Economic Competitiveness of the Czech Republic

Aspen / Forbes Conference

Supporting documentation

CONFIDENTIAL AND PROPRIETARY

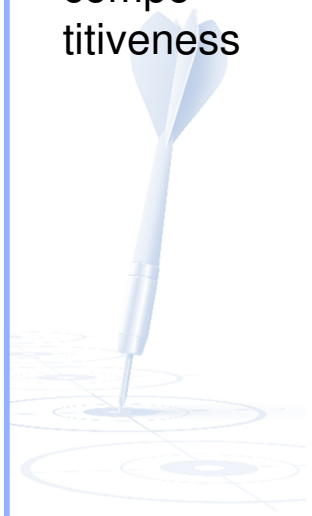
To develop our recommendations we used a range of sources

Source		
Global data sources	Competitiveness indices	▪ Overview of peers' and winners' performance in IMD and WEF key indicators
	Overview of future global forces	▪ Definition of key trends shaping future global economy by McKinsey Global Institute
Analysis of Czech economic indicators	Economic structure	▪ Analysis of historical growth, capitalization of the economy, investment flows and industrial structure
	Education	▪ Review of population structure according to reached education, comparison of educational quality with peer countries
	Labor markets	▪ Comparison of unemployment and self-employment rates, and migration levels with peer countries
	Institutional framework	▪ Comparison of corruption levels, legal stability, regulatory efficiency and administrative burden on private sector
	Natural resources	▪ Analysis and comparison of dependency on natural resources, structure of used energy resources
	Infrastructure	▪ Analysis of quality and investment into infrastructure, and comparison to the peer group
	Capital markets	▪ Comparison of the size of capital markets of the Czech Republic and the peer group
Analysis of the best practices of successful countries		▪ Overview of strategies of states that demonstrated solid growth over past years

Goal and content of this document

Goal

- Presentation of selected key analyses on Czech compe-titiveness



Content

- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- Labor market
- Urbanization
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

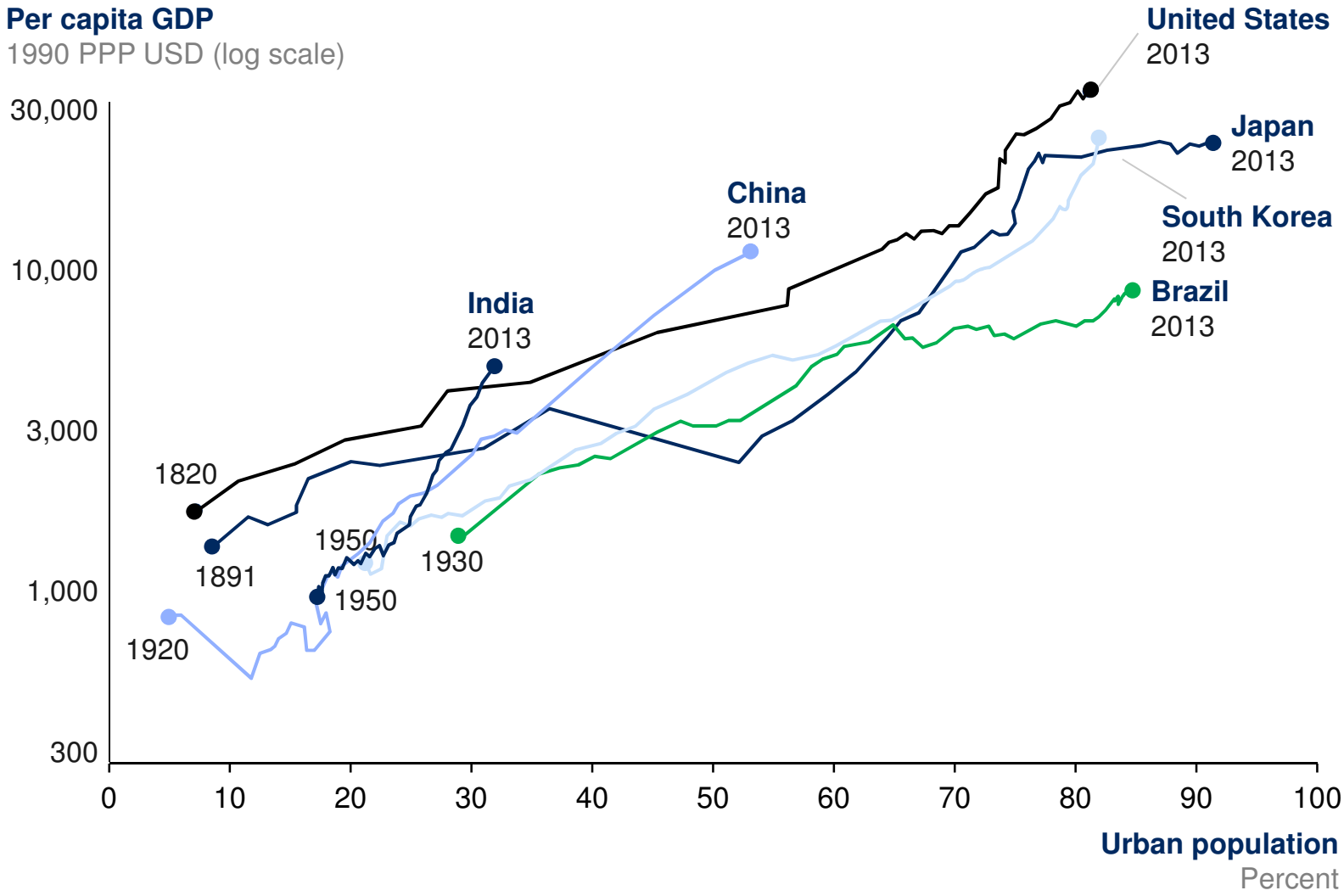
FUTURE GLOBAL FORCES

Four disruptive forces changing the picture

1. **Industrialization and urbanization in emerging economies**
2. **Disruptive technologies**
3. **An aging world**
4. **Greater global interconnections**

SOURCE: McKinsey Global Institute

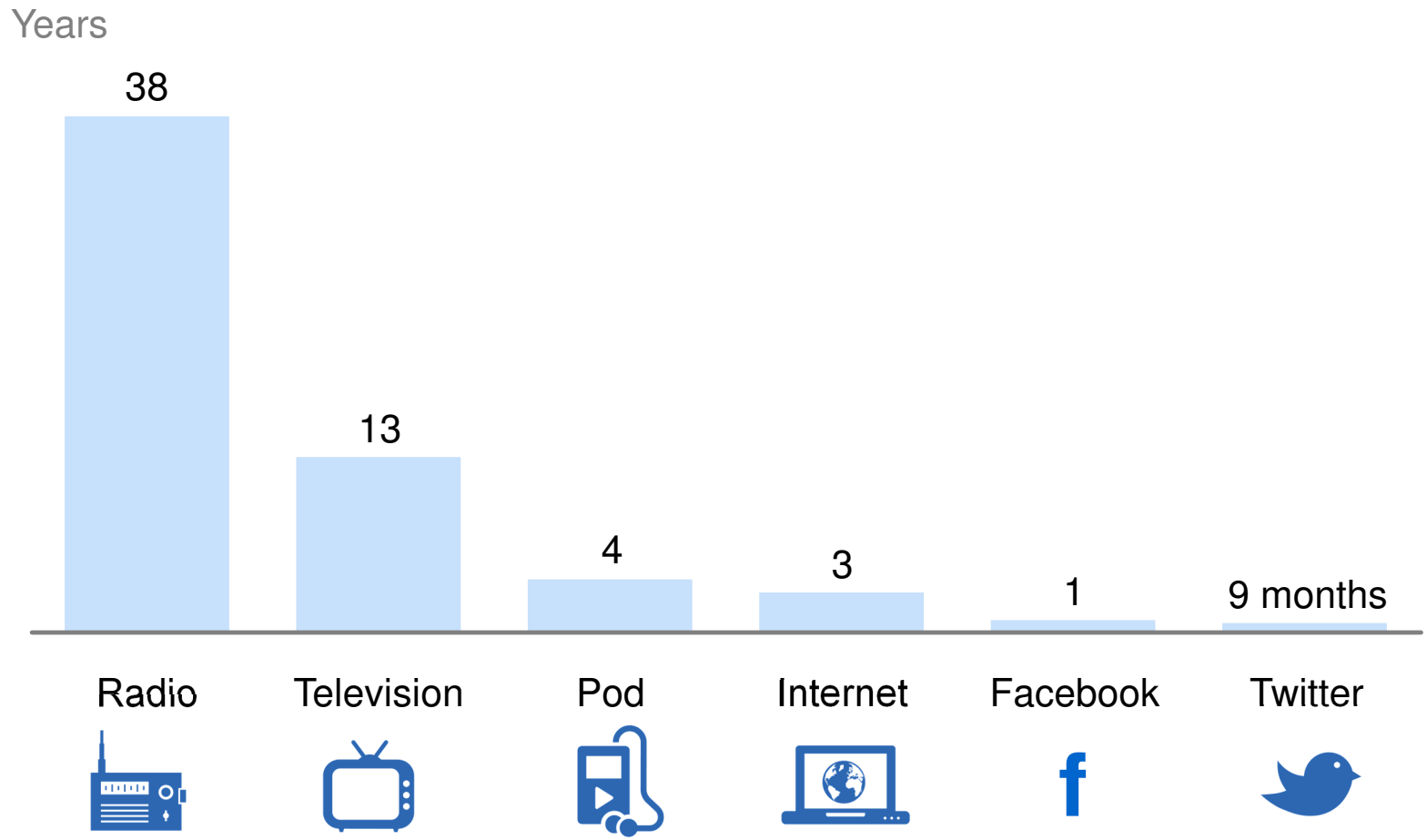
1 Per capita GDP rises in parallel with urbanization



SOURCE: UN population Division; The Conference Board; McKinsey Global Institute analysis

2 Adoption of new technologies is also accelerating

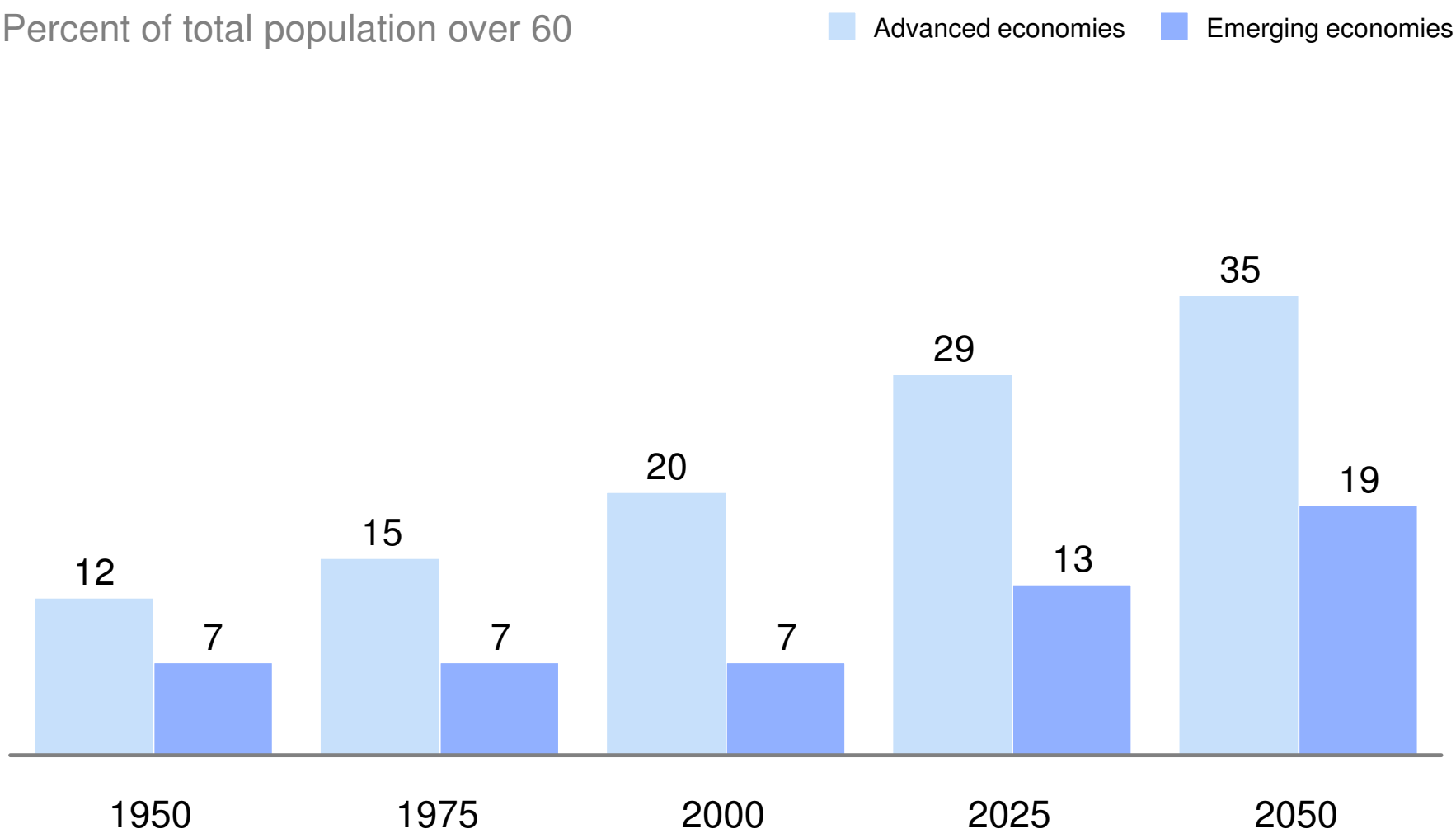
Time to reach 50 million users



SOURCE: Press reports; McKinsey Global Institute analysis

3 The population of advanced economies is aging rapidly

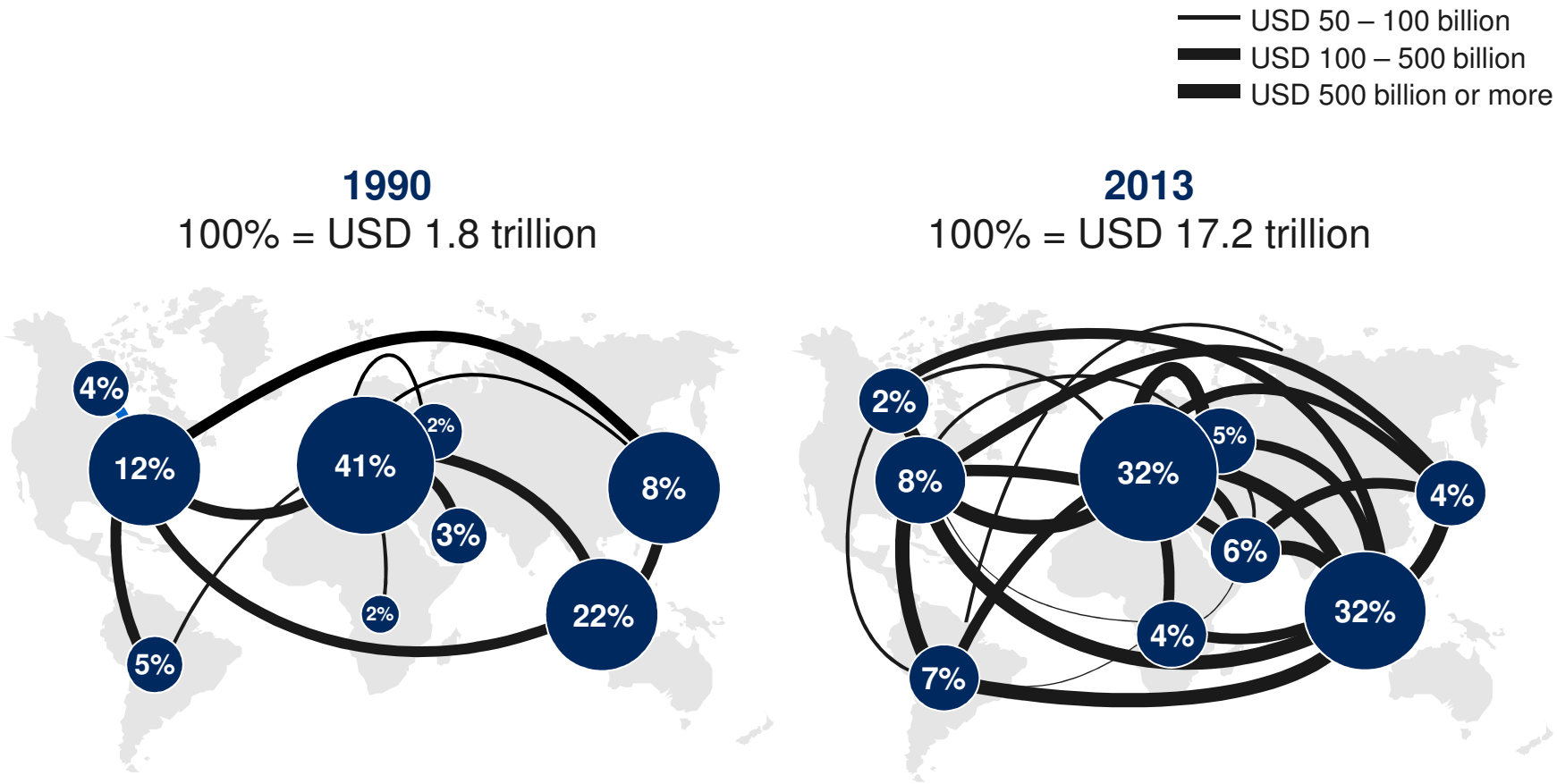
Global population distribution



SOURCE: UN Population Division; McKinsey Global Institute analysis

4 Networks of global trade flows are expanding and becoming much more interconnected

Lines show total trade flows between regions, figures in bubbles show participation in world trade



SOURCE: The Conference Board Total Economy Database; UN Population Division; McKinsey Global Institute analysis

Content of this document

- Future global forces
- **Competitiveness according to global indices**
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- Labor market
- Urbanization
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

Analysis of competitiveness ranking by WEF and IMD points towards several themes

IMD – 10 worst ranking criteria for the Czech Republic

Rank 2014: 33
Rank 2011: 30

10 worst hard[1] criteria by rank

Indicator	Country rank
Direct investment flows inward	56
Employer's social security contribution rate	55
Start-up procedures	53
Stock market capitalization	51
Fixed telephone tariffs	50
Pupil-teacher ratio (primary education)	49
Start-up days	48
Collected total tax revenues	47
Government subsidies	47
Electricity costs	45

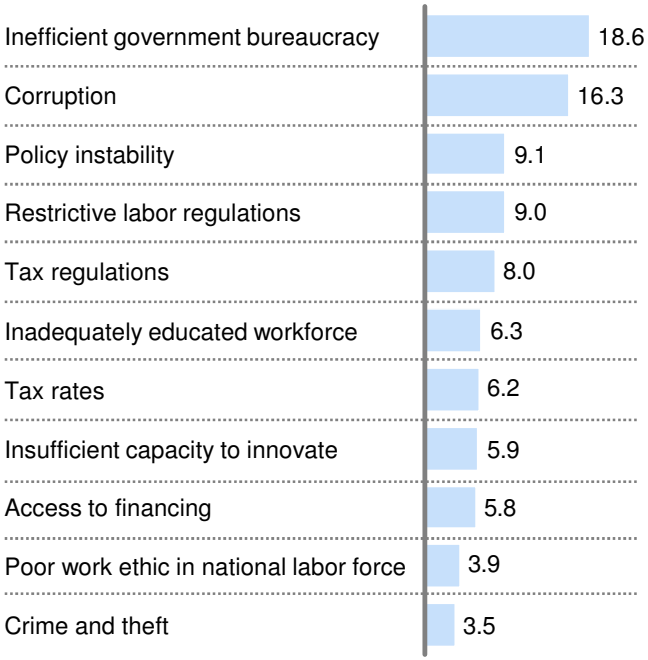
Recommendations

- Avoid introduction of excessive tax and regulatory burden
- Support the development of entrepreneurial culture
- Improve economic policy coordination and systematisms
- Fight against corruption

WEF – 10 worst ranking criteria for the Czech Republic

Rank 2014: 37
Rank 2011: 38

10 worst hard[1] criteria by index value



Recommendations

- Improve technological readiness
- Improve innovation and business sophistication
- Improve higher education system (10 lowest ranked)

Identified themes for improvement:

- Education
- Capital inflows
- Institutional environment
- Labor market and taxes

1 Quantifiable

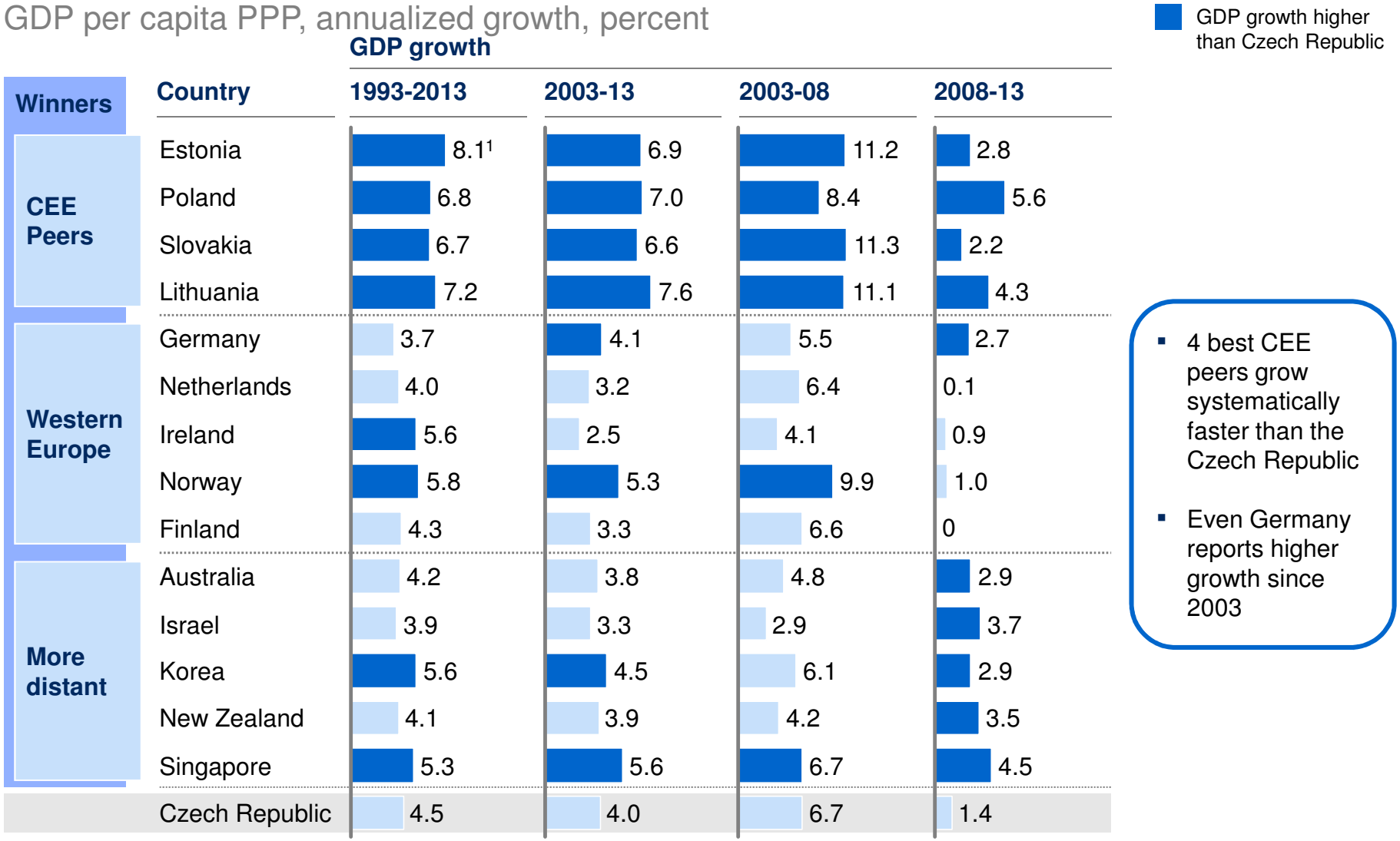
SOURCE: IMD, WEF

Content of this document

- Future global forces
- Competitiveness according to global indices
- **Current state of the Czech economy (growth, sectorial productivity)**
- Education, institutional framework & entrepreneurship
- Labor market
- Urbanization
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

GDP of the Czech Republic did not grow as fast as that of its CEE peers and did not close much of the gap to leading Western European countries

GDP per capita PPP, annualized growth, percent



- 4 best CEE peers grow systematically faster than the Czech Republic
- Even Germany reports higher growth since 2003

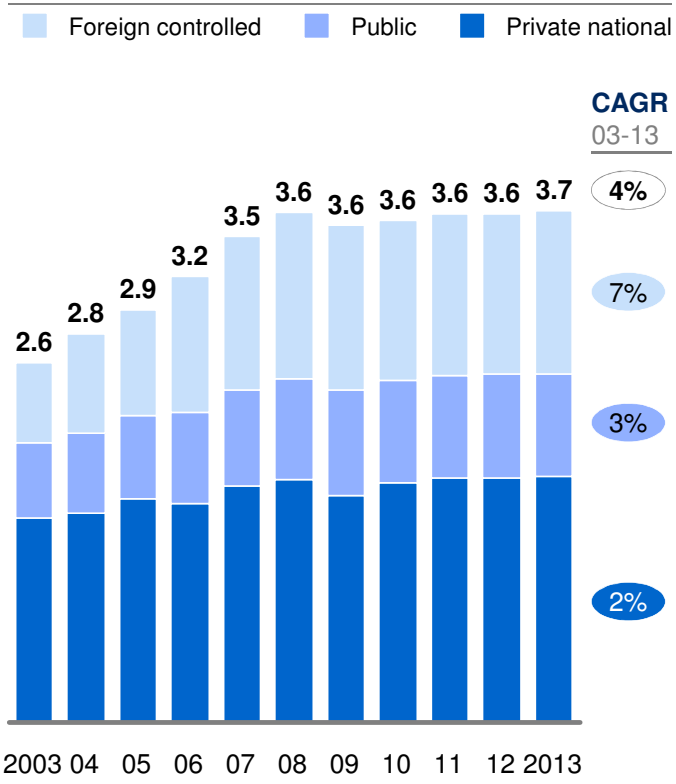
1 Growth rate calculated 1994-2013

SOURCE: World Bank; team analysis

Czech GDP growth is mostly driven by foreign-owned companies and increasing exports

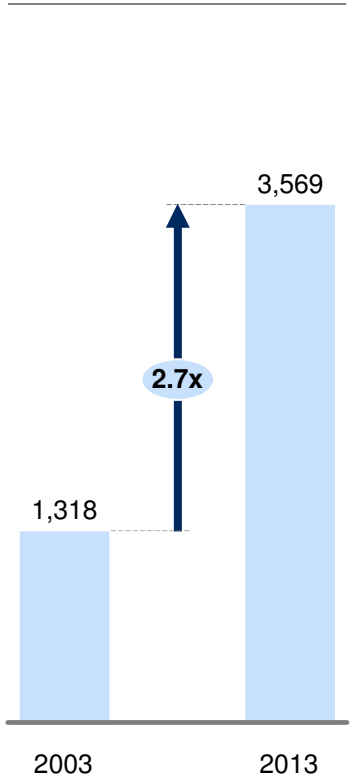
GDP overview

Ownership structure of GVA
CZK trillions, current prices

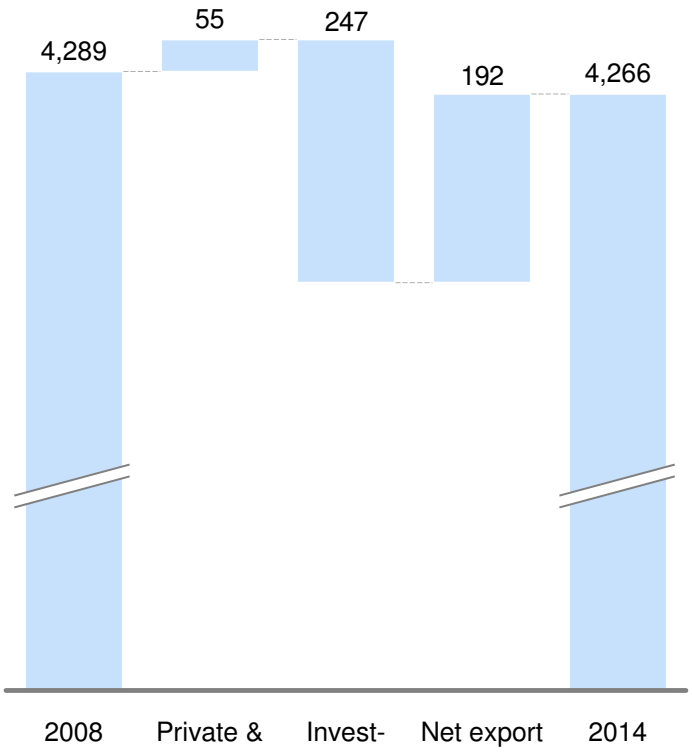


Exports overview

Czech exports
CZK billions, 2003-2013



Change in real GDP in the Czech Republic
CZK billions, chain-linked volumes, 2008-2014

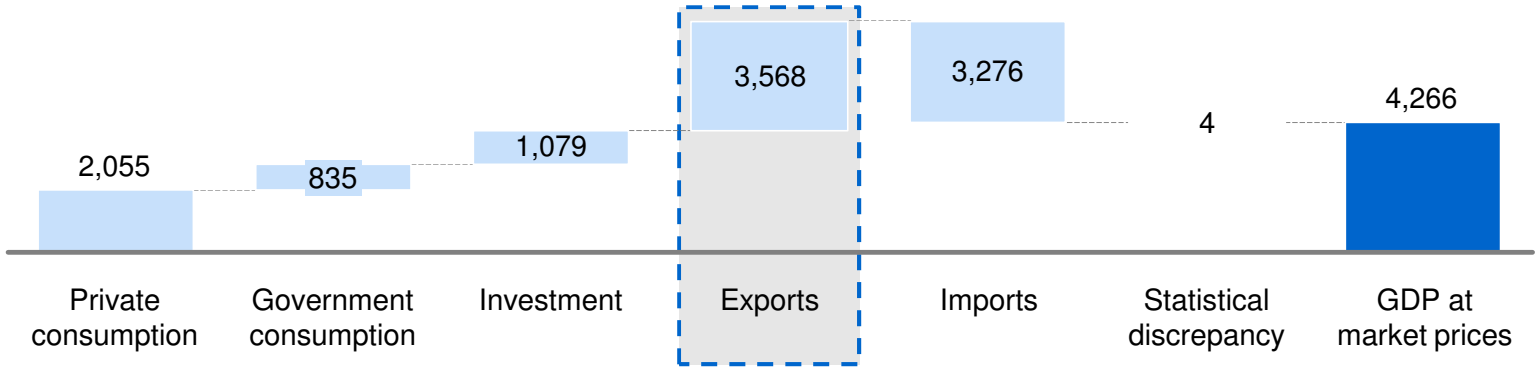


- Output of foreign-owned companies grew by 7%, while domestically owned companies grew only by 2% and are flat since 2008
- Export has almost tripled between 2003 and 2013
- Growth in net exports prevented real GDP from falling between 2008 and 2014 since consumption grew very little and investments fell significantly

SOURCE: Czech Statistical Office; ČNB

Exports account for almost 84% of Czech GDP, a share higher than in case of most Winners, but lower than in Ireland and Slovakia

GDP expenditure method, 2014
CZK billions

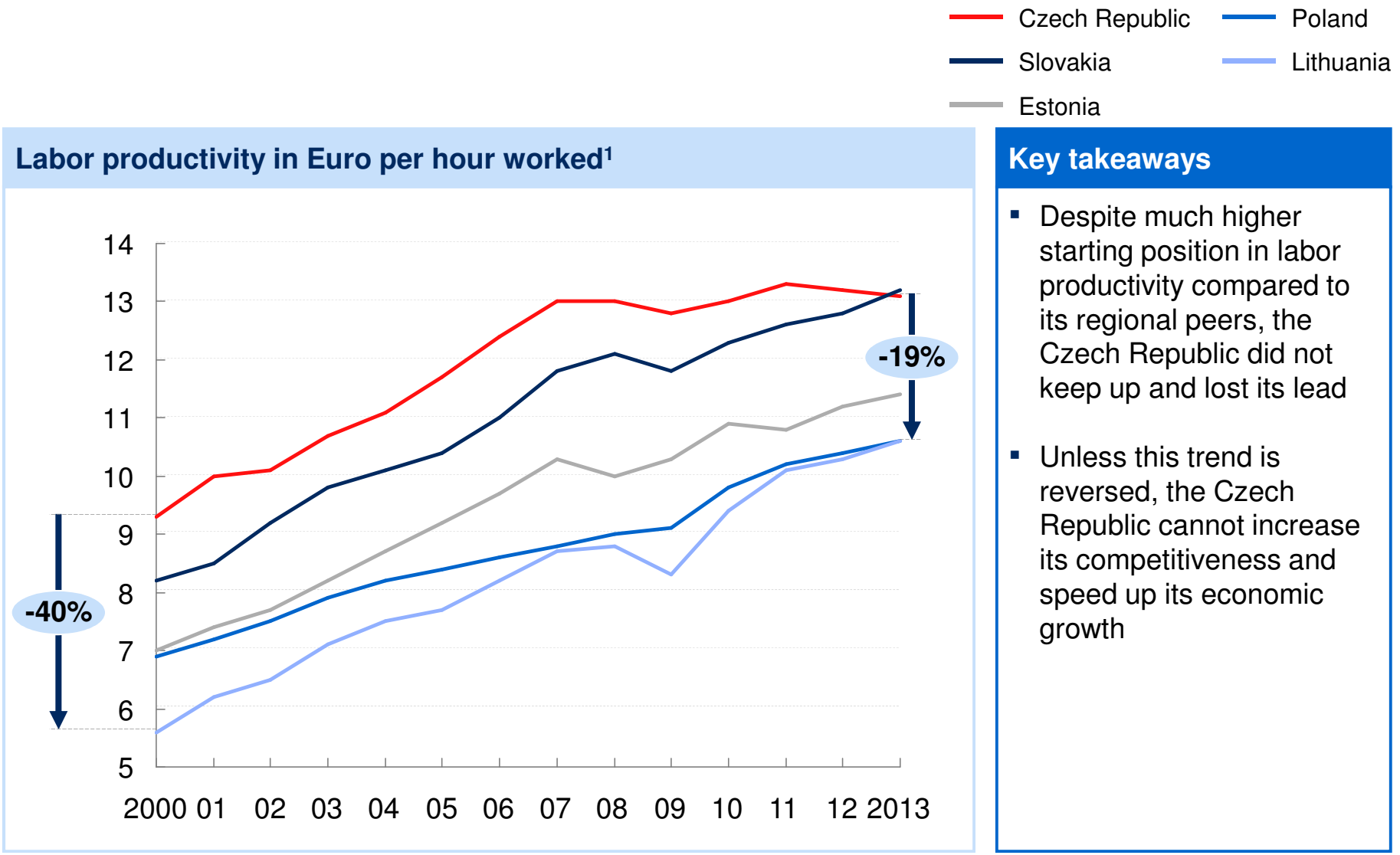


Percent	Private consumption	Government consumption	Investment	Exports	Imports	Trade balance
Czech Republic	**48**	**20**	**25**	**84**	**77**	+7
Estonia	50	22	27	84	83	+1
Finland	55	25	21	38	39	-1
Ireland	46	14	17	112	89	+23
Poland	60	18	20	47	45	+2
Slovakia	57	18	21	92	88	+4
Australia	56	18	27	21	21	0
Germany	55	19	19	46	39	+7
Lithuania	64	17	19	82	82	0
Netherlands	45	26	18	83	72	+11
New Zealand	57	18	23	29	27	+2
Norway	41	22	28	38	30	+8

- Czech exports add up to 84%, more than majority of peers and winners
- Yet, Czech Republic should still be able to generate more exports, like Slovakia and Ireland

SOURCE: EIU

Czech Republic lost its leading position in CEE in labor productivity



Key takeaways

- Despite much higher starting position in labor productivity compared to its regional peers, the Czech Republic did not keep up and lost its lead
- Unless this trend is reversed, the Czech Republic cannot increase its competitiveness and speed up its economic growth

1 Defined as total GDP over total numbers of hours worked in an economy in given year

SOURCE: Eurostat

ECONOMIC STRUCTURE

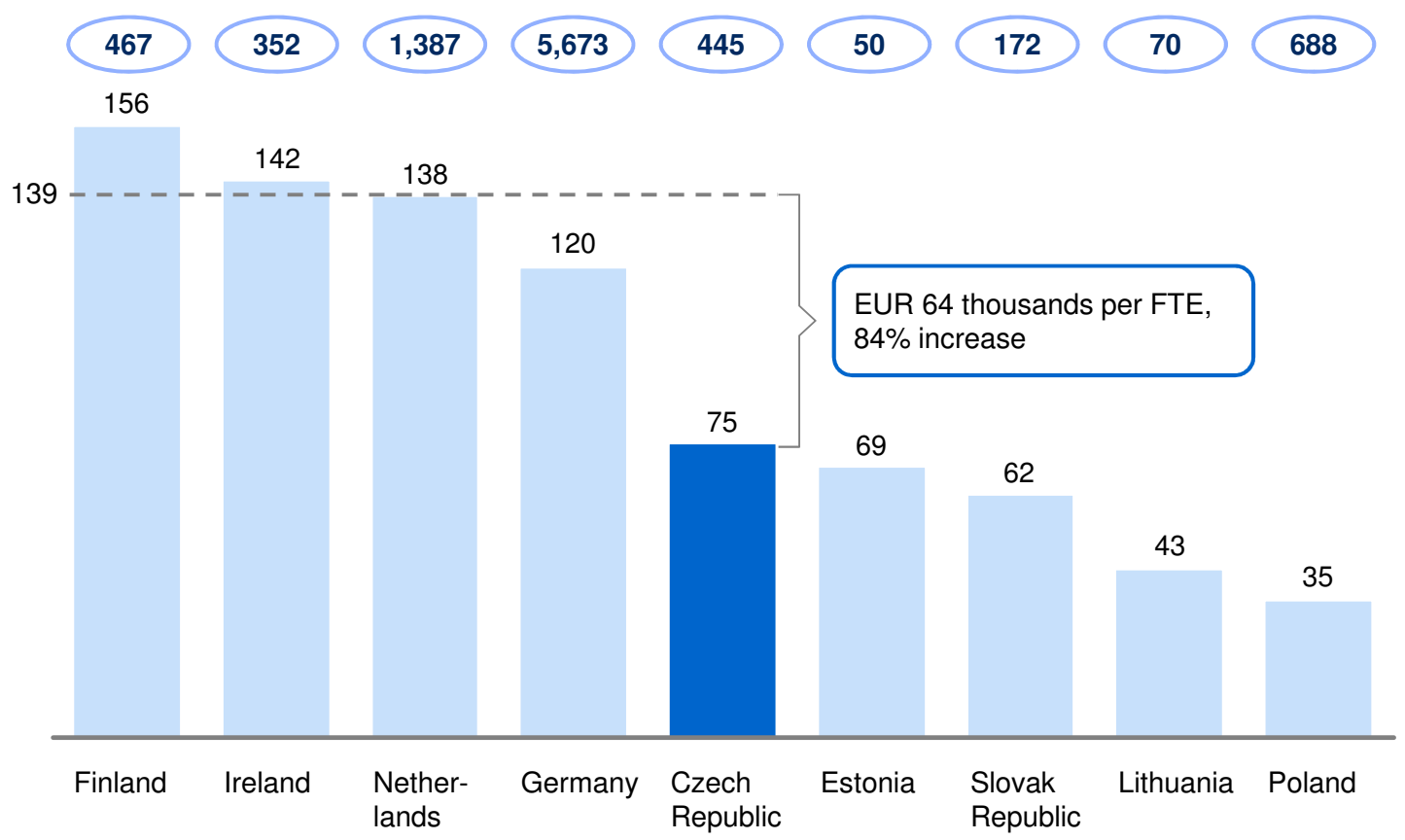
Czech Republic is undercapitalized when compared to Western Europe

x Aggregated invested capital, EUR billion

Western European average

Aggregated invested capital per full-time employee, 2005-2014

EUR thousands

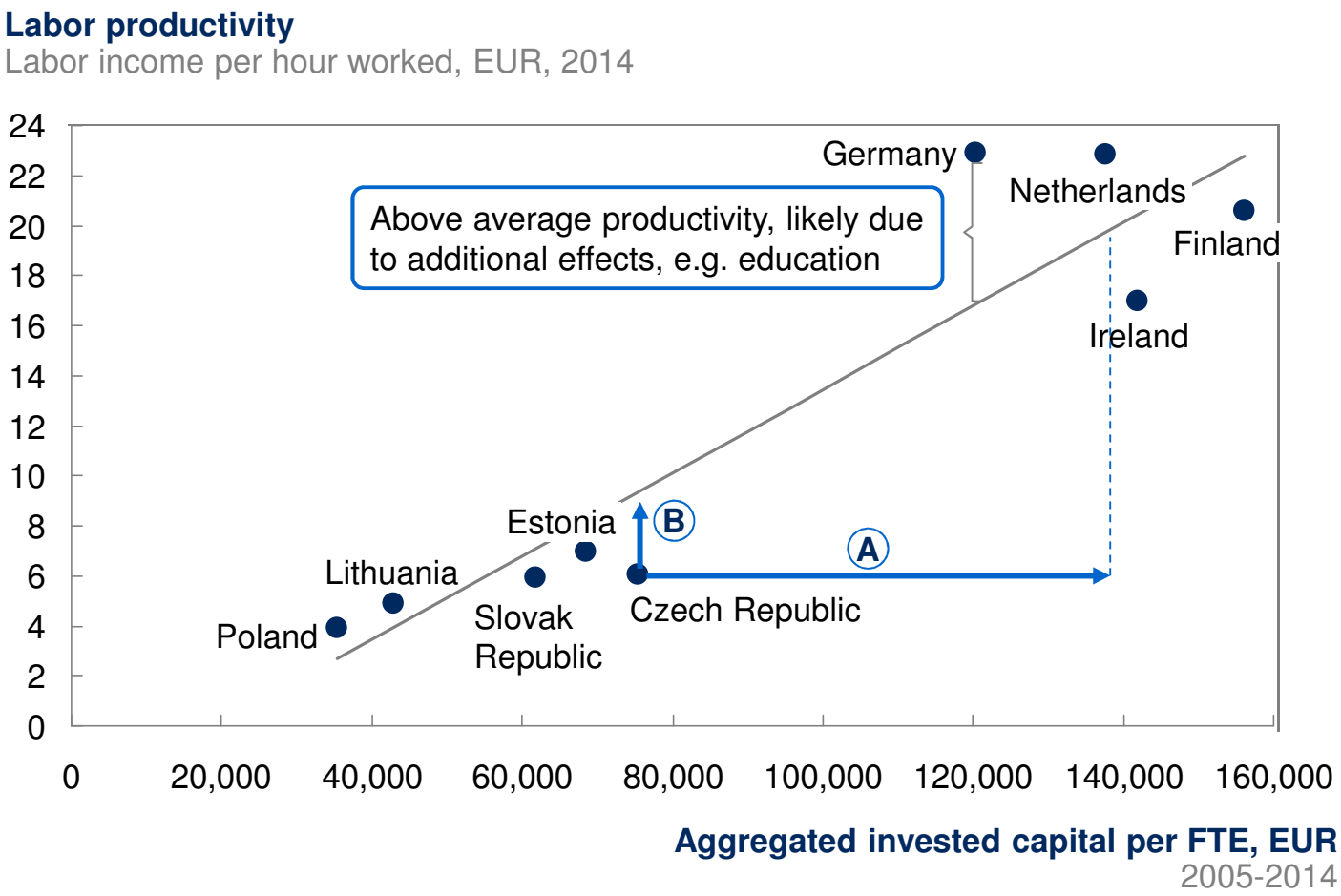


- Czech Republic invested significantly less in comparison to Western European winners in the past ten years
- To reach average Western European capitalization levels, Czech Republic would need to invest **EUR 64,000 per FTE more, or EUR 376 billion (i.e. more than twice its GDP)**

SOURCE: Global insights, 2014

Czech labor productivity is low in comparison to Western Europe, and is directly correlated to capitalization levels

Labor productivity vs. aggregated invested capital



- There is strong correlation between capital base and labor productivity

A Czech Republic is significantly under-capitalized in comparison to Western Europe

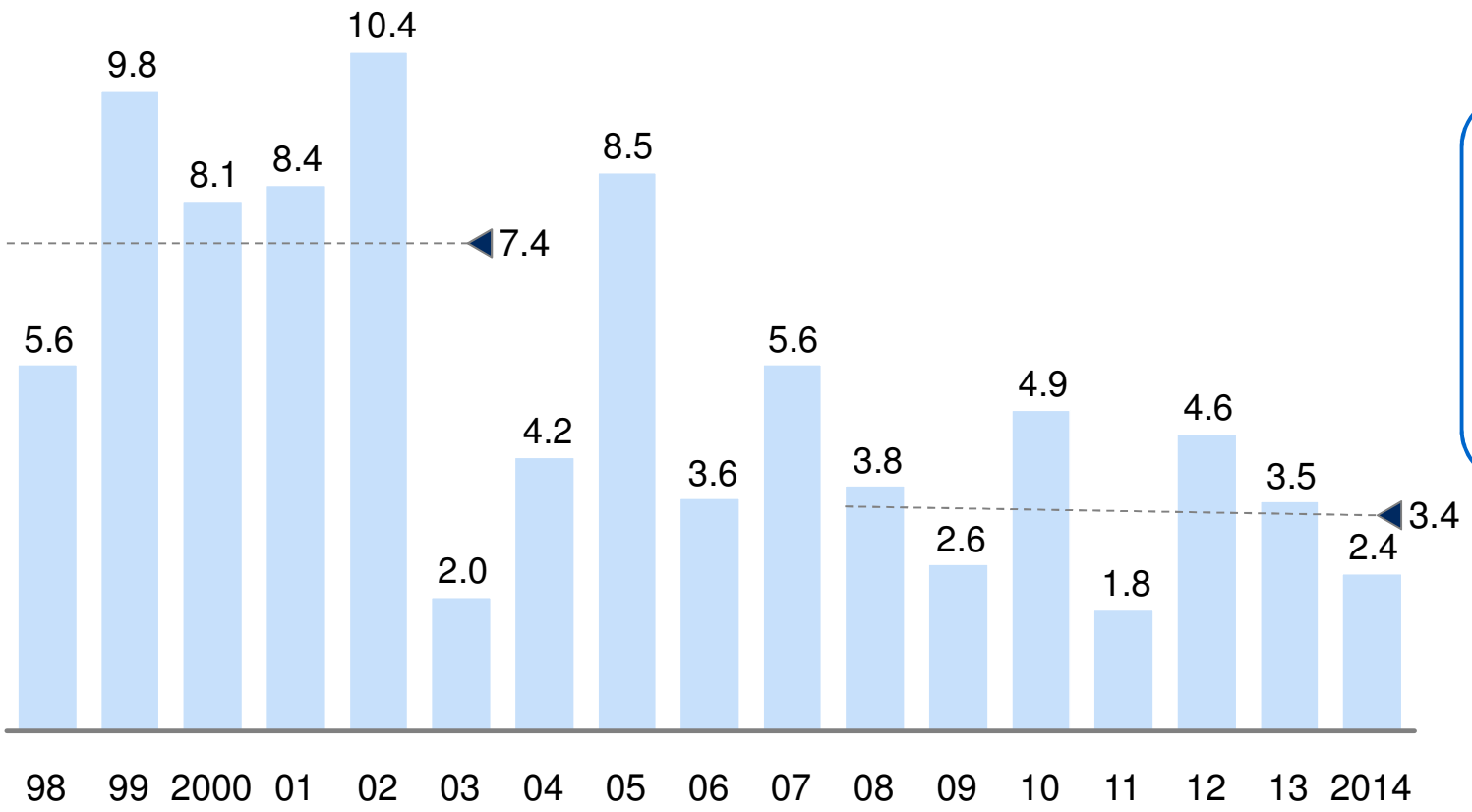
B Czech Republic also lags in basic economic pre-dispositions to efficiently derive productivity from its capital

SOURCE: World Bank; Eurostat

Foreign direct investment (FDI) levels to the Czech Republic decreased by more than half since early 2000's

X.X Average FDI as percentage of GDP

Foreign direct investment as percentage of GDP, 1998-2014

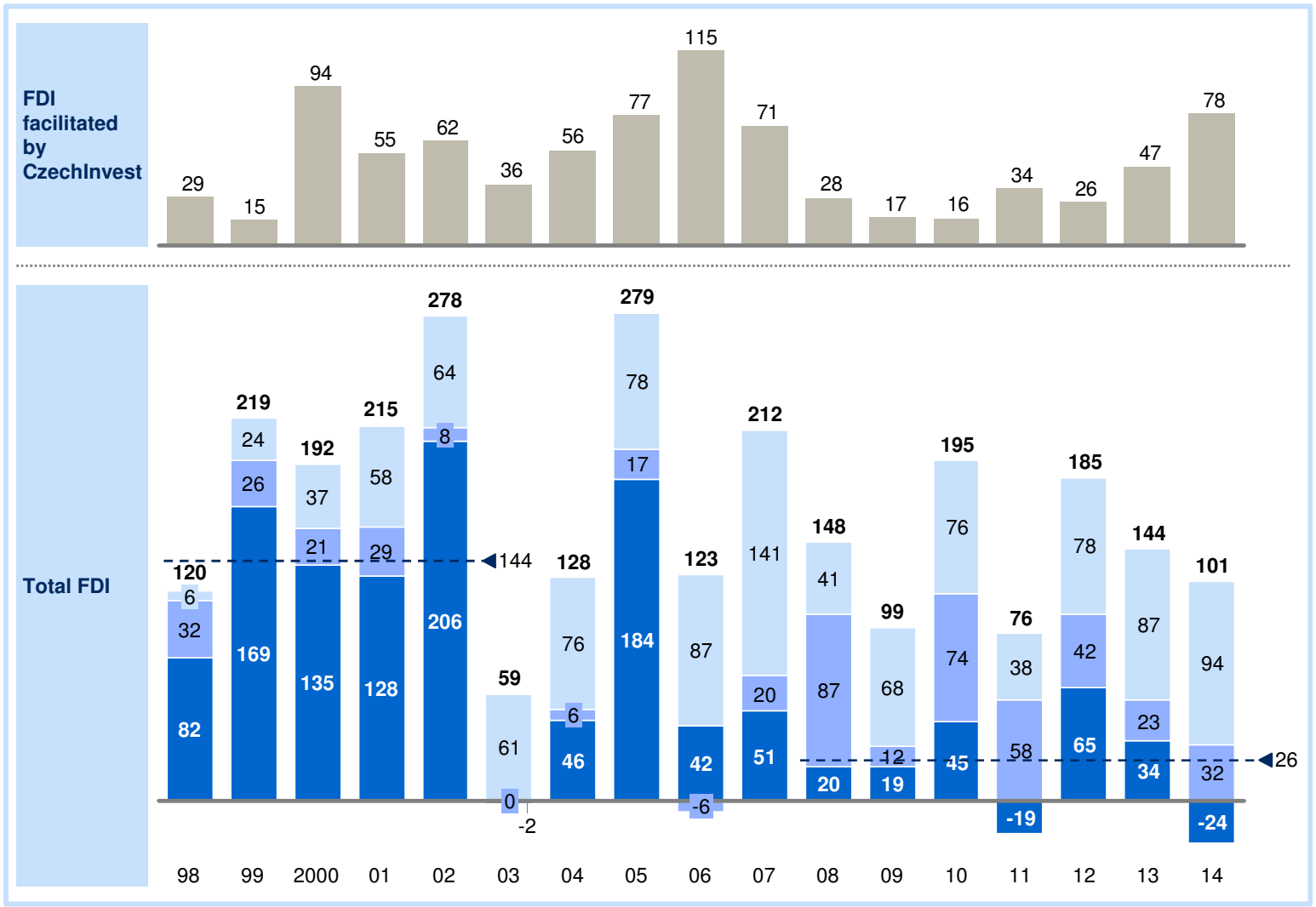


- Foreign investments fell from over 7% from early 2000's to just over 3% in the post-2007 era

SOURCE: EIA

FDI has historically been driven by equity inflows, but those declined since early 2000's

FDI breakdown, CZK billions



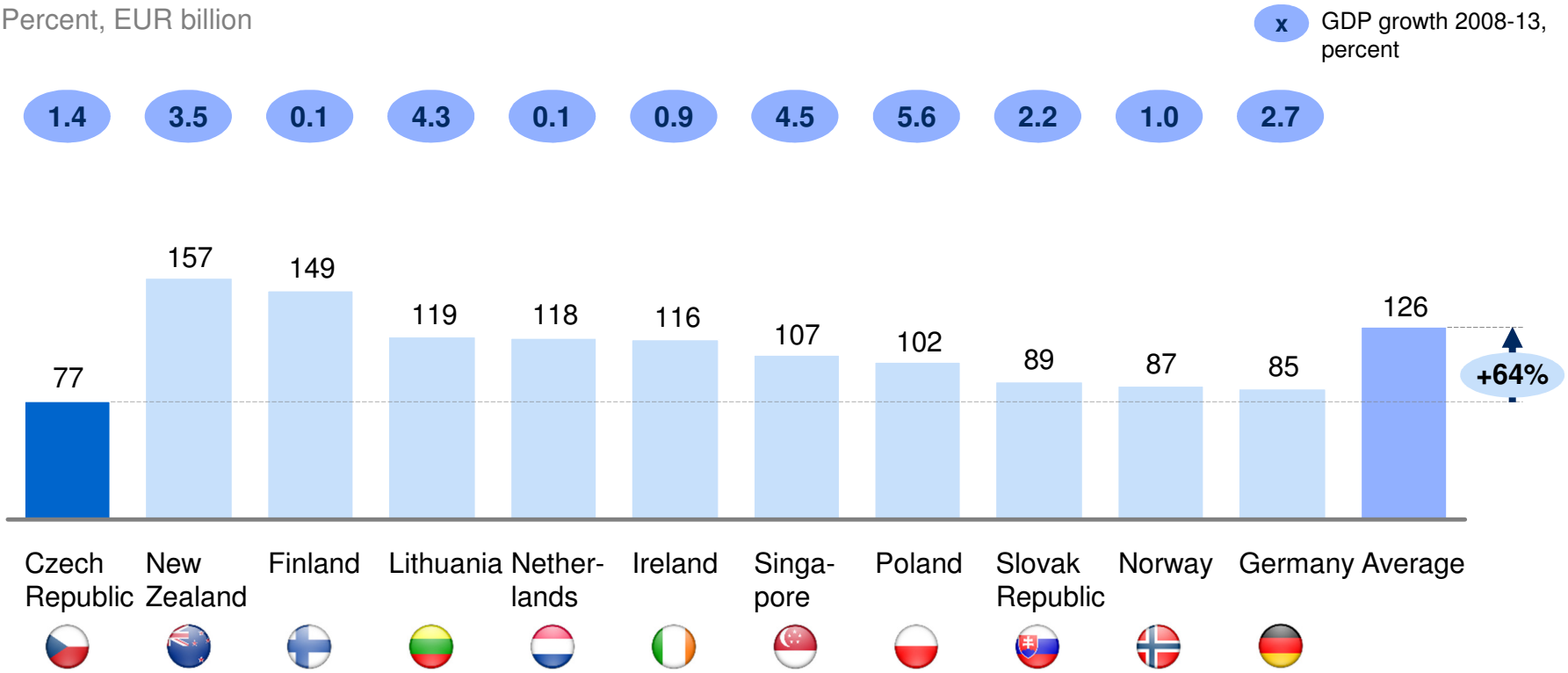
- Equity inflows played significant role until early 2000's, but declined since then
- Today, FDI is mostly driven by reinvested earnings of foreign-owned companies
- Czech-Invest recently reported increased attractive-ness of the Czech Republic which should show in 2015-17

SOURCE: ČNB, CzechInvest

Czech banking sector exhibits the lowest loan-to-deposit ratio from the reference group

Loan-to-deposit ratio, GDP growth

Percent, EUR billion



- Czech Republic has the lowest loan-to-deposit ratio from the reference group, reflecting tight credit conditions, lack of non-banking options for retail investors, and lack of attitude from companies to go for loans
- Apart from Finland and Netherlands, all Winners reported growth comparable or higher than the Czech Republic
- Even though high loan-to-deposit ratio created headache for many countries during crisis, they recovered and demonstrated sizeable growth

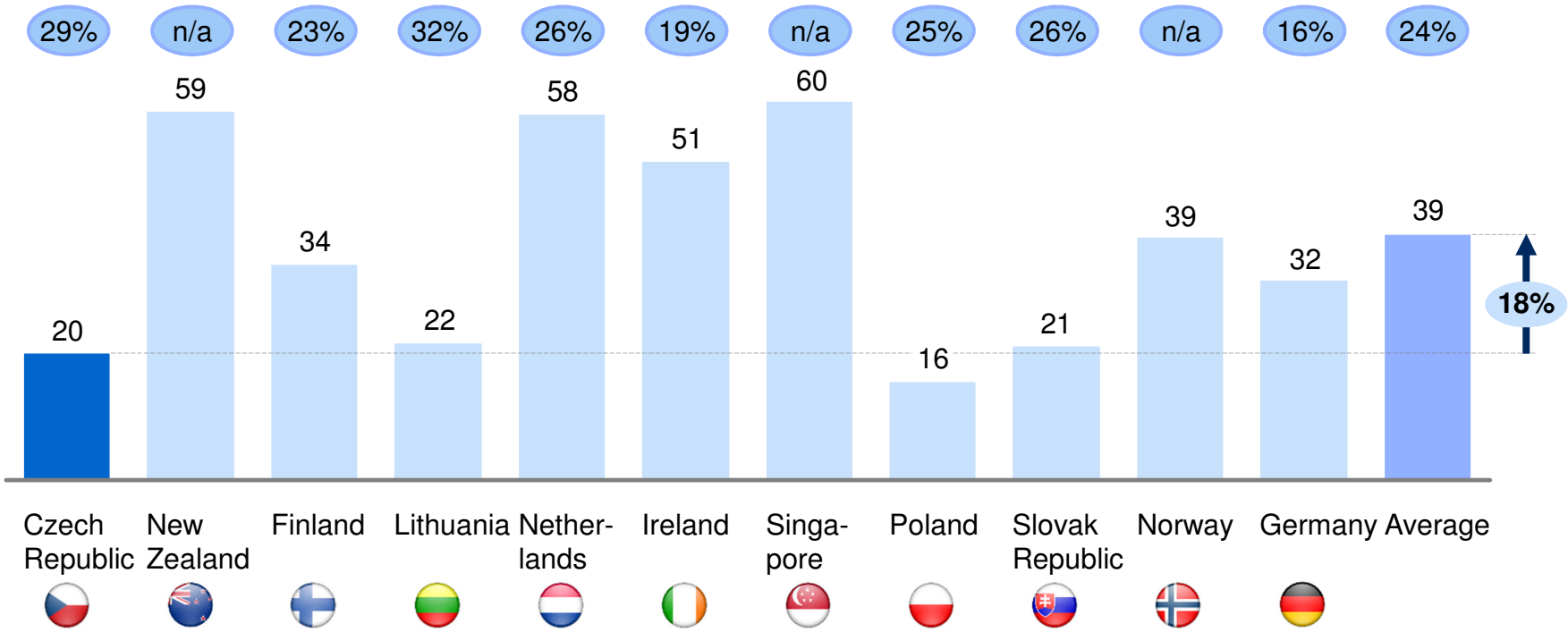
SOURCE: World Bank, Eurostat, ECB

Czech companies are not as leveraged as their counterparts from other countries

x Corporate deposits share of total deposits

Corporate loan[1]-to-GDP ratio

Percent, 2013

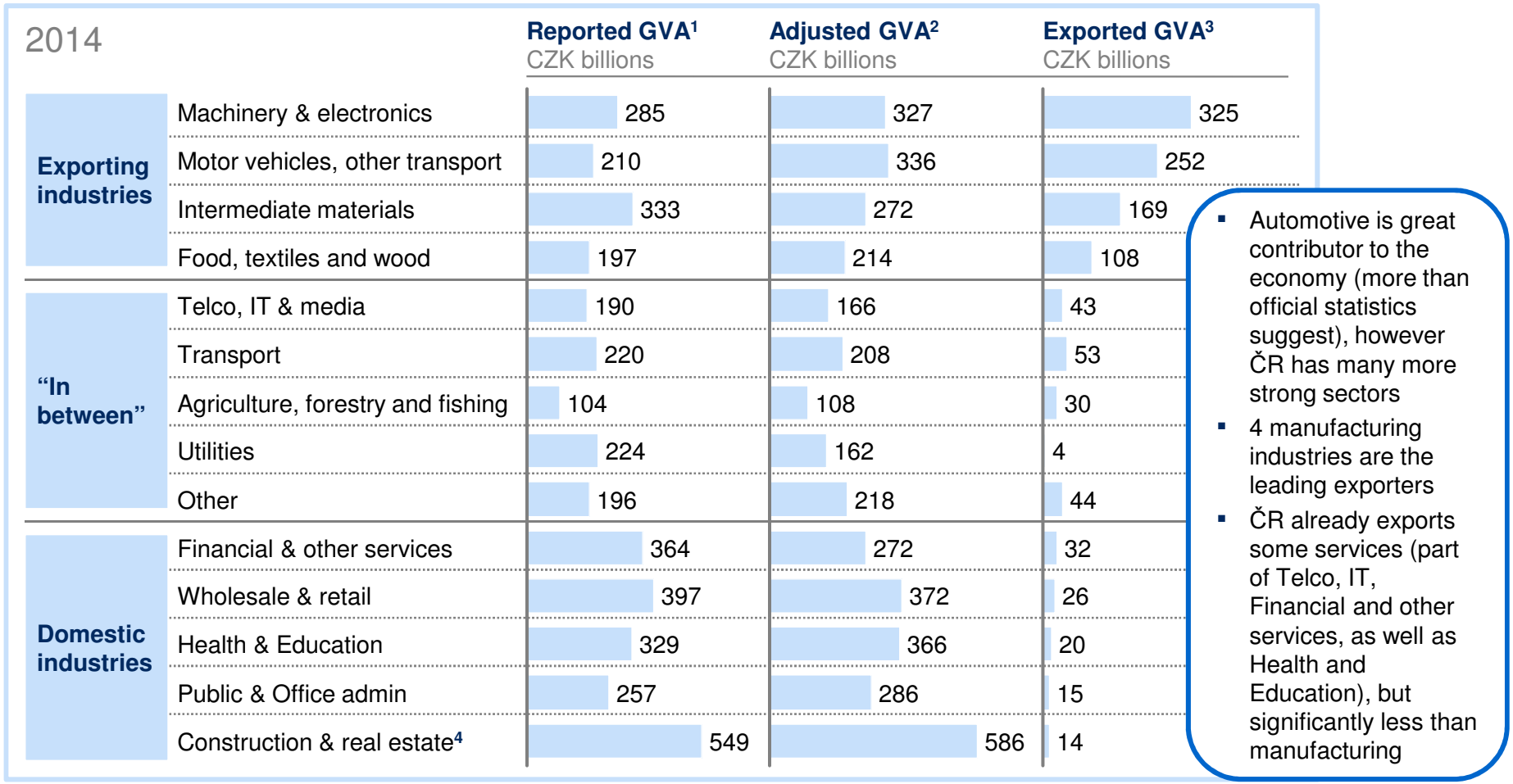


- Czech loan[1]-to-GDP ratio of 20% is the second lowest from the peer group, indicating that the Czech companies are underinvesting
- Czech companies and banks are jointly conservative
- On average Czech companies have more cash reserves than their Western peers, and those that don't, leverage themselves much less than their peers

1 Bank loans only
SOURCE: ECB, CNB, KNF

ECONOMIC STRUCTURE

Sectorial analysis reveals manufacturing industries and transport as highly exporting

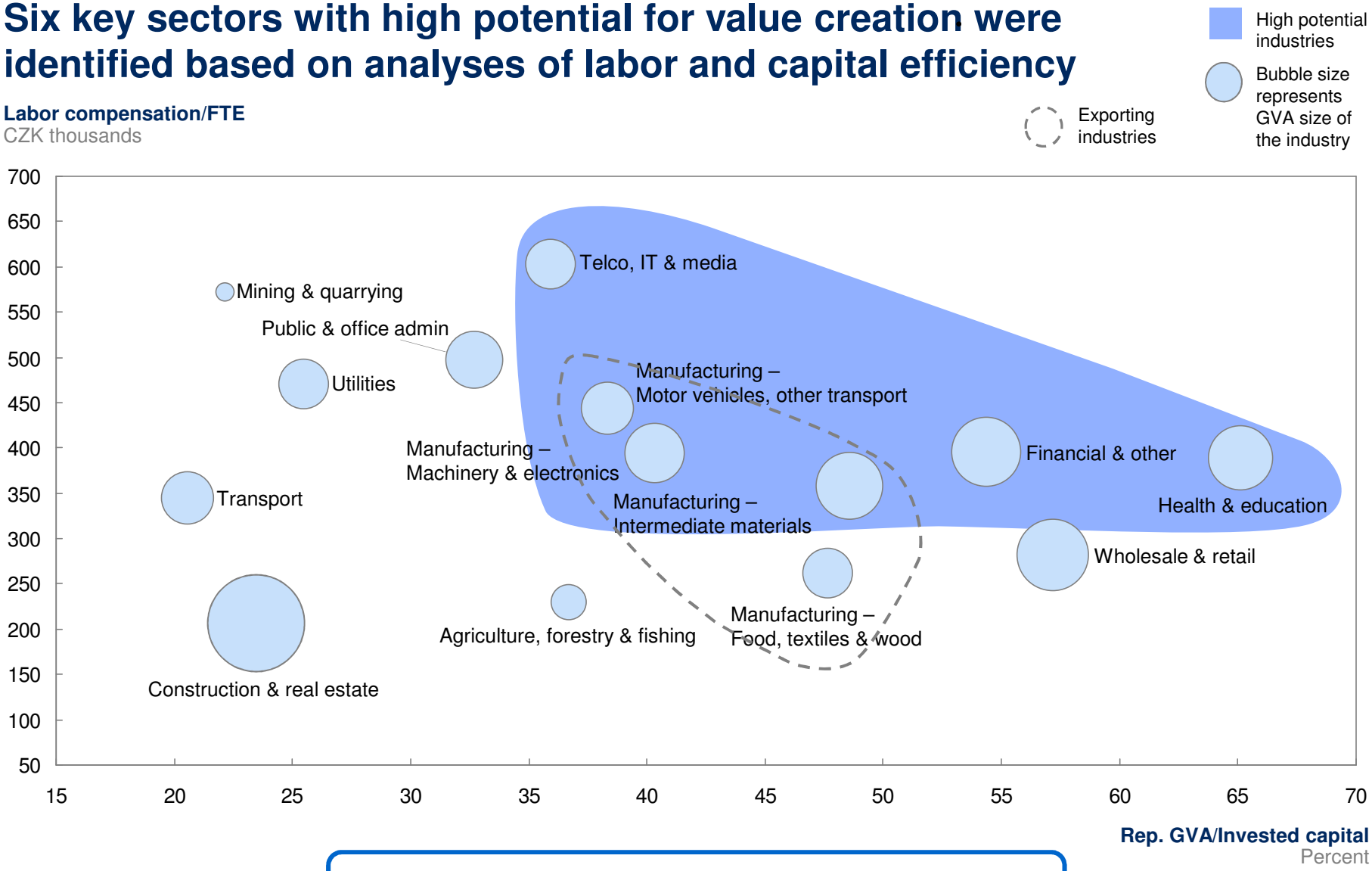


- Automotive is great contributor to the economy (more than official statistics suggest), however ČR has many more strong sectors
- 4 manufacturing industries are the leading exporters
- ČR already exports some services (part of Telco, IT, Financial and other services, as well as Health and Education), but significantly less than manufacturing

1 **GVA = Gross Value Added** by sector, i.e. approximation of GDP of sector excluding taxes, but including subsidies (available only at economy level)
2 **Adjsuted GVA – approximates GVA create by sector in other sectors (e.g. parts of car manufactured in Intermediate materials)**
2 Estimated as exported value over production value (likely includes some re-export)
3 Construction and real estate is the largest sector as it includes estimated value of rent for self-owned houses

SOURCE: CZSO; Team analysis

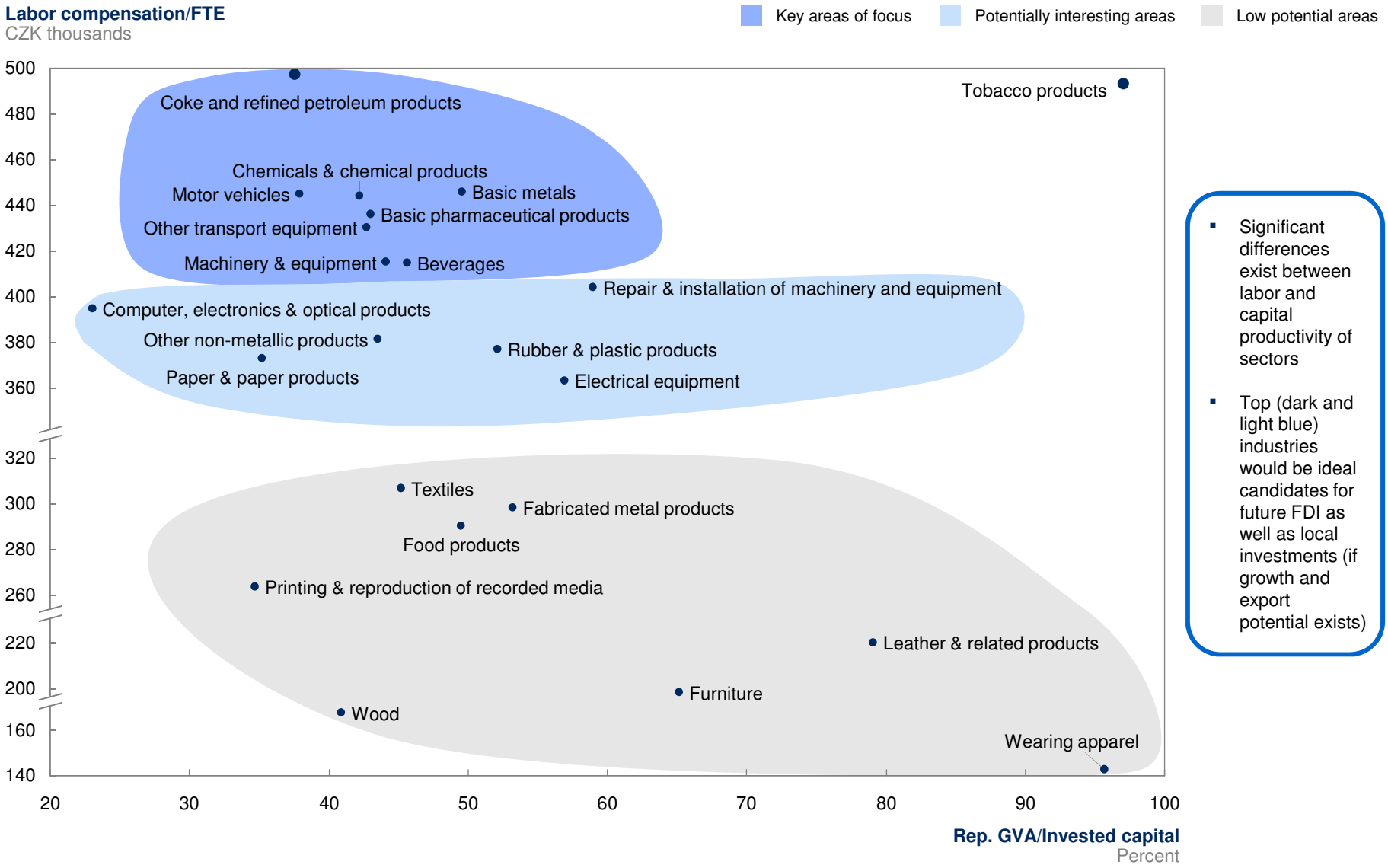
Six key sectors with high potential for value creation were identified based on analyses of labor and capital efficiency



Telco, IT & Media, Motor vehicles, machinery, intermediate materials, finance & consulting and health sectors score well labor and capital efficiency analysis

SOURCE: CZSO; Team analysis

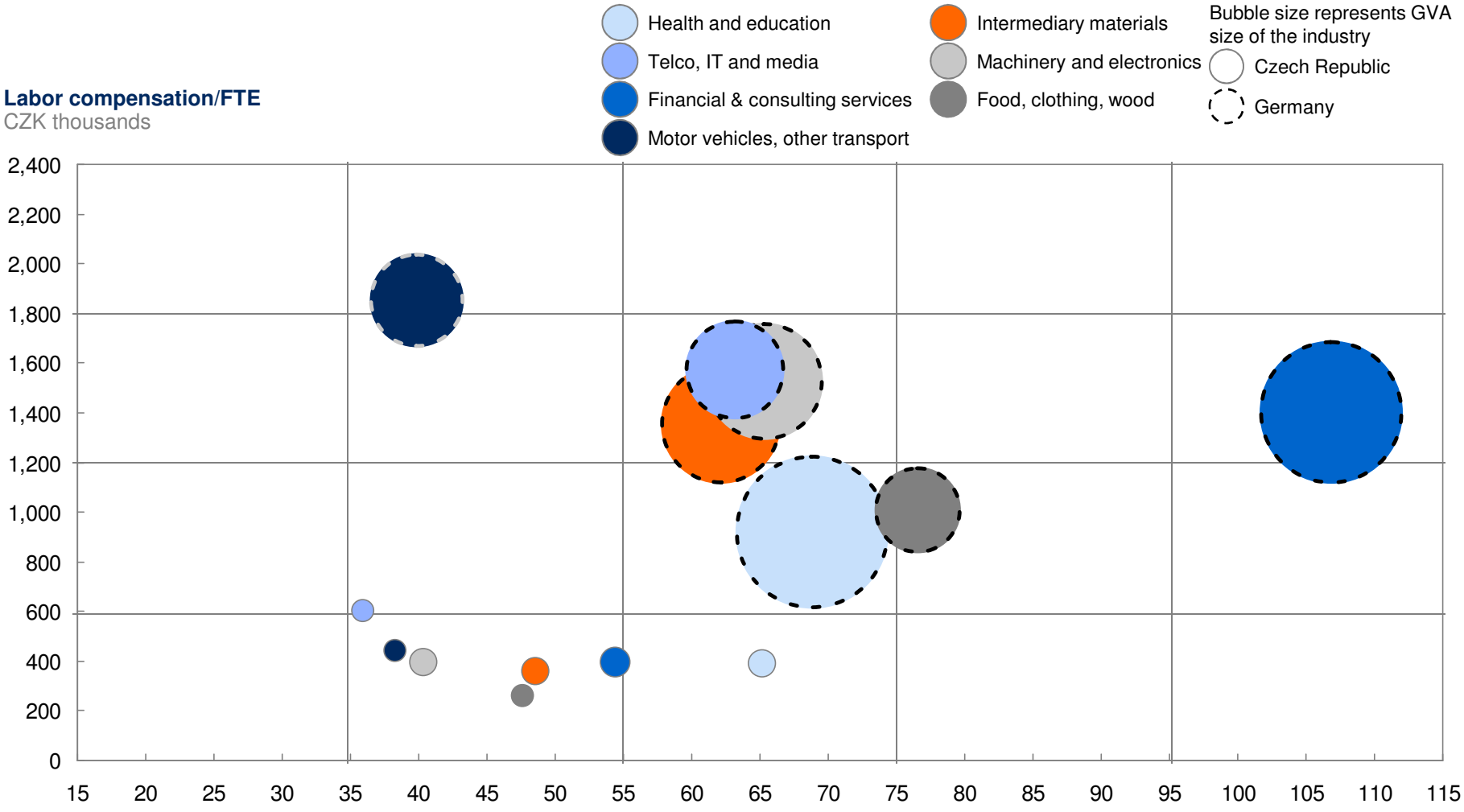
Detailed analysis of manufacturing (i.e., exporting) sub-sectors reveals three buckets based on their value creation potential



- Significant differences exist between labor and capital productivity of sectors
- Top (dark and light blue) industries would be ideal candidates for future FDI as well as local investments (if growth and export potential exists)

SOURCE: CZSO; Team analysis

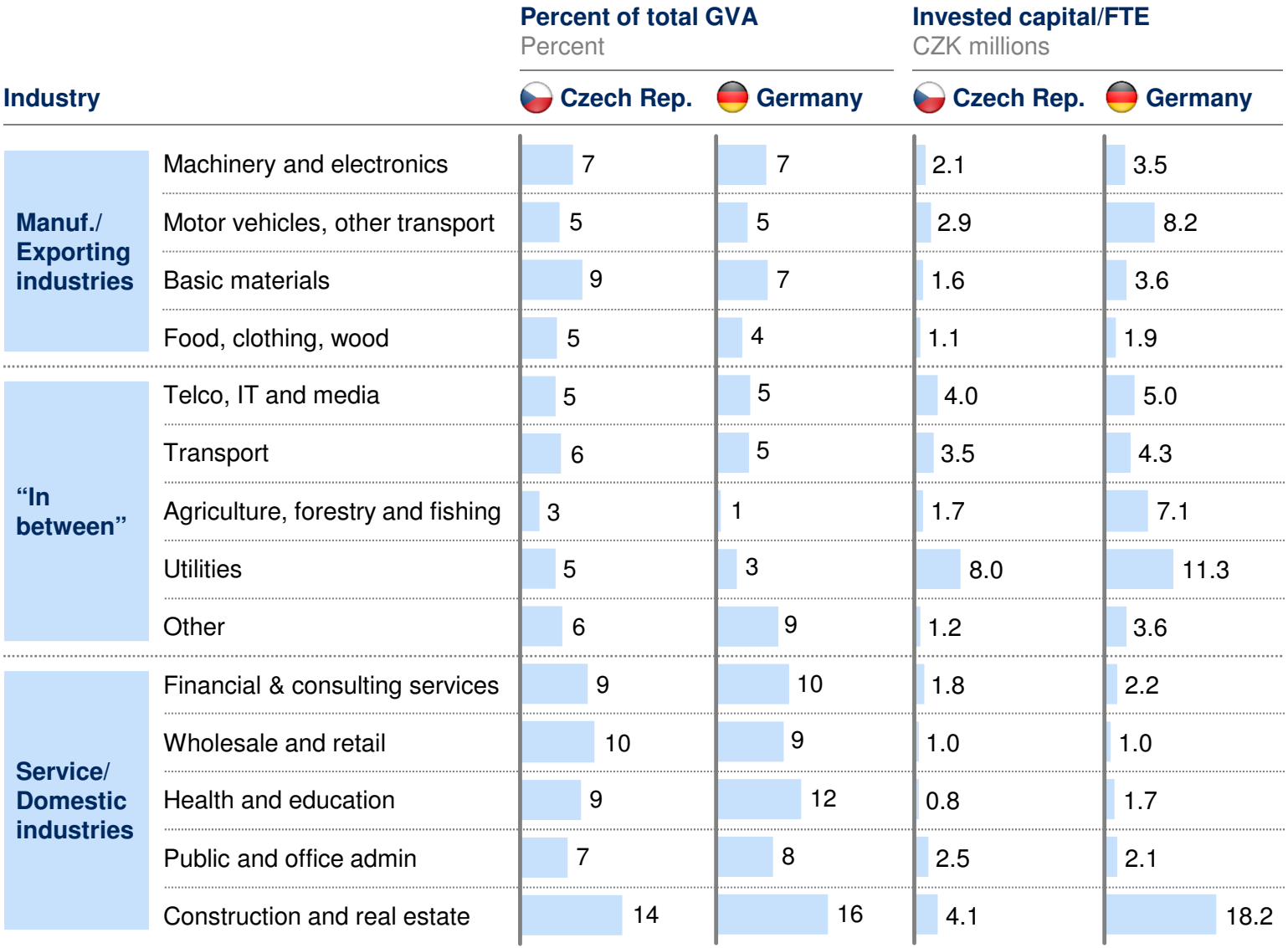
The overall ability to create value on invested capital as well as labor compensation is higher in Germany than in the Czech Republic



- Germany has significantly higher labor costs than the Czech Republic
- Production is more efficient in Germany – bigger value creation on invested capital

SOURCE: CZSO; Destatis; team analysis

Czech Republic and Germany have similar industry structure while that of Germany is more capital intensive



- Structure of Czech industries with few minor exceptions mirrors Germany
- German industries have more capital per headcount

SOURCE: CZSO; Destatis; team analysis

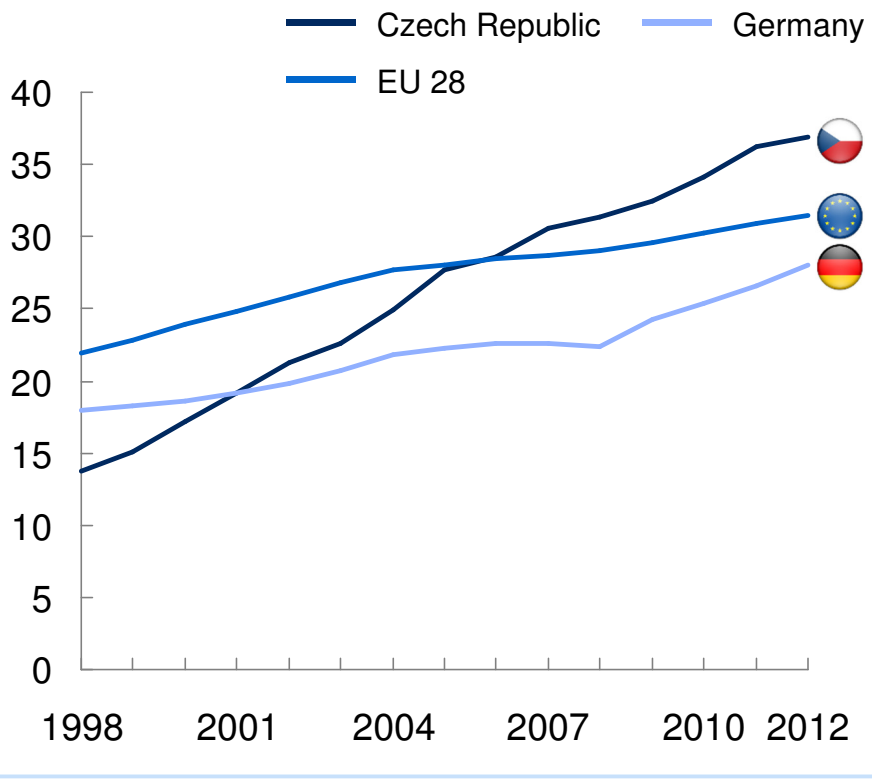
Content of this document

- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- **Education, institutional framework & entrepreneurship**
- Labor market
- Urbanization
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

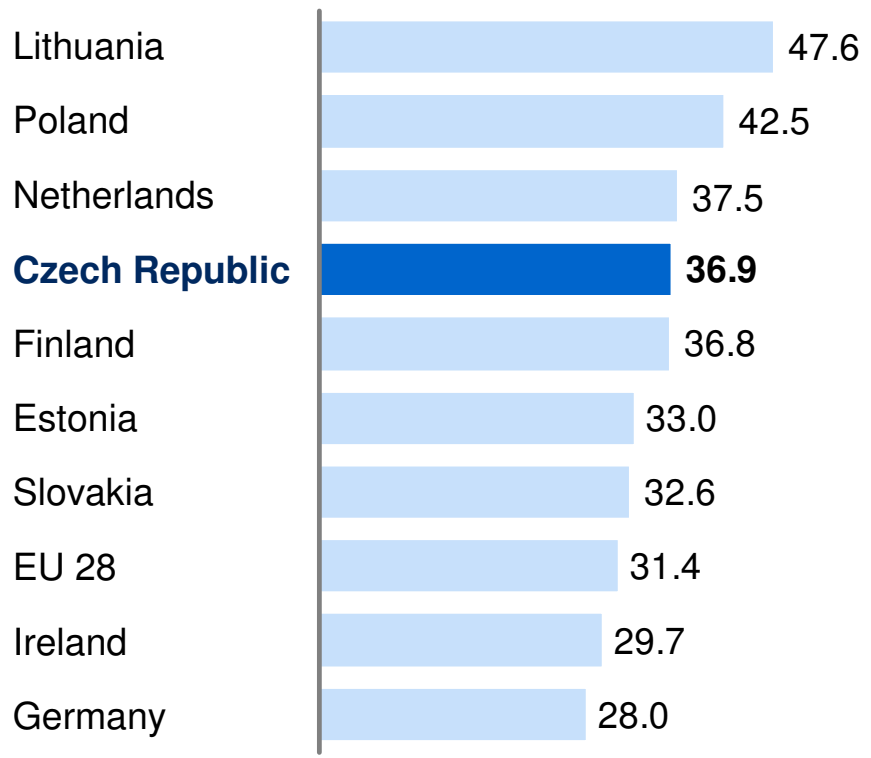
Share of young Czech people attending tertiary education is above both German and European average

Percent of 20-24 aged population studying tertiary level of education

Historical development



European Winners – overview, 2012



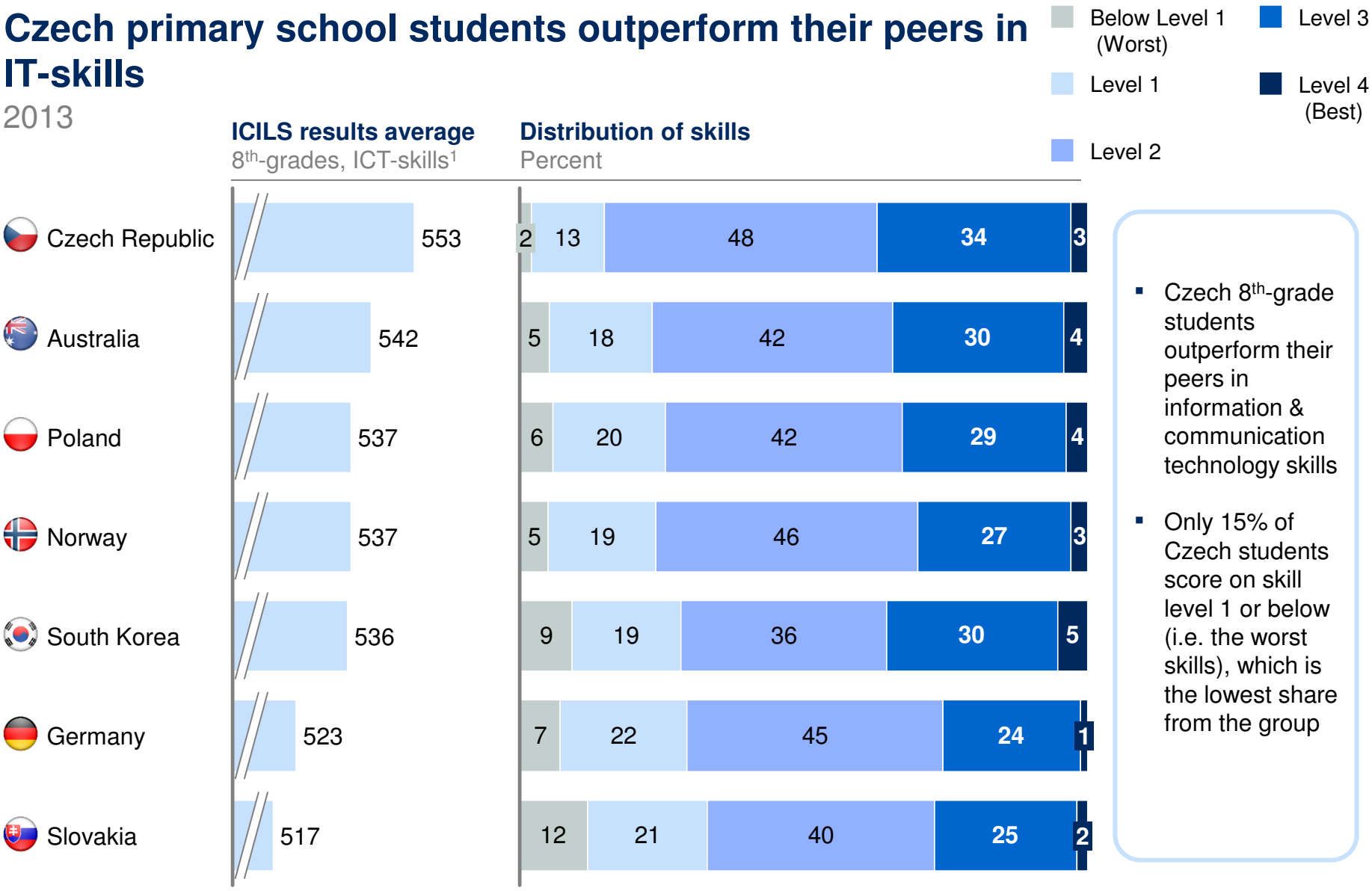
- The number of current students in Czech tertiary education rose faster than European average and Germany
- Only Lithuania, Poland and Netherlands have more students in tertiary education

SOURCE: Eurostat

EDUCATION

Czech primary school students outperform their peers in IT-skills

2013



- Czech 8th-grade students outperform their peers in information & communication technology skills
- Only 15% of Czech students score on skill level 1 or below (i.e. the worst skills), which is the lowest share from the group

1 ICT stands for Information & Communication Technology

SOURCE: ICILS 2013

Czech secondary school students perform worse than their Estonian, Polish and Finnish peers across all major subjects

Below level 2 (very bad)
Levels 5 and above (very good)

Percentage of 15-year-old students performing at PISA reading literacy proficiency levels 5 and above and below level 2, by education system: 2012

Mathematics literacy	Below level 2	Levels 5 and above
OECD avg.	23	13
Singapore	8	40
Korea	9	31
Netherlands	15	19
Germany	18	17
Poland	14	17
Finland	12	15
New Zealand	23	15
Australia	20	15
Estonia	11	15
Czech Rep.	21	13
Slovakia	27	11
Ireland	17	11
Norway	22	9
Israel	34	9
Lithuania	26	8

Science literacy	Below level 2	Levels 5 and above
OECD avg.	18	8
Singapore	10	23
Finland	8	17
Australia	14	14
New Zealand	16	13
Estonia	5	13
Germany	12	12
Netherlands	13	12
Korea	7	12
Poland	9	11
Ireland	11	11
Czech Rep.	14	8
Norway	20	8
Israel	29	6
Lithuania	16	5
Slovakia	27	5

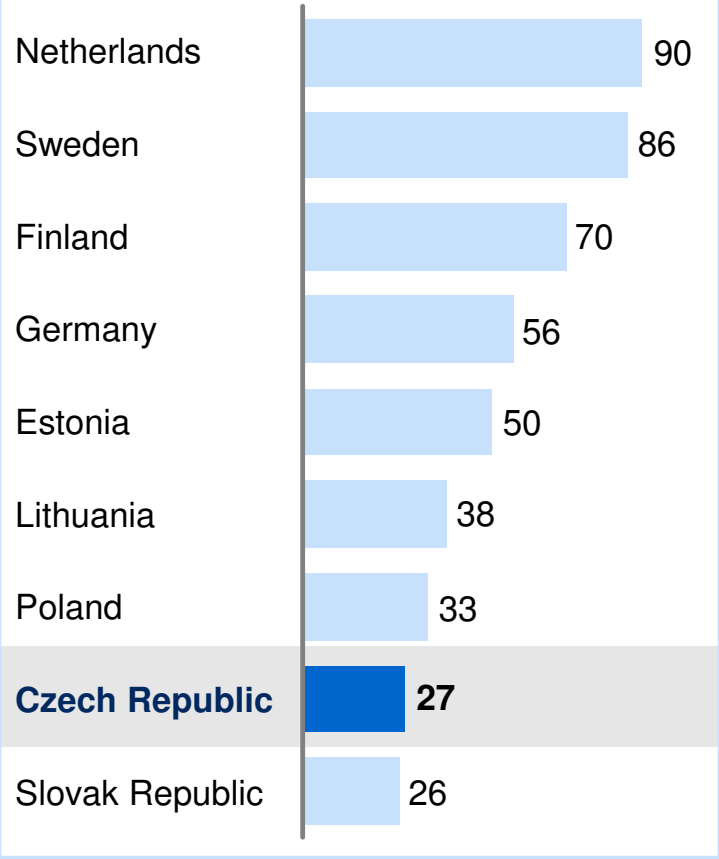
Reading literacy	Below level 2	Levels 5 and above
OECD avg.	18	8
Singapore	10	21
Korea	8	14
New Zealand	16	14
Finland	11	13
Australia	14	12
Ireland	10	11
Norway	16	10
Poland	11	10
Netherlands	14	10
Israel	24	10
Germany	14	9
Estonia	9	8
Czech Rep.	17	6
Slovakia	0	
Lithuania	TBD	

Finland, Poland, Estonia and Ireland outperform Czech pupils in all main secondary school subjects

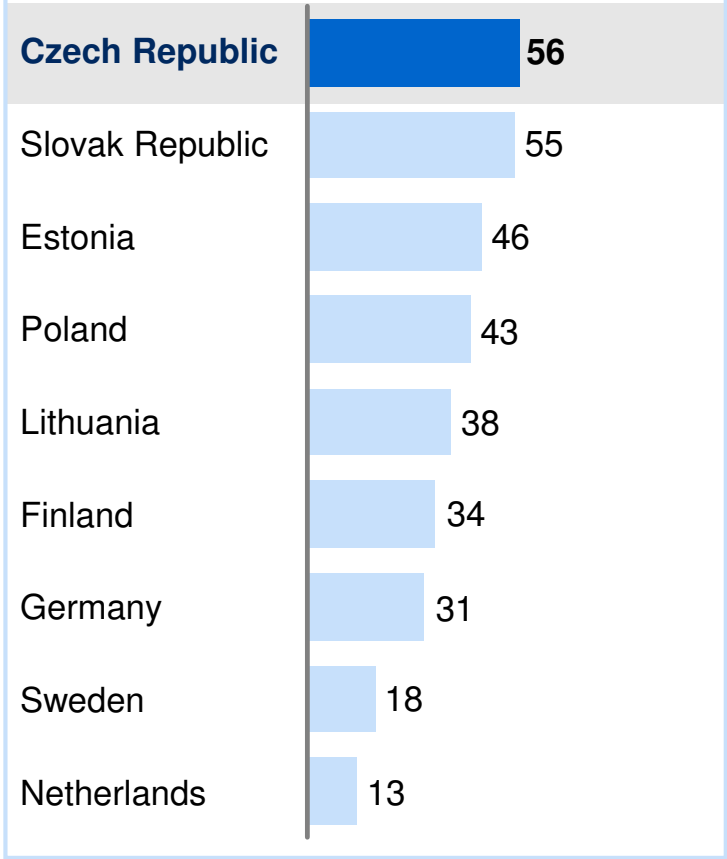
SOURCE: PISA

Language skills of the Czech population do not reflect the needs of the economy

Percentage of citizens able to speak English language well enough to have a conversation



Percentage of employers ranking foreign language skills in the top three most important skills for higher education graduates

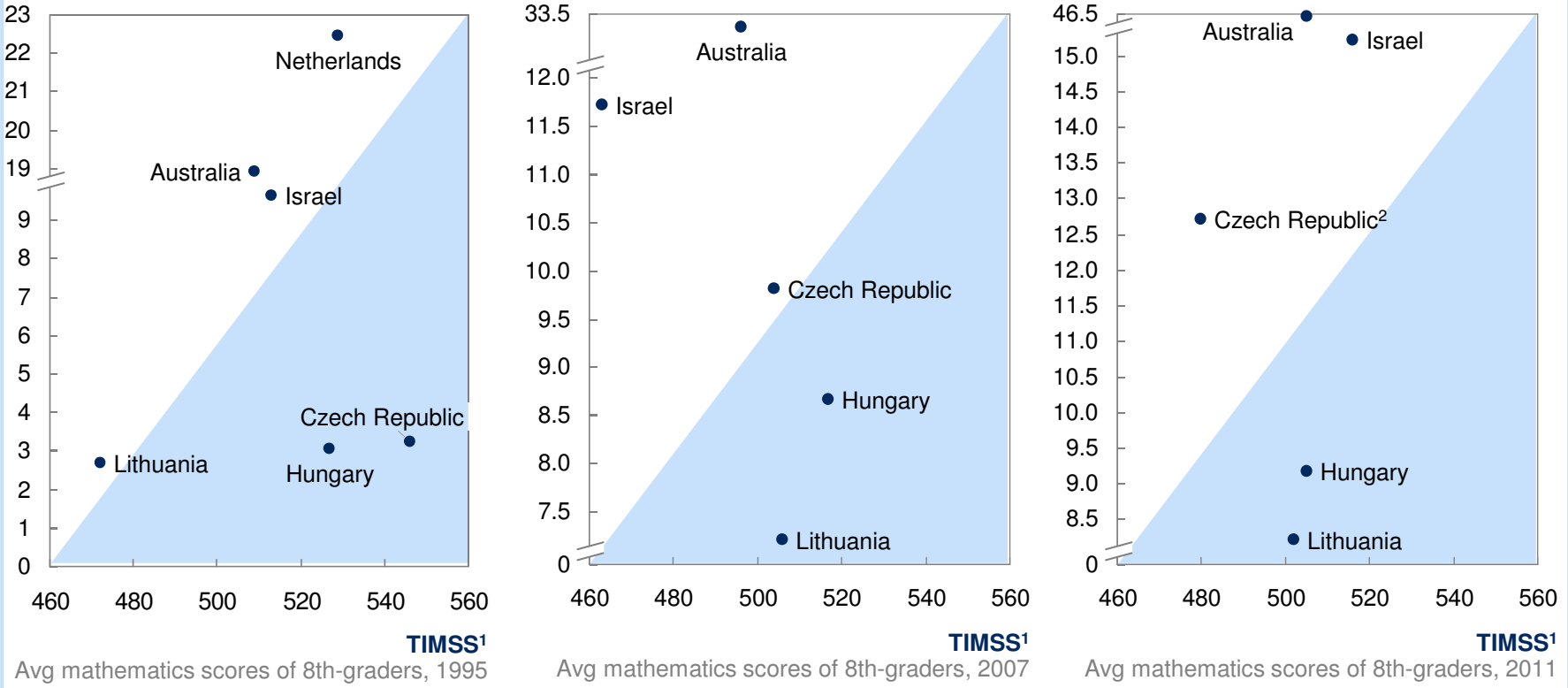


Employers demand knowledge of a foreign language more that in other countries, but Czech workers do not possess the skills

SOURCE: EU skills panorama, 2014; Europeans and their languages (Special Eurobarometer 386), 2012

Quality of Czech education deteriorated while workers' salaries increased between 1995 and 2011

Mathematics scores of 8th-graders compared to the cost of labor



- Results of Czech 8th-graders worsened between 1995 and 2007, and likely worsened further
- Labor costs increased over the same period significantly

1 TIMSS = "Trends in international mathematics and science study"; number for Czech Rep. is estimated in 2011 as it did not participate
SOURCE: TIMSS, EIU, McKinsey analysis

Czech Republic's institutional framework is ranked by WEF lower than those of most selected Winners

Most urgent issues

Country rank, 2015

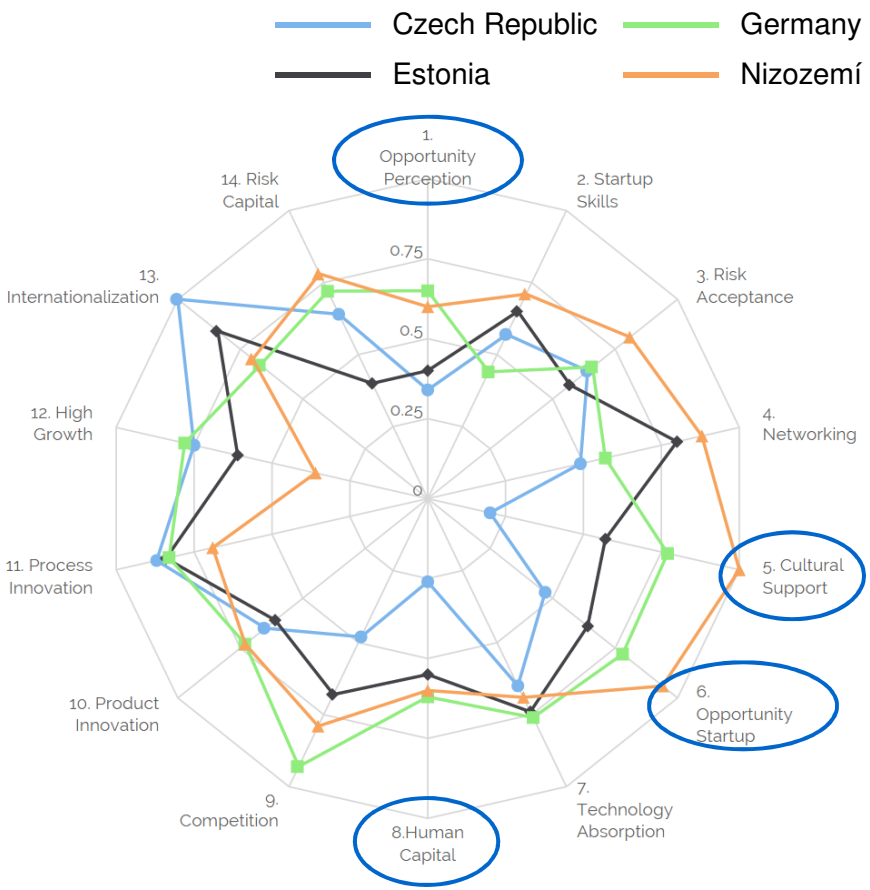
	Indicator	Czech Rep.	Winners										
			Estonia	Finland	Poland	Ireland	Slovakia	Norway	Germany	Lithuania	Australia	Singapore	USA
Infrastructure	Intellectual property protection	34	26	1	65	10	56	17	20	55	13	4	15
	Strength of auditing & reporting standards	33	25	2	52	59	32	5	17	47	9	7	23
	Strength of investor protection	77	55	72	32	6	88	12	50	74	69	3	25
	Burden of government regulation	120	23	15	122	13	132	19	34	103	80	1	51
	Efficiency in settling legal disputes	90	39	3	70	24	138	7	16	67	22	1	25
Environment	Judicial independence	50	21	2	54	8	125	3	17	68	13	23	28
	Irregular payments and bribes	48	17	1	40	9	94	4	27	42	16	3	32
	Favoritism in decisions of government officials	94	23	4	69	11	138	6	17	64	27	2	44
	Public trust in politicians	107	34	5	100	18	113	4	15	67	25	1	44
	Ethical behavior of firms	77	28	1	55	18	117	5	21	39	13	4	27
	Average of chosen institutional criteria	73	29	11	66	18	103	8	23	63	29	5	31

Czech Republic lags behind the Winners in **the quality of its institutional framework, especially in government regulation, legal efficiency and trust in politicians**

SOURCE: WEF GCI, Team analysis

We need entrepreneurial spirit and societal support for it

Global Entrepreneurship Index
14 entrepreneurship pillars – peer comparison



Global Entrepreneurship Index
Czech Republic's key failings

Opportunity perception:
Ability to identify and make use of opportunities

Cultural support:
Support from society and positive attitude to entrepreneurs

Opportunity startup:
Adequate state support to start-ups

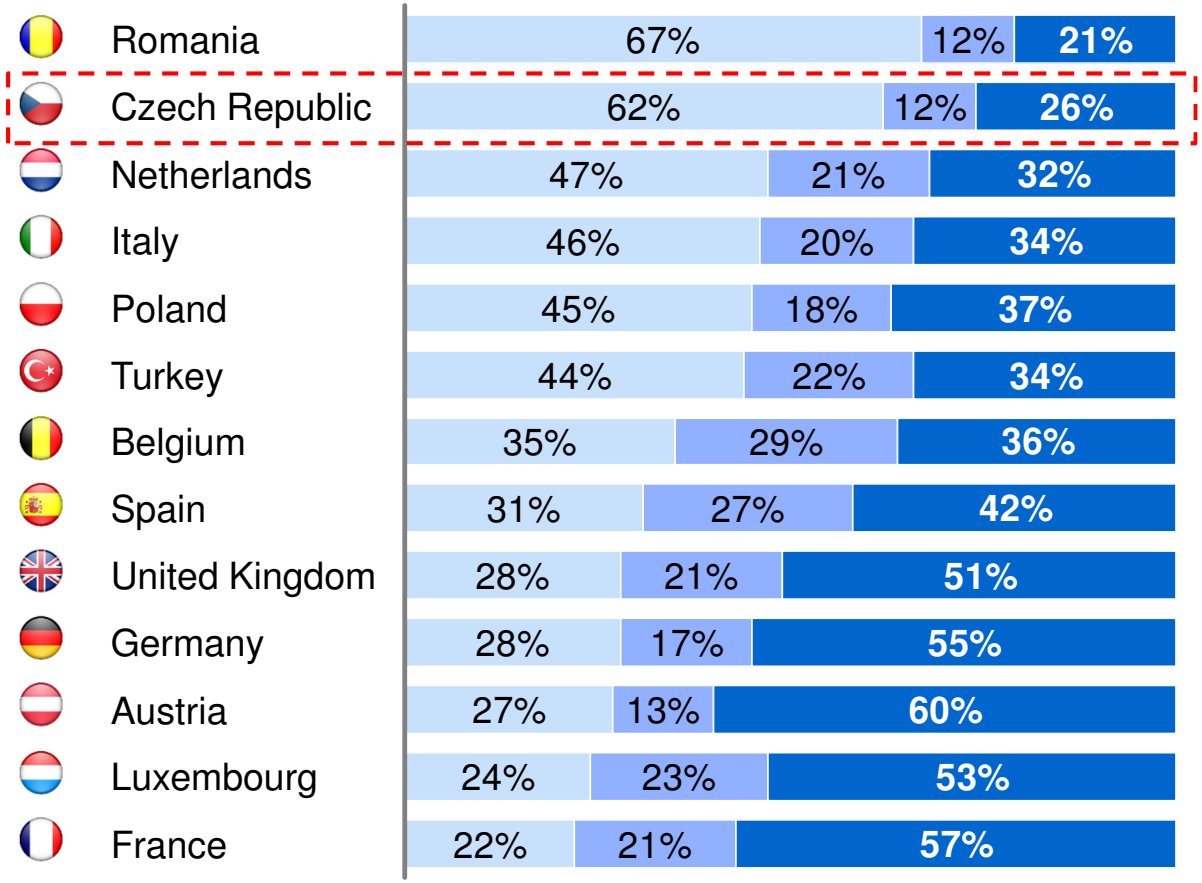
Human capital:
Adequate labor force skills

SOURCE: Thegedi.org

Czech citizens are open to new technologies

Share of consumers feeling comfortable with contactless payments

2014



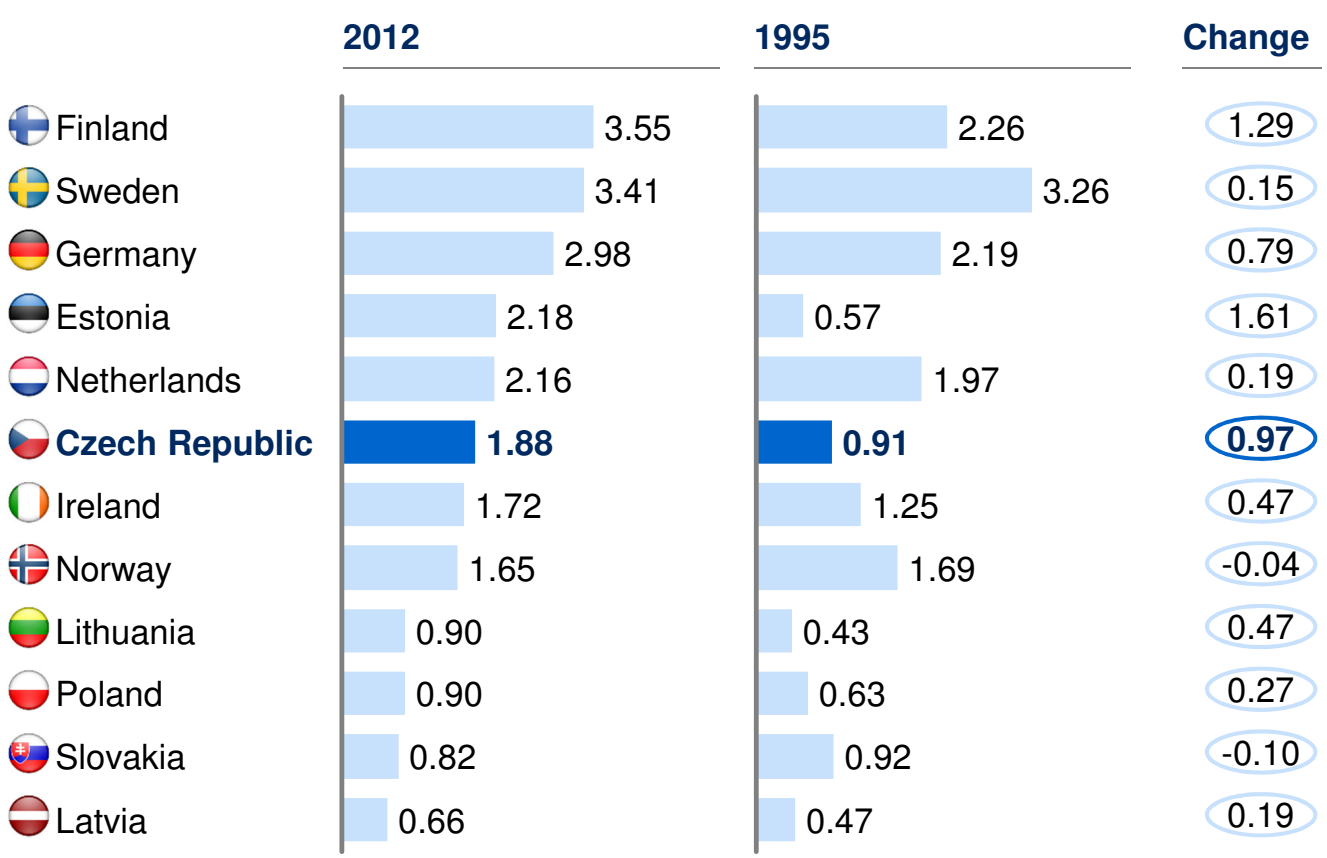
Czech population is open to using new payment technologies – more than in other countries

SOURCE: http://contactlessintelligence.com

Czech Republic spends more on R&D than Poland and Slovakia, but much less than Sweden, Germany and even Estonia

Funds invested in research & development[1]

% of GDP



- Apart from Finland and Estonia, Czech Republic increased its R&D spend more than its peer group
- To close the knowledge gap and become leading know-how location, the Czech Republic still needs to invest much more to be on par with the Western Europe

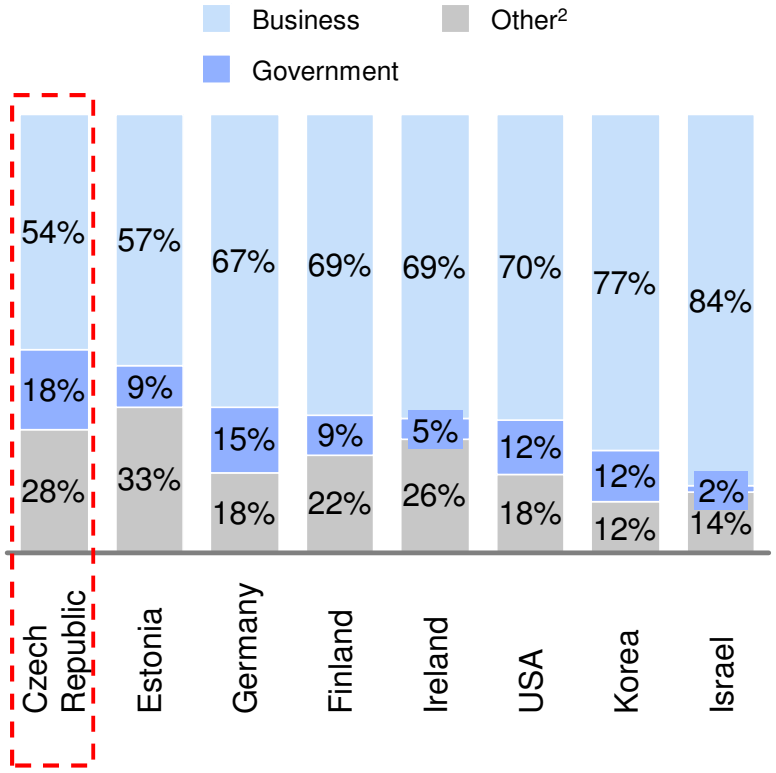
1 Research & development investments include government, higher-education institutions, businesses and private non-profit capital

SOURCE: McKinsey Global Institute

Czech Republic lags in mobilizing the private sector to fund R&D and focusing on non-basic research

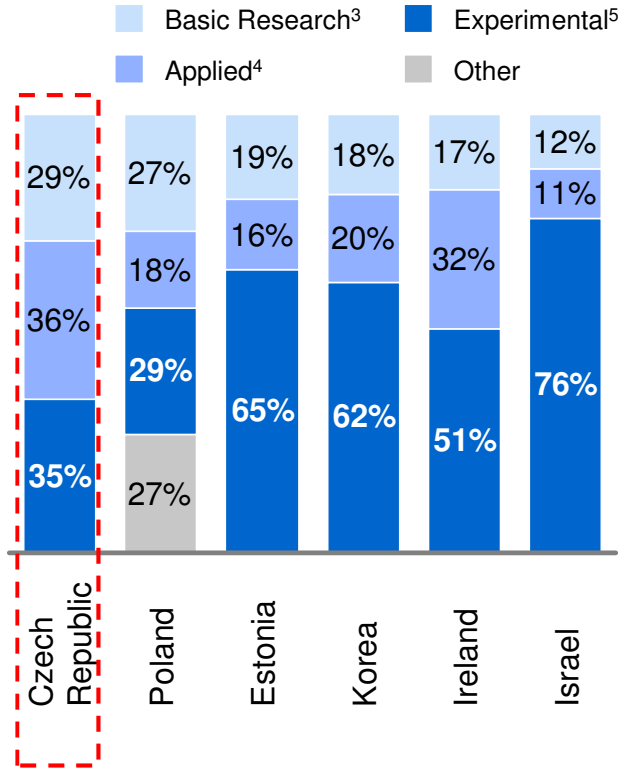
R&D spending by sector

Percent of total R&D spending, 2012



R&D spending by activity[1]

Percent of total R&D spending, 2011



- Funding from private sector in the Czech Republic is higher than for some CEE peers, however, lags behind Germany and Estonia
- There is disconnect from business funding as substantial amount of money is spent on basic research – more than for the best-in-class peers

1 Split for Germany, Finland and USA not available
2 Higher education and private non-profit organizations
3 No particular application or use in view
4 Directed primarily towards a specific practical aim or objective
5 Directed to producing new materials, products or devices

SOURCE: UNESCO Database

Content of this document

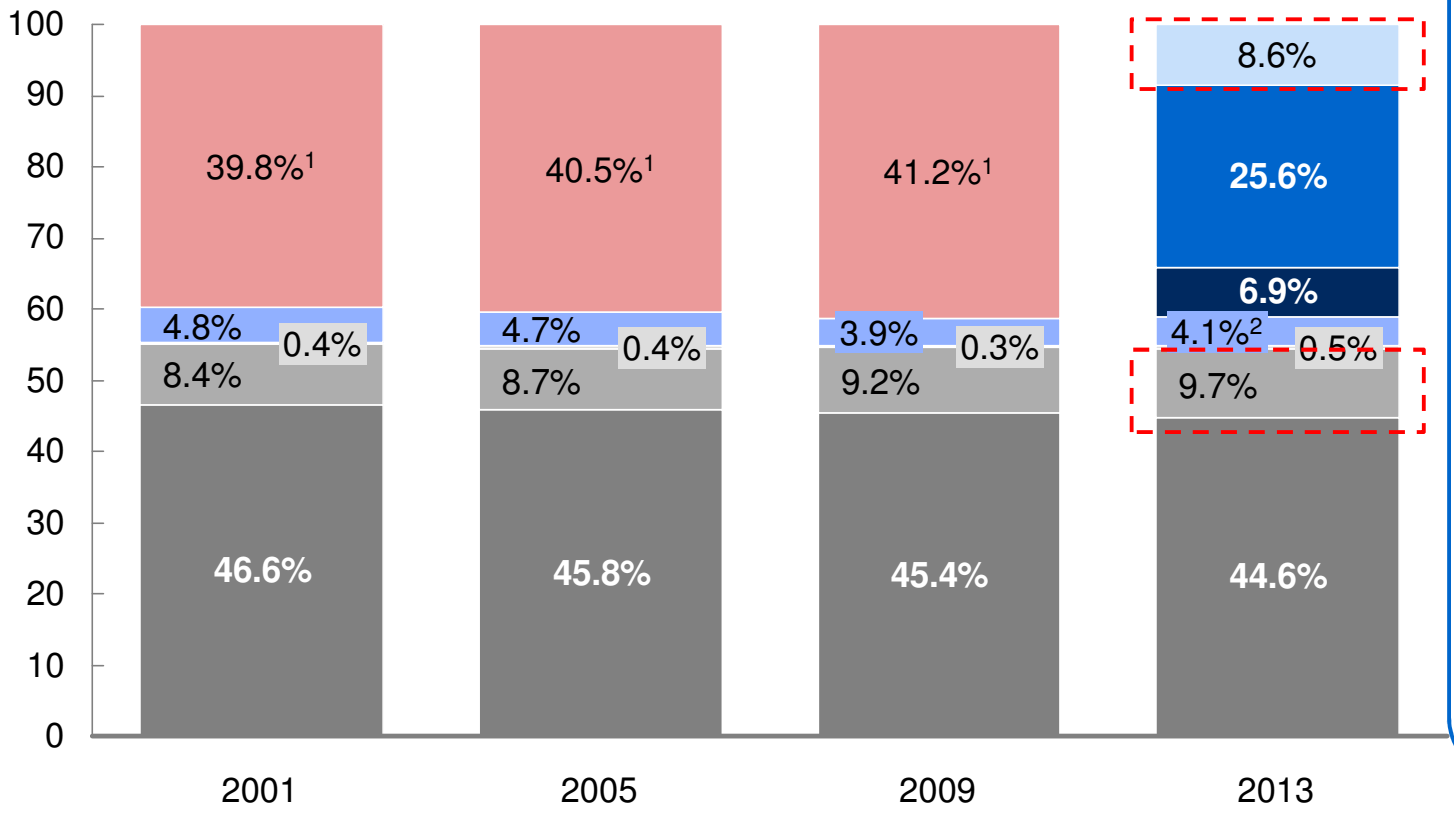
- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- **Labor market**
- Urbanization
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

Czech Republic's unemployment rate is around 4%, but another 9% of population are not participating in the workforce

Non-active
Students not working
Contributing family workers
Wage and salaried workers
Retired not working
Unemployed
Self-employed
Focus areas
Non-participants

Total population by employment[1]

Percent, older than 15 years of age

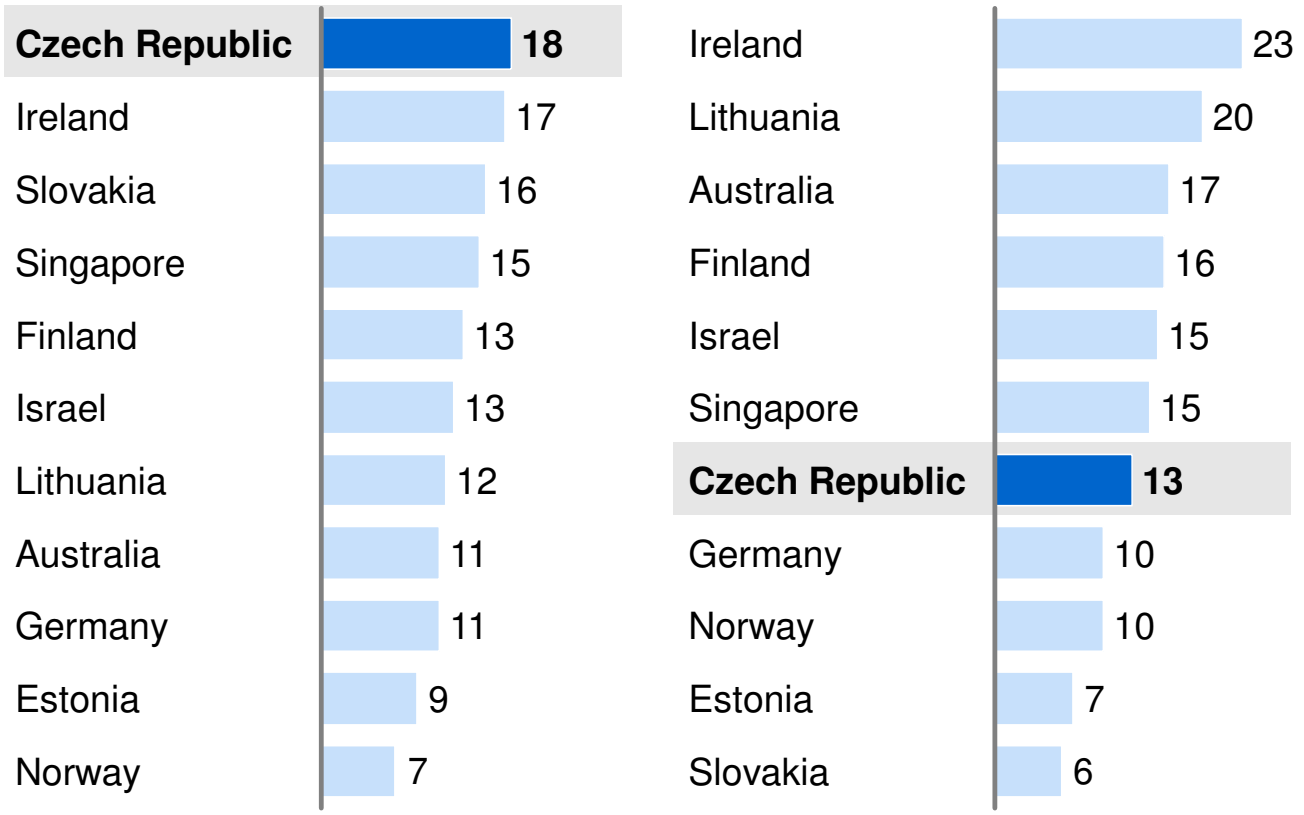


- While unemployment stays at around 4%, almost 9% of population is not actively participating in the labor market
- Almost 10% of total population is self-employed at questionable level of productivity

1 Breakdown of non-participants not available for years before 2011
2 CZSO reports unemployment of 6.9% - that is calculated of total labor force
SOURCE: World Bank

Czech Republic has the highest share of self-employed inhabitants of total workforce

Share of self-employed on total number of employees

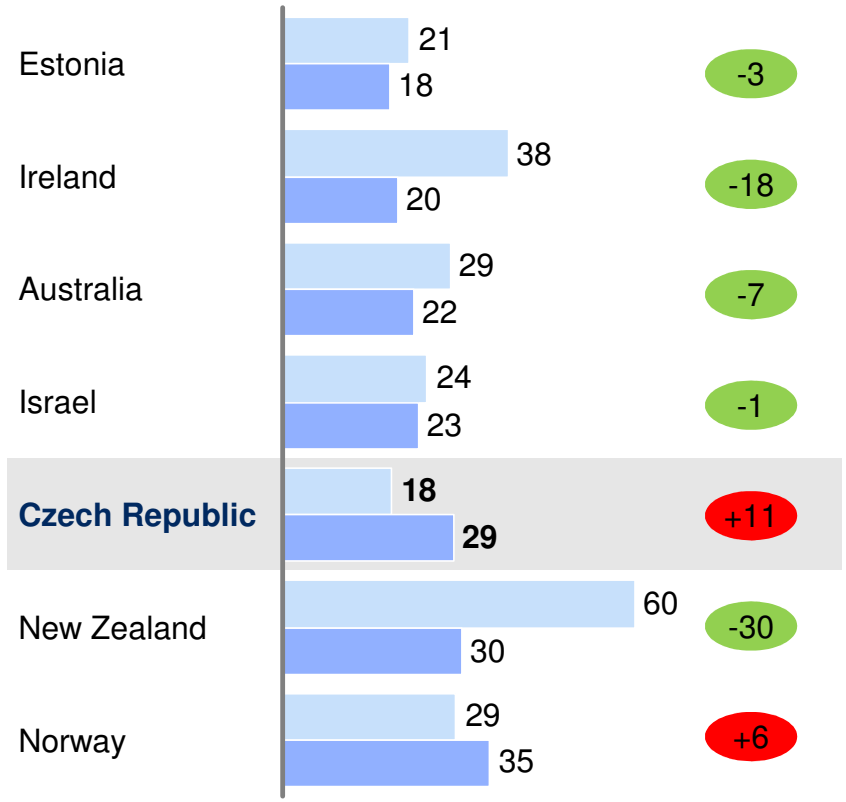


- Czech economy has more self-employed people than any other country from the selected group
- The share of self-employed on total number of working people has increased from 13 to 18 percent since 1993

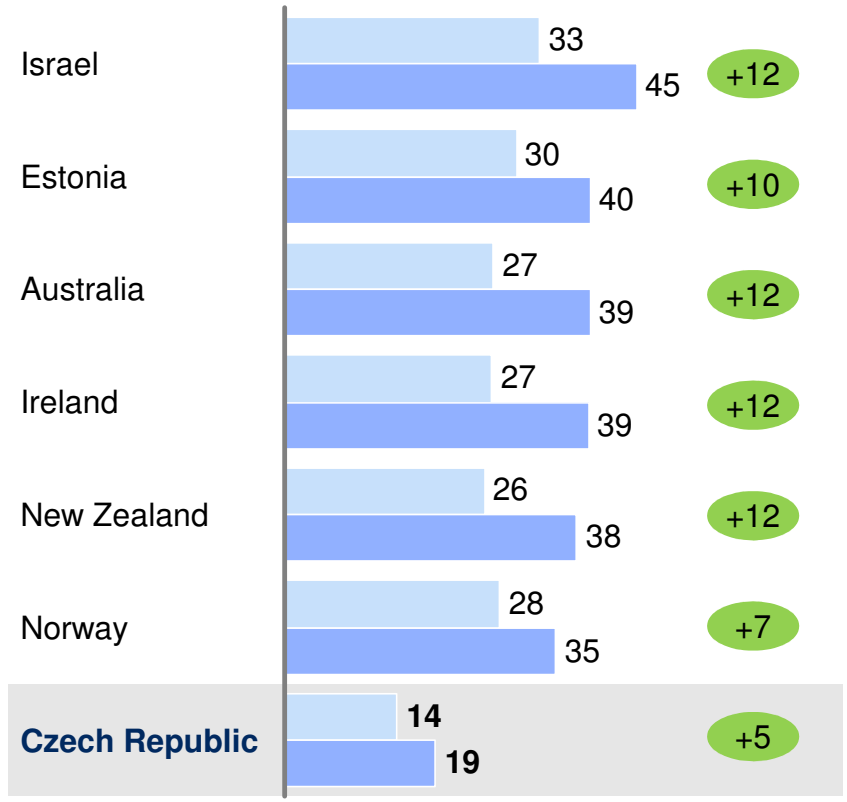
SOURCE: World Bank

Czech Republic is not attracting educated immigrants

Percent of native vs. foreign born population with low education



Percent of native vs. foreign born population with tertiary education



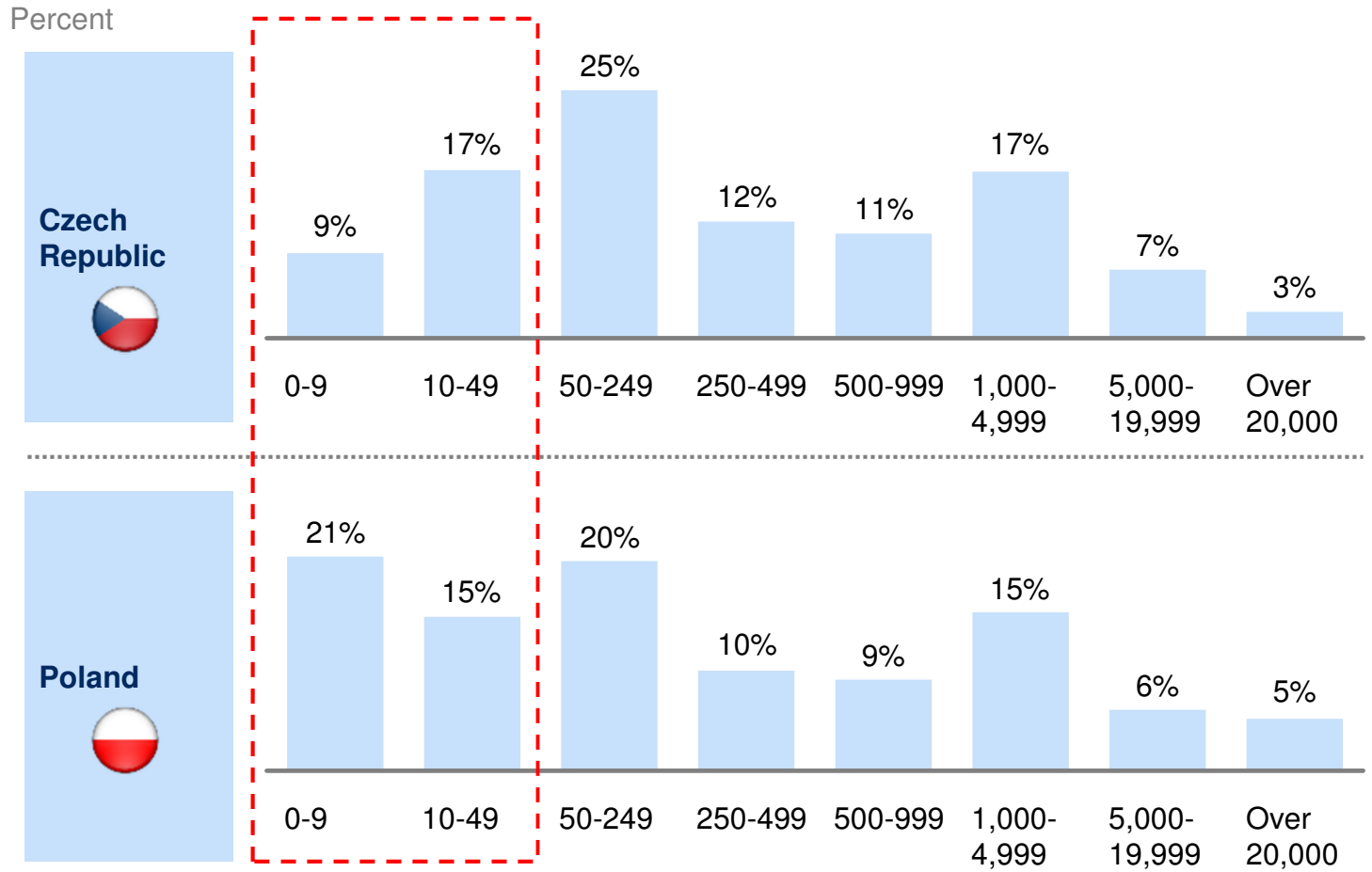
- 29 percent of immigrants to the Czech Republic are low-skilled – that is 11 percent higher than Czech native average, and more than in other selected Winners
- Only 19 percent of Czech immigrants are university educated – significantly less than the Winner's group

Source: OECD (A New Profile of Migrants in the Aftermath of the Recent Economic Crisis, 2014), Table 5, http://www.oecd.org/els/mig/WP160.pdf

Revenue in the Czech Republic is generated much less by small firms than revenue in Poland

Small firms

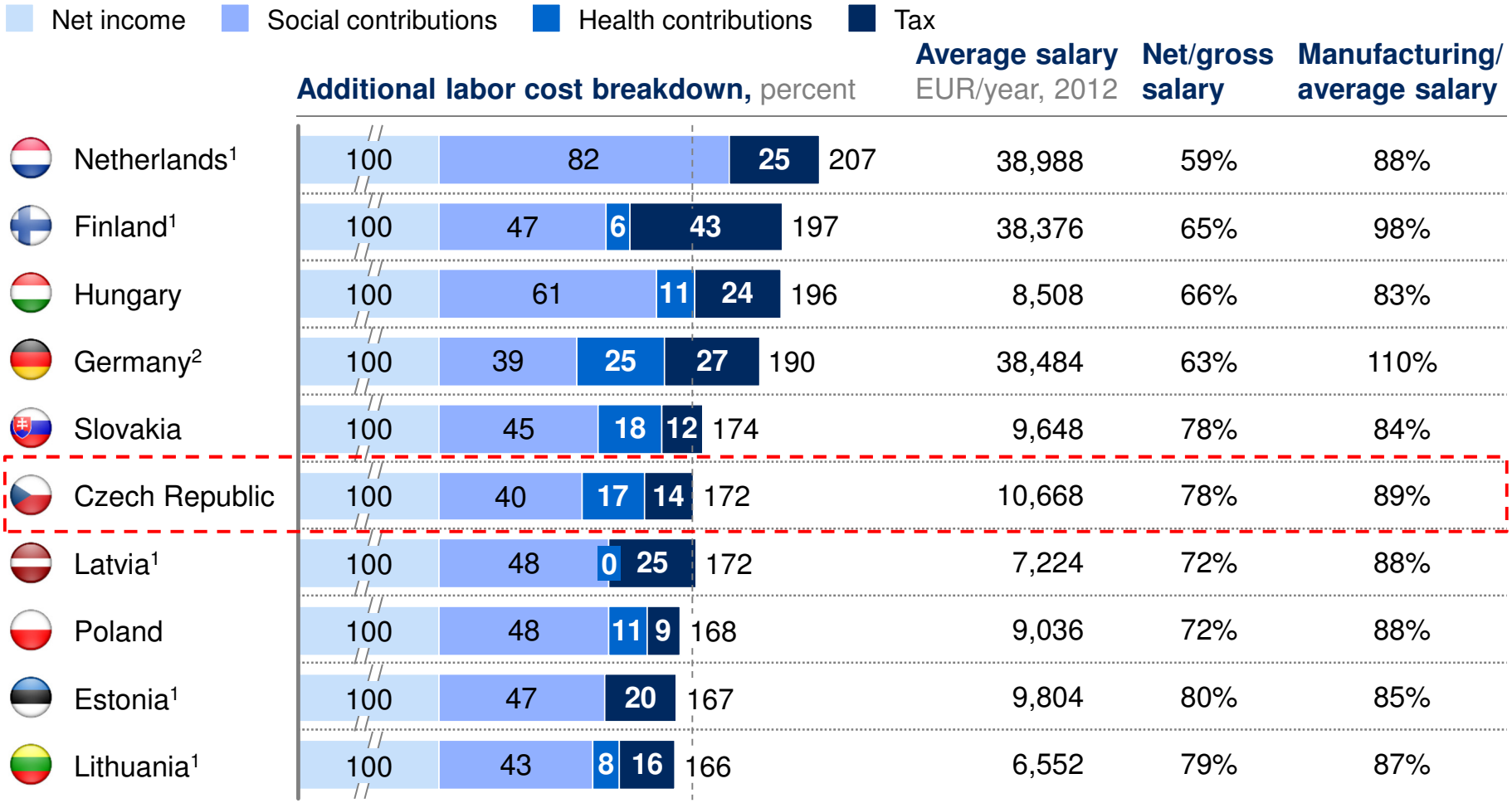
Division of total turnover based on number of employees in a firm



In Poland, 36% of revenue is generated by small firms (i.e., <50 employees); much more than in the Czech Republic

SOURCE: Cekia (Magnus database), Polish Central Statistical Office, EMIS, McKinsey Analysis

Czech Republic ranks in the middle of the reference group in terms of height of its manufacturing labor costs



With the introduction of CZK 2,000 tax relief in 2012, the Czech Republic scores in the middle of the reference group

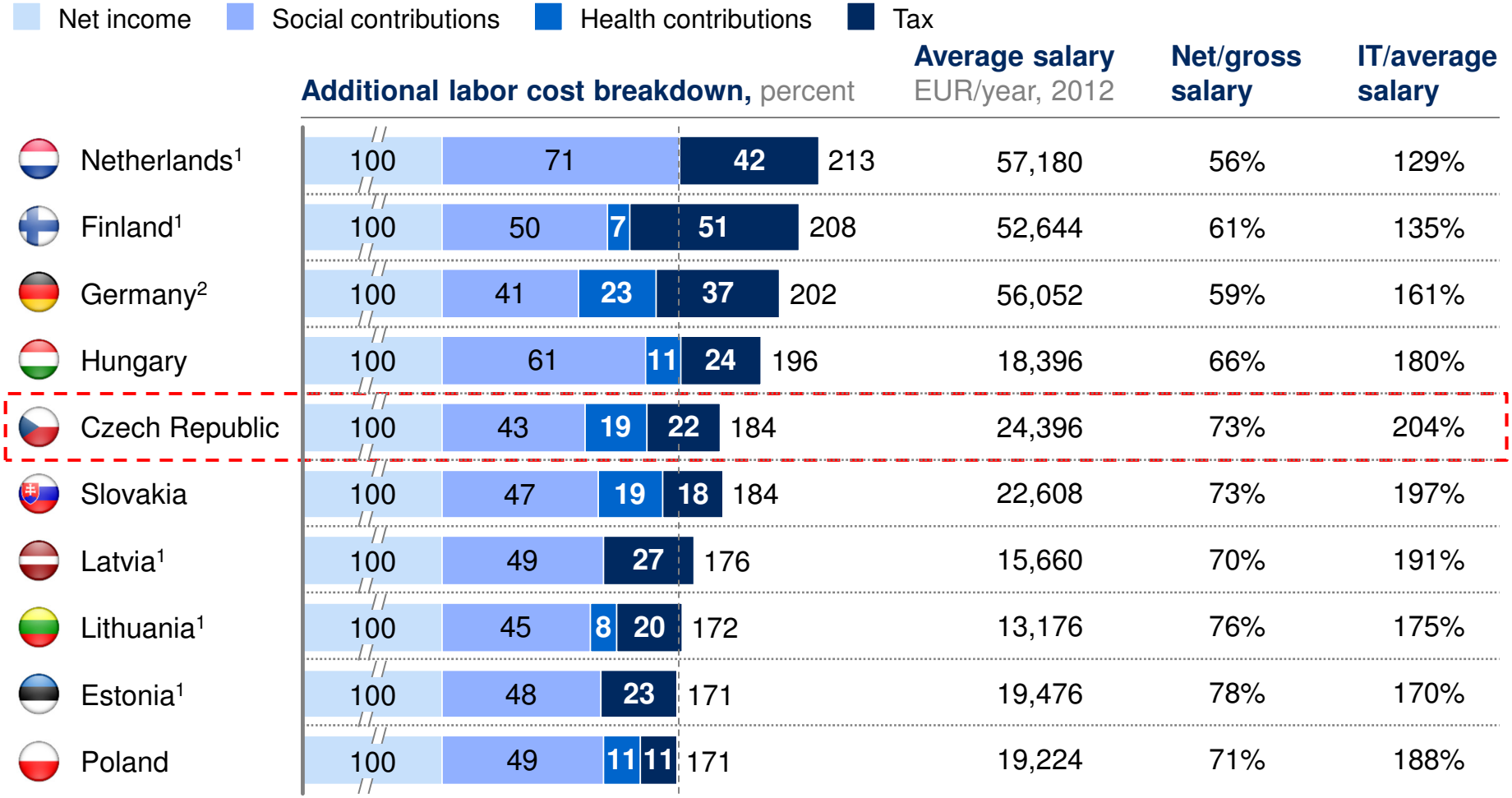
1 Health contributions within social contributions

2 Complex system of tax deductible items and exemption, simplified case

SOURCE: OECD; Eurostat; Team analysis

LABOR MARKET

For higher IT-related salaries Czech additional labor costs are above all of Eastern-European peers, apart from Hungary



Czech tax progression, caused by the fixed CZK2,000 tax relief, is steeper that in Latvia, Slovakia and Lithuania, making Czech IT workers more expensive than most of other local players

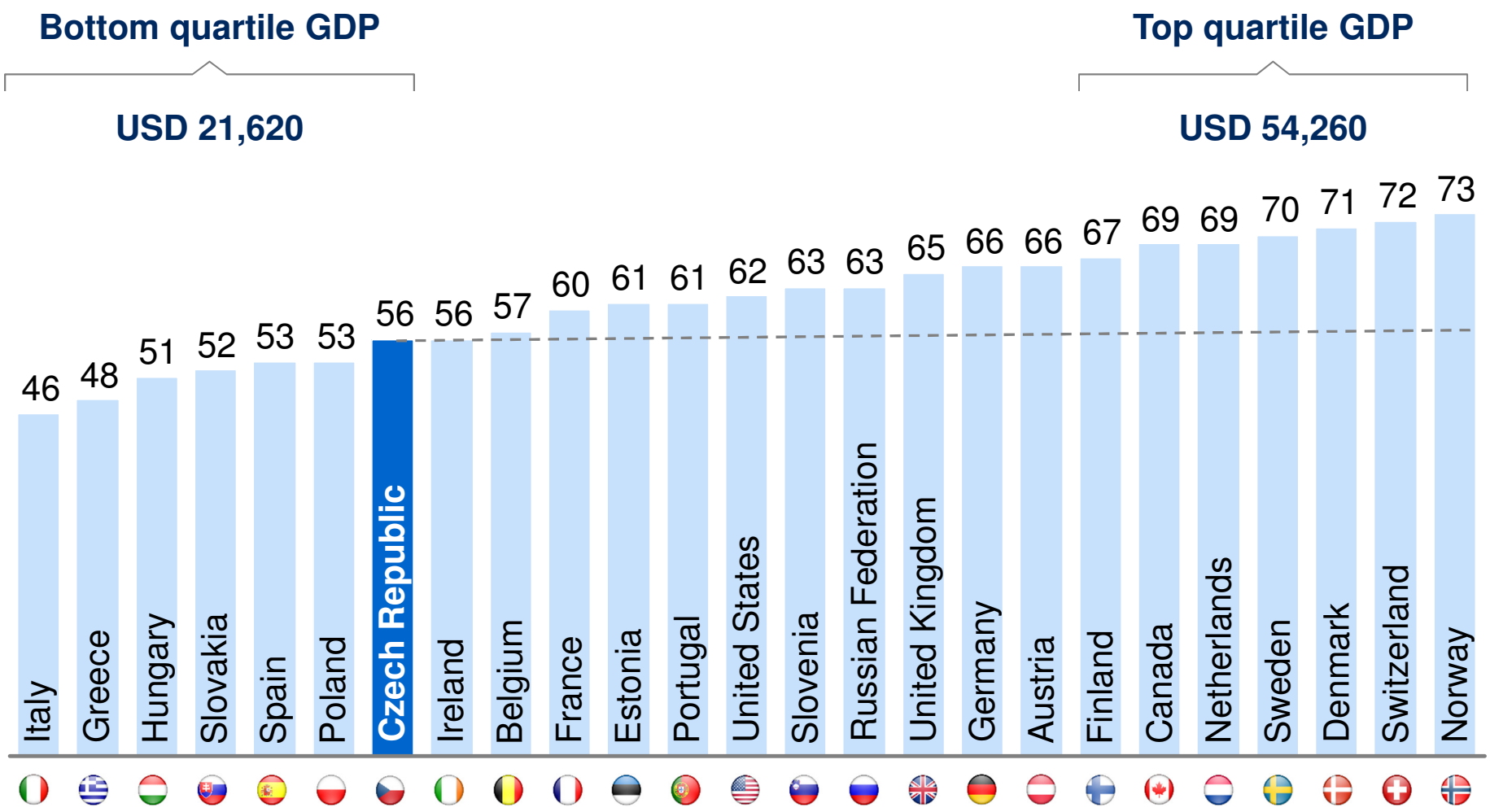
1 Health contributions within social contributions

2 Complex system of tax deductible items and exemption, simplified case

SOURCE: OECD; Eurostat; Team analysis

Czech Republic ranks only in the bottom quartile in terms of women participation

Percentage of women employed of total women in the country



Portion of employed women in the Czech Republic is 17 percentage points below Norway

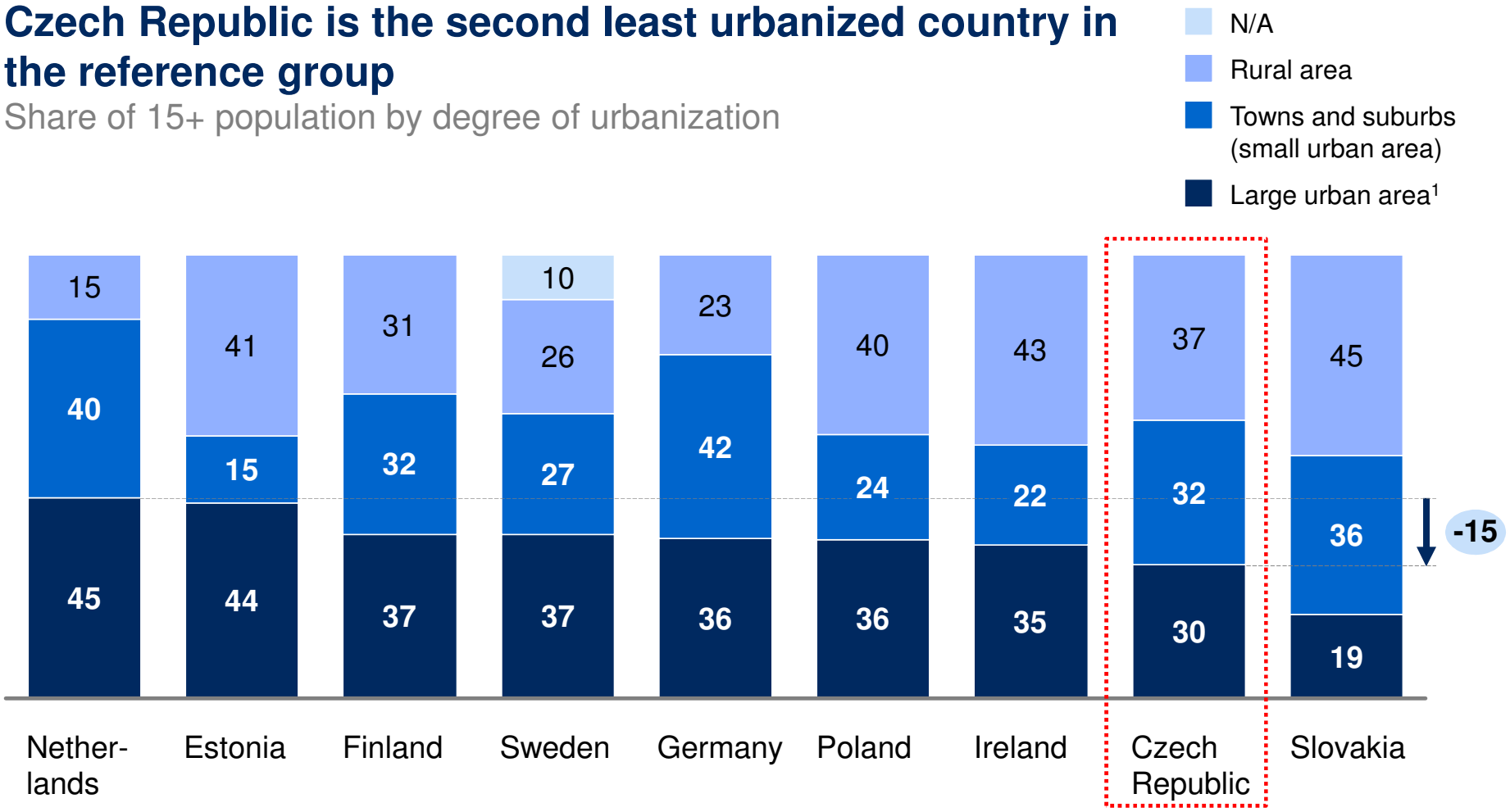
Content of this document

- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- Labor market
- **Urbanization**
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

URBANIZATION

Czech Republic is the second least urbanized country in the reference group

Share of 15+ population by degree of urbanization



Only Slovakia has lower number of its inhabitants living in the large urban areas

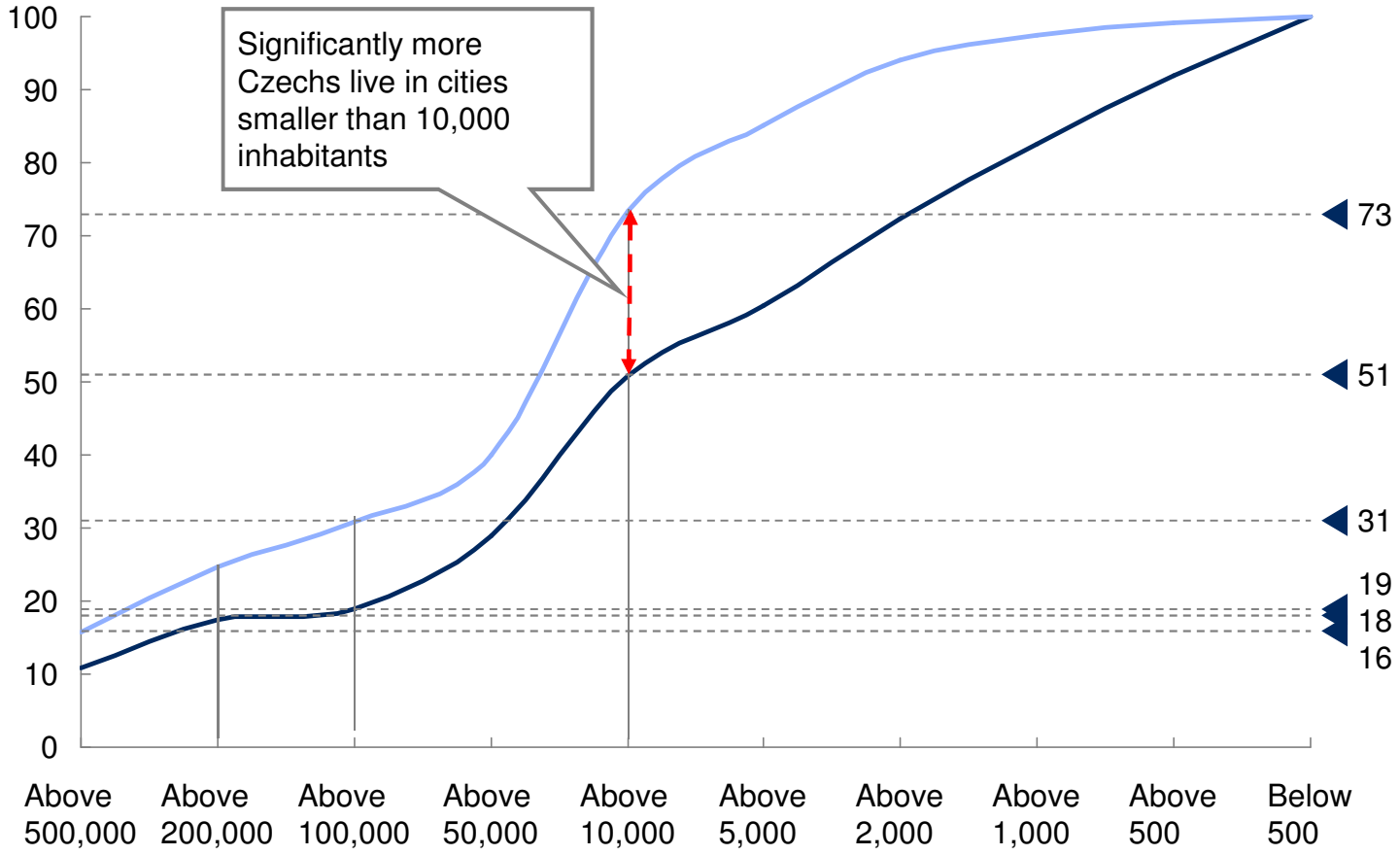
1 Large urban area is defined as an area with density of at least 1,500 inhabitants per km^2 and total population of at least 50,000 inhabitants

SOURCE: Eurostat

Population of the Czech republic is less concentrated in large cities than that of Germany

Population living in cities sorted by size

Cumulative percent of population



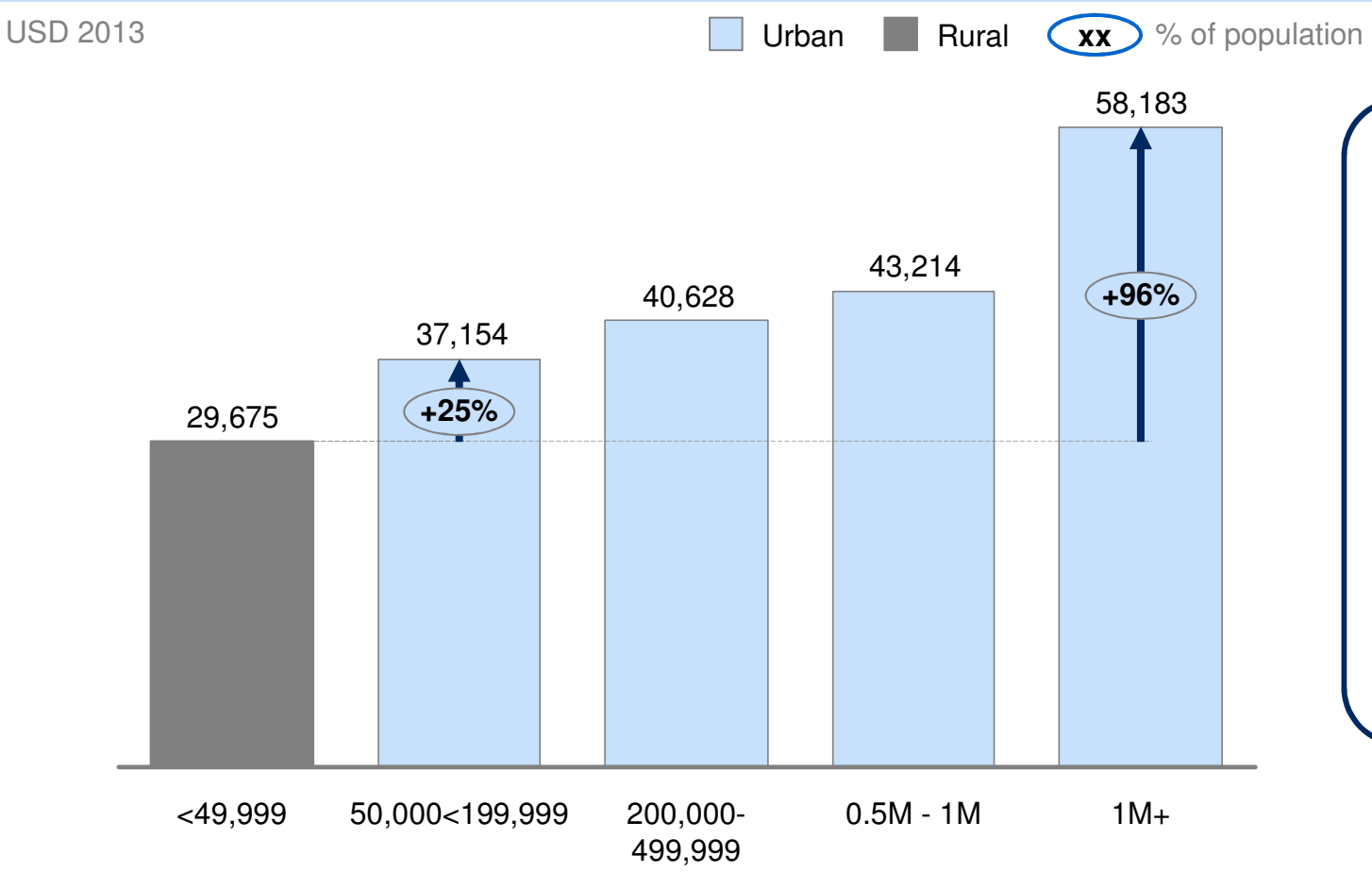
While only 27% of Germans live in cities smaller than 10,000 inhabitants, almost half of Czech population resides in cities of that size

SOURCE: GfK

URBANIZATION

Higher degree of urbanization in terms of population directly translates into higher GDP per capita

Average GDP per capita in rural and metropolitan areas[1] by population



- GDP per capita generated by the biggest MSAs[1] is 96% higher than that of the rural areas
- Significant differences occur also between MSAs of different sizes – larger population within an area results into higher GDP per capita

1 Metropolitan Statistical Units (381 cities and metro areas) represent urban areas in the US (at least one urban core area of at least 50,000 population, plus adjacent territory with a high degree of social and economic integration with the core as measured by commuting ties)

SOURCE: Bureau of Economic Analysis

URBANIZATION

There are significant differences in GDP contribution between different regions in the Czech Republic

8 lowest income regions

#	Province	Number of inhabitants	# of workers (based on paid months)	Workers/ inhabitants	% of GDP (FTE comp. only)[1]	Avg. salary./ capita[2]
1	Hlavní město Praha	1,557,432	816,067	52%	24%	35,835
2	Středočeský kraj	1,016,946	489,933	48%	11%	27,744
3	Jihočeský kraj	637,300	249,636	39%	5%	24,176
4	Plzeňský kraj	575,123	251,115	44%	5%	25,739
5	Karlovarský kraj	299,293	117,629	39%	2%	22,129
6	Ústecký kraj	823,972	298,037	36%	6%	24,274
7	Liberecký kraj	438,851	161,796	37%	3%	24,752
8	Královehradecký kraj	551,590	224,091	41%	4%	24,031
9	Pardubický kraj	516,372	208,196	40%	4%	24,007
10	Kraj Vysočina	509,895	197,501	39%	4%	24,070
11	Jihomoravský kraj	1,172,853	506,682	43%	11%	26,098
12	Olomoucký kraj	635,711	229,915	36%	5%	23,802
13	Moravskoslezský kraj	1,217,676	456,668	38%	9%	24,645
14	Zlínský kraj	585,261	238,759	41%	5%	23,789
	Total/average	**10,538,275**	**4,446,024**	**41%**	**100%**	**25,364**

- There are significant differences in regions' contribution to GDP – Prague contributes 26% while Karlovarsky kraj only 2%
- If 10% of population from the 8 lowest income regions (i.e., 440,000 people) moved to Moravskoslezsky kraj, they would generate approximately **additional 1.5% of GDP[3]**

1 Calculated on share of average salaries in the regions of total salaries in the Czech Republic
2 Monthly
3 We assume only 33% of those would move would get a job

SOURCE: CZSO, Fond Pracovni doby, 2014

Content of this document

- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- Labor market
- Urbanization
- **Lessons learned from successful economies**
- Potential levers for improvement and their estimated impact
- Key takeaways

Winner strategies: overview of 6 successful countries and the key elements of their success

Detail on the next page

Estonia

- Young people in government
- Balanced budgets
- Limited government
- Open economy
- Flat low taxes, no exemptions, simple system, 20% for all
- Minimal regulation
- 95% Estonians fill taxes online
- Continuity – despite frequent personal changes governments agree on many basic goals and these are not changing
- Hi-tech investment from Nordic countries
- Tourism from Nordic countries

Finland

- Complete restructuring of the economy after Soviet Union collapse
- Hi-tech innovation culture – Finland's innovation policy is based on its Science and Technology Policy Council an advisory body for the government chaired directly by PM
- A large proportion of economic production still comes from traditional industries (forestry, chemicals, ships, etc.) which learned how to exploit new niches where midsized companies can win on global markets
- Strong links between universities and private sector

Ireland

- Creating an extra-attractive environment for foreign investors
  - The only English speaking country in the EURO zone
  - Lowest corporate taxes in EURO zone
  - Excellent education system
  - Lowest wages for engineers in EURO zone and highly skilled technicians
  - Low pressure for unionization, lowest healthcare and pension benefits
  - Best telecommunication infrastructure
  - Most generous investment incentives
- EU membership – huge inflow of EU funds + significant portion of these funds went to R&D (nearly 4% of GDP was coming to Ireland in form of EU funds)
- Coordinated strategic vision that was implemented

Singapore

- Singapore funds its strategies with enormous compulsory national savings
- It accepts nothing less than a world-class quality in key areas such as
  - Infrastructure (Excellent infrastructure – Singapore's ports, airport and communication grids are outstanding
  - Education - ranks top in PISA science and math tests
  - Productivity
- Not attracting all MNCs but only those that would transfer technology and training and constantly upgrade their operations
- Systematically targeted the US business world – the top priority of Singapore' s leaders over 40 years has been to make Singapore competitive first-class world

Sweden

- After massive crisis in 1990s – 10% jobs lost, dangerously high public debt → Sweden reinvented itself with a new strategic direction based on world class human capital
- 45% Swedish students go to university
  - No tuition on universities (attracts also foreign students)
  - Students systematically attracted to choose science and engineering (# of technical students doubled between 94-04
- Unique stress on adult education
- Professional and no-corruption environment in government agencies
- National consensus
- Build large corporations rather than start-ups
- Government picks winners – public policies play a huge role in determining what types of companies and what business sectors will prosper and grow

Taiwan

- Economic philosophy = state-controlled and planned free economy defined as "Whatsoever could be done, is done"
- Favorable colonial legacy (education system by Japanese)
- Political stability and predictability
- Majority of government top officials were trained as engineers
- Head of Taiwan' s government defines his mandate as the advancement of Taiwan's competitiveness and GDP growth
- Using new technologies to still utilize the old ones – to enhance and extend the older and lower technologies
- Aggressively investing into R&D – heavy investment into new technologies – govt. sponsored institutes

SOURCE: Israel Strategy Definition document

Estonia started from a much lower starting point but managed to overtake the Czech Republic over the past two decades

	Estonia	Czech Rep
GDP per cap:	**14,838 EUR**	**14,713 EUR**
GDP per cap PPP:	**26,999 USD**	**29,925 USD**
Population:	1.3 million	10.5 million
Area:	45,339 km^2	78,866 km^2
Percentage of 15+ population living in large urban area:	44%	30%

Education

- A nationwide project (financed by government investment body Tiger Leap Foundation) equipped all classrooms with computers and by 1998 all schools were online
- In 2011 in a public-private partnership, a program called ProgeTiiger ("Programming Tiger") was announced, to teach five-year-olds the basics of coding
- According to 2012 PISA results, Estonia ranked 8th place worldwide in Science

Industry performance

- Hi-tech investment from Nordic countries
- Estonian invention ' Skype was sold to eBay in 2005, for USD 2.6 billion and created a new class of Estonian investors, who made tens of millions of euros from their shareholdings – and have been putting their experience to good use. Today Tehnopol, a business hub in Tallinn houses more than 150 tech companies.

Digitalization & Infrastructure

- Estonia took the opportunity of starting with only very limited telco infrastructure and decided to build completely new and most modern infrastructure since then[3]
- 95% Estonians fill taxes online (online tax filling introduced since 2000)
- In 2007 it became the first country to allow online voting in a general election
- In 2012 Estonia ranked first worldwide in terms of broadband Internet speeds
- Health records and drug prescriptions stored in the digital cloud and available through ID card number (online available to any doctor or at any pharmacy you go to buy medicine)
- In 2000, its government deemed Internet access a basic human right and free Wi-Fi became the norm throughout the land

Public governance

- Limited government, minimalistic regulation
- Young people in government[1]
- Flat low taxes, no exemptions, simple system, 20% for all[2]
- Balanced budgets
- Continuity – despite frequent personal changes governments agree on many basic goals and these are not changing
- Starting a business takes an average 4.5 days and only 4 procedures while submitting the registration application takes just minutes as it is done online

Labor market

Estonia has witnessed a 5% population decline in the last ten years – from 1.37 million in 2000 to 1.26 million in 2012 with following key reasons

- Low birth rate
- Negative net migration rate (The national census of 2011, reported that about 25,000 Estonian inhabitants currently work in other countries, constituting about 4.4% of the whole work force. And only in 2012 net emigration reduced the population number in Estonia by 6,629 people)

1 The first post-communist government in 1992 had an average age 35 years. Current Prime Minister (since 2014) Taavi Rõivas is 36 years old
2 Estonia became the first country in Europe to introduce flat tax in 1994. As of January 2015, **income tax** is 20%
3 When Estonia regained its independence in 1991 only <50% of its population had a telephone line and its only independent link to the outside world was a Finnish mobile phone concealed in the foreign minister's garden. Since then Estonia is a world leader in technology. When Finland decided to upgrade to digital phone connections, it offered its archaic 1970s analogue telephone-exchange to Estonia for free. Estonia declined the proposal and built a digital system of its own.

SOURCE: Economist, EY, E-Estonia, Euraxess.ee, BusinessInsider, www.stat.ee

Israel is able to attract high skilled workforce and more venture capital than any other country thanks to creating a business friendly environment

	Israel	Czech Rep
GDP per cap:	27,864 EUR	14,713 EUR
GDP per cap PPP:	32,691 USD	29,925 USD
Population:	8.2 million	10.5 million
Area:	20,770 km^2	78,866 km^2
Percentage of 15+ population living in large urban area:	n.a.	30%

Strategic plans for economic growth and development

- In 2008 a country vision "Israel 2028" was published – it is an extensive action plan to achieve rapid and balanced growth and it aims to position Israel among top 10-15 leading countries by 2028
- The goal is to achieve a GDP exceeding 50 000 USD per capita
- Israel also has an implementation team that follows up on the vision, e.g. in 2010 an implementation report for "Israel 2028" called "Innovation in Israel" was published

Unique local history and culture

- **Strong military sector** – Common denominator for the most successful Israeli start-ups (Outbrain, Stylit, Nice, and Comverse) is that its founders served in Unit 8200, an Israeli Intelligence Corps unit responsible for collecting signal intelligence (SIGINT) and code decryption. Unit 8200 is presumably the most influential incubator in Israel
- **Self-reliance necessity** – existing in a turbulent region Israel cannot rely on cross border trade, therefore it has developed a self-preservation mechanisms
- **Diversity** - Israeli society is wildly diverse. Companies looking to launch international operations can easily find skilled labor in various fields. Israel is saturated with native English, French and Russian speakers, but more exotic languages are also available
- **The lack of natural resources** - Israel has been struggling with drought until it has developed into a world leader in desalination. Booming water security industry caused it to become country's main export, selling patents and technologies to even the most developed countries
- **Culture** that prizes frugality, education, and unconventional wisdom.

Enterpreneural and innovative ecosystem

- Israel attracts more venture capital than any other country in the world (201 USD per capita in 2014)
  - The success of the VC industry in Israel grew with Yozma, a $100 million "fund of funds" established in 1993
  - It offered attractive tax incentives to foreign venture-capital investments and promised to double any investment with funds from the government.
  - Yozma succeeded because it was embedded in an emerging ecosystem that already included some two dozen Israeli public technology ventures, two operating venture capital funds, U.S. investment bankers with local operations and professional support services helping new entrepreneurs to start business
  - As a result of their efforts, Israel's annual venture-capital inflows rose nearly 60-fold, from $58 million to $3.3 billion, between 1991 and 2000[1]
- Israel also has a special "Office of the Chief Scientist" (OCS) which is in charge of fostering the development of industrial R&D. It manages an Incubator Program – there are currently 24 incubators funded by grant by OCS, 22 in technology field[2]

Strong immigration - attracting global talent

- Immigration – scientists with Jewish origin - expelled by Nazi and Soviet regimes - became an important part of Israeli success story
- In early 1990s 100 – 200 thousand immigrants came every year
- In the last 10 years the yearly immigration inflow is 15 – 20 thousand people
- Israel is able to attract highly educated immigrants - 45% of foreign born population has a tertiary education compared to 33% native born (in comparison only 19% of the Czech foreign born inhabitants are tertiary educated)

1 In 2014 Israel attracted 1.65 bn USD (1.9% of global volume). Per capita it is the global leader (201 USD per capita in 2014, compared to 142 USD in United States)
2 Each Incubator lasts for up to two years. Grants are repayable to the Israeli government at a rate of 3-5% of royalties from revenue

SOURCE: OECD, ETF; WEForum; Press search

What are the international lessons on improving competitiveness? (1/3)

	Lessons	Description	Examples
Access to talent 	1 **Focus on building local talent**	▪ Singapore, Ireland and Korea have all closely linked their education system to the development plans and private sector needs ▪ Singapore, Ireland and Korea are the highest performing nations on international education tests (e.g., TIMSS)	
	2 **Attract top global talent**	▪ Even countries with strong pool of local skills (e.g., Singapore) have also focused on attracting global talent to help them develop	
Create a "business-friendly" environment 	3 **Create attractive environment for foreign investment**	▪ To encourage foreign investment, countries must create an attractive business environment, ensuring a level playing field for firms and mechanisms for the government to address key concerns (e.g., access to skilled labor)	
	4 **Improve government efficiency**	▪ Countries have focused on ensuring the government processes and regulations are efficient, transparent, and harmonized in regions within the country	

SOURCE: McKinsey, 2009

What are the international lessons on improving competitiveness? (2/3)

	Lessons	Description	Examples
Policy approach	**5 Build momentum through quick wins**	▪ Saudi Arabia focused on addressing concerns in the World Bank Doing Business survey in the short-run, providing some initial success (improving 15 places in 2 years)	
	6 Ensure competitiveness is "top of mind"	▪ Key stakeholders (e.g., policymakers, business leaders, community leaders) need to realize the importance of competitiveness to create the momentum for change ▪ Countries such as Canada have been hampered as competitiveness is not a key issue for policymakers	 
Foster new sectors	**7 Ensure a continual shift to higher value-add activities**	▪ Countries must ensure they transition to higher value-add activities where they compete on innovation, not cost ▪ Ireland failed to make this transition into high-end R&D activities and its growth has faltered	 
	8 Promote entrepreneurship	▪ The US has been highly successful at promoting entrepreneurship through mechanisms such as venture capital programs and entrepreneurship programs	

SOURCE: McKinsey, 2009

What are the international lessons on improving competitiveness? (3/3)

Pay attention to equity issues

Lessons	Description	Examples
9 Focus attention on regional gaps	▪ Countries with large regional differences (e.g., Croatia, Ireland, Canada) have focused specific initiatives on addressing these competitiveness gaps	
10 Ensure everyone benefits	▪ Competitiveness reforms will only successful if all members of society feel its benefits ▪ Equitable and competitive countries have ensured that they prioritize competitiveness measures that will also have positive effects on equity (e.g., education)	

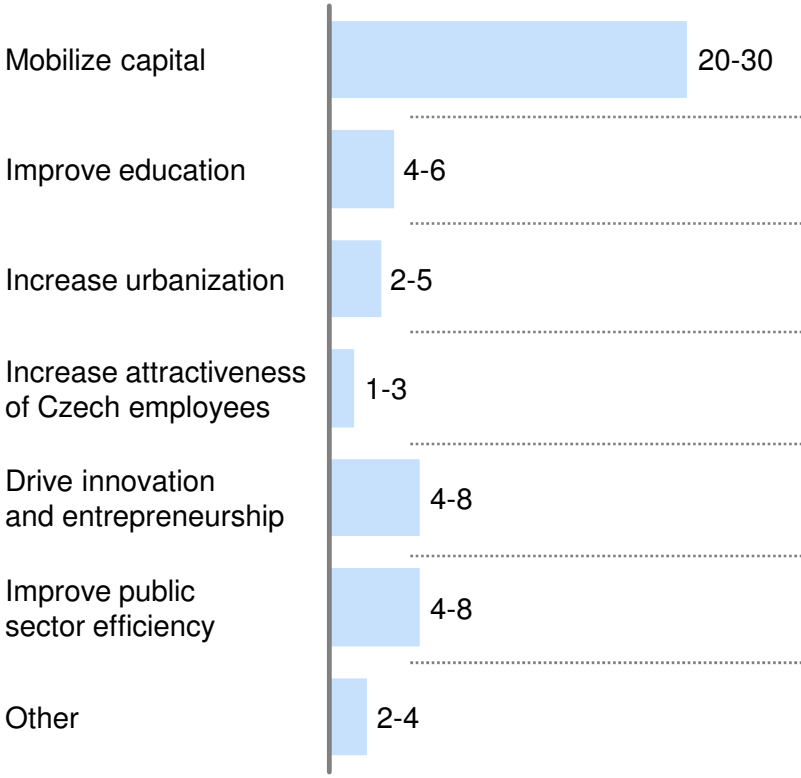
SOURCE: McKinsey, 2009

Content of this document

- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- Labor market
- Urbanization
- Lessons learned from successful economies
- **Potential levers for improvement and their estimated impact**
- Key takeaways

Additional growth comes mostly from capital mobilization, improvements in education, innovation & entrepreneurship and public sector efficiency

Czech Republic real GDP; percent



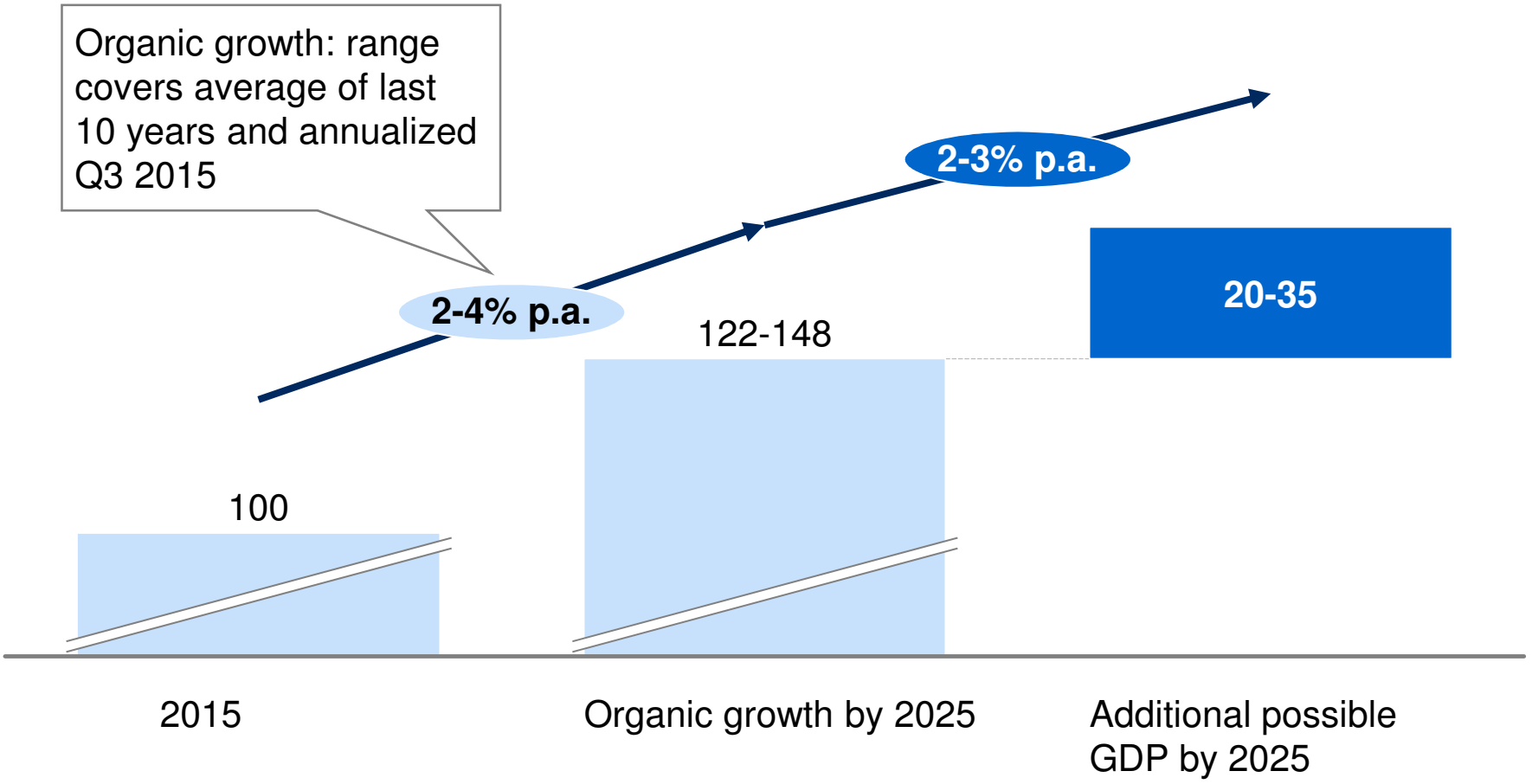
Source of impact	Annual GDP growth contribution[1]
▪ Additional capital/investments needed for most levers to deliver	2.5
▪ Prepare workforce for higher value added jobs by improving primary, secondary and tertiary education and intensifying on the job training	0.5
▪ Increase productivity by relocating work force from rural to urban areas	0.4
▪ Increase flexibility of creating and reducing jobs or e.g. increasing the share of economically active women	0.2
▪ Improve entrepreneurial mindset and encourage risk taking ▪ Create an environment fostering innovations	0.6
▪ Stabilize legal system, streamline administrative burden and increase efficiency of public sector	0.6
▪ Includes e.g. migration and energy efficiency ▪ Evaluation of impact being calculated, likely to be smaller than that of increasing labor market participation	0.4
	2.0-3.0

1 Simple average, mid-range

POTENTIAL LEVERS FOR IMPROVEMENT

Czech Republic can increase annual GDP growth by 2-3% p.a. over the next 10 years through a combination of capital, labor and institution levers

Czech Republic real GDP; percent



Content of this document

- Future global forces
- Competitiveness according to global indices
- Current state of the Czech economy (growth, sectorial productivity)
- Education, institutional framework & entrepreneurship
- Labor market
- Urbanization
- Lessons learned from successful economies
- Potential levers for improvement and their estimated impact
- Key takeaways

We will become more competitive by completing our homework, having a new vision for the future, and focusing on growth industries

„Homework“	Improved institutional environment
	Better quality of education
	More efficient labor market
„Vision for the future“	Support of entrepreneurship, innovation, and technologies
	Support of urbanization
	Mobilization of domestic and foreign sources of investment
Sources of growth	Selected manufacturing sectors (machinery and electronics, motor vehicles, intermediate materials)
	Healthcare and pharmaceuticals, education
	Knowledge economy sectors (IT, finance, consulting)