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COMPARATIVE ANALYSIS OF FACTOR MARKETS FOR
AGRICULTURE ACROSS THE MEMBER STATES

Some Findings & Implications

Johan Swinnen

KU Leuven, CEPS & Stanford University

IATRC – FM Conference
Sevilla, May 2013

Results

- Data
- Models
- Network
- Research findings
 - Labour
 - Land
 - Capital
 - Technology
- Strong focus on link with EU Policies

General points

- EU factor markets are like Belgian weather ...

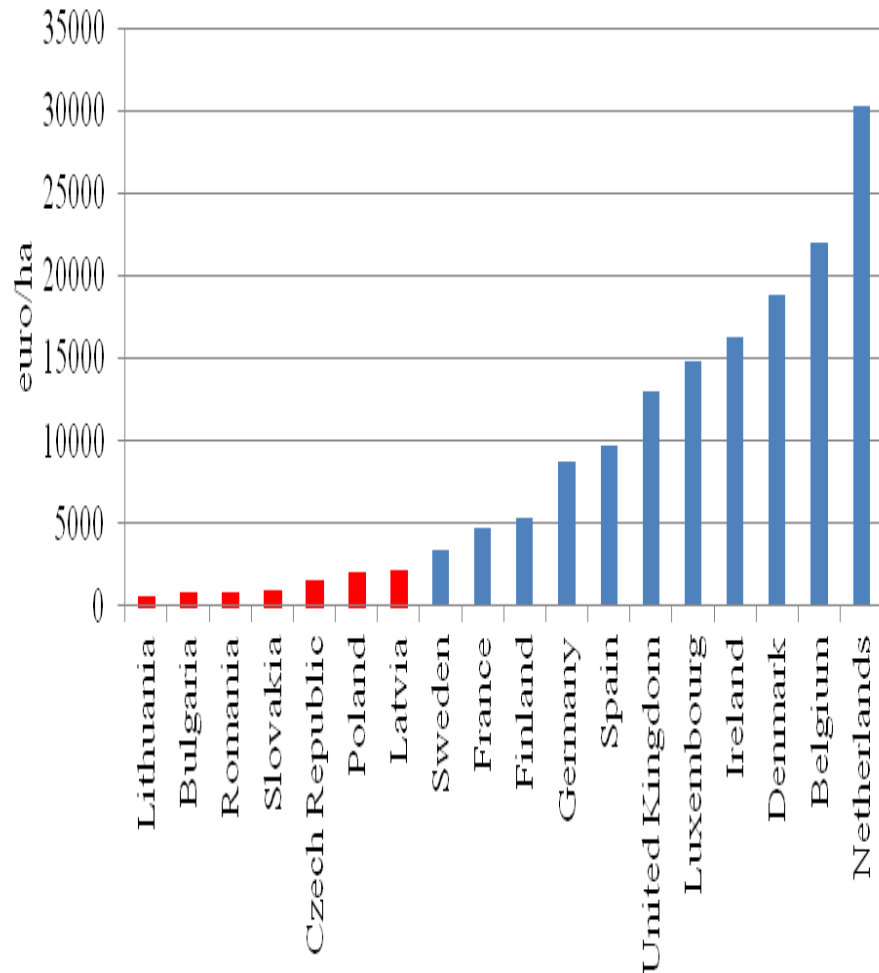
General points

- The only thing which is generally valid is that nothing is generally valid
- Factor markets are highly heterogenous
 - Both in terms of their functioning (markets) and their governance (policy)
- Hence, need to be careful in referring to EU **Single Market** and **Common Agricultural Policy**

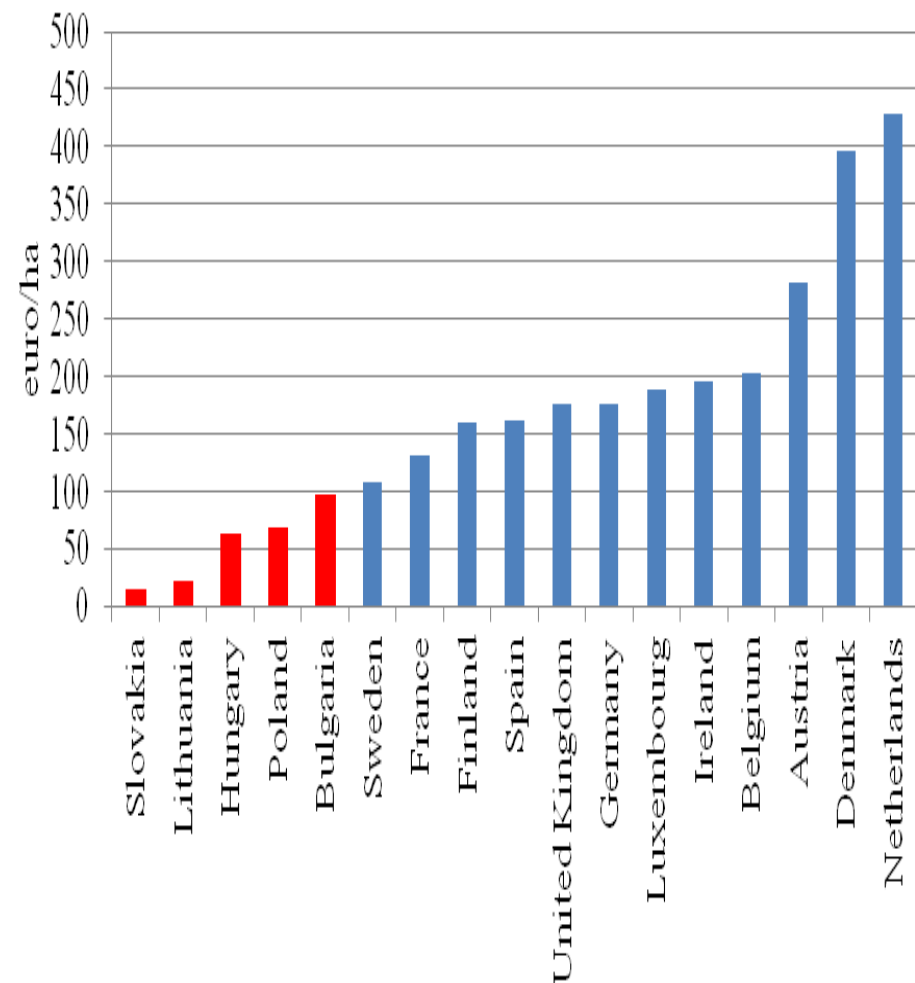
LAND MARKETS

Agric land prices in the EU

Nominal Land Sales Prices in Europe in euro/ha, 2005

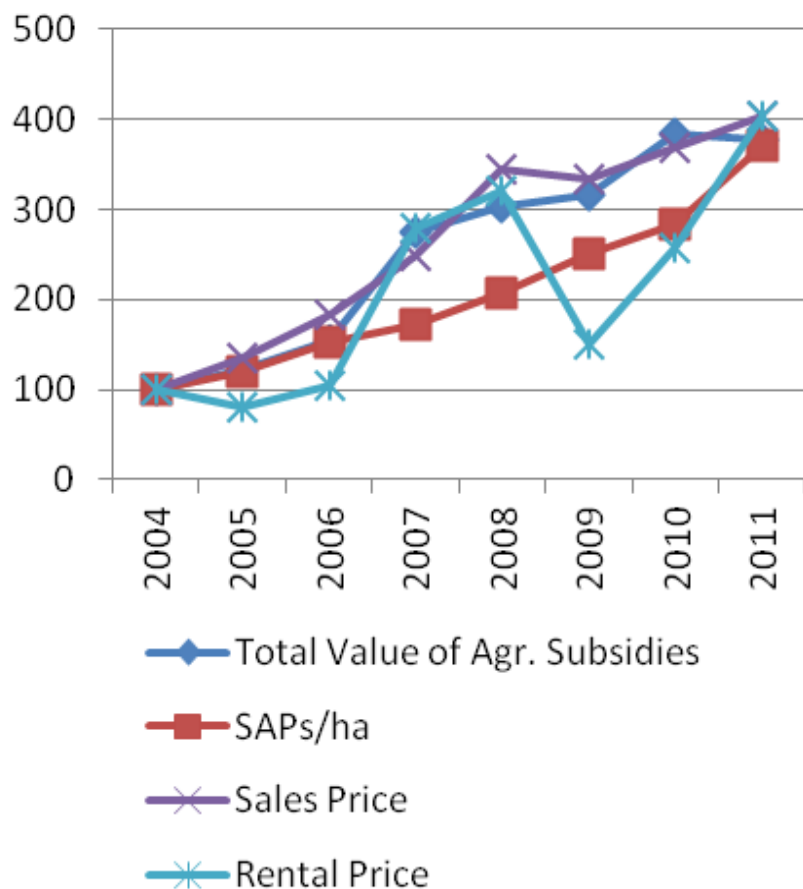


Nominal Land Rental Prices in euro/ha, 2005

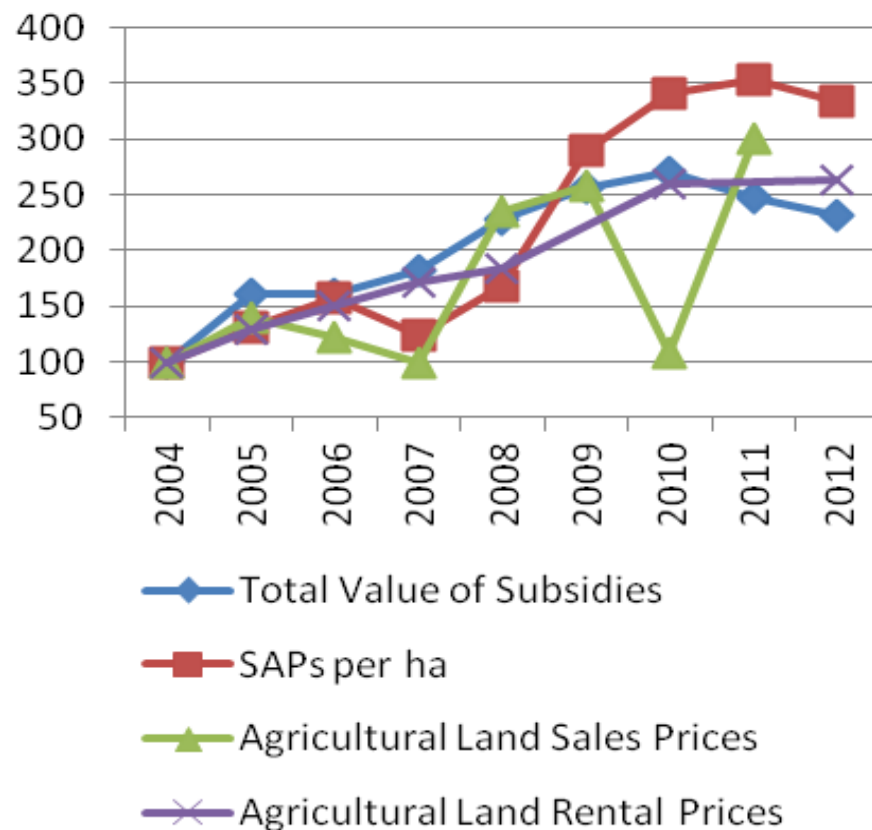


Land Prices & Subsidies

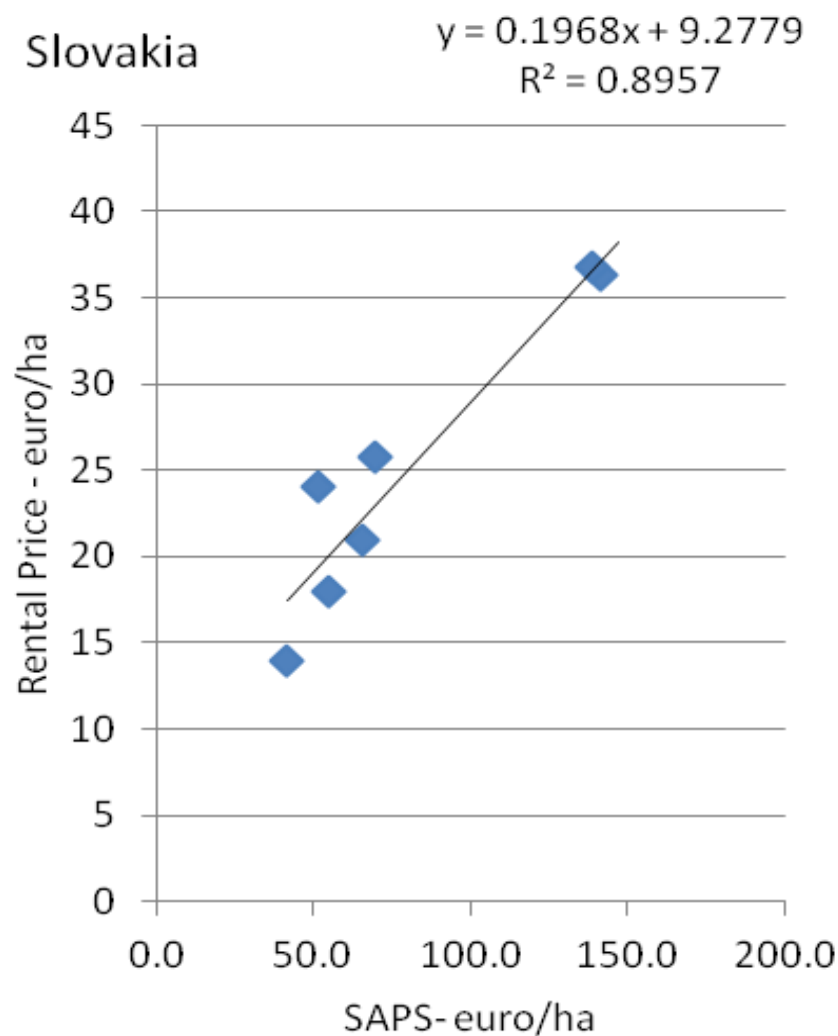
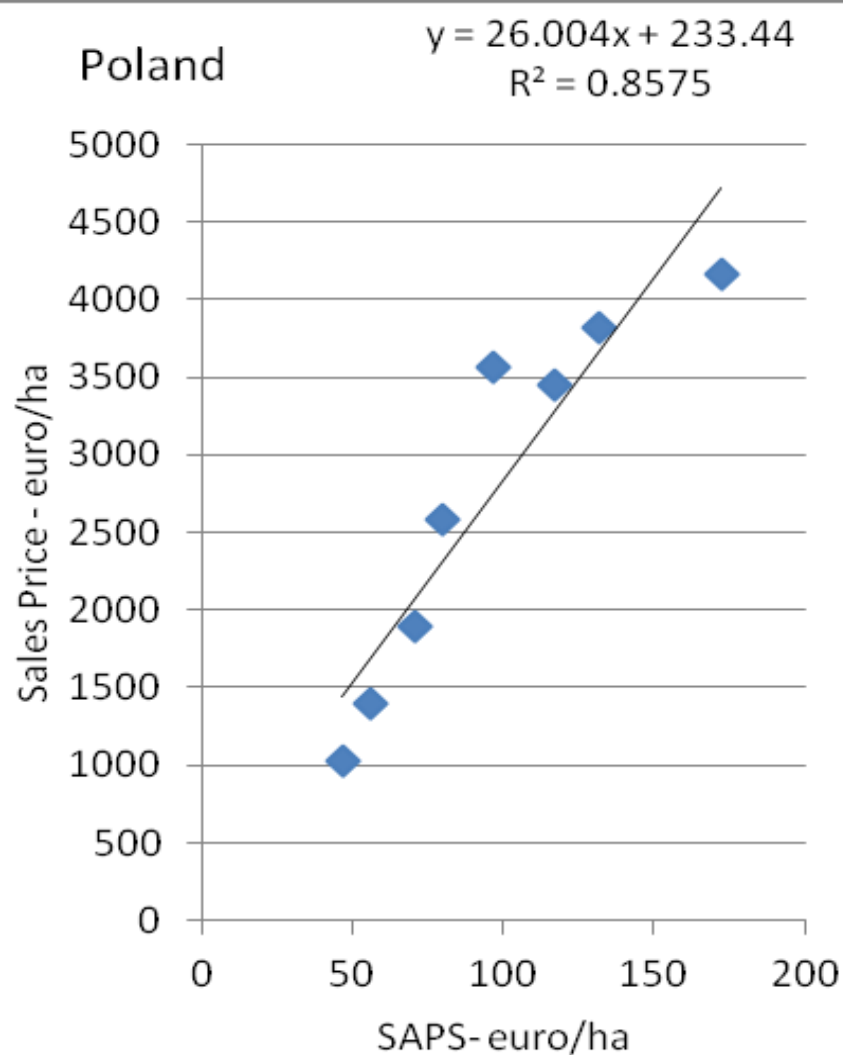
Evolution of Subsidies and Land Prices - Poland (2004=100)



Evolution of Subsidies and Land Prices - Slovakia (2004=100)



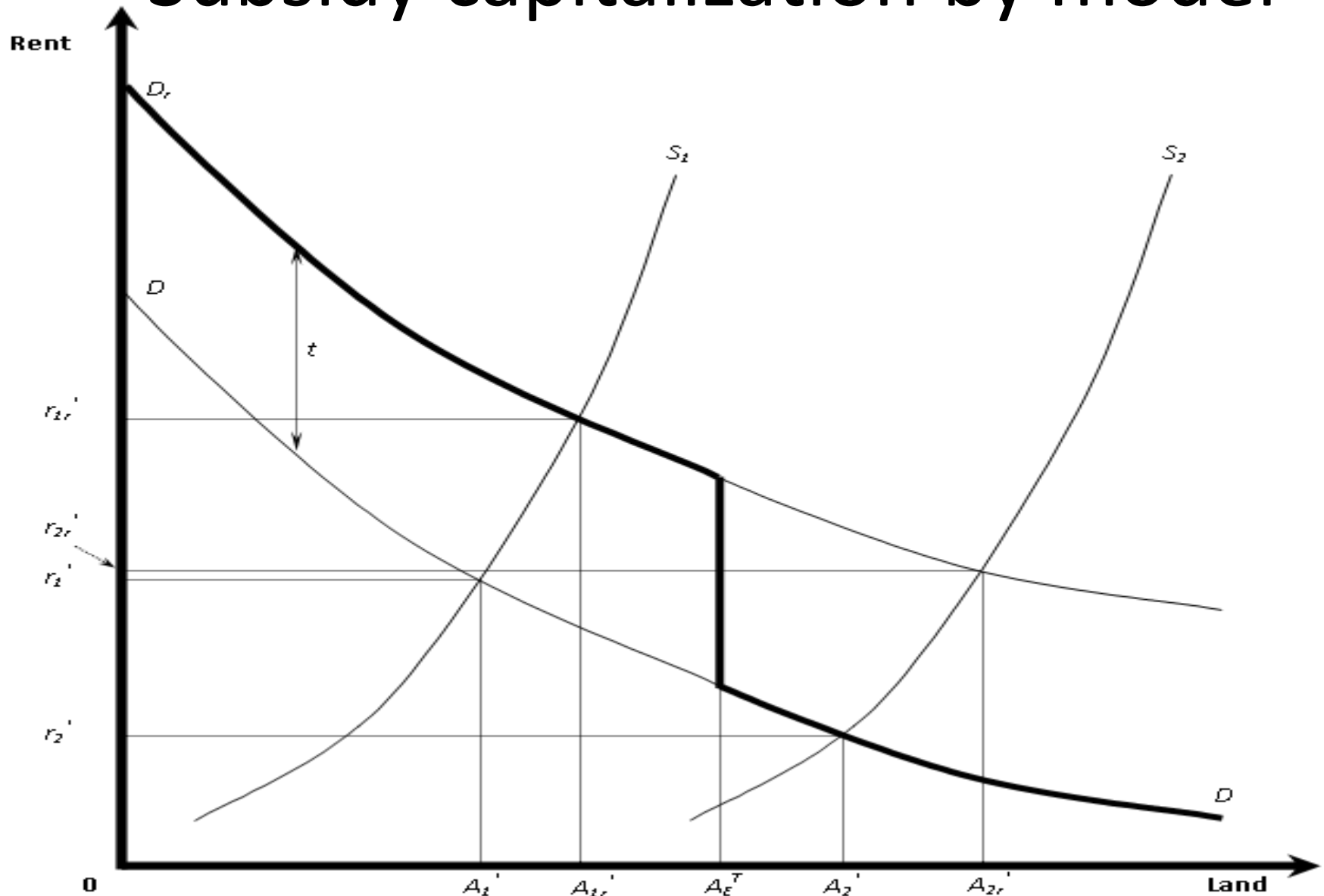
Land prices & subsidies



Econometric estimates

- Latruffe et al; Feichtinger and Salhofer; Ciaian and Kanacs; Van Herck and Vranken; ...
- 25-33% capitalization of SAPS
- SPS depends on various factors (incl regulation)
- Lower for historical model than for regional model

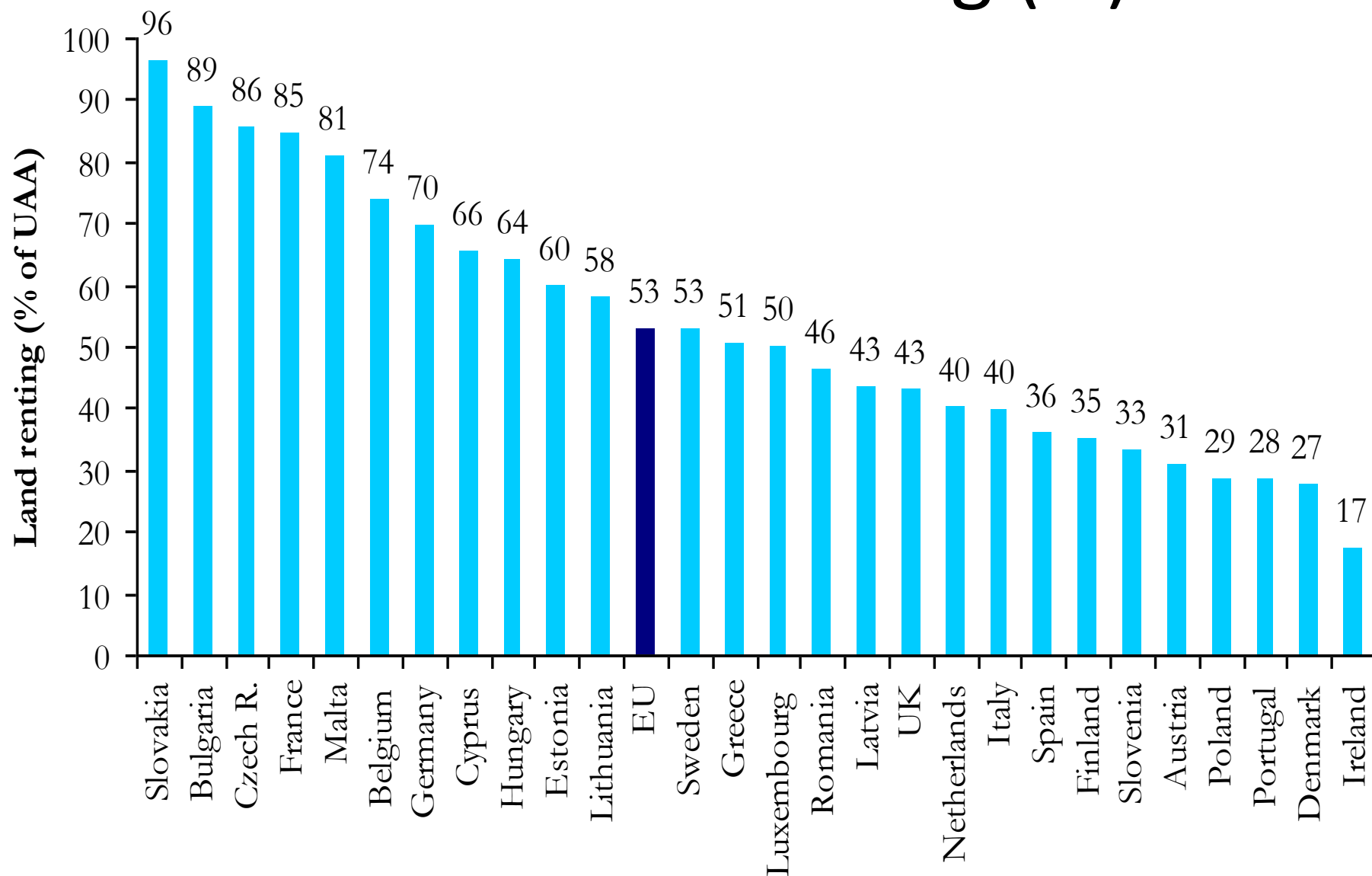
Subsidy capitalization by model



Does it matter ?

- Land regulations
- Who are the landowners ?

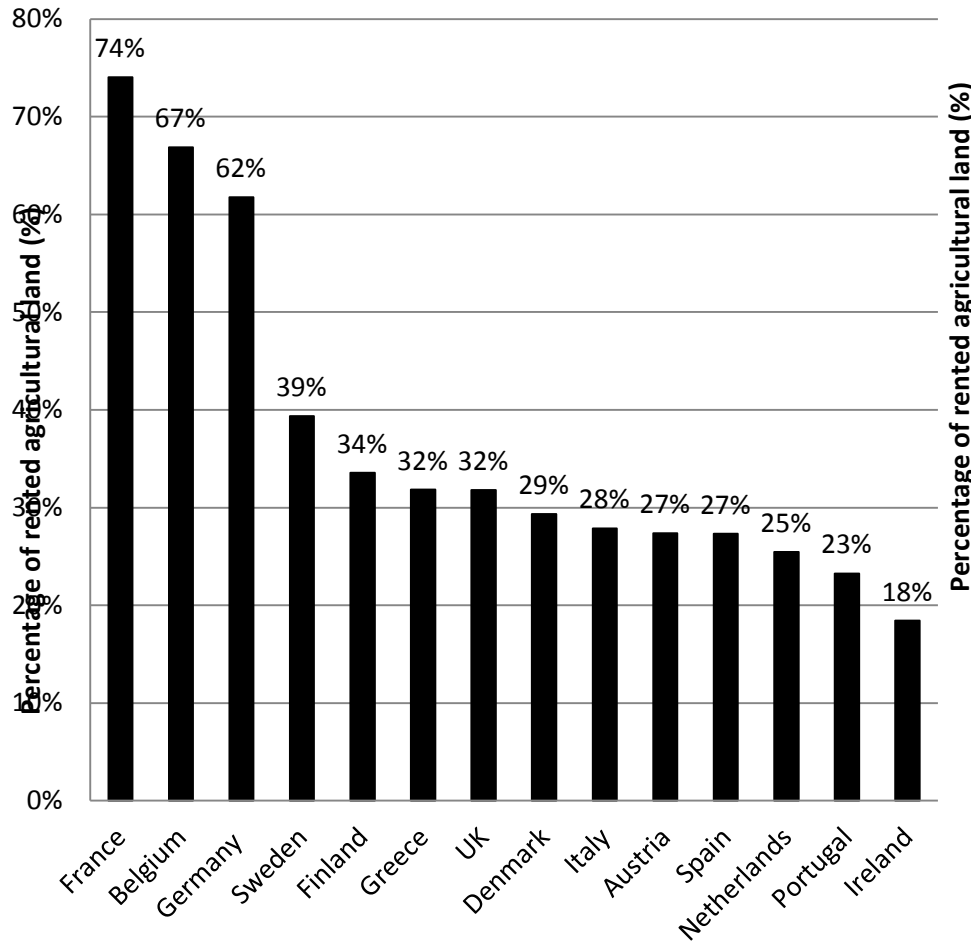
Share of land renting (%)



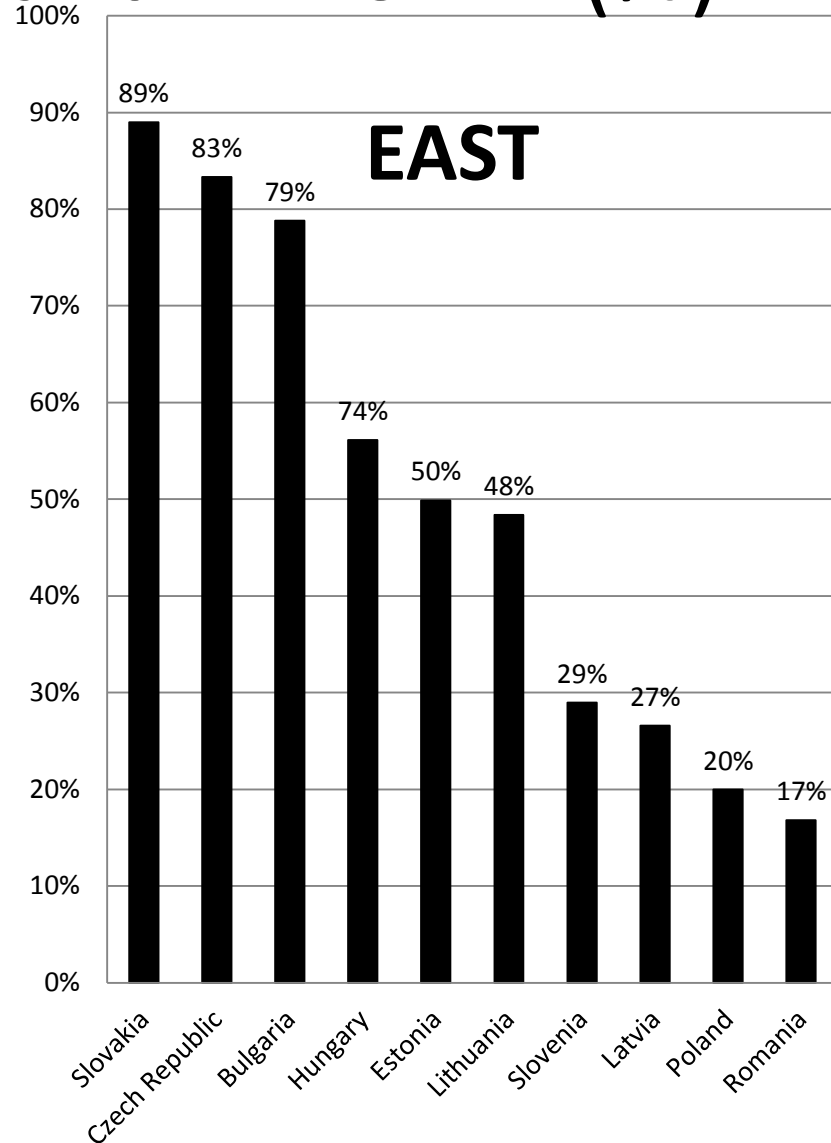
Land Rental vs Sales Markets

Share of rented land in EU-27 (%)

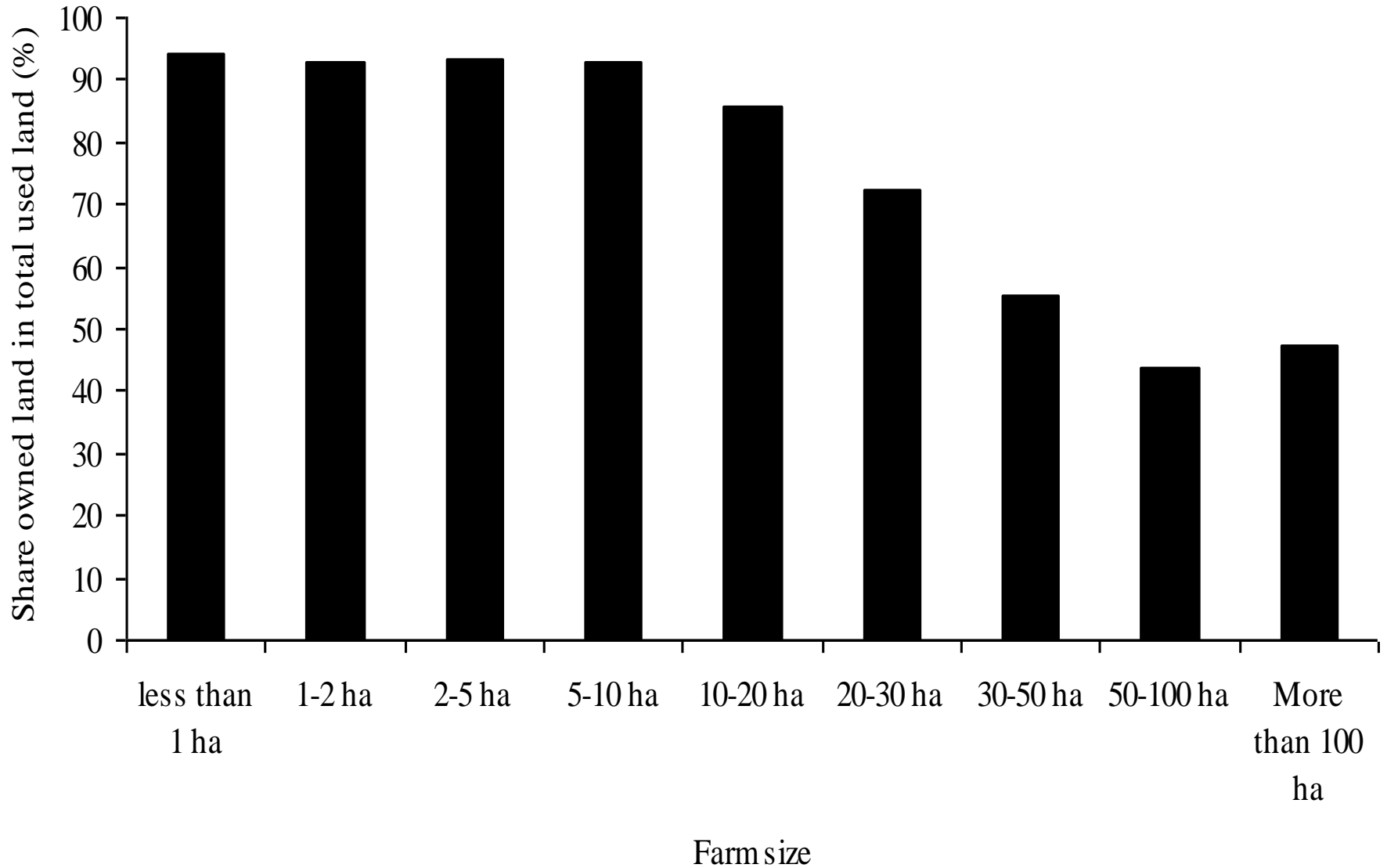
WEST



EAST



Land Renting (%) by Farm Size (Romania)



Land Market Regulations

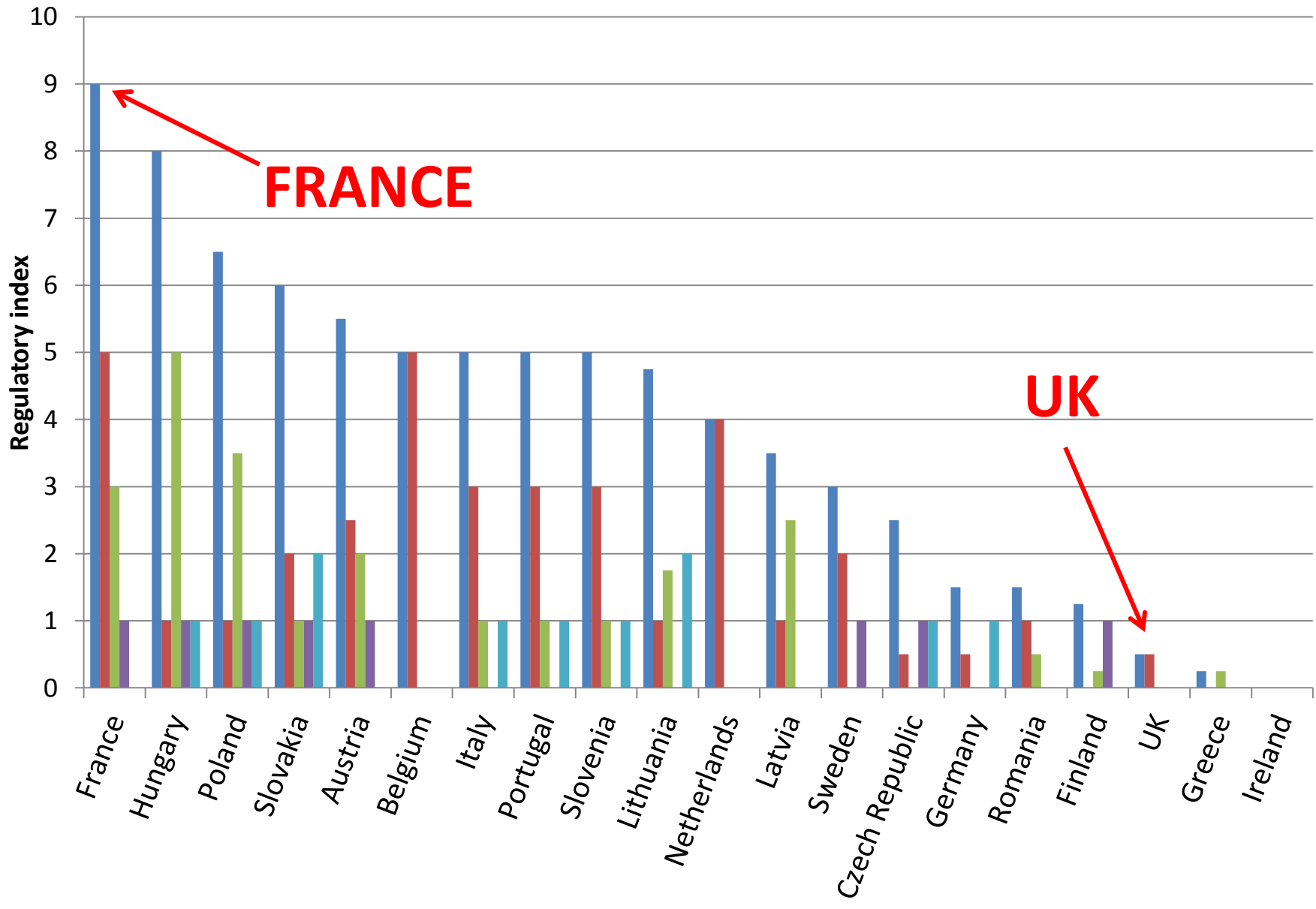
- Four types of regulations:
 1. Measures to protect the tenant
 2. Measures to protect the owner-cultivator
 3. Measures to protect the non-farm owner
 4. Prevent fragmentation of agricultural land

(Zoning regulations everywhere)

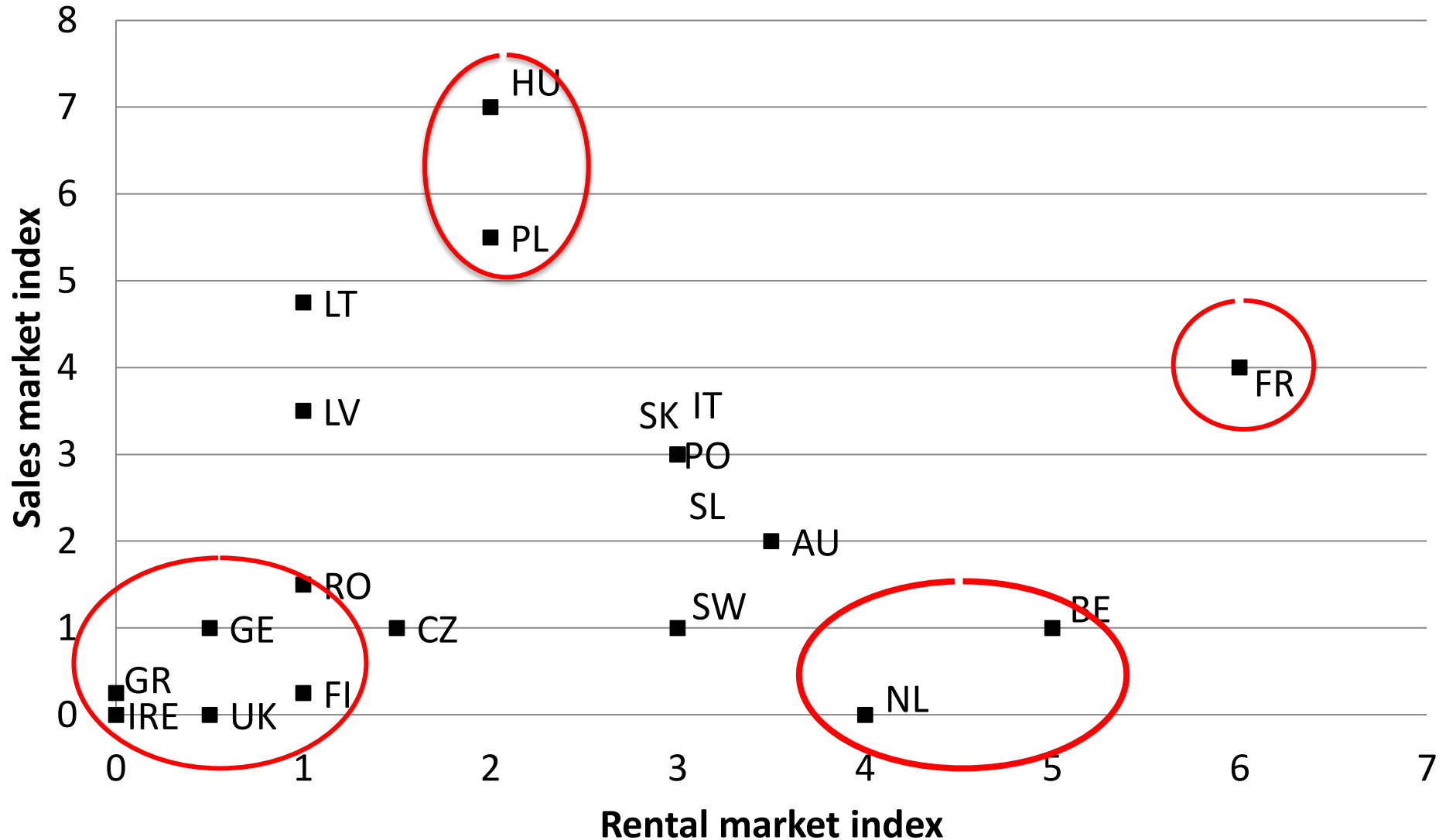
Measures to protect the tenant

| | |
|---|---|
| <ul style="list-style-type: none">• Minimum rental contract duration | <u>Belgium</u> , <u>France</u> , Austria, Italy, <u>Netherlands</u> , Portugal, Slovakia and Slovenia |
| <ul style="list-style-type: none">• Maximum rental price | <u>Belgium</u> , <u>France</u> , Austria, <u>Netherlands</u> , Slovakia and Slovenia |
| <ul style="list-style-type: none">• Automatic renewal rental contract | <u>Belgium</u> , <u>France</u> , Italy, <u>Netherlands</u> , Portugal, Slovakia and Slovenia (with initial duration contract); Austria, Germany, UK and Czech Republic (year by year) |
| <ul style="list-style-type: none">• Conditions for rental contract renewal | <u>Belgium</u> , <u>France</u> , <u>Netherlands</u> |
| <ul style="list-style-type: none">• Pre-emptive right tenant | <u>Belgium</u> , <u>France</u> , Italy, Portugal, Sweden, Hungary, Latvia, Lithuania, Poland, Romania and Slovenia |

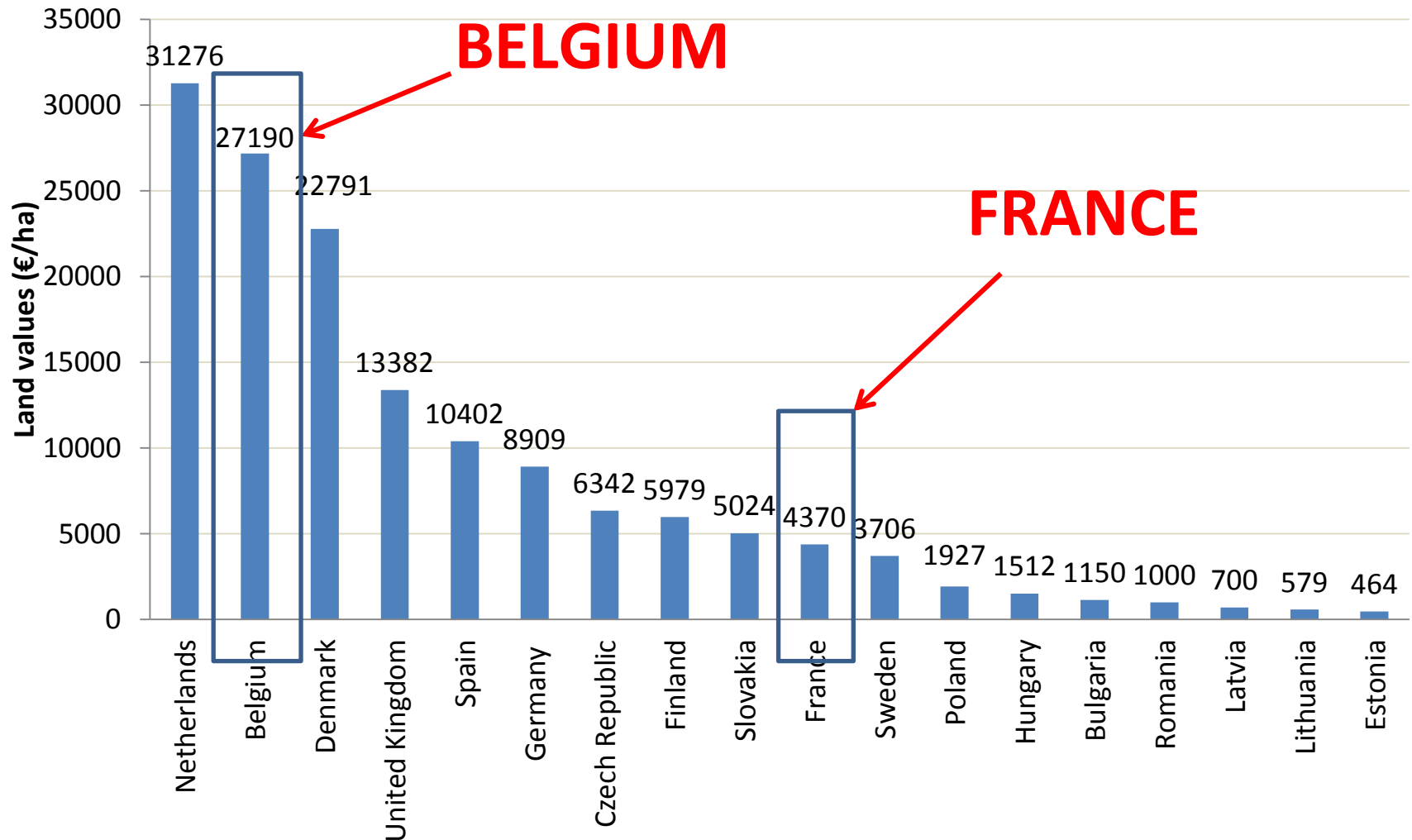
Land Regulation Index (Total)



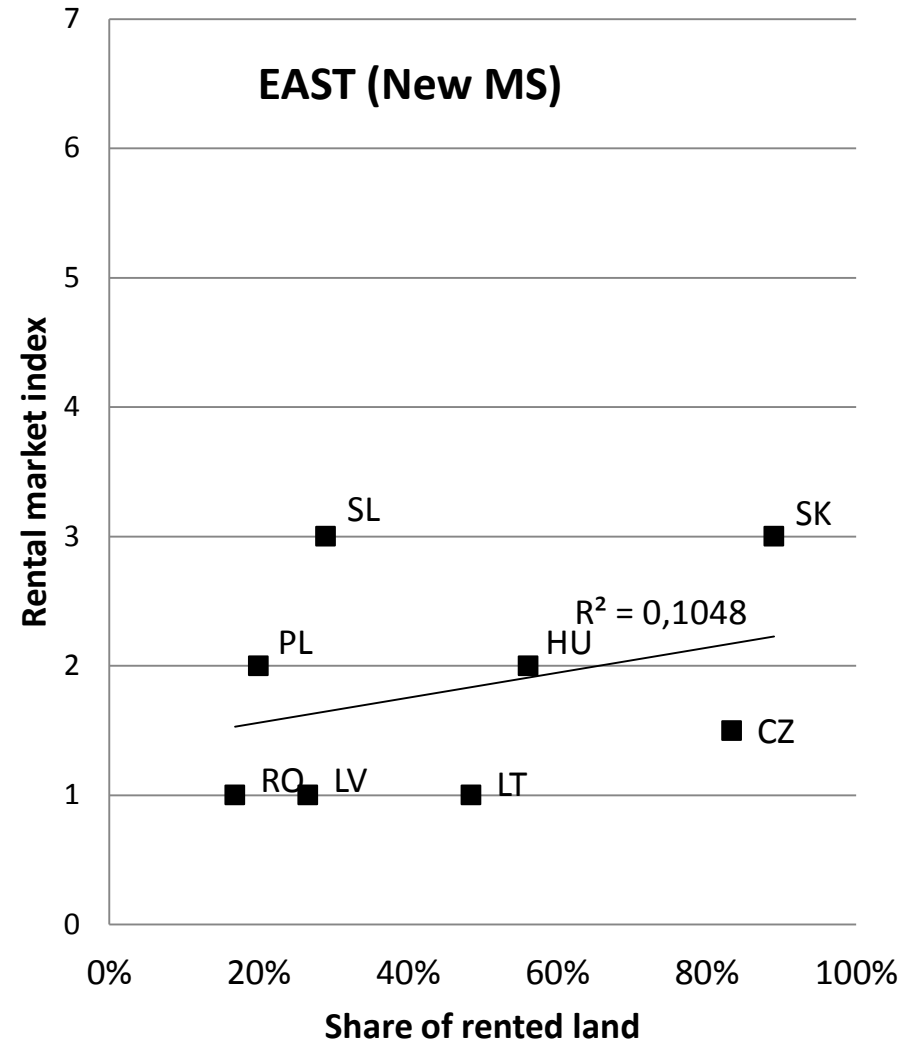
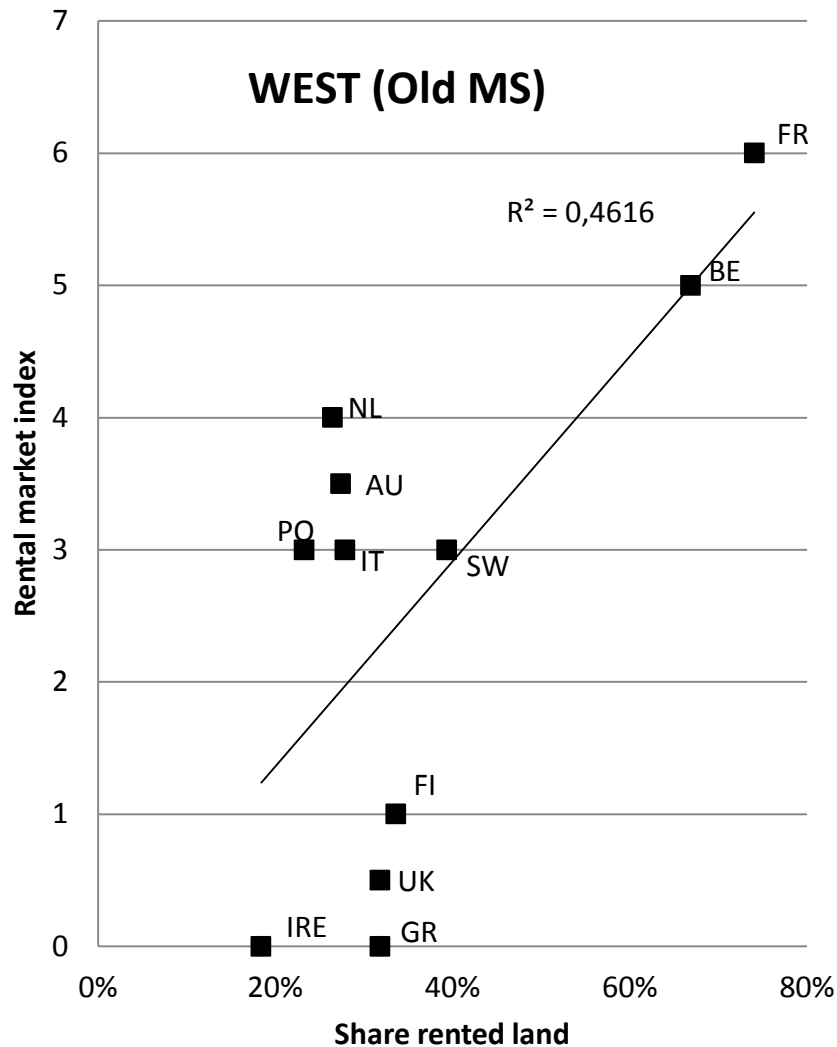
Sales vs Rental Regulation Index



Impact of Regulations on Agricultural Land (Sales) Prices in the EU



Rental Regulations and Rented Land (%) in East vs West EU

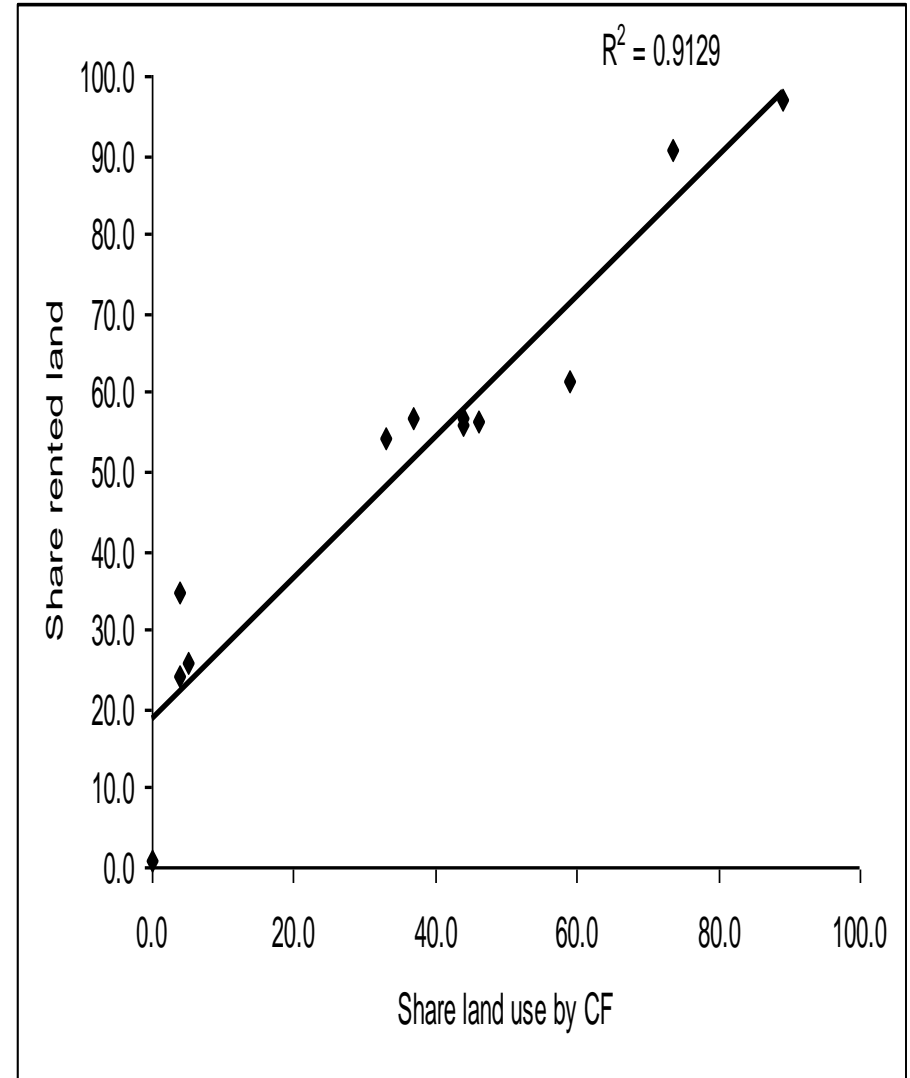
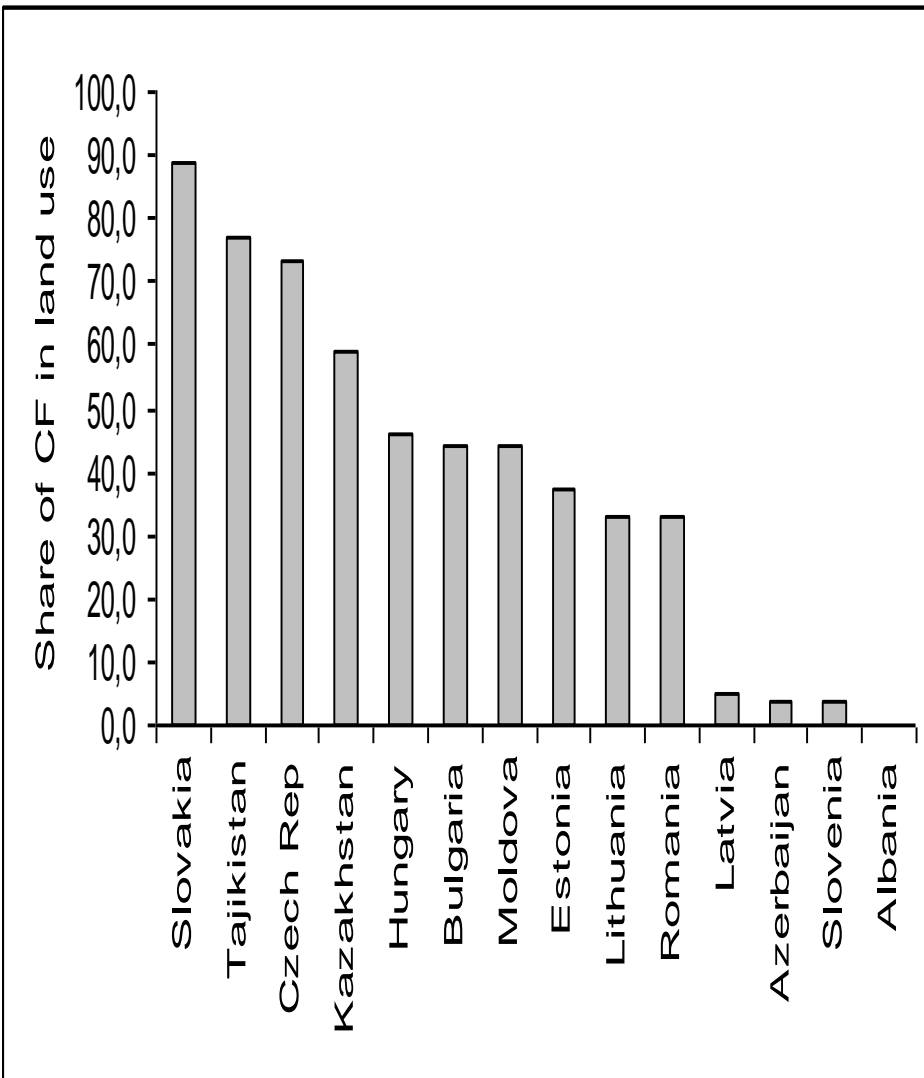


Perverse Effects of Rental Regulations

(% land renting)

| | Belgium | England | France | Ireland | Nether lands | |
|------|---------|---------|--------|---------|-----------------|--|
| | | | | | | |
| 1880 | 64 | 85 | 40 | 96 | 40 | |
| 1895 | 69 | - | 47 | - | - | |
| 1910 | 72 | 89 | - | 42 | 53 | |
| 1920 | - | 85 | - | 25 | 48 | |
| 1930 | 62 | 63 | 40 | 6 | 49 | |
| 1940 | - | 66 | - | - | 54 | |
| 1950 | 67 | 62 | 44 | 5 | 56 | |
| 1960 | 68 | 51 | 50 | 7 | 52 | |
| 1970 | 71 | 46 | 48 | 6 | 48 | |
| 1980 | 71 | 47 | 51 | 8 | 41 | |
| 1990 | 67 | 36 | 57 | 9 | 33 | |
| 2000 | 68 | 33 | 58 | 13 | 34 | |
| 2010 | 67 | 32 | 74 | 18 | 25 | |

Land renting (%) and the use of land by corporate farms (%) across EE countries



Land markets & governance

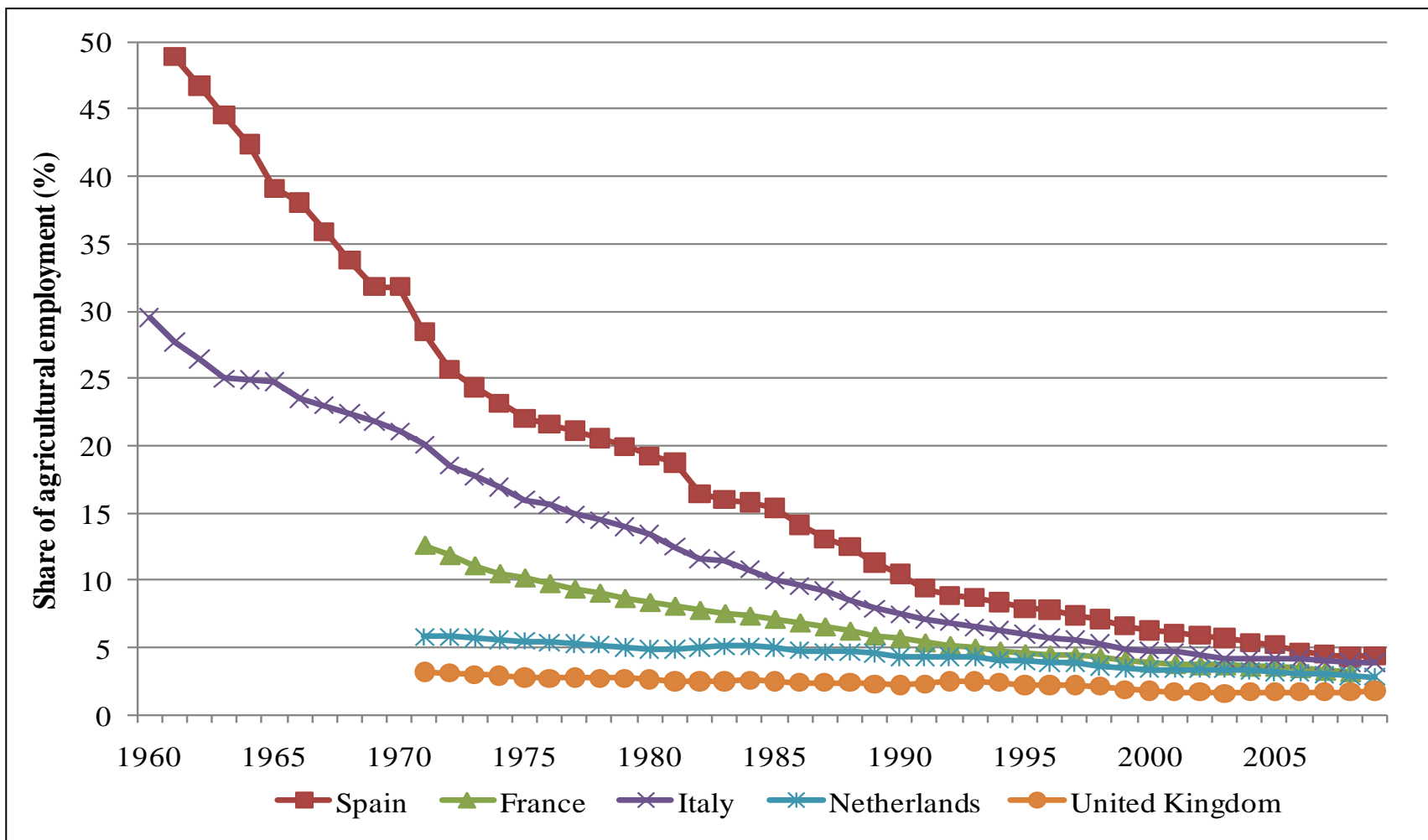
- Major differences in land markets and regulations
- Despite strongly integrated economies and policies (50 years of CAP)
- Jointly determined within political economy framework

= > Multiple equilibria

LABOUR MARKETS

Agricultural employment

(% of total employment)



Europe without farmers ?

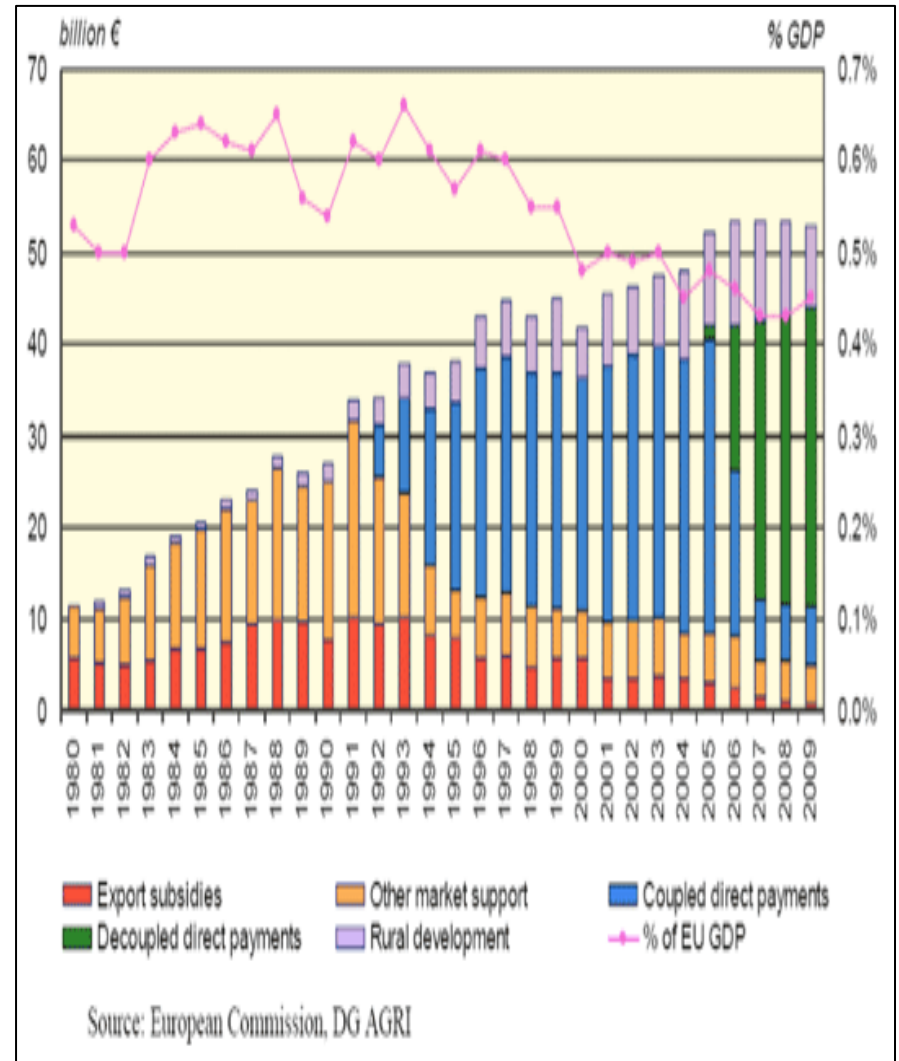
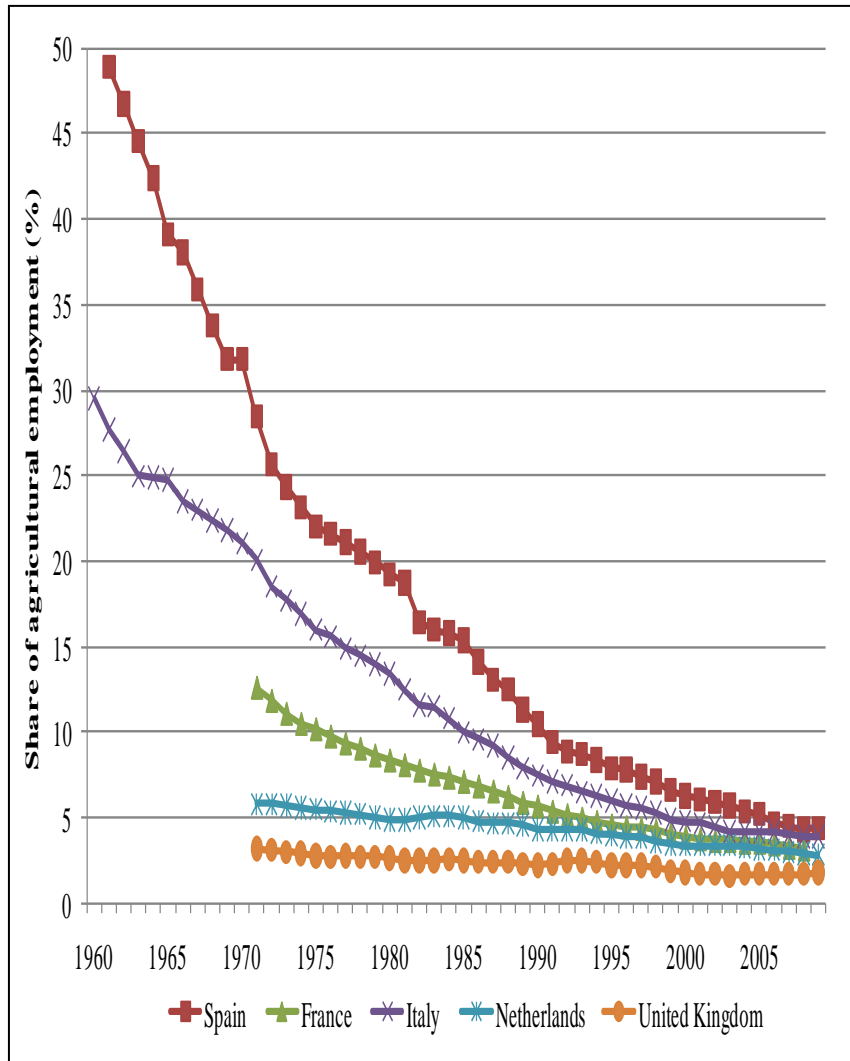
“in the United States today there are more lawyers than farmers, more dry cleaning establishments than farmers”

(Peter Timmer, 2009: “A World Without Agriculture”)

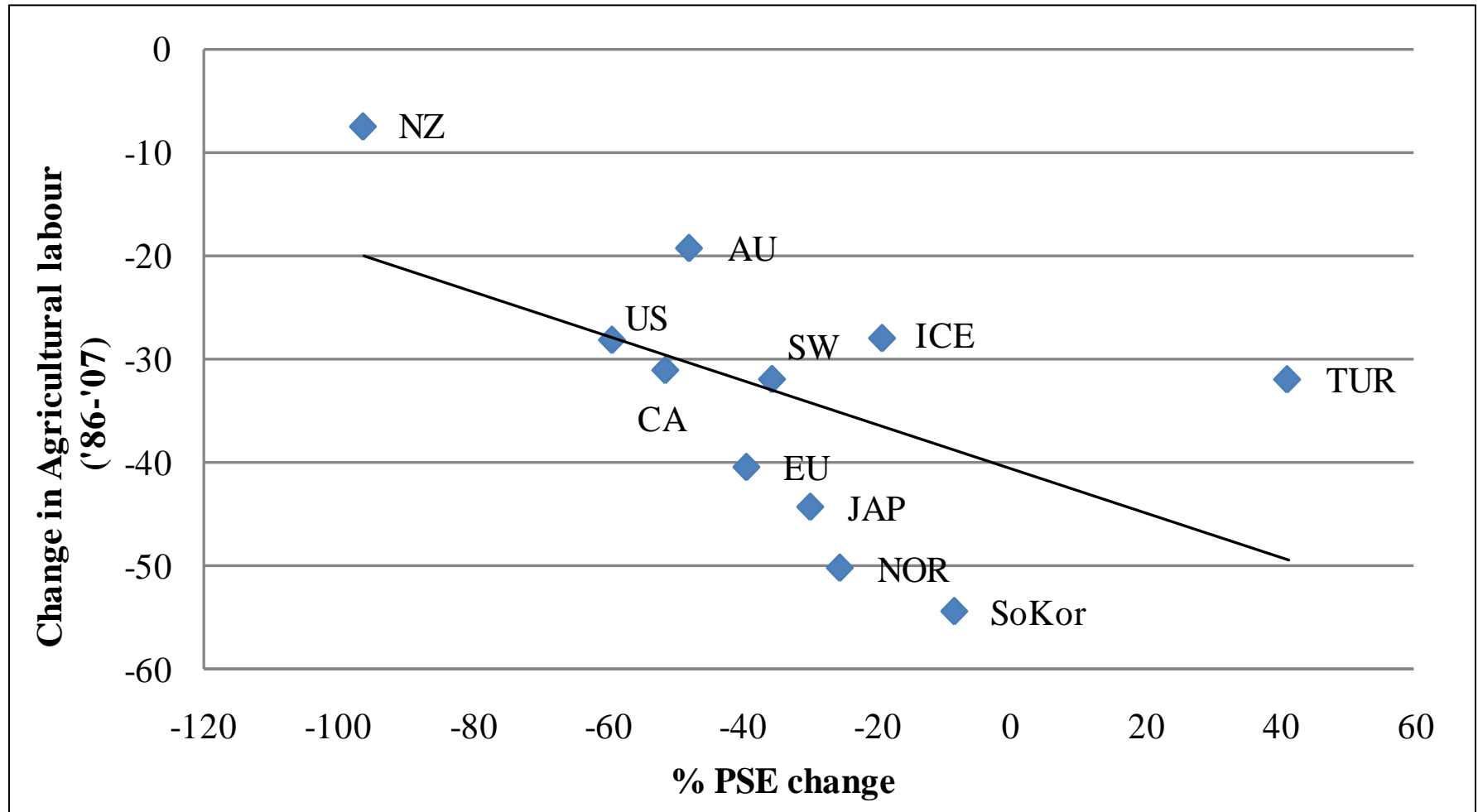
12 million people in EU agriculture

Agric Employment & the CAP

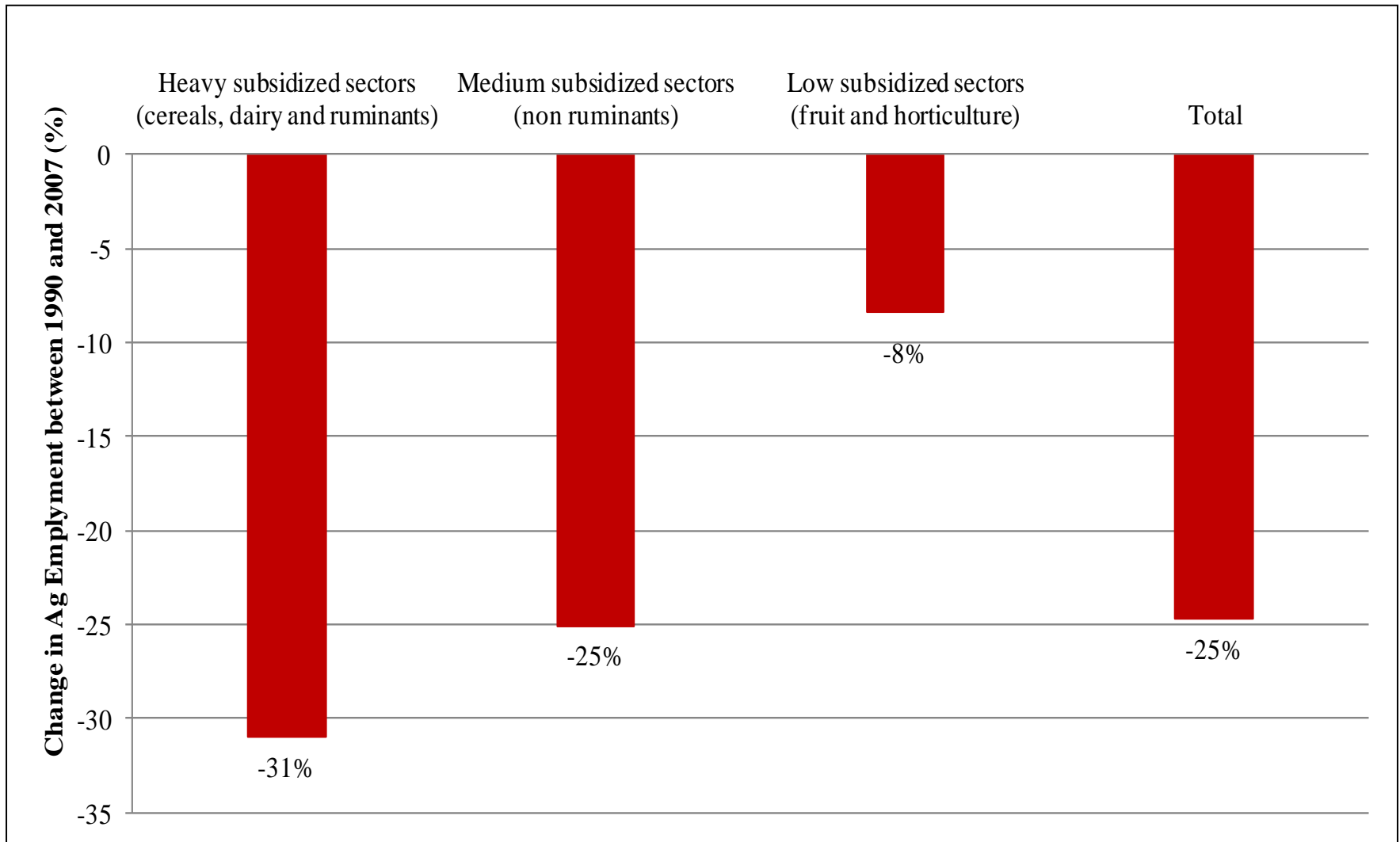
(in billion current €)



Negative correlation between change in support (PSE) and change in employment



Change in agricultural employment in different subsectors (Belgium)



Subsidies and Agric Employment :

Literature

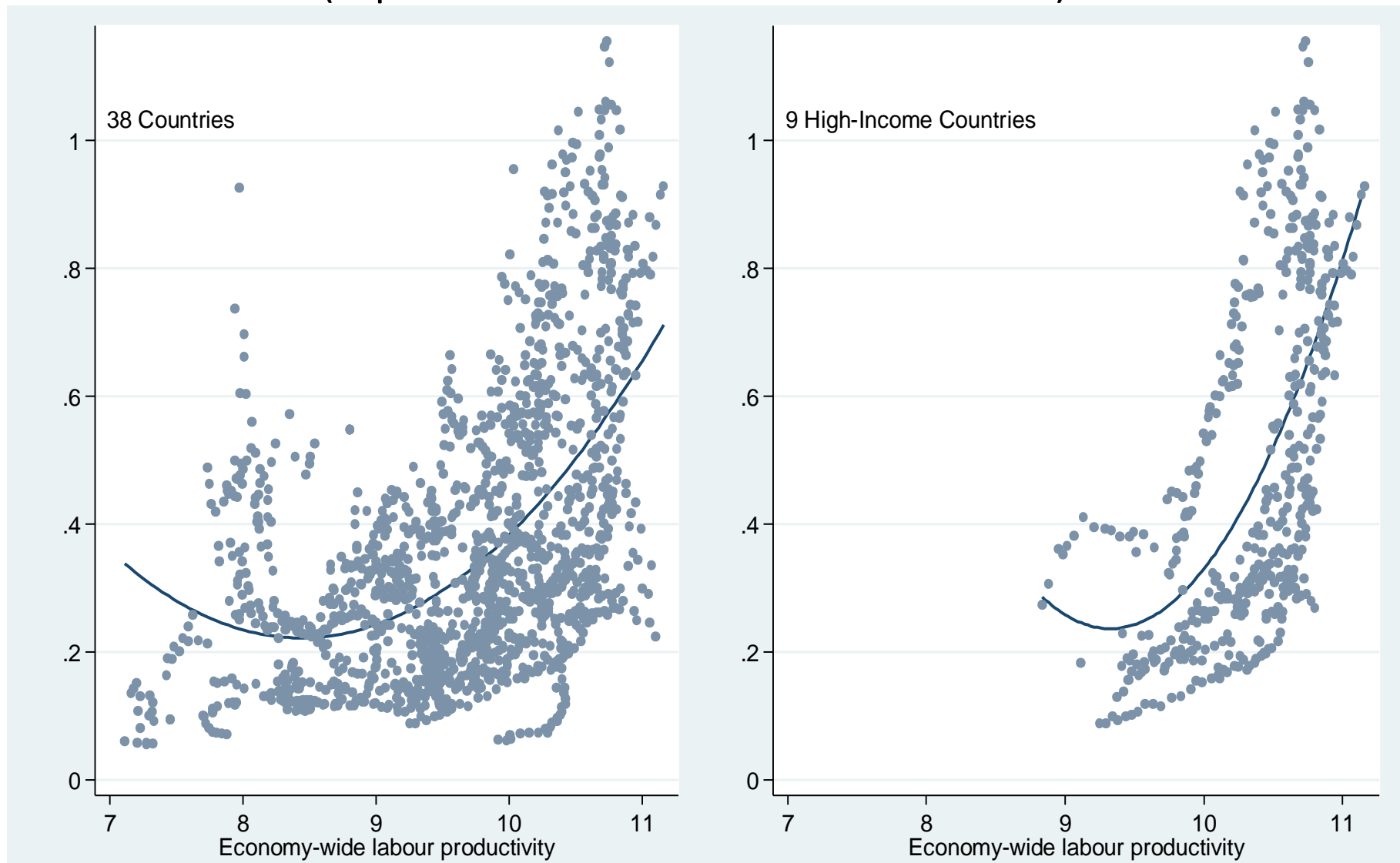
- Impact : unclear
 - NO impact:
e.g. Barkley, 1990; Mishra et al., 2004; Glauben et al., 2006
 - POSITIVE impact:
e.g. Pietola et al., 2003; Key and Roberts, 2006;
Breustedt and Glauben, 2007
 - NEGATIVE impact:
e.g. Goetz and Debertin, 1996; Goetz and Debertin, 2001;
Petrick and Zier, 2011

LABOUR MARKETS : FM results

- Labor adjustments in EU agriculture are consistent with literature (Tocco et al):
 - Relative wage/income
 - Education
 - ...
- Difference in labor market regulations (Donnellan et al)
- CAP subsidies reduce outflow of labor, but effect is small (Olper et al)
- Adjustment (migration) is imperfect (Olper et al) and follows the U-shaped productivity gap prediction (McMillan & Rodrik; Hayami 2003)

Migration & productivity difference

(Olper et al based on McMillan & Rodrik)



CAP and Agric Employment :

FM Results

- Short run :
 - positive impact of CAP, but small
(Olper et al 2013; 1992-2008 data)
- Preliminary (but more checking needed):
 - Pillar I stronger effect than Pillar II
 - DECOUPLED VS COUPLED: unclear (Sckokai et al; Olper et al)

CAP and Agric Employment :

FM Results

- Short run :
 - positive impact of CAP, but small
(Olper et al 2013; 1992-2008 data)
- Long run :
 - Main outflow mechanism is retirement (Tocco et al, 2013)
 - Farmers older than 50 year (Van Herck):
 - Netherlands: 27% has a successor
 - Flanders: 13% has a successor
 - Negative impact of subsidies, through intergenerational education effect & interaction with credit market imperfections (Berlinschi et al, 2012)

Intergenerational theory

- Two period model (Acemoglu and Pischke, 2001)
- Assumptions
 - N farmers with one child
 - Period 1:
 - Farmer i has income w_a^i from $F(w_a)$
 - Farmer consumes c , saves s for his child and may invest h in the education of his child
 - Period 2:
 - Child has income w_o^i , which equals
 - w_a^i when the child works in agriculture with no education
 - w_{na} when the child works in non-agriculture with no education
 - $w_a^i(1 + \theta_a)$ when the child works in agriculture with education
 - $w_{na}(1 + \theta_{na})$ when the child works in non-agriculture with education
 - And $\theta_{na} > \theta_a > 0$
 - Child consumes \hat{c}

Intergenerational theory: hypotheses

In case of **credit constraints**, subsidies that increase farmers' income : TWO EFFECTS

(1) direct: agriculture becomes more profitable

(2) indirect: reduce constraints for investment in education.

- The total effect is ambiguous and depends on the cost of education and credit constraints

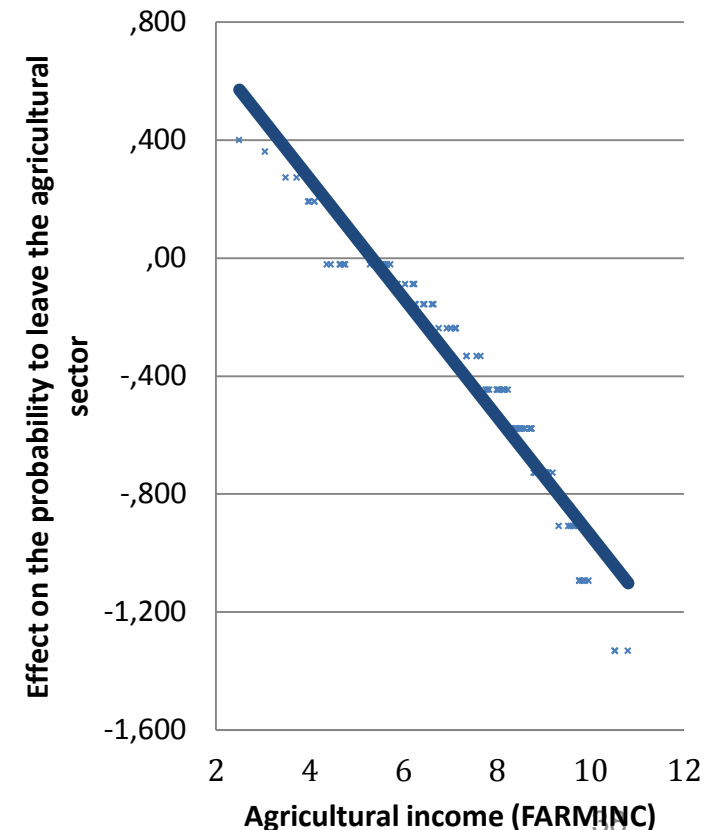
Intergenerational theory: empirics

- European Community Household Panel (ECHP):
 - Portugal, Spain, Italy and Ireland
 - Allows to identify children and their parents and to follow them over time
- Model based on Hennessey and Rehman (2007):

Intergenerational theory: empirics

| | Occupational choice (outcome variable =LEAVE) | | Educational choice (outcome variable= EDU) | |
|----------------|--|----------|---|----------|
| | Coefficient | z-value | Coefficient | z-value |
| FARMINC | -0.288 | -3.92*** | 0.522 | 3.28*** |
| EDU | 1.576 | 4.86*** | - | - |
| GENDER | 0.781 | 2.33** | 0.534 | 2.03** |
| SIBLING | 0.434 | 2.69*** | 0.177 | 1.21 |
| HHSIZE | -0.464 | -2.64*** | -0.154 | -0.92 |
| MARRIED | -1.033 | -2.53** | - | - |
| AVAIL_EDU | - | - | 2.093 | 2.10** |
| OFFFARM | - | - | 0.151 | 0.47 |
| SOCIAL | - | - | -1.030 | -2.89*** |
| AGR | - | - | -4.131 | -2.23** |
| Constant | 1.696 | 2.17** | -0.173 | -0.18 |
| Log likelihood | -102.03 | | | |
| Wald test | 114.25 (0.00) | | | |

Combined (total)
effect of
subsidies/income on
agric employment



CAPITAL MARKETS & INVESTMENT

Heterogeneity

- Impact of financial crisis differs ...
 - Denmark vs Greece and Spain (Pietola et al)
- Role of state involvement/coops in rural credit markets (Rabinowicz et al)
- Investment elasticities to profits/subsidies :
 - from –ve to 0 to +ve
 - Guastella et al : mostly positive
 - Highly responsive investment response (and strong productivity effect) to subsidies in Finland (Pietola et al)
 - Differ by farm ownership (Curtiss et al)

CAP, credit market imperfections & productivity

- The nature of subsidies matters (Guastella et al; Pokrivcak et al):
 - Coupled subsidies reduce productivity
 - Decoupled subsidies increase productivity

(Endogenous) credit market imperfections

- Impact of DPs on farm productivity, profits and land capitalization depends on credit market imperfections (Ciaian and Swinnen, 2009) :
 - Subsidies affect these imperfections in some MS (Ciaian and Pokrivcak 2012): they may enhance productivity by stimulating credit supply
- Impact of RDP on farm investment depends on market imperfections :
 - zero effect in Germany – farms would have done it anyhow (Michalek et al)

TECHNOLOGY – some political economy considerations

A Historical Perspective on Technology Regulation

“From the 1960s through the mid 1980s American regulatory standards tended to be more stringent than in the EU. ...

no country ... so fully adopted the essence of the precautionary principle as the US. ...

However, since around 1990 the obverse has been true; many EU ... regulations are now more precautionary than [in the US ...

David Vogel, 2003

“The Hare and the Tortoise Revisited”

A Historical Perspective ...

American regulatory policies in the 1970s and 1980s and European policies since the mid 1980s have been similarly criticized for being too risk averse and rooted more in public fears than scientific evidence. ...”

A Historical Perspective ...

“this policy dynamic can persist for an extended period of time. ... It, however, does not last indefinitely....

The result is not so much a rolling back of existing regulations, but rather policy gridlock.

This took place in the US after 1990 and will at some point occur in Europe”

David Vogel, 2003

“The Hare and the Tortoise Revisited”

Policy Gridlock in the EU ?

The EU authorization process for GM products

1. The **European Food Safety Authority (EFSA)** evaluates GMO applications and prepares a report for the **European Commission**.
2. The EU Commission submits a recommendation to the **Standing Committee on the Food Chain & Animal Health (SCoFCAH)**.

3. The SCoFCAH is composed of **Member States representatives** and **accepts / rejects the proposal by a qualified majority**.*

If no qualified majority, the recommendation passes to the **Council of Ministers for Agriculture** for a decision.

* requires the majority of countries, voting weights (74%), and population (62%).

4. The Council of Ministers **approves / rejects the proposal by a qualified majority.**

If the Council cannot find a solution, the proposal goes back to **the EU Commission** **which adopts its recommendation** prepared for SCoFCAH.

Reality : Policy Gridlock !

- In the last decade:
 - the Committee (SCoFCAH) has **NEVER** been able to make a decision on GM issues
 - the Council of Ministers has **NEVER** been able to make a decision on GM issues

**Standing Committee on the Food Chain & Animal Health (SCoFCAH): Votes on 19
April 2010**

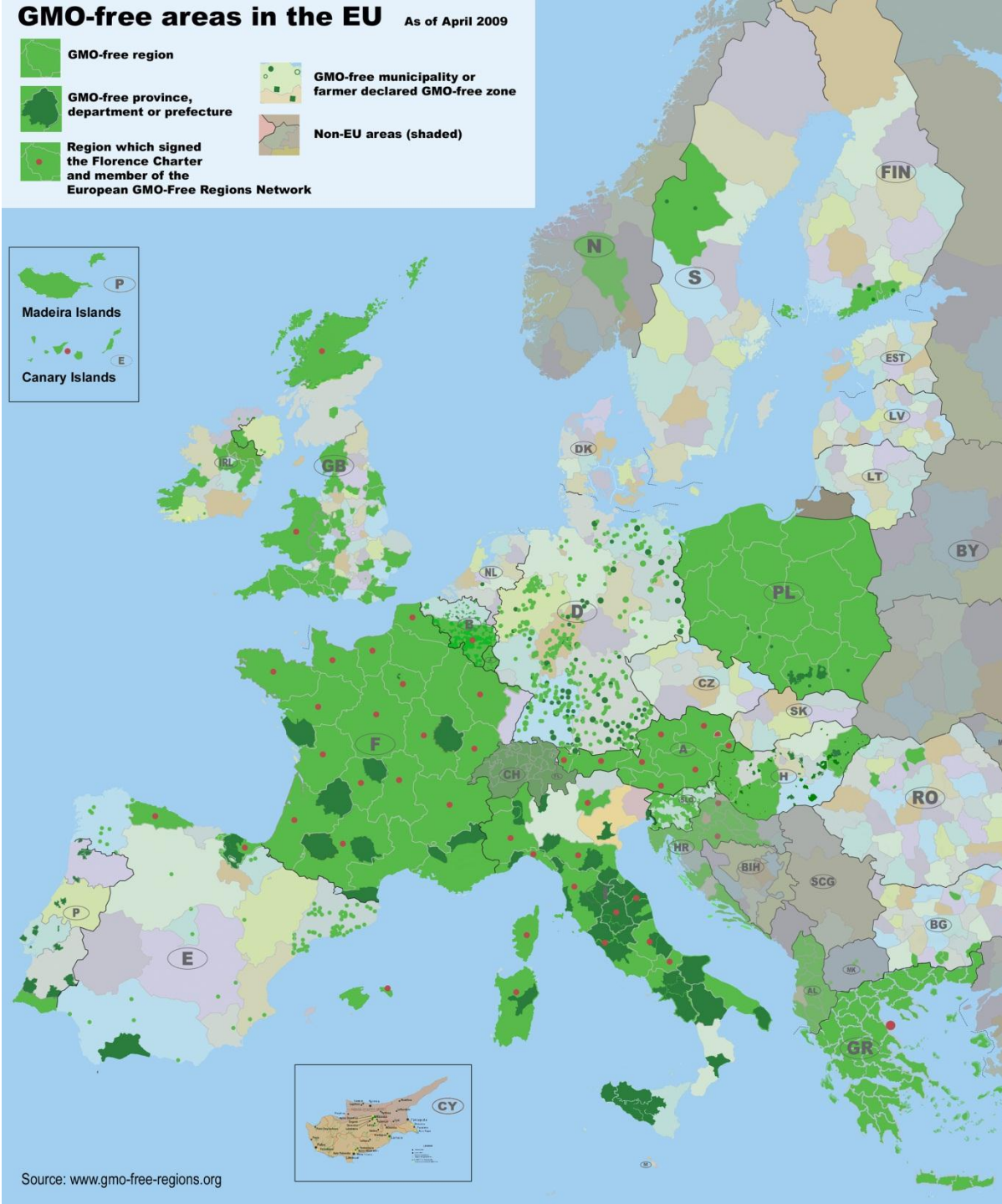
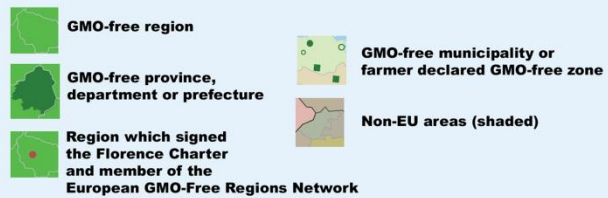
| | For | Against | Abstain | <u>Result:</u> |
|-----------------------------|---|---|---|----------------|
| LL Rice 601 | <i>Bul, Cz, Dk, D, Est, Ire, Gre, Esp, Fr, Cyp, Lat, Lith, NL, Sln, Pol, Rom, Fin, Swe & UK</i> | <i>/</i> | <i>Bel, Lux, Hun, Aus & Mal</i> | In favor |
| Bt11xGA21 | <i>Bel, Cz, Dk, D, Est, Esp, NL, Rom, Fin, Swe & UK</i> | <i>Gre, Cyp, Lat, Lith, Lux, Hun, Mal, Aus, Sln & Pol</i> | <i>Bul, Ire & Fr</i> | No opinion |
| MON89034 X NK603 | <i>Bel, Cz, Dk, D, Est, Esp, NL, Rom, Fin, Swe & UK</i> | <i>Gre, Cyp, Lat, Lith, Lux, Hun, Mal, Aus, Sln, Pol & Fr</i> | <i>Bul & Ire</i> | No opinion |
| Bt11 for renewal | <i>Bel, Cz, Dk, D, Est, Esp, NL, Rom, Fin, Swe, UK & Mal</i> | <i>Gre, Cyp, Lat, Lith, Lux, Hun, Aus, Sln, & Pol</i> | <i>Bul, Ire & Fr</i> | No opinion |

Reality : Policy Gridlock (it gets worse)

- Whenever a positive decision is made on GMOs at EU level: Member states invoke safeguard clauses to ban the product in their country
 - The Commission follows the rules and asks for repeal
 - The Council of Ministers refuses to follow the Commission proposal – **thereby violating EU legislation itself ...**

GMO-free areas in the EU

As of April 2009



Institutions and Gridlock on Innovations

How long can it last ?

Institutions and Gridlock on Innovations

How long can
it last ?

OXFORD

the economics of **beer**



edited by
johan swinnen

Regulation and Innovation

Hops in the Middle Ages



- Use of hops :
 - Enhanced preservation
 - Bitter taste balanced sweetness of barley malt
- Most important innovation in 1000s of years
 - Transformed the entire global beer economy
- It took **500 years** to be allowed in some countries (incl England & Low Countries)

The Political Economy of Hops

- Hops undermined the tax base of the local rulers
 - “Grutrecht” : tax on essential ingredient, fully controlled by local rulers
- Ultimately hops contributed to the decline of monasteries as brewing centers and the growth of commercial brewers
 - rulers wanted to shift taxation from inputs (grutrecht) to output (beer)
 - Monasteries (linked to local parishes) were exempt from taxes

- Institutional gridlock on innovations can last a long time.
- And small initial differences in preferences can be reinforced by institutional structures, leading to increasing policy divergence
 - (eg EU vs US GMO divergence)

For more details :
see Factor Markets Working Paper Series

www.factormarkets.eu

www.ceps.eu

