



Structural Trends and Challenges for the Farm Sector in Central and Eastern Europe

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Economic, social and institutional factors of agri-food sector growth in Europe
Ciechocinek, December 10-12, 2012

Structure of presentation

- Sectoral trends
 - Increasing vertical integration and globalization
 - Tendency towards biological manufacturing
- Agriculture and the society
 - CAP after 2013
 - Public perception of farming
- Conclusions

Verticalization and globalization

- Enormous and fast expansion of supermarkets worldwide (also in transitional, emerging and developing countries)
- Retail brands replace producer brands
 - trust of consumers in retailers
 - strict quality management via private standards (e.g. GLOBALGAP)
 - vertical cooperation to realize efficiency gains
- Not companies compete but networks
- In general, in favor of larger farms

Verticalization and globalization

International structural change in the pork chain

- Denmark (2007)
 - 34 % of all pigs in facilities with more the 5000 pigs
 - 20 % of all pigs in facilities with more the 10000 pigs
- US pork production (2008)
 - ~ 50 % of all hogs grown under contract
 - > 60 % of all pigs in facilities with more the 5000 pigs
 - ~ 20 % of all sows held by the 10 largest enterprises

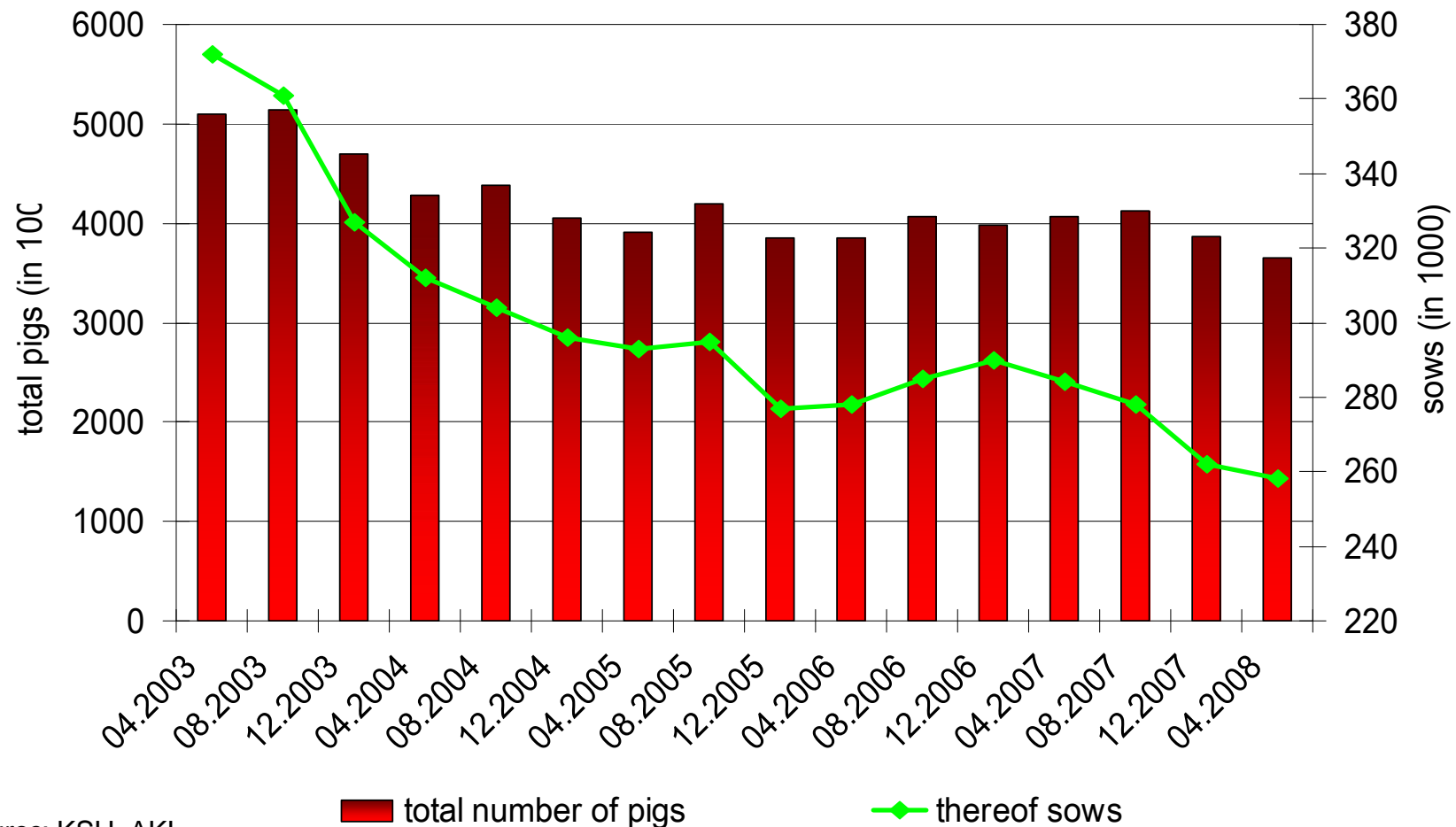
Verticalization and globalization

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- Smithfield Foods
 - USA: ~ 1 mill. sows
 - Poland: > 80.000 sows, ~ 1.5 mill. hogs produced in 2012
 - Romania: > 900.000 hogs produced in 2012

Verticalization and globalization

Development of pork production in Hungary (2003-2008)



Source: KSH, AKI

Biological manufacturing

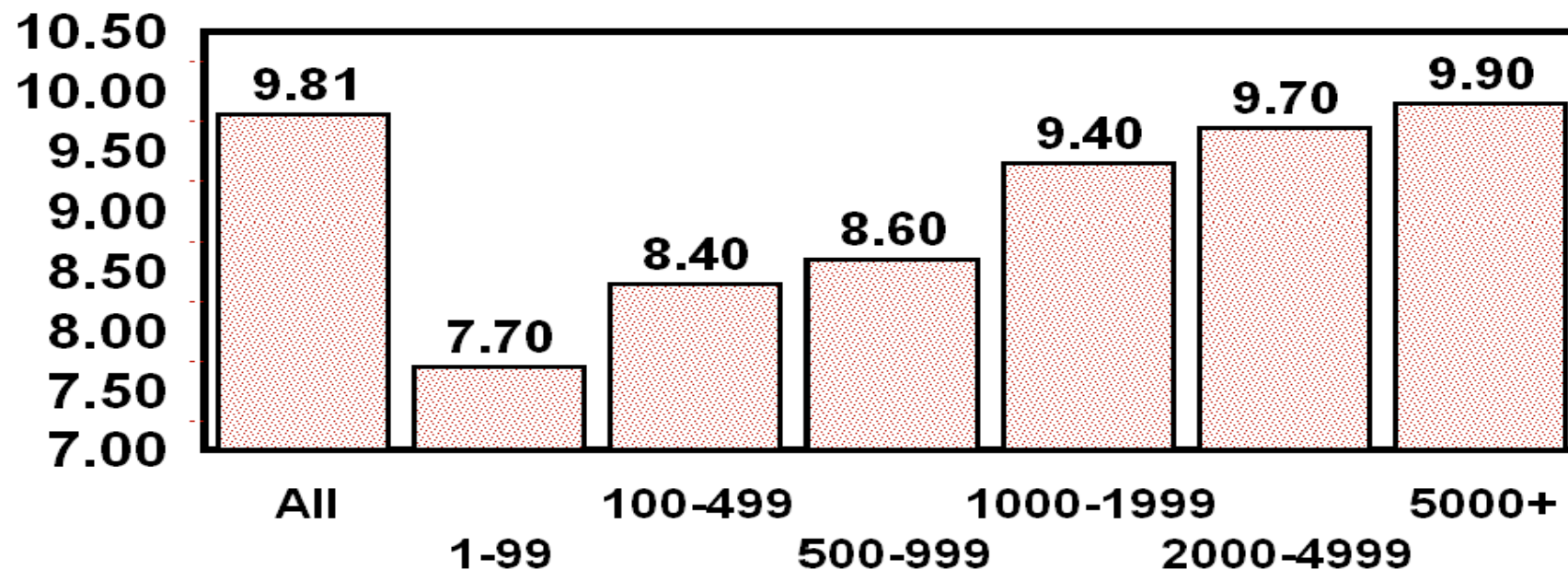
➤ Boehlje (1999)

"In essence, agricultural production is becoming more a science and less an art."

Biological manufacturing

U.S. Pigs per Litter By Size of Operation, March-May 2010

Number Head



USDA-NASS
06-25-10

Biological manufacturing

German Farm Accountancy Data 2010/11

	Size	Land*	Labour	Wheat yield	Milk yield	Piglets
	SO	ha	AWU/100ha	Dt/ha	Kg/cow	per sow
Full-time Farms West	212	67	3,4	73,3	7 313	25,1
Full-time Farms East	320	212	1,6	63,3	7 746	26,0
Legal Persons (corporate farms)	2 012	1 148	1,8	66,0	8 652	26,8
> 3000 SO	4 495	2 154	2,2	67,9	8 812	28,0

BMVEL FADN, weighted averages, own calculations

1 SO: 1.000 € Standart Output

➤ Productivity increases with farm size!

Biological manufacturing

Modern farming is knowledge-based

- Thesis: Economies of size result from better managing human capital and know how rather than from decreasing average costs for larger facilities!
 - Competent managers
 - Skilled employees
 - Knowledge transfer through supply chain

Biological manufacturing

Modern farming is capital-based

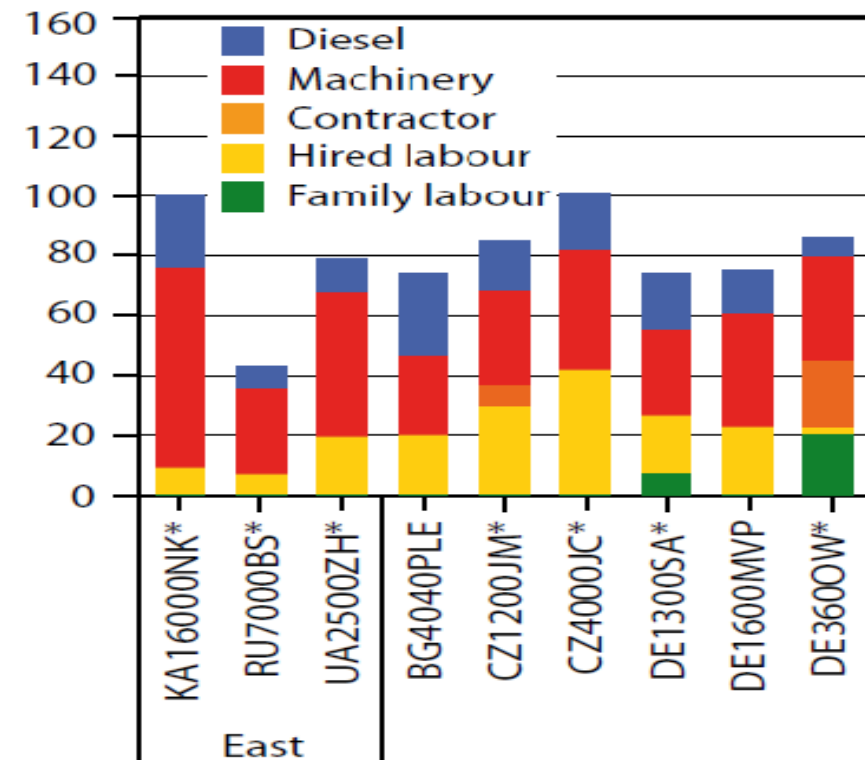
- Financial demands to create one job in livestock production in Germany
 - hog feeding: 1 125 000 €
 - facility per 2500 places at 350 € each, current assets 100 € per place
 - farrowing: 675 000 €
 - facility per 250 sows at 2300 € each, current assets 400 € per place
 - dairy farming: 300 000 €
 - facility per 50 cows at 4000 € each, current assets 2000 € per place
- Capital costs higher than labor costs!
- Enormous financial demands!

Biological manufacturing

Modern farming is capital-based

- In arable farming machine costs often higher than labor costs
- High financial demands!
- Venture capital necessary!
- Agro-holdings an option?
(25% of arable land in Ukraine farmed by agro-holdings)

Labor and machine costs wheat \$/t



Source: Zimmer et al. (2010)

Agriculture and the society

EC proposal for CAP after 2013

- Greening
(if greening is taken serious -> indirect reduction of direct payments)
 - Addressing social goals
 - support of (small) farmers
 - capping of direct payments for large recipients
- More than opportunistic marketing strategy to secure budget?

Agriculture and the society

“20 % of the farms receive 80 % of subsidies!”



http://www.ricardam.com/ricardam_community/uploads/20100901120934_BeautyQueen.jpg



<http://www.gametheory.net/dictionary/People/VilfredoPareto.html>

Agriculture and the society

“20 % of farms receive
80 % of subsidies!”

or should one argue:

“20 % of the farms generate
80 % of value!”



➤ Who/what wants policy to address?

- “ The farmers?
- “ The farm sector?

Agriculture and the society

Public perception of farming

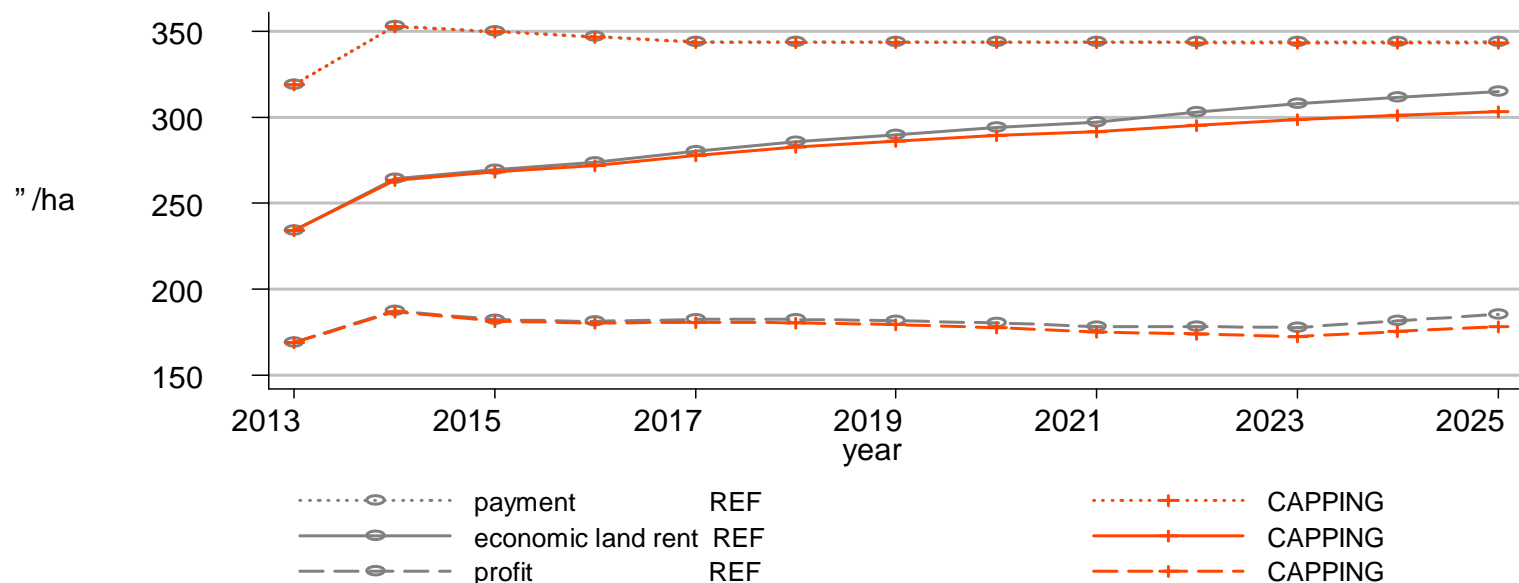
- Some stylized facts
 - romantic view: farming has to be "natural"
 - little knowledge of real farming practices and technologies
 - concerns against larger farms
 - concerns against international farms
 - concerns against investments in facilities for intensive livestock production
 - concerns that farmers cannot exist without subsidies and suffer from low income
- Public discussion rather ideological than based on analysis and facts!
(broad coalition between environmental groups and small farmers associations)
- C.-A. Bartmer (President of DLG) (05.09.2012):
The agricultural sector did not include the public in its modernization process.

Conclusions

- Structural change will continue internationally at high speed
 - Verticalization and globalization: consumer driven
 - Biological manufacturing: producer driven, resource driven
 - need for venture capital
 - need for know how transfer and human resource development
 - New role for economies of size
- Question:
 - How to achieve a proper institutional environment?
 - “ On the one hand need for policies which are able to support production needs while considering environmental, animal-welfare and health issues!
 - “ Complementary policies which address social needs!
 - Need to foster and de-ideologize political debate!

Agriculture and the society

Impacts of capping proposal on the Altmark region in East Germany

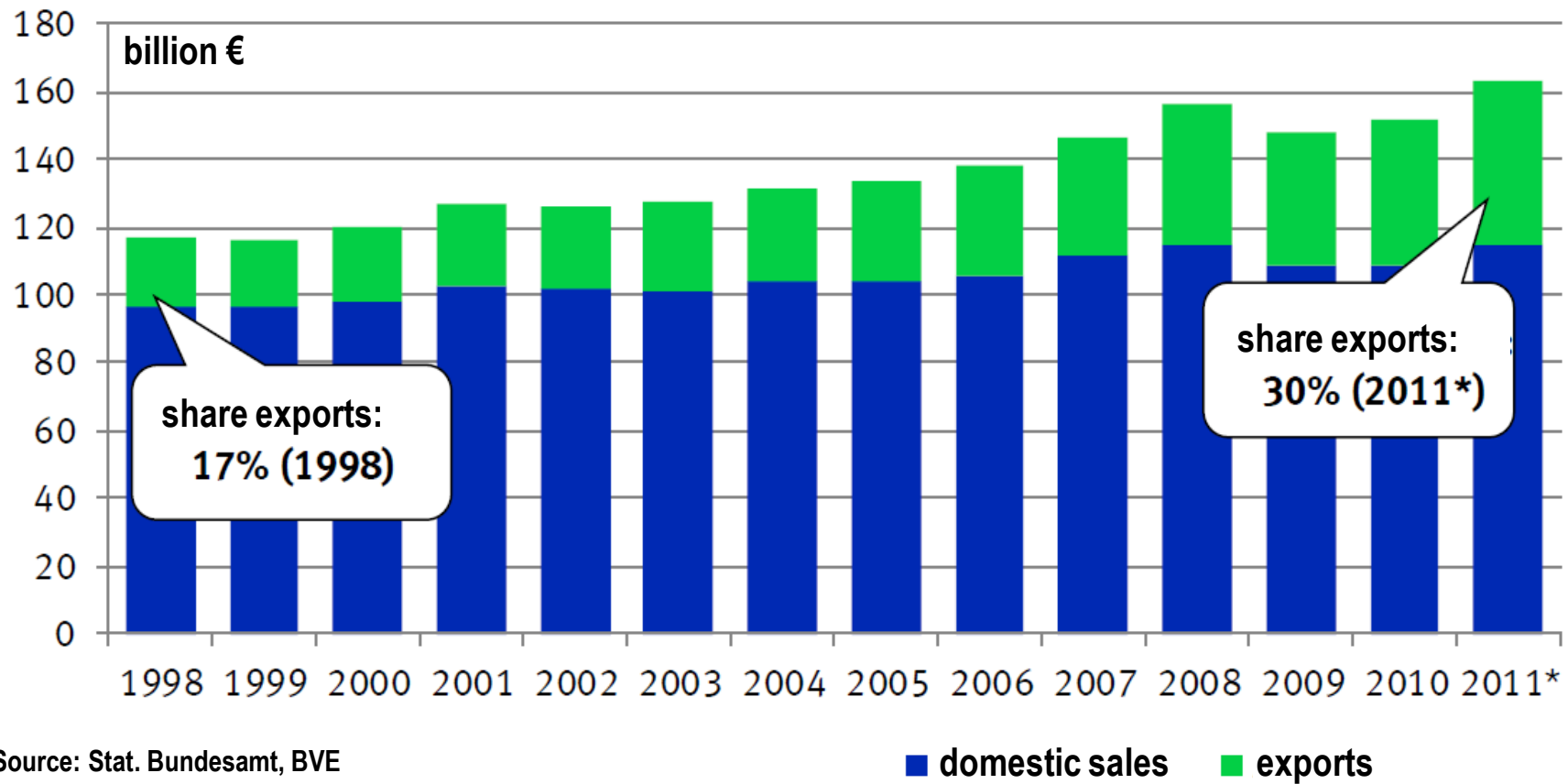


Source: Sahrbacher et al. (2012), Analysis based on simulations with AgriPoliS

- Almost no impact on payments (because of farm adjustments)
- Higher impact on profits of large farms
- Highest impact on economics land rents (factor price distortions)
- Effects increase over time! (inefficient structural adjustments)
- No benefits for smaller farms!

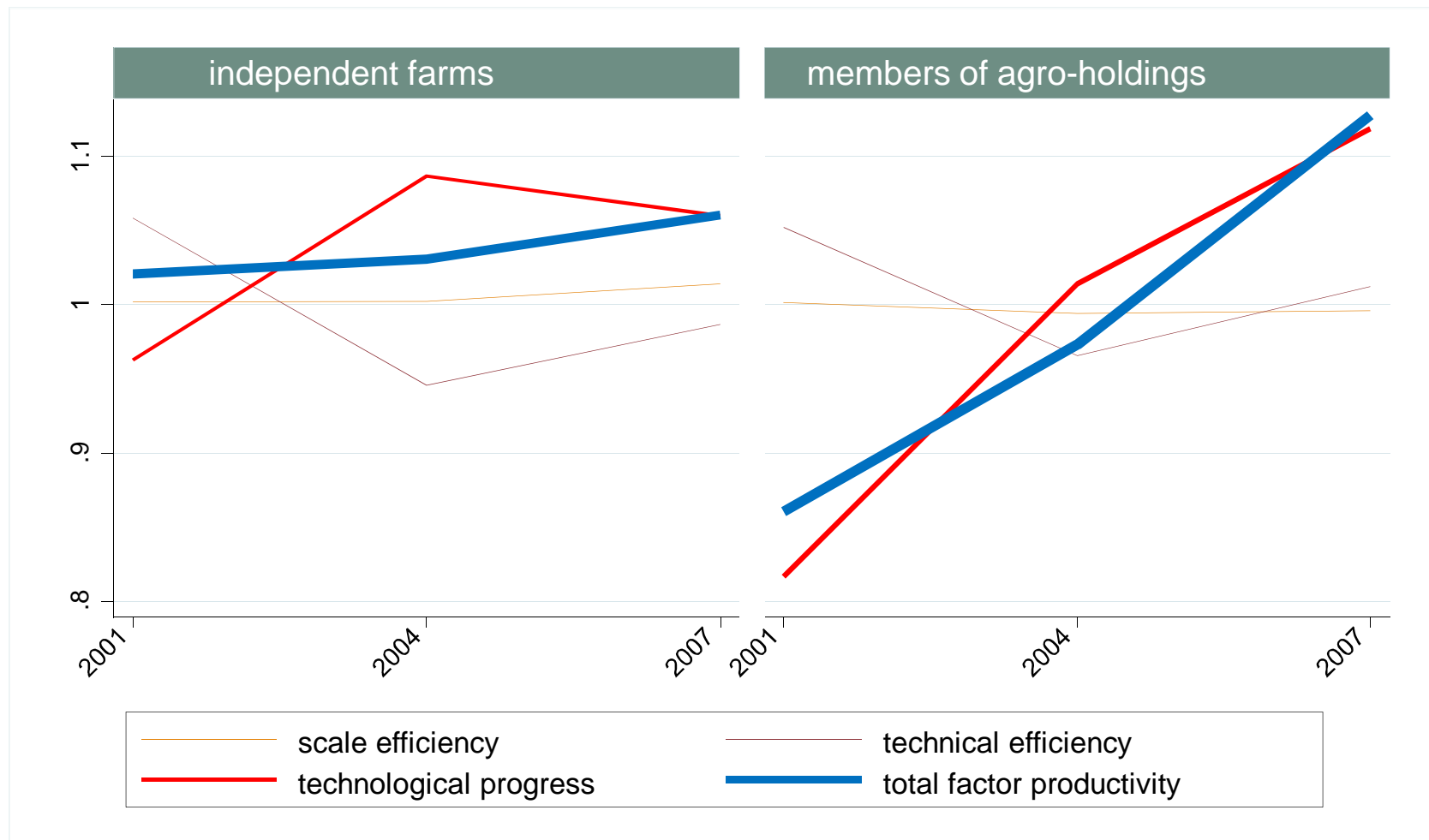
Verticalization and globalization

Total revenues of German food industry (550 000 employees)



Biological manufacturing

Independent farms versus agro-holding members (Russia)



Source: Hahlbrock et al. (2011, 2012)

Agriculture and the society

Public perception of farming

- What are the reasons for divergence?
 - Agriculture and agribusiness supported idealistic views for a long time
 - No serious interest of the public in real farming (particularly not in meat production)
 - Lack of communication
 - by farmers
 - by agribusiness
 - by scientists

Agriculture and the society

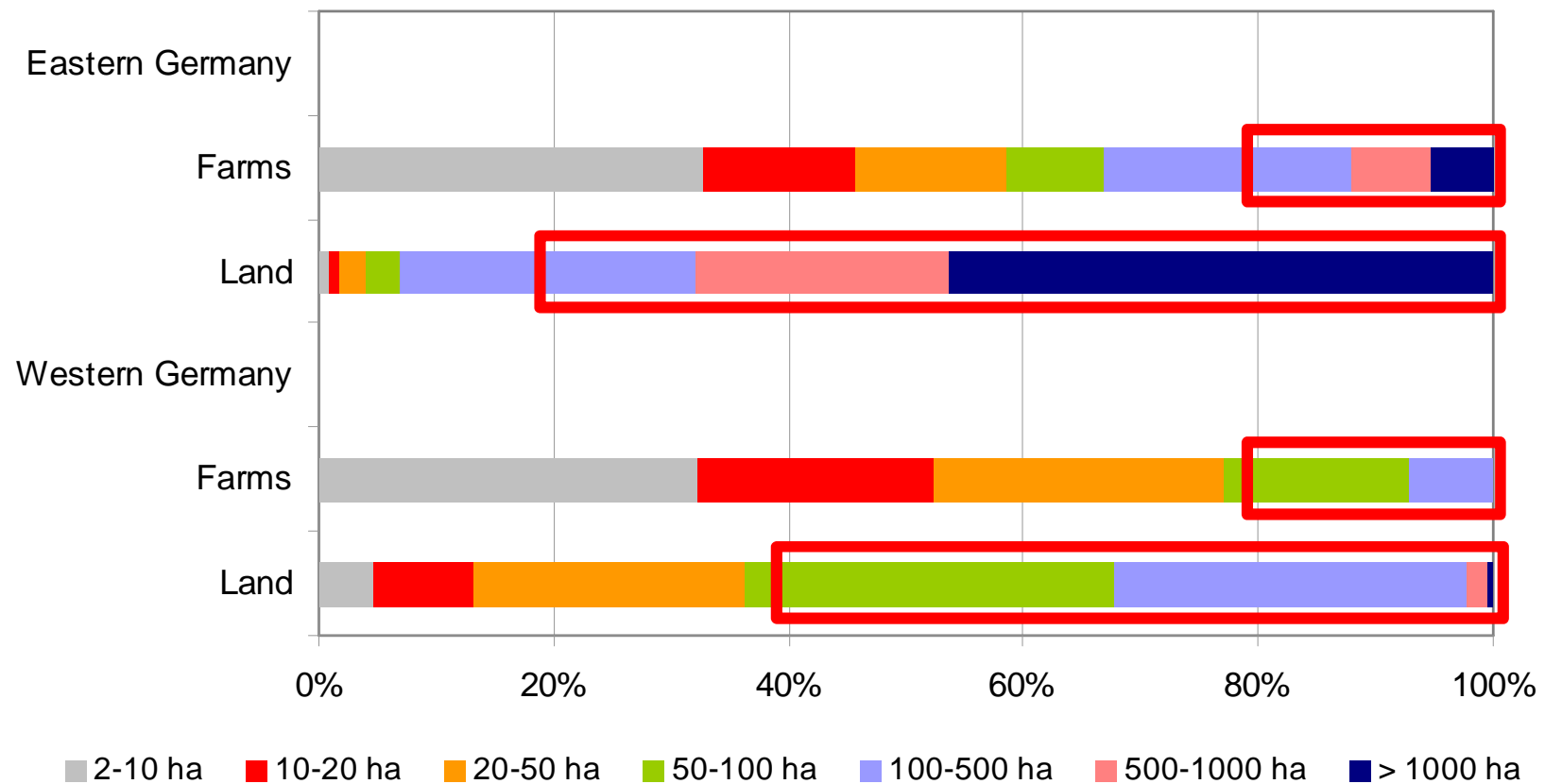
“20 % of the farms receive 80 % of subsidies!”

- “Pareto-principle”
 - 20 % richest own 80 % of the wealth almost everywhere and everytime
 - some kind of “natural law”



Agriculture and the society

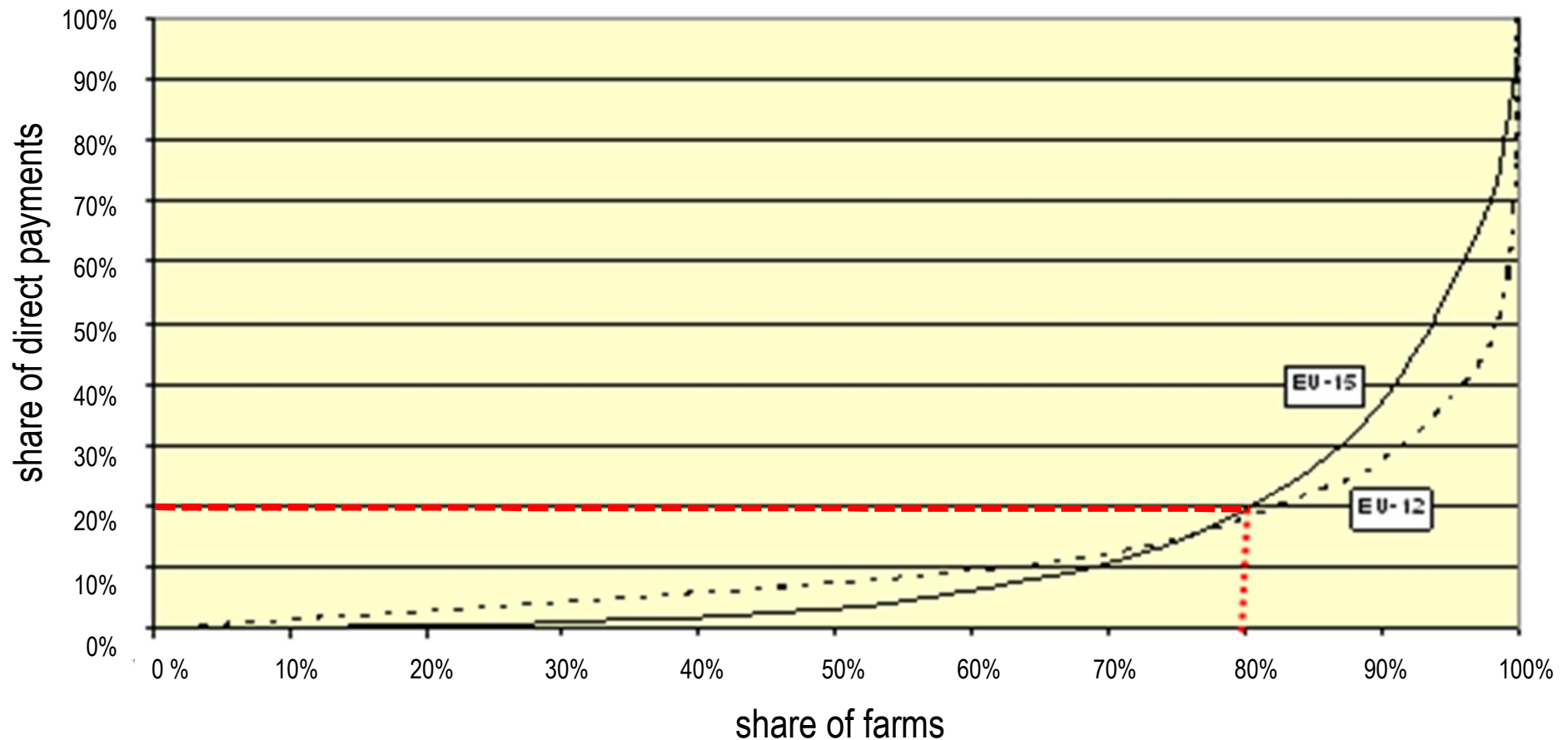
Agricultural land shares of farm size classes in Germany (2007)



Source: BMELV, own calculations

Agriculture and the society

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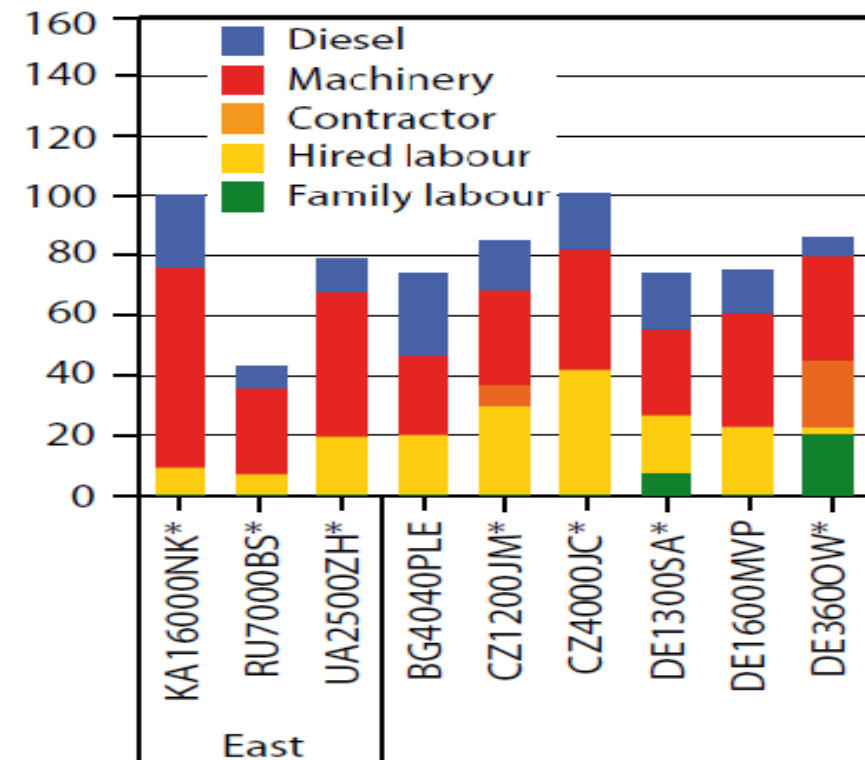
Source: EU Commission (2011) “CAP post 2013 Impact Assessment - Annex3: Direct Payments”

Biological manufacturing

Modern farming is capital-based

- In arable farming machine costs often higher than labor costs
 - Labor quality more important than wage level!
 - Importance of investments in human capital!

Labor and machine costs wheat \$/t



Source: Zimmer et al. (2010)

Sectoral trends

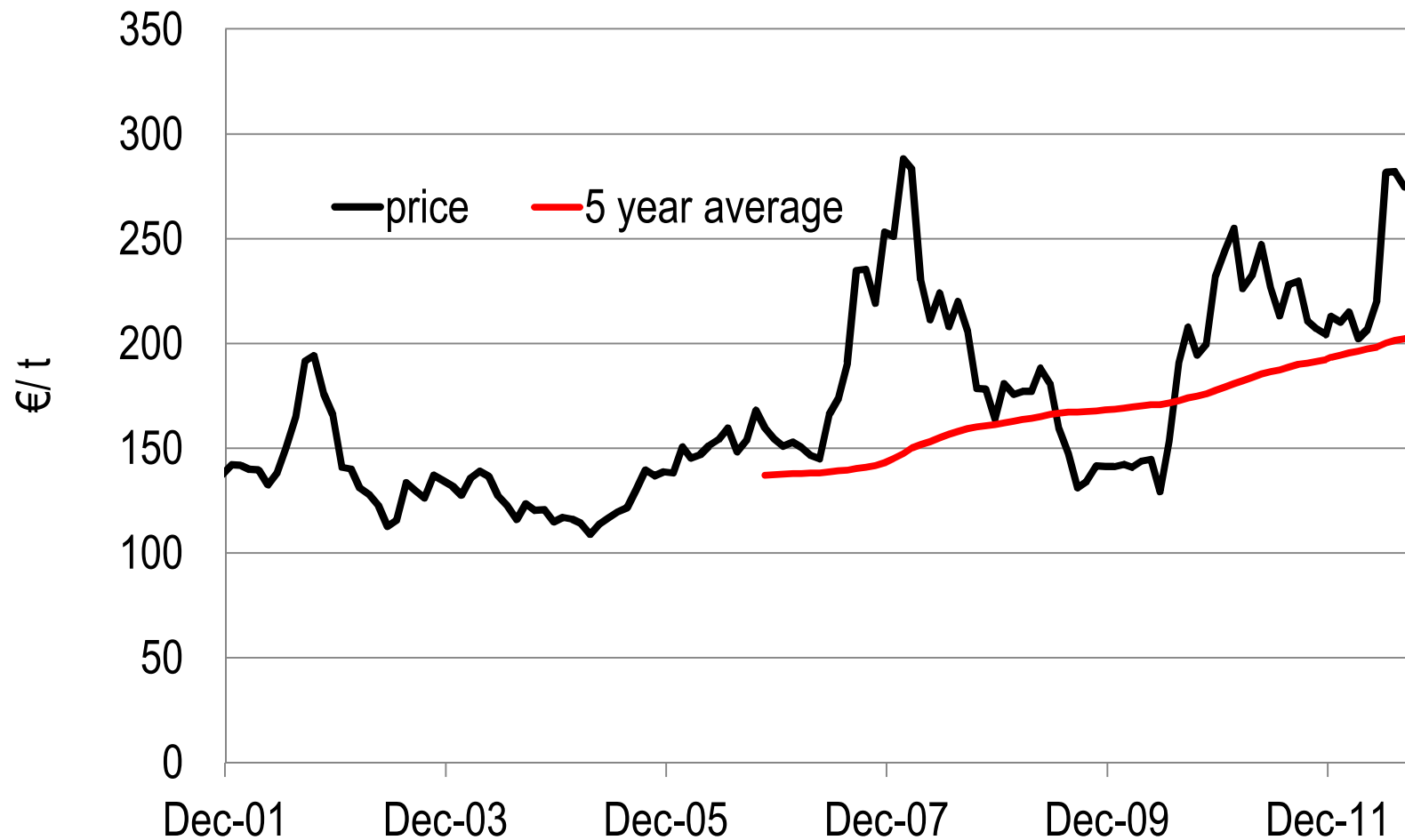
➤ Boehlje (1999)

New dimensions of structural change in agriculture:

- Vertical value chains in global dimension (verticalization)
- Biological manufacturing

Market trends

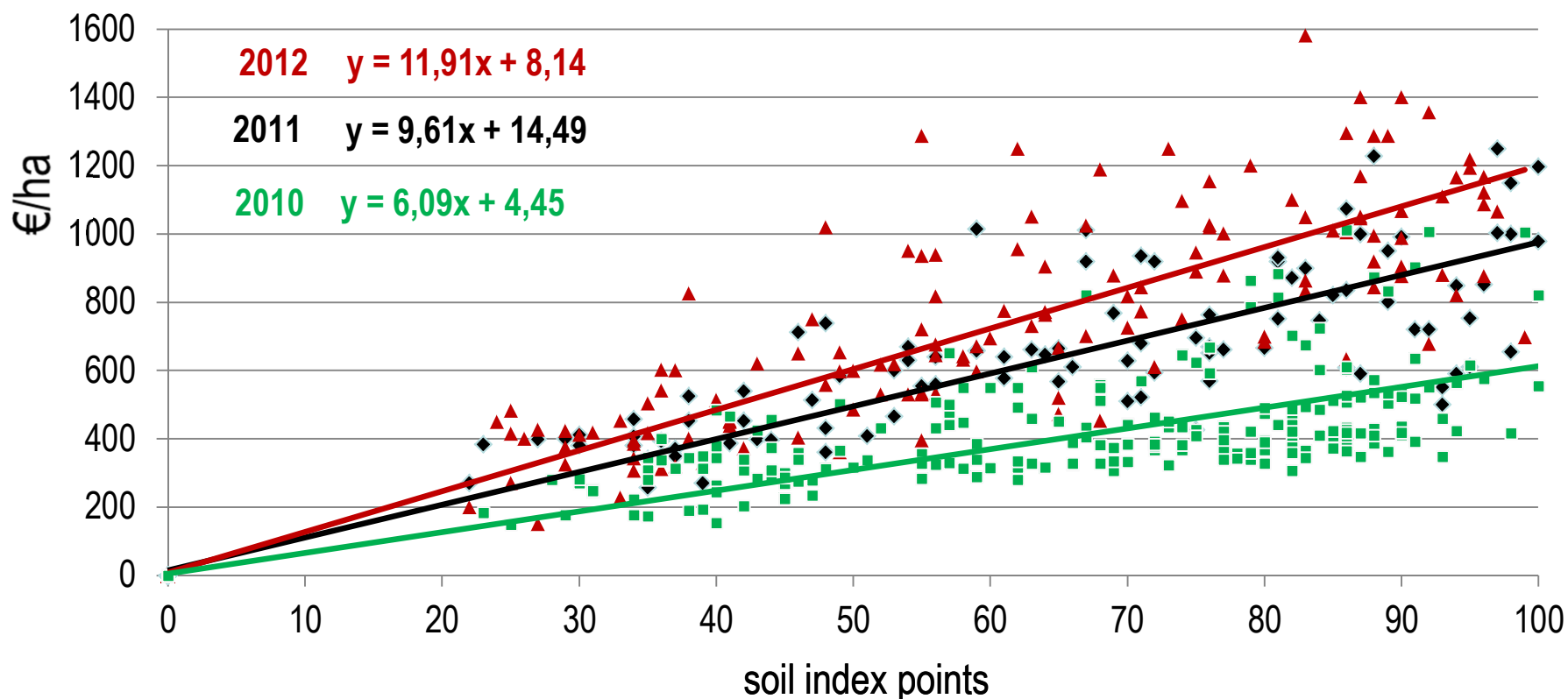
Wheat price development 2001 - 2012



Market trends

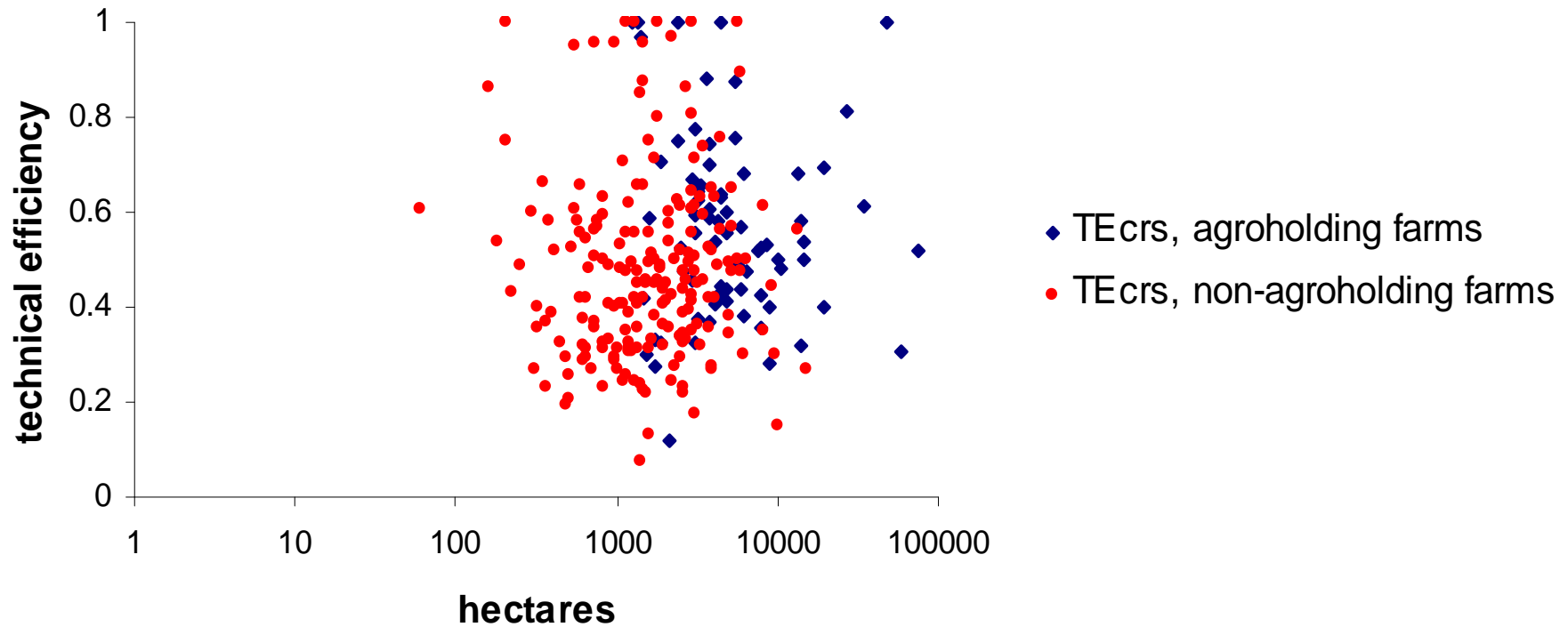
Are there now fantastic perspectives for the agricultural sector?

Rental prices resulting from BVVG auctions in Saxony Anhalt



➤ in the end, economic rents are capitalized in land prices

Efficiency of crop farms in Ukraine 2010



➤ Efficiency not just a matter of size!

Sectoral trends

➤ Boehlje (1999)

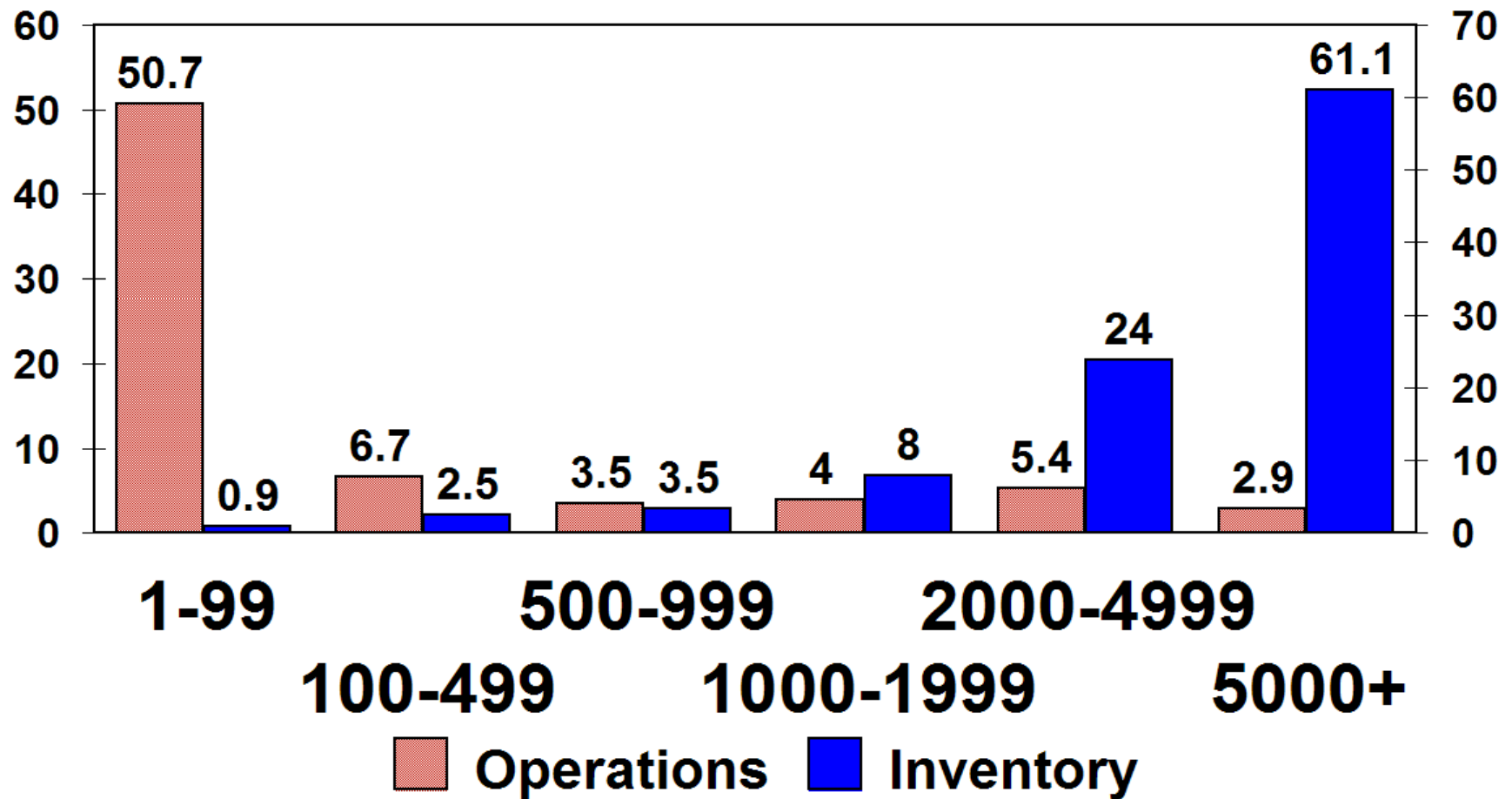
New dimensions of structural change in agriculture:

- Vertical value chains (verticalization) in global dimension
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U.S. Hog Operations

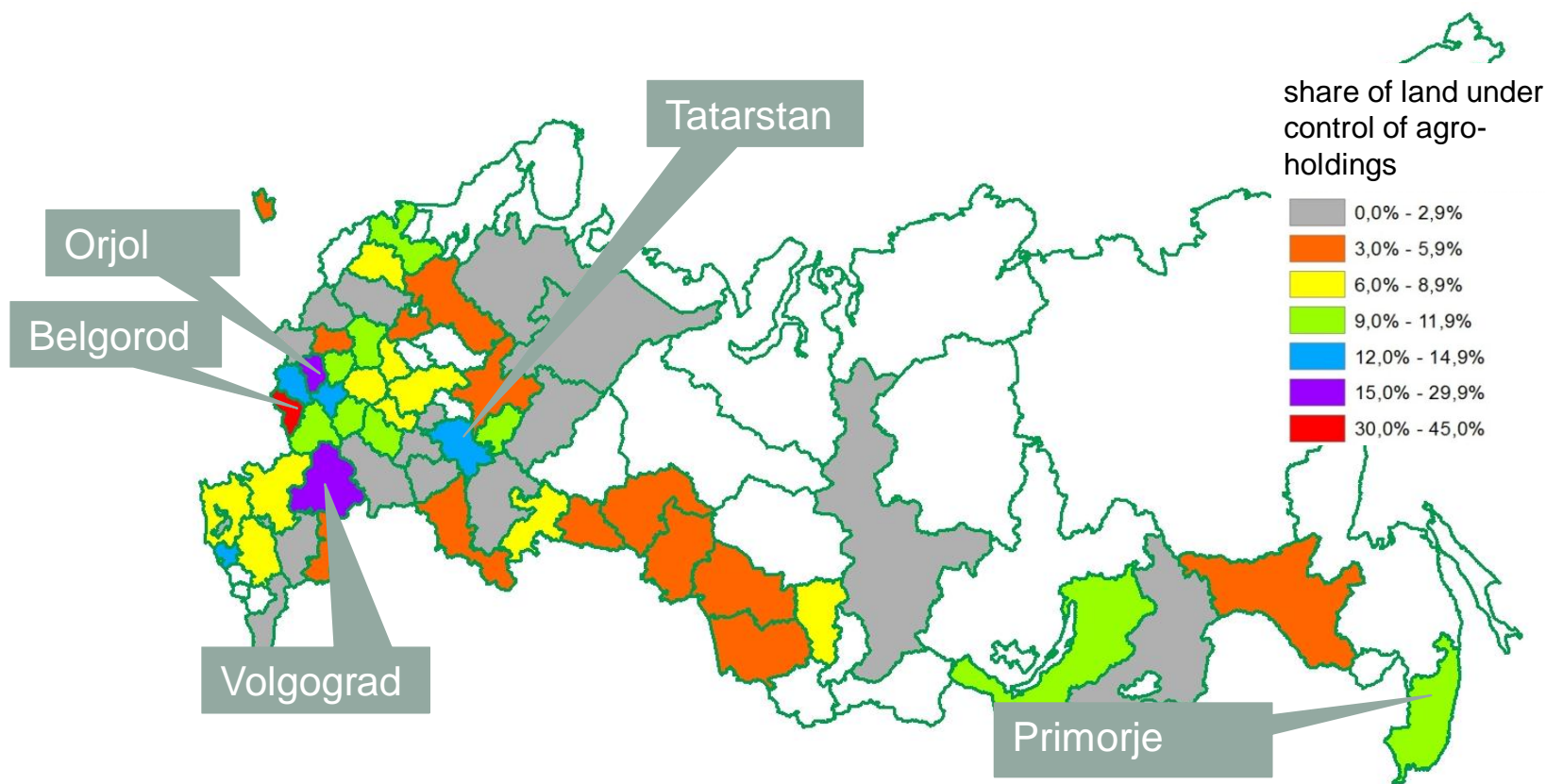
Number of Operations and Percent of Inventory, 2008

of Operations (000) **% of Inventory**



Introduction

- Large investments in land and farms - national and international!
- Emergence of super large farms (agro-holdings)!



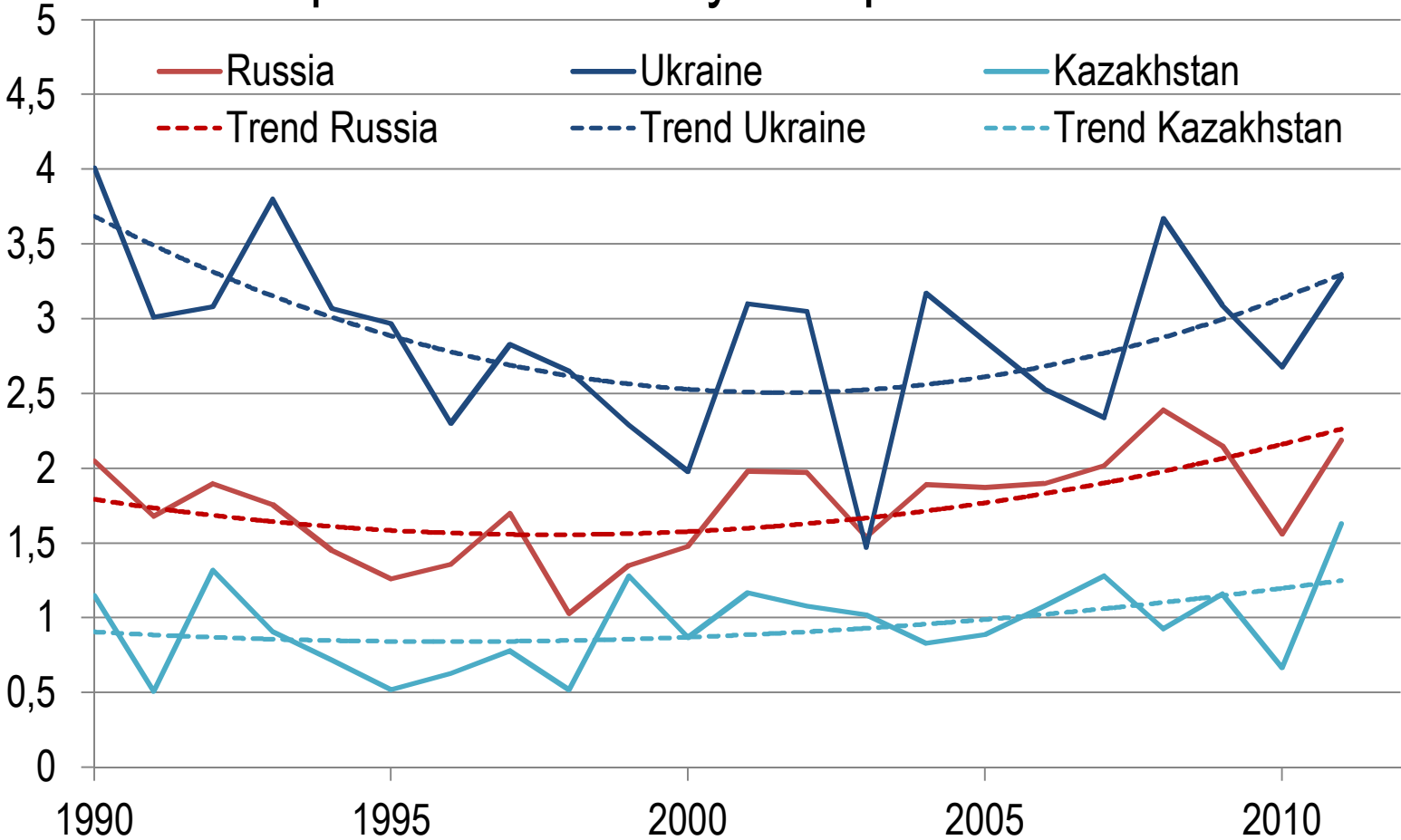
Source: Halbrock et al. 2012 and Uzun 2006

Market trends

- World demand for agricultural outputs strongly increased!
 - Increasing world population
 - Changing food patterns (more meat, more high-value and convenience products)
 - Increasing demand for bioenergy (driven by policies and energy prices)
- World production did not follow!
 - reduced growth rates of yields
 - limited land and water resources
 - still huge yield gaps and land abandonment, e.g. in Eastern Europe

Market trends

Development of wheat yields per ha

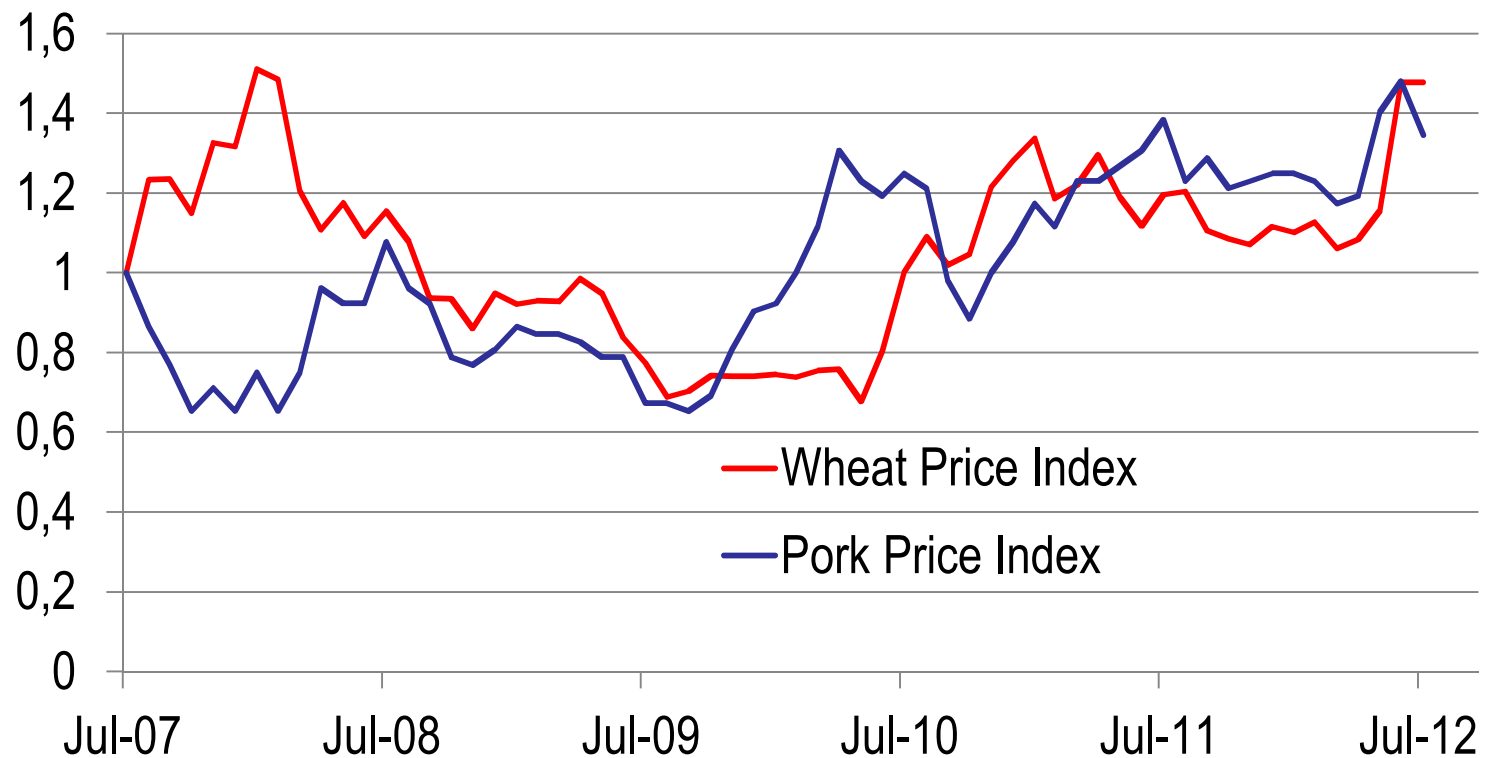


Source: USDA

Market trends

Are there now fantastic perspectives for the agricultural sector?

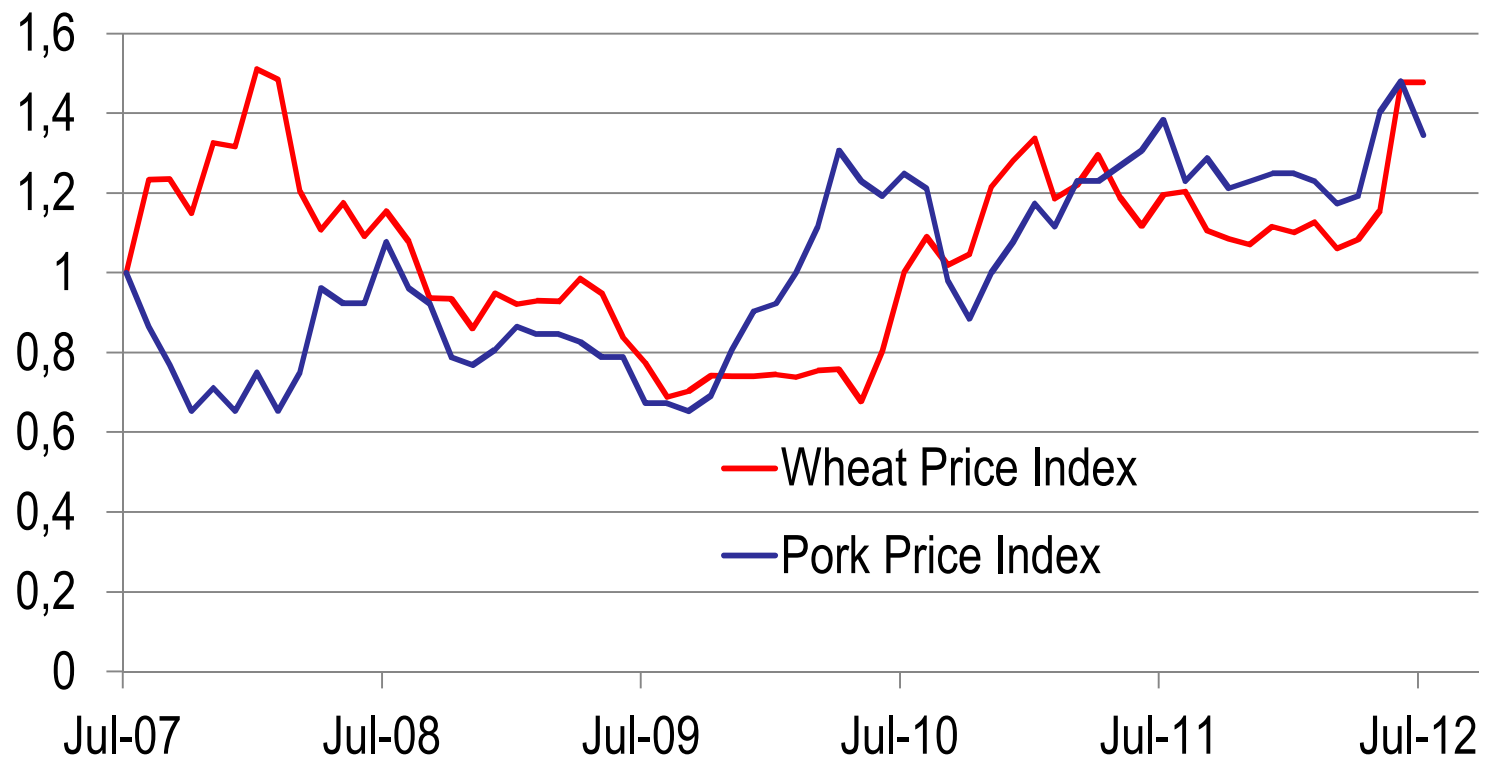
- high volatility of prices, also of inputs



Market trends

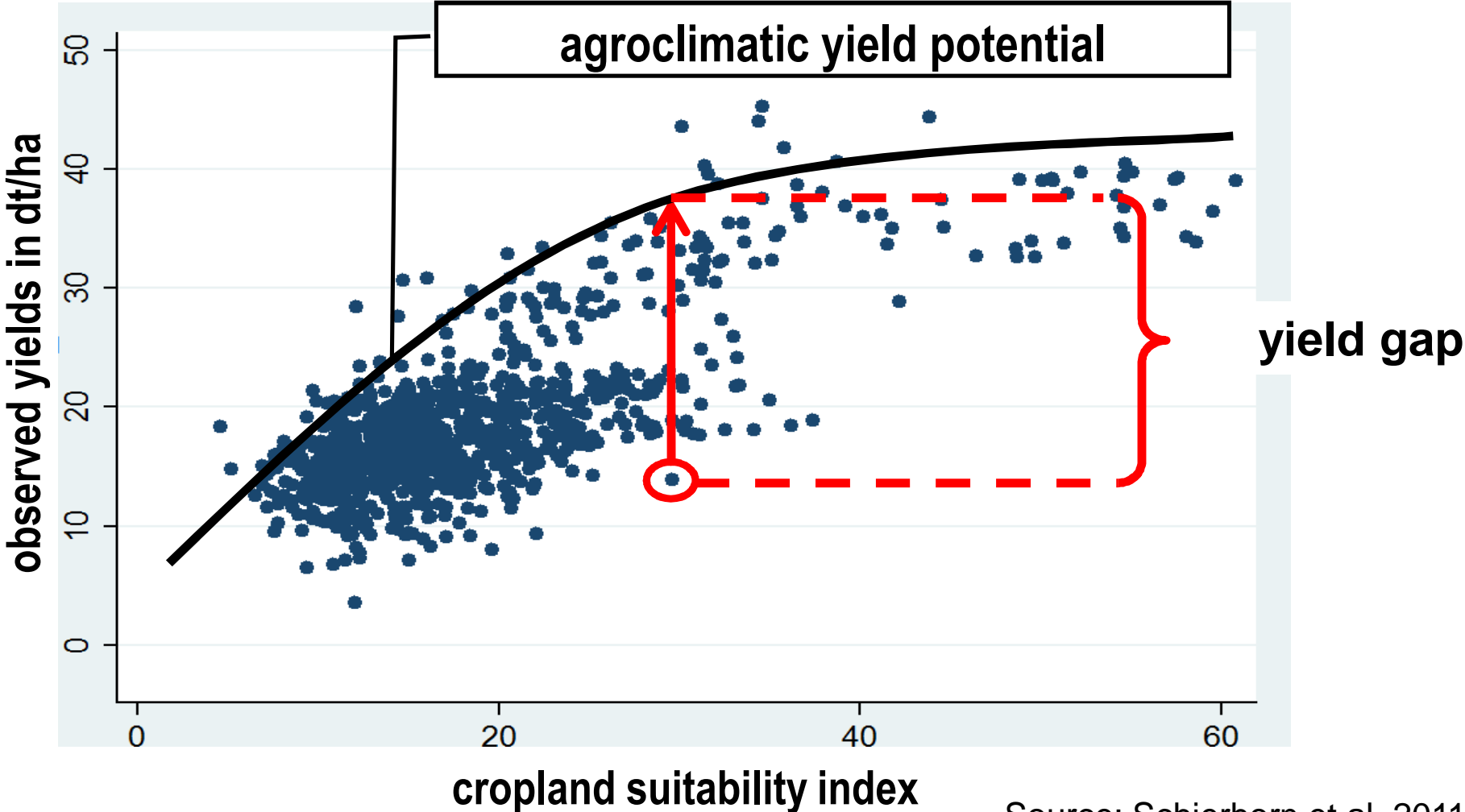
Are there now fantastic perspectives for the agricultural sector?

- high volatility of prices, also of inputs
- price frictions within the food chain (e.g. bullwhip effects)



Market trends

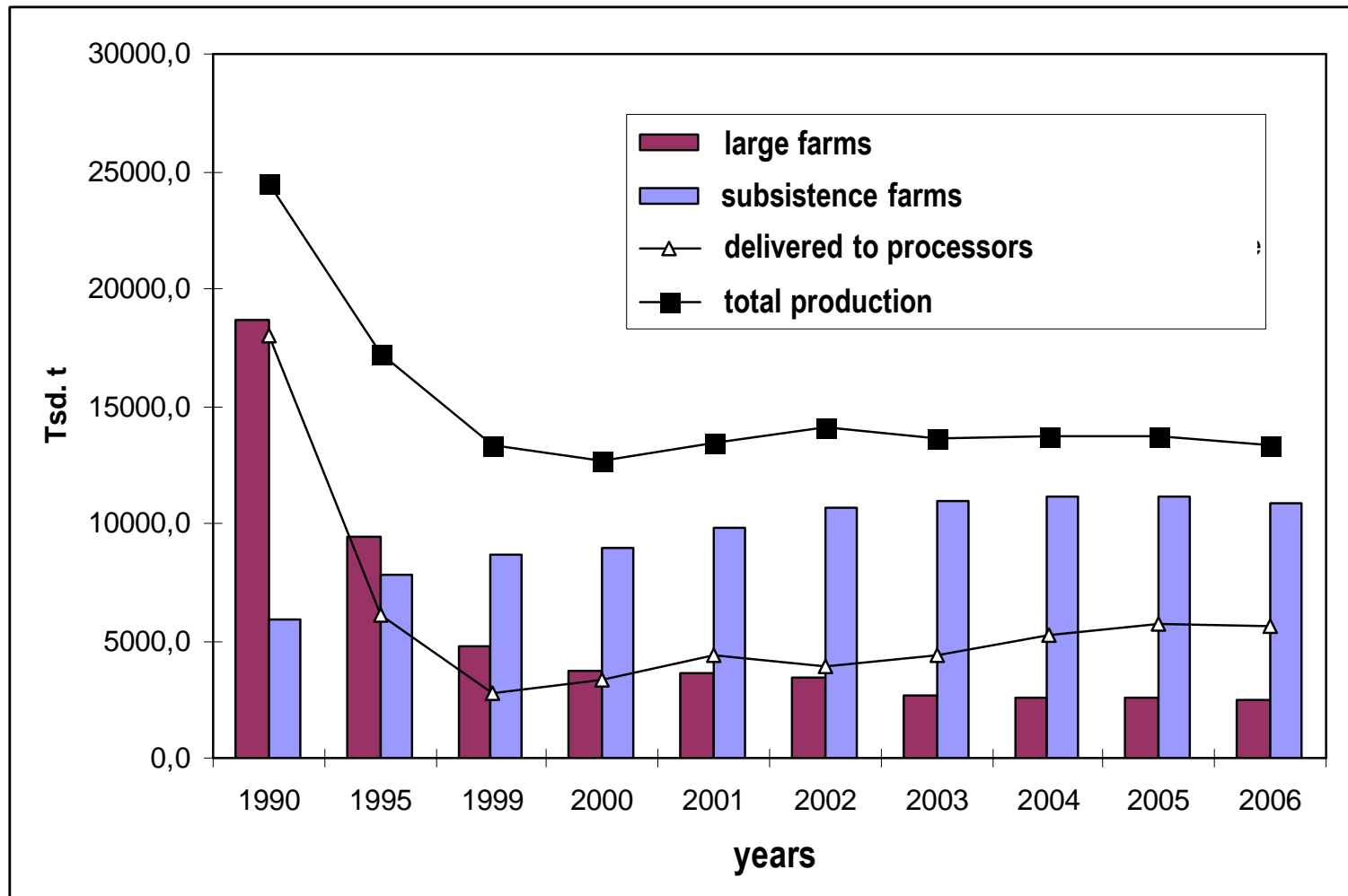
Efficiency of wheat production in Russia



Source: Schierhorn et al. 2011

Verticalization and globalization

Ukraine: dairy production



Biological manufacturing

Increasing knowledge intensity of modern agriculture

- Example: farrowing / piglet production in Saxony
 - In 2006, average profit per sow 300 € higher for farms with more than 1000 sows compared to farms with less than 600 sows
 - Success factors
 - lower costs + higher revenues
 - strong positive correlation of number of sows and piglets per sow

Value chains

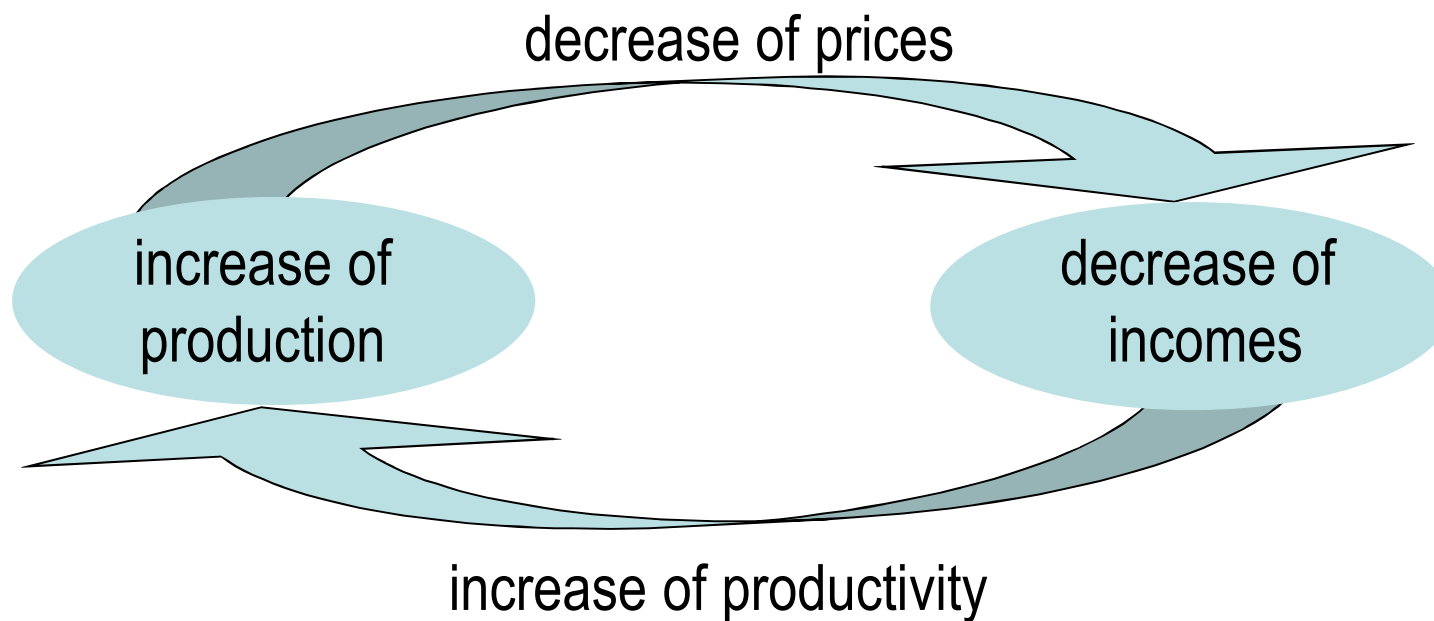
Main challenges

- Competitiveness of input and output markets
 - not firms compete but networks
- Risk management within supply chain
 - vulnerability of one level affects whole chain
 - financial stability along chain
- Intellectual property rights and innovation
 - know-how transfer along the chain
- Industrialized farming and externalities
 - political and societal acceptance

Market trends

Cochrane's treadmill

- During 20th century saturated food markets
- Demand for food price-inelastic



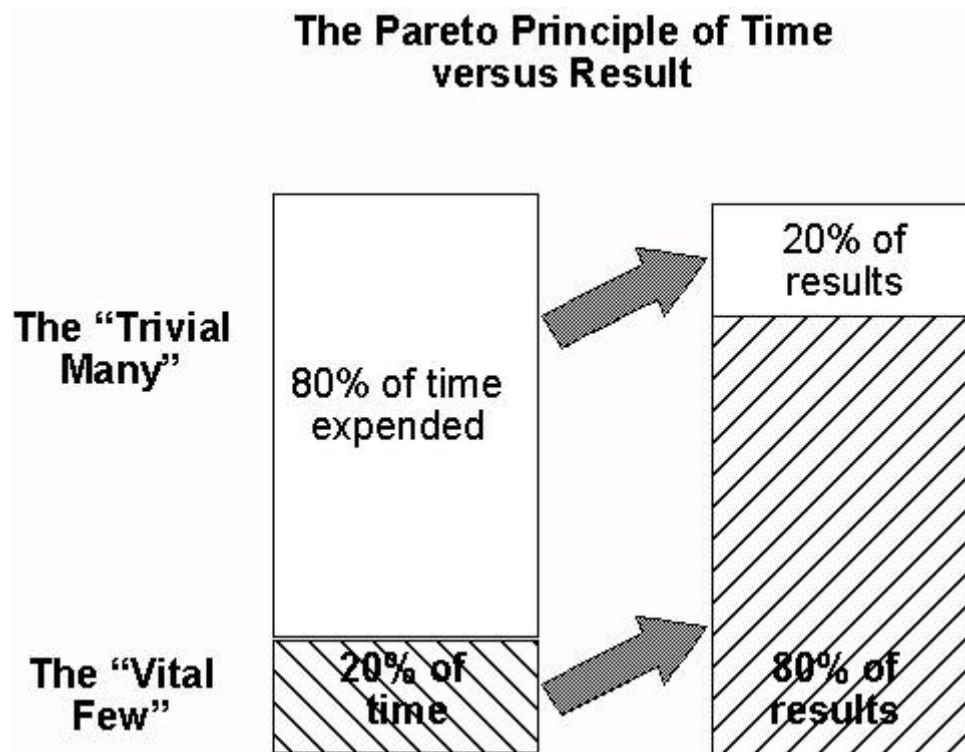
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 - still huge yield gaps in Eastern Europe
- Has the agricultural treadmill ended?
- Fantastic perspectives for the agricultural sector?

Agriculture and the society

“20 % of the farms receive 80 % of subsidies!”

➤ “Pareto-principle”



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 - still huge yield gaps in Eastern Europe
- Has the agricultural treadmill found an end?

Biological manufacturing

Modern farming is knowledge-based

- Economies of size through better management
 - division of labor: not everybody can everything
 - competent managers
 - skilled workers
- Knowledge transfer!
 - collaboration within value chain
 - demand for training