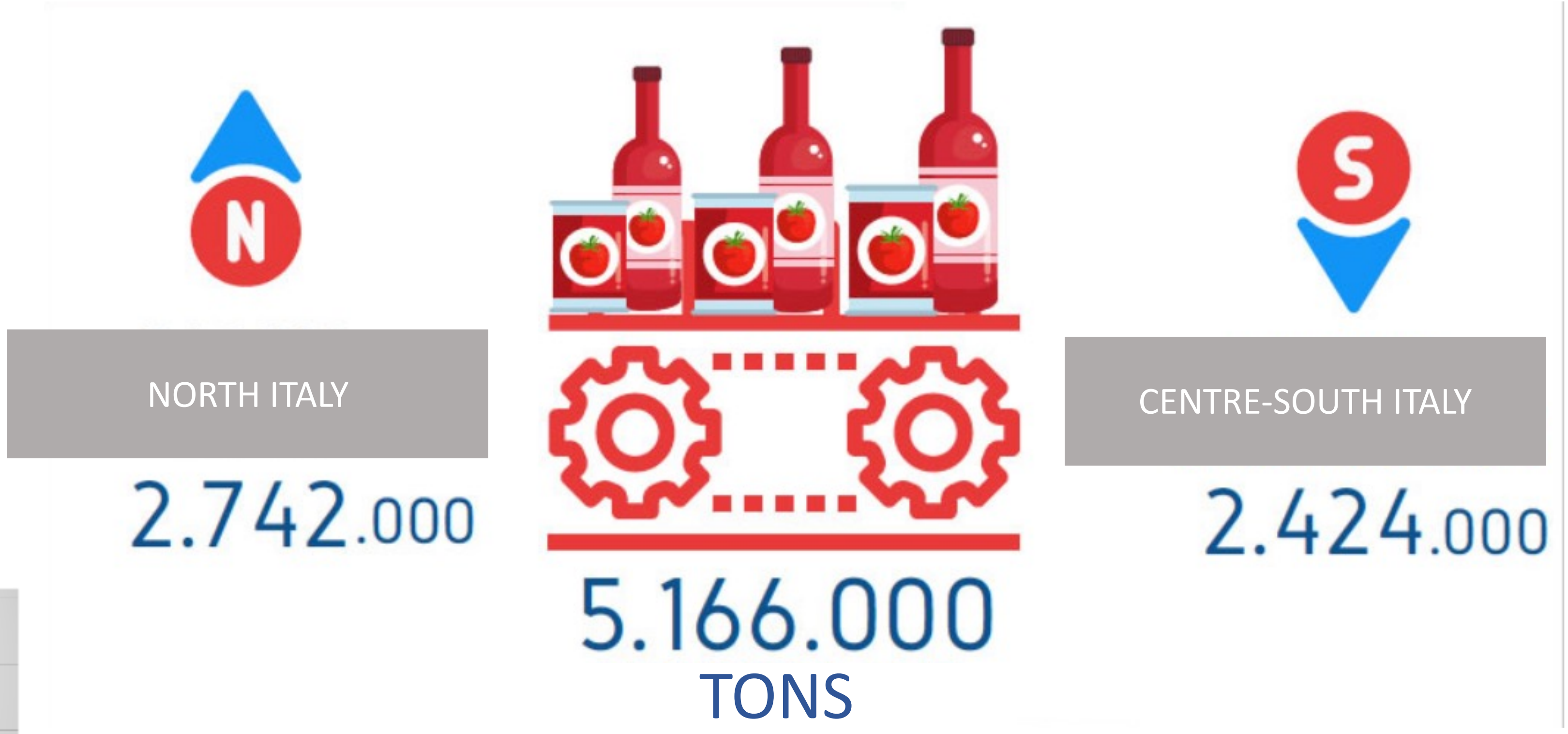
ITALIAN main production areas



Production area in IBO 37.071 ha (2020):

- ❖ Emilia-Romagna (70%)
- ❖ Lombardy (20%)
- ❖ Piedmont (6%)
- ❖ Veneto (4%)





Case Study – Governance of Tomato for Processing Food Supply Chain

IBO recognised by the Region Emilia Romagna in 2011, by EU in 2012

Level 1 - Single companies and cooperatives

Level 2 - Producer Organizations (PO)

- Negotiation, bargaining, programming with the processors
- Collection of payments
- Mutualism (solidarity mechanisms are activated)
- Control of the disciplinary of production

Level 3 - Inter-branch Organization Processing Tomatoes of Northern Italy (IBO). It includes:

- Around 2.000 producers
- 13 producer organisations
- 20 processors
- Professional Organizations and Entrepreneurial Associations
- Promotes integration process of the industry
- Does not intervene actively in trade negotiations

IBO Reference Price streamlining

COMMERCIAL RELATIONSHIP

Processed tomato is produced on a contractual basis.

- Framework Contract within the Interbranch Organization sets the general rules
- Detailed Supply/Delivery contracts set specific contract-by-contract conditions

Trading: between the members of IBO. A premium and a penalty on price method is used as an incentive/deterrent against misconduct. Single producers are not allowed to contract directly but through the POs.

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IBO Reference Price streamlining

Year	Reference price (€/t)	Volume (t)
2011	88	2,570,262
2012	84	2,412,304
2013	85	1,948,125
2014	92	2,385,775
2015	92	2,681,285
2016	85.2	2,844,754
2017	79.75	2,724,939
2018	79.75	2,446,932
2019	86	2,370,087
2020	88	2,741,982
2021	92	/

PRICE NEGOTIATION BETWEEN PRODUCERS AND PROCESSORS

❑ **DISTRIBUTIVE FAIRNESS**

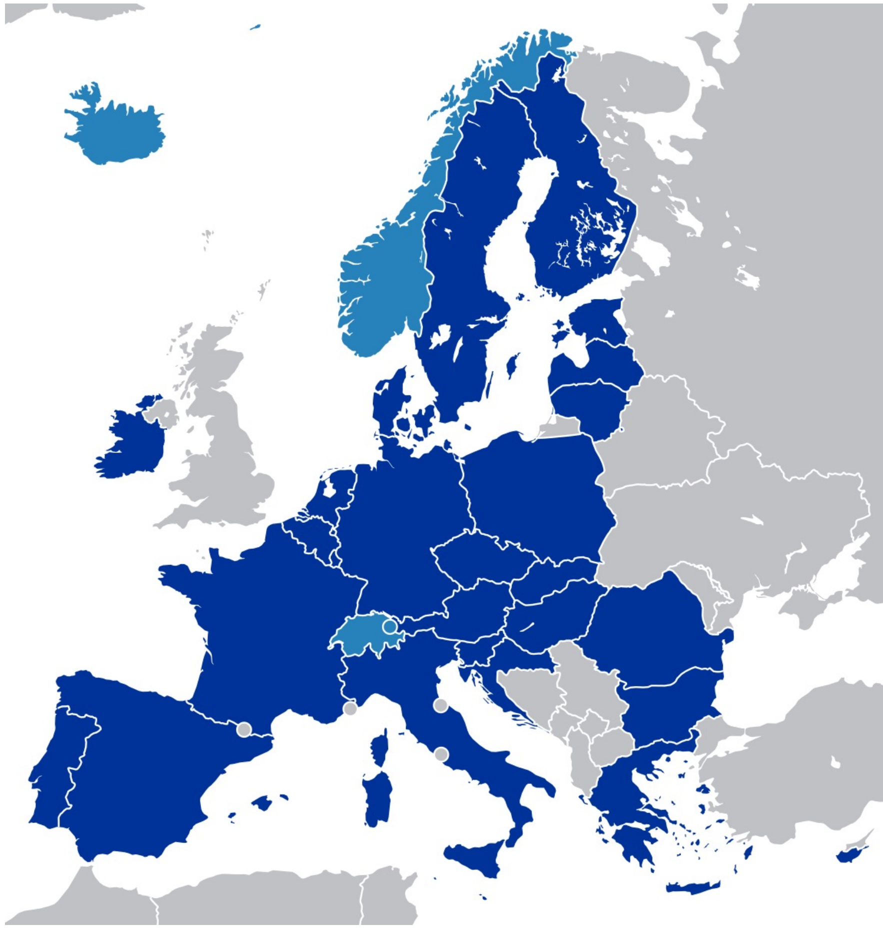
Negotiations between producers and processing industry (IBO is not included) → Reference price (raw material): It is based on the historical prices paid in the past.

NB: **reference price is not a minimum price. This price can vary according to qualitative parameters.**

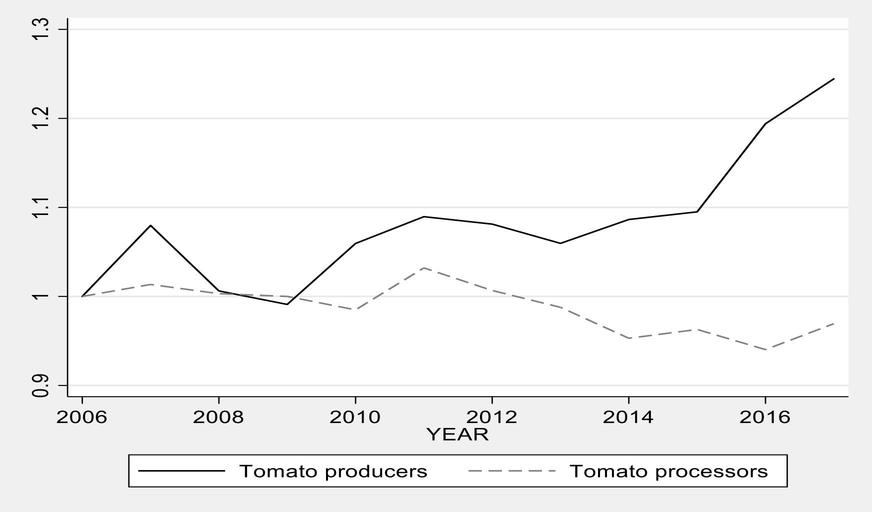
- ❑ **Avoid overproduction** - Tomato farmers (within the IBO) limit the number of hectares for tomato production.
- ❑ **Avoid overstocking** and to minor purchasing of processors the following year
- ❑ **Long term relationship** based on collaborations and trust

Looking Ahead – Post Project Exploitation

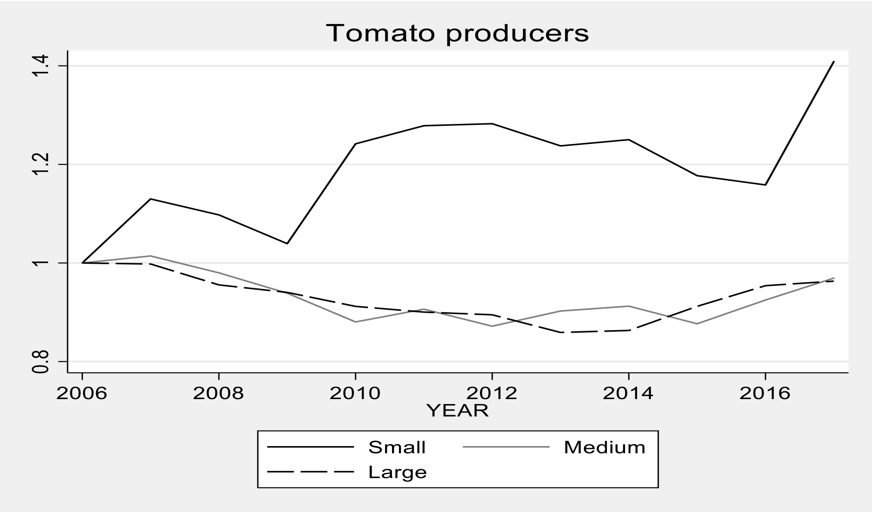
- EU Code of Conduct for Responsible Business and Marketing Practices foresees the retailers' involvement
- Initiatives and policies to:
  - support the sustainability of the processed tomato supply chain
  - protect soil and water resources, which are heavily exploited in tomato production
  - adopt integrated production through compensation of consequent reduction in yields and increase in production costs
- Role of IBO as facilitator and guarantor towards the implementation of sustainable practice?
- Role of IBO as promoter of practices to improve the competitiveness and productivitiy of the sector?

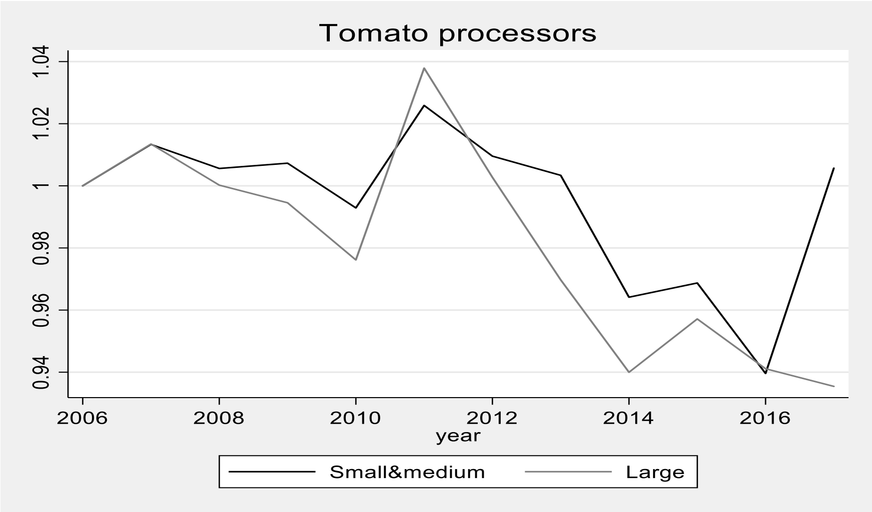


Total factor productivity

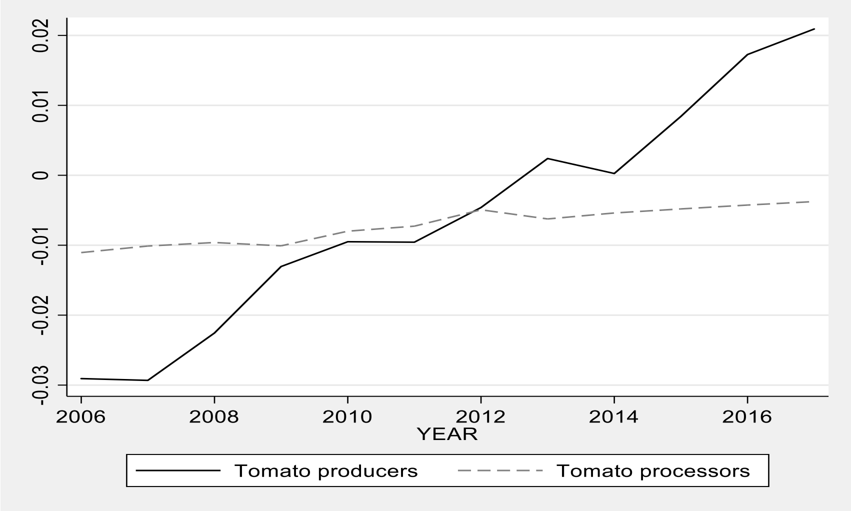


- significant productivity improvements for tomato production
- tomato processing experienced minor productivity changes over the analyzed period
- productivity growth in tomato production was driven by a group of small producers

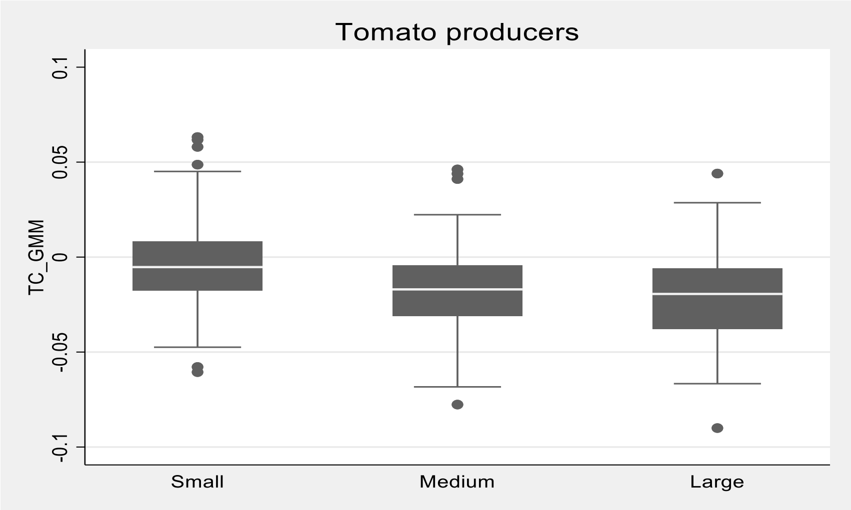


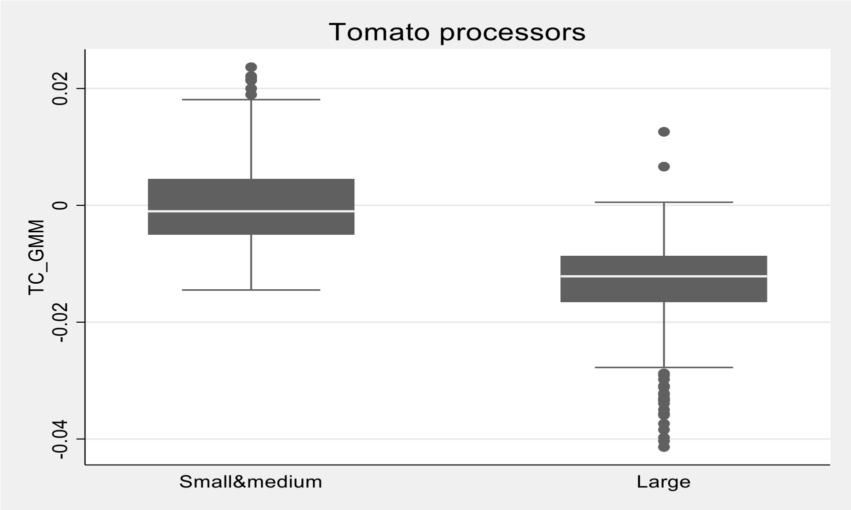


Drivers of productivity: technological change

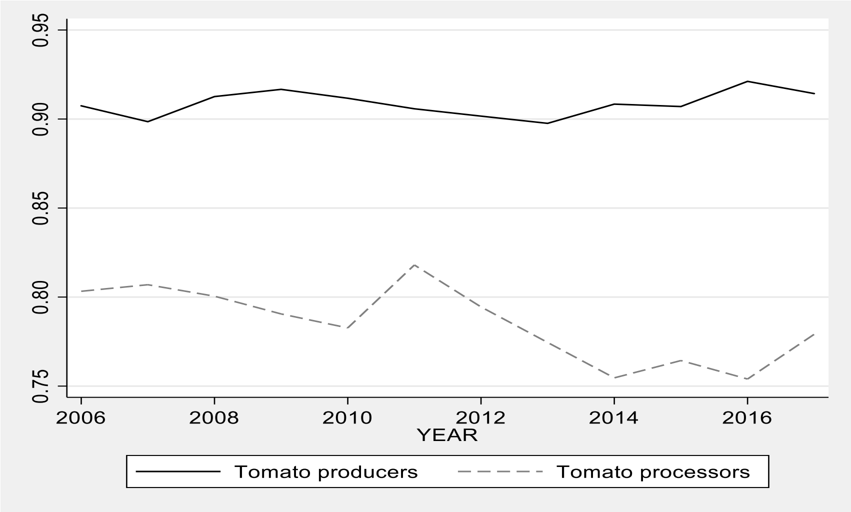


- technological change is not a significant source of productivity growth in tomato processing
- tomato production is characterized by negative, decelerating technological change that reversed to become positive at the end of the analyzed period
- no significant differences among producers across the different size groups

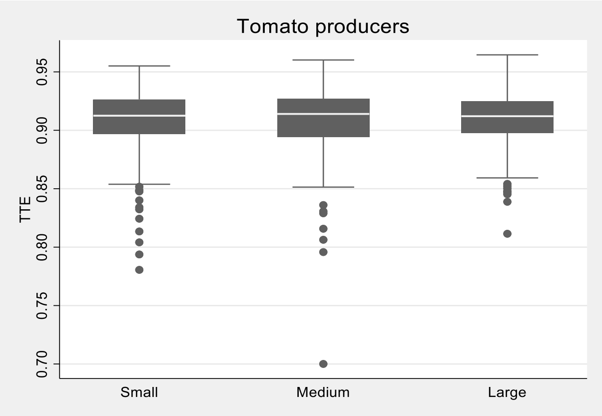


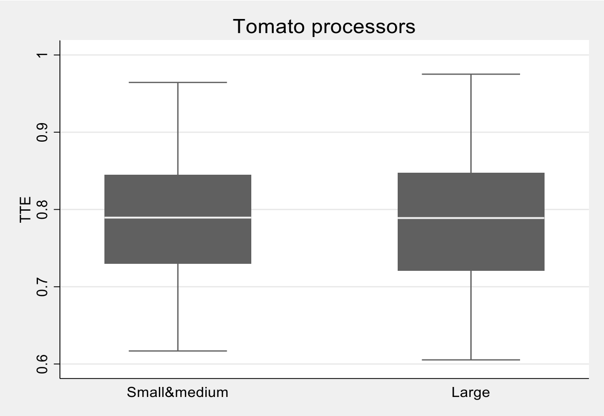


Drivers of productivity: technical efficiency



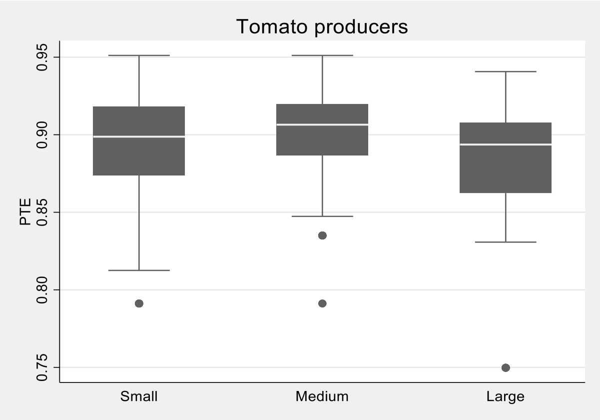
Transient technical efficiency

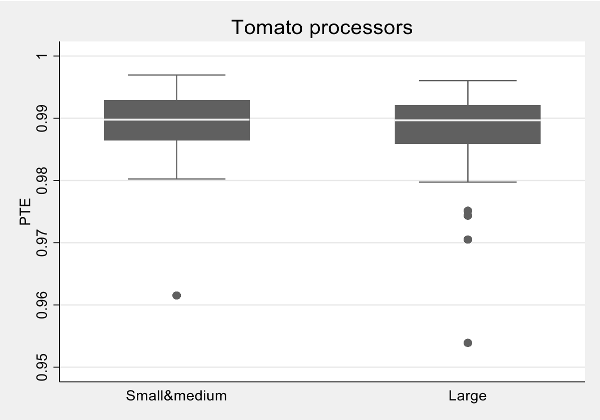




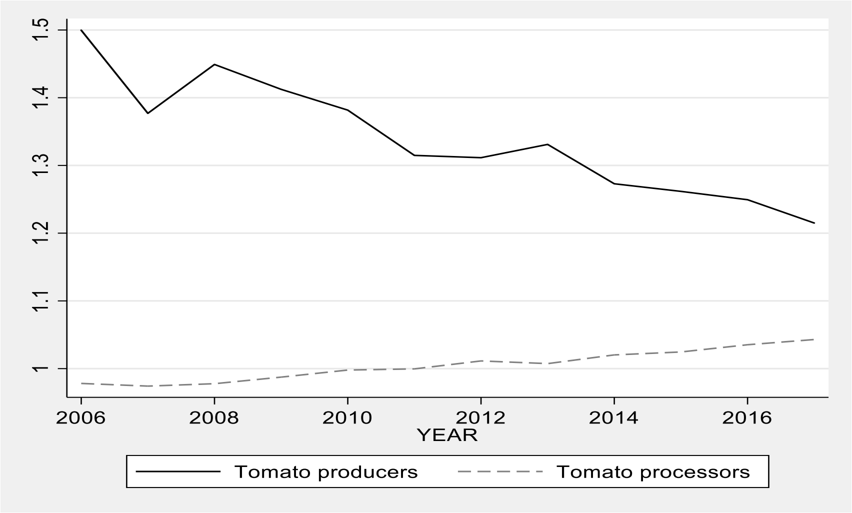
- technical efficiency estimates indicate considerable room for improvements to be made
- persistent technical inefficiency is more pronounced in tomato production as compared to tomato processing = the presence of high levels of systematic farm management failures

Persistent technical efficiency

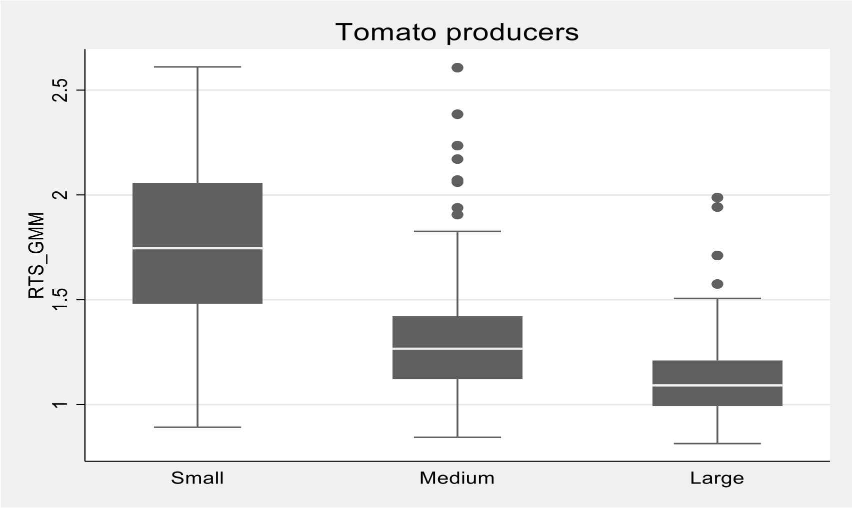


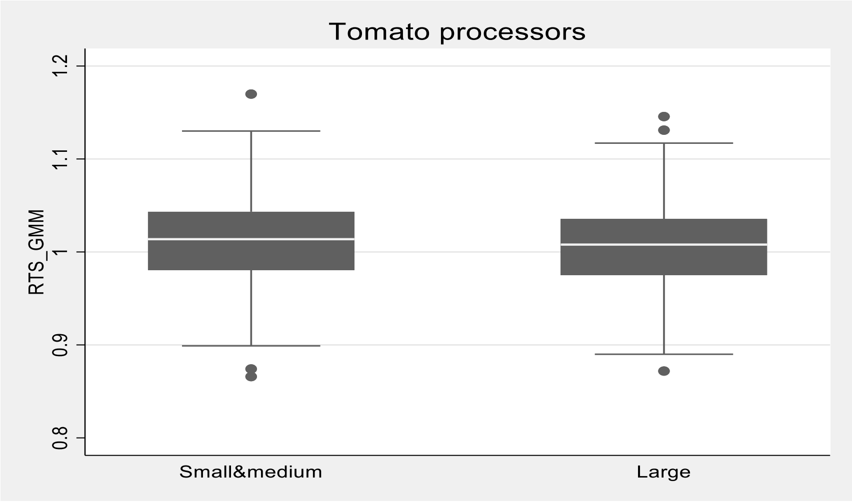


Drivers of productivity: scale effect



- producers exhibit considerable economies of scale = high scale inefficiencies
  - scale inefficiencies in production being pronounced in the group of small tomato producers
- tomato processors are characterized by constant returns to scale = optimal production sizes





- **TFP growth in tomato production was driven by an improvement of SE in the group of small producers**

THANK YOU

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