

KOŠICKÉ EKONOMICKÉ FÓRUM

21.04.2021

*The impact of producer organizations on farm
performance: The case study of large farms from Slovakia*

*prof. Ján Pokrivčák
Slovenská poľnohospodárska univerzita v Nitre*

FOOD SUPPLY CHAINS

JAN POKRIVCAK

Slovak University of Agriculture, Nitra

jan.pokrivcak@uniag.sk



CONTENT

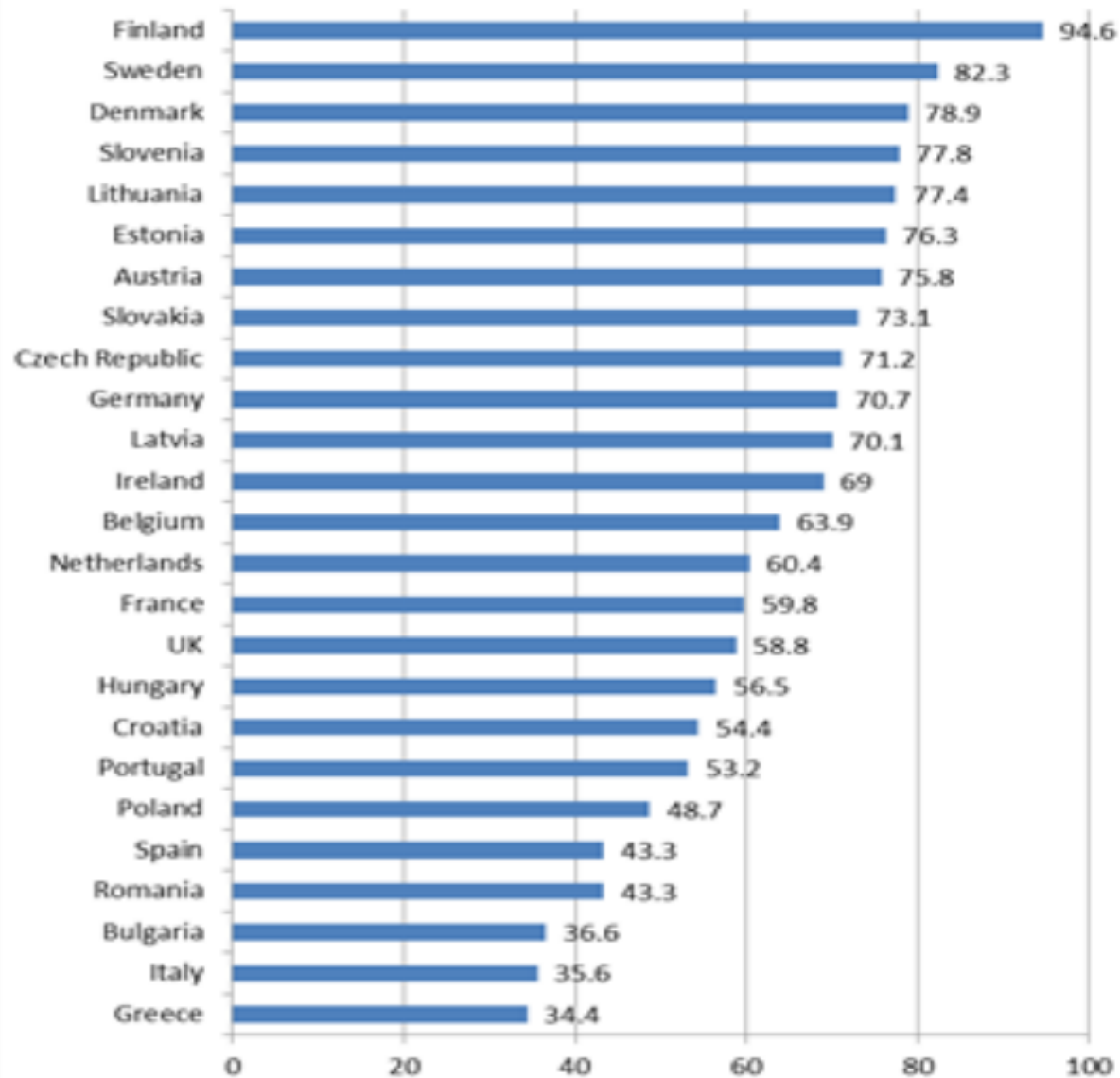
- Trends in Food Supply Chains
- Unfair Trading Practices – Fruit supply chain in Slovakia
- Producers organizations – POs in Slovakia

TRENDS IN FOOD SUPPLY CHAINS

TRENDS IN FOOD SUPPLY CHAINS

- Recent trends in food supply chains (farms, processors, retail, consumers):
 - Growth of concentration in processing and retail
 - Differentiated income development
 - Increased vertical coordination through contracts
 - Policy Change: From Price Support to Direct Payments

CR5 in store-based grocery retail; 2016

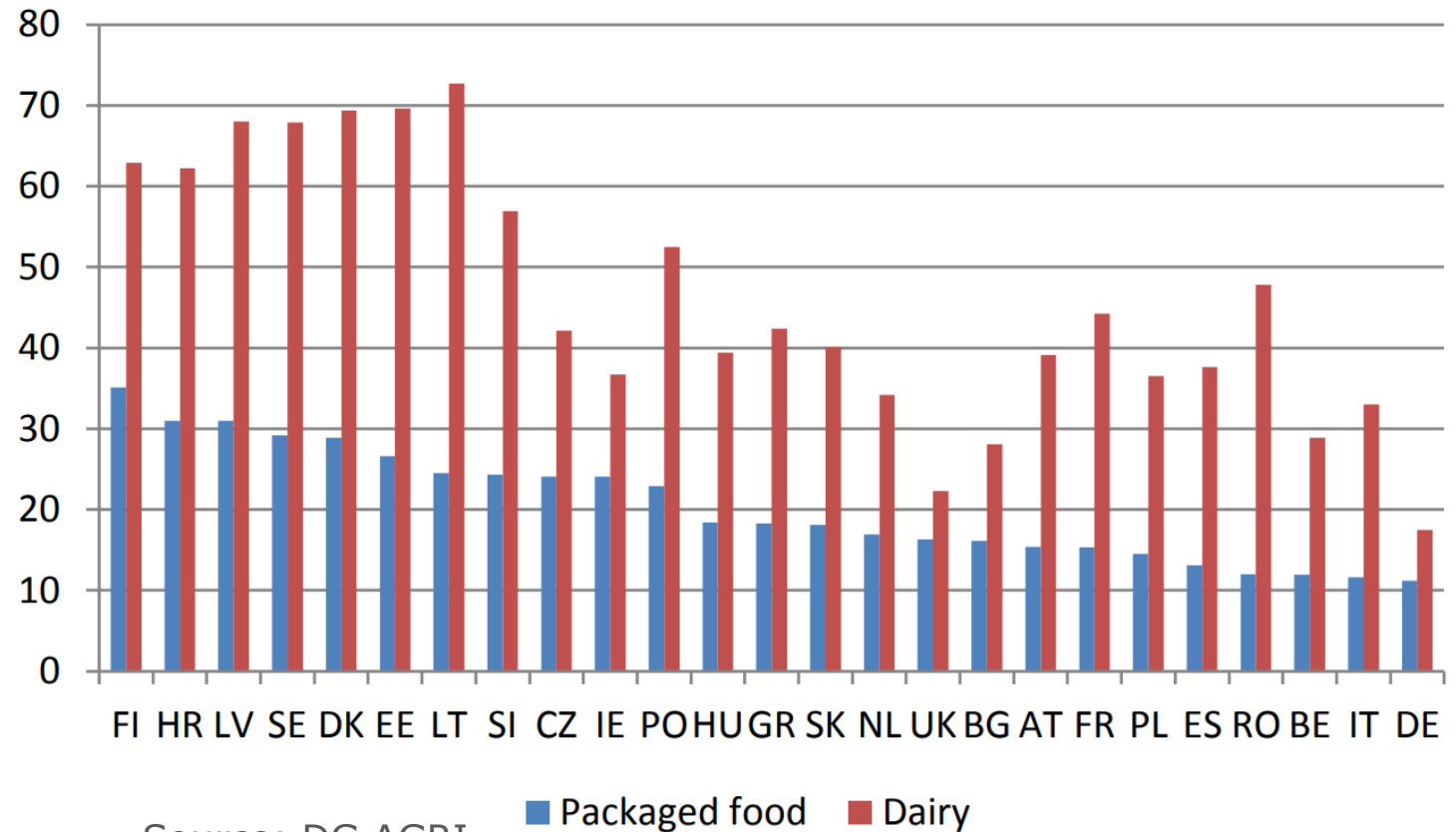


RETAIL
CONCENTRATION -
MARKET SHARE OF TOP
5 RETAILERS (CR5)

TOP 5 FOOD PROCESSING FIRMS HAVE BETWEEN 15%-35% MARKET SHARE

THIS SHARE INCREASES FOR MORE SPECIALISED FOOD INDUSTRIES, E.G. DAIRY

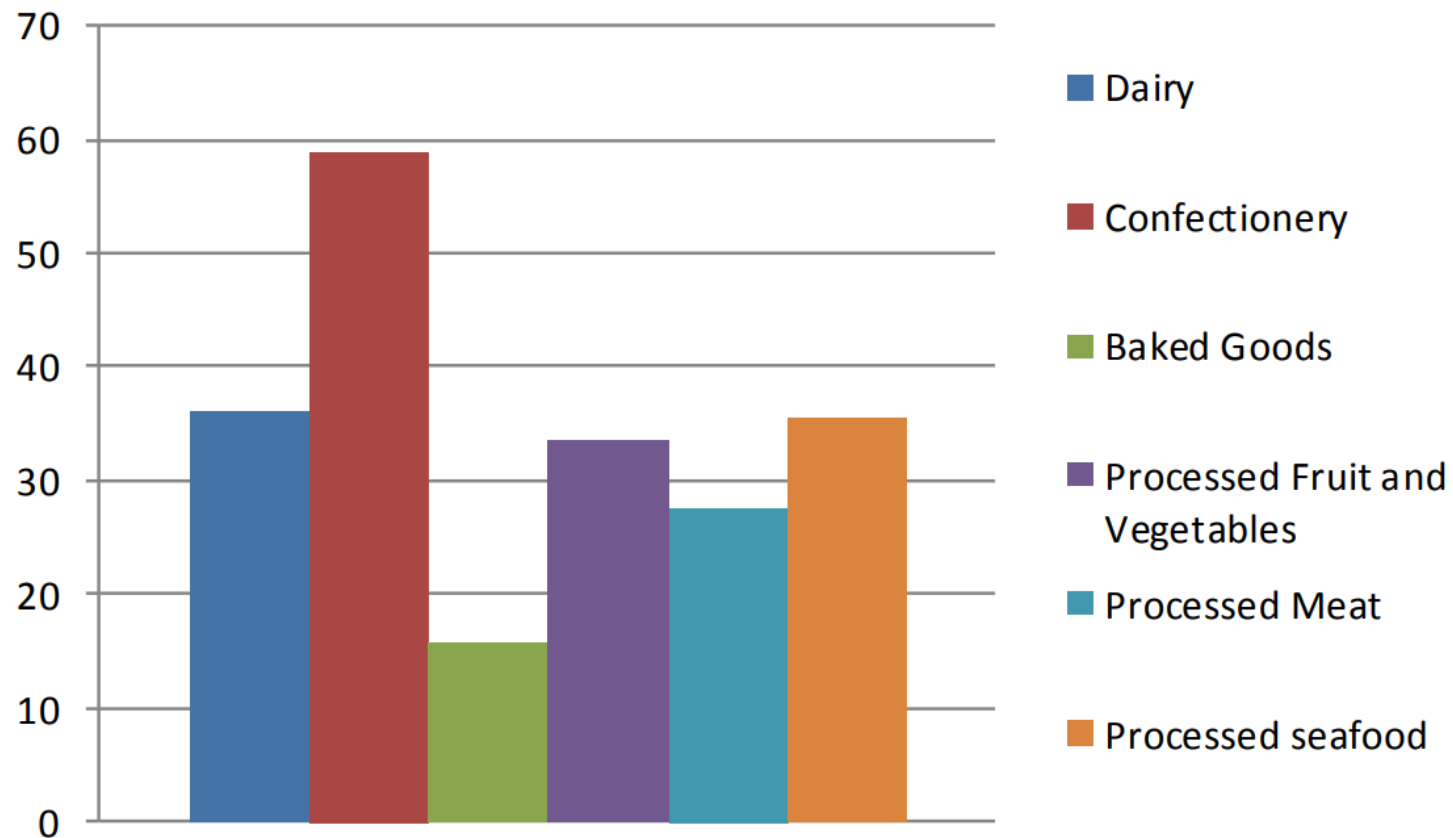
SHARE IN % OF TOP 5 PROCESSING COMPANIES SALES OF PACKAGED FOODS (2016)



Source: DG AGRI

SPECIFIC SECTORS CONCENTRATION

EU AVERAGE MS CONCENTRATION RATIOS (CR5) FOR SPECIFIC FOOD SECTORS



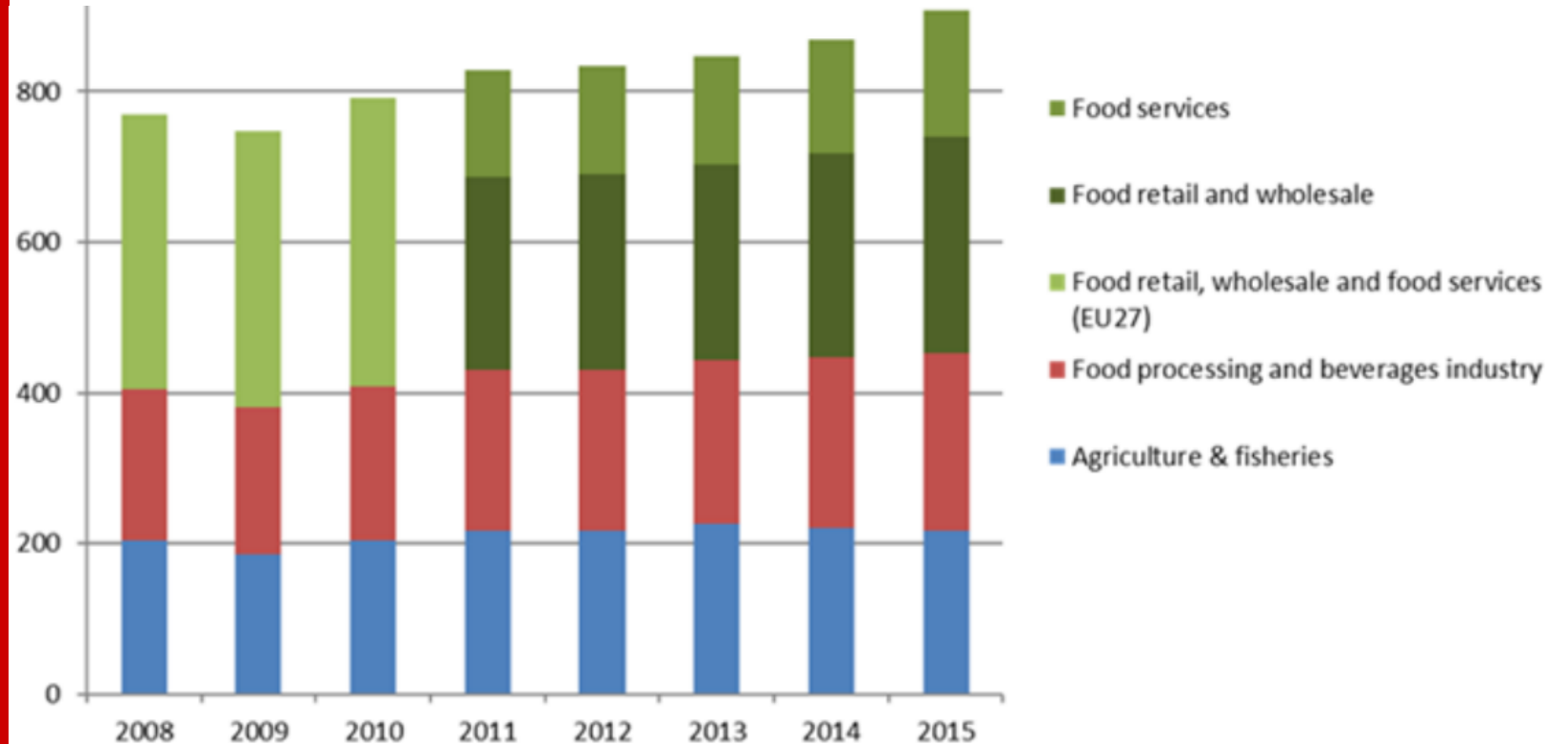
Source: DG AGRI

TRENDS IN FOOD SUPPLY CHAINS: VALUE ADDED

- The growth of value added 2008 - 2015
 - Agricultural sector: 1% annual growth in the period 2008-2015
 - Processing sector : 2.5%
 - Food retail and services sector: 3.2%
- The share of agriculture in the total value added in the food chain has been decreasing by around 0.14 percentage points p. a.

■ VALUE ADDED IN THE FOOD SUPPLY CHAIN (BILLION EURO)

EU AVERAGE MS CONCENTRATION RATIOS (CR5) FOR SPECIFIC FOOD SECTORS



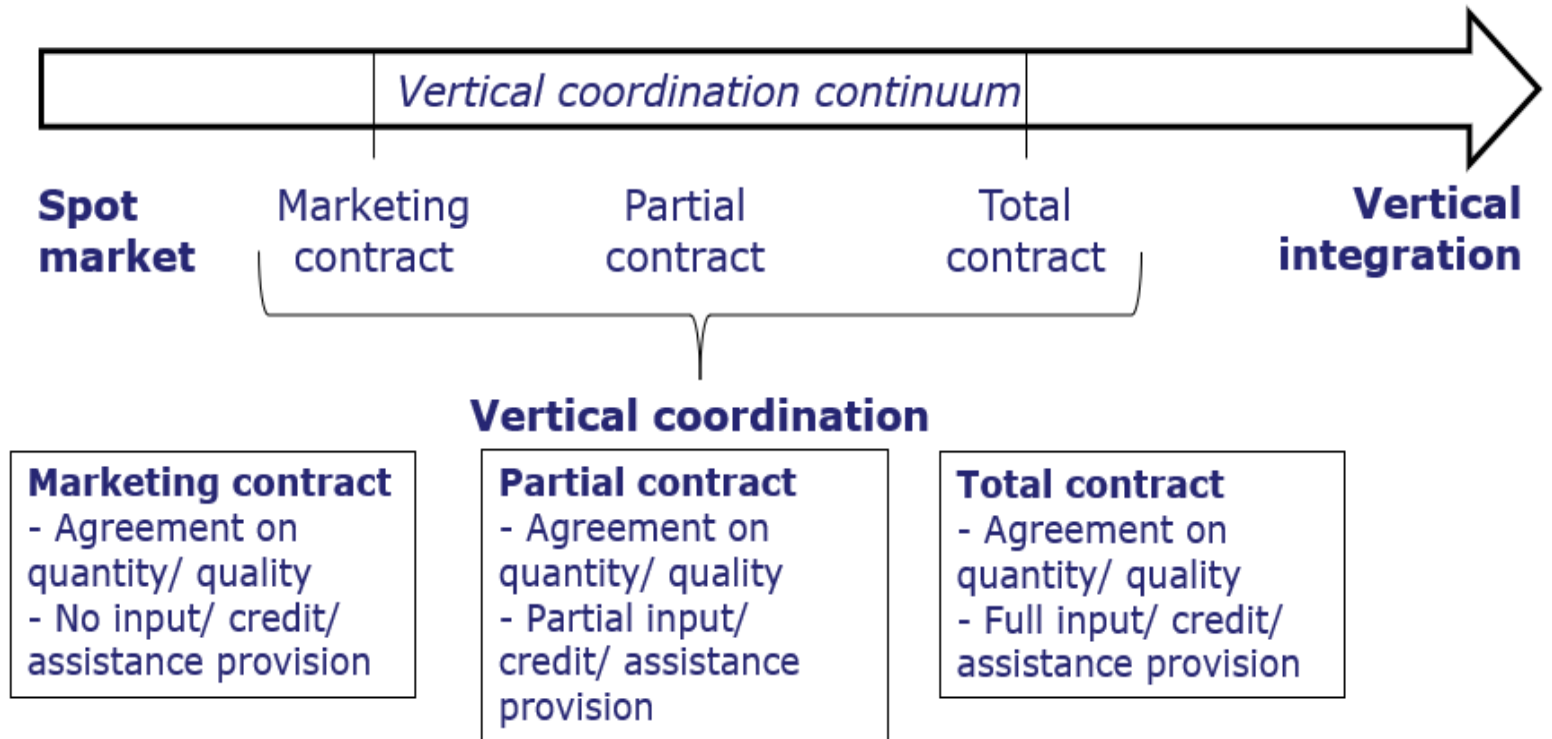
Source: DG AGRI

TRENDS IN FOOD SUPPLY CHAINS: VERTICAL COORDINATION

- The key factors affecting vertical coordination:
 - Consumers demand food quality and variety
 - Asymmetric information and transaction costs affect vertical trade
- Vertical coordination emerged to organize more efficiently the information flow and enforcement of product characteristics
- Dominance of contracting and imbalance in bargaining power
 - potential for big player to use unfair trading practices (UTPs)

EXAMPLE OF VERTICAL COORDINATION IN AGRICULTURE

■ WHY CAP INTERVENES IN FOOD CHAINS?



Source: Williamson (1985); Ba, Mey, [Thoron](#) and [Demont](#) (2019)

PERCENTAGE OF FARMS IN THE SECTOR THAT USE CONTRACTS (%)

	Japan ^{a)}		Finland		US ^{b)}	Slovakia	
	2005	~5-10 years ago	2006	~5-10 years ago	2005	~5-10 years ago	2006
<i>Crops</i>							
Wheat			46	30	9.7	6.3	80-90
Maize (Corn)					22.6	14.7	80-90
Fruits	12.4	6.6			34.8	41.2	<25
Vegetables	17.2	10.4			17.2	22.1	
<i>Livestock</i>							
Poultry	45.7	49.0			40.6	49.3	
Hogs	25.6	26.9	82	69	20	12.7	>90
Beef	8.9	9.1	42	60	1.5	1.4	>90
Dairy	15.6	16.9	91	84	36.7	29.5	100

a) 2005 Census, MAFF; 5-10years - 2000 Census, MAFF

b) ERS estimates, from 2005 Agricultural Resource Management Survey

~5-10 years ago - ERS estimates, using data aggregated from 1998-2000 Agricultural Resource Management Surveys

Source: OECD 2009

POLICY CHANGE

- **CAP shifted from price intervention (market price support) to decoupled direct payments**
- This led to increased price volatility
- Price volatility strengthens potential for UTPs and asymmetric price transmission

UNFAIR TRADING PRACTICES

UTPS

What are UTPs? Unfair Trading Practice.

"UTPs can broadly be defined as practices that grossly deviate from good commercial conduct, are contrary to good faith and fair dealing and are unilaterally imposed by one trading partner on another"

(European Commission 2014)

UTPS

- Farmers demand legislation against UTPs
- UTP directive (2019/633)
- Adopted 17 April 2019
- Protects primarily farmers (including cooperatives) and also small and medium suppliers in the downstream sectors (e.g. manufacturers, distributors)
- The Directive prohibits 16 specific UTPs

Prohibited UTPs		Prohibited UTPs if not in the agreement
Payments later than 30 days for perishable products	Payment for the deterioration of products that occurs on the buyer's premises	Return of unsold products
Payment later than 60 days for other products	Refusal of a written confirmation of a supply agreement by the buyer, despite request of the supplier	Payment of the supplier for stocking, display and listing
Short-notice cancellations of perishable products	Misuse of trade secrets by the buyer	Payment for buyer's discounts and promotion
Unilateral contract changes by the buyer	Commercial retaliation against the supplier	Payment for buyer's advertisement and marketing
Payments not related to a specific sale transaction	Transferring the costs of examining customer complaints to the supplier	Payment for buyer's staff for fitting-out premises

UTPS AND CENTRAL AND EAST EUROPEAN COUNTRIES

- **CEECs strong proponents of UTP legislation**
- **In 2015 BG, CZ, SK, HU, RO, SL, PL requested EC to impose EU-wide UTP legislation**
- The first law on UTP in SK adopted in 2012, expanded in 2019, discussion in 2021
- In SK 40 practices outlawed

UTPS – FRUIT SECTOR IN SK

- 442 fruit growing firms in Slovakia, about 6700 ha of orchards, declining trend
- 45 members of the Slovak Fruit Union – produce 85% of fruits
- 2 Producers Organizations – Bonum (15 members) and SK Fruit (8 members), 81% of fruit production

UTPS – FRUIT SECTOR IN SK

- We conducted a representative survey among fruit growers in Slovakia
- Used collected data to conduct regression analysis
- More details in Working Paper

TYPE OF MAIN BUYER IN FRUIT SECTOR. TO WHOM FARMERS SELL

Main buyer	% of farmers	Average orchard size (ha)
Private traders	27.27%	12.51
Producer organization	25.76%	49.08
Directly to final consumers	19.70%	7.94
Retailers	10.61%	10.78
Other	16.67%	36.05
Total	100%	24.76

Occurrence of UTPs	% of farmers	Perceived unfairness
Late payments (later than 30 days for perishable agri-food products)	31.8%	92.6%
Short-notice cancellations of orders	22.7%	85.7%
Unilateral contract changes by the buyer	24.5%	25.7%
Unilateral single order changes by the buyer	30.2%	60.5%
Payments not related to a specific transaction	31.8%	28.0%
Payments for wasted products/losses	13.6%	32.3%
Refusal of a written confirmation of a supply agreement by the buyer	4.5%	100.0%
Misuse of trade secrets by the buyer	0.0%	0.0%
Commercial retaliation by the buyer	9.1%	75.0%
Payments for costs of examining customer complaints	13.6%	46.2%

Occurrence of UTPs

number of UTPs	% of all farmers	% of members of POs	% of non-members of POs
no UTP	21%	12%	25%
at least 1 UTP	79%	88%	75%
at least 2 UTPs	49%	24%	61%
at least 3 UTPs	40%	6%	56%
at least 4 UTPs	26%	6%	36%
at least 5 UTPs	21%	0%	31%
at least 6 UTPs	8%	0%	11%

Independent and control variables	Definition	Dimension
d_mb_trader	the main buyer is trader	binary variable, 1=trader, otherwise 0
d_mb_retailer	the main buyer is retailer	binary variable, 1=retailer, otherwise 0
d_mb_other_buyer	the main buyer is other buyer	binary variable, 1=other buyer, otherwise 0
f_orch_size	size of orchard	continuous variable (ha)
f_size	size of the whole farm	continuous variable (ha)
d_size_turnover	small farms (turnover \leq 2 mil. EUR) big farms (turnover $>$ 2 mil. EUR)	binary variable, 0=small farms, 1=big farms
d_special	specialization of the farm	binary variable, 1=specialized on fruit/apples, 0=not specialized
length_year	the length of the trade relationship	continuous variable (years)
d_switch_buyers	the ease of changing the main buyer	binary variable, 1=difficult and costly to switch, 0=easy to switch
d_coop	the farm is cooperative	binary variable, 1=cooperative, 0=other
d_priv_com	the farm is private company	binary variable, 1=private company, 0=other
d_educ	education of the farm manager	binary variable, 1=university education, 0=high school

Independent variable	Model 1	Model 2	Model 3
	dy/dx	dy/dx	dy/dx
d_mb_trader	0.3160**	0.2993*	0.3200**
d_mb_retailer	0.3536***	0.3146**	0.3340**
d_mb_other	0.0882	0.0980	0.0951
f_orch_size	0.0023		
d_size_turnover		0.1160	
f_size			2.50E-06
d_special	-0.1466	-0.1545	-0.0942
length_year	-0.0086	0.0025	-0.0014
d_switch_buyers	0.4161***	0.3844**	0.4173***
d_coop	-0.2471	-0.1522	-0.1710
d_coop2	0.0549	0.1047**	0.0451**

UTPS - RESULTS

- Size of the farm has no significant effect on the UTPs occurrence.
- POs reduce probability of UTPs by 35% (32%) vis-à-vis retailers (private traders).
- Thus, membership in PO significantly decreases the likelihood of UTPs occurrence on the farm, for fruit sector in 2020 in Slovakia.

UTPS - RESULTS

- Farm specialization in the fruit or apple production does not increase UTPs.
- The longer relationships among trading partners the lower probability of UTPs occurrence.
- When difficult to replace the buyer, probability of UTPs occurrence is 42% higher.
- The imbalances in bargaining power have strong impact on the willingness to accept contract conditions and are closely connected with the fear factor.
- When the farm manager has the university degree, probability of UTPs occurrence is lower.

UTPS - RESULTS

- 79% of fruit farms faced at least one UTP, the occurrence is higher in other studies, dairy, more than 90%
- Many farms that faced UTP switched to selling directly to consumers, joined PO or sell to processors rather than retailers
- Many farms do nothing when facing UTPs, they do not rely on the courts
- Late payments still significant UTP as in the past
- UTPs considered one of the causes of decline of fruit production in SK

NOT MANY STUDIES ON UTPS

- Definition problem: it is not clear what should be considered UTP
- Measurement problem: difficult to attribute causal effect to a UTP versus other UTPs or other drivers
- Context specificity of UTPs: the occurrence and impacts of UTPs depends on socio-economic situation and institutional settings
- Data limitations: often involves private information; firms involved in UTPs are not willing to provide information

UTPS AND CONTRACTING

- Signing a contract solves the hold-up problem and thus maximizes the size of the pie to be divided between buyers and farmers
- The extraction of rents by stronger buyer likely done through the inclusion of specific contract terms (more UTPs in the contract content than during its execution)
- The higher the completeness of the contract the more likely UTPs occur within the contract
- Contract signed ensures the interests of the stronger party
there is less use of UTPs during its execution
(e.g. to ensure the availability of supply)

PRODUCERS ORGANIZATIONS

PRODUCERS ORGANIZATIONS

- POs can be defined as any entity that
 - has been formed and is controlled by producers
 - in a specific sector (horizontal cooperation)
 - to pursue jointly one or more of the objectives listed in the CMO Regulation
 - whether or not the entity is formally recognised
- POs can take various legal forms, incl. cooperatives, associations, or private companies in which agricultural producers are shareholders

PRODUCERS ORGANIZATIONS

- Regulation (EU) 1308/2013, 'CMO Regulation':

(131) Producer organisations and their associations can play useful **roles** in **concentrating supply, in improving the marketing, planning and adjusting of production to demand, optimising production costs and stabilising producer prices, carrying out research**, promoting best practices and providing technical assistance, managing by-products and risk management tools available to their members, thereby contributing to strengthening the position of producers in the food chain.

PRODUCERS ORGANIZATIONS

- The CMO Regulation (Art. 152) foresees the possibility for Member States (MSs) to recognise POs that
 - are formed by producers
 - follow democratic principles
 - carry out joint activities
 - pursue certain objectives
- Certain recognised POs can receive financial support through EU funds (rural development, operational programmes)

PRODUCERS ORGANIZATIONS

- EU competition rules are laid down in the TFEU (Treaty on the Functioning of the European Union):
 - Art. 101 prohibits agreements between undertakings that affect trade or competition (e.g. price fixing)
 - Art. 102 prohibits abuse of dominant market positions (e.g. to impose unfair trading conditions)
- >> Farmers who collaborate to obtain e.g. a stronger bargaining position could run afoul of these rules
- Art. 42 allows legislators to limit the application of competition rules in the agricultural sector

PRODUCERS ORGANIZATIONS

- The CMO Regulation (amended by the ‘Omnibus’ Regulation 2017/2393) details the derogations from competition rules in the agricultural sector:
 - Art. 152 exempts recognised POs from certain competition rules (e.g. planning production, placing products on the market, negotiating supply contracts)
 - Art. 209 exempts farmers, farmers’ associations and recognised POs from the prohibition of certain agree-ments e.g. on production or sale of agricultural products
 - Art. 222 allows further derogations for recognised POs during periods of severe imbalance in markets

PRODUCERS ORGANIZATIONS

Food Policy 75 (2018) 80–92



Contents lists available at [ScienceDirect](#)

Food Policy

journal homepage: www.elsevier.com/locate/foodpol



The impact of producer organizations on farm performance: The case study of large farms from Slovakia☆



Jerzy Michalek^a, Pavel Ciaian^{b,*}, Jan Pokrivcak^{c,d}

^a *Independent Researcher, Kiel, Germany*

^b *Joint Research Centre, European Commission, Seville, Spain*

^c *Faculty of Economics and Management, Slovak University of Agriculture, Nitra, Slovakia*

^d *Faculty of Economics, University of West Bohemia, Pilsen, Czech Republic*

ARTICLE INFO

Keywords:

Producer organisations
Commercial farms
RDP support
Farm performance

ABSTRACT

This paper estimates the farm level impact of producer organizations' (PO) membership in Slovakia and the effectiveness of support provided to POs under the EU Rural Development Programme (RDP). We employ the PSM-DID econometric approach on a database of large Slovak commercial farms for 2006 and 2015. First, our results show that belonging to a PO improves the economic performance of farms in Slovakia. Second, in the short-run the support granted under RDP 2007–2013 to newly established PO does not improve the farm performance; only established and older POs (and potentially supported in the past) generate benefits to their members. Third, the estimates provide indirect evidence that the disbursement of PO support granted in the

PRODUCERS ORGANIZATIONS

- **Most of literature assess the performance of POs as whole** (Van Herck 2014; Oustapassidis 1992; Ferrier and Porter 1991).
- **Empirical literature investigating the impact of POs on its members' performance is relatively limited** (e.g. Vandeplass et al. 2013; Bernard et al. 2008; Verhofstadt and Maertens 2015; Duvaleix-Tréguer and Gagné 2015; Latynskiy and Berger 2016)
- **The empirical evidence analysing the efficiency of PO support is very limited and does not provide conclusive results** (Markelova et al. 2009; Hellin et al. 2009; Francesconi and Wouterse 2015; Fałkowski, and Ciaian 2016)

PRODUCERS ORGANIZATIONS

Objectives:

- ***Farm level impacts of PO*** membership in Slovakia
- The ***efficiency of the support granted to POs*** under the EU Rural Development Programme (RDP).
- This study is particularly relevant as it
 - the ***penetration of POs in New MS is much lower*** than in Old MS
 - ***long period of communist regime has negatively affected*** the level of social capital and the ***attitude towards cooperative behaviour*** (e.g. Lovell, 2001; Paldam et al. 2001; Fidrmuc et al. 2008).
 - The paper provides ***evidence*** of the relevance of PO support ***for large farms***.

PRODUCERS ORGANIZATIONS

- RDP 2007 – 2013:
 - The support was ***granted to newly established POs***
 - ***Most of the POs distributed subsidies to its members, not invested them in collective investments***
- ***Out of 59 supported POs*** by the RDP 2007-2013:
 - 25 (42% of supported POs) were still functioning by 2016,

PRODUCERS ORGANIZATIONS

- We are interested to estimate the **performance of PO membership (treatment) relative to the hypothetical non-PO membership (non-treatment)** - the **average treatment on the treated (ATT)**:

$$ATT = E(Y_1 - Y_0 | D = 1) = E(Y_1 | D = 1) - E(Y_0 | D = 1)$$

- Problems:
 - Counterfactual not available (expected impact in case of non-participation)
 - Selection bias: PO membership depends on farm characteristics and PO support is project based and subject eligibility/selection criteria

PRODUCERS ORGANIZATIONS

- **We employ Propensity Score Matching (PSM) and Difference-in-Differences (DID) estimator**
 - PSM-DID measures **the impact of PO membership** by using differences between comparable treated farms ($D=1$) and control group (non-treated) ($D=0$) **in the period before and after the support.**
 - To address the selection bias, we define the average treatment on the treated (ATT) conditional on the probability distribution of observed covariates
 - PSM mitigate **selection bias due to observables** (support was not random); DID removes selection **bias due to time-invariant unobservables.**

PRODUCERS ORGANIZATIONS

- We use ***commercial farm database for Slovakia for 2006 and 2015*** available from the Slovak Ministry of Agriculture
- Slovak agriculture is dominated by large commercial farms (they use more than 80% of land)
- The choice of the data is determined by the timing of the application of the PO support for the financial period 2007-2013 (extended to 2014).

PRODUCERS ORGANIZATIONS

- We can identify ***PO members with and without the support*** granted through the RDP 2007-2013
- Only newly created POs could receive the support
 - hence POs with support are newly established

PRODUCERS ORGANIZATIONS

	Number of farms	Share in total number of farms (%)
All PO members	431	46
Members of supported POs	136	14
Members of non-supported POs	295	31
Members of supported PO that existed in 2015	106	11
Non-PO members	508	54
Total number of farms	939	100

PRODUCERS ORGANIZATIONS

- We consider ***four outcome variables*** as proxies to test farm performance of PO membership:
 - Farm gross value added (GVA)
 - Farm profits
 - Farm employment
 - Labour productivity (GVA/AWU)

PRODUCERS ORGANIZATIONS

	Pseudo R2		Likelihood ratio		Bias reduction (%)
	Before matching	After matching	Before matching	After matching	
A. All PO members	0.092	0.008	119.58***	9.66	92%
B. Supported POs members	0.210	0.036	139.38***	11.74	90%
C. Non-supported POs members	0.072	0.007	75.98***	5.77	90%
D. Supported versus non-supported POs members	0.167	0.019	89.98***	6.72	78%
E. Supported POs members existing in 2015	0.228	0.056	128.55***	14.24	93%

	Treated farms	Control group	Abbreviation
A	All PO members	Non-PO members	<i>All PO members</i>
B	Members of supported POs		<i>Supported PO members</i>
C	Members of non-supported POs		<i>Non-supported PO members</i>
D	Members of supported POs	Members of non-supported POs	<i>Supported versus non-supported PO members</i>
E	Members of supported POs that existed in 2015	Non-PO members	<i>Supported PO members existing in 2015</i>

New POs

Old POs and received support in the past

FARMERS' COOPERATION

TO BETTER IDENTIFY THE EFFECT OF THE PO SUPPORT AND PO MEMBERSHIP, SEVERAL FARM GROUPS WERE CONSIDERED:

RESULTS

- Belonging to ***PO increases economic performance of farms***, members of PO do better than non-members
- ***PO support RDP 2007-2013 does not improve farm performance***. Members of POs which received support do worse compared to similar non-PO members.

RESULTS

- PO support is a long-distance race. Members of POs which survived until 2015 perform better to members of all supported POs. Some POs want just subsidies.
- Members of ***old POs perform better than members of new POs***
 - Older POs might perform better because they could have a more consolidated position in the market with developed business relationships and
 - Non-supported POs might have received support in the past under the previous rural development programmes.
- ➔ if a substantial share of old POs received support in the past, it implies that the support generated benefits to PO members
 - this is valid only for POs that survived and continued their operation after the support ended

RESULTS

IMPACT OF PO MEMBERSHIP ON FARM PERFORMANCE (ESTIMATED PSM-DID RESULTS FOR ATT)

	GVA	Profits	Employment	Labour productivity
A. All PO members	+41700	+7345	+1.73	+620
B. Supported PO members	-19287	-14570	+2.141	-1155.6
C. Non-supported PO members	+60139	+27847	+1.548	+39.76
D. Supported <i>versus</i> non-supported PO members	-61230	-54209	-2.074	-1324.86
E. Supported PO members existing in 2015	-18115	-8054	+1.332	-1676.8

CONCLUSION

- ***POs improve the economic performance of farms*** in Slovakia
- ***In the short-run the support*** granted to newly established POs ***does not improve the performance of farms***
- Only ***established and older POs*** (and potentially supported in the past) ***generate benefits to their members***
- ***PO support granted by the RDP 2007-2013 was not always effective*** in selecting POs with the highest potential to generate benefits to its members.
- Results suggest that many POs were created for the sole purpose just to benefit from the support.

THANK YOU

JÁN POKRIVČÁK

EMAIL: jan.pokrivcak@uniag.sk

Department of Economic Policy
Slovak University of Agriculture in Nitra
Tr.A. Hlinku 2
949 76 Nitra
Slovakia