SESSÃO 3

UMA NOVA GEOGRAFIA DO PODER ECONÓMICO E DA INOVAÇÃO:

INDIA E CHINA - POTÊNCIAS MUNDIAIS?

SUMÁRIO

- Países Emergentes e BRICs: Conceitos idênticos?
- BRICS: Semelhanças e diferenças
- A Ásia como Desafio e como Oportunidade
- Índia: Castas e pobreza no país do *software*
- China: Democratização *versus* crescimento?
- Gigantes empresariais
- Desafios para Portugal e a Europa

Países Emergentes e BRICS: Conceitos idênticos?

- Países Emergentes: Um conceito vago e pouco preciso
  - Novos países de economia de mercado?
  - Países em crescimento rápido?

- BRICS: Brasil, Russia, India, China & South Africa

- Será possível (e conveniente) estabelecer uma correspondência entre os dois conceitos?

BRICS.
Semelhanças e Diferenças

- As Semelhanças: Dimensão, Relevância Regional/ Continental, Potencial de crescimento...

- As Diferenças: Dimensão, Características Geo-demográficas, Características políticas, Inserção na economia de mercado, Dinâmica e Potencial de crescimento regional e nacional...

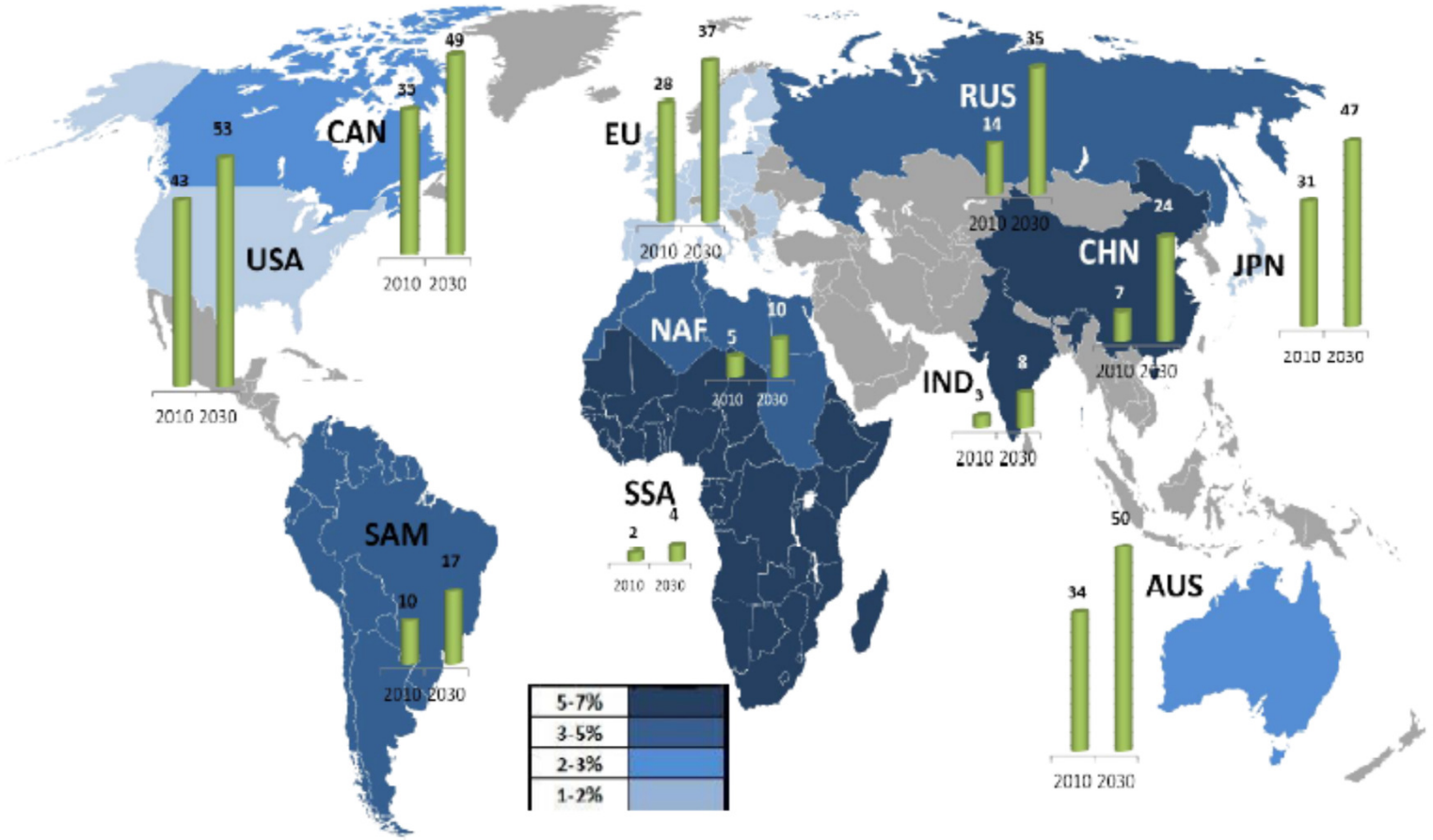
- As Diferenças são muito mais significativas que as Semelhanças

A Ásia como Desafio e como Oportunidade

❖ Os Desafios: Dimensão e Dinâmica populacional, Ética de trabalho, Empenhamento em aprender, Dinâmica económica, Ambição nacional (especialmente no caso da China), Economias de aglomeração e inter-acções, Redes internacionais e regionais, Operações de aquisição...

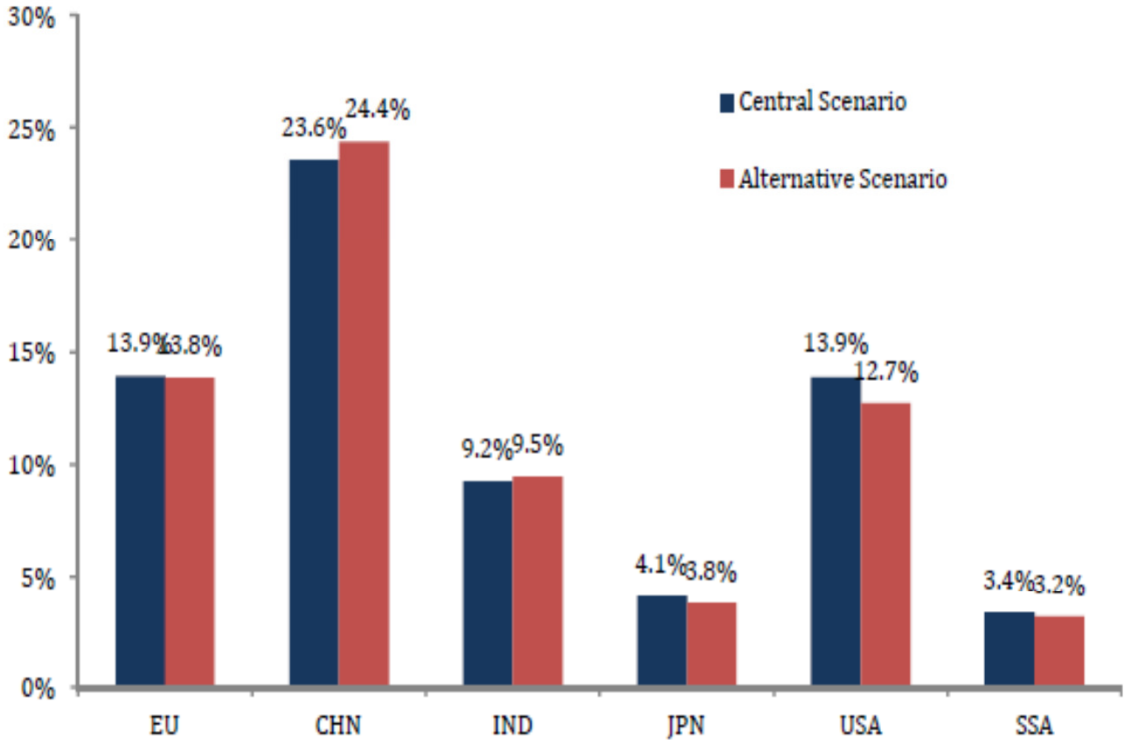
❖ As Oportunidades: Dimensão e potencial de crescimento dos mercados (*Being where the action is*), Integração de novos estratos populacionais, Exploração de Especializações Recíprocas, Envolvimento global...

Figure 7.2 GDP growth PPP in 2030 (blue shading) and GDP per capita PPP in thousands of USD (green bar charts)



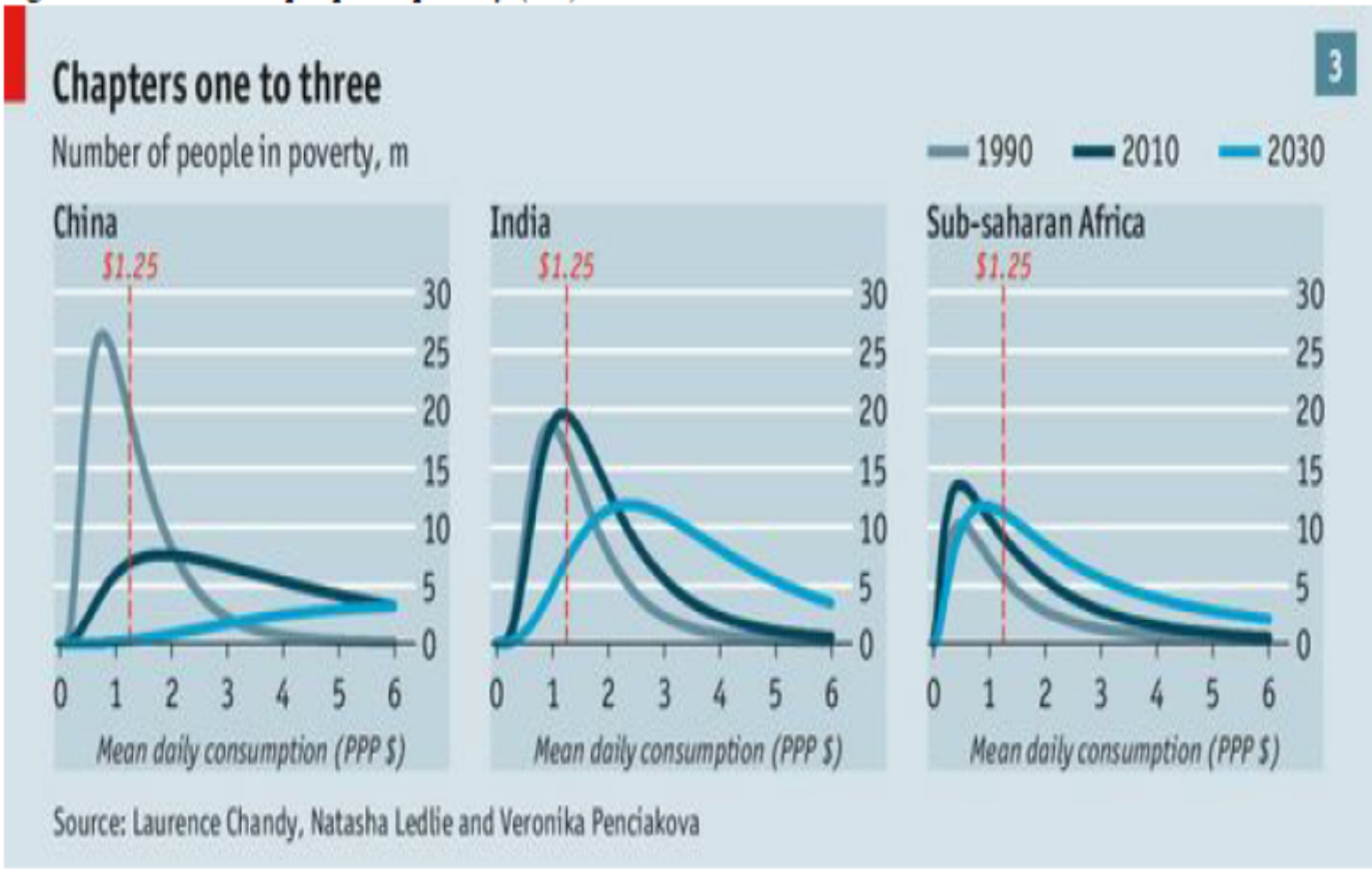
Source: Authors' own elaboration based on MAGE results.

Figure 7.9 Global GDP share in 2030 (PPP)



Source: MaGE projections.

Figure 8.1 Number of people in poverty (mil)



INDIA

Castas e Pobreza no País do *Software*

Global Innovation Index rankings

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.78
Switzerland	66.59	1	HI	1	EUR	1	1.00	12	
Sweden	61.36	2	HI	2	EUR	2	0.81	55	
United Kingdom	61.25	3	HI	3	EUR	3	0.80	60	
Netherlands	61.14	4	HI	4	EUR	4	0.91	26	
United States of America	60.31	5	HI	5	NAC	1	0.74	86	
Finland	59.51	6	HI	6	EUR	5	0.79	67	
Hong Kong (China)	59.43	7	HI	7	SEAO	1	0.68	109	
Singapore	59.41	8	HI	8	SEAO	2	0.64	121	
Denmark	58.34	9	HI	9	EUR	6	0.76	78	
Ireland	57.91	10	HI	10	EUR	7	0.81	57	
Canada	57.60	11	HI	11	NAC	2	0.78	68	
Luxembourg	56.57	12	HI	12	EUR	8	0.89	33	
Iceland	56.40	13	HI	13	EUR	9	0.89	30	
Israel	55.98	14	HI	14	NAWA	1	0.87	38	
Germany	55.83	15	HI	15	EUR	10	0.87	40	
Norway	55.64	16	HI	16	EUR	11	0.76	81	
New Zealand	54.46	17	HI	17	SEAO	3	0.74	90	
Korea, Rep.	53.31	18	HI	18	SEAO	4	0.72	95	
Australia	53.07	19	HI	19	SEAO	5	0.65	116	
France	52.83	20	HI	20	EUR	12	0.79	63	
Belgium	52.49	21	HI	21	EUR	13	0.76	75	
Japan	52.23	22	HI	22	SEAO	6	0.66	112	
Austria	51.87	23	HI	23	EUR	14	0.71	98	
Malta	51.79	24	HI	24	EUR	15	1.06	4	
Estonia	50.60	25	HI	25	EUR	16	0.82	51	
Spain	49.41	26	HI	26	EUR	17	0.71	101	
Cyprus	49.32	27	HI	27	NAWA	2	0.86	43	
Czech Republic	48.36	28	HI	28	EUR	18	0.81	53	
Italy	47.85	29	HI	29	EUR	19	0.79	62	
Slovenia	47.32	30	HI	30	EUR	20	0.78	70	
Hungary	46.93	31	HI	31	EUR	21	0.94	23	
Malaysia	46.92	32	UM	1	SEAO	7	0.81	52	
Latvia	45.24	33	UM	2	EUR	22	0.77	74	
Portugal	45.10	34	HI	32	EUR	23	0.73	92	
China	44.66	35	UM	3	SEAO	8	0.98	14	
Slovakia	42.25	36	HI	33	EUR	24	0.75	84	
Croatia	41.95	37	HI	34	EUR	25	0.82	50	
United Arab Emirates	41.87	38	HI	35	NAWA	3	0.55	133	
Costa Rica	41.54	39	UM	4	LCN	1	1.02	9	
Lithuania	41.39	40	UM	5	EUR	26	0.69	105	
Bulgaria	41.33	41	UM	6	EUR	27	0.88	35	
Saudi Arabia	41.21	42	HI	36	NAWA	4	0.80	61	
Qatar	41.00	43	HI	37	NAWA	5	0.71	97	
Montenegro	40.95	44	UM	7	EUR	28	0.72	94	
Moldova, Rep.	40.94	45	LM	1	EUR	29	1.08	2	
Chile	40.58	46	UM	8	LCN	2	0.74	88	
Barbados	40.48	47	HI	38	LCN	3	0.73	91	
Romania	40.33	48	UM	9	EUR	30	0.88	34	
Poland	40.12	49	HI	39	EUR	31	0.68	110	
Kuwait	40.02	50	HI	40	NAWA	6	1.03	8	
Macedonia, FYR	38.18	51	UM	10	EUR	32	0.72	96	
Uruguay	38.08	52	UM	11	LCN	4	0.85	45	
Mauritius	38.00	53	UM	12	SSF	1	0.80	59	
Serbia	37.87	54	UM	13	EUR	33	0.82	49	
Greece	37.71	55	HI	41	EUR	34	0.65	118	
Argentina	37.66	56	UM	14	LCN	5	0.94	20	
Thailand	37.63	57	UM	15	SEAO	9	0.76	76	
South Africa	37.60	58	UM	16	SSF	2	0.71	99	
Armenia	37.59	59	LM	2	NAWA	7	0.86	42	
Colombia	37.38	60	UM	17	LCN	6	0.76	79	
Jordan	37.30	61	UM	18	NAWA	8	0.77	73	
Russian Federation	37.20	62	UM	19	EUR	35	0.70	104	
Mexico	36.82	63	UM	20	LCN	7	0.81	56	
Brazil	36.33	64	UM	21	LCN	8	0.78	69	
Bosnia and Herzegovina	36.24	65	UM	22	EUR	36	0.70	103	
India	36.17	66	LM	3	CSA	1	1.02	11	
Bahrain	36.13	67	HI	42	NAWA	9	0.62	123	
Turkey	36.03	68	UM	23	NAWA	10	0.90	29	
Peru	35.96	69	UM	24	LCN	9	0.77	72	
Tunisia	35.82	70	UM	25	NAWA	11	0.88	36	
Ukraine	35.78	71	LM	4	EUR	37	0.89	31	

Fonte: Global Innovation Index (2013)

INDIA

Key indicators

Population (millions)	1,267.6
GDP (US$ billions)	1,946.8
GDP per capita, PPP$	3,851.3
Income group	Lower-middle income
Region	Central and Southern Asia

	Score (0–100) or value (hard data)	Rank
Global Innovation Index (out of 142)	**36.2**	**66**
Innovation Output Sub-Index	36.6	42
Innovation Input Sub-Index	35.8	87
Innovation Efficiency Ratio	1.0	11
Global Innovation Index 2012 (based on GII 2012 framework)	35.7	64

Fonte: Global Innovation Index (2013)

INDIA

1	**Institutions**	**51.9**	**102**	
1.1	Political environment	44.4	108	
1.1.1	Political stability*	36.7	123	○
1.1.2	Government effectiveness*	37.6	70	
1.1.3	Press freedom*	58.8	113	
1.2	Regulatory environment	63.6	77	
1.2.1	Regulatory quality*	40.7	99	
1.2.2	Rule of law*	45.1	64	
1.2.3	Cost of redundancy dismissal, salary weeks	15.8	74	
1.3	Business environment	47.7	124	○
1.3.1	Ease of starting a business*	62.4	128	○
1.3.2	Ease of resolving insolvency*	28.3	104	
1.3.3	Ease of paying taxes*	52.5	118	

Fonte: Global Innovation Index (2013)

INDIA

2	**Human capital & research**	**21.7**	**105**	
2.1	Education	27.6	127	○
2.1.1	Current expenditure on education, % GNI	3.1	90	
2.1.2	Public expenditure/pupil, % GDP/cap	12.9	92	
2.1.3	School life expectancy, years	10.7	109	○
2.1.4	PISA scales in reading, maths, & science	336.0	69	○
2.1.5	Pupil-teacher ratio, secondary	25.3	108	○
2.2	Tertiary education	6.5	133	○
2.2.1	Tertiary enrolment, % gross	17.9	94	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.1	107	○
2.2.4	Gross tertiary outbound enrolment, %	0.2	128	○
2.3	Research & development (R&D)	30.9	30	●
2.3.1	Researchers, headcounts/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.8	43	
2.3.3	QS university ranking, average score top 3*	44.8	27	●

Fonte: Global Innovation Index (2013)

INDIA

3	**Infrastructure**	**27.5**	**89**
3.1	Information & communication technologies (ICTs)	25.6	96
3.1.1	ICT access*	24.8	109
3.1.2	ICT use*	5.6	110
3.1.3	Government's online service*	53.6	55
3.1.4	E-participation*	18.4	72
3.2	General infrastructure	34.4	46
3.2.1	Electricity output, kWh/cap	819.8	97
3.2.2	Electricity consumption, kWh/cap	644.5	100
3.2.3	Logistics performance*	52.0	46
3.2.4	Gross capital formation, % GDP	36.0	9
3.3	Ecological sustainability	22.5	102
3.3.1	GDP/unit of energy use, 2000 PPP$/kg oil eq	5.4	78
3.3.2	Environmental performance*	36.2	117
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.9	61

Fonte: Global Innovation Index (2013)

INDIA

4	**Market sophistication**	**49.5**	**49**
4.1	Credit	35.5	76
4.1.1	Ease of getting credit*	81.3	22
4.1.2	Domestic credit to private sector, % GDP	50.6	64
4.1.3	Microfinance gross loans, % GDP	0.2	58
4.2	Investment	43.1	24 ●
4.2.1	Ease of protecting investors*	61.5	49
4.2.2	Market capitalization, % GDP	54.9	33
4.2.3	Total value of stocks traded, % GDP	40.1	27
4.2.4	Venture capital deals/tr PPP$ GDP	0.1	20 ●
4.3	Trade & competition	69.9	106
4.3.1	Applied tariff rate, weighted mean, %	8.2	108
4.3.2	Non-agricultural mkt access weighted tariff, %	2.0	99
4.3.3	Intensity of local competition†	72.9	32

Fonte: Global Innovation Index (2013)

INDIA

5	**Business sophistication**	**28.3**	**94**
5.1	Knowledge workers	37.4	95
5.1.1	Knowledge-intensive employment, %	n/a	n/a
5.1.2	Firms offering formal training, % firms	15.9	96 ○
5.1.3	R&D performed by business, % GDP	0.3	42
5.1.4	R&D financed by business, %	33.9	48
5.1.5	GMAT mean score	581.3	13 ●
5.1.6	GMAT test takers/mn pop. 20–34	93.5	56
5.2	Innovation linkages	30.9	51
5.2.1	University/industry research collaboration†	47.5	49
5.2.2	State of cluster development†	54.9	29 ●
5.2.3	R&D financed by abroad, %	n/a	n/a
5.2.4	JV–strategic alliance deals/tr PPP$ GDP	0.0	44
5.2.5	Patent families filed in 3+ offices/bn PPP$ GDP	0.0	59
5.3	Knowledge absorption	16.5	122 ○
5.3.1	Royalty & license fees payments, % service imports	2.1	61
5.3.2	High-tech imports less re-imports, %	7.2	81
5.3.3	Comm., computer & info. services imports, %	2.3	97
5.3.4	FDI net inflows, % GDP	1.7	95

Fonte: Global Innovation Index (2013)

INDIA

6	**Knowledge & technology outputs**	**34.5**	**37**
6.1	Knowledge creation	17.1	53
6.1.1	Domestic resident patent ap/bn PPP$ GDP	2.0	55
6.1.2	PCT resident patent ap/bn PPP$ GDP	0.3	54
6.1.3	Domestic res utility model ap/bn PPP$ GDP	n/a	n/a
6.1.4	Scientific & technical articles/bn PPP$ GDP	9.6	76
6.1.5	Citable documents H index	281.0	23 ●
6.2	Knowledge impact	35.7	62
6.2.1	Growth rate of PPP$ GDP/worker, %	5.2	14 ●
6.2.2	New businesses/th pop. 15–64	0.1	99 ○
6.2.3	Computer software spending, % GDP	0.2	64 ○
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.7	56
6.2.5	High- & medium-high-tech manufactures, %	32.4	31
6.3	Knowledge diffusion	41.9	22 ●
6.3.1	Royalty & license fees receipts, % service exports	0.1	83
6.3.2	High-tech exports less re-exports, %	4.8	39
6.3.3	Comm., computer & info. services exports, %	37.9	1 ●
6.3.4	FDI net outflows, % GDP	0.8	51

Fonte: Global Innovation Index (2013)

INDIA

7	**Creative outputs**	**38.6**	**65**	
7.1	Intangible assets	48.8	44	
7.1.1	Domestic res trademark reg/bn PPP$ GDP	27.7	55	
7.1.2	Madrid trademark registrations/bn PPP$ GDP	n/a	n/a	
7.1.3	ICT & business model creation†	66.5	35	
7.1.4	ICT & organizational model creation†	64.5	26	●
7.2	Creative goods & services	39.4	53	
7.2.1	Audio-visual & related services exports, %	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	1.5	63	
7.2.3	Paid-for dailies, circulation, % pop. 15–69	13.3	44	
7.2.4	Printing & publishing manufactures, %	0.6	85	○
7.2.5	Creative goods exports, %	6.0	11	●
7.3	Online creativity	17.5	105	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.3	95	
7.3.2	Country-code TLDs/th pop. 15–69	14.9	85	
7.3.3	Wikipedia monthly edits/mn pop. 15–69	157.7	108	
7.3.4	Video uploads on YouTube/pop. 15–69	53.0	109	

Fonte: Global Innovation Index (2013)

Shaping the Future of an Aspiring India

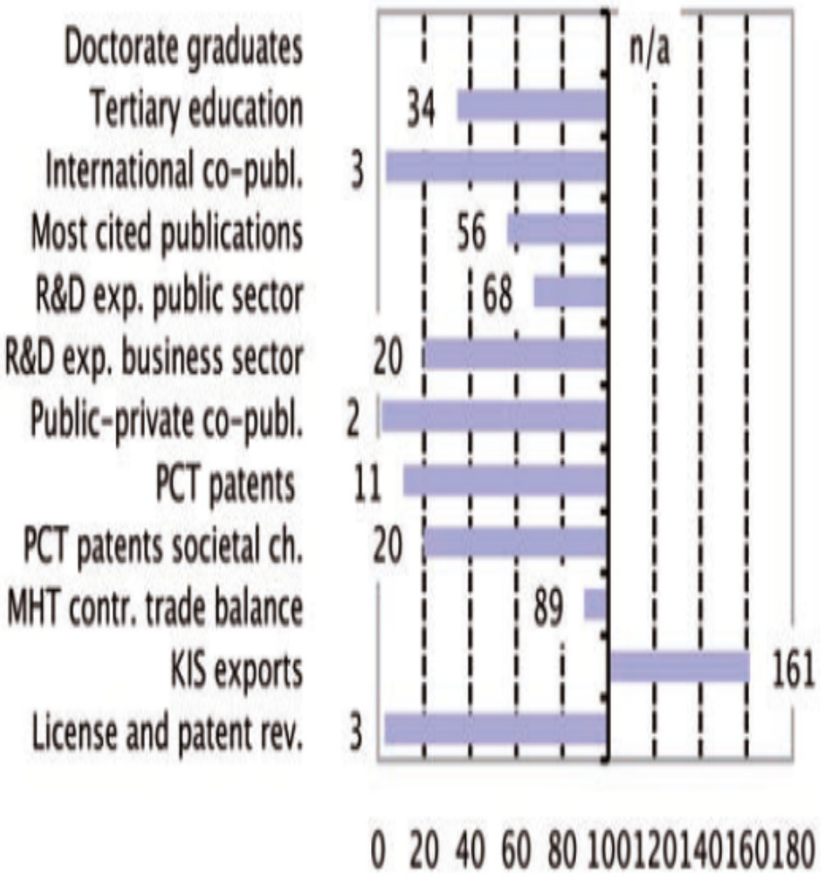
Science, Technology and Innovation (STI) have emerged as the major drivers of national development globally. As India aspires for faster, sustainable and inclusive growth, the Indian STI system, with the advantages of a large demographic dividend and the huge talent pool, will need to play a defining role in achieving these national goals. The national STI enterprise must become central to national development.

Fonte: STI Strategy 2013, Gov. India

"Science technology and innovation for the people" is the new paradigm of the Indian STI enterprise. The national STI system must, therefore, recognize the Indian society as its major stake holder. Global innovation systems

Fonte: STI Strategy 2013, Gov. India

Performance lead: India



Change in performance lead: India

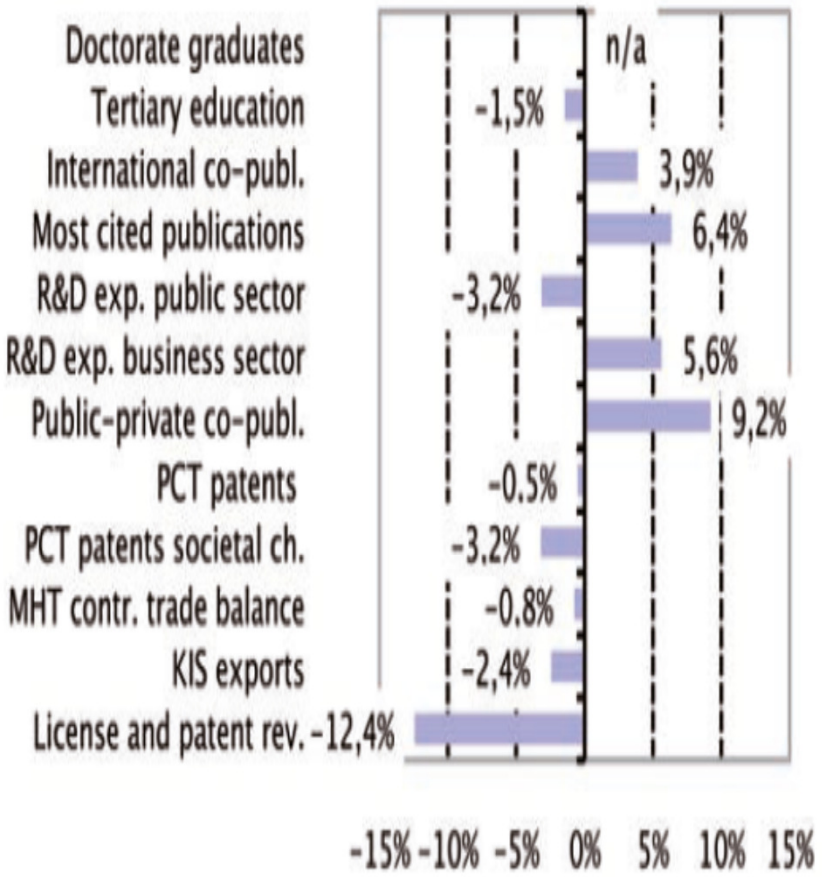


Table 1: India's Innovation Cluster Initiative pilots, 2011–13

Location (region, state)	Industry sector	Total size of seven pilots (combined)
Krishnagiri, Tamil Nadu	Agriculture, Food processing	More than 1 million people employed 85,000 MSME units US$4 billion annual revenue
Agartala, Tripura	Bamboo	
Moradabad, Uttar Pradesh	Brassware	
Thrissur, Kerala	Ayurveda medicine	
Ernakulam, Kerala	Furniture	
Faridabad, Haryana	Auto components	
Ahmedabad, Gujarat	Life sciences	

Source: NInC.

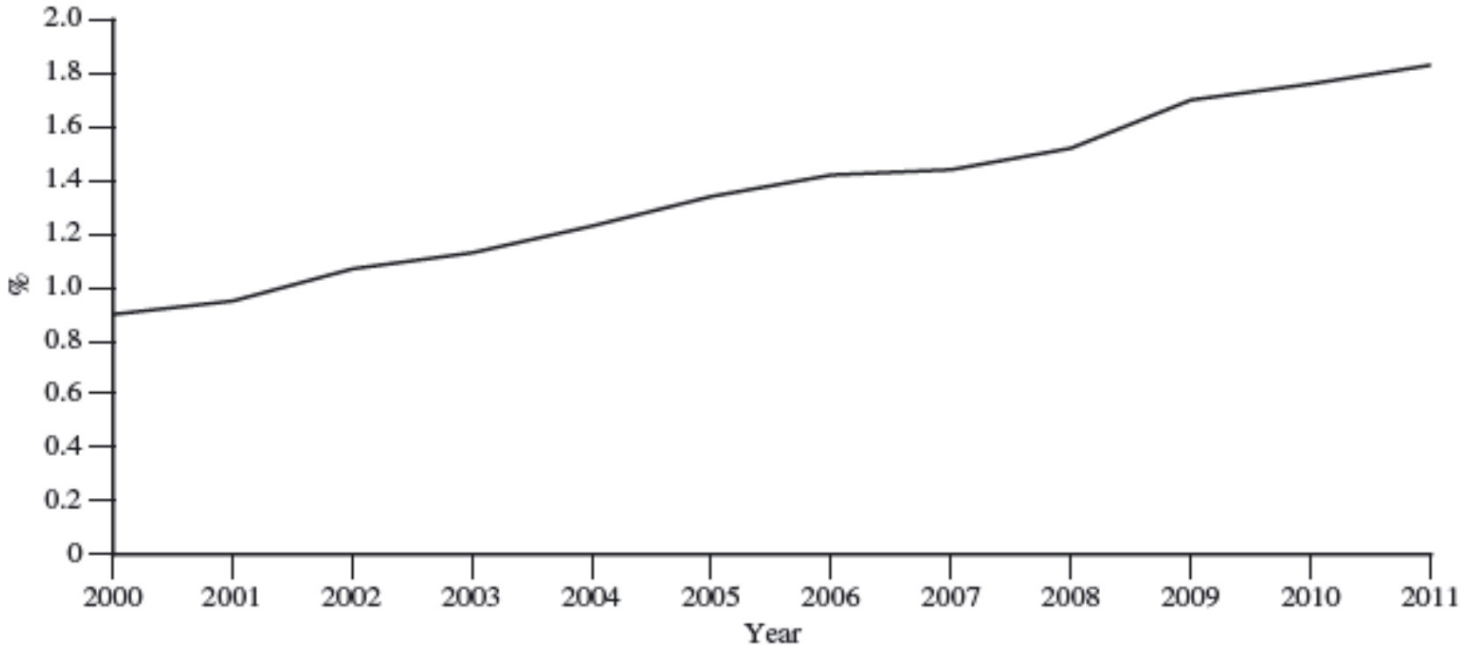
INDIA: QUE FUTURO?

- Capacidade científica e tecnológica focalizada
- Qualidade do ensino tecnológico
- Limitações sociais: a permanência das castas
- Falta de bens públicos
- Um país de contrastes e desequilíbrios
- O peso da pobreza
- O peso da burocracia
- Um ‘Gigante’ com demasiados pontos fracos!

CHINA

Democratização *versus* Crescimento?

Figure 1 Research and Development Intensity in China, 2000–2011



Note: Research and development (R&D) intensity is defined as the ratio (per cent) of R&D expenditure over gross domestic product.

Sources: National Bureau of Statistics of China (2012b, various years).

Retirado de: Wu (2012)

Table 1 Granted Invention Patents, 2006–2011

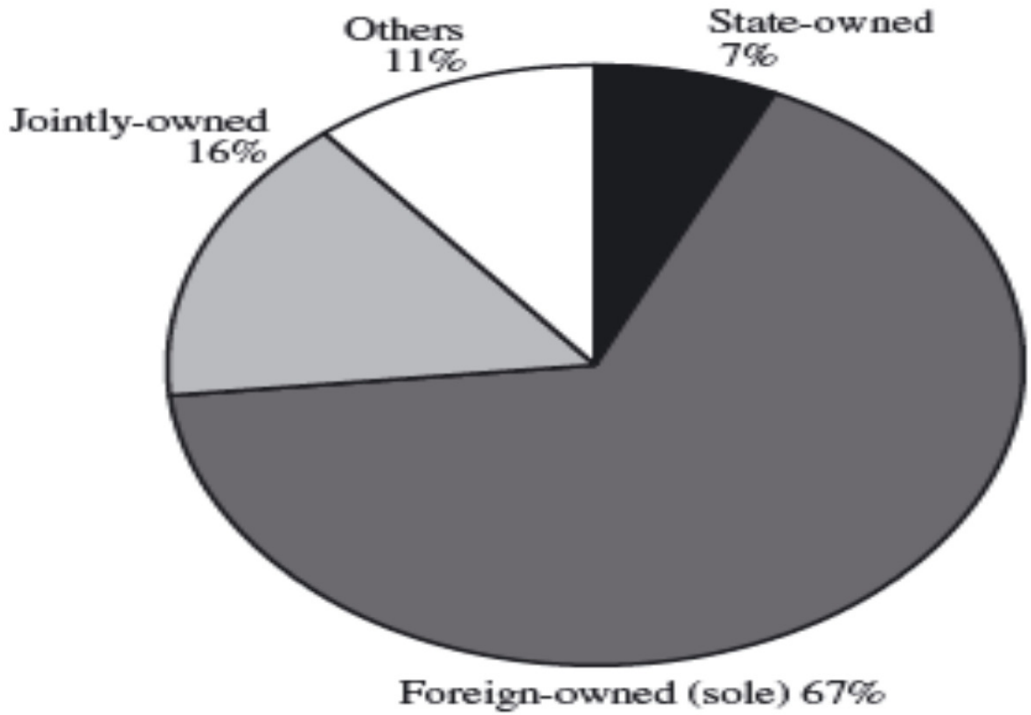
Year	*Total (no. of items)*	*Domestic (no. of items)*	*% of domestic over the total*
2006	57,786	25,077	43.4
2007	67,948	31,945	47.0
2008	93,706	46,590	49.7
2009	128,489	65,391	50.9
2010	135,110	79,767	59.0
2011	172,000	na[a]	na

Note: (a) na denotes not applicable.

Sources: National Bureau of Statistics of China (2012a, various years) and National Bureau of Statistics of China and Ministry of Science and Technology (various years).

Retirado de: Wu (2012)

Figure 2 High-Technology Product Exports by Ownership, 2010



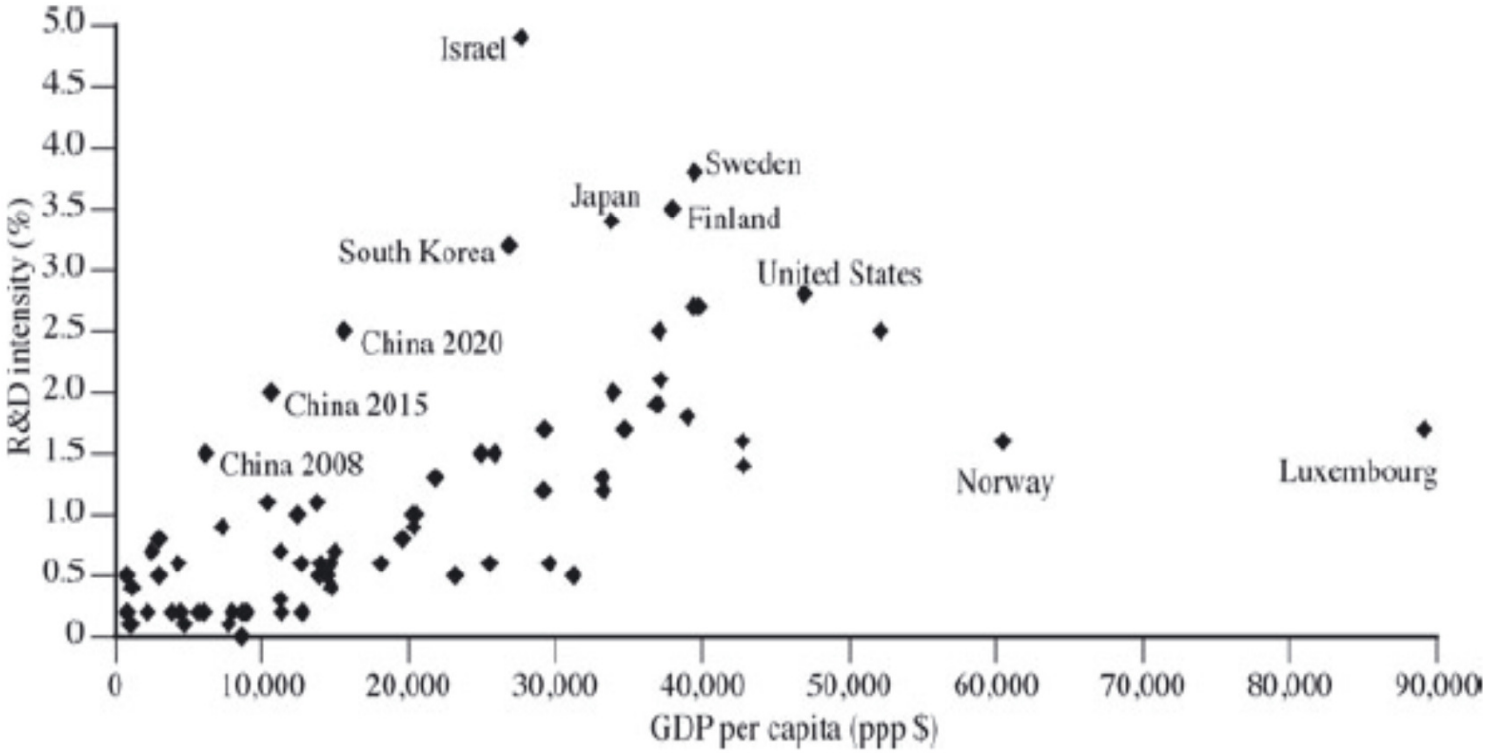
Source: The raw data are drawn from STS (2011a).

novation that is the key to the growth of China's high-tech product exports.

Even within the high-tech product sectors,

Retirado de: Wu (2012)

Figure 3 Research and Development Intensity and Gross Domestic Product Per Capita in Selected Economies, 2008

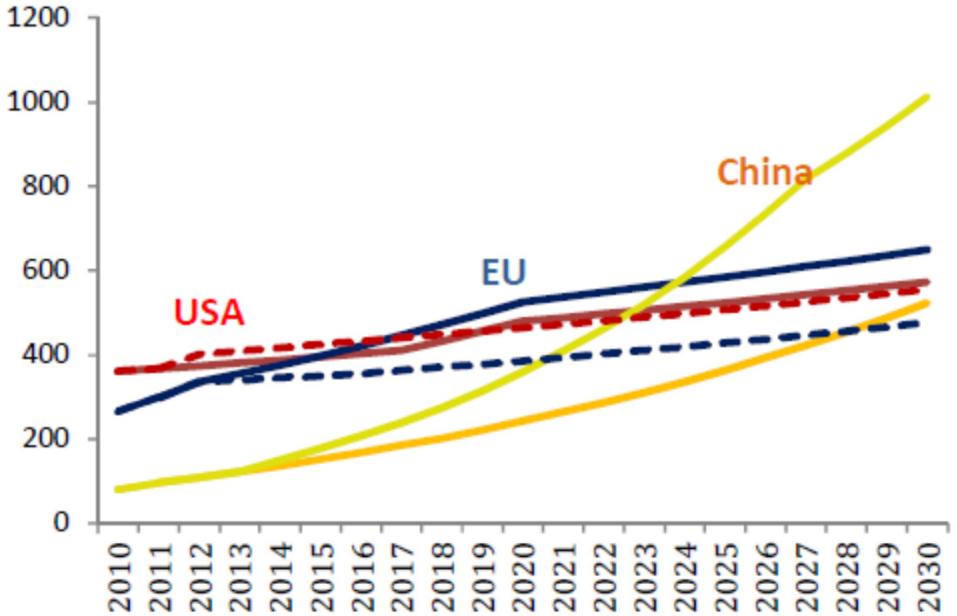


Note: GDP denotes gross domestic product and R&D denotes research and development.

Source: The raw data are drawn from World Bank (2011).

Retirado de: Wu (2012)

Figure 5.2 R&D spending scenarios (current billion USD)



Source: Authors' elaboration based on MAGE results.

Figure 25: Global innovation performance

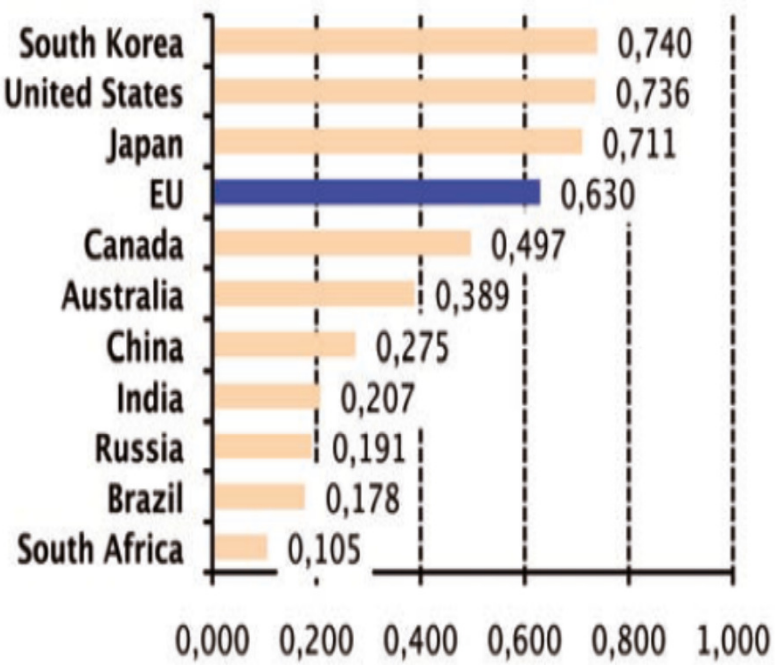
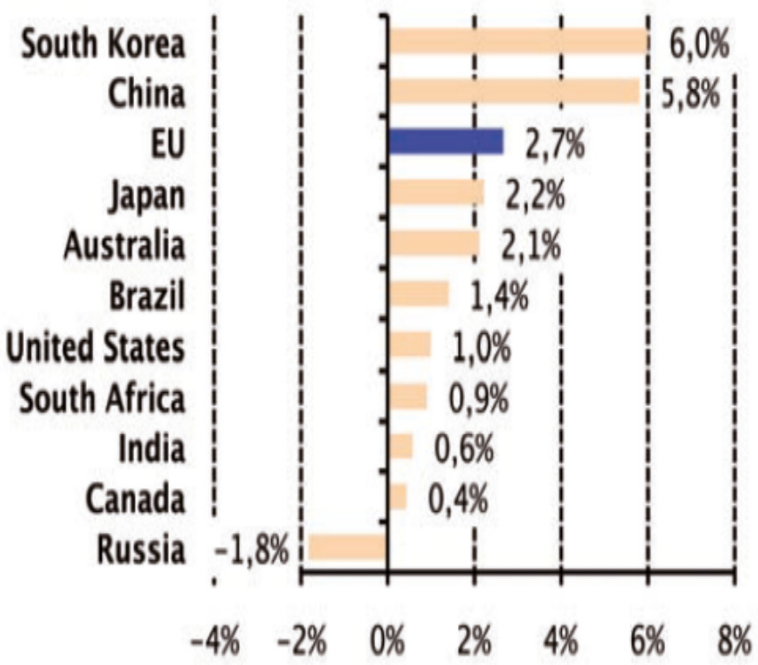
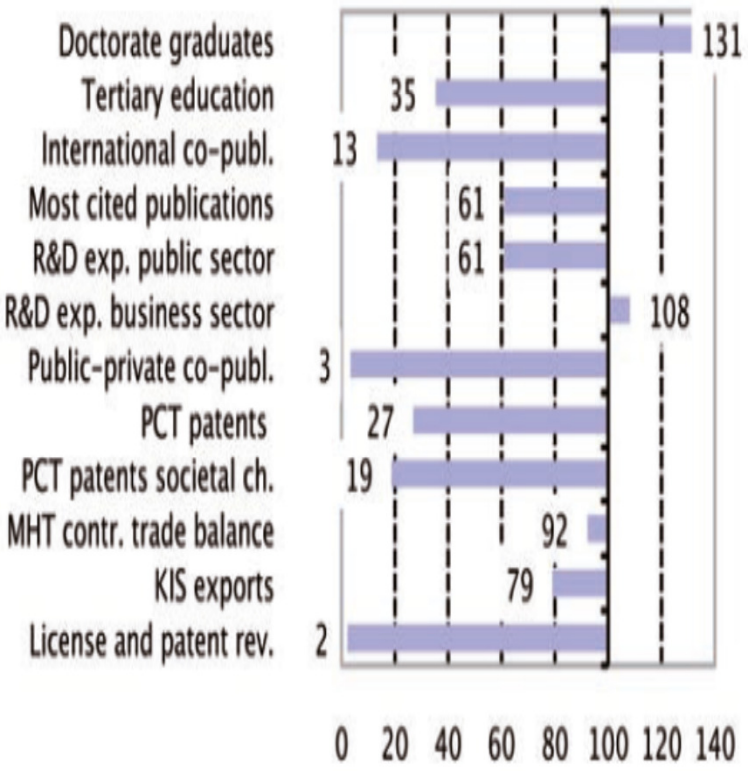


Figure 26: Global innovation growth rates



Fonte: IUS 2014

Performance lead: China



Change in performance lead: China

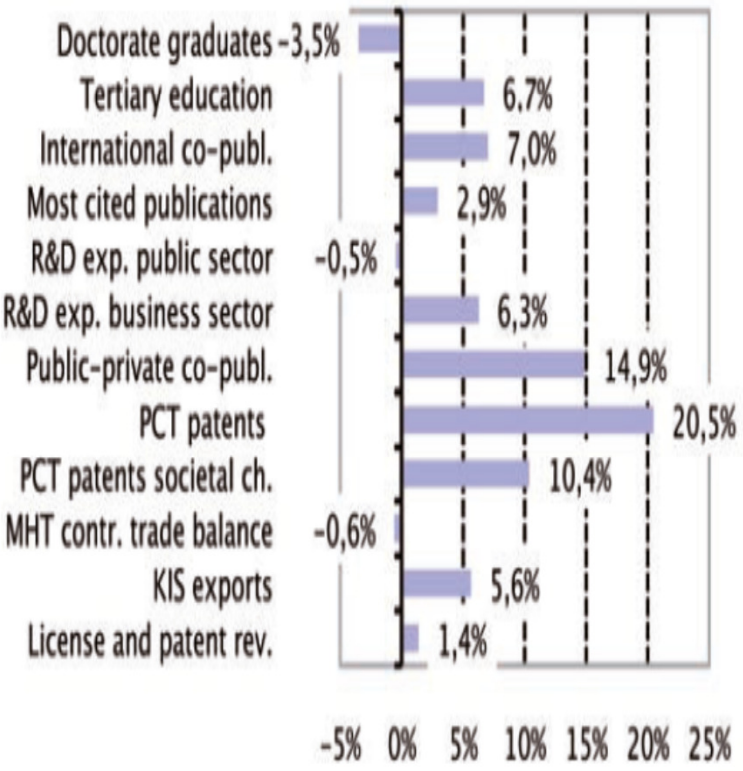
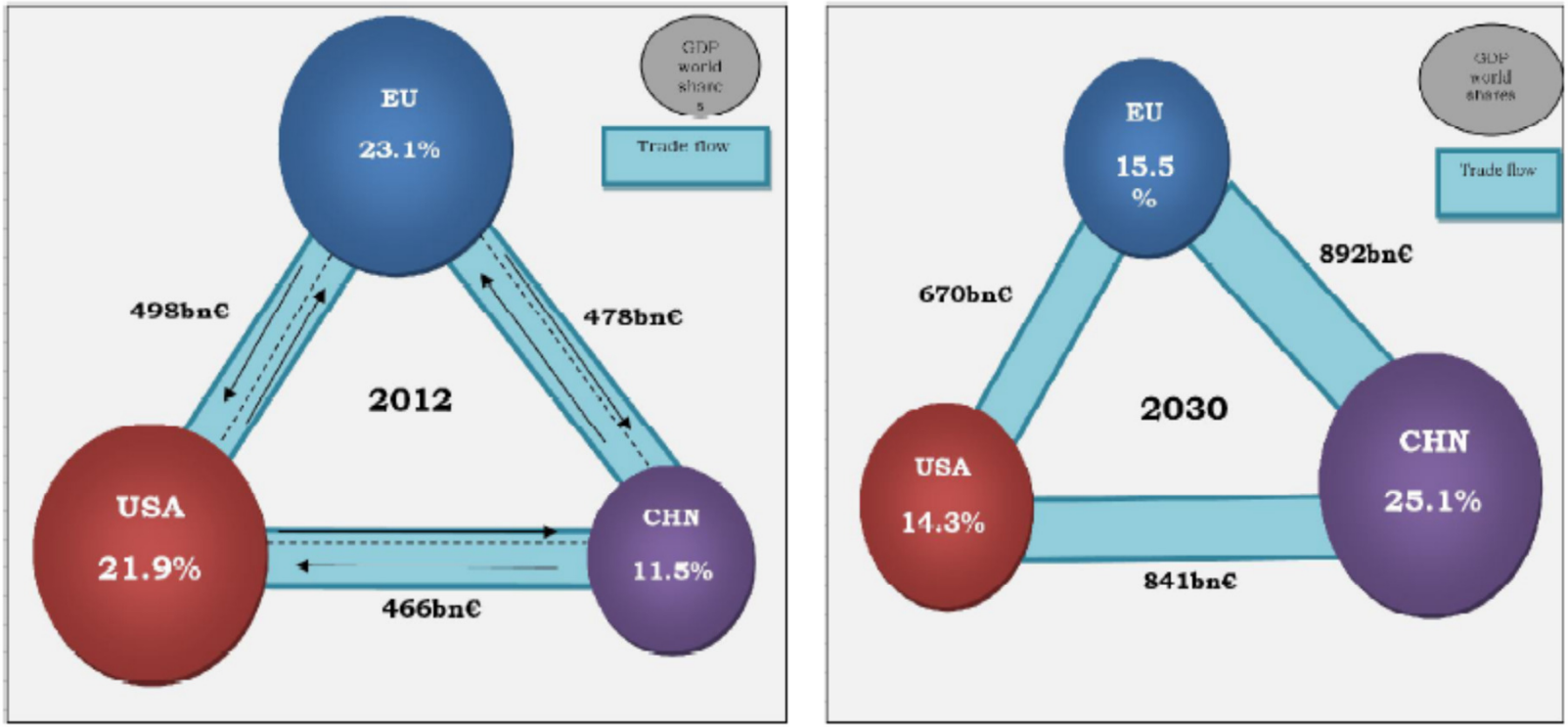
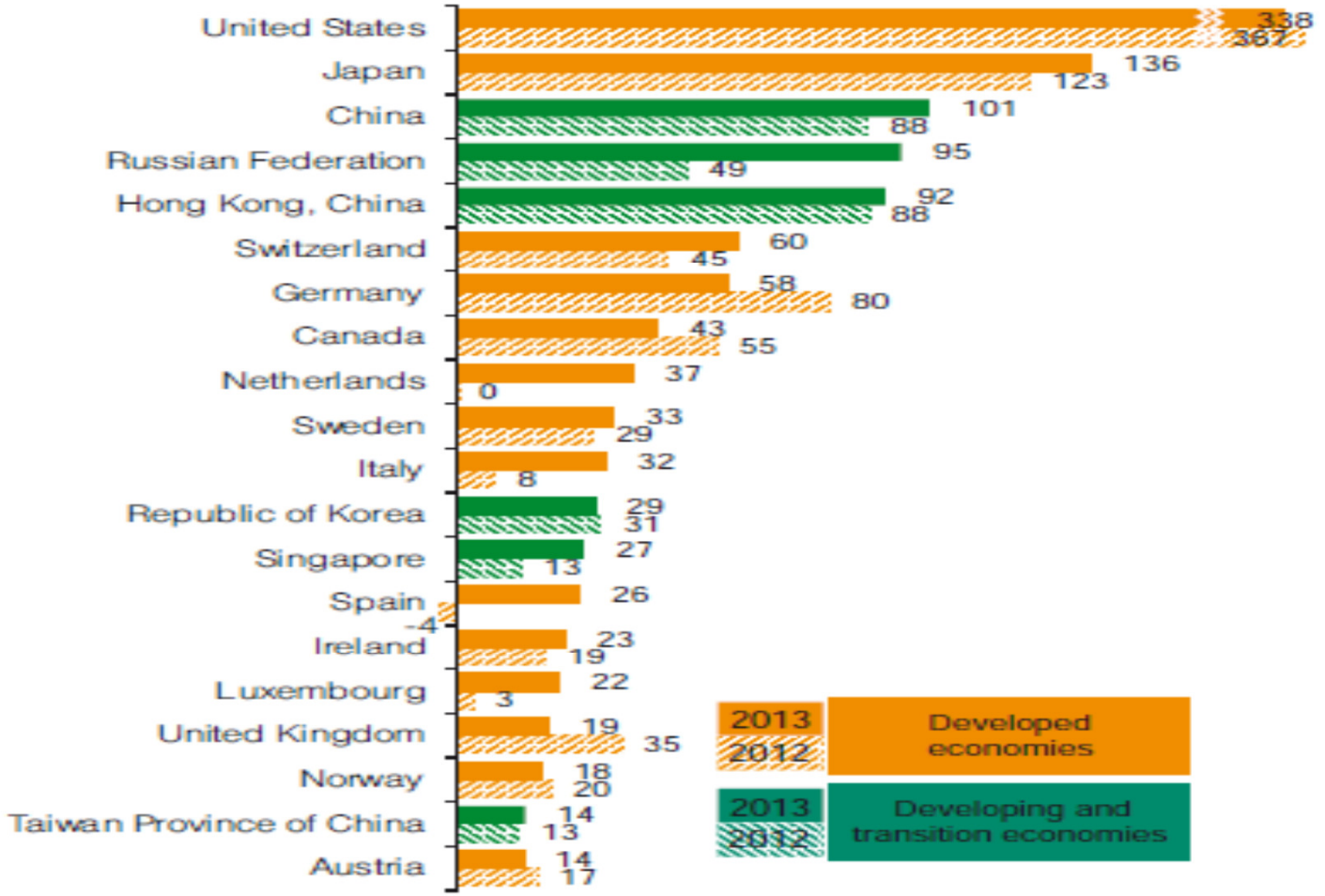


Figure 15.1 Bilateral trade flows and GDP share of the G3 power triangle



Source: MIRAGE, MaGE, IMF and Eurostat.

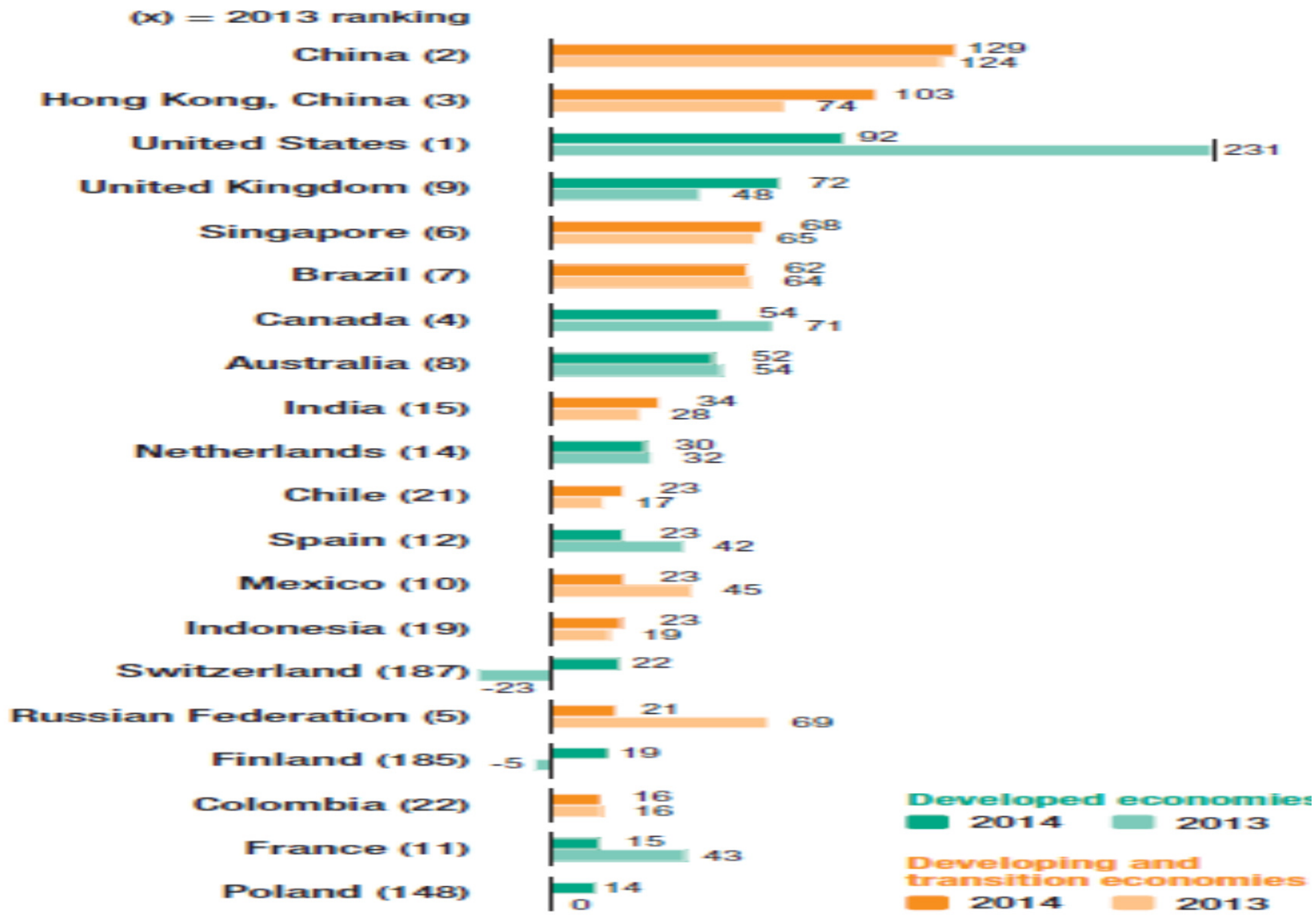
Figure I.7. FDI outflows: top 20 home economies, 2012 and 2013
(Billions of dollars)



Source: UNCTAD FDI-TNC-GVC Information System, FDI/TNC database (www.unctad.org/fdistatistics).

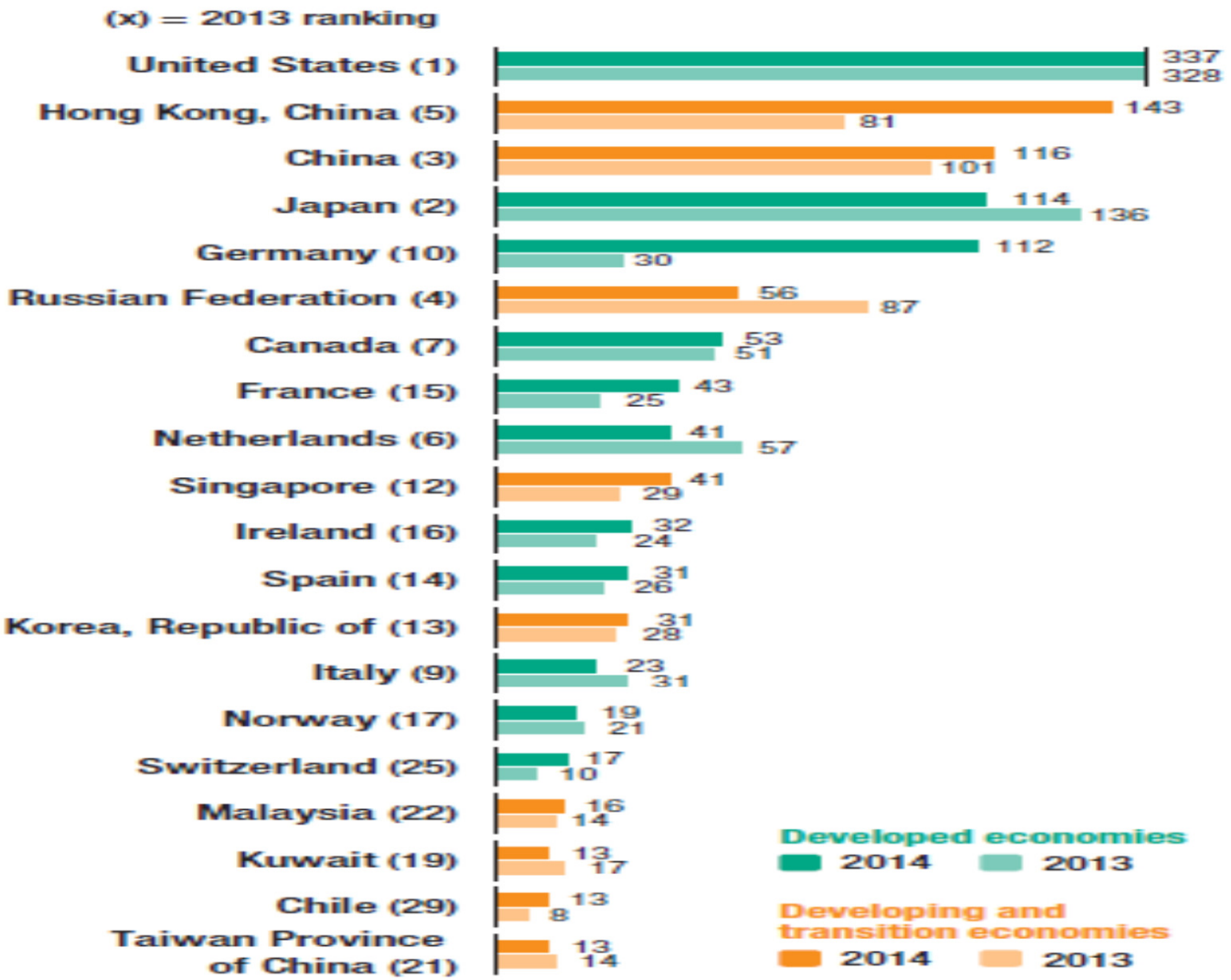
Note: British Virgin Islands is not included in the ranking because of its nature as an offshore financial centre (most FDI is in transit).

Figure I.3. **FDI inflows: top 20 host economies, 2013 and 2014**
(Billions of dollars)



Source: UNCTAD, FDI/MNE database (www.unctad.org/fdistatistics).
Note: Excludes Caribbean offshore financial centres.

Figure I.8. **FDI outflows: top 20 home economies, 2013 and 2014**
(Billions of dollars)

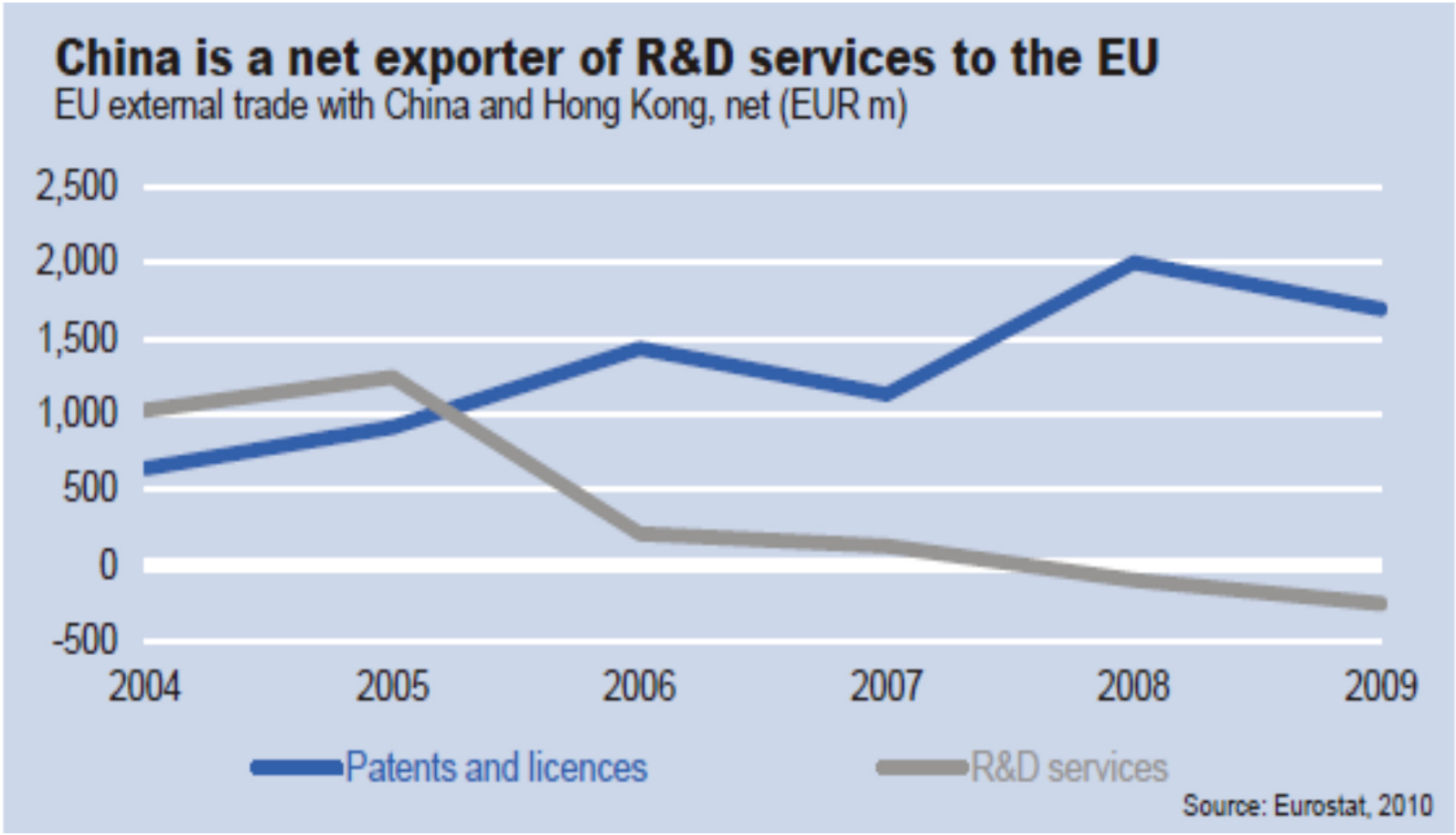


Source: UNCTAD, FDI/MNE database (www.unctad.org/fdistatistics).
Note: Excludes Caribbean offshore financial centres.

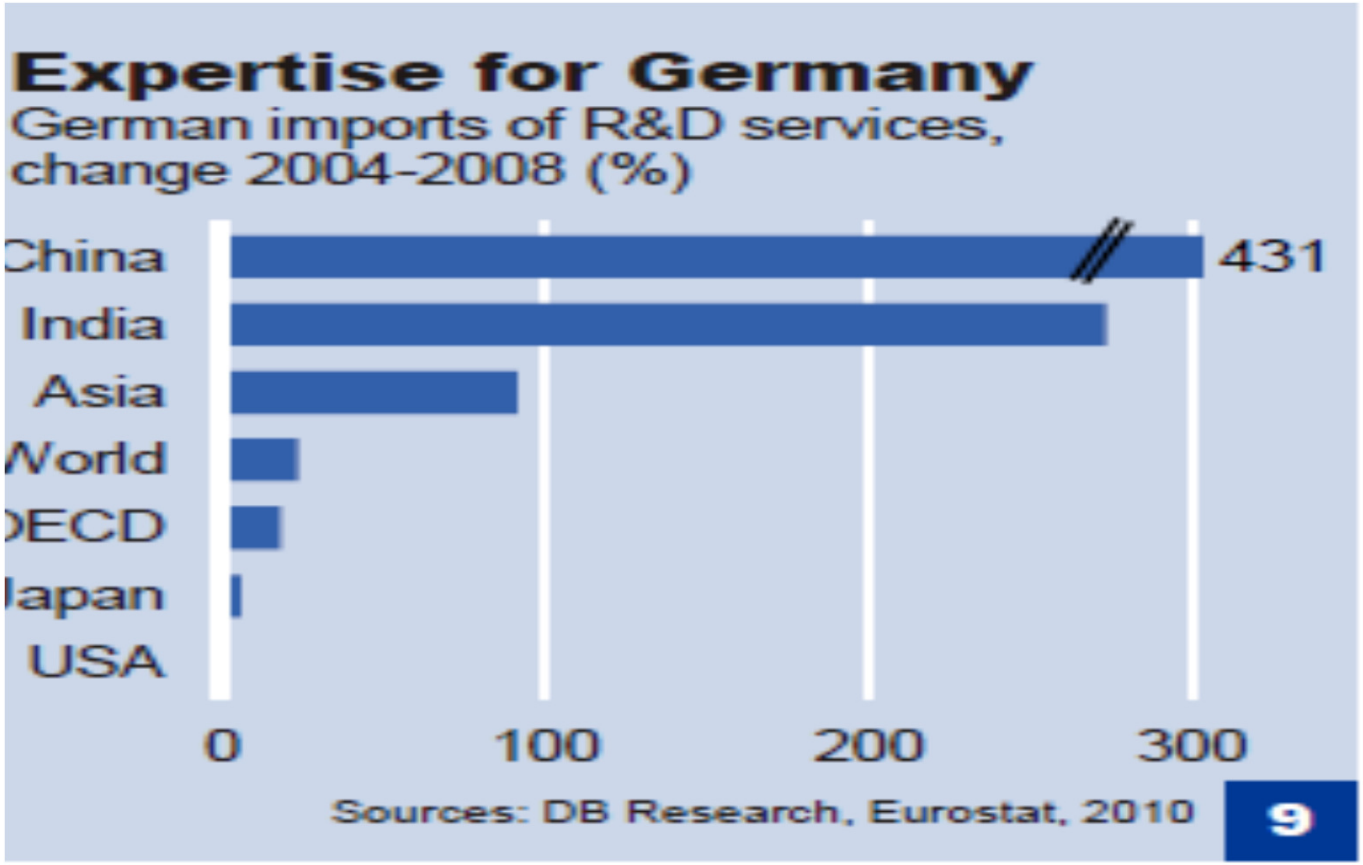
FUNDOS SOBERANOS

- **O Que São?** Fundos de investimento especiais criados por alguns governos, especialmente de países com reservas monetárias significativas derivadas da exportação de matérias primas, com o objectivo de deter uma carteira de activos no estrangeiro.
- **Dimensão das Reservas**: Estimada em cerca de 5 triliões de USD
- **Investimentos**: Operações Internacionais de Fusão e Aquisição de grande dimensão. Elevada tolerância ao risco.
- **Problemas**: Riscos de utilização para controlo de activos estratégicos e Falta de Transparência. Daí uma discussão intensa sobre a necessidade de definição de regras de modo a proteger as economias dos países receptores.
- **Países com Fundos Soberanos**: China (mais de um trilião de USD), E. A. U., Noruega, Arábia Saudita, Singapura, Kuwait, Russia…

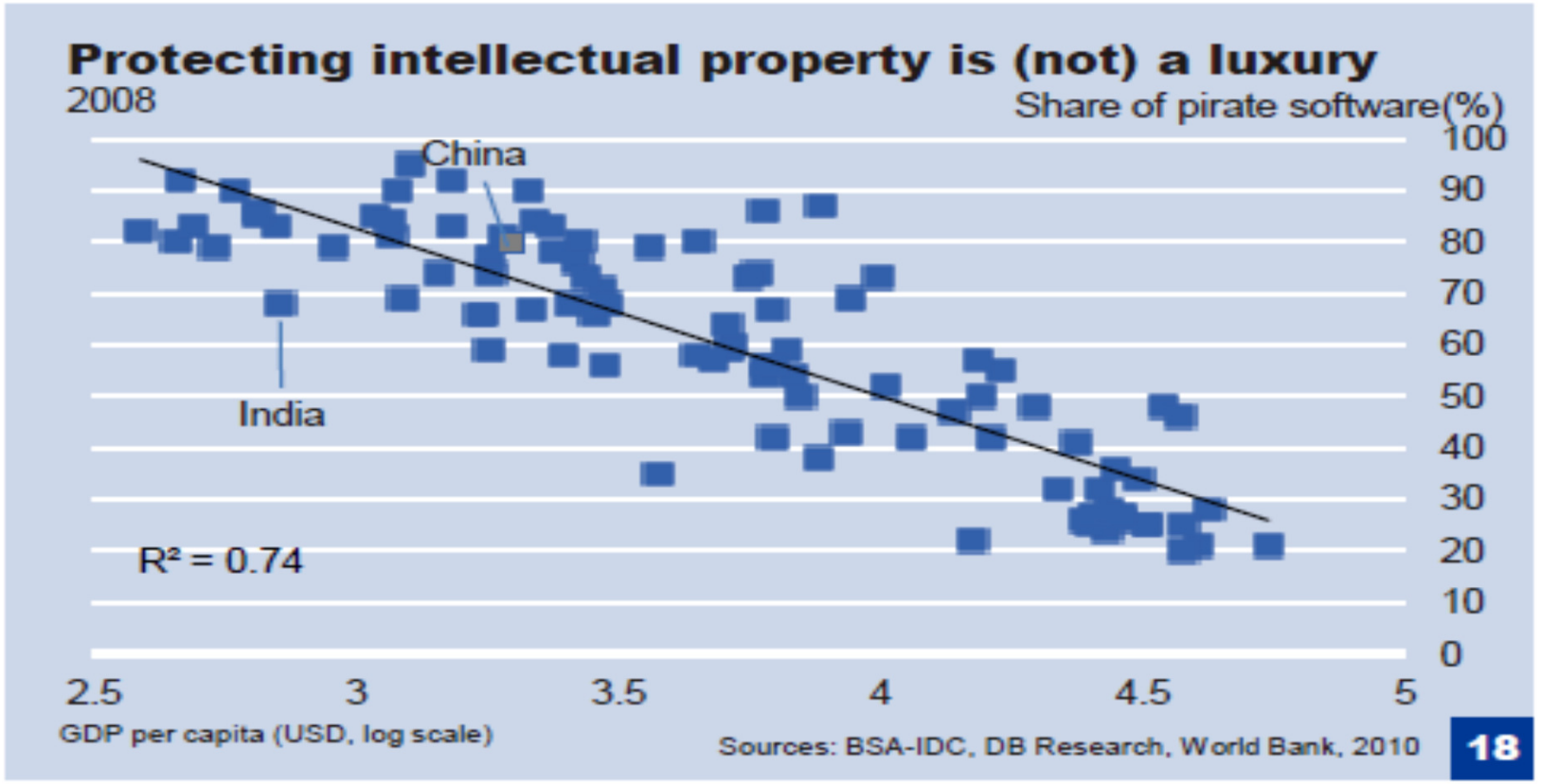
Informação Adicional: Wikipedia, World Investment Report 2008



Fonte: Deutsche Bank Research (2011)



Fonte: Deutsche Bank Research (2011)



Fonte: Deutsche Bank Research (2011)

- **Fonte**: Deutsche Bank Research (2011)

Fonte: Deutsche Bank Research (2011)

Table 5 Top ten Chinese global brands

1	Lenovo	6	Tsingtao Brewery
2	Haier	7	CCTV
3	Bank of China	8	CNOOC
4	Air China	9	Huawei
5	China Mobile	10	Ping An

Source: *Financial Times*/McKinsey survey; see R McGregor, 'China's companies count down to lift off', *Financial Times*, 30 Aug 2005

Gigantes Empresariais

CHINA

Hutchinson Whampoa
Lenovo
China Ocean Shipping
China Petroleum Corp.
Sinochem Corp.
Huawei
ZTE
Shanghai Auto
China Const. Bank

INDIA

Oil & Natural Gas Corp.
Tata
Ranbaxy
Wipro

Lenovo

- A aquisição da divisão de computadores da IBM
- CEO: William Amelio
- Share IBM: quase 7%
- Vol. Negócios (2008): 16.4 mil milhões USD
- Emprego: 19000 (2006)

Tata

❖Empresa diversificadfa, com interesses em diversos sectores, da alimentação (compra da Tetley)`aos serviços de consultoria informática

❖Principal construtor automóvel indiano

❖ Aquisição da Jaguar e da Land Rover à Ford

❖ Desenvolvimento do Tata Nano, a comercializar por 2500 USD

Wipro

- Lider mundial de Business Process Reengineering
- Aquisição em Portugal: Enabler (spin-off Sonae)
- Crescimento rapidissimo baseado no diferencial de salários e na capacidade de desenvolver soluções integradoras de software
- Volume de negócios (2008): 5 mil milhões USD
- Emprego: + 100 000 (2008)

Ranbaxy

- Fundada em 1961
- Vendida à Japonesa Daichi em 2008
- 75% vol. Negócios Internacional: 28% EUA, 17% Europa, 29% Brasil, Russia e China
- Emprego em I&D (2008) : +1100

A CHINA NO FUTURO?

- Uma transição bem sucedida
- Poder económico (e político) crescente
- Afirmação internacional de empresas Chinesas
- Um País potencialmente instável: desfasamento entre 'capitalismo + capitalismo de Estado' e ausência de alternativas políticas
- Um país sem aliados genuínos (Lee, 2012)

Desafios para Portugal e a Europa

Fonte: Simões (2007)

The Future (I)

The Global Environment

- ✓ The World economic landscape is changing
- ✓ Different Dynamics and Growth rates: East *versus* West;
  Pacific *versus* Atlantic
- ✓ Companies are moving towards the places ‘where action is’
- ✓ Educated and Committed Workforce supply makes a difference

The Future (II)

A Greying Europe

✓ Europe is really ‘at Fifty’: Getting old without wisdom?
✓ ‘*En quête du temps perdu*’: Failing to recognise that the World has changed, and is changing fast
✓ Nice words... but lack of coordinated action
✓ ‘Enlargment hopes’ not turned into reality: not enough new blood
✓ Is an Europe of services sustainable?

The Future (III)

And Portugal?

✓ An economy with a grey future: which is the growth potential of Portugal?
✓ An economy very vulnerable to external shocks
✓ Inability to translate inputs (namely the effort in improving human resources skills and R&D) into outputs
✓ Lack of a consistent FDI strategy: what is the country aiming at?
✓The need to build on existing strengths: adaptability, creativity and 'bridging'
✓ Can entrepreneurship play a role?
✓ Learning from success stories

The Future (IV)

- Understanding the new challenges and avoiding complacency
- Promoting European ‘anchoring’ with a global vision
- Attracting new blood with new ambition
- Creativity and relational capabilities as assets for Europe in an Eastern-bound 21st. century