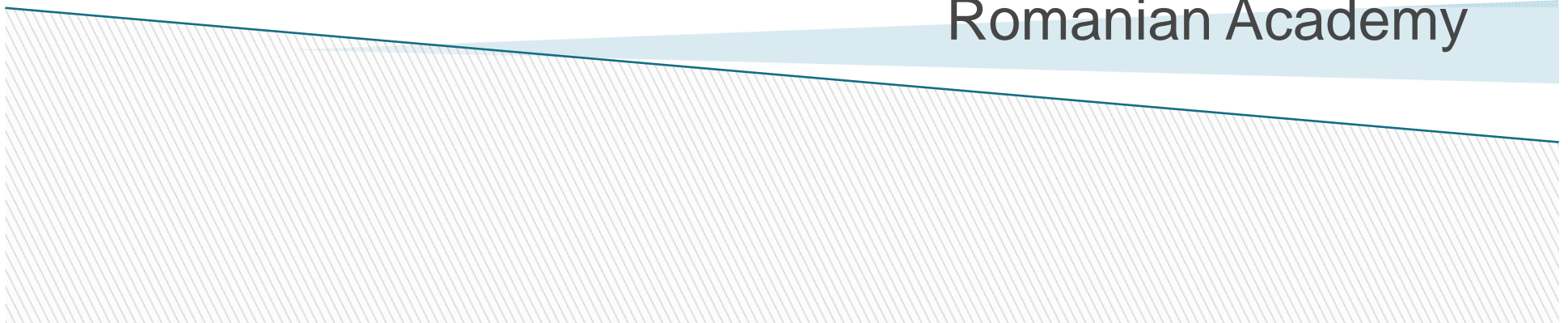# The dynamic of agrifood systems and institutional impacts on Romanian vegetable producers
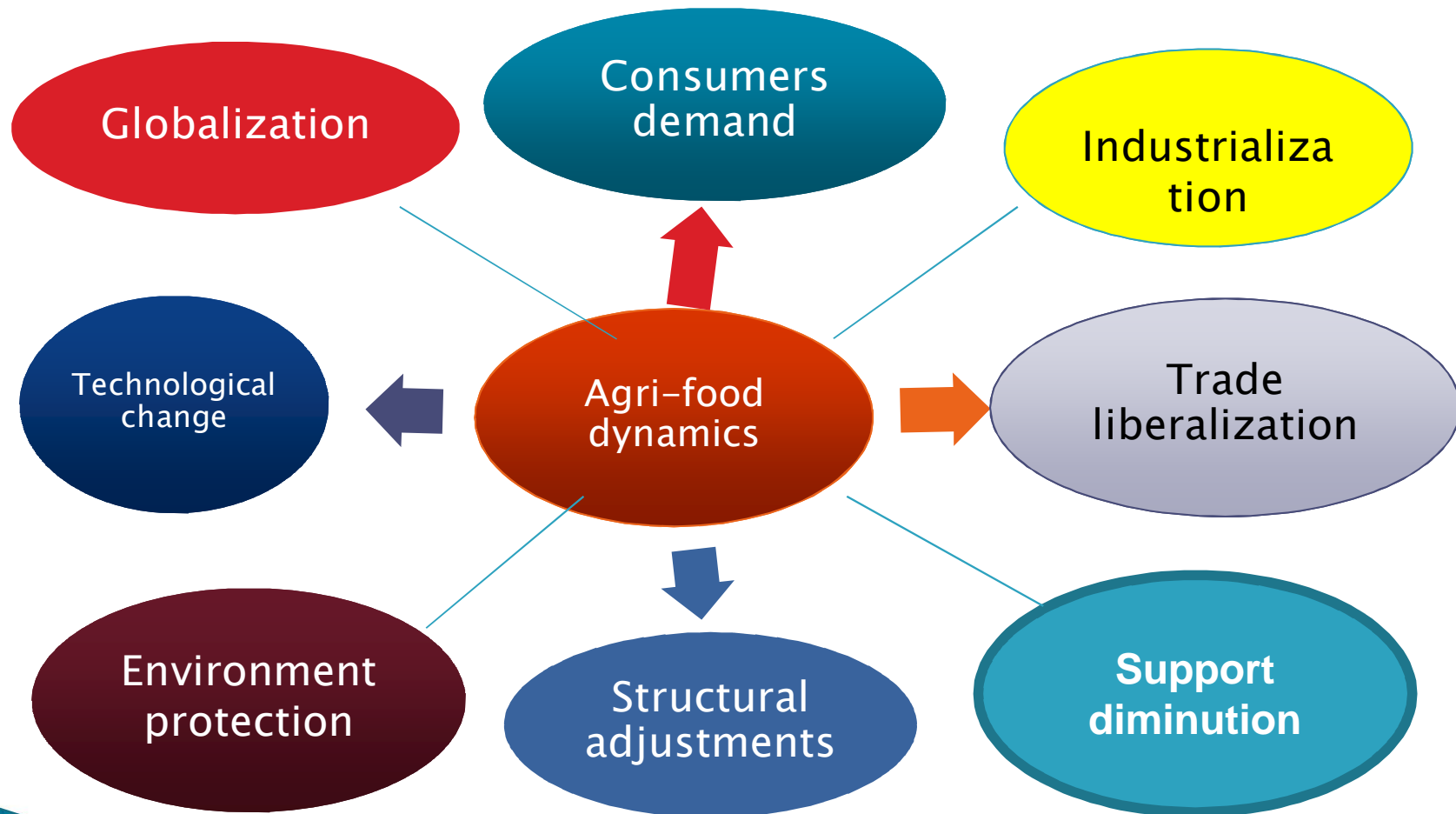
Dr. Cornelia Alboiu

Prof. dr. Filon Toderoiu

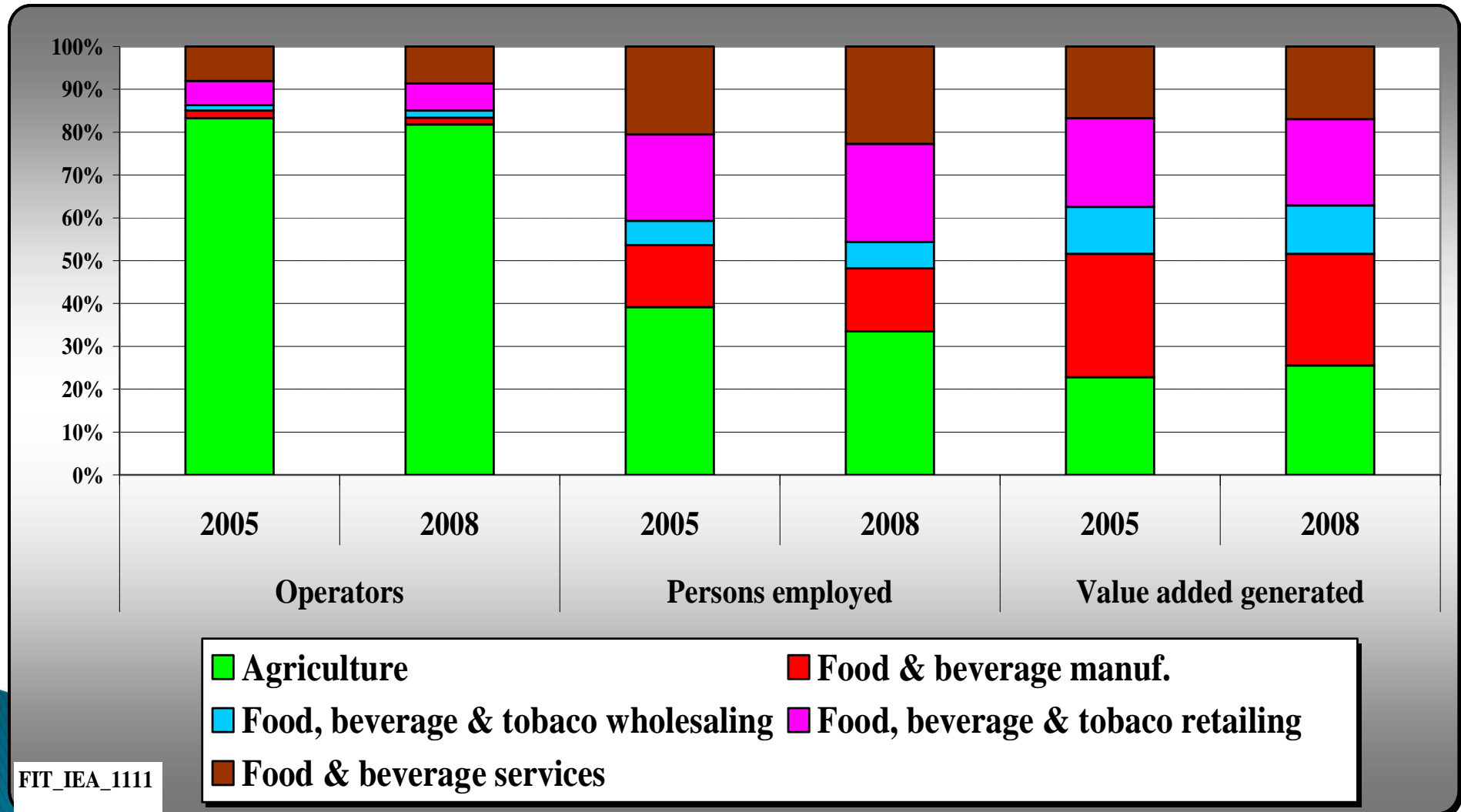Institute of Agricultural Economics,

Romanian Academy

STRUCTURE:

▸ Context: the dynamics of the agri-food sector and the shift from the traditional spot market to vertical integration/coordination

▸ Problem: lack of small farmers' organization and of their weak negotiation power under the background of the rapid rise and development of retail chains

▸ Theoretical framework used: the new institutional economics

▸ Hypothesis: small farmers membership in collective actions can contribute to the increase of their participation in the modern retail chains

▸ Data description and methodology used
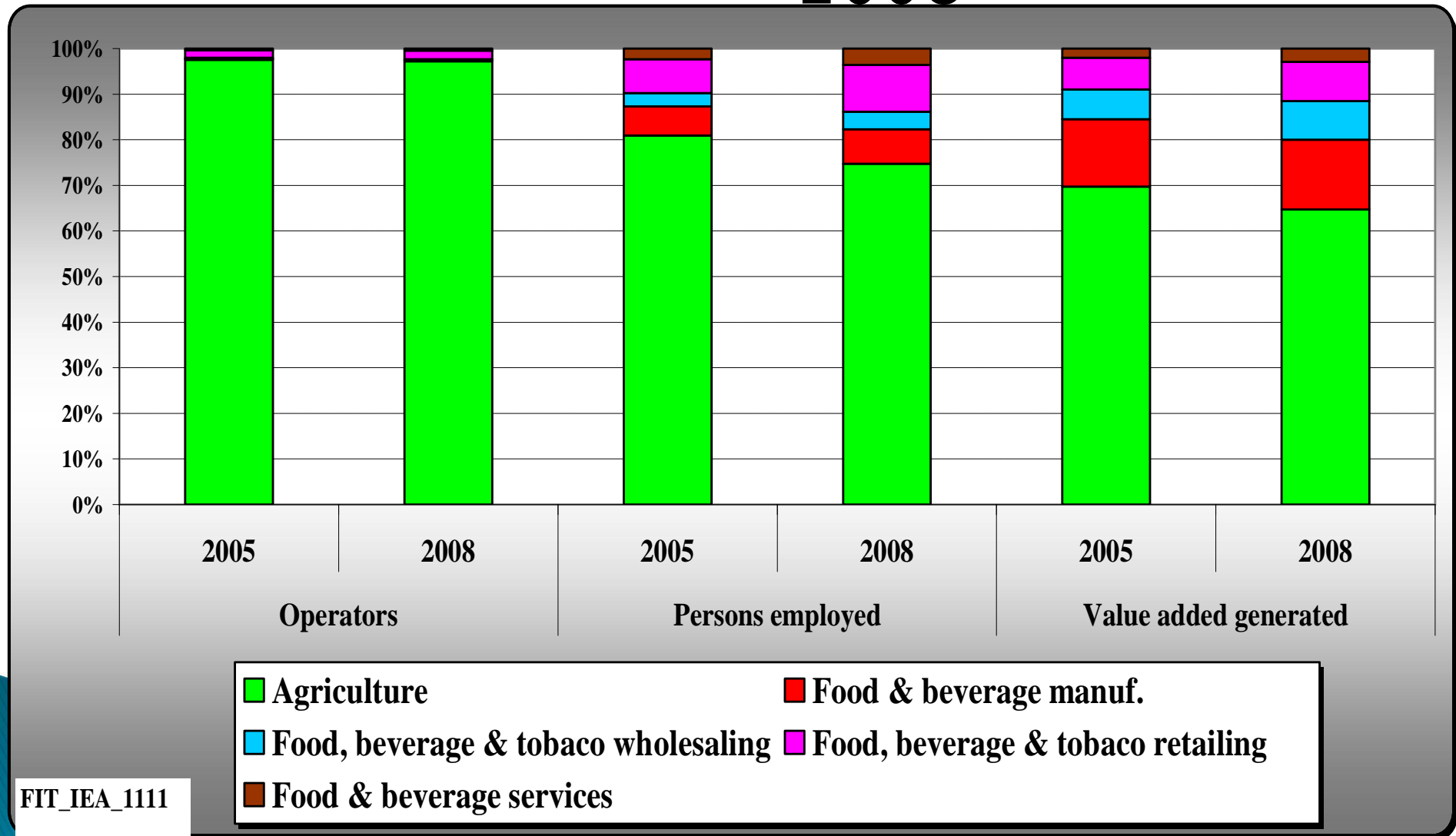
▸ Results and conclusion

Agri–food chain dynamics

Multicriterial structure of the agri-food chain in the EU, 2005 – 2008

Source: own calculations, on the data from "Food - from farm to fork statistics", Eurostat Poketbooks, 2011 edition
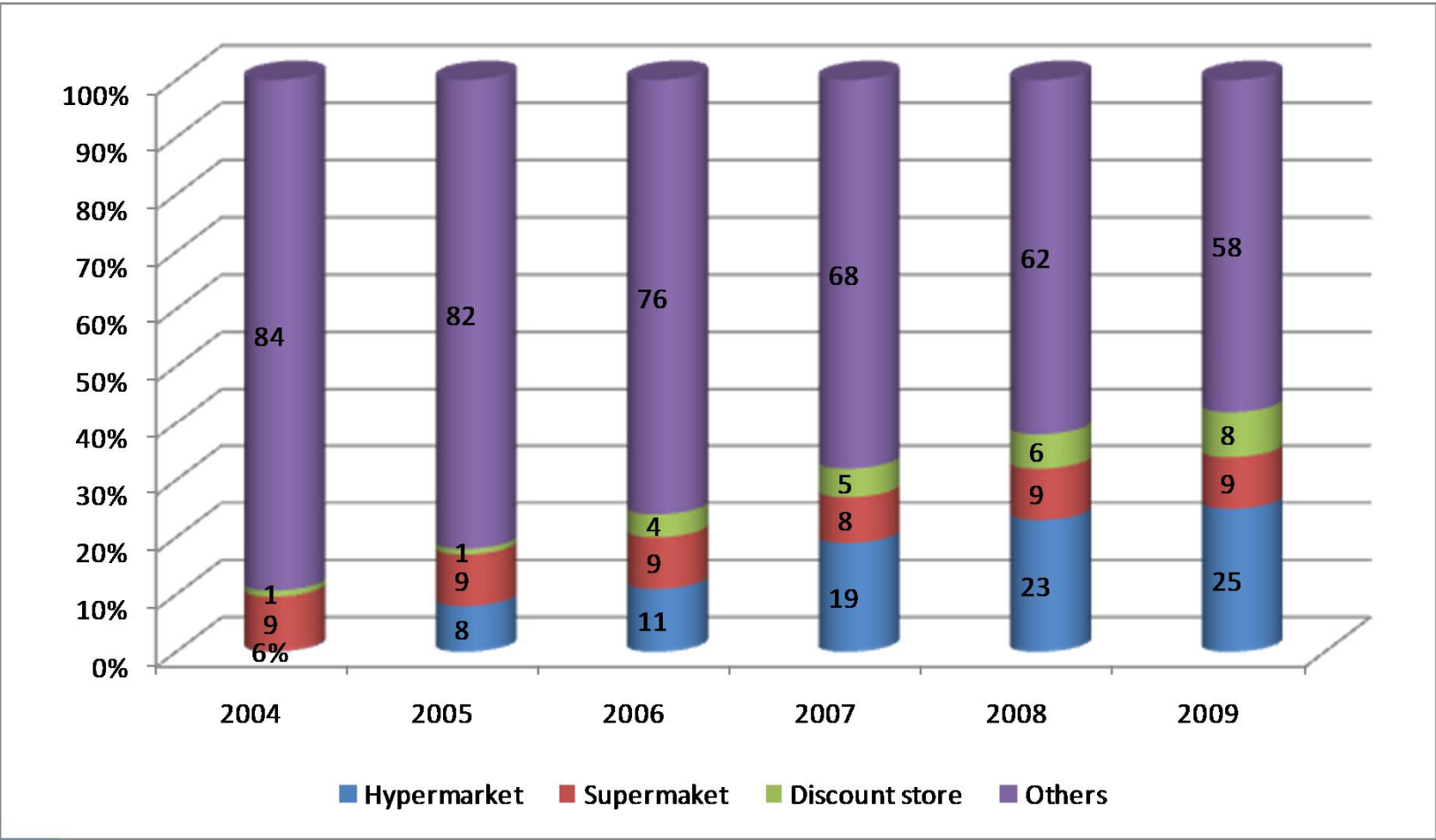
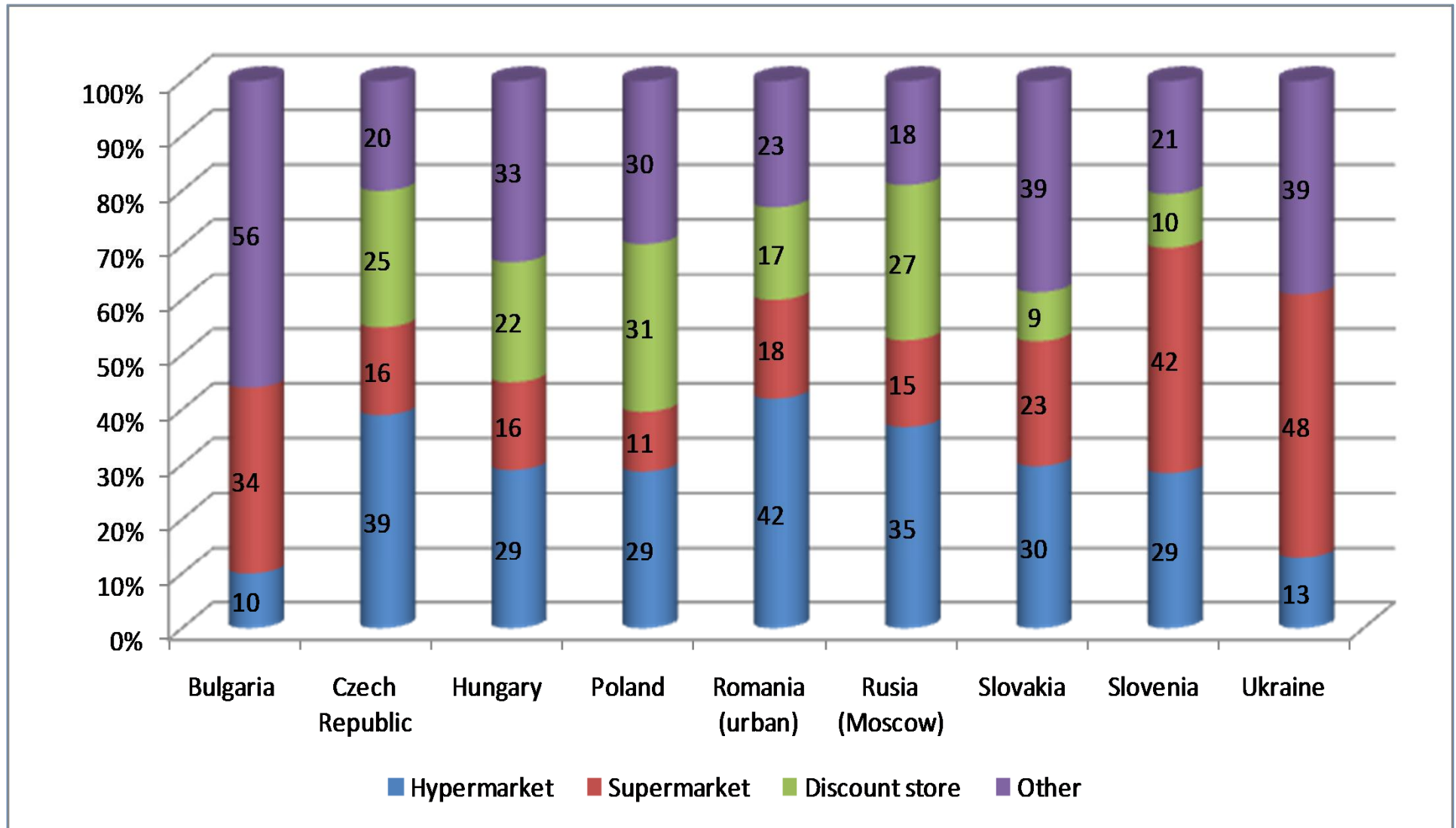# Multicriterial structure of the agri-food chain in Romania, 2005 – 2008

Dinamiycs of agrifood sector:
Share of modern retail stores in grocery sales %

The main shopping place: % of consumers

|	Bulgaria	Czech Republic	Hungary	Poland	Romania (urban)	Rusia (Moscow)	Slovakia	Slovenia	Ukraine
Other	56	20	33	30	23	18	39	21	39
Discount store		25	22	31	17	27	9	10	
Supermarket	34	16	16	11	18	15	23	42	48
Hypermarket	10	39	29	29	42	35	30	29	13

■ Hypermarket   ■ Supermarket   ■ Discount store   ■ Other

Institutional organization of the vegetable sector

- ▶ only one commodity inter-professional association in this sector;
- ▶ low negotiation power of producers and high transaction costs due to lack of organization;
- ▶ 34 producers' groups and one organization, whose members total 711 individual farmers and 10 legal farms;
- ▶ 90% of vegetable production obtained in individual farms and 10% in commercial farms
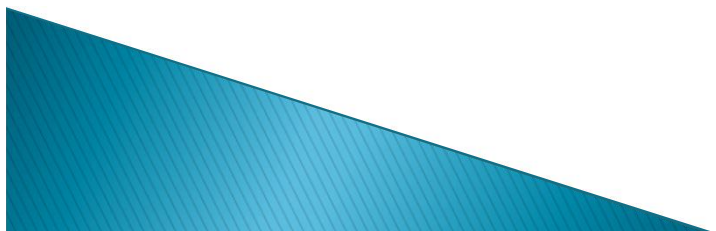
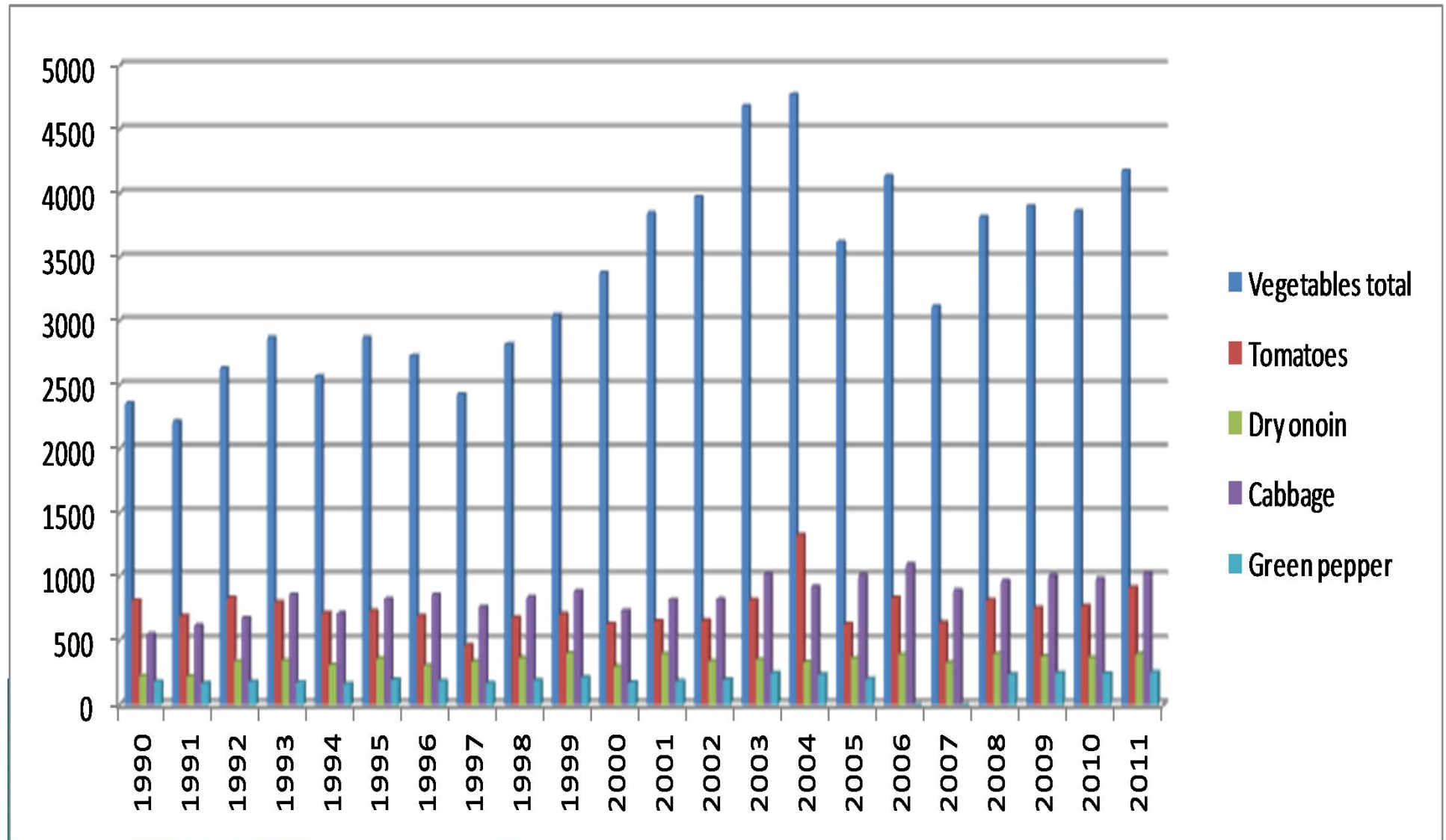# Share of the cultivated areas in the vegetable sector
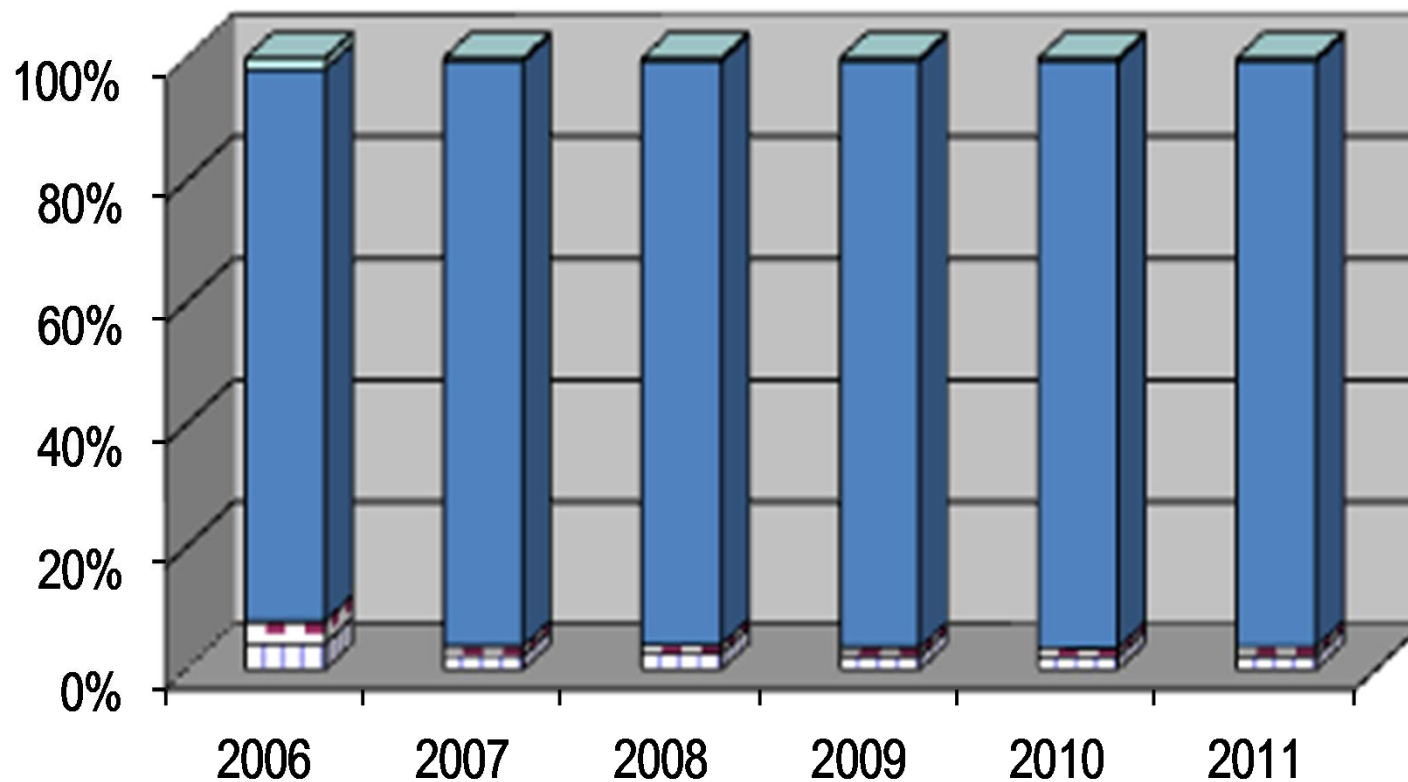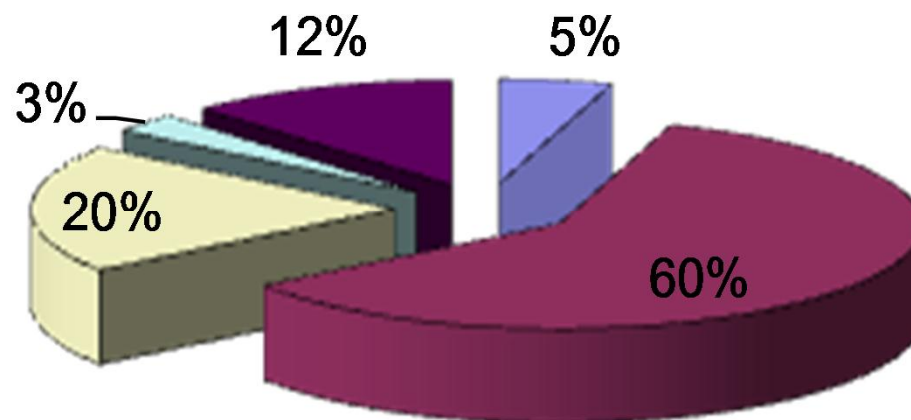
Sector context: vegetable production (thou tons)

Sector context: tomatoes: cultivated area–average production
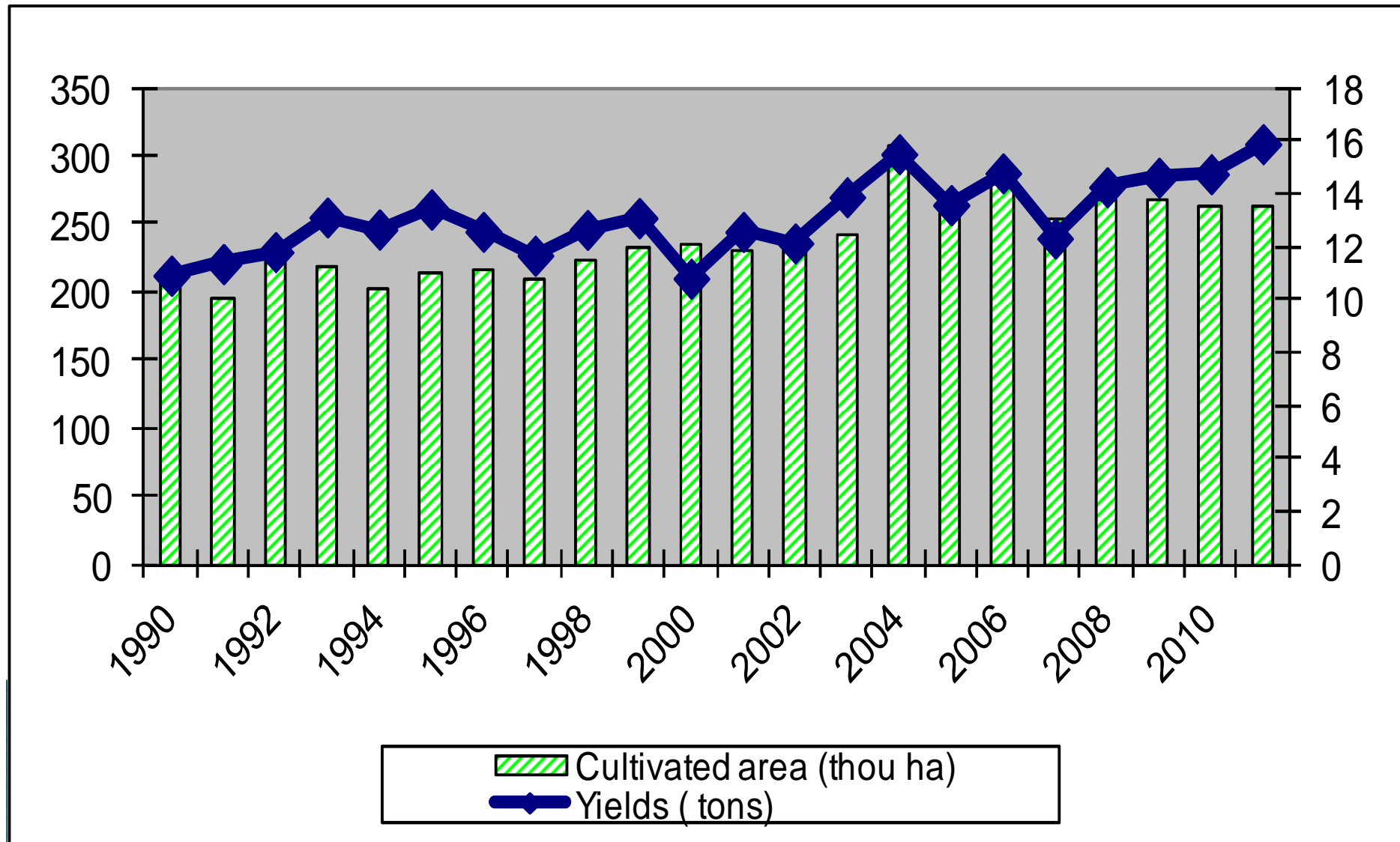
Sector context: vegetable main marketing channels
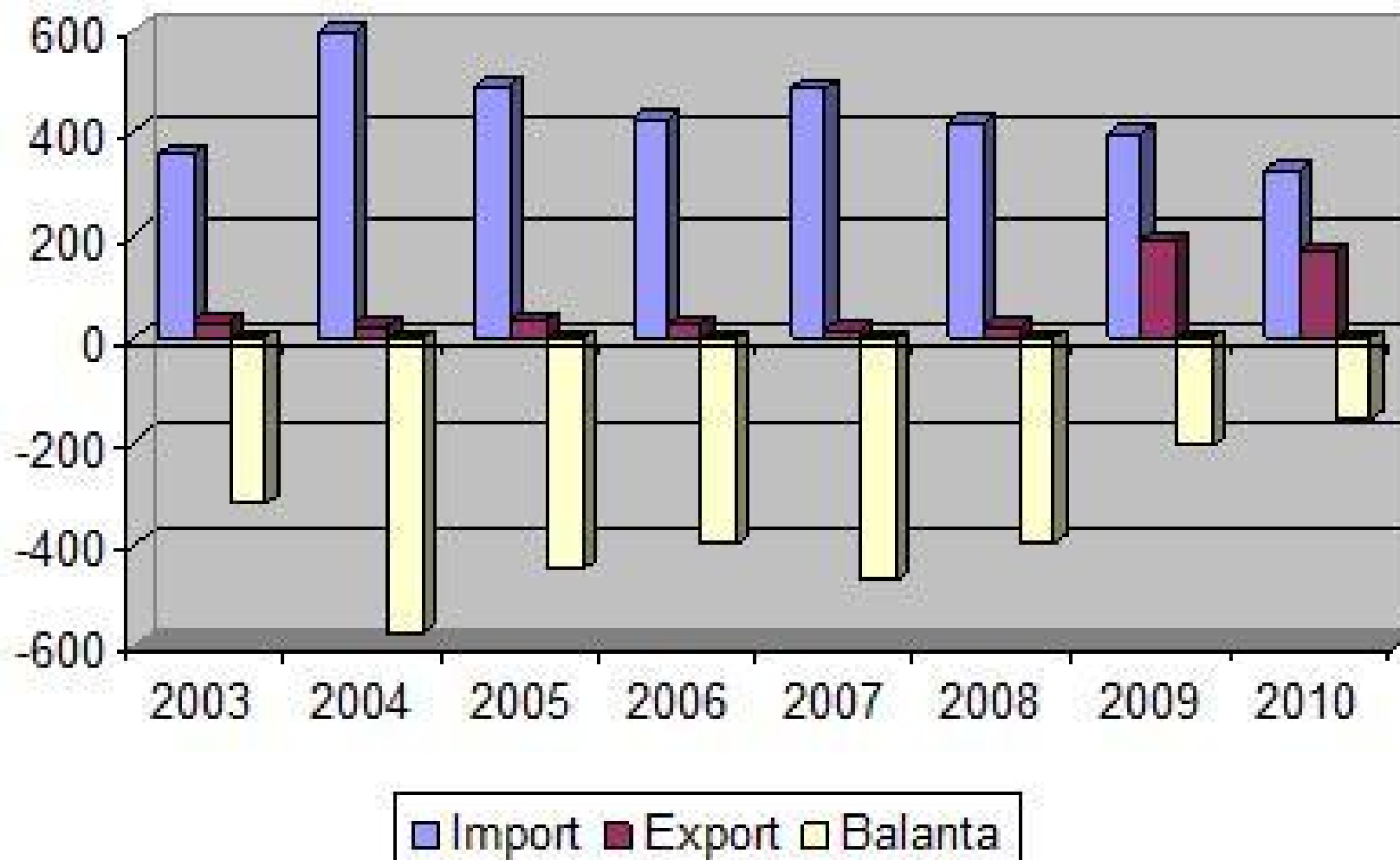

5%
12%
3%
20%
60%

- direct to retail chains
- middle men
- direct on the open market
- producers organization
- processing companies

Vegetable trade balance

Traditional agriculture	Modern agriculture
➤Production of commodities; traditional spot market	➤Differentiated sources; negotiation; contracts
➤Farmers carry out several activities	➤Specialization; separation by different product stages
➤The evolution of product along the chain is independent	➤Concentration along the chain; the evolution of product along the chain is interdependent
➤Price and production at risk	➤Risks related to contractual relations and food safety
➤The financial sources and the assets are seen as control sources	➤Access to information and participation in collective actions ➤Information as control source

Data used

- Qualitative data: survey carried out in S-E region with 280 farmers
- Interviews with 4 producers groups
- Proxy var. associated with transaction costs and collective actions measured using Likert scale

	Frequency	Percent
Traditional market	223	80,35
Modern retail chains	57	19.64
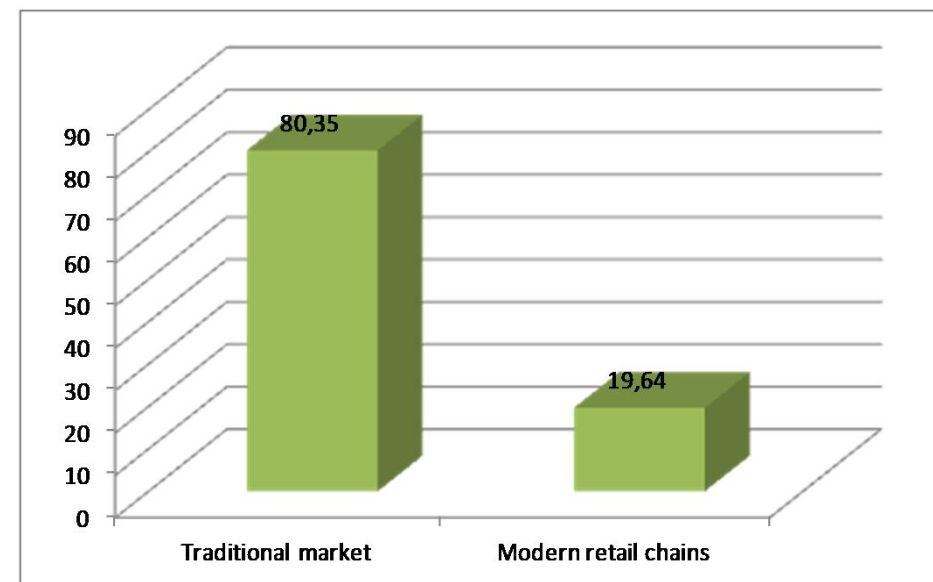
The conceptual framework used

- New institutional economics which is based on market imperfections (transaction cost economics and collective actions)

  - $TC=f$ (AS, F, U)

    $+, -, +$

  *AS: asset specificity
  F: frequency
  U: uncertentity

- It is grounded on the works of Coase, North and Williamson and it focuses on institution and their role on economic transactions (Ménard, 2004), due to the fact when we have transaction costs, the institutions do matter (North, 1991, Williamson, 2000).

The model used

▸ Binary model: logit

$$y_i^* = a_0 + \sum_{j=1}^{k} a_j x_{ij} + e_i$$

▸ Motivation:

▸ The logit regressions are associted with the estimation of choice probability (Greene, 2000) and they are based on the maximization of the individual's utility.
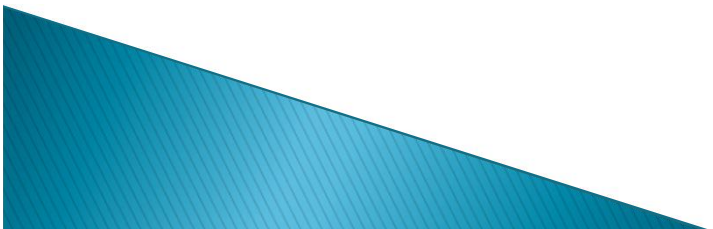
$$y = \begin{cases} 1, & \text{cândy}^* > 0 \\ 0, & \text{în caz contrar} \end{cases}$$

$$p_i = \frac{1}{1 + \exp - \left(a_0 + \sum_{j=1}^{k} a_j x_{ij} \right)}$$

Farmers' probability to participate in collective actions

- farmers participation in collective actions $= \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_5 X_5 + \epsilon_t$

- participation in collective actions is $= f$ (credit, input supply, training and technical support, transport, collection and distribution)

Marketing characteristics of producers groups

▸ The results reveal that only 20% of their pooled production is sold directly to modern retail chains; the rest is sold: 40% to traditional wholesalers and des gross markets 20% to local open market and 20% of the production is sold at farms' gate

▸ at the whole country level less than 3% of vegetable production is sold through producers groups
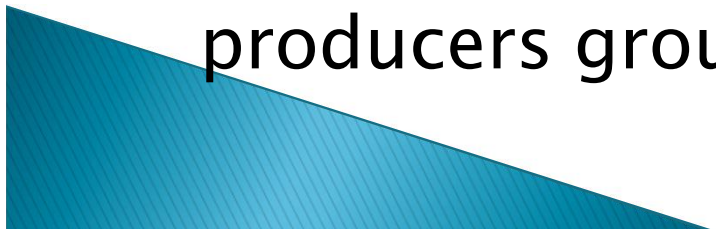
Proxy variables asassociated with participation in collective actions (producers groups)

Independent proxy variable	Hypothesis acc. to TC and colective action theory	Independent proxy variable	Hypothesis acc. to TC and colective action theory
Credit	Negotiation/uncertantity ?	Transport	Negotiation /uncertantity +
Agricultural Inputus	Negotiation/uncertantity +	Collection and distribution centre	Negotiation/ uncertantity +
Training and technical support	Collective action +		

Effects of support measures within the producers' groups and participation in collective actions

Variables	Model Logit 1		Model Logit 2	
	q	Z statistic	q	Z statistic
Credit	-0,05	-0,09		
Agricultural inputs	2,7	3,5	2,8	3,5
Training and technical support	0.25	0.51	0,25	0,5
Transport	0.72	1.48	0,70	1,98
Collection centres and distribution	1.65	2.69	1,68	2,78
Mc Fadden R^2	0,76		0,75	

Conclusions

- I tested the hypothesis regarding the probability of farmers' to participate in collective organizations and the effect of support measures given to members

- The estimated coefficients have the expected sign and prove that small farmers benefit more from input supply services than from collection and distribution services

- Due to the price volatility and payment mechanisms (20–30 days after delivery of products and the shelf fee of about 15%), the phenomenon of selling outside the contract is very frequent (that is an opportunistic behaviour) which implies a weak functioning of producers groups

- There is a high uncertainty level as regards the participation in collective organization and their role in the collection and distribution activities

- The hypothesis of small farmers membership in producers groups can contribute to a better participation in modern retail formats cannot be fully sustained

▸ Thank you for your attention