



TARTU ÜLIKOOL



# **WHAT HAPPENED WITH THE PRODUCTIVITY DURING THE ECONOMIC CRISIS IN BALTICS 2008-2010 ?**

**Urmas Varblane**

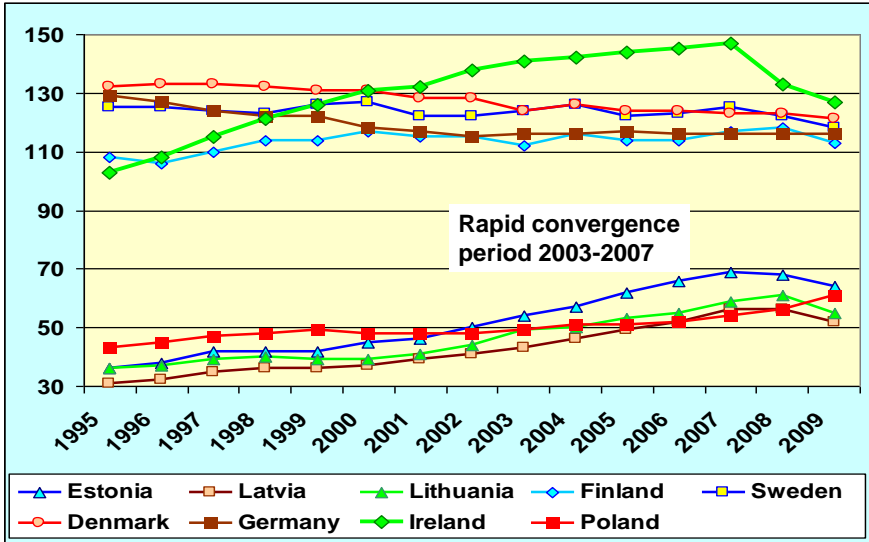
**University of Tartu**

---

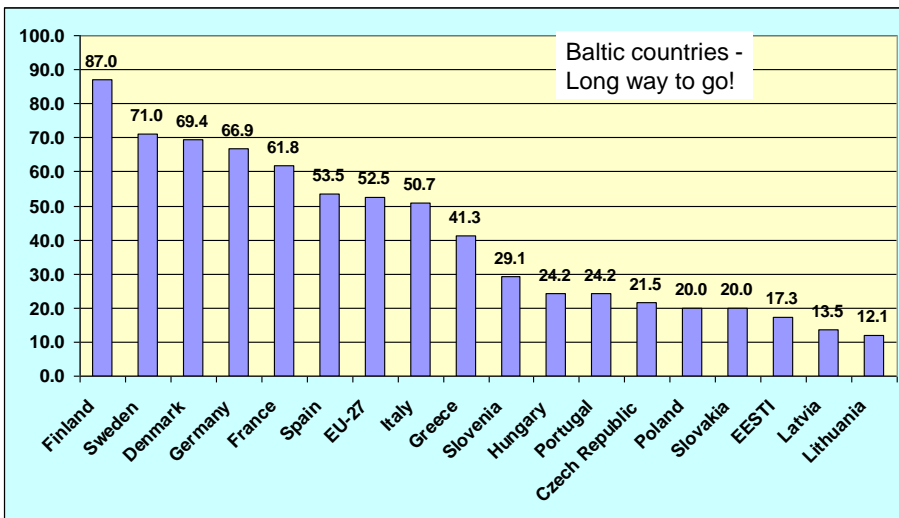
## **Structure of the presentation**

- **Labour productivity in Baltics before the economic crises**
- **How firms adjusted during the crises? Which were the major strategies of firms to restore their competitiveness?**
- **Short-run results of the adjustment strategies of the firms on the productivity (efficiency oriented approach)**
- **Long-run approach needed for sustainable improvements of the productivity**

### 1.Productivity in Baltics up to the economic crises 1995-2009 GDP per capita PPS in % from EU27=100

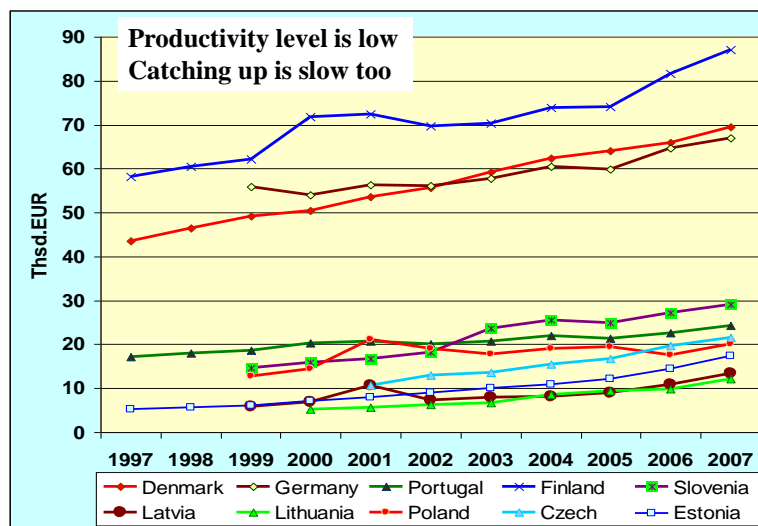


### Value added per employee in manufacturing industry 2007.a. (thsd. EUR)



## Dynamics in labour productivity

### Value added per employee in manufacturing industry 1997 - 2007.a. (thsd. EUR)

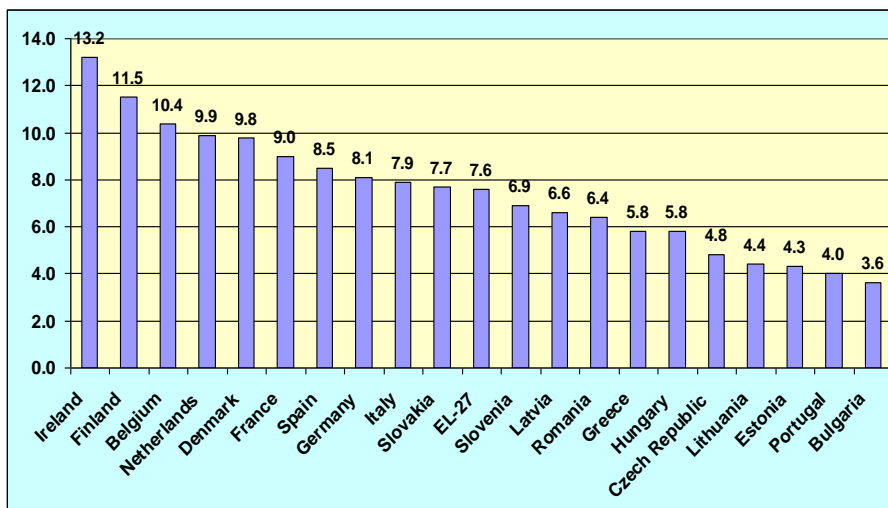


## Estonian and Swedish labour productivity compared in machinery and electronics sectors

Valued added per employee in 1000 Euros, relative and absolute change

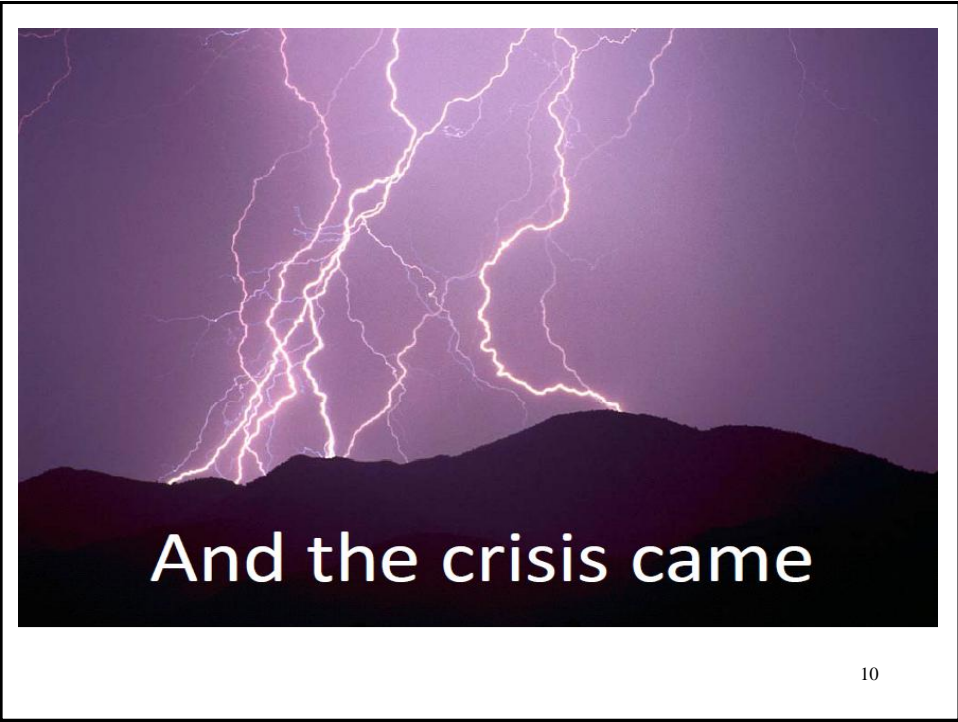
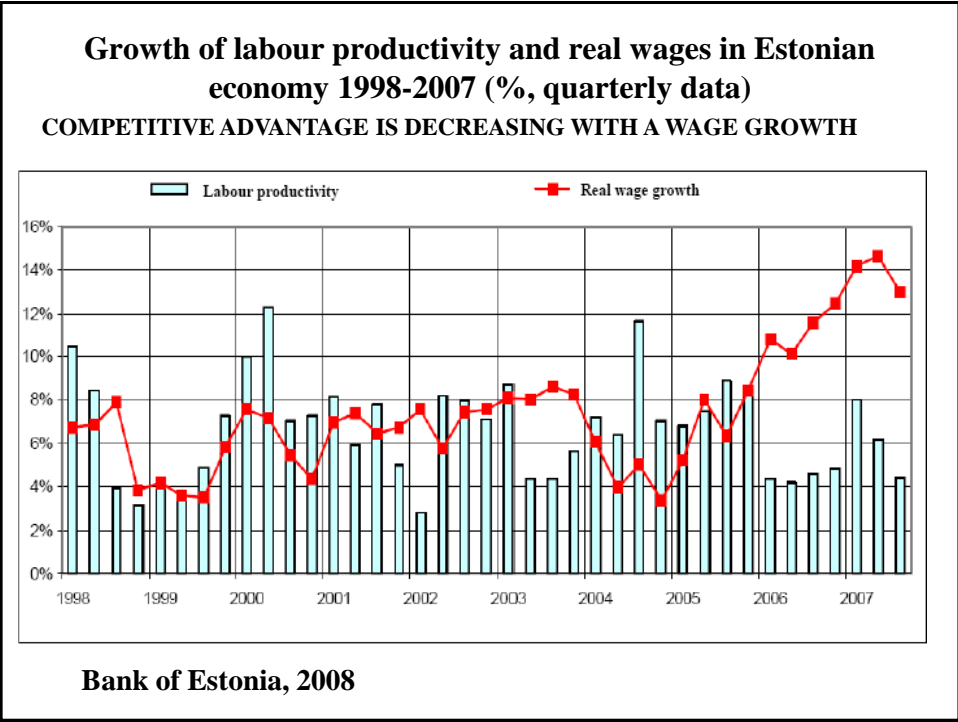
Branch of industry	2001		2004		2007		Change 2001-2007 (%)		Change 2001-2007 (EUR)		Estonian level from Swedish 2007 (%)
	EST	SWE	EST	SWE	EST	SWE	EST	SWE	EST	SWE	
<b>TOTAL manufacturing</b>	8,0	52,2	10,7	63,0	17,3	71,0	116,3	36,0	9,3	18,8	24,4
Base metals	6,3	65,4	8,4	62,8	36,0	83,2	471,4	27,2	29,7	17,8	43,3
Fabricated metals	8,1	42,6	10,6	50,5	18,7	55,3	130,9	29,8	10,6	12,7	33,8
Other machinery	7,4	55,4	10,7	52,2	17,4	66,1	135,1	19,3	10,0	10,7	26,3
Computers, parts etc.	14,1	47,4	13,0	53,0	18,0	40,1	27,7	-15,4	3,9	-7,3	44,9
Other electric	11,0	33,9	13,4	55,4	17,9	66,8	62,7	97,1	6,9	32,9	26,8
Electronic components	6,5	-3,5	10,2	120,9	13,7	134,3	110,8	-3937,1	7,2	137,8	10,2
Medical, optical	7,0	52,4	15,1	73,8	16,3	83,8	132,9	59,9	9,3	31,4	19,5
Motor vehicles	16,5	63,9	16,6	71,3	21,1	72,7	27,9	13,8	4,6	8,8	29,0
Other transportation eq.	9,6	48,7	10,8	57,5	18,8	61,7	95,8	26,7	9,2	13,0	30,5

### Investments into fixed assets per employee Manufacturing industry 2007.a. (thsd. EUR)



### How much remains value added after covering labour costs ? (2007, thousands euros per employee)

	Value added	Labour costs kulud	Value added - Labour costs
Finland	87.0	46.8	40.2
Sweden	71.0	51.6	19.4
Denmark	69.4	48.2	21.2
Germany	66.9	45.4	21.5
France	61.8	45.4	16.4
Spain	53.5	32.7	20.8
EU-27	52.5	34.41	18.1
Italy	50.7	35.6	15.1
Greece	41.3	27.6	13.7
Slovenia	29.1	18.5	10.6
Hungary	24.2	12.0	12.2
Portugal	24.2	14.8	9.4
Czech Republic	21.5	12.2	9.3
Poland	20.0	9.6	10.4
Slovakia	20.0	10.1	9.9
EESTI	17.3	10.6	6.7
Latvia	13.5	6.8	6.7
Lithuania	12.1	7.3	4.8



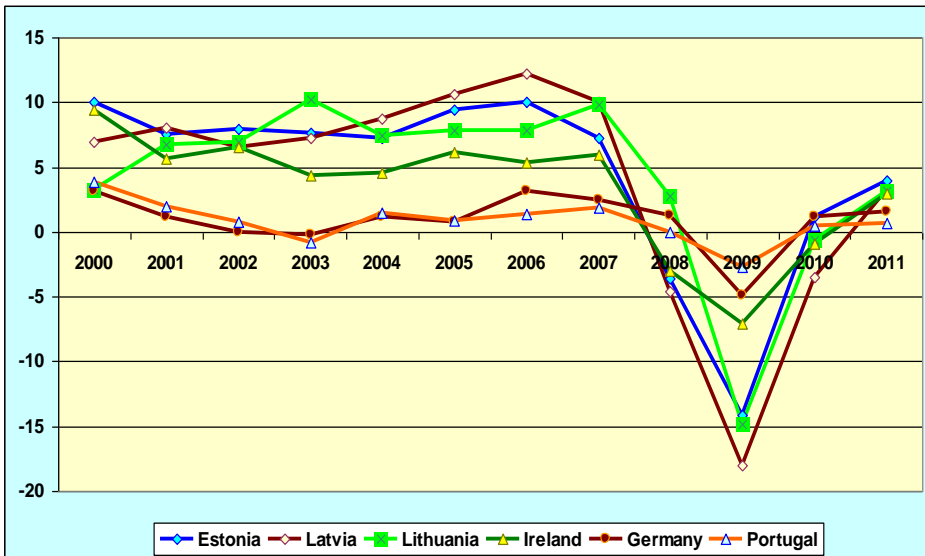
## Which countries were hit most seriously by the world economic crises?

- **Small domestic market and very open economies**
- **With high external debt**
- **With very high foreign trade imbalances and balance of payment deficit**
- **Whose major trading partners were hit severely**

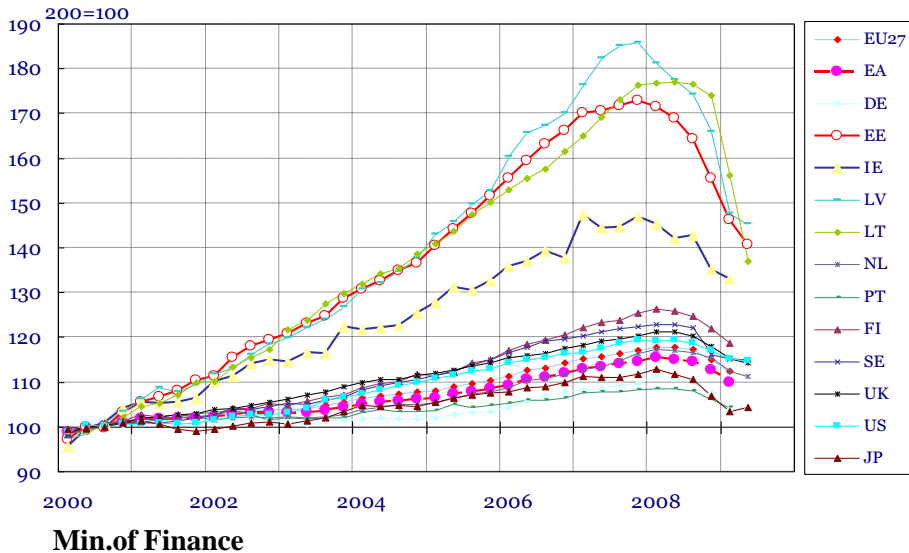
**BALTIC COUNTRIES MET THOSE CRITERIA  
EVEN TOO WELL**

11

### Deep V type crises in Baltics



### Small open economies are back in 2005-2006 by their GDP (cumulative GDP, 2000=100)



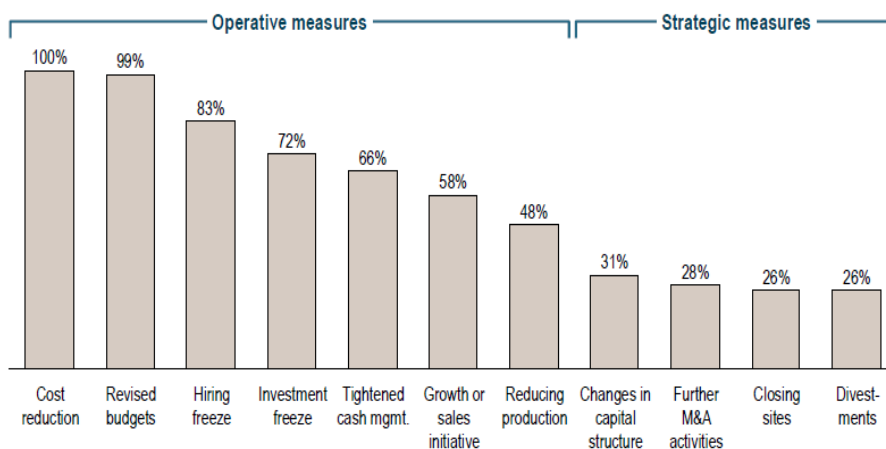
### 2. How firms adjusted during the crises? Which are the major strategies of firms to restore their competitiveness?

- **SURVIVAL!**
- Radical correction of expenditures
- Input prices were falling (fuel, raw materials, labour, services)
- Management processes improved
- **Sudden need to restructure and make changes**, which were not implemented during good times
- **Easier for firms, which started changes earlier**

## Which are major strategies of firms to improve their competitiveness?

- 1) **Costs reduction** - labour costs, improvements in process management – organisational innovation
- 2) **Launching growth initiatives** - increase of sales – internationalisation – new market segments or markets, cooperation with partners
- 3) **Change of products or services** – differentiation – product/service innovation
- 4) **Replace labour with capital** - investments – reduction of labour intensity
- 5) **Change of the position in global value chain**

## Measures used by managers in Central and Eastern Europe (Roland Berger, March 2009)

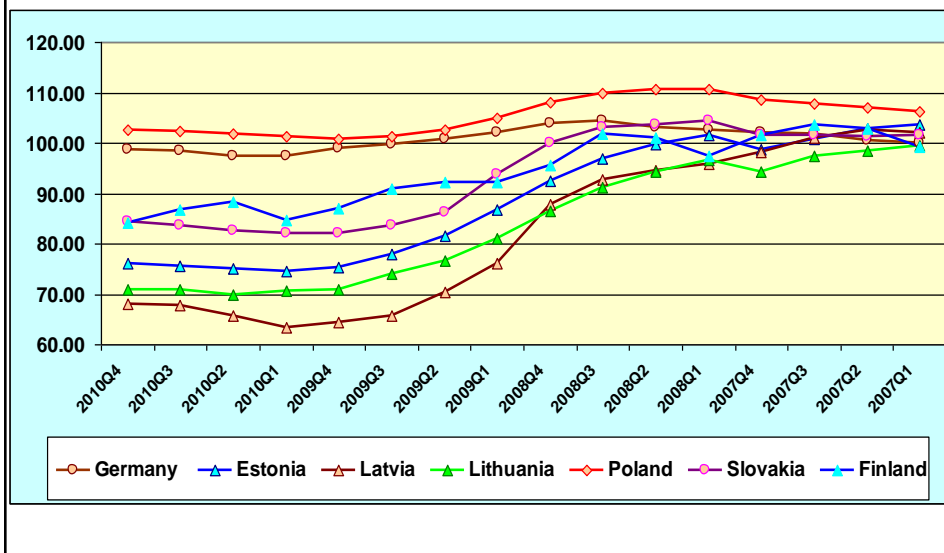


Source: Roland Berger



## Adjustments through the labour market

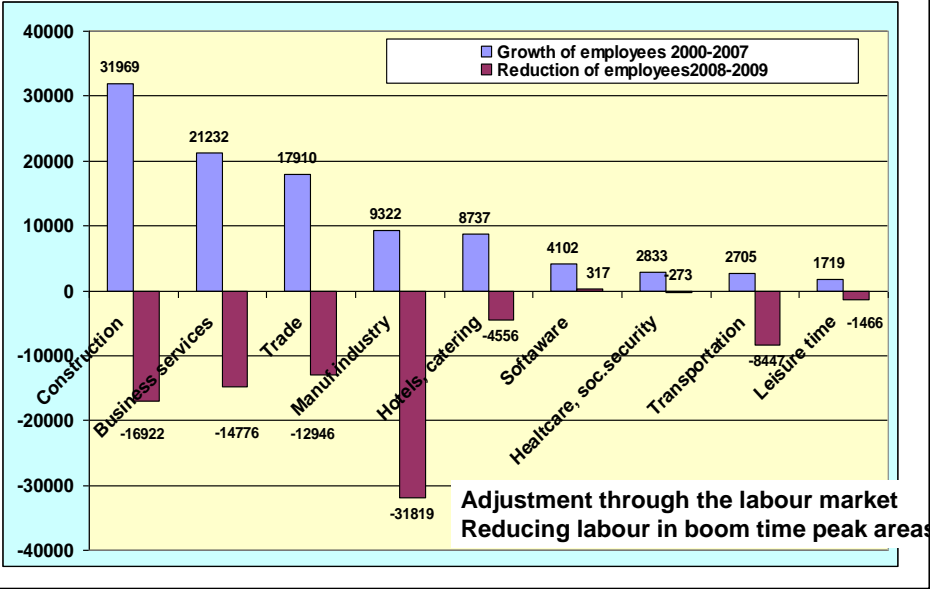
### Labour input index. Manufacturing (2005=100)



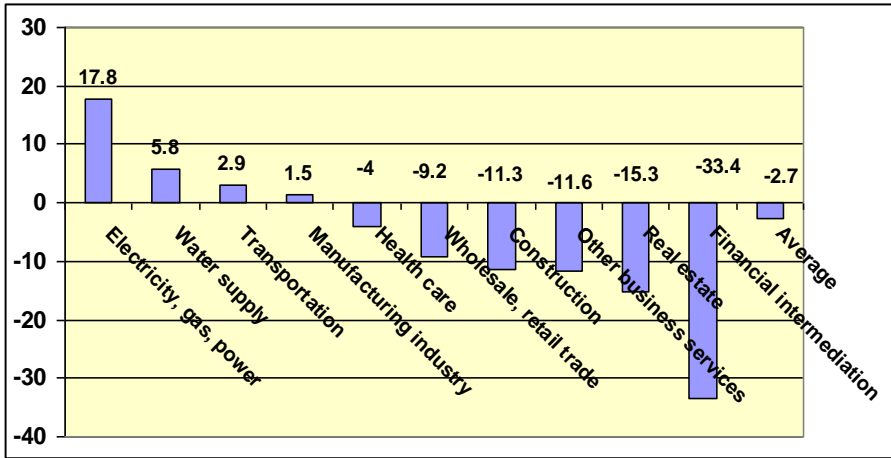
## Labour input index. Branches of manufacturing industry. (2005=100)

	2010 Q4			2008 Q3			Change 2010Q4 with 2008Q3		
	EST	LAT	LIT	EST	LAT	LIT	EST	LAT	LIT
Electronic components	67.4	68.2	34.4	82.8	100.6	39.7	-15.5	-32.4	-5.3
Food	81.4	70.9	81.7	97.0	90.3	95.1	-15.6	-19.4	-13.4
Clothing	50.0	65.8	50.5	79.6	84.9	66.6	-29.6	-19.1	-16.1
Wood	73.9	65.7	64.6	91.3	82.5	87.7	-17.4	-16.7	-23.1
Chemical	77.6	78.9	108.2	95.6	83.7	128.3	-18.0	-4.8	-20.1
Fabricated metal	86.7	87.9	75.1	120.7	136.5	98.8	-34.0	-48.6	-23.7
Electric equipment	218.0	72.5	63.9	191.2	114.0	91.8	26.8	-41.6	-27.9
Construction materials	71.4	70.0	70.8	116.8	121.7	107.5	-45.4	-51.6	-36.7
Machinery	95.1	50.9	106.4	122.9	77.3	129.2	-27.9	-26.4	-22.8
Furniture	71.5	50.9	83.4	79.1	76.9	110.6	-7.6	-26.0	-27.2
Motor vehicle	97.0	124.9	32.1	112.4	162.9	80.7	-15.4	-38.0	-48.6
Other transport eq.	136.3	56.9	44.0	211.2	76.3	106.5	-74.9	-19.4	-62.5
Textile	45.1	47.1	52.1	57.9	73.5	66.9	-12.7	-26.4	-14.8

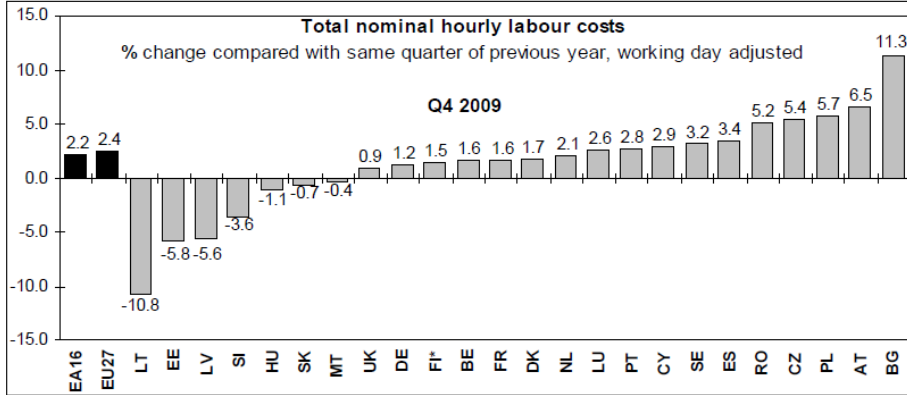
### Employment growth during boom years (2000-2007) and reduction in crises (until end of 2009) in Estonia



### Change in average monthly labour costs in Estonia I Quarter 2010 compared with I Quarter 2008



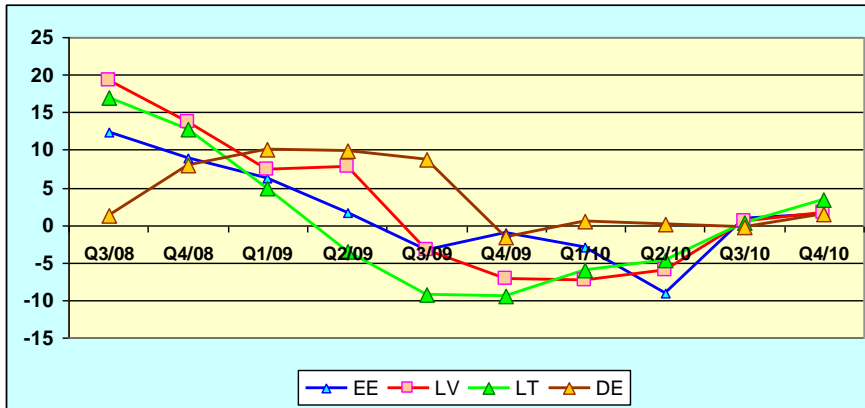
## Hourly labour costs reduced



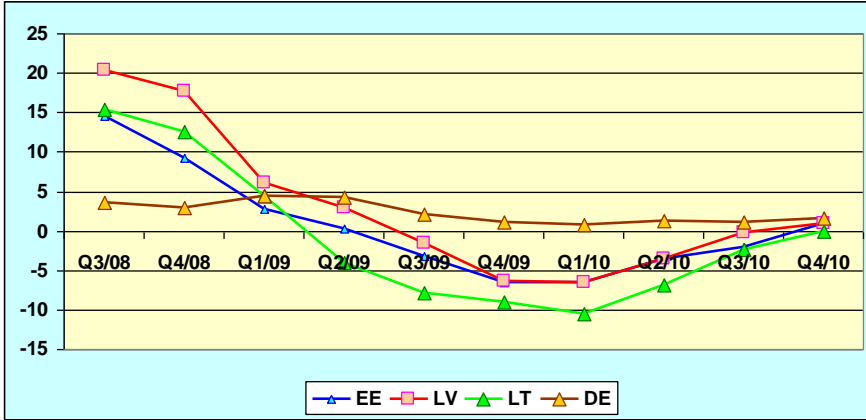
\* Not working day adjusted

**Firms from Baltics most serious in reducing labour costs**

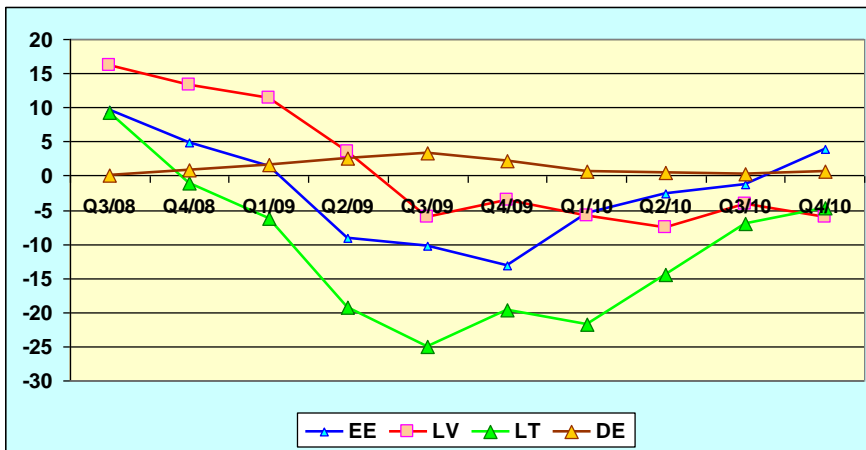
## Nominal hourly labour costs in industry (% change compared with same quarter previous year)



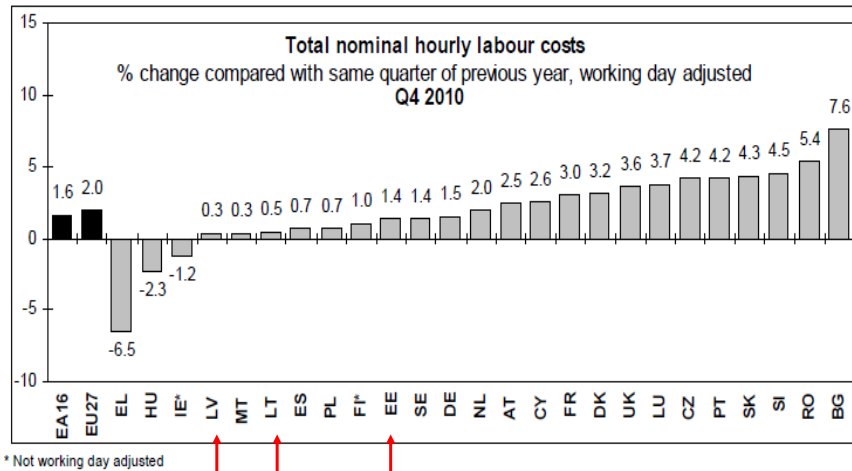
**Nominal hourly labour costs in services**  
 (% change compared with same quarter pervious year)



**Nominal hourly labour costs in construction**  
 (% change compared with same quarter pervious year)



## Hourly labour costs reduced

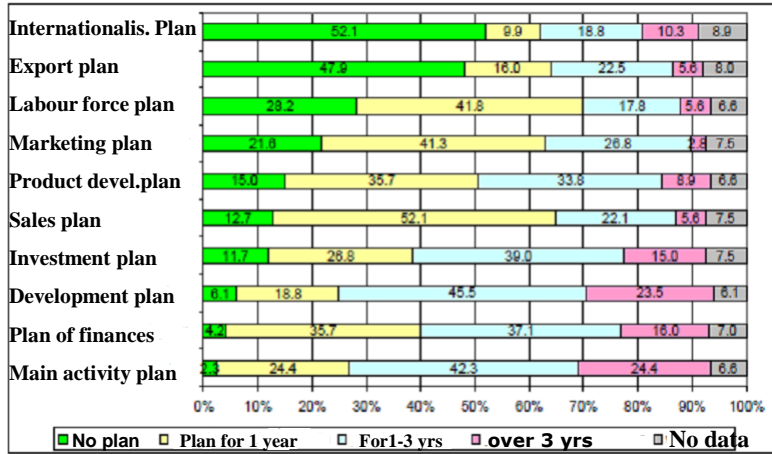


## Strategic behaviour of firms during the crises

- Strategic **behaviour of firms** during the crisis **differs by ownership form**
- **Domestically owned firms** – very limited financial reserves
- **Were forced to react quickly** – efficiency side acts  
(reduction of labour, working hours, wages, services from third parties)
- **Long term plans to improve position were rare** (product development plans, improvement of position in value chain, choosing new value chains ...)
- **Potential threat** – after 2-3 years costs advantage eroding again and non-cost competitiveness still weak

### Planning in Estonian firms. Availability and duration of plans prepared

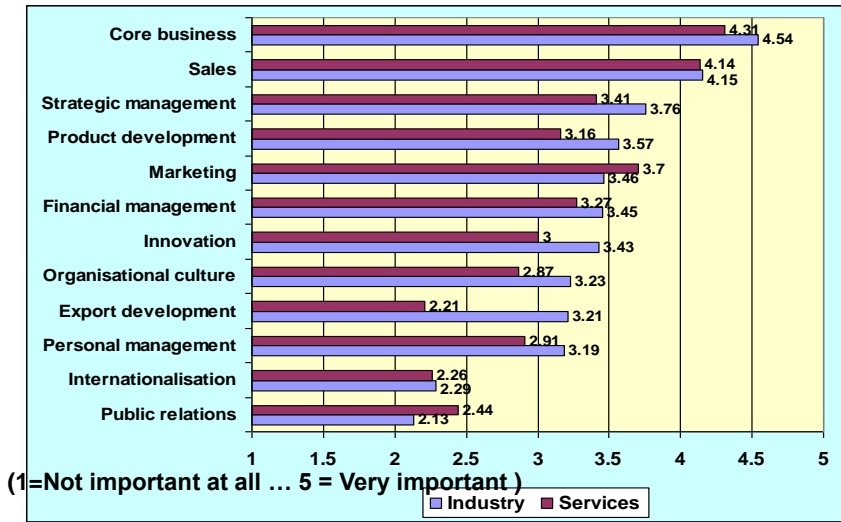
(domestically owned firms, SME, N=204)



Source: Eesti juhtimisvaldkonna uuring, TÜ, TTÜ. EBS Education, 2011

### Main focus of Estonian firms during last two years

(domestically owned firms, SME, N=53 and 112)



Source: Eesti juhtimisvaldkonna uuring, TÜ, TTÜ. EBS Education, 2011

## Main focus of Estonian firms during last two years by size groups ( domestically owned firms, N=64; 71; 42)

Size groups	10-49 employees		50-249 employees		10-49 employees	
Fields of activities	Mean	Ranking	Mean	Ranking	Mean	Ranking
Core business	4.35	1	4.46	1	4.31	1
Sales	4.15	2	4.28	2	3.73	3
Marketing	3.53	3	3.7	3	3.46	7
Strategic management	3.17	5	3.68	4	3.93	2
Product development	3.09	6	3.44	5	3.43	9
Financial management	3.34	4	3.32	6	3.62	4
Export development	2.39	10	2.83	10	2.56	11
Innovation	2.89	7	3.32	7	3.44	8
Organisational culture	2.61	9	3.1	8	3.52	6
Personal management	2.63	8	3.08	9	3.6	5
Internationalisation	2.14	11	2.4	11	2.34	12
Public relations	1.97	12	2.32	12	2.95	10

(1=Not important at all ... 5 = Very important )

## Strategic behaviour of foreign owned firms during the crises

- **Foreign owned firms** – much better financial situation -reserves of mother company supported
- Management of mother company **had previous experience with crises** – behaved with understanding toward local subsidiaries
- Subsidiaries were not **forced to react immediately** – **but used the opportunity:**
  - **Hired** best employees from the market
  - **Gained** extra market share
  - Negotiated **better terms from local suppliers**
  - **Acted in efficiency side** too (but not reduction of labour was main target)

## Survey “Foreign Investor 2009”

- In cooperation between **Enterprise Estonia and University of Tartu** September – December 2009
- Based on primary and secondary data
- **Primary data: 52 interviews** with the top managers of foreign owned firms plus **97 answers to the questionnaire** “Foreign Investor 2009”
- **Secondary data** - balance of payment data from the *Bank of Estonia* and aggregated income statement data of firms from the *Statistics Estonia* classified by the ownership forms

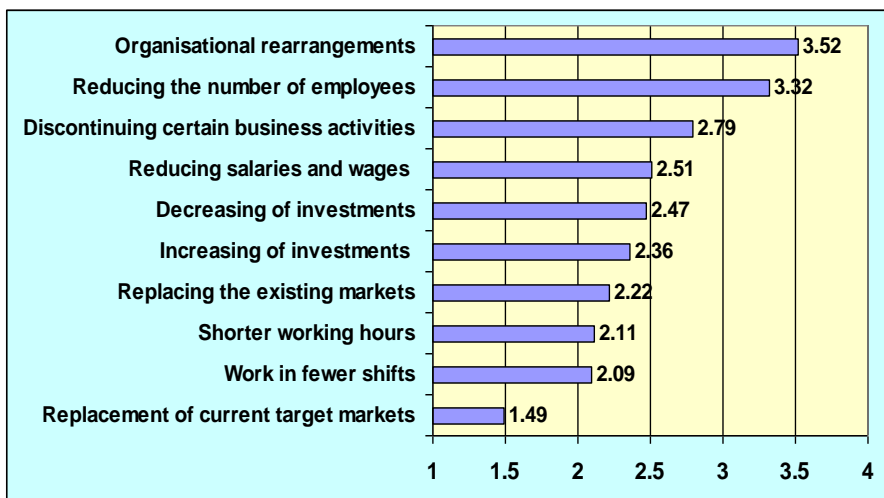
## The relative importance of foreign owned firms in the Estonian economy (2007, %)

Economic sectors	Share of foreign owned firms from the total of					
	Employees	Wage	Net sales	Exports	Fixed assets	Bus.profit
Manufacturing industry	38.5	42.3	47.3	61.6	46.8	44.3
Electricity, gas, water supply	14.0	17.8	24.6	10.1	17.7	34.2
Construction	7.3	11.1	11.1	14.7	7.3	8.8
Wholesale, retail trade	22.5	30.2	36.4	45.2	31.9	26.9
Hotels, restaurants	19.5	21.7	24.9	47.7	38.4	31.5
Transportation, communication	16.9	25.4	29.8	25.6	28.6	69.5
s.h. Land transportation	7.8	10.9	16.7	45.9	16.9	15.0
Supportive services, travel agencies	25.5	31.5	25.1	23.9	24.2	38.1
Post, telecommunication	31.3	51.0	82.0	67.4	82.9	95.9
Real estate, renting, business services	27.6	32.4	24.9	51.3	17.5	24.4
incl. Real estate	10.5	8.9	9.8	14.1	16.4	21.7
Renting of machinery, equipment	26.0	44.6	40.2	63.4	49.0	56.0
Computers and related services	44.0	60.1	48.5	80.5	21.5	53.0
Other services	30.2	30.1	28.8	42.1	15.6	22.0



## Activities of foreign owned firms for coping with the worsened economic situation. Fall 2009

(Not important at all ... 5 = Very important )



Source: Foreign Investor 2009 Survey results. 97 responses

## Some statements from the foreign investors in Fall 2009

- *"I guess that never before it was so easy to start new businesses in Estonia"*
- *"Hard times allowed to make many reasonable decisions..."*
- *„Expextations of people are turning much more realistic /.../ it has put on place the core values again and creates the understanding that without work, efforts, giving maximum out of yourself, developing yourself is very hard or complicated to handle the situation /.../*
- *This year our employees are less ill. The lowest illness ratio of the last six-seven years /.../ During the earlier years often the absence due to the illness was misused"*

### Some statements from the foreign investors in Fall 2009

- *”The crisis period is also useful moment for the rearrangement of organisational structures”*
- *”...at the top of the boom years we took very straightforward decision /.../ strategic decision, we have to increase the export share /.../ when domestic market starts to fall we have to be able to compensate it with the exports /.../ we fulfilled the task perfectly”*
- *„Rather we rearrange the proportions, if certain market does not work anymore, no sense to push entry with the force, instead look for working markets.“*
- *„so-called non-fixed costs we cut heavily, marketing campaigns, IT-developments were shifted, nice to have type of investments eliminated etc...“*

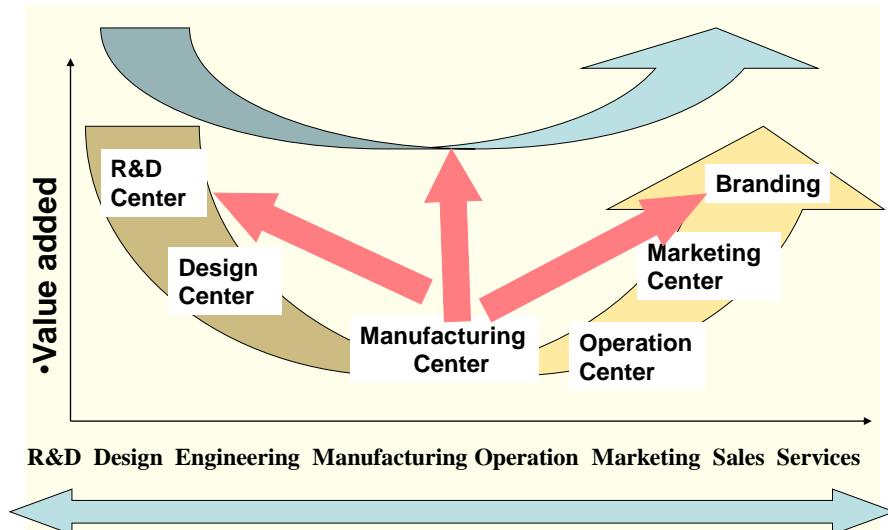
### How Estonian firms are seeing their sources of competitiveness after crisis?

- **Closeness to the major markets**
- **High flexibility:**
  - 1) small and frequent deliveries
  - 2) fast adjustments to the change in demand
  - 3) ability rapidly rearrange production lines
  - 4) efficient and rapid communication using ICT solutions
- **Moderate cost level**
- **Flexible labour market** (institutional barriers weak, minimum wage level moderate, trade union movement weak too)

### Direction of innovations during the crises

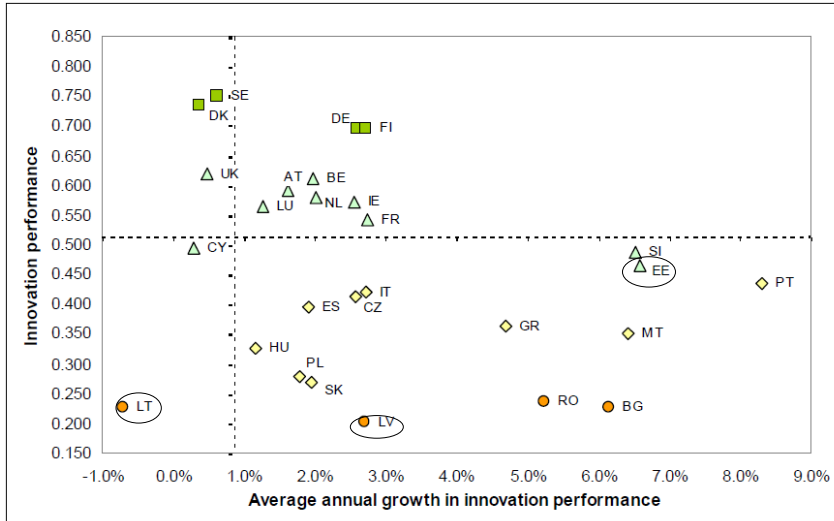
- Initially – emphasis on the **process innovation** (improvements in the process of providing services or production of goods)
- In the same time **organisational innovations** (rearrangements in the organisation of firms)
- After the costs taken under control attention on the **marketing innovation** (search of new market segments, new markets, new methods of promotion ...)
- Afterwards attention on the **product or service innovation**

### Upgrading strategies in global value chain

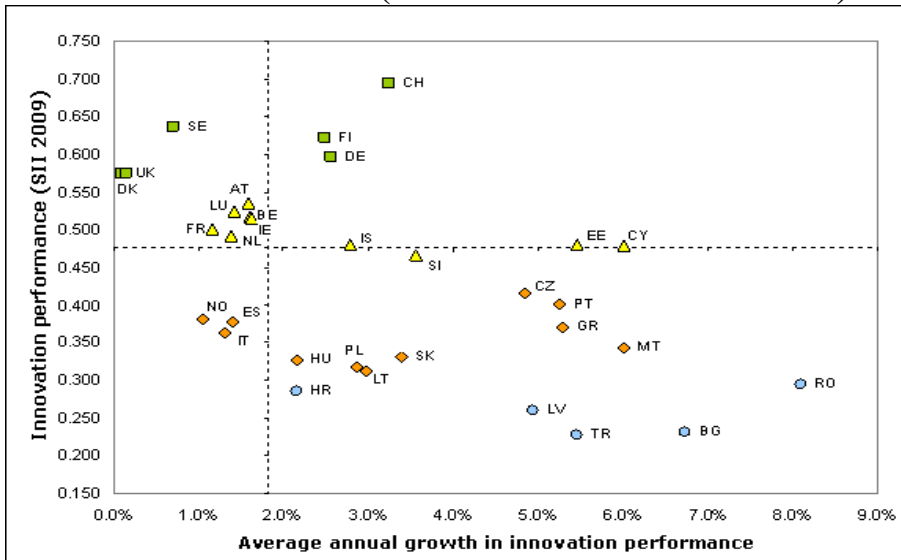


Long-run approach toward increasing productivity requires improvements in the positioning of Baltic firms in global value chains

### Convergence in innovation performance (Innovation union scoreboard 2010)

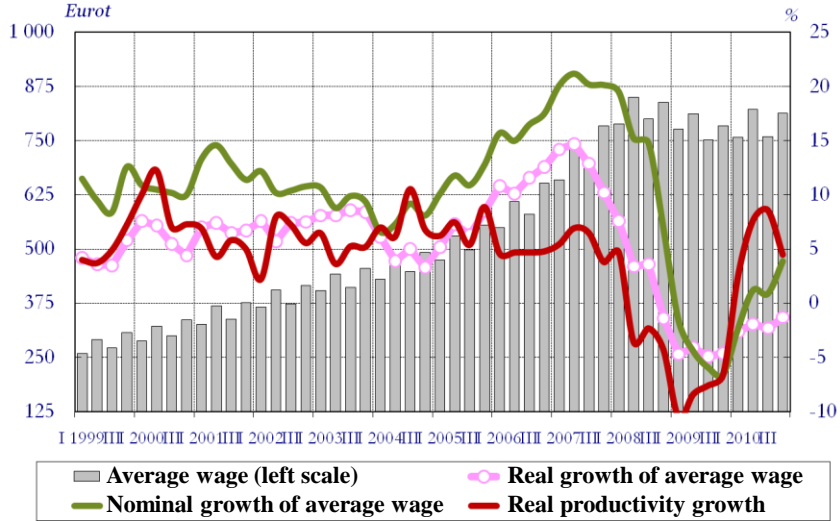


### Convergence in innovation performance Previous evaluation (Innovation scoreboard 2009)

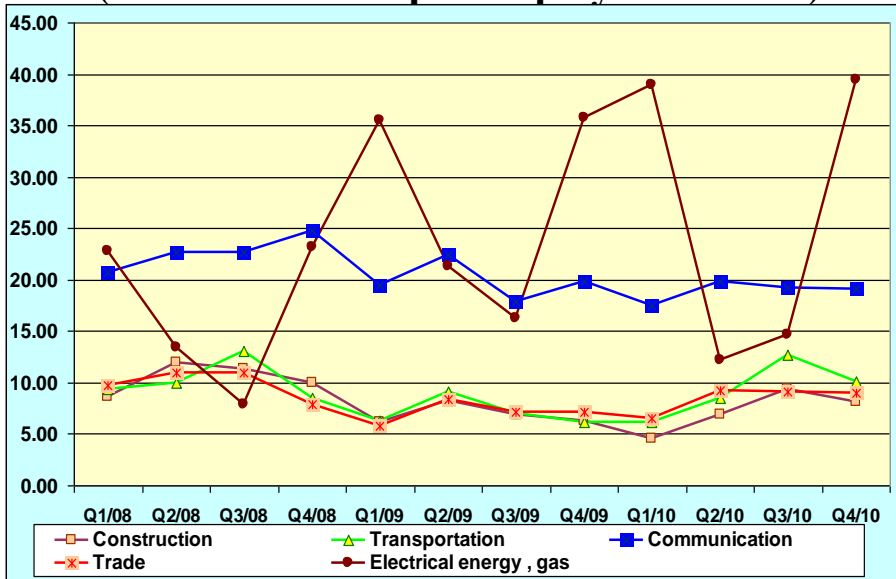


Estonia as the innovation follower

### Average wage and productivity growth in Estonian economy 1999 -2010 (by quarters)



### Hourly labour productivity – services (net value added per employee in euros)



## Hourly labour productivity – manufacturing industry (net value added per employee in euros)

	Q1/08	Q2/08	Q3/08	Q4/08	Q1/09	Q2/09	Q3/09	Q4/09	Q1/10	Q2/10	Q3/10	Q4/10
TOTAL	8.94	10.37	10.21	8.15	6.66	8.04	8.90	8.36	8.85	10.44	11.22	11.60
Food	7.06	7.35	8.13	8.32	8.13	8.69	8.57	7.30	7.54	7.68	7.91	9.24
Clothing	4.64	4.51	5.48	5.25	4.60	4.09	5.79	5.20	4.72	4.06	7.21	4.98
Furniture	6.84	6.68	6.10	7.20	5.91	6.44	6.82	7.98	7.77	8.21	7.65	9.05
Electronic	7.42	8.53	8.37	8.53	6.80	6.68	5.49	9.79	9.10	5.84	12.71	24.88
Wood	8.46	8.70	5.93	5.97	5.82	8.71	9.16	8.97	9.30	11.74	10.81	9.68
Constr.mater	10.87	15.37	16.24	9.37	1.97	8.53	8.88	4.54	6.50	12.23	15.71	11.78
Chemical	19.50	27.52	38.31	13.28	9.29	11.80	19.00	10.03	11.68	19.55	20.84	16.56
Machinery	10.43	10.98	12.24	10.91	6.90	5.90	7.76	7.98	7.29	9.38	10.73	12.44
Other transport	10.91	8.61	7.07	9.29	2.68	13.46	8.09	8.19	10.28	20.67	5.30	10.03

### Conclusions

- **In the first stage** of crisis **productivity level declined** (output and sales deteriorated faster than firms reduced costs)
- **Second stage** – firms managed costs (emphasis on efficiency) and **productivity level stagnated**
- **Third stage** – foreign demand led sales growth combined with applied efficiency measures created productivity growth
- **Question remains** – how sustainable is productivity growth?
  - Position of firms in global value chains is changing slowly.
  - Domestic market led growth is weak.
  - Knowledge base of firms is improving also slowly.