

ECONOMIC EFFECTS OF EU MEMBERSHIP

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Outline

- **Introduction**
- **Overview of economic effects**
 - Different stages of economic integration, different effects?
 - Decreasing “direct” effects, increasing “indirect” effects
 - ↑ Trade versus ↑ growth
- **Effects from economic enlargement**
- **Foreign Direct Investment**
- **Empirical papers with focus on Central and Eastern Europe**
 - Drivers and effects of FDI
 - Integration and productivity growth

Literature

- Badinger, H., and Breuss, F. (2014) The quantitative effects of European post-war economic integration. In Jovanović, M.N. (ed.): International handbook of the economics of integration, Volume III. Edward Elgar Publishing, p. 285-315 (31 pages)
- Jimborean, R. and Kelber, A. (2017) Foreign direct investment drivers and growth in central and Eastern Europe in the Aftermath of the 2007 global financial crisis. *Comparative Economic Studies*, vol. 59, p. 23-54 (32 pages)
- Kutan, A.M. and Yigit, T.M. (2009) European integration, productivity growth and real convergence: Evidence from the new member states. *Economic Systems*, vol. 33, p. 127-137 (11 pages)

Introduction

- **European Union massive social experiment**
- **From start, growing level of enthusiasm and positivism on the positive effects of membership**
 - Not surprising, as classical economic effects of integration are relatively easy to identify and understand
- **Majority are direct effects**
 - Lower trade barriers and relate this to output/welfare, etc.
 - Standard trade theory fully in line with this
- **With increasing integration, effects become less “direct” and also more difficult to link directly to EU integration**
 - Also trade theory is showing that we need to look at other elements
 - From static to dynamic effects

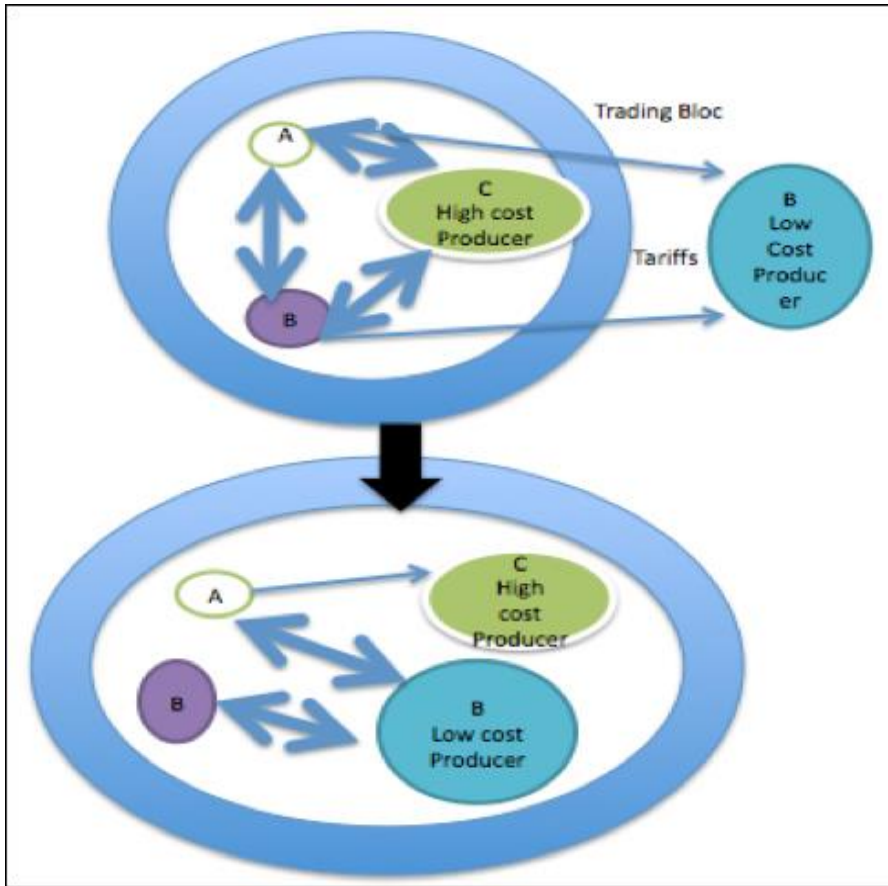
Overview of effects

- **Starting from a Customs Union**
- = **Trade creation versus trade diversion**
- **CU = lower trade restrictions between member countries, common restrictions to non-members**
- Static analysis, in line with Standard Trade Theory

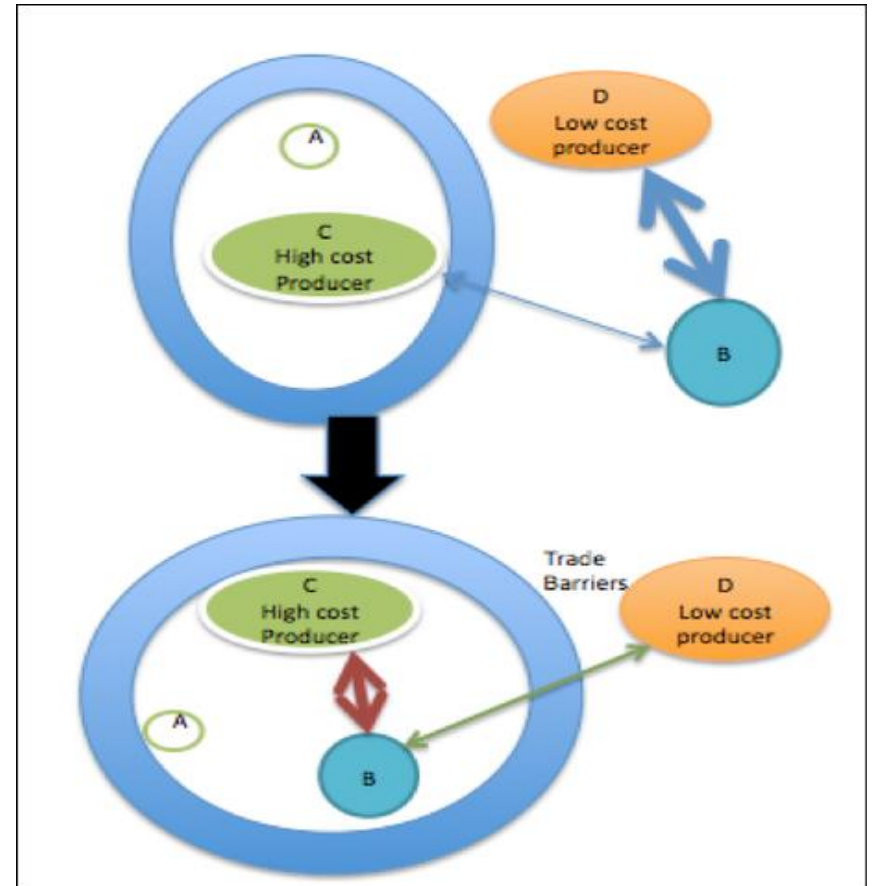
- **Trade creation**
 - lowering trade barriers between member countries, trade can increase
 - More trade leads to higher welfare

- **Trade diversion**
 - Efficient non-member countries become more expensive due to tariff
 - Countries start to buy more products from less efficient member countries
 - Quantity of products less than would have been bought from efficient countries = decrease in welfare

Trade Creation



Trade Diversion



Overall, trade creation outweighs trade diversion

Table 14.1 Trade creation versus trade diversions in the EC6: ex-post evidence

Study	Year	Trade creation		Trade diversion	
		US\$ bn	in % of total EC imports	US\$ bn	in % of extra-EC exports
Balassa (1975)	1970	11.3	13	0.3	1
Truman (1972)	1968	8.7	26	0.9(-1.6)	5(-6)
Kreinin (1972)	1967/68	4.3	13	1.8	10
Williamson and Bottrill (1971)	1969	11.2	25	0.0	0
Verdoorn and Schwartz (1972)	1969	11.1	25	1.1	5
Aitken (1973)	1967	9.2	14	0.6	2
Average		9.52	20.4	0.32	3.8

Sources: Hansen et al. (1992, p. 30), based on Balassa (1975, p. 104), and Ohly (1993, p. 17).

But the overall effects on GDP were modest

Evaluation of single market

- **Is already becoming more complex**
- **Traditional static analysis will not capture all the effects**
- **Common market**
 - Goods; Services; Capital; People
- **Lowering tariffs and NTBs**
- **New trade theory shows us we need to include more issues**
 - Scale economies, competition, innovation, technology spillovers
 - This means that we need to include microeconomic changes
- **Other way to classify**
 - Trade effects
 - Scale and accumulation
 - Location of production

Some examples

Table 14.3 Results of studies on the economic impact of the SM

Author(s)	Year of study	Method	Results				Other remarks
			Area covered	Variable	Impact	Period	
Cecchini et al.	1988	Surveys, macro-model	EU12	Whole economy, several sectors	+4.3/6.4% (welfare increase in % of GDP)	Medium run	'Cecchini report' commissioned by the EC ('Cost of non-Europe')
Emerson et al.	1988	Micro and macro models	EU12	Whole economy, several sectors	+4.3/6.4% (welfare increase in % of GDP)	Medium run	Summary of the 'Cecchini report' + model simulations
Catinat et al.	1988	Macroeconomic model (Quest)	EU12	Whole economy	+4.5% GDP	6 yrs	With more expansionary fiscal policy +7.5% Total effects are sum of: (i) elimination of border controls; (ii) liberalisation of public procurement; (iii) liberalisation of financial markets; (iv) supply-side effects (economies of scale – higher productivity)
Bakhoven	1989	World macro model	EU12, Netherlands	Whole economy	+2.3% GDP	6 yrs	Pessimistic as to the timely implementation of SM law
Smith and Venables	1988	PE model	Some EU12 countries	10 sectors	+0.6/1.8% welfare of base consumption	Steady state	Case study for electrical household appliances Cournot behaviour, 2 scenarios: (i) reduced trade barriers (LTC) by 2.5 of intra-EU trade (ii) integrated (SM) markets (FI) (product variety; higher firm concentration; less segmented market pricing); welfare of (i) is less (0.6%) than that of (ii) (1.8%)

EMU

- Economic and Monetary Union takes the level of integration one step further
- Common currency lowers transaction costs, so trade should increase
- Not always clear how to distinguish between effects in member and non-member countries
- Effect may differ substantially between countries
- Effect may also differ between industries

Table 14.4 Trade effects of the euro by country

	Micco et al. (2003)		Faruquee (2004)	
	Intra-EU trade	Extra-EU trade	Intra-EU trade	Extra-EU trade
EMU	12.6	8.6	14.4	8.0
Austria	13.7	8.8	14.8	6.0
Belgium–Luxembourg	16.9	12.0	14.9	9.3
Finland	5.5	−0.7	6.1	−2.1
France	14.9	11.7	14.0	8.2
Germany	15.6	12.5	16.6	6.4
Greece	−2.4	2.1	–	–
Ireland	9.6	10.5	14.6	10.5
Italy	13.5	10.0	15.9	8.7
Netherlands	19.3	21.7	19.3	19.3
Portugal	3.0	−3.0	5.1	0.3
Spain	21.7	10.0	20.9	9.4

Note: Dependent variable is imports plus exports.

Table 14.5 Trade effects of the euro by SITC group (in percent)

		Intra-EU trade	Extra-EU trade
SITC 1–9	Aggregate	17.2	8.9
SITC 0	Food and live animals	1.4	4.7
SITC 1	Beverages and tobacco	35.2	12.9
SITC 2	Crude materials, inedible, except fuels	−3.3	−6.3
SITC 3	Mineral fuels, lubricants and related material	−19.6	−9.6
SITC 4	Animal and vegetable oils, fats and waxes	4.4	18.6
SITC 5	Chemicals and related products	6.9	7.8
SITC 6	Manufactured goods, classified chiefly by materials	12.4	0.2
SITC 7	Machinery and transport equipment	22.4	8.7
SITC 8	Miscellaneous manufactured articles	7.1	−0.2

Again, growth effects are much more limited

EU enlargement

- **2004 and 2007**
- **Large number of countries joined the EU**
- **This was end result of lengthy process where countries had started to adopt the liberalisation policies of the EU**
- **Result of enlargement**
 - Growth population by 26%
 - Increase GDP by 16%
 - Decrease in GDP/Capita by 11%
- **New trade area larger than the US economy**
- **Positive effects concentrated in the new member countries**

Table 14.6 (continued)

Author	Year of study	Method	Results				Other remarks
			Area covered	Variable	Impact	Period	
Breuss	2007a	Macro model	Bulgaria, Romania, EU-new10, EU15	Overall economy	+0.5% +0.01% +0.02% +0.05%	2007–20 GDP growth p.a.	Integration effects: (i) trade (CU, SM); (ii) productivity (FDI, R&ED, structural funds), (iii) migration
European Commission	2001	Growth accounting analysis	AC8 CEEC10 EU15	Whole economy, GDP growth	+1.3/2.1% +1/1.8% +0.5/0.7%	1994–2009 Annual Cumulative	Central/optimistic scenario; significant impact in EU10, modest in EU15
Grassini et al.	2001	Multisectoral model (INTIMO)	Italy	GDP GFCF Imports Exports	+0.5% +0.3% +0.6% +1.2%	2000–10	Specialisation scenario reported, spillovers double the impact
Heijdra et al.	2002	GE (CGE) model	EU15	Overall welfare	+0.3% of GDP	Steady state	Trade, budgetary costs and migration effects are considered
Kohler	2004	GE (CGE) model	Individual EU15 countries	Overall welfare, % of GDP	+2 (Austria)–1.3 (Portugal)	Steady state	Smaller than real income effect which does not consider forgone consumption Besides Portugal, also a negative impact in Greece, Ireland and Spain.
Keuschnigg and Kohler	2002	GE (CGE) model	Austria	GDP Contribution to EU budget Exports Consumption Wage	+0.56% +1.75% of GDP +15.9% +0.7% +0.5%	Long-run scenario is reported. Fiscal position improves, despite higher net contribution to EU. Expected wage spread constant. Only immigration of unskilled may widen the wage spread	

Foreign Direct Investment

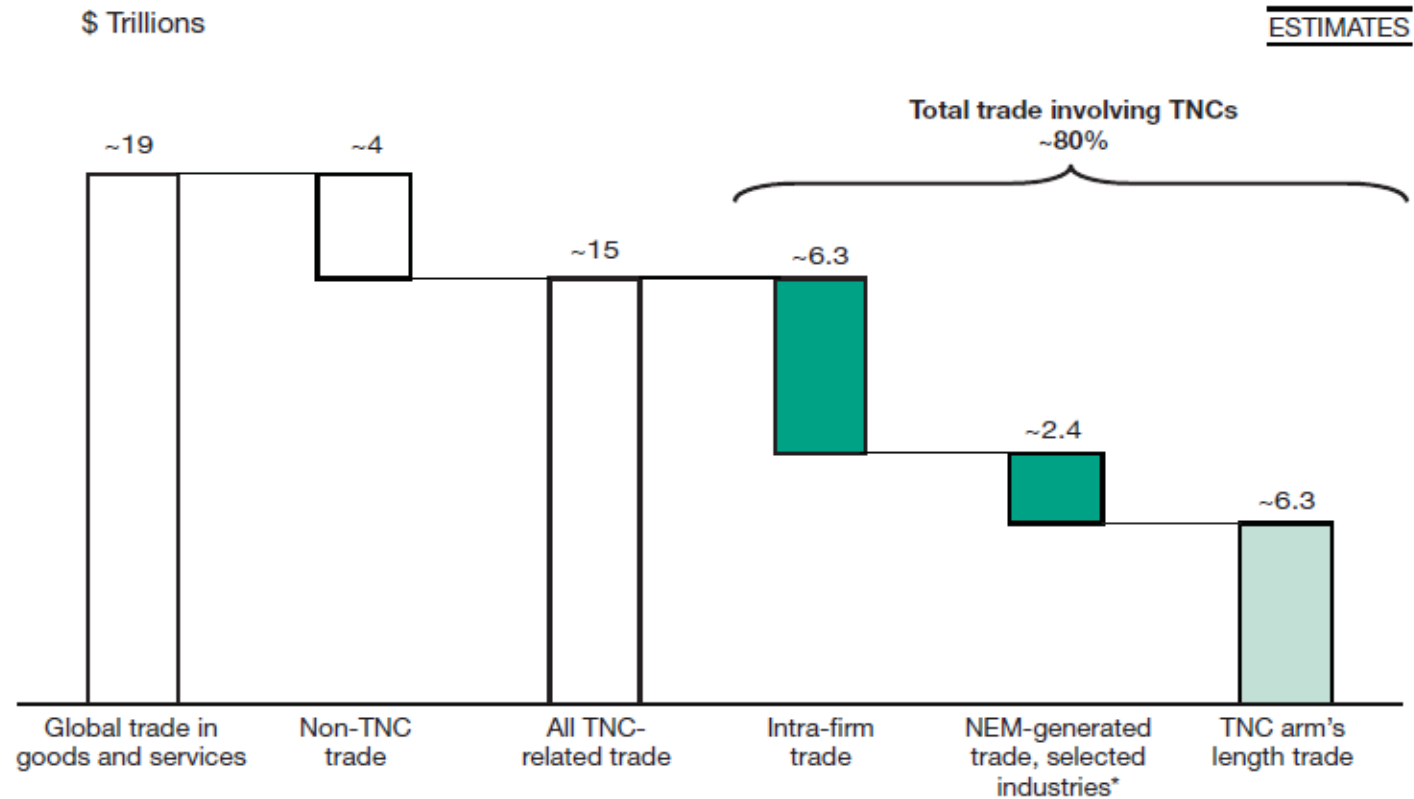
Multinational enterprises play key role in world economy

1. Investment made to acquire **lasting interest** in enterprises operating outside of the economy of the investor

- 2. Purpose is to gain an effective voice in the management of the enterprise
- Multinational enterprise / Transnational corporation
- = parent enterprise and affiliates in other countries

FDI and trade

Figure IV.14. Global gross trade (exports of goods and services), by type of TNC involvement, 2010



Source: UNCTAD estimates (see box IV.3).

Note: * Including contract manufacturing in electronics, automotive components, pharmaceuticals, garments, footwear, toys; and IT services and business process outsourcing (see *WIR11*). TNC arm's length trade may include other NEM trade.

What explains FDI?

- **OLI paradigm**
- **Ownership** = a firm has market power given by unique and sustainable ownership-specific advantages in the servicing of (groups of) markets
- **Location** = there is an advantage in locating production in another country rather than in the home country
 - Export versus production in another country
 - Prices of inputs, productivity, quality, proximity to market, transport linkages, etc.
- **Internalisation** = there is an advantage from internalising the production in another country rather than operating via arms length linkages

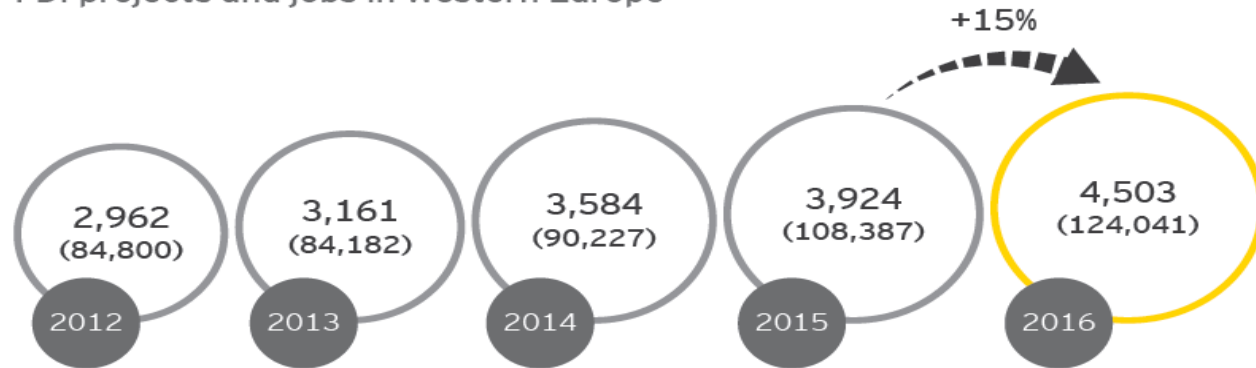
Types of FDI

- **Horizontal FDI:** a firm establishes (part of) its activities in another country
- **Vertical FDI:** firm breaks up the value chain of its production process and places part of the production process in another country

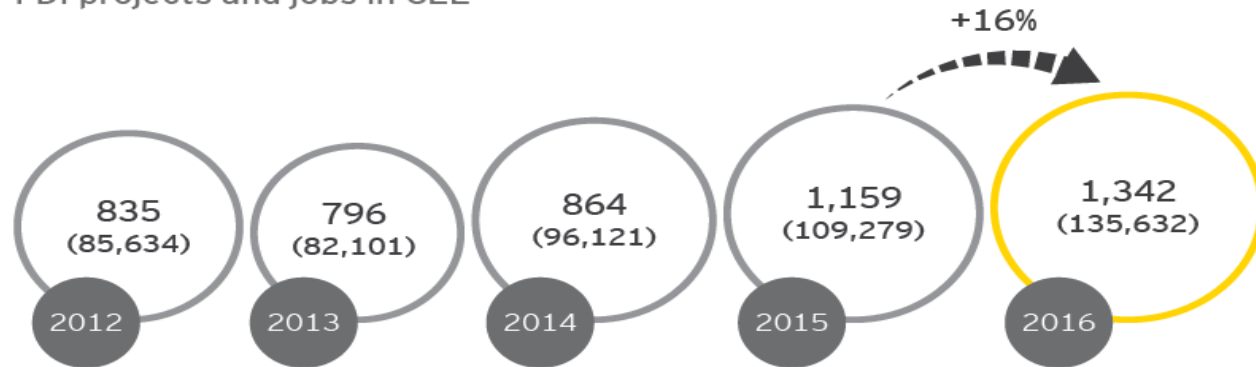
	Horizontal	Vertical
<i>Firms / Industries</i>		
Firm level economies of scale	+	+
Plant level economies of scale	-	?
Product specific trade costs	+	-
Costs to integrate stages of production	-	-
Difference in factor intensity between stages of production	?	+
<i>Types of countries</i>		
Trade costs (trade barriers, etc.)	+	-
Market size	+	?
Factor costs differentials	?	+

CEE important location for FDI

FDI projects and jobs in Western Europe



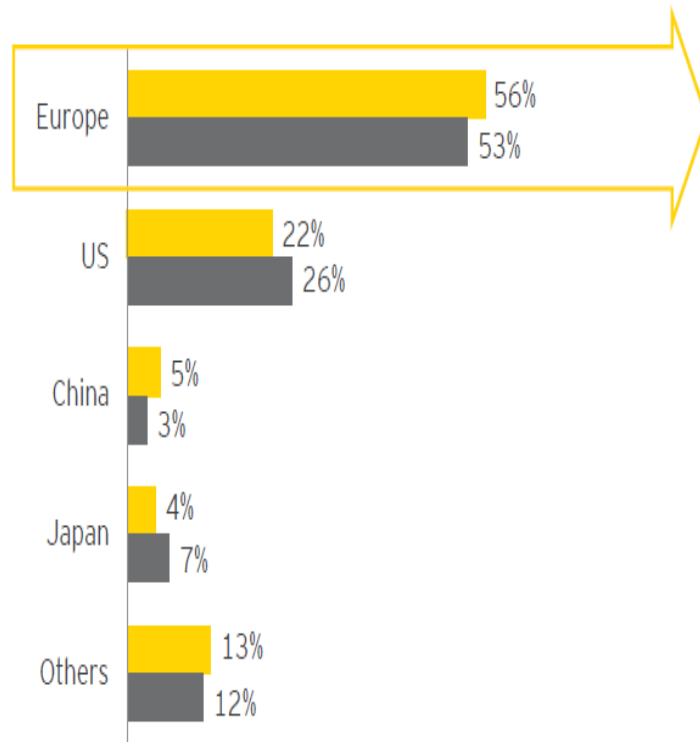
FDI projects and jobs in CEE



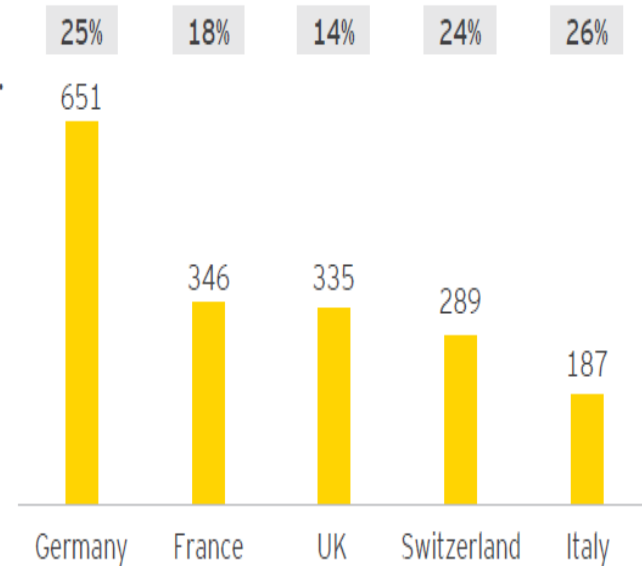
Note: Job numbers are in brackets

Source: EY European Investment Monitor (EIM), 2017.

FDI projects and jobs created by source, % share



FDI projects by origin (Europe – 2016)

Change
(2016 vs.
2015)

■ FDI projects ■ Jobs created

Source: EY European Investment Monitor (EIM), 2017.

Impact FDI on host economy

- **Heavily researched topic**
- **Main challenge: Counterfactual?**
- **Impact areas**
 - Capital investment
 - Trade
 - Employment
 - Local linkages
 - Technology
- **Last couple of decades emphasis on productivity spillovers**

Drivers and effects of FDI in CEE

- **Jimborean and Kelber (2017)**
- **Look at FDI flows to CEE for the period 1993-2014**
- **What factors influence the location pattern of FDI?**
 - New trade theory: What explains competitive advantage = where does the production take place = what is location process of firm
 - Variety of external and internal factors
- **What is the effect of the inflow of FDI?**
 - Inward FDI should generate positive growth effect
 - May be period specific

Impact of crises

- FDI flows to CEE countries
- Two possible negative effects
- 2007: onset of financial crisis
- 2011: euro area sovereign crisis

$$FDI_{i,t} = \alpha_i + \gamma_i t + \sum_{k=-2}^{k=2} \beta_i Crisis_{i,t+k} + \epsilon_{i,t}$$

- Crisis(07) = 1 for period 2007:Q2-2009:Q2
- Crisis(11) = 1 for period 2009:Q2-2011:Q4

Table 1: FDI and GDP around crises

	FDI (% , y-o-y)	GDP (% , y-o-y)
$Year_{t-2}$	-1.107 (0.824)	2.492*** (0.462)
$Year_{t-1}$	-1.639 (1.082)	3.175*** (0.372)
$Crisis_{07}$	-2.222** (1.026)	-2.099*** (0.744)
$Crisis_{11}$	4.463 (6.529)	-4.514*** (0.622)
$Year_{t+1}$	-0.087 (3.750)	-2.811*** (0.458)
$Year_{t+2}$	-1.705 (1.277)	-3.219*** (0.380)
Country dummies	Yes	Yes
Observations	752	766
No. of countries	10	10
R^2	0.19	0.21

$Year_{t-2}$ is the period 2005:Q2–2006:Q2, $Year_{t-1}$ is the period 2006:Q2–2007:Q2, $Year_{t+1}$ is the period 2011:Q4–2012:Q4, $Year_{t+2}$ is the period 2012:Q4–2013:Q4.

Fixed-effect panel data regression estimates with robust standard errors.

Negative impact on FDI, which impacts negatively on economic performance of CEE countries;

Good example of the existence of international spillover effect of crisis

Determinants of FDI

$$FDI_{i,t} = \alpha_0 + \alpha_1 FDI_{i,t-1} + \alpha_2 C_{i,t-1} + \alpha_3 INST_{i,t-1} + \alpha_4 REF_{i,t-1} + \alpha_5 EAmacro_{t-1} + \alpha_6 EAfin_{t-1} + \epsilon_{i,t} \quad (2)$$

C = human capital, macroeconomic stability, infrastructure, market size, country risk profile, unit labour costs, trade openness, proximity to Western Europe, stage of integration in EU accession process, corporate tax system, world economic growth, global risk environment

INST = quality of institutions

REF = structural reforms

EAmacro = euro area business cycle

EAfin = euro area financing conditions

+ the 2 crisis dummies of 2007 and 2011

General to specific
modelling
approach

Table 2: FDI determinants

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lagged FDI (ln)	0.331*** (0.070)	0.341*** (0.075)	0.352*** (0.079)	0.287*** (0.063)	0.281*** (0.062)	0.289*** (0.073)	0.272*** (0.067)
Human capital _{t-1}	0.014*** (0.004)		0.015*** (0.004)				
<i>Classical determinants</i>							
Real GDP growth _{t-1}	0.026** (0.010)						
Communication infrastructure _{t-1}		0.042*** (0.008)	0.049*** (0.012)	0.029*** (0.012)		0.046*** (0.008)	
Transportation infrastructure (ln) _{t-1}							0.257*** (0.098)
Competitiveness _{t-1}	-0.001*** (0.0002)					-0.001*** (0.0005)	
Country risk _{t-1}				-0.028*** (0.002)			-0.031*** (0.003)
Trade openness _{t-1}				0.005** (0.002)		0.007*** (0.002)	0.007*** (0.002)
Tax system _{t-1}		-0.015** (0.004)	-0.014*** (0.005)			-0.011** (0.004)	
EU membership		0.558*** (0.139)			0.572*** (0.110)		
Geographical proximity (ln) _{t-1}		-1.021*** (0.137)	-1.336*** (0.200)	-0.508*** (0.185)		-0.915*** (0.119)	
<i>External factors</i>							
Euro area cycle _{t-1}		0.122*** (0.022)			0.157*** (0.110)		
Interest rate differential _{t-1}					-0.011*** (0.001)		
Global risk environment (ln) _{t-1}			-0.204*** (0.068)	-0.339*** (0.079)			
World economic growth _{t-1}						0.111*** (0.019)	0.103*** (0.026)

Table 2: (Continued)

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crisis 2007			-1.595** (0.677)	-1.681** (0.804)	-1.830** (0.877)		
Crisis 2011	-3.010** (0.865)	-3.117*** (0.602)	-3.389*** (0.635)	-3.190*** (0.724)	-2.865*** (0.677)	-3.183*** (0.701)	-3.261*** (0.822)
Observations	609	689	689	557	602	613	517
R ²	0.668	0.721	0.723	0.664	0.654	0.686	0.662

Panel data general-to-specific approach, random effects general least square regressions. The dependent variable is the FDI in logarithmic scale. Standard errors in parenthesis. *, **, *** denotes significance at 10, 5, 1% level. All regressions include a constant and country dummies that are not reported.



Estimated effects

Lagged FDI (+)	Trade (+)
Human capital (+)	Level of integration (+)
Growth GDP (+)	Distance from W-EU (-)
Infrastructure (+)	Euro area business cycle (+)
Unit labour costs (-)	Financial conditions EU area (+)
Corporate tax (-)	Global risks (+)
Risk (-)	Crisis 2007 and 2011 (-)
	Structural reforms (+)

- Variety of country-level and international factors
- Important to understand relative importance
- Country variability
- Not always clear how to design most effective government policies
- Mixture of national and EU level policies?

Growth effects from FDI

$$\Delta GDP_{i,t} = \beta_0 + \beta_1 FDI_{i,t-1} + \beta_2 H_{i,t-1} + \beta_3 INV_{i,t-1} + \beta_4 Y_0 + \beta_5 A_{i,t-1} + \epsilon_{i,t} \quad (3)$$

GDP = yearly GDP growth

FDI = FDI inflows as % of GDP

H = human capital

INV = gross fixed capital formation as % of GDP

Y0 = initial GDP

A = additional variables

2007 & 2011 crisis

Interaction between FDI and crisis

Estimated growth effects

Table 4: FDI inflows in CEECs and economic growth

Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
FDI _{t-1}	0.186 (0.119)	0.228* (0.119)	0.226* (0.121)	0.213 (0.138)	0.232* (0.119)	0.237** (0.118)
Initial GDP (ln)	2.723 (3.110)	3.049 (3.203)	3.169 (3.182)	2.811 (3.282)	3.080 (3.116)	3.086 (3.131)
Human capital _{t-1}	0.031 (0.022)	0.036* (0.022)	0.028 (0.023)	0.054** (0.028)	0.054** (0.022)	0.054** (0.024)
Government consumption _{t-1}	-0.237*** (0.086)	-0.247*** (0.087)	-0.279*** (0.095)	-0.171* (0.103)	-0.146 (0.097)	-0.144 (0.107)
Domestic credit to private sector _{t-1}	-0.109*** (0.017)	-0.113*** (0.017)	-0.112*** (0.017)	-0.111*** (0.020)	-0.110*** (0.016)	-0.110*** (0.016)
St. dev. of dom. credit rate _{t-1}			0.203 (0.139)			0.024 (0.129)
Gross fixed capital formation _{t-1}				0.280** (0.131)	0.257** (0.108)	0.259** (0.112)
Inflation rate _{t-1}	-0.011 (0.011)	-0.010** (0.004)	-0.011** (0.004)	0.007 (0.013)	-0.015** (0.006)	-0.015** (0.006)
St. dev. of inflation rate _{t-1}		0.024*** (0.007)	0.024*** (0.008)		0.037*** (0.012)	0.038*** (0.013)
2007 crisis	-3.200** (1.079)	-3.266*** (1.093)	-3.407*** (1.100)	-6.483*** (1.544)	-6.423*** (1.548)	-6.418*** (1.557)
FDI × 2007 crisis	0.191* (0.112)	0.194* (0.118)	0.187 (0.117)	0.219** (0.103)	0.224** (0.100)	0.221** (0.099)
GFCF × 2007 crisis				0.0003*** (0.0001)	0.0003*** (0.0001)	0.0003*** (0.0001)
2011 crisis	-2.074** (0.871)	-1.903** (0.851)	-1.831** (0.851)	-1.830 (1.334)	-2.090* (1.163)	-2.072* (1.166)
FDI × 2011 crisis	0.060 (0.189)	0.077 (0.187)	0.092 (0.186)	0.113 (0.196)	0.135 (0.189)	0.143 (0.188)
GFCF × 2011 crisis				0.00008 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Underidentification ^a	0.015	0.000	0.000	0.024	0.000	0.000
Hansen ^b	0.331	0.295	0.315	0.463	0.569	0.555
Endogeneity ^c	0.043	0.036	0.020	0.014	0.085	0.074
Observations	634	634	634	634	634	634
No. of countries	10	10	10	10	10	10

Integration and productivity growth

- Kutan and Yigit (2009)
- Try to assess the drivers of labour productivity growth in the 8 CEE countries that joined the EU in 2004
- Use data for 1995-2006

- Why focus on productivity?
- Economic growth consists of two main components
 - Increase quantity and quality of inputs
 - Subject to decreasing returns to scale
 - In long run, productivity growth the source of economic growth
- Key issue: role of technology gap?

Drivers of productivity

$$\Delta \ln (A_{it}) = \kappa_i + \gamma_i \ln \left(\frac{A_{Ft}}{A_{it}} \right)$$

$$\kappa_{it} = \beta_{1i} + \delta Z_{it-1} \quad \gamma_{it} = \beta_{2i} + \mu Z_{it-1}$$

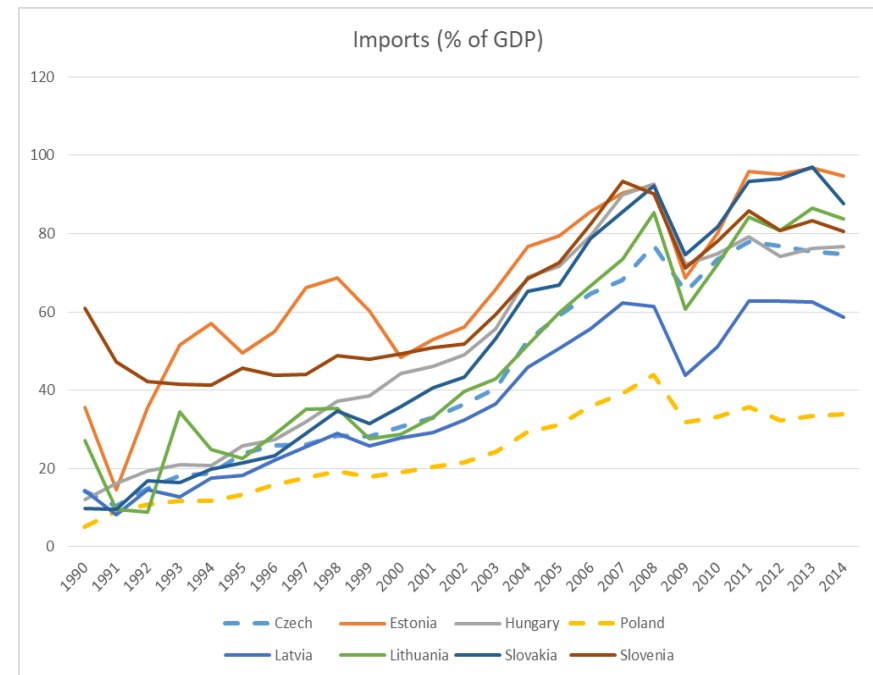
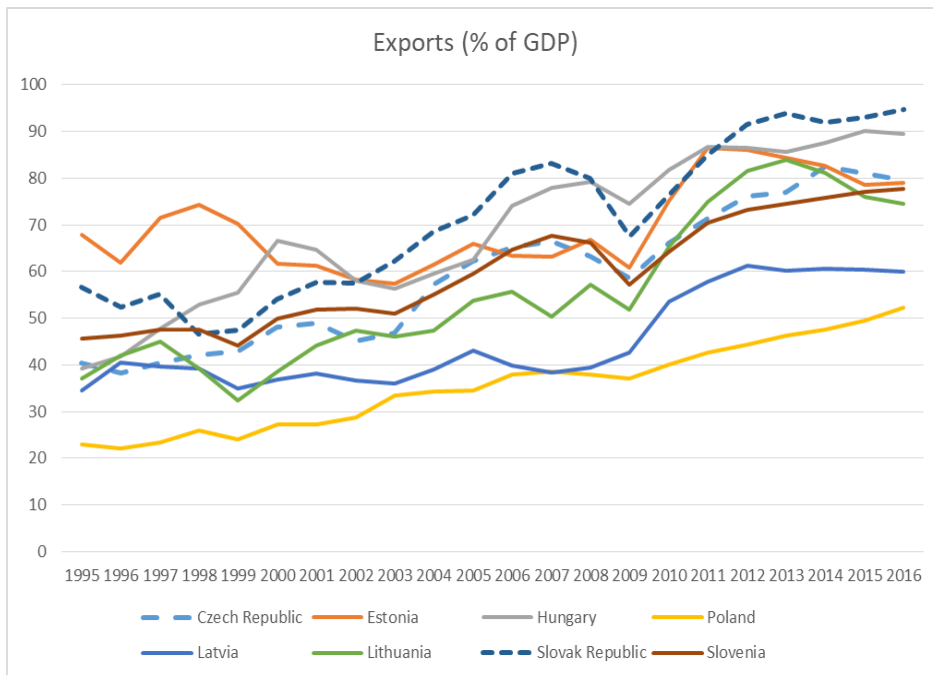
$$\Delta \ln (A_{it}) = \beta_{1i} + \delta Z_{it-1} + \beta_{2i} \ln \left(\frac{A_{Ft}}{A_{it}} \right) + \underbrace{\mu Z_{it-1} \cdot \ln \left(\frac{A_{Ft}}{A_{it}} \right)}_{\text{Absorptive capacity}} + \varepsilon_{it}$$

Control variables (Z)

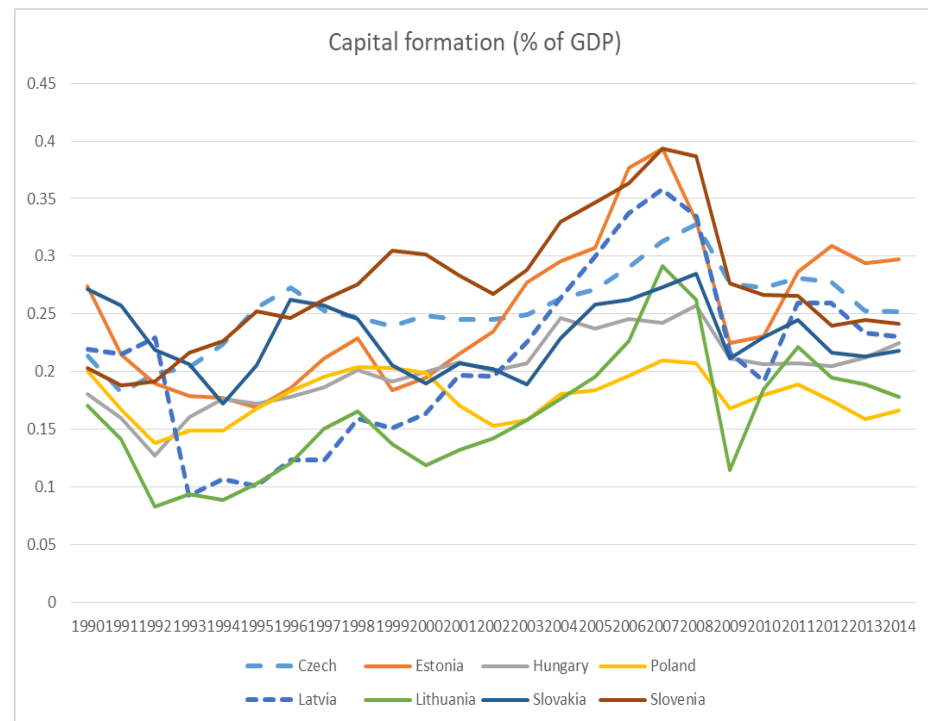
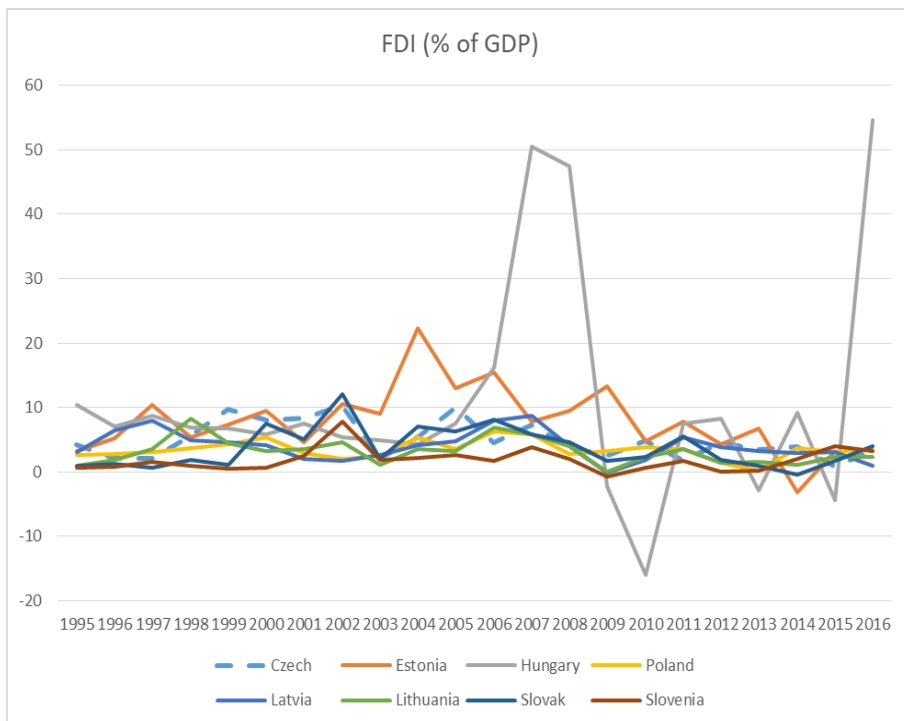
- Exports
- Imports
- FDI
- Human capital
- Capital formation
- R&D expenditures

Absorptive capacity

International trade

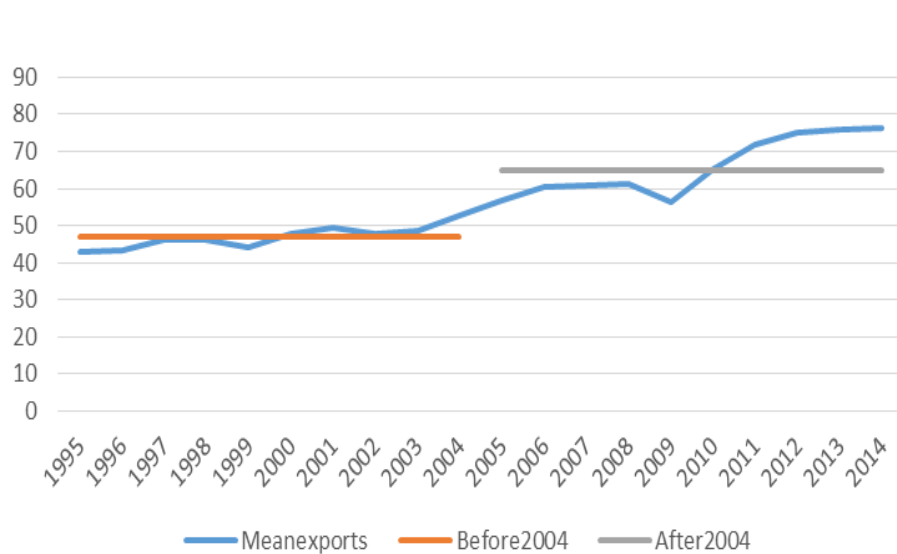


Investment

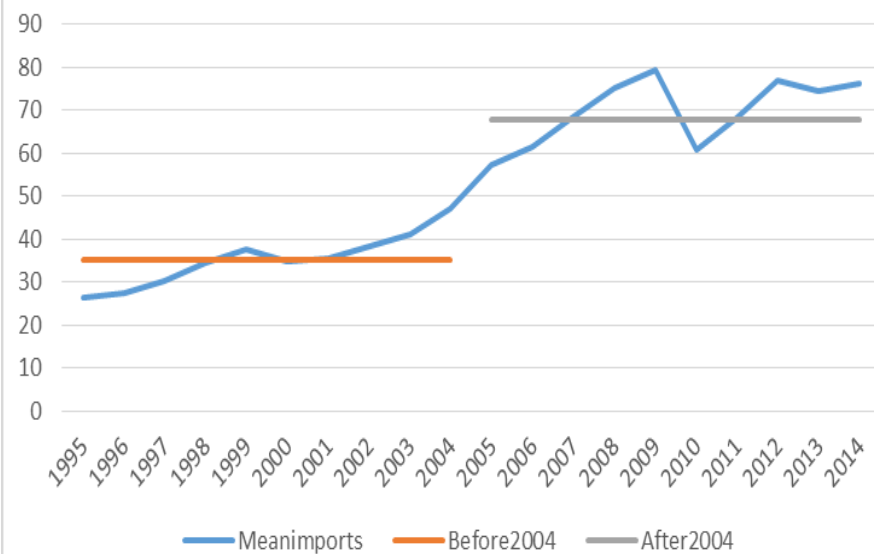


Trade: Impact of 2004

Exports; sample mean before and after 2004

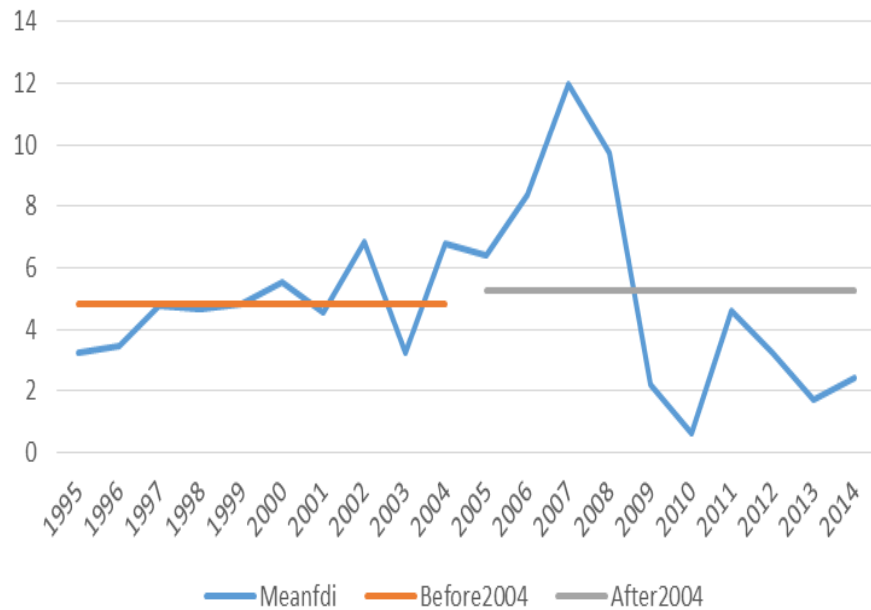


Imports; sample mean before and after 2004

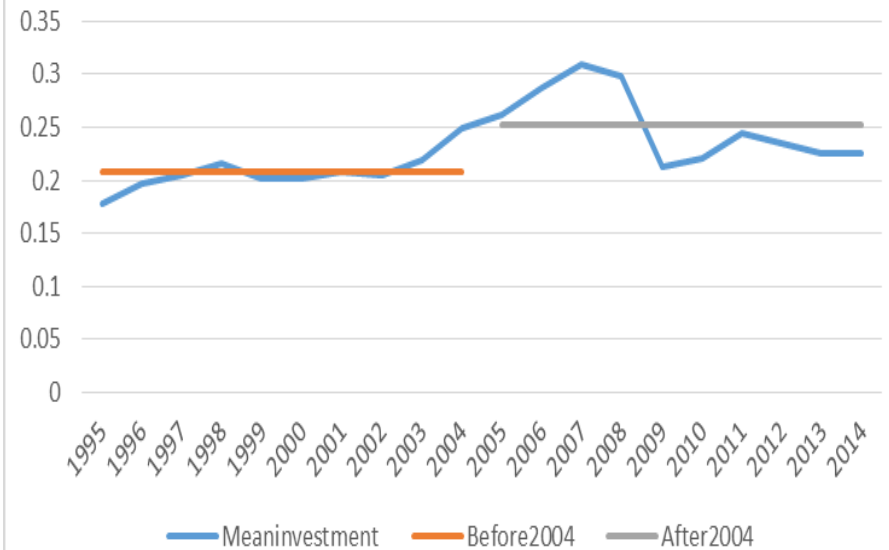


Investment: impact of 2004

FDI: sample mean before and after 2004



Investment; sample mean before and after 2004



Research and development

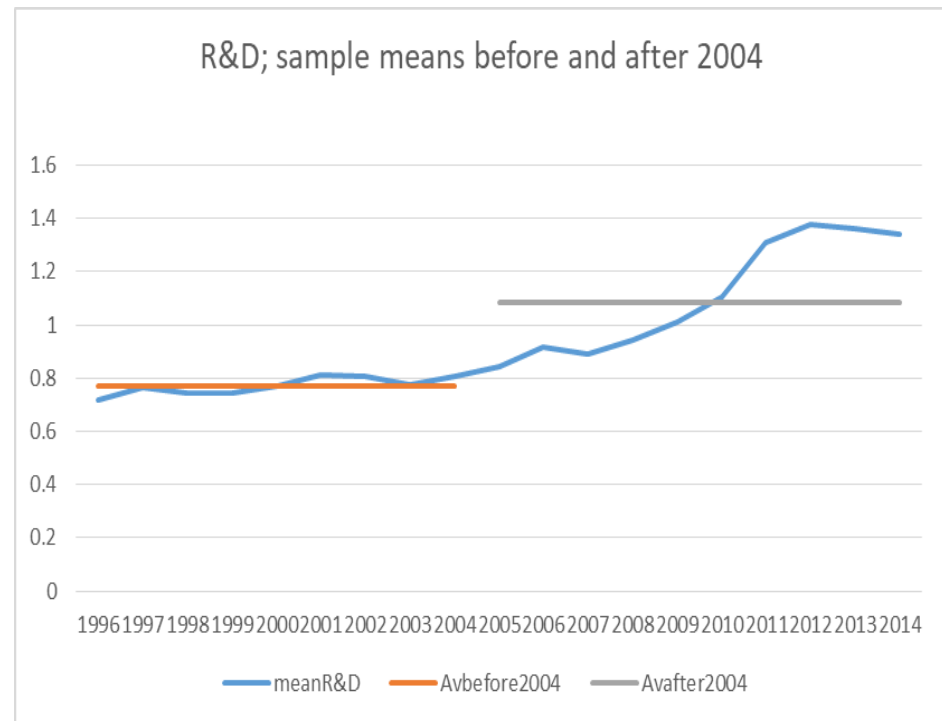
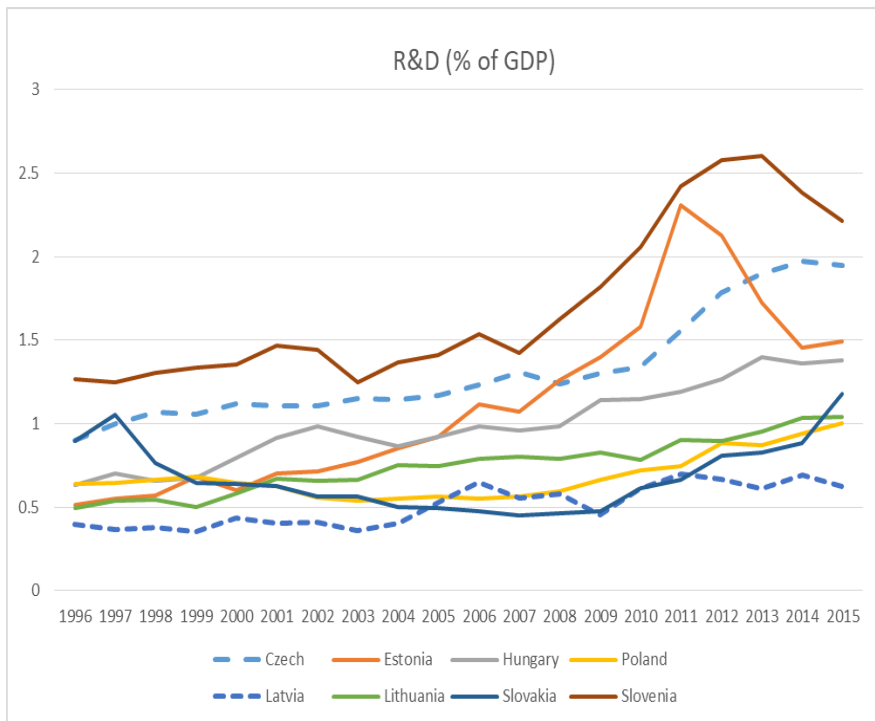


Table 2
Productivity growth estimates.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	-54.05** (-3.18)	-53.11** (-3.03)	-53.81** (-3.15)	-51.44** (-2.8)	-62.68** (-3.11)	-61.81** (-2.91)	-55.43 (-3.36)
Distance(-1)	9.69** (2.04)	9.15* (1.86)	10.38* (1.88)	9.98* (1.76)	9.57* (1.68)	9.47 (1.64)	8.62 (1.84)
R&D(-1)	0.30 (0.05)	-1.22 (-0.2)	0.45 -0.08	0.36 (0.06)	0.31 (0.05)	0.33 (0.06)	0.55 (0.1)
Education(-1)	0.73** (3.83)	0.76** (3.74)	0.73** (3.75)	0.70** (3.39)	0.96** (3.53)	0.95** (3.38)	0.83 (4.28)
Imports(-1)	-0.58** (-6.21)	-0.57** (-5.91)	-0.58** (-6.20)	-0.57** (-6.12)	-0.58** (-5.91)	-0.58** (-5.60)	-0.58 (-6.54)
Exports	0.50** (3.55)	0.47** (3.08)	0.51** (3.30)	0.51** (3.21)	0.40** (2.39)	0.40** (2.37)	0.43 (2.93)
FDI	0.35** (2.73)	0.38** (2.77)	0.34** (2.58)	0.33** (2.35)	0.40** (2.66)	0.40** (2.55)	0.36 (2.86)
Investment	0.25 (1.34)	0.23 (1.19)	0.24 (1.20)	0.24 (1.19)	0.09 (0.39)	0.08 (0.37)	0.16 (0.79)
D*RD		11.06 (0.74)					
D*Education			0.14 (0.26)	0.13 (0.23)	0.04 (0.08)	0.05 (0.09)	
D*Imports				-0.09 (-0.36)	0.29 (0.86)	0.28 (0.80)	
D*Exports					-0.51 (-1.54)	-0.51 (-1.49)	-0.34 (-1.47)
D*FDI						-0.08 (-0.12)	
Adj. R ²	0.411	0.389	0.406	0.397	0.382	0.389	0.444
N	78	78	78	78	78	78	78

Note: *t*-statistics are reported inside the parentheses. Distance represents the last period's productivity gap of country *i* (in absolute value of logs) to EU15. All variables except distance are measured in percentages (of GDP or of population).

Some additional findings

	1996-2014	Before 2006	After 2006
Technology distance	6.51 (1.98)***	5.92 (2.43)***	21.71 (2.89)***
R&D	-1.98 (1.01)*	-3.51 (2.21)	-4.02 (1.14)***
Human Capital	1.90 (4.65)	13.91 (7.45)**	-19.46 (11.64)*
Exports	0.13 (0.05)**	0.19 (0.05)***	0.09 (0.04)**
Imports	-6.23 (3.49)*	6.55 (5.00)	-8.79 (4.94)*
Investment	35.67 (7.41)***	42.14 (9.05)***	50.41 (8.52)***
FDI	0.007 (0.03)	-0.05 (0.06)	-0.001 (0.03)
N	147	75	60
R	0.63	0.57	0.88

Technology distance and absorptive capacity

	All years		Before 2006		After 2006	
Technology distance x		Technology distance		Technology distance		Technology distance
R&D	3.37 (2.30)	1.54 (2.35)	5.34 (6.77)	2.34 (5.15)	-7.02 (3.32)**	30.86 (5.13)***
Human capital	4.25 (3.52)	-9.12 (11.10)	15.06 (5.53)***	-40.58 (17.25)**	0.11 (11.43)	21.33 (37.92)
Exports	0.10 (0.04)**	-1.27 (2.88)	0.25 (0.08)***	-6.13 (4.61)	-0.08 (0.10)	26.98 (7.28)***
Imports	9.74 (3.03)***	-0.16 (2.01)	18.89 (6.62)***	0.97 (2.86)	3.26 (8.60)	19.45 (6.75)***
Investment	20.94 (12.46)*	0.34 (2.73)	53.36 (18.67)***	-2.77 (3.80)	-8.25 (20.96)	23.46 (5.31)
FDI	0.35 (0.20)*	2.45 (1.85)	0.43 (0.29)	2.46 (3.33)	0.04 (0.36)	21.65 (2.97)***

Main points (1)

- **Economic effects EU: analysis in line with phase of integration**
- **Classical analysis: Trade creation > trade diversion**
- **↑ integration = ↑ indirect effects**
 - Direct effect trade on growth limited
 - Trade, scale and accumulation, location of production
 - Growing use of simulations and econometrics based predictions
- In addition effects of enlargement
- FDI plays key role
 - Increase in investment
 - Key role in international trade
 - Technologies

Main points (2)

- **CEE countries**
- **There is a variety of factors that influence FDI location processes**
 - In line with findings for other countries, but also differences
 - Policy making at national and EU level required
 - FDI creates positive growth effects
- **Economic integration and productivity growth**
 - Long run economic growth: productivity improvement key
 - National and international drivers of productivity
 - Technology gap between CEE and other parts of EU
 - Process may be changing

Implications for CEE

- **CEE are benefitting from membership of EU**
 - Increasing levels of exports and imports
 - Growing levels of inward FDI
- **Also key role of domestic investment!**
- **Role of CEE in EU less clear**
 - Multinational enterprises seem to focus in CEE on assembly style activities
 - Restrictions on levels of value added that are “placed” in CEE
 - This may have repercussions on further economic development