

CHALLENGING ISSUES OF INTERNATIONAL RANKING: BELARUS CASE

M. Kovalev (BSU)

kovalev@bsu.by

www.bsu.by

KNOWLEDGE BASED ECONOMY IN XXI CENTURY

Economic growth depends on human capital and ability to use it effectively:

$$Y=F(L, K, A, H,G),$$

where

L – labor, K – capital, A – technical progress, H – human capital,
G – governance

Cobb-Douglas function: $Y= K^{1/3} * L^{2/3} * A (...)$

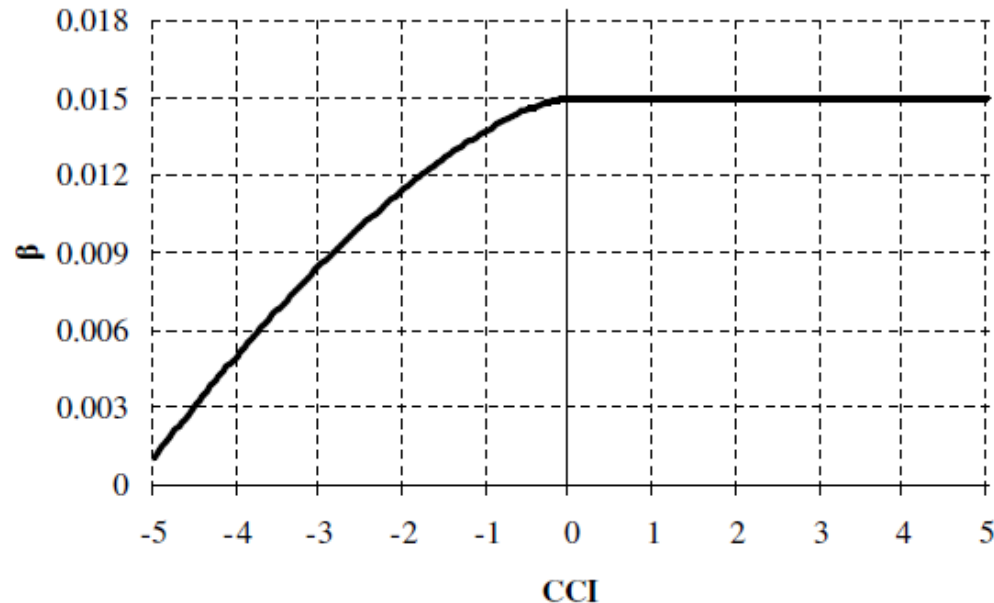
$$A (...)=$$

COBB-DOUGLAS FUNCTION

$$\Delta \ln \text{GDP}_t = \ln A_t + \alpha \Delta \ln L_t + (1 - \alpha) \ln K_t$$

$$A_t^i = (0,013 - \beta \ln(\text{GDP}_{t-1}^i (\text{PPP}_{\text{percapita}} / \text{GDP}_{(t-1)}^{\text{USA}} (\text{PPP}_{\text{percapita}})))) A_{t-1}$$

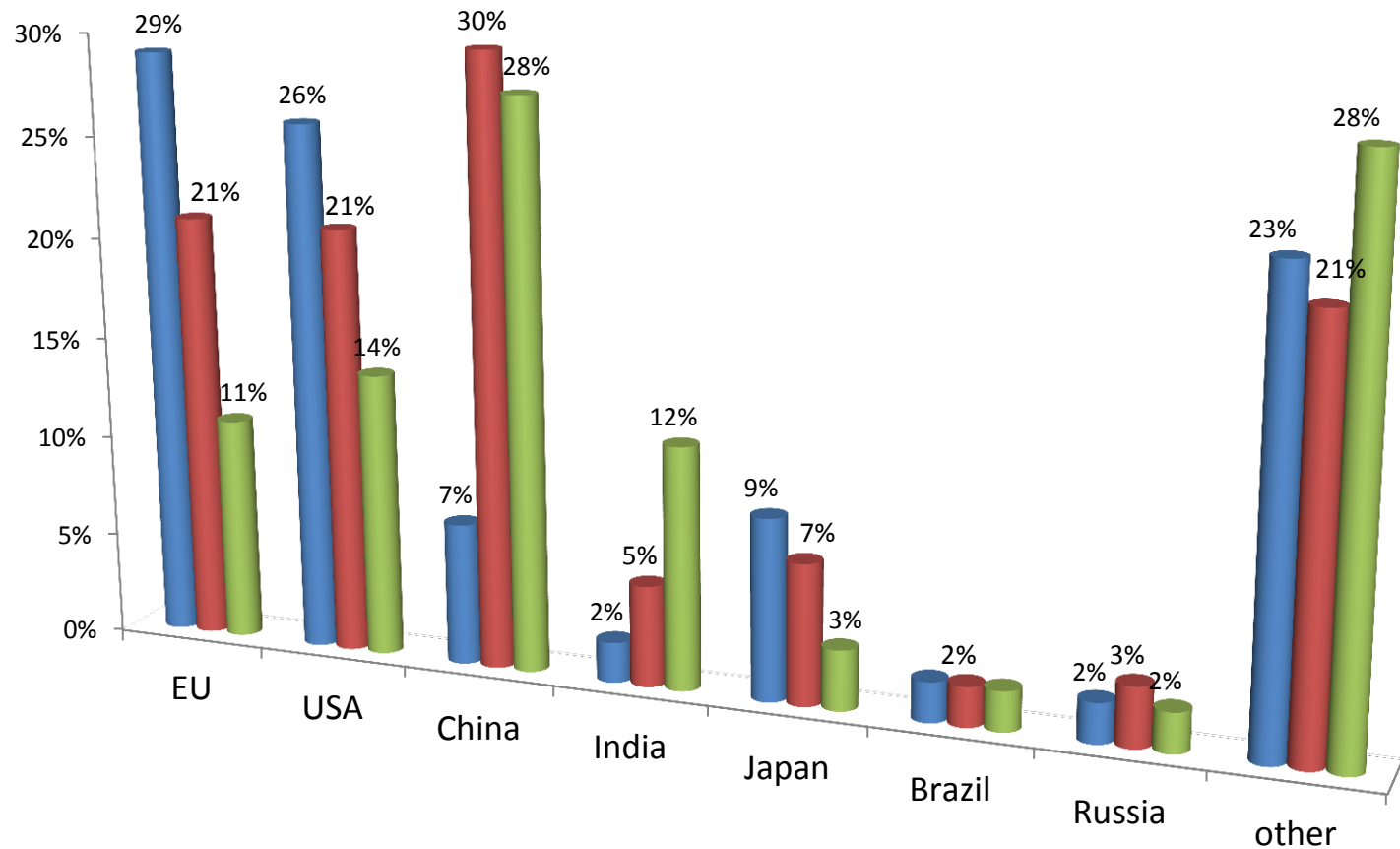
β – Convergence Factor $\beta = 1,5\%$ (GS2009)



CHANGES OF WORLD LEADERS (2050)

Forecaster/ Place	1	2	3	4	5-7*
Goldman Sachs 2003	China	USA	India	Japan	Russia, Brazil
Goldman Sachs 2009	China	USA	India	Brazil	Japan, Russia, Great Britain
Price Waterhouse 2006	China	India	USA	Brazil	Japan
Price Waterhouse 2008	China	USA	India	Japan	Russia, Indonesia, Mexico
Price Waterhouse 2011	China	India	USA	Brazil	Japan, Russia, Mexico
Citibank 2011	India	China	USA	Indonesia	Russia, Brazil
HSBC 2011	China	USA	India	Japan	Germany, Great Britain, Brazil
Carnegie 2012	China	USA	India	Japan	Brazil, Mexico
CEPII 2010	China	USA	India	Japan	Russia, Brazil
Asian Development Bank	China	USA	India	Japan	
BSU	China	India	USA	CEC (EЭII)	Japan, Brazil, Germany

WORLD ECONOMIC LEADERS: CHANGES IN THE SHARE OF WORLD GDP (in \$ 2005)



Source: www.cepii.fr

■ 2010 ■ 2025 ■ 2050

WORLD DEBT CRISIS: GOVERNMENT DEBT (% OF GDP)

		2011	2016	per capita, thousands \$
1	Japan	233	253	70
2	Greece	165	163	42
3	Italy	121	114	34
4	Portugal	106	110	48
5	Iceland	101	82	
6	United States	100	115	50
7	Belgium	94	92	38
8	France	86	87	27
9	Germany	82	75	30
10	European Union	82	79	48

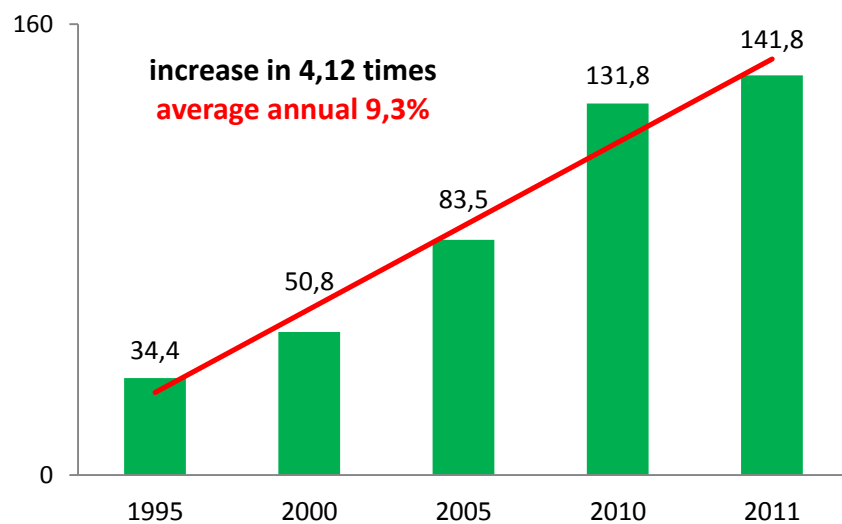
WORLD DEBT CRISIS: GROSS GOVERNMENT DEBT, 2011

		trillion \$	% of GDP	per capita, thousands \$
	World	70	98	~10
	EU	16	108	32
1	USA	16	101	50
2	UK	9,8	396	147
3	Germany	5,6	159	63
4	France	5,6	188	78
5	Netherlands	3,7	309	226
6	Japan	2,7	46	19,3
7	Spain	2,6	165	52
8	Italy	2,7	101	39,2
9	Ireland	2,4	1060	482,3
10	Luxembourg	2,1	3411	3759,2

BELARUS: GDP (PPP) GROWTH

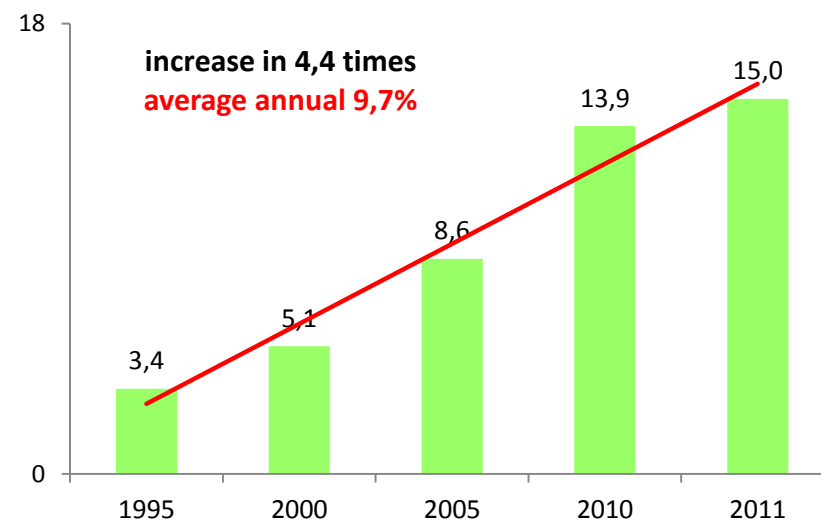
GDP (PPP)

\$ billions



per capita

\$ thousands



Source: IMF

INTERNATIONAL RANKINGS OF BELARUS

ECONOMY

NAME	ORGANIZATION	YEAR	VALUE	PLACE
GDP (nominal)	UN	2011	54,7 bln int \$	68
	IMF		55,1 bln int \$	71 (out of 183)
	WB		55,1 bln int \$	72
GDP (PPP)	WB	2011	134,6 bln int \$	56
	IMF		141,8 bln int \$	59
GDP (PPP per capita)	IMF	2011	15 028 int \$	62
	WB		15 040 int \$	63
	Pensylvania (2010)		16 260 int \$	54
GDP (PPP per employed)	WB	2011	29 261int \$	57
Gini-index	WB	2011	27,2%*	9

* 10% - 6,9 (UN, CIA);
20% - 4,5 (UN)

INTERNATIONAL RANKINGS OF BELARUS

ECONOMY

NAME	ORGANIZATION	YEAR	PLACE	OUT OF
Global Competitiveness Index	World Economic Forum	2012	-	
World Competitiveness Index	IMD	2012	-	
Index of Economic Freedom	Heritage Foundation	2012	153	179
Economic Complexity Index	Hausmann, Hidalgo	—	21	
Globalization (KOF)	Kearney	2012	105	208
	Economic Glob.		117	
	Social Glob.		60	
	Political Glob.		145	

INTERNATIONAL RANKINGS OF BELARUS

ECONOMY

NAME	ORGANIZATION	2013	2007
Doing Business	WB	58 (185)	129 (175)

NAME	2013	2007
Starting a business	9	148
Dealing with construction permits	30	84
Getting electricity	171	-
Registering property	3	96
Getting credit	104	117
Protecting investors	82	142
Paying taxes	129	175
Trading across boards	151	113
Enforcing contracts	13	36
Resolving insolvency	56	91

INTERNATIONAL RANKINGS OF BELARUS SOCIETY

NAME	ORGANIZATION	YEAR	PLACE	OUT OF
Gender Inequality Index	UN		-	
Happy Planet Index		2012	104	
Quality of Life Index	EIU	2005 2012	100 60	
Legatum Prosperity Index		2012	54	142
		Economy	90	
		Entrepreneurship	63	
		Governance	123	
		Education	21	
		Health	40	
		Safety & Security	52	
		Personal Freedom	102	
		Social Capital	26	

INTERNATIONAL RANKINGS OF BELARUS

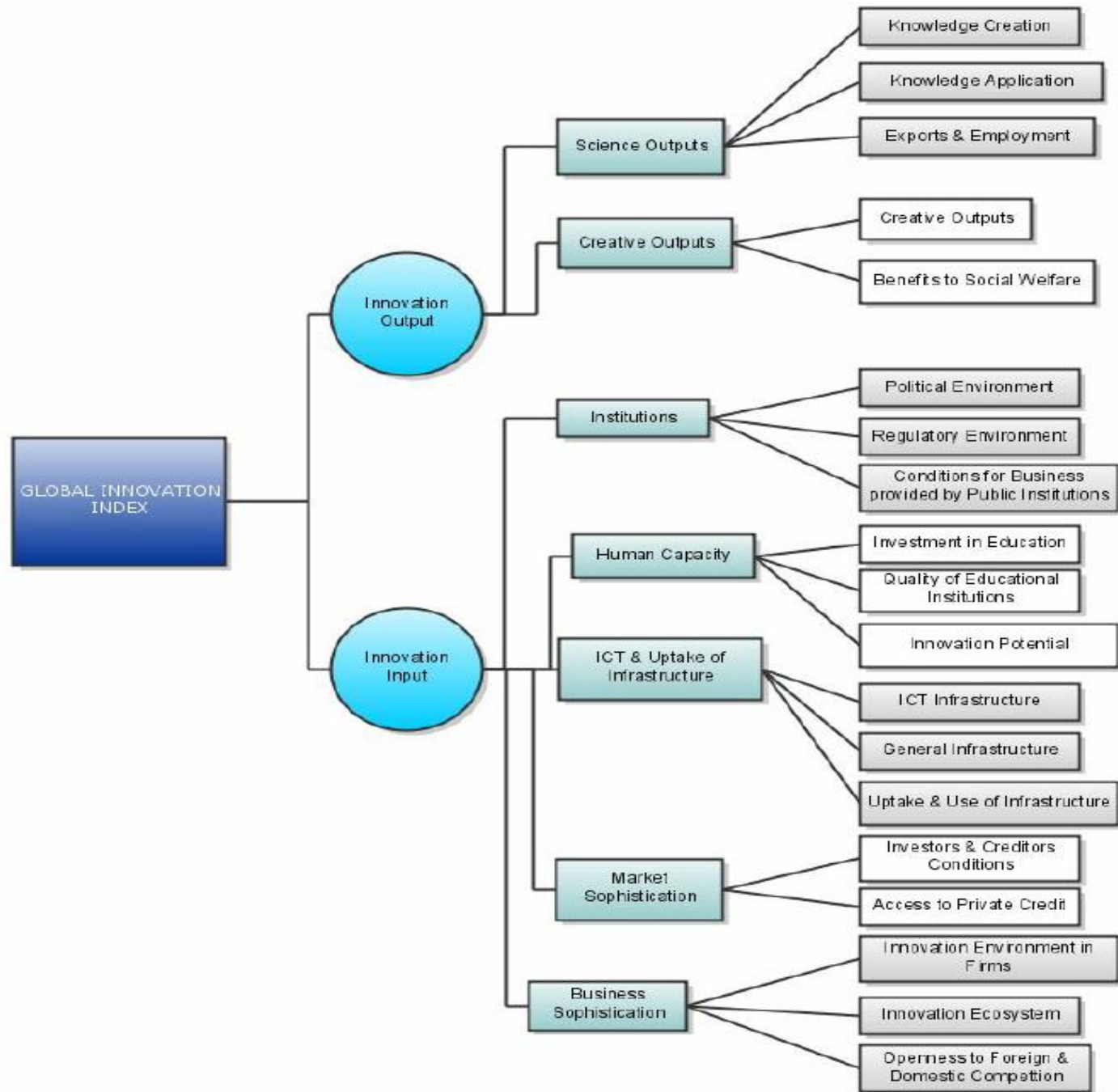
EDUCATION & INNOVATION

NAME	ORGANIZATION	YEAR	PLACE	OUT OF
Education Index	UN		27	187
HDI	UN	2011	65	187
Future HDI	UN	-	-	-
Knowledge Economy Index	WB	2012	59	145
Knowledge Index	WB	2012	45	145
		Innovation	60	
		Education	33	
		ICT	47	
Global Innovation Index	INSEAD	2012	78	

INTERNATIONAL RANKINGS OF BELARUS

EDUCATION & INNOVATION

NAME	ORGANIZATION	YEAR	PLACE	OUT OF
International Mathematic Olympiad		1994- 2012	6-31	Medals: gold-12 silver-44 bronze-47
Webometrics (BSU)		2012	596	12 000
SCImago Institution (Science) Index				
-NAS		2012	886	3290
-BSU			1504	
-BSUIR			2916	

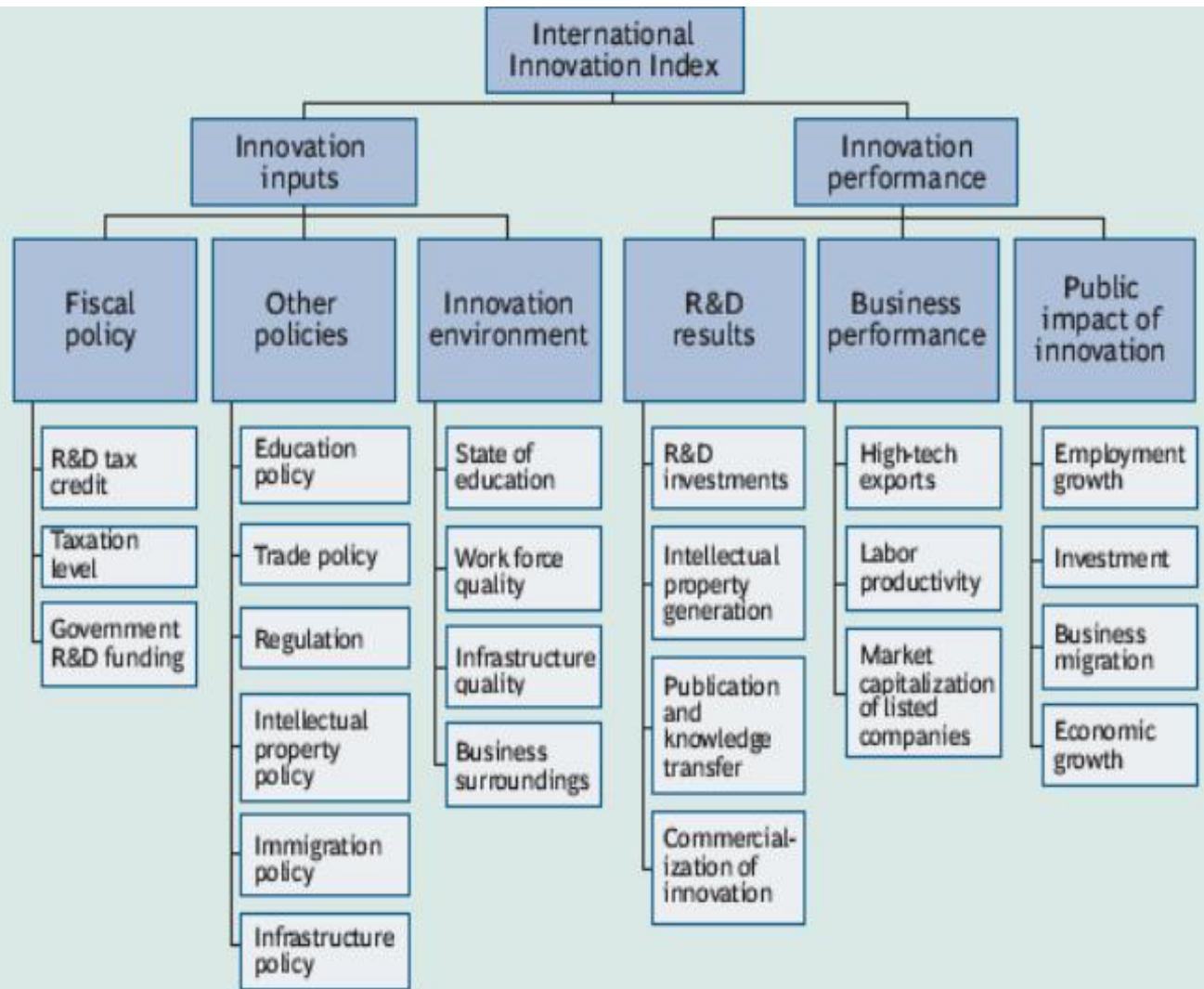


Total score

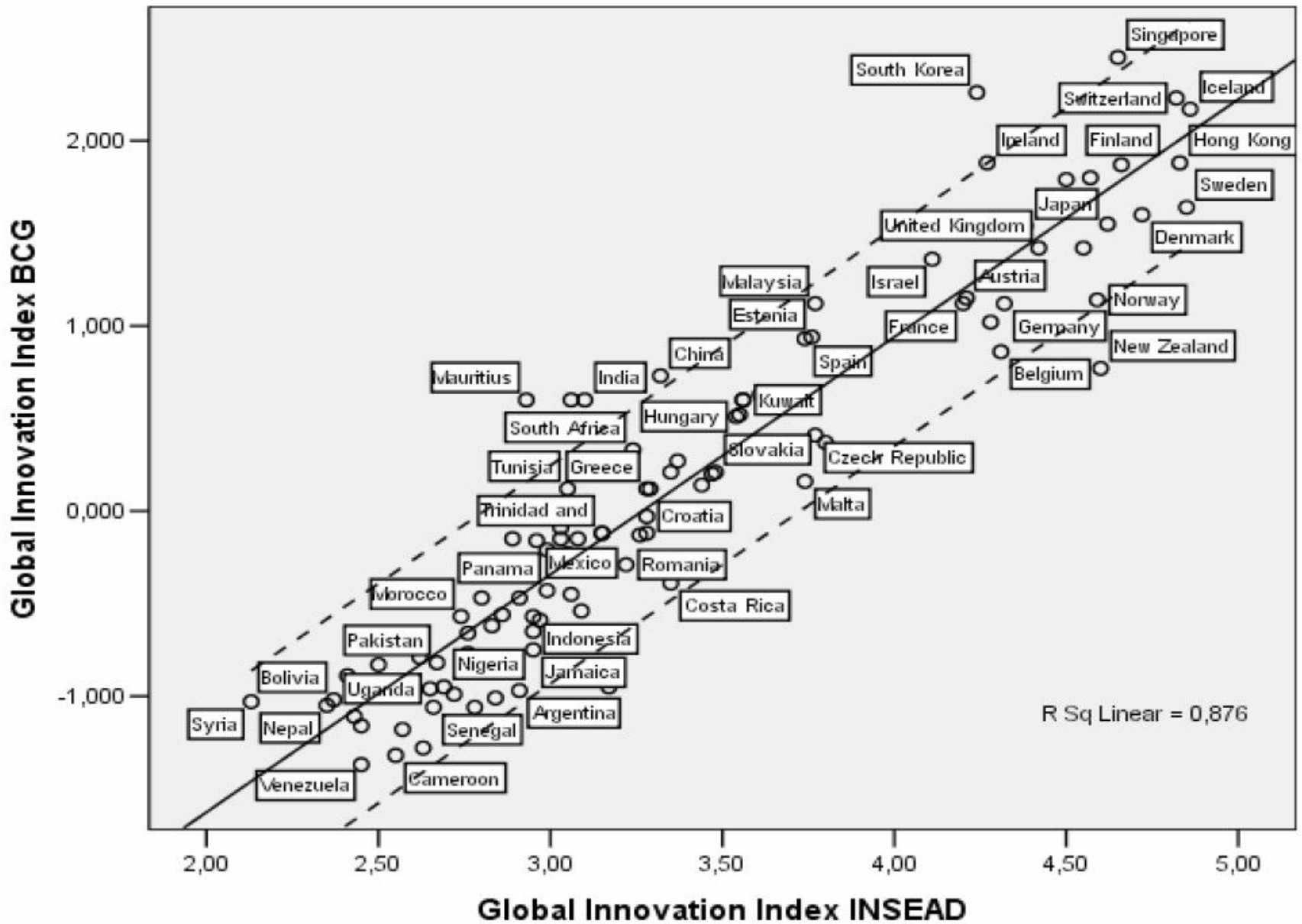
Subscore

Category score

Topic score



Sources: BCG, National Association of Manufacturers, and The Manufacturing Institute, innovation indexes, 2008.



Note: dotted lines display a 95% confidence interval

GENERAL PROBLEMS AND CRITISISM OF RANKING METHODOLOGY

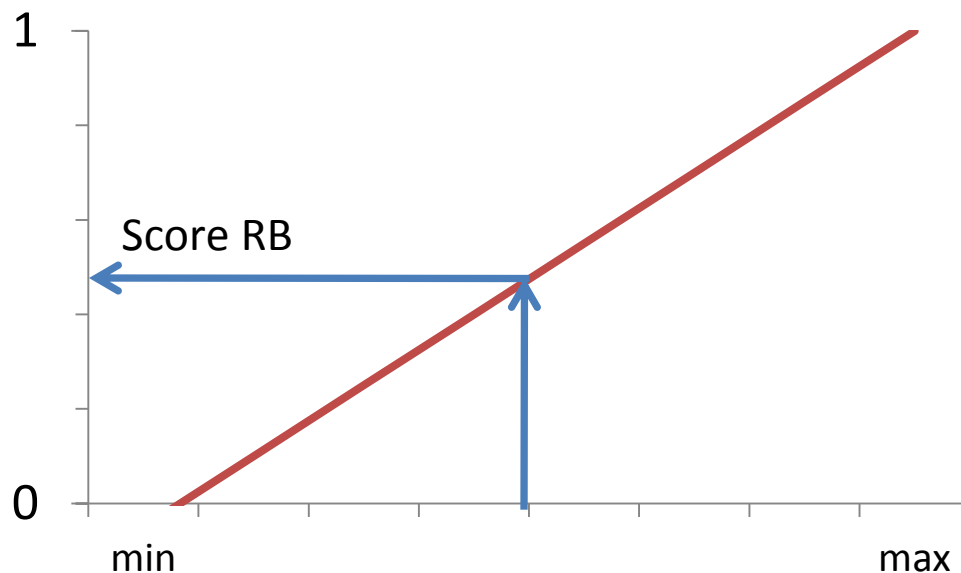
Ranking: aggregation of linear orders

Application: Voting Systems (Condorcet, Borda) Social Science Theory (Arrow, Fishburn), Impossibility Theorem

- 1. Selecting indicators (hard date, soft date)***
- 2. Scaling (dimensionless measures/quantities)***
- 3. Aggregation (pillar, sub-index, index)***

SCALING

Handbook on Constructing Composite Indicators:
Methodology and User Guide
OECD, Paris, 2008



$$Score_{RB} = k * \frac{Ind_{RB} - Ind_{min}}{Ind_{max} - Ind_{min}} + 1$$

↓
100 v 6

CRITISISM of scaling procedure

1. No continuity (dynamic trends)
2. Abnormally high value of ***Ind_{max}*** brings almost null ***Score*** for all countries

PROBLEMS OF RANKING

1. Robustness
2. Monotonous trends
3. Excessive number of indicators
4. Correlation with future growth (Greece, China)
5. Succession of ranking on subsets
6. Actual current data
7. Strong (weak) correlation with previous (future) growth

RECOMMENDATIONS FOR BELARUS

- 1. New function for governance – to form countries image**
- 2. Interaction with rating agencies**
- 3. Exchange of current data among key organizations (international database)**
- 4. Cooperation in social researches**
- 5. Collaboration with international media and web portals**
- 6. Collaboration with business communities**