

Quantitative estimate of influence of factors of higher education expansion

A.G. Maksimov, M.S. Telezhkina

NRU HSE, Nizhny Novgorod

**Globalization of
goods market**

**Technologies
development**

Economic
development

New model of
society

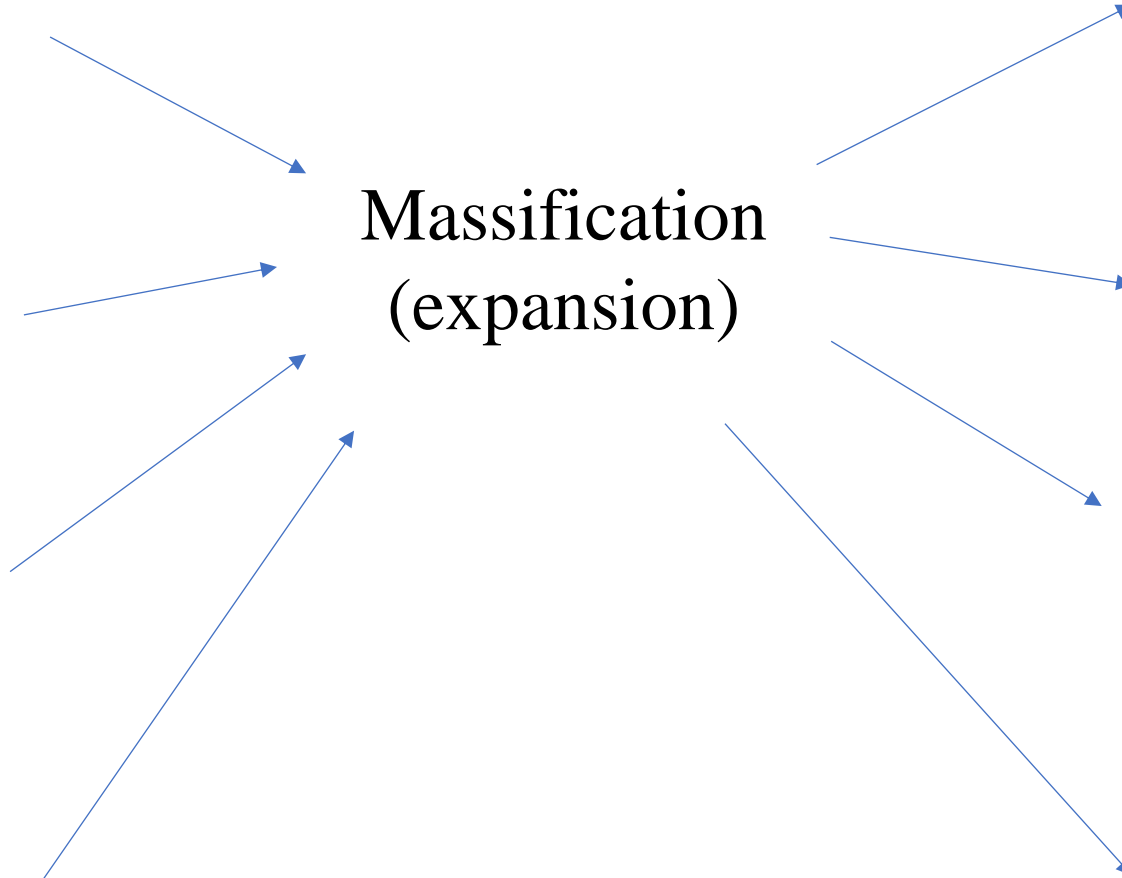
Massification
(expansion)

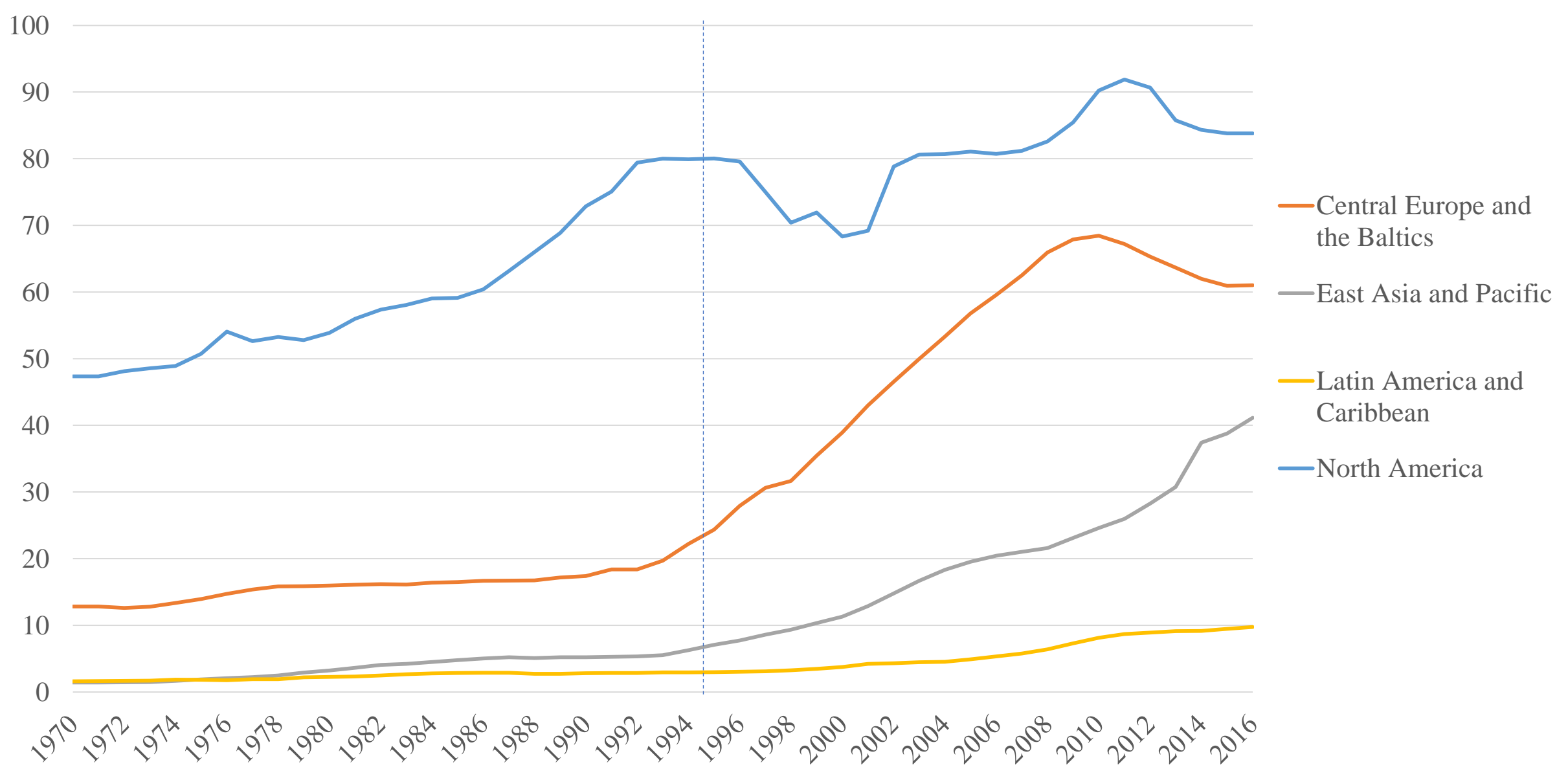
Globalization of
higher education

Marketization

Decline in quality
of degree

Differentiation





Can globalization and technologies development be considered as the drivers of higher education expansion?

Theoretical model

$$\begin{cases} Q^d = \sum_{ij} Q_{ij}^d = \sum_{ij} f(a_i, Ew_i, p_j, G_j, u, N, ex^d) \\ Q^s = \sum_j Q_j^s = \sum_j g(p_j, G_j, N, ex^s) \\ Q^d = Q^s \end{cases}$$

Q^d, Q^s	quantity of higher education services demanded and supplied	
a_i	abilities	
Ew_i	expected wage	j a university index
p_j	tuition	i an individual index
G_j	financial aid from federal budget	u unemployment rate
ex^d	exam statistics as a demand factor	N quantity of universities
ex^s	exam statistics as a supply factor	

Theoretical model

$$Q = F(a_i, Ew_i, p_j, G_j, u, ex^d, ex^s)$$

$$Q = F(a_i, Ew_i(GL, TD, O_i), p_j, G_j, u, ex^d, ex^s)$$

$$\begin{aligned} d_ENR_{it} = & \alpha_i + \beta_0 + \beta_1 d_GovTer_{it} + \beta_2 d_GDP_{it} + \beta_3 d_Unemp_{it} + \beta_4 d_EPC_{it} + \\ & + \beta_5 d_Im_{it} + \beta_6 d_Ex_{it} + \beta_7 d_FDI_{it} + \beta_8 Bologna_{it} + u_{it} \end{aligned}$$

Growth of government expenditures
of higher education, d_GovTer

Growth of unemployment rate, d_Unemp

Growth of GDP, d_GDP

Growth of electric power consumption, d_EPC (=1 for participants of Bologna process)

Growth of import of goods and services, d_Im

Growth of export of goods and services, d_Ex

Growth of foreign direct investments, d_FDI

Dummy variable Bologna

Data: 195 countries, 1988 – 2016 **Source:** World Bank Open Data

Time of structural break estimate* *Baltagi,Kao, Liu (2015)	(1)		(2)		(3)	
	1997		1994		1997	
	1988-1997	1997-2016	1988-1994	1994-2016	1988-1997	1997-2016
d_GovTer	-0.025*	0.0007	-0.0032	0.0022	-0.02	0.001
d_GDP	-0.155	0.22***	-0.394	0.17***	-0.27	0.214***
d_Unemp	0.07*	0.032***	0.252**	0.027**	0.087**	0.026**
d_EPC	-0.005	-0.023	-0.017	-0.011	-0.0056	-0.025
d_Im	-0.115**	0.063***	-0.163	0.047***	-	-
d_Ex	0.048	-0.065***	-0.153	-0.045**	-	-
d_FDI	0.00004	-0.000009	-	-	0.00003	-0.000086
Bologna	-	-0.037***	-	-0.047***	-	-0.04***
Const	0.054***	0.042***	0.04**	0.046***	0.05***	0.043***
*** - 1% significance level, ** - 5% significance level, * - 10% significance level						

Results

- Globalization influence higher education
 - Import: its intensification ensures *increasing* growth rates of enrollment after the shock
 - Export: its intensification ensures *decreasing* growth rates of enrollment after the shock
- Rise of economic activity influence positively growth rates of enrollment after the shock as far as higher education is treated as an investment goods
- Situation on labor market affect enrollment rates in less extent after the shock
- Participation in Bologna process decreases growth rates of enrollment