

The logo for BBVA Research, featuring the word "BBVA" in a bold, white, sans-serif font, followed by a vertical line and the word "Research" in a smaller, white, sans-serif font.

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The threat to globalization and technological change: impacts

Jorge Sicilia

June 2017



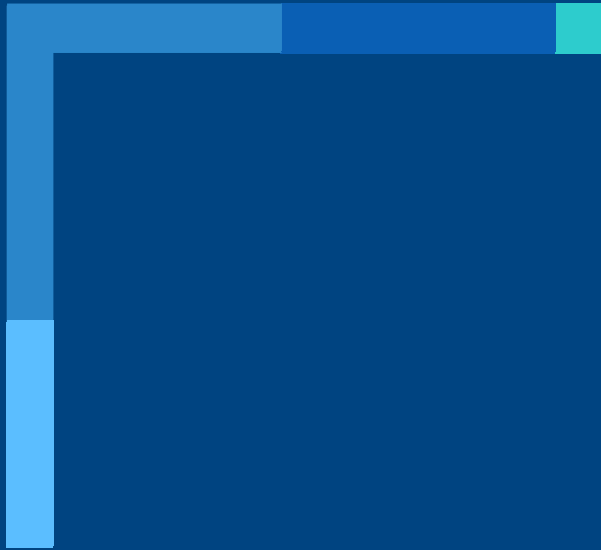
Key messages

1. After widespread benefits, especially and unquestionably for EM's, support for globalization is retreating
2. Digital technologies and robots are seen as a threat to employment, though probably this is not the case
3. The backlash has been manifested in advanced economies through populism, which has complex roots.
4. The populist trend has reached a peak (for now), in Europe mostly but also in the US.
5. Still, there are many challenges ahead, both economic, political and transformational (digital technologies, robotics) that require a better governance.



Index

- 01** Globalization trends
- 02** New technical change and employment
- 03** Consequences in advanced countries: populism
- 04** US after Trump's election
- 05** Europe after Brexit (and after Trump): populism lost impulse
- 06** Consequences in advanced countries: populism

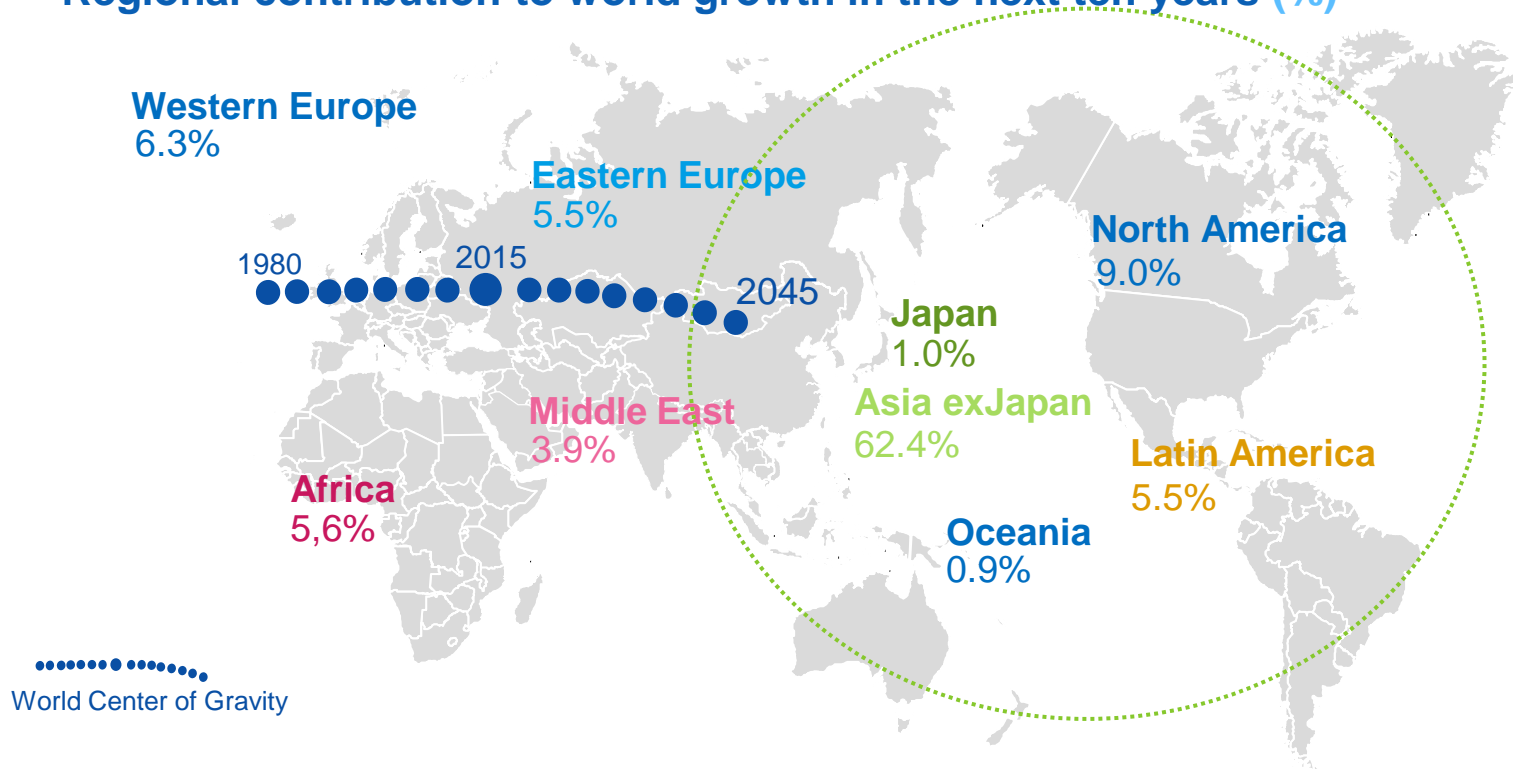


01

Globalization trends

The shifting of the economic centre of gravity is moving from the Atlantic to the Pacific area...

Regional contribution to world growth in the next ten years (%)

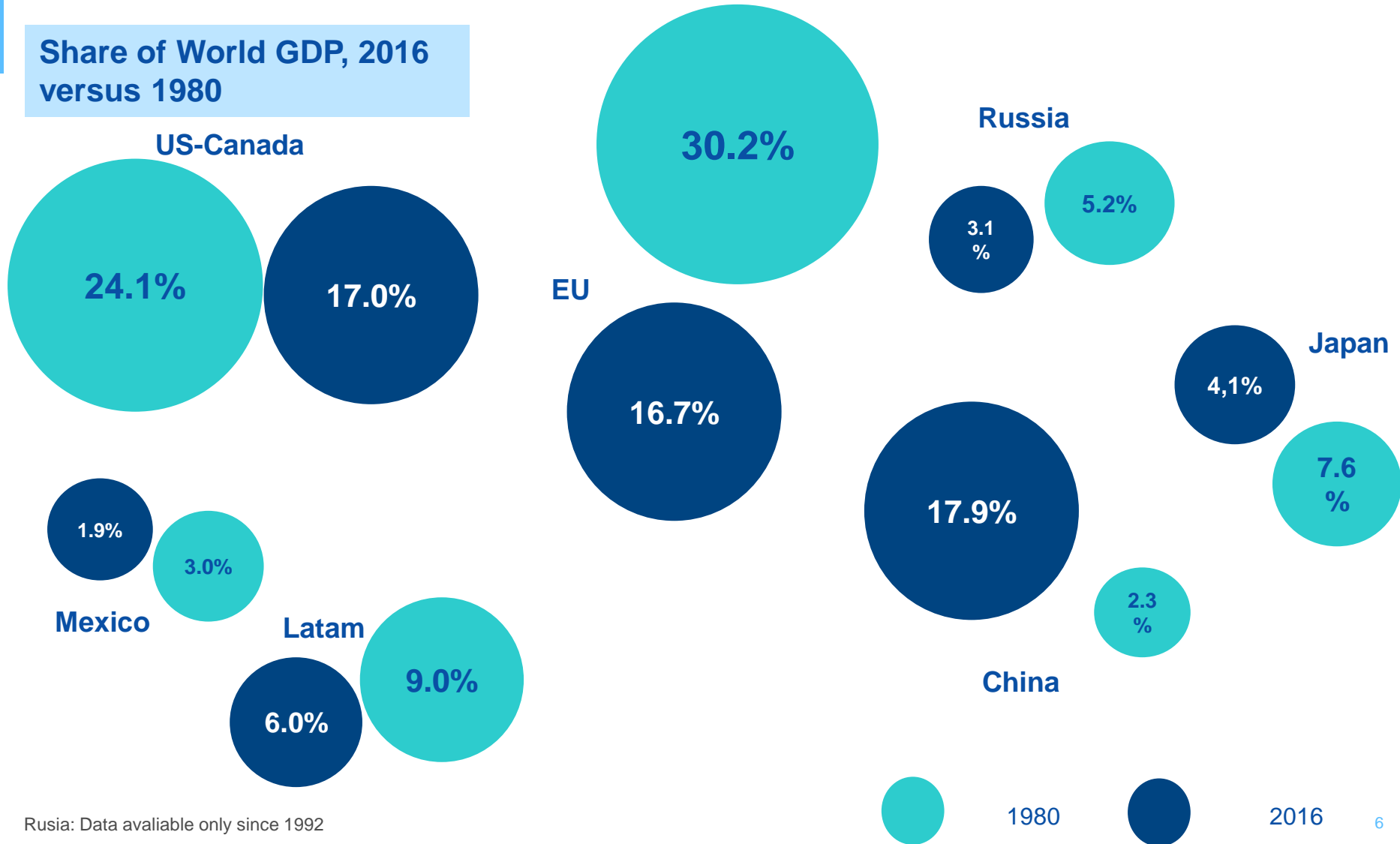


Source: BBVA Research, IMF and Quah D., 2011, "The Global Economy's Shifting Centre of Gravity".

Global growth will be concentrated in the Asia-Pacific region, which will account for 78.7% of the increase in GDP between 2016 and 2026

...leading to a developing multipolar world

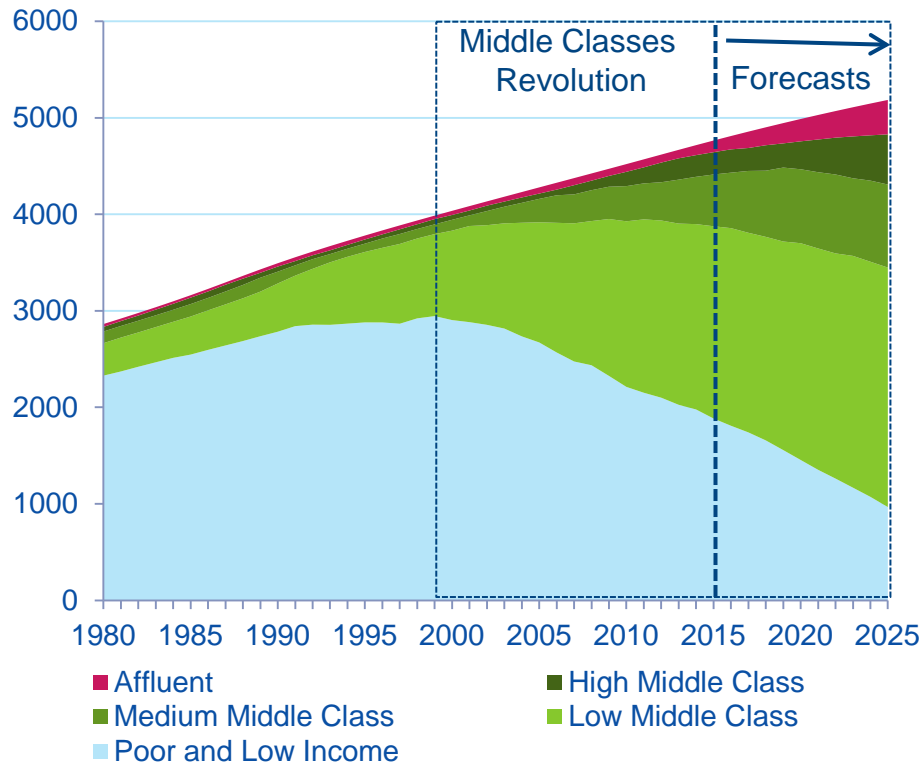
Share of World GDP, 2016 versus 1980



Rusia: Data available only since 1992

The middle class revolution in emerging economies reduced poverty, and will bring a higher skilled population

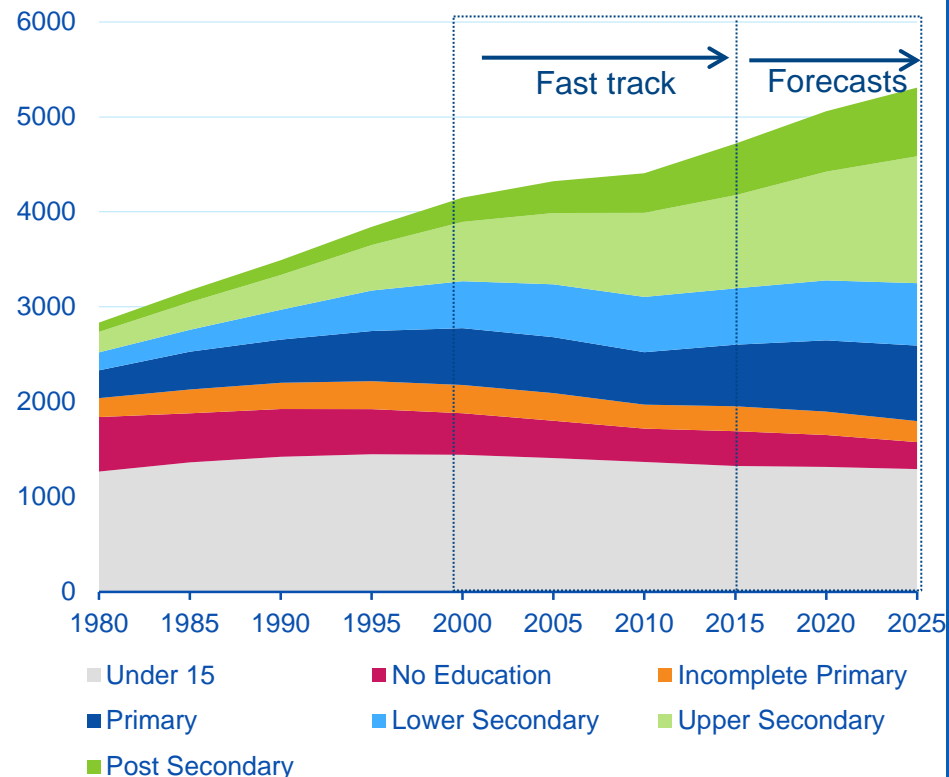
Emerging countries' middle classes (1980-2025) (millions)



NB: Based on PPP-adjusted 2010 USD; Poor and Low Income (<USD5,000), Low Middle Class (USD5,000-15,000), Medium Middle Class (USD15,000-25,000), High Middle Class (USD25,000-40,000), Affluent (>USD40,000). See the annex for further information about the methodology.

Source: BBVA Research, UN, WB, IMF

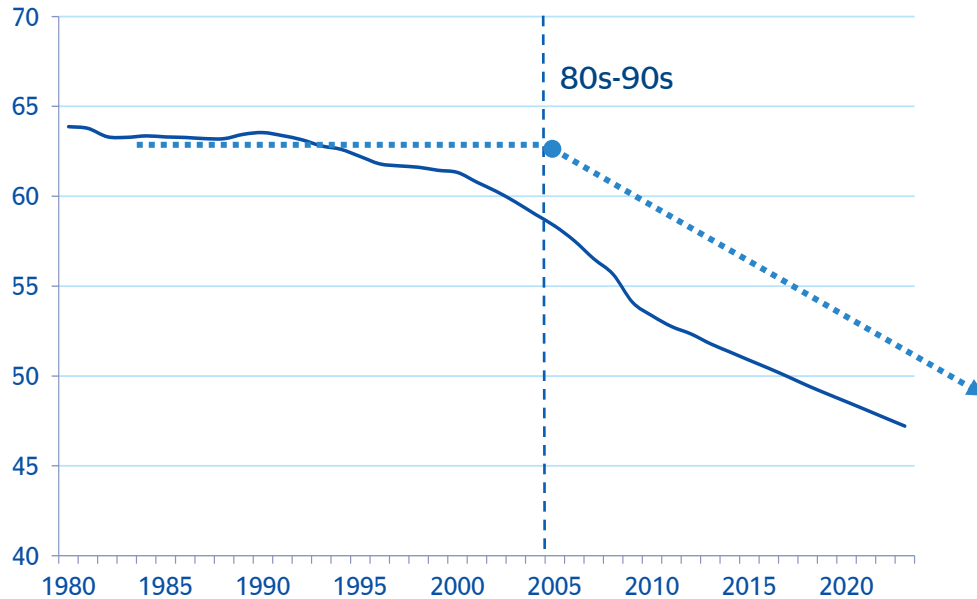
Emerging countries' demographic transition by education (millions)



Source: BBVA Research, IIASA

Global inequality has decreased since the 1990's, thanks to the catch up of emerging countries (mostly in Asia)

Global GINI index over GDP per capita*
(1980-2023f)



- ❖ Globalization has brought about lower inequality
- ❖ This is due to the higher growth of lower income countries, in a normal catch-up process favoured by global flows
- ❖ Within countries, the story is different

*Equal distribution is assumed on a country level

Source: BBVA Research, IMF, World Bank, United Nations

The trends have been very promising, especially for emerging countries... where challenges remain

A better world for emerging economies

- ❖ Reduction in poverty levels...
- ❖ ...and development of middle classes
- ❖ ...that demand orthodox policies, has shored up good economic policies

And beyond emerging economies

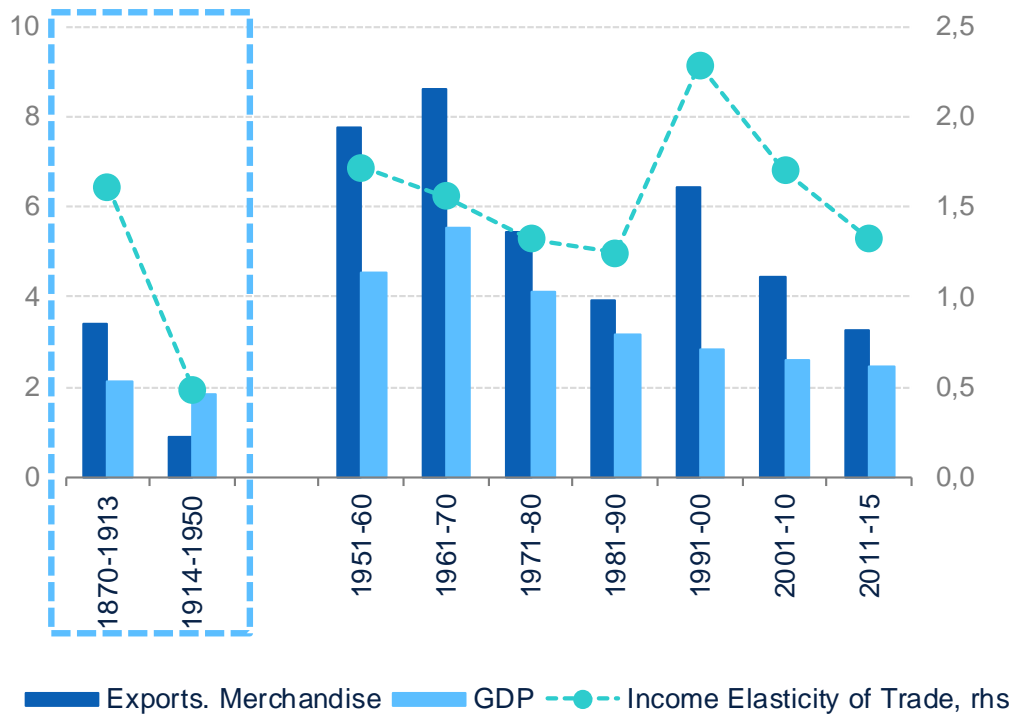
- ❖ Increased integration in the world economy, driving growth higher...
- ❖ ... allowing emerging economies to come to the rescue after the 2008 crisis
- ❖ Globalization has helped to increase purchasing power in advanced economies

Middle Classes trigger new demands

- ❖ More social services, especially health, education, housing
- ❖ More infrastructure investment
- ❖ More transparency
- ❖ Less corruption
- ❖ ... Demands that are not easy to meet and require resources that need to be well funded and better spent!

Are exports retreating? Possibly, but gaining perspective, we have been here before

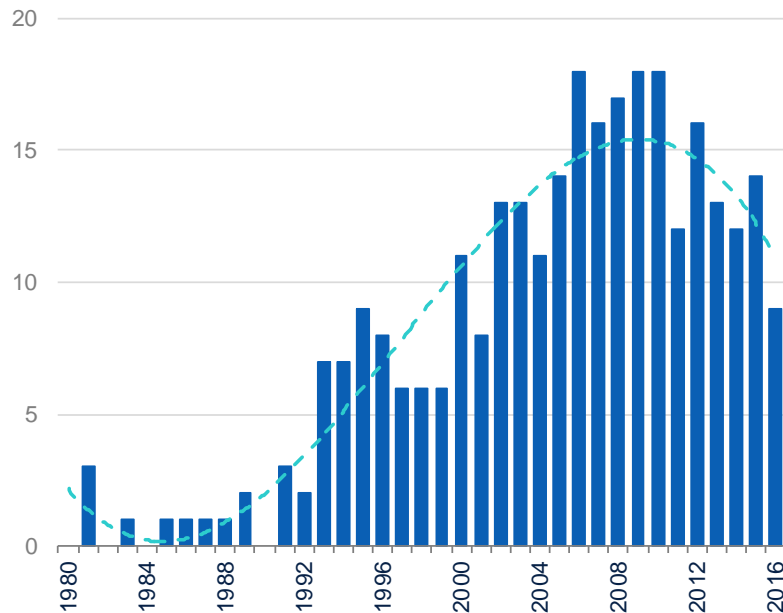
World. GDP and exports volume
(YoY,%)



- ❖ Income elasticity of goods trade compares well with historical figures of 1870-1913 or 1981-90) due to:
 - ❖ Global activity stagnated following the Great Recession
 - ❖ Higher growth of less trade-intensive sectors
 - ❖ Reduction in Global Value Chains (international production fragmentation) mainly in China
 - ❖ Protectionism, and, less supportive policies for international flows since the Great Recession

On protectionism, trade policies are less supportive

New Trade Agreements



Protectionism Non-Tariff Measures

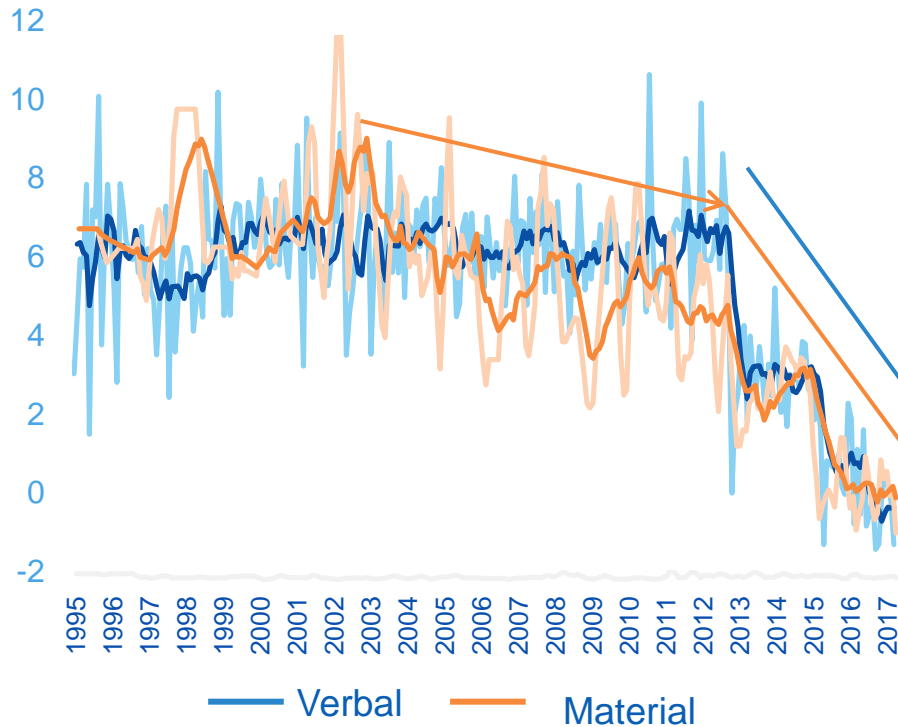
Import product lines subject to any newly initiated TTB investigation (Antidumping (AD), global safeguards (SG), China-specific transitional safeguard (CSG) measures, and countervailing duties (CVD)) (% total imports)



Protectionism comes to the fore after a worsening of trade support in 2012... unevenly so

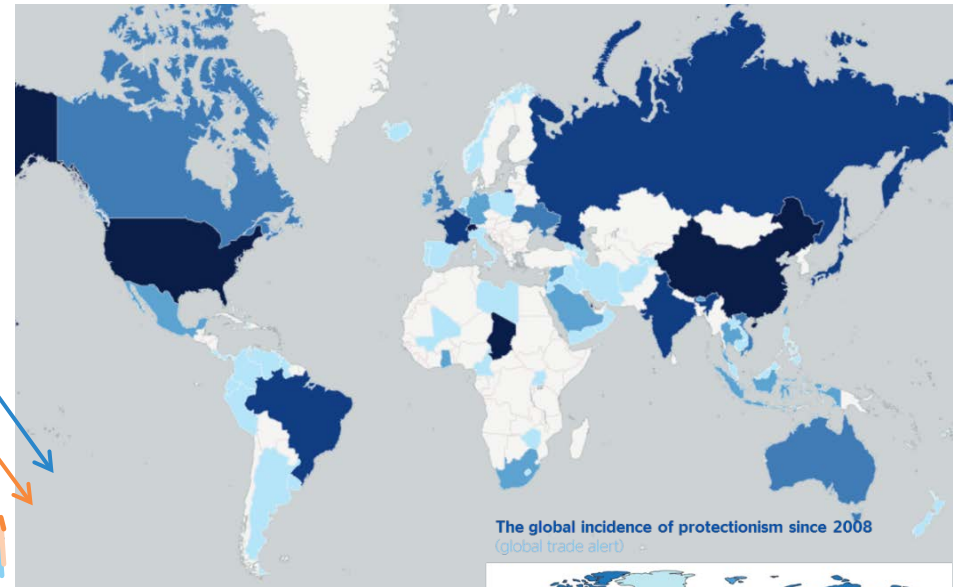
BBVA Research Trade Support Index in real time

(Tone & Coverage verbal cooperation at WTO)

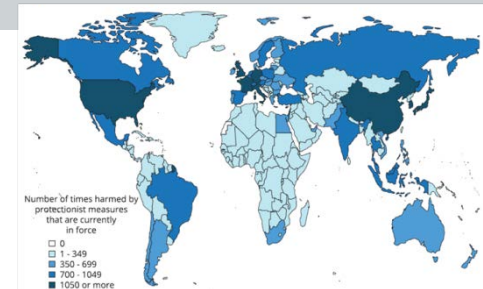


BBVA Trade Support Index Changes 2008-17

(Tone & Coverage verbal cooperation at WTO)



The global incidence of protectionism since 2008
(global trade alert)



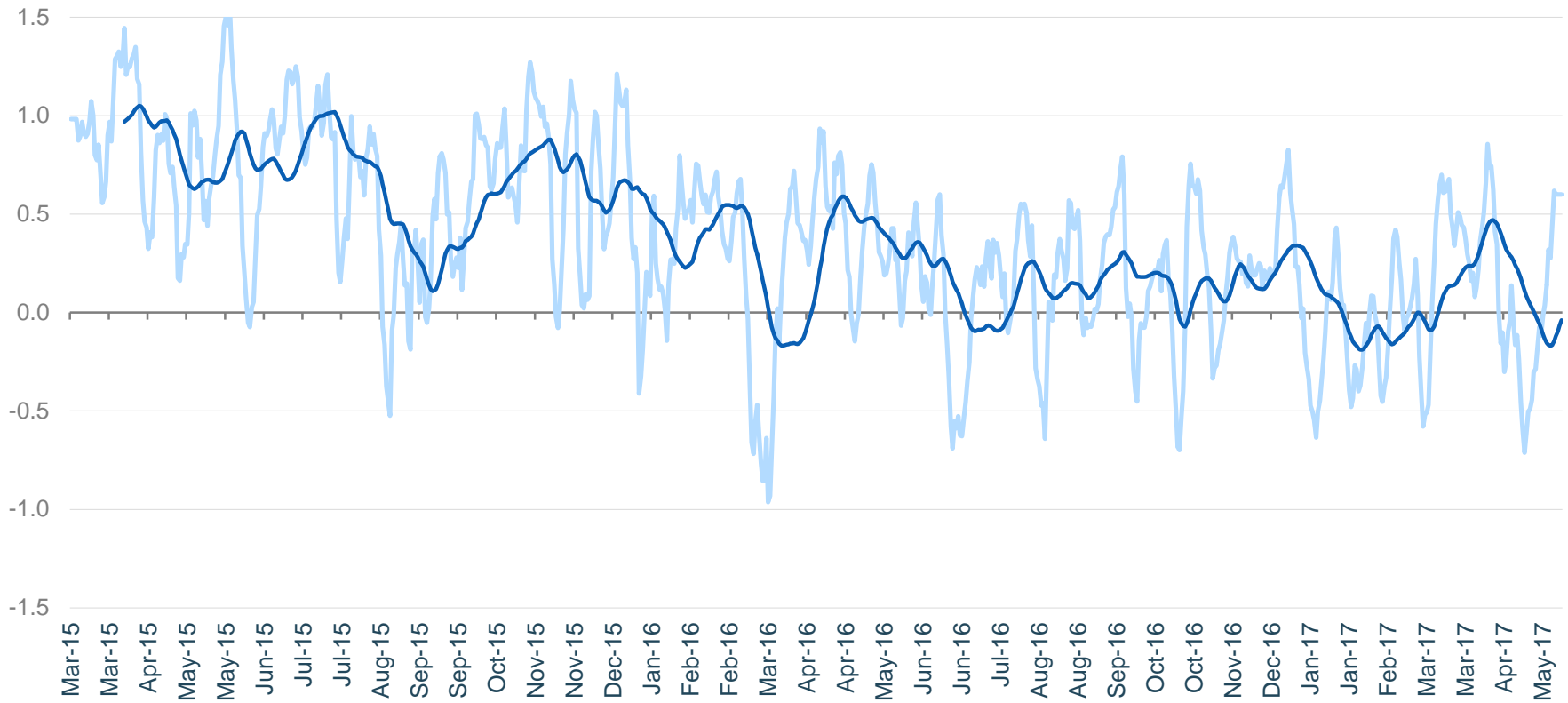
But in general was a worldwide phenomenon... at least according to the media

Media perception on Trade Cooperation



Moreover the support of globalization is not at its best

BBVA Economic globalization Perception index

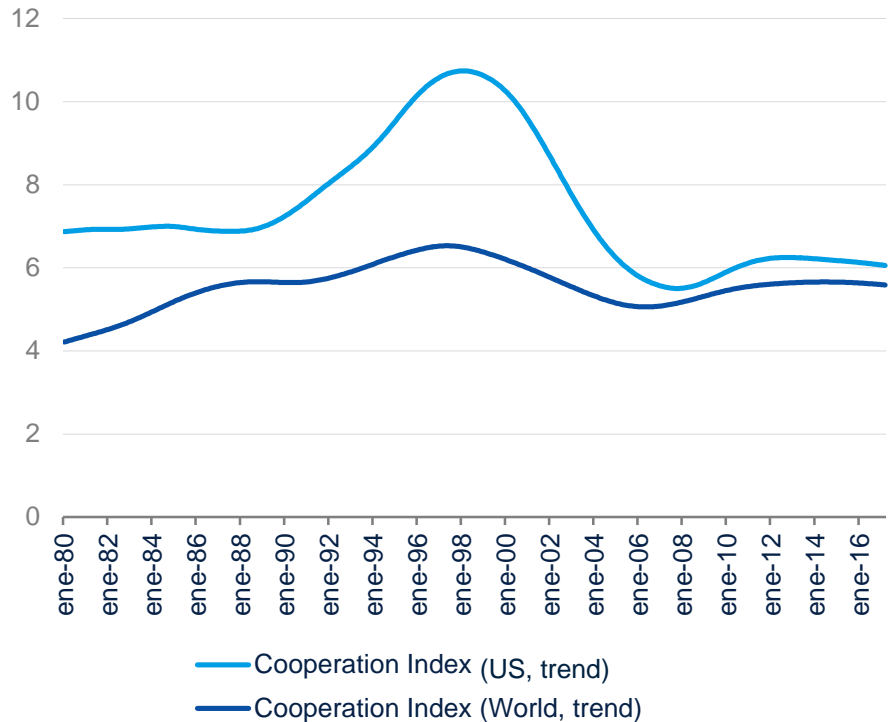


Cooperation Index evolution over time using big data

The index is defined as the ratio of the numbers of events of cooperation and demand..

Trends of the index

(HP filtered)

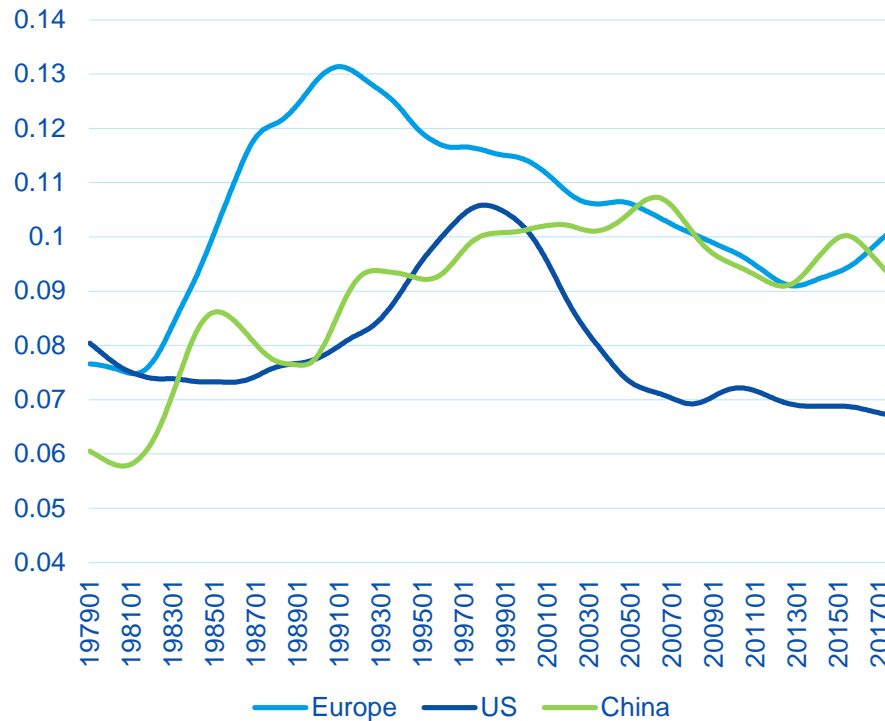


- ❖ List of issues where cooperation is low from the US
 - ❖ Regulation
 - ❖ Sanctions
 - ❖ Climate change
 - ❖ Trade bilateralism
 - ❖ Military issues
 - ❖ Mc Master & Cohn’s WSJ’s recent piece

Cooperation Index evolution over time using big data in other big areas

Trends of the index

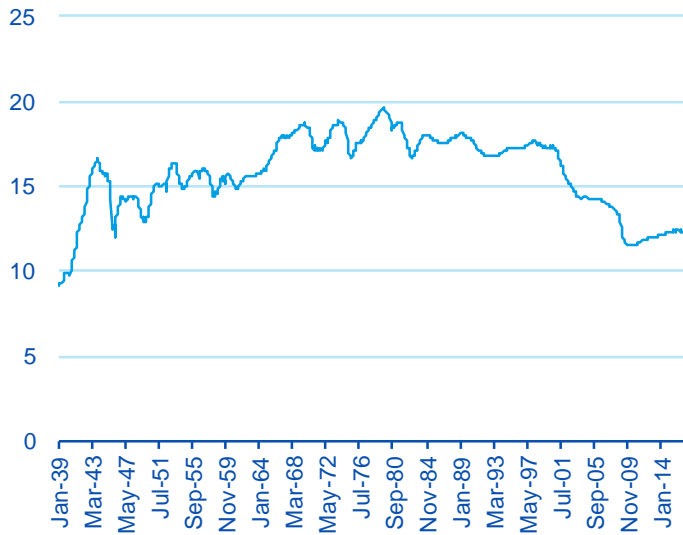
(HP filtered)



- ❖ List of issues where the US would be terribly missed
 - ❖ Regulation
 - ❖ Geopolitical cooperation
 - ❖ Climate change
 - ❖ Trade promoter
 - ❖ Military issues (where the US does have a point)
 - ❖ Control and deterrence

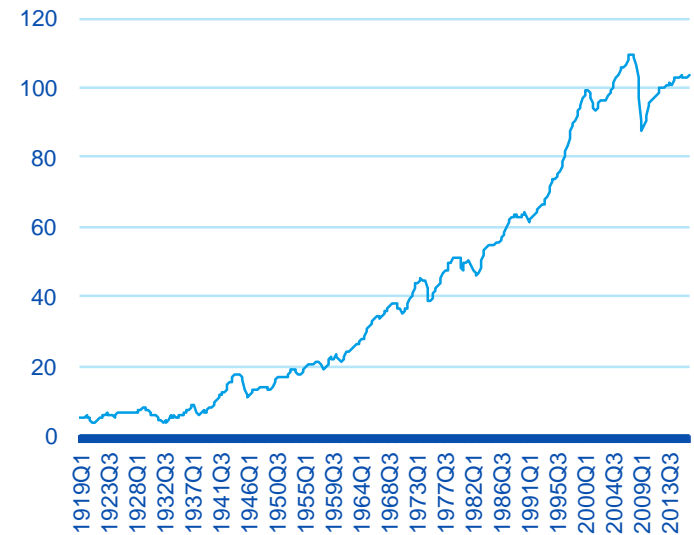
The link between globalization and technology is strong...and the latter's impact on employment will be higher

Figure 3 Employment in the US manufacturing sector (Millions of persons, s.a.)



Source: BBVA Research with BLS data

Figure 4 US manufacturing production (Index 2012 = 100, s.a.)



Source: BBVA Research with Federal Reserve data

Higher productivity, and not free trade, is at play here... "knowledge of electrical engineering, computation or robotics is a must-have skill to land a job in the US manufacturing sector. (Newman, Winston 2017).



02

New technical change and employment

Effects of the technological and digital transformation

The effects of technological change on employment depend on several factors:

**Complementarity or
Substitutability between labor
and machinery**

**Competition in goods and
services markets**

**Elasticity of labour
supply and wages**

**Elasticity of the demand
for goods and services
to income**

**Regulation in the
labour market**

**Income effect of
technological change
(link: aggregate
consumption, productivity,
leisure and work)**

Skills & education

Overview: pessimists vs optimists

PESSIMISTS

- ❖ **Luddites** (1811 -1816) the **Swing Riots** (1830) and **Marx** (1867)
- ❖ **Frey and Osborne (2013)** on US jobs (47% jobs under threat)
- ❖ **Brynjolfsson and McAfee** (2014) on stagnation of wage income and **Piketty** (2014) on capital gains exacerbating inequality
- ❖ **Autor** (2015) the biggest risk is not technology per se, but poor governance

OPTIMISTS

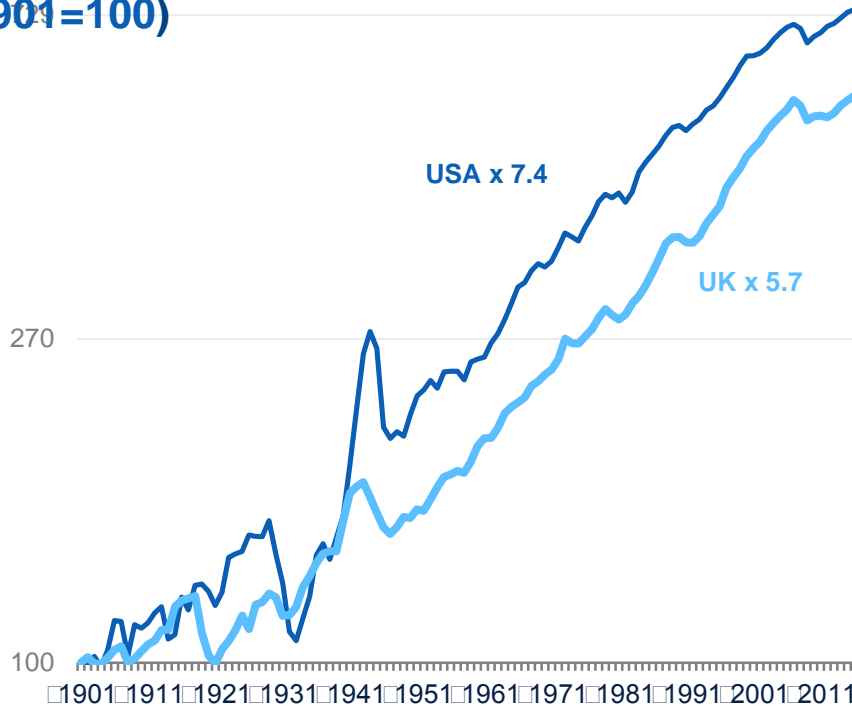
- ❖ **Moreti** (2010) each job created in high-tech sectors creates a further 4.9 in non-trade goods sectors; and **Mokyr** (2014), **Gregory et al** (2016), **Conseil d'Orientation pour l'Emploi** (2017): the future holds occupations that will seem as strange to us as many of those today to our grandparents. Our lack of imagination is largely responsible for current pessimism
- ❖ **Arntz et al** (2016) against **Frey & Osborne**(2013): when one considers the various different tasks in each occupation, only 9% of employment is capable of being automated

Overview: our view lie a bit more with the optimists

- ❖ **Progress in some sectors brings about income growth**, which lifts the demand for production in other sectors, and prompts the appearance of new goods and services, **increasing employment elsewhere**.
- ❖ **Technical progress has prompted a massive structural change**: in 1900 41% of employment in the United States and 63.6% of that in Spain was in agriculture. A hundred years later, these percentages had dropped to 2% and 6.9% respectively. Nonetheless, even with less employment, output is far greater thanks to machinery and technical progress.
- ❖ **The ultimate effect throughout a large part of the 20th century was an increase in productivity and real wages**, above all after the second industrial revolution, without a rise in unemployment. On the contrary, the evidence for many countries is that the faster trend productivity grows, the lower the unemployment rate, such as, for example, in the United States (Ball and Mankiw, 2002) or Spain in the 60s and 70s.

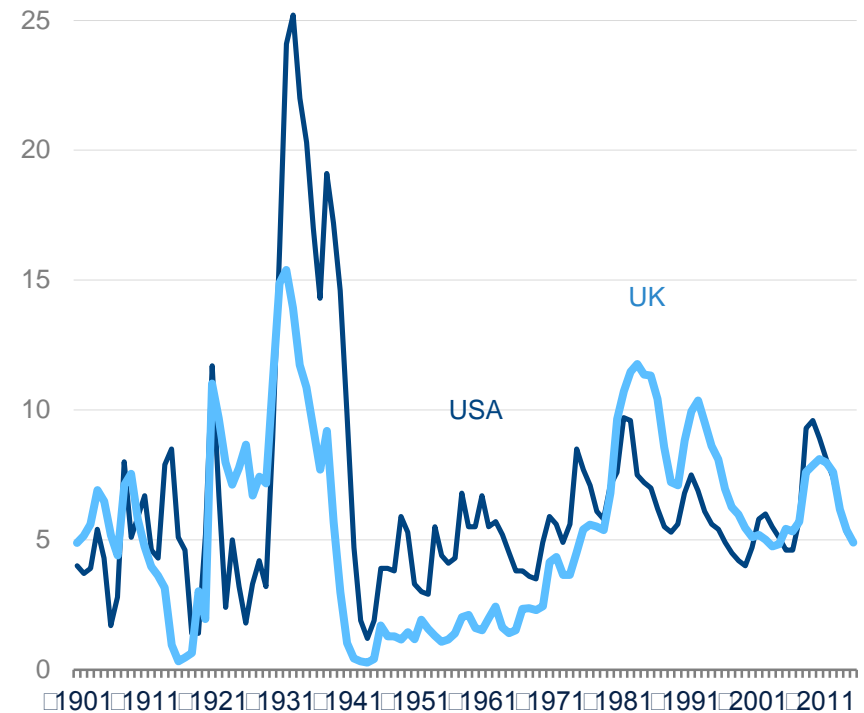
Unemployment in 2016 was at the same level as in 1901

Per capita GDP in the United States and the United Kingdom, 1901-2016 (1901=100)



Source: own research based on the Maddison Project and the OECD. Data in logarithm form.

Unemployment rate in the United States and the United Kingdom, 1901-2016

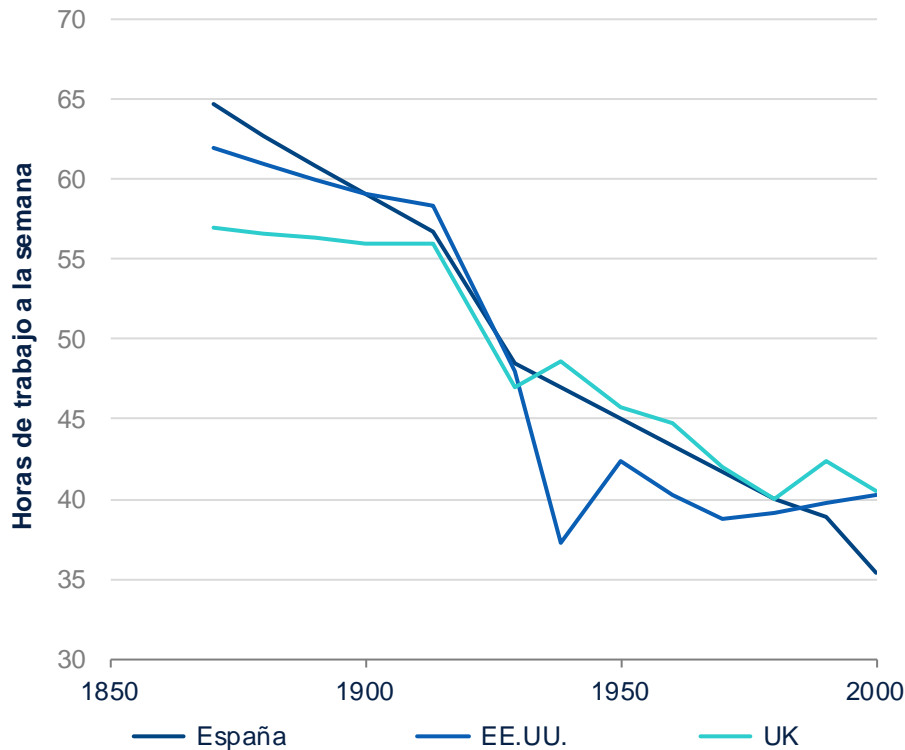


Source: own research based on Lebergott (1957), BLS, BoE and OECD

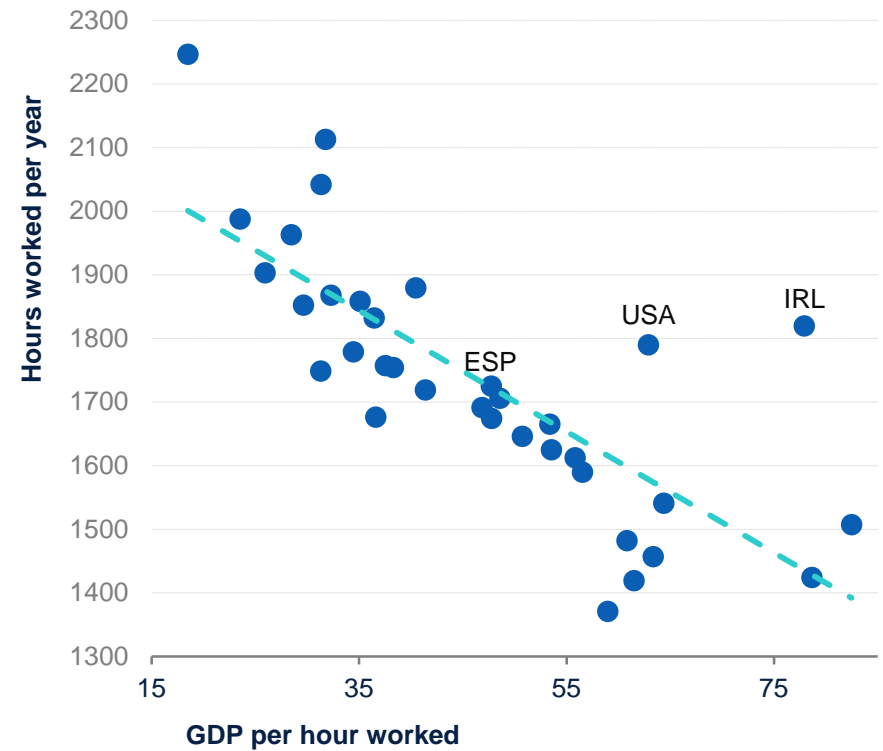
For over a century technical progress has not destroyed jobs in aggregate terms

Hours worked fall with technical progress

Weekly hours worked in the United States, the United Kingdom and Spain, 1870-2000



Hours worked and productivity in the OECD, 2015

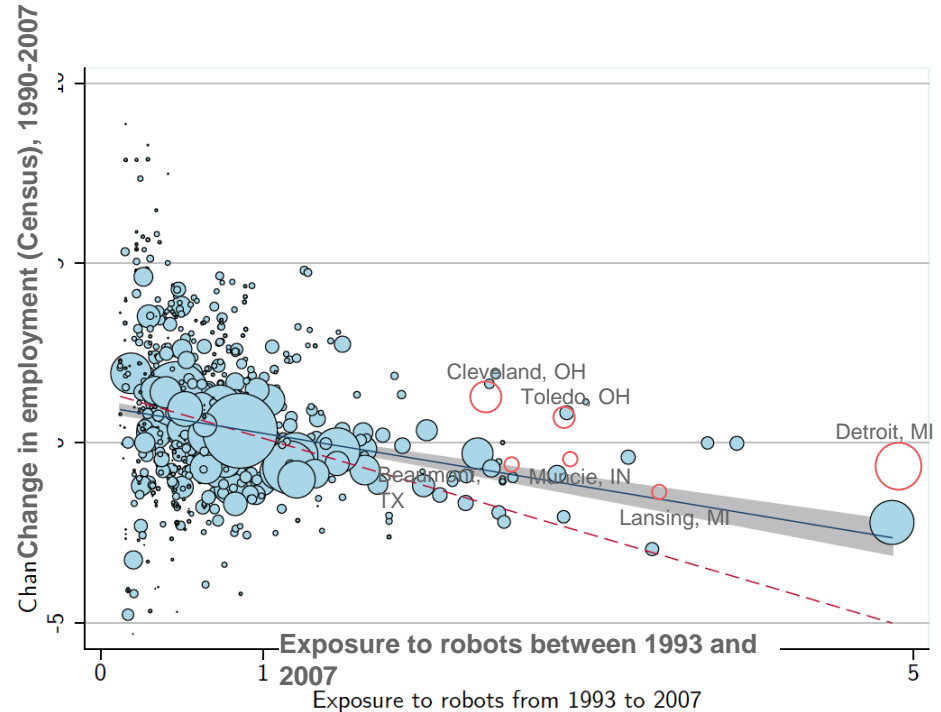


Does automation destroy employment?

Man's race against the machine

- ❖ Acemoglu and Restrepo (2017) analyse metropolitan areas of the US (1990-2007)
- ❖ One additional robot per thousand employees reduces employment rate by 0.18-0.34pp and wages by 0.25-0.5pp
- ❖ The effect is greater among workers with **manual occupations and workers without university education**
- ❖ Graetz and Michaels (2016) analyse 14 industries in 17 countries (1993-2007): robots boost productivity and wages, and reduce prices but not aggregate employment, **although they do that among the least skilled**

Correlation between exposure to robots and employment for metropolitan areas of the United States 1990-2007



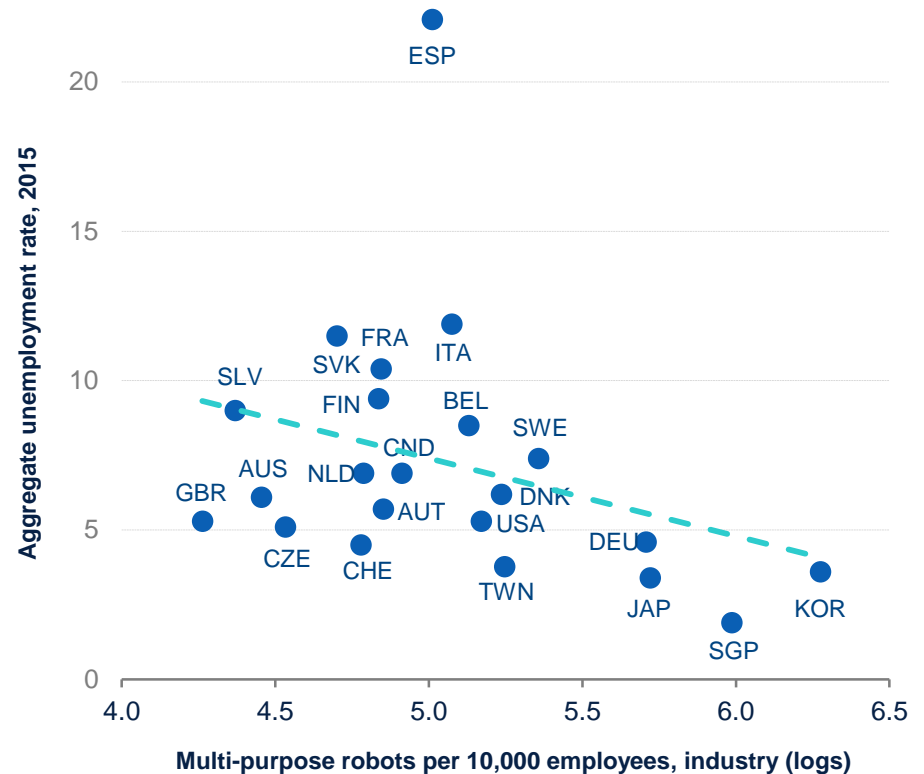
Source: [Acemoglu and Restrepo \(2017\)](#).

Automation does not imply more aggregate unemployment

Man's race against the machine

- Although in many cases automation implies substituting labour with robots, the aggregate net balance appears positive
- Thanks to automation new activities are being pursued or externalities generated in other sectors, which produce net employment
- A problem of reverse causality whereby a low unemployment rate or ageing incentivise greater automation? **(Acemoglu and Restrepo, 2017)**

Robots in industry and the unemployment rate in the 22 most automated countries, 2015

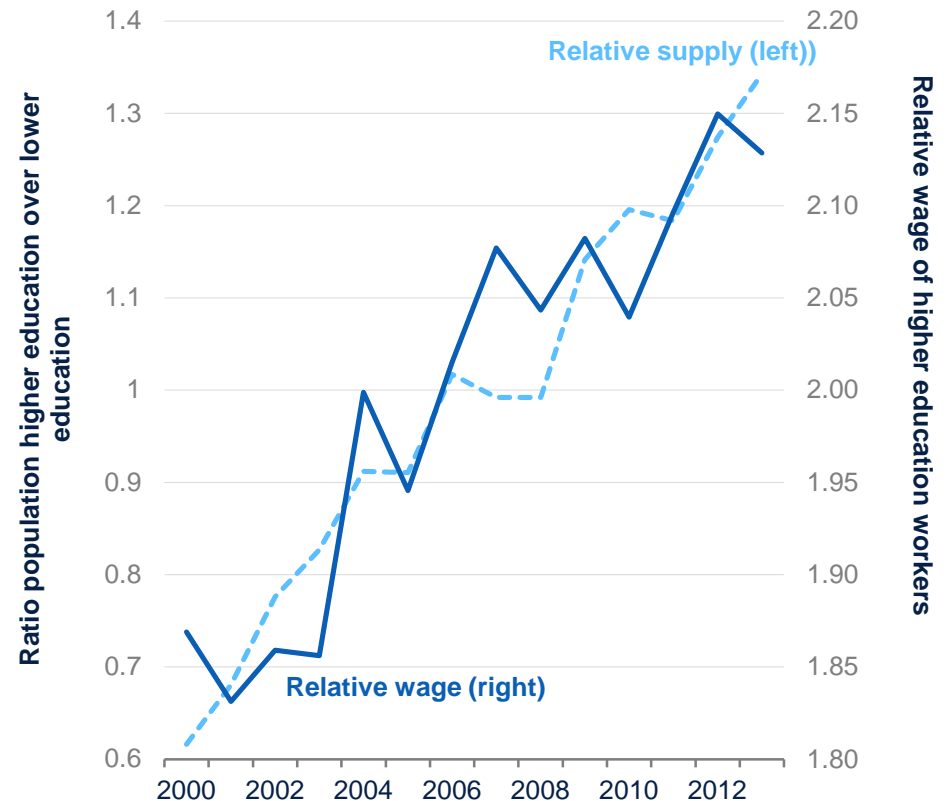


Evidence: technologically biased technical progress

Man's race against the machine

- Tinbergen (1974) , and Goldin and Katz (2008):
The evidence shows that, despite the increase in the supply of workers with higher education, their relative wage has risen compared to workers with lower educational levels
- Technical progress is **complementary** to workers with higher level qualifications and increases the demand for them more rapidly than the supply of them

The relative supply of human capital and relative wage in 33 countries, 2000-13

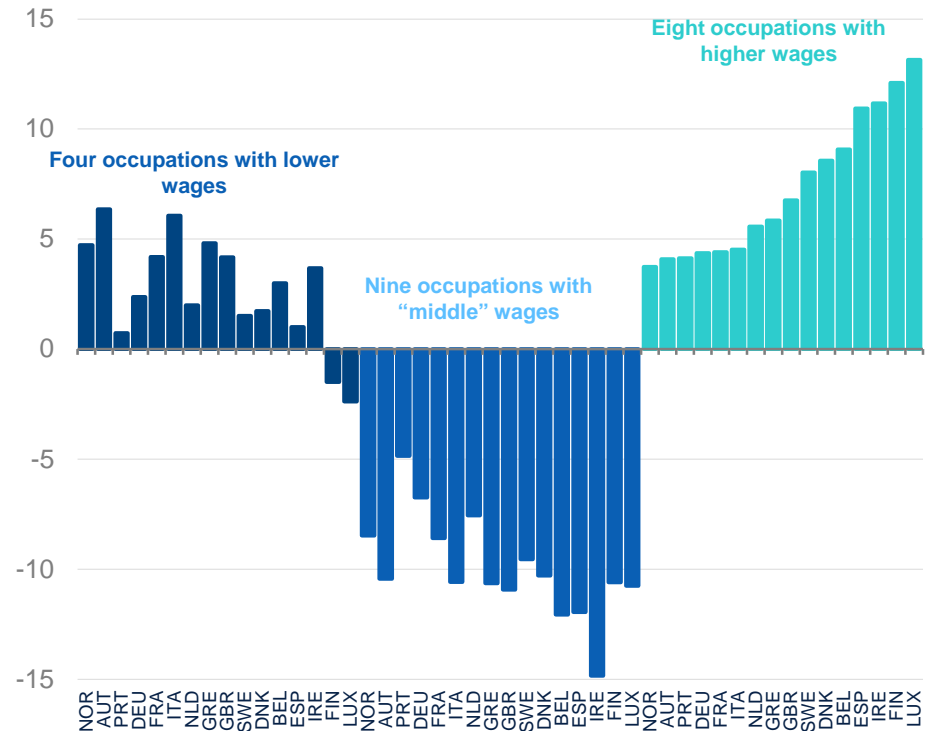


Evidence: polarization

Technical progress biased against routine work

- Autor, Katz and Kearney (2006) find that automation and computerisation complement workers who perform non-routine and abstract tasks, substitute those who carry out routine work, and do not affect those who undertake manual and non-routine activities
- Polarisation has also occurred in Europe in the last two decades

Change in employment between 1993 and 2010 in 16 European countries



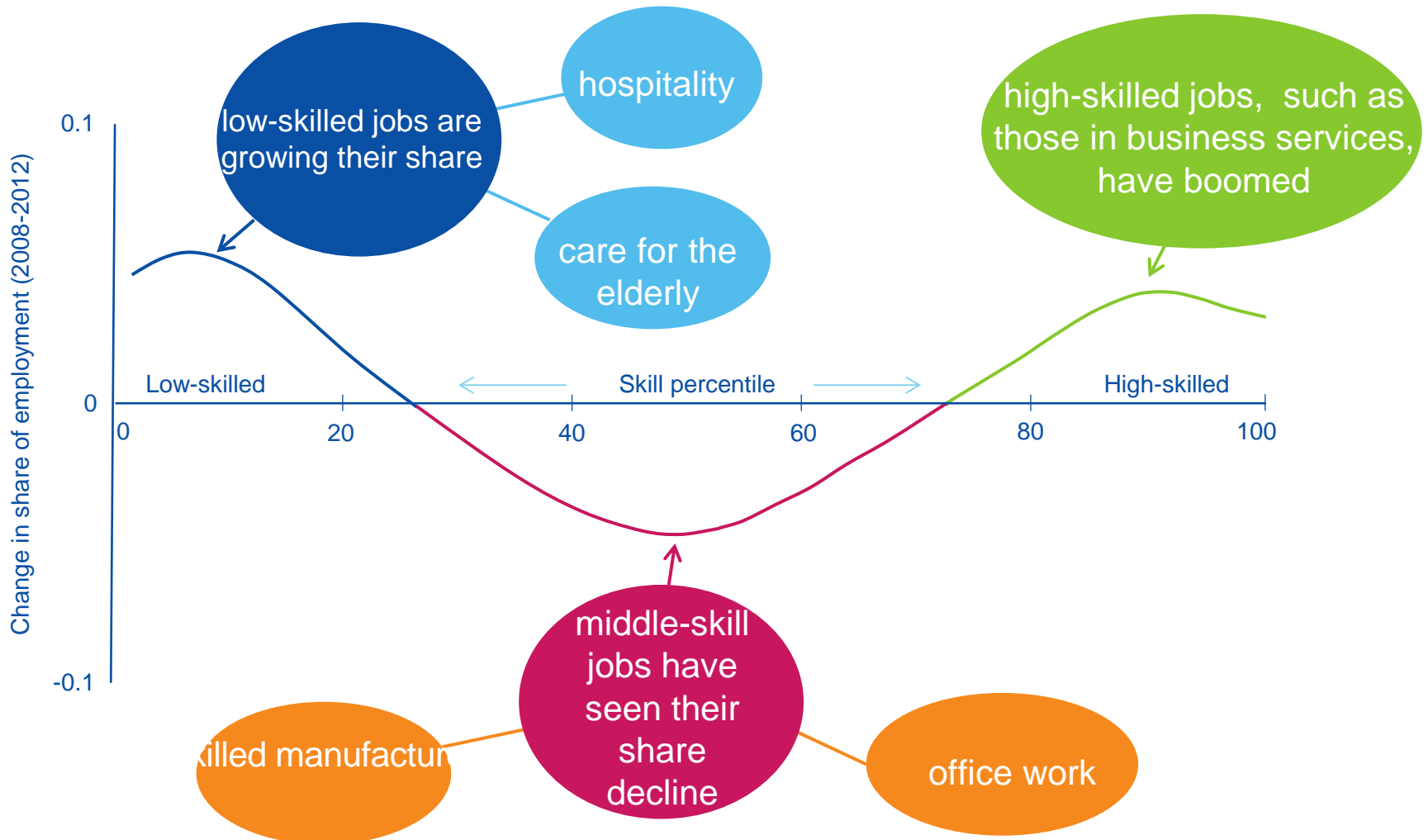
Overview: our view lies more with the optimists...if proper action and governance play a larger role

Economic progress and social welfare depends on technical progress: we are facing a huge opportunity

**The Industrial revolution 4.0 will disrupt deeply the labour market on many fronts (wages, skills, labour contracts, etc.)
But not yet aggregate employment**

It is key to govern this process

The challenge from labour markets

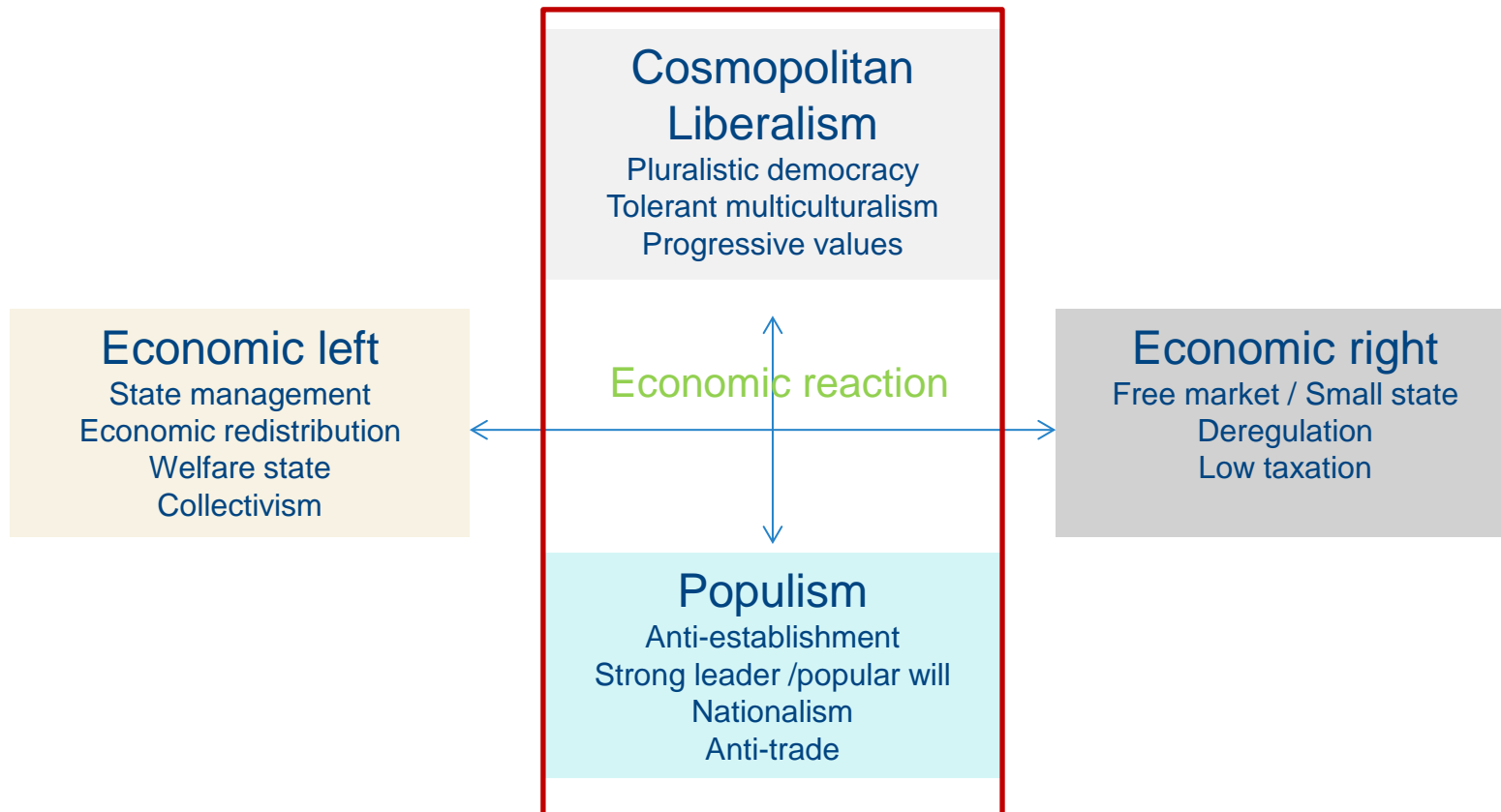




03

Consequences in advanced countries: populism

New populism has a cultural and anti-establishment dimension, and a more traditional economic dimension



Brexit showed a protest on multiculturalism, globalization, immigration, etc...It might have not been Brexit (but it was)!

How did people voted in the Brexit referendum according to sociological issues...but also on perceptions about “forces for bad”?

Some patterns

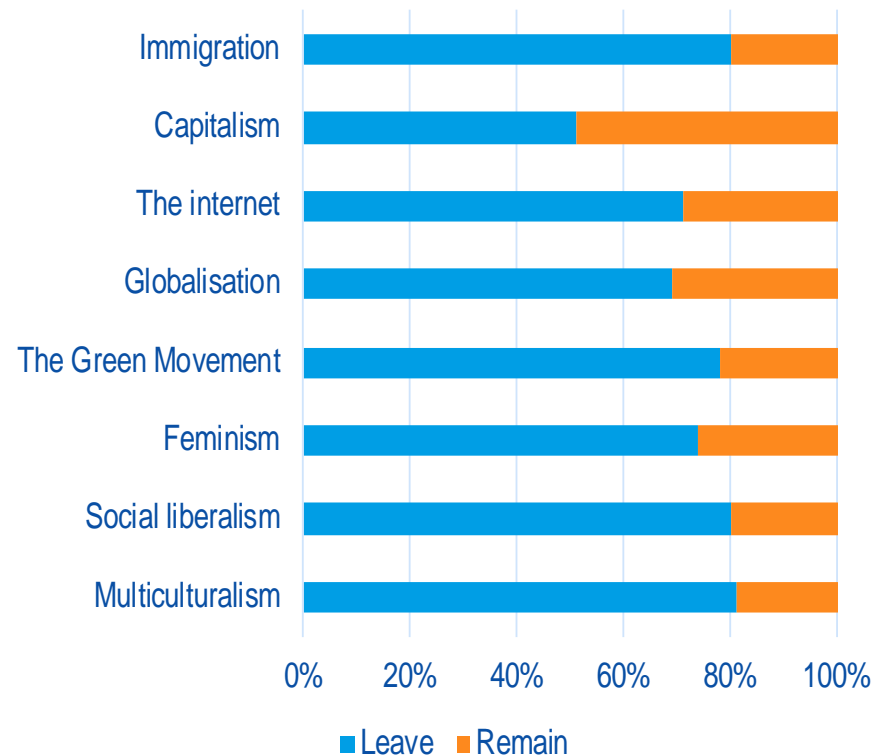
Old versus young

High versus low skilled

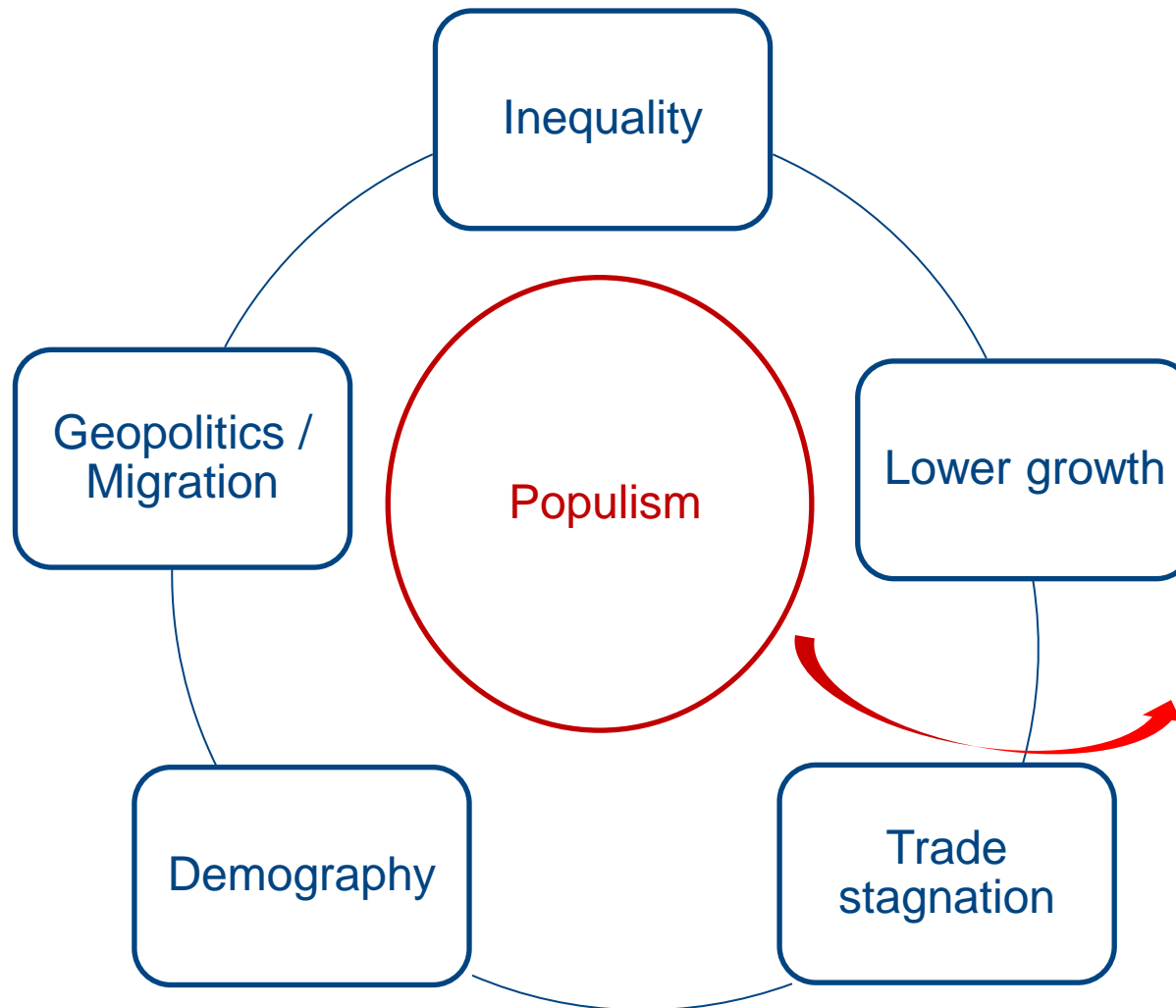
Export oriented regions versus not

High versus low income regions

Forces for Bad



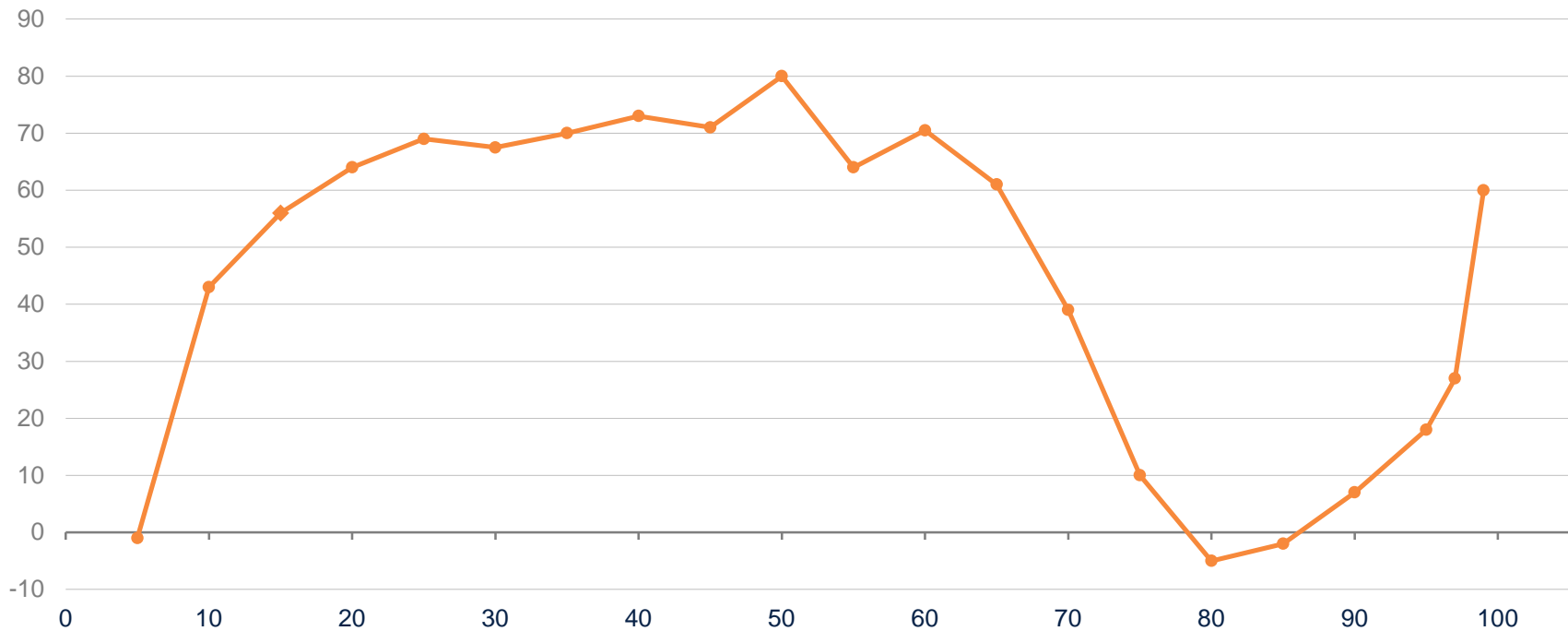
The are underlying trends...feeding into the populist fever



- Hostility towards elites, mainstream politics and institutions
- Propose simple solutions to complex problems; that bring no or perhaps short-term benefits at the expense of and long-term costs
- Easy to propagate (“twitter” policies) with a risk of banalization

Inequality: Milanovic's elephant

Change in real income across income distribution by income percentile, 1988-2008 (2005 prices, PPP)

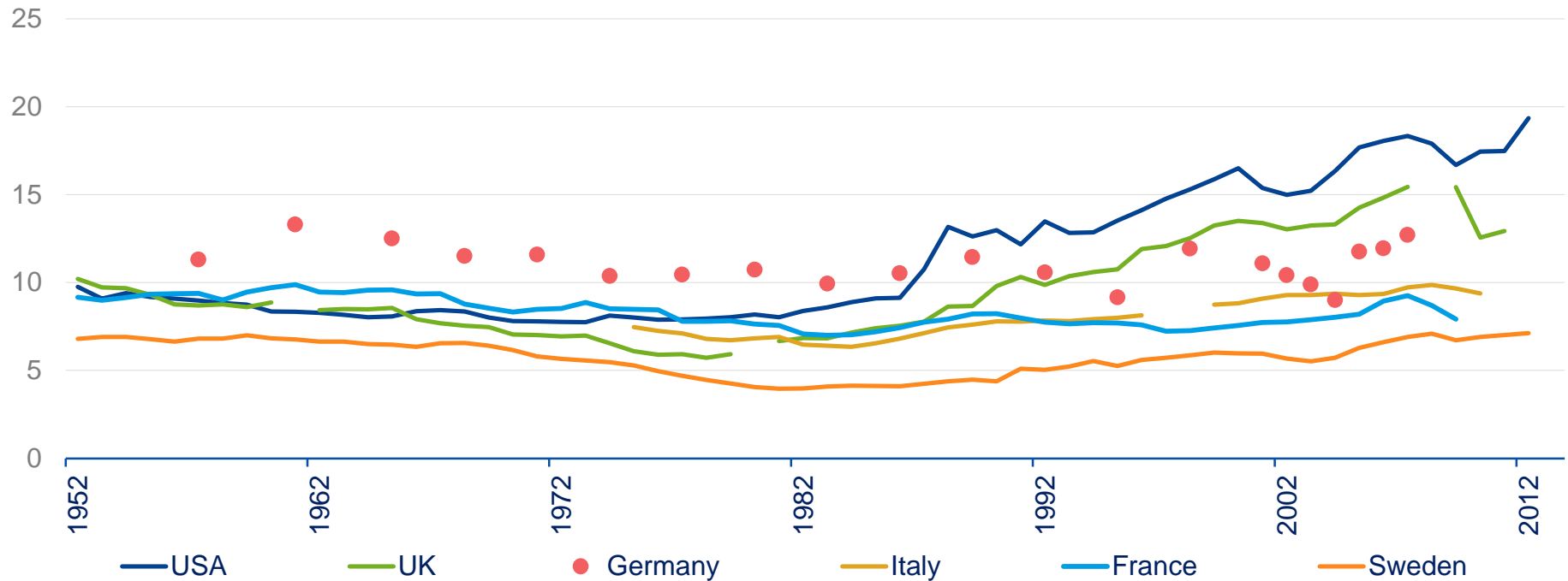


Source: Branko Milanovic, Inequality by the numbers

While global inequality has come down since the 1980's...there has been an impact in high middle classes, and the income share of the high earners has risen 34

Inequality: the local versus the global puzzle

Share of top 1 per cent in gross income



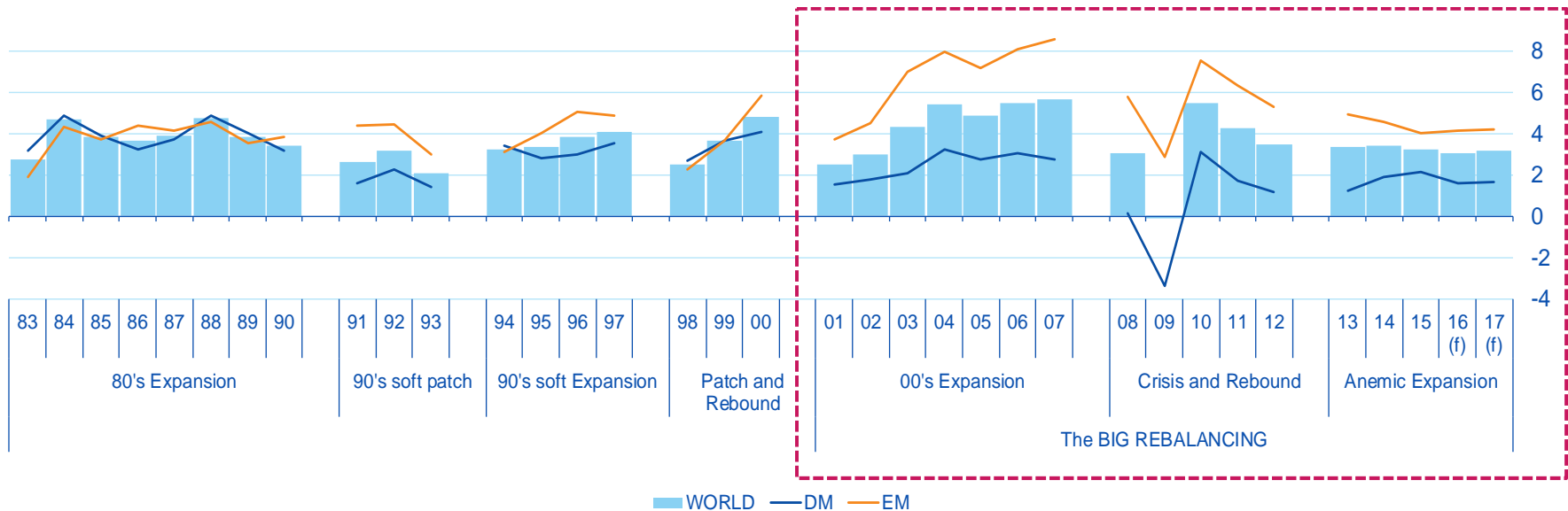
Source: www.chartbookofeconomicinequality.com by Anthony B Atkinson and Salvatore Morelli

While global inequality has come down since the 1980's...inequality has increased in many (if not all) the countries

Lower growth matters also: especially in developed countries

Economic Growth

(annual change, %)

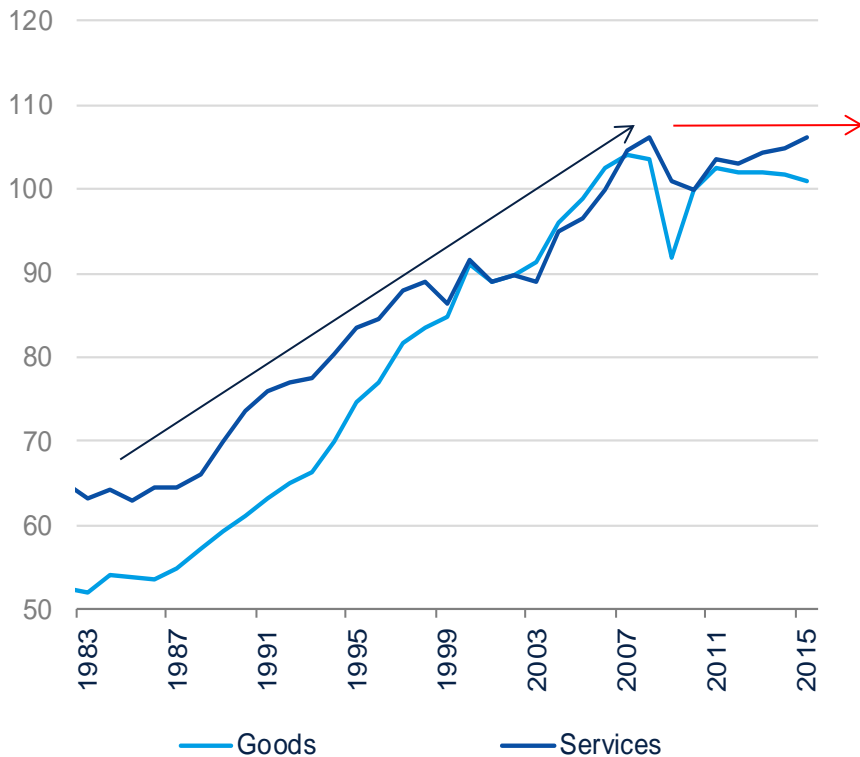


GDP, YoY, %	80's expansion	90's soft patch	90's soft expansion	Patch and rebound	00's expansion	Crisis and rebound	Anemic expansion
World	3.8	2.6	3.6	3.7	4.4	3.2	3.2
DM	3.9	1.7	3.2	3.5	2.4	0.5	1.7
EM	3.8	3.9	4.2	3.9	6.7	5.6	4.4

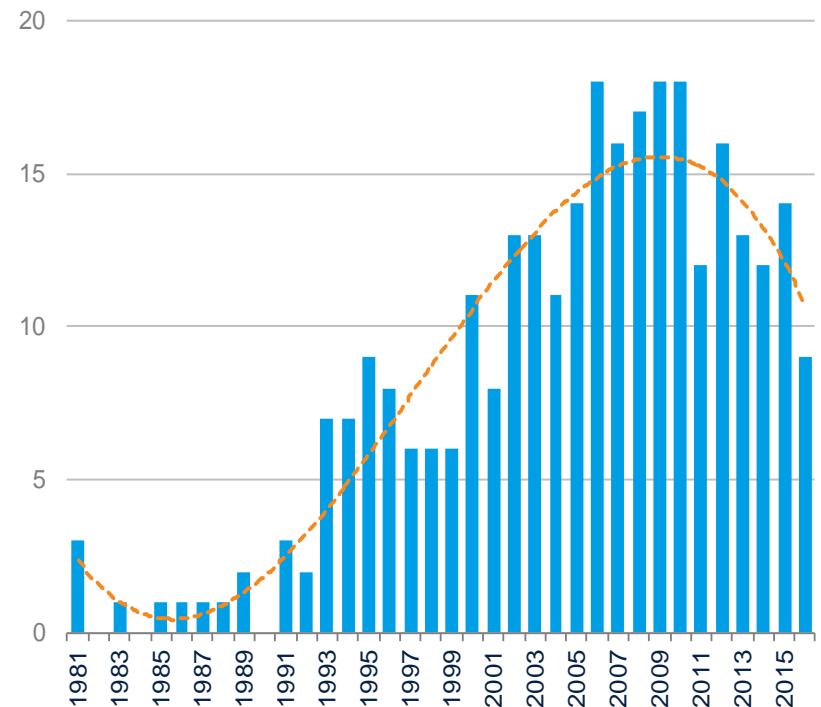
In part, and paradoxically, this is also due to the stagnation of trade since the beginning of the crisis

World. Volume of exports of goods and services

Real ratio to GDP (%) 2010=100



Number of new regional trade agreements



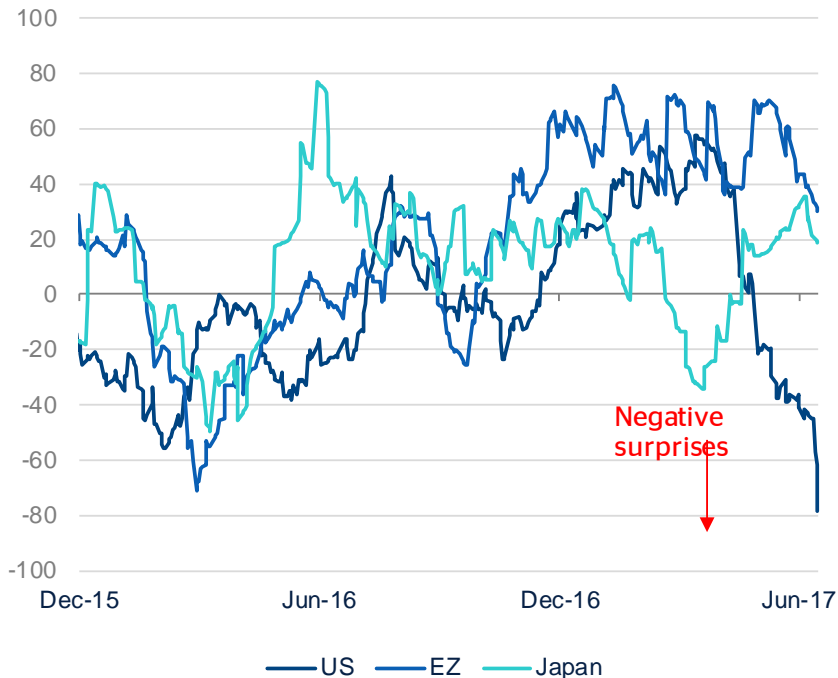


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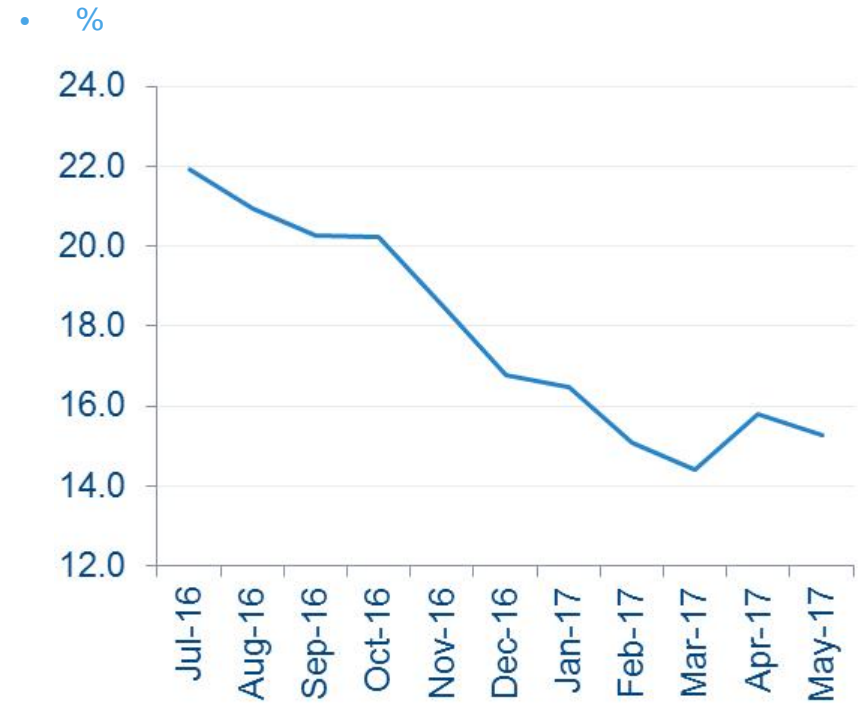
US after Trump's election

Reflationary expectations more than reverted: US indicators very disappointing while inflation expectations further receded

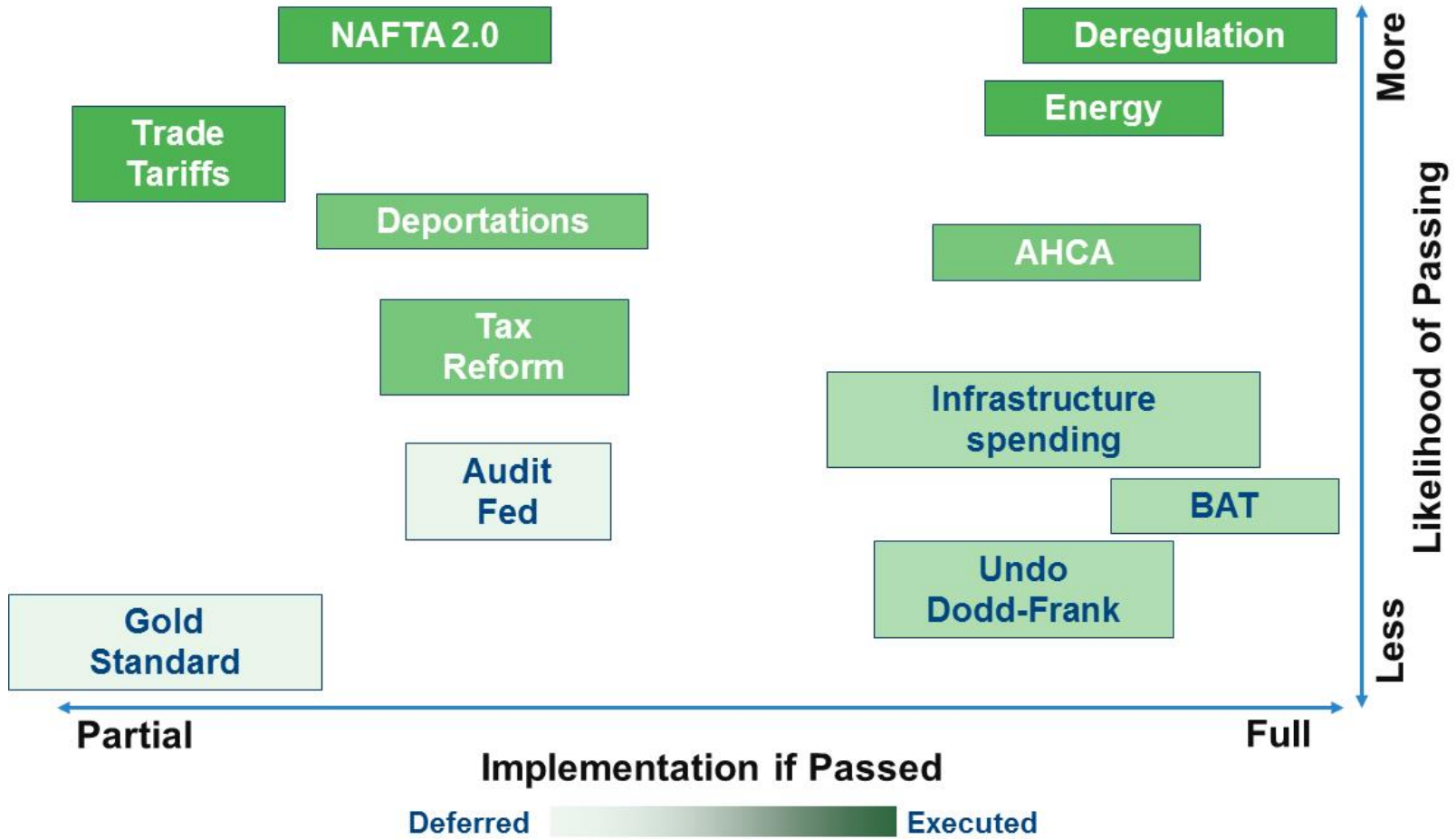
Economic Surprise index (normalized index)



Probability of Recession



Political Uncertainty



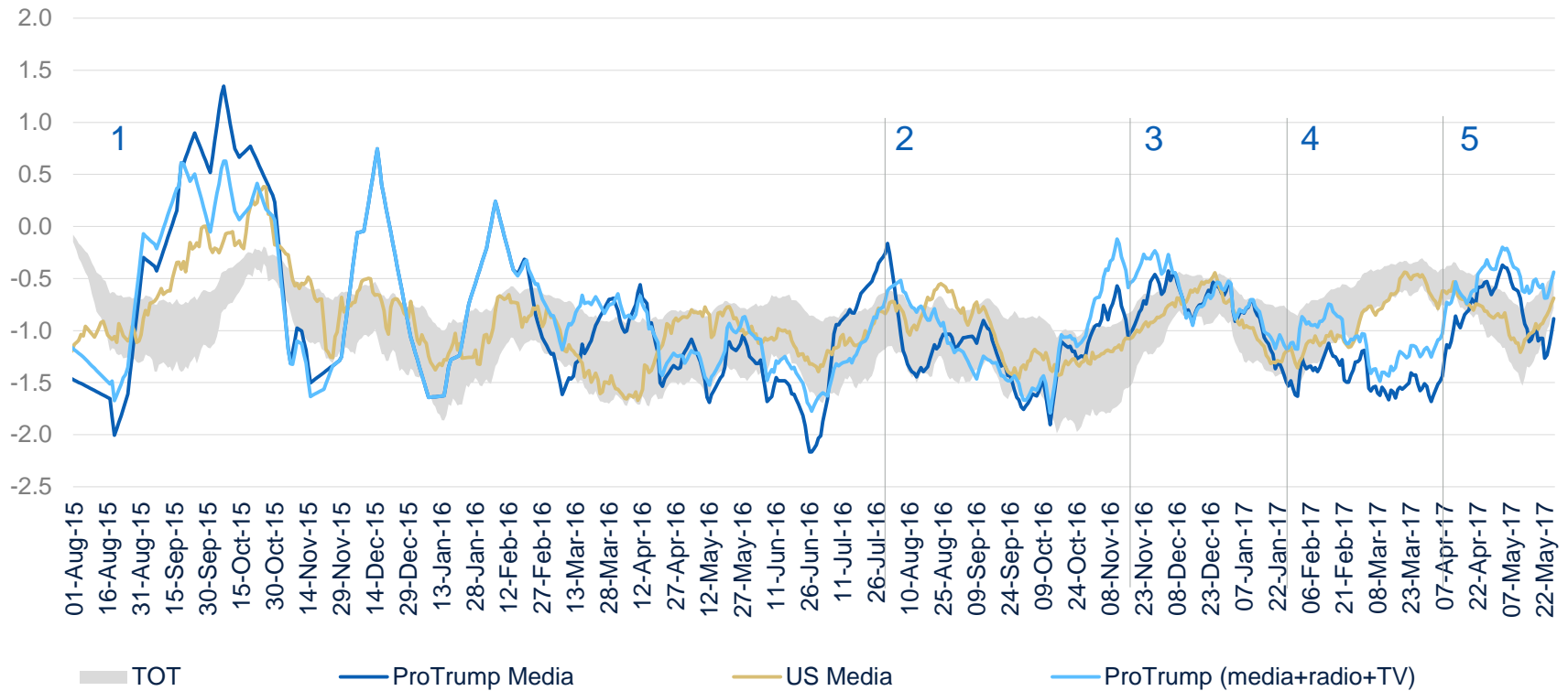
*This assessment is not static and can change significantly depending on future developments.

Source: BBVA Research

Perception of NAFTA in USA by sources

Focusing on US media: pro-Trump's media worsened their tone after Jan 17th and improved slightly after 1st draft was presented

Tone of NAFTA in pro-Trump sources, US media and all sources*



*Further information about the used sources in each index can be found in the [annex](#).

Political Uncertainty (is never good)

- Will D. Trump be Impeached in 2017?
- (¢; Prediction comes true=\$1)



Year that Trump is Impeached:

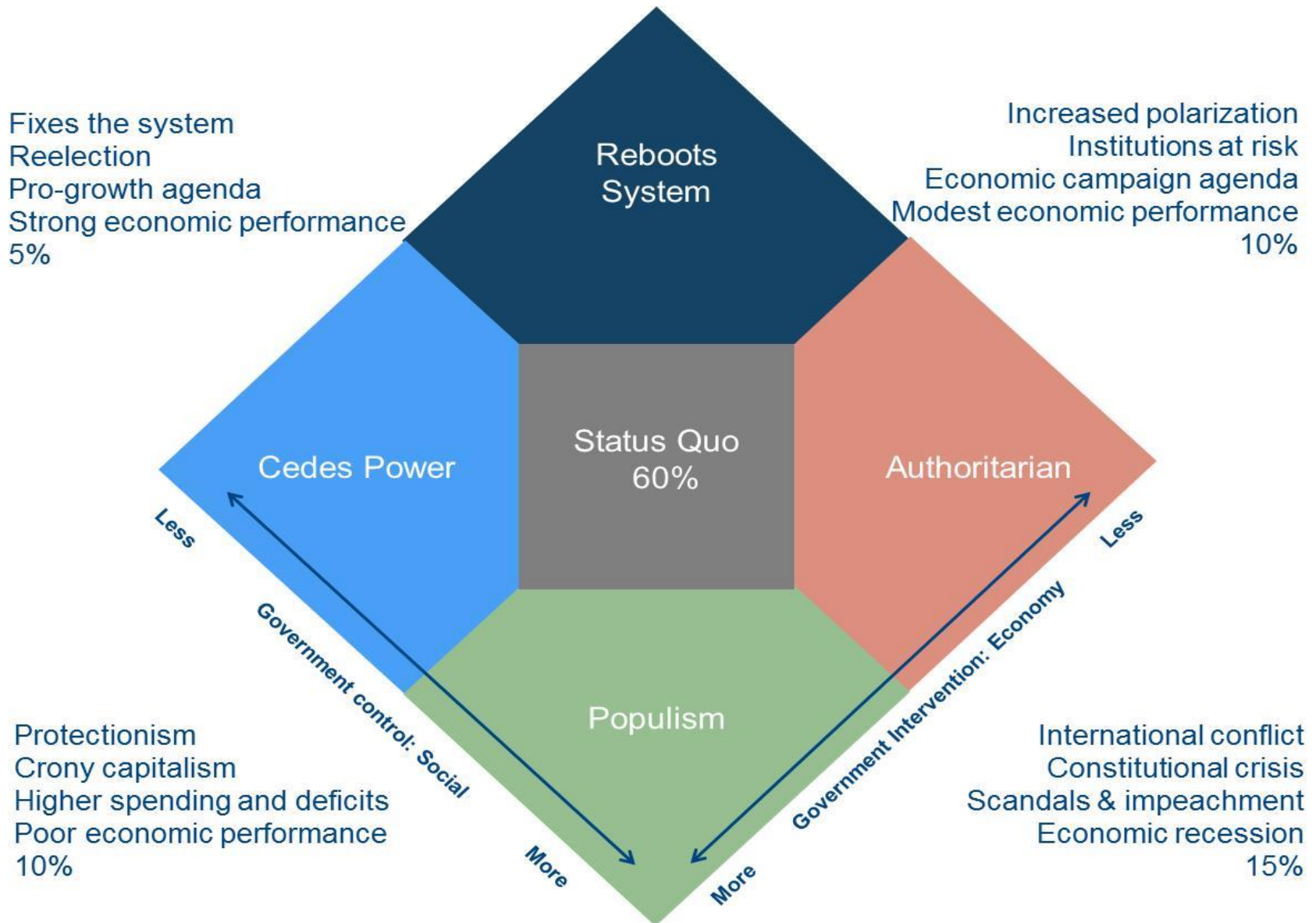
2017 3 to 1
 2018 5 to 1
 2019 16 to 1
 2020 33 to 1

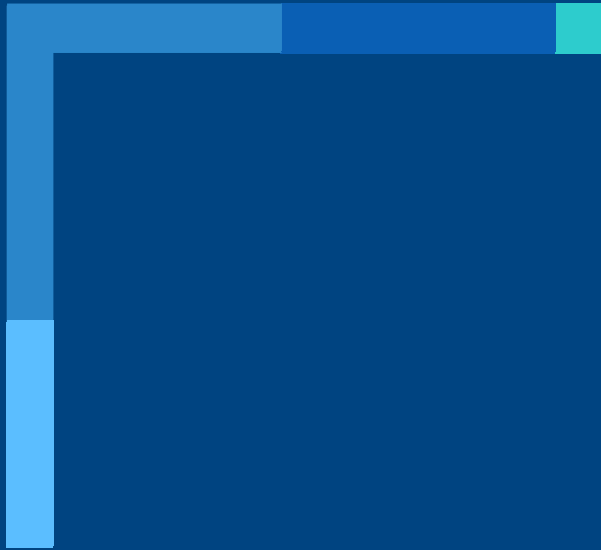
Reason?

Treason 5/1
 Perjury 8/1
 Tax evasion 9/1
 Bribery 20/1

Resignation?

No 4/9
 Yes 6/4



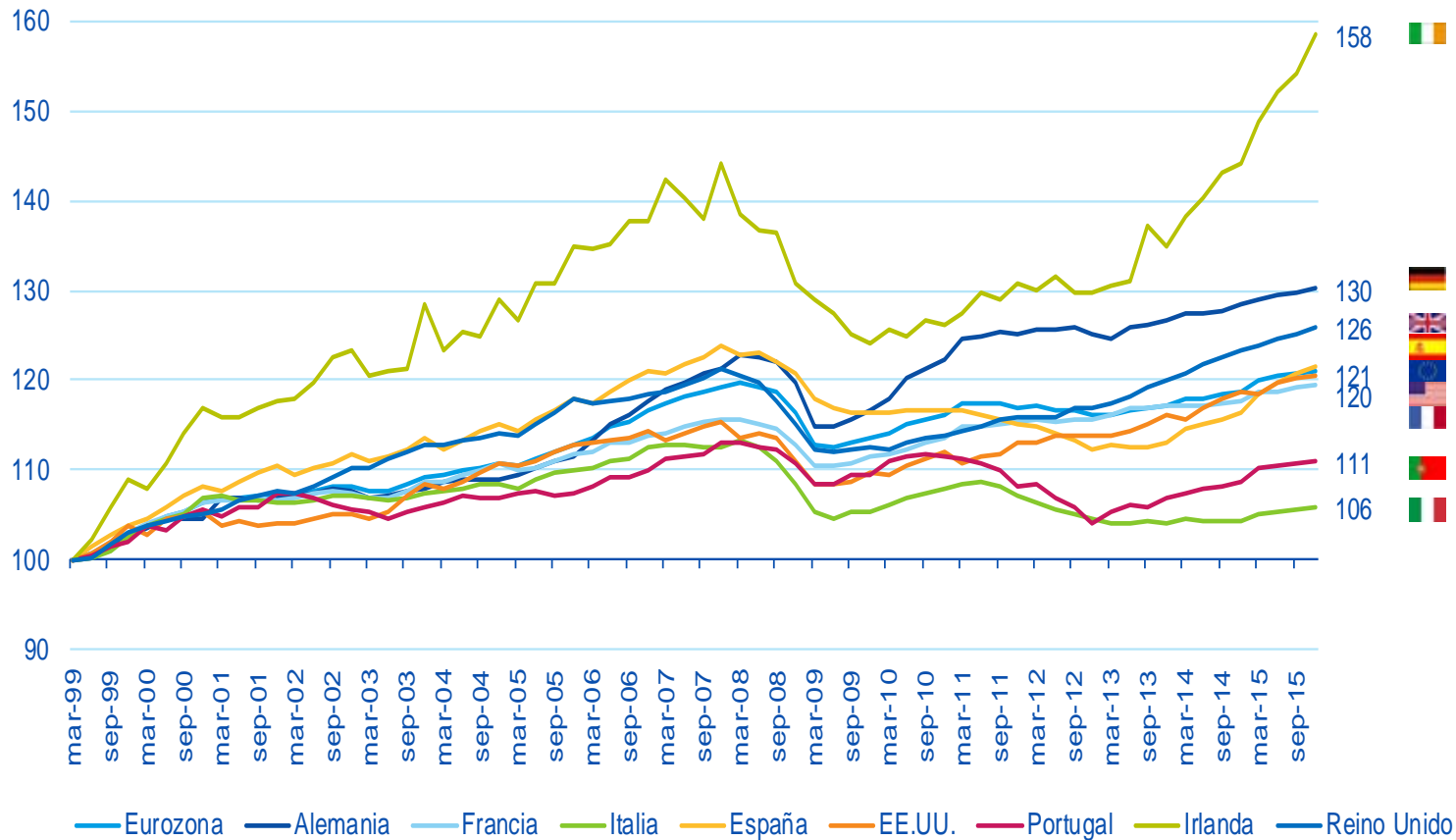


05




Europe after Brexit (and after Trump): populism lost impulse

Where is Europe after the euro?

GDP per working age population (1Q-1999)



Eurozone: risks now focused in Italy (after Macron’s victories)

		Probability	Impact
<p>France (23 April / 7May, Parliament 11/18 June)</p>	<ul style="list-style-type: none"> • Macron 66% - Le Pen 34% in 2nd round after a difficult first round with a fragmented vote • Macron’s absolute majority in Parliament elections (but low turnover and only 32% of vote in the first round) • Expect a debate on labour market reform very soon, and discussions with Germany on the future of Europe 		
<p>Italy (any time between June2017 and Feb2018)</p>	<ul style="list-style-type: none"> • Difficult environment: electoral reform to be decided, M5S tied with PD in polls, coalitions to be defined, at two large parties defending euro referendum (M5S and Northern League). • Risk: Anti-euro government next year / No clear majority 		
<p>Germany (24th Sept)</p>	<ul style="list-style-type: none"> • Merkel again well ahead of SPD (Schulz “bubble”?) • A Merkel+Liberals government would be less pro-European than the current grand coalition • A Red+Green+SPD coalition now very unlikely. • Populists AFD low in polls 		

Hard Brexit is a problem, mostly for the UK, mostly in the long-term

The EU wants a sequential negotiation...which is what will happen

Exit negotiations

- ◆ Foreign citizens status in UK-EU
- ◆ Exit bill: EU has risen the demand to € 100 bn

New trade relationship

- ◆ Trade agreement: How close to the single market?
- ◆ Immigration policy: the hottest political issue
- ◆ Financial passport is key for the City.

Snap elections failed to provide a stable a majority for May. Now her leadership is weaker and the Brexit direction will probably be redirected towards a softer Brexit.

The future of Europe lies in building confidence and moving towards more integration

After Brexit...

After the crisis, Brexit and the 2017 electoral cycle Europe needs to relaunch the integration process

White paper on EU's future, after Five presidents report. Next step: after the German elections

EU-27

Broad consensus to pursue further integration on security, defense and immigration issues

Economic integration at EU-27 is not a priority

Eurozone

Completing EMU with:

- Full banking union
- Fiscal union

Gradual process: in the short and medium term, confidence has to be rebuilt


Brexit has triggered a unanimous response from EU countries not pursuing and reinforced to some extent pro-EU sentiment in the rest of Europe

A new impetus for more EU integration



White Paper on the Future of Europe

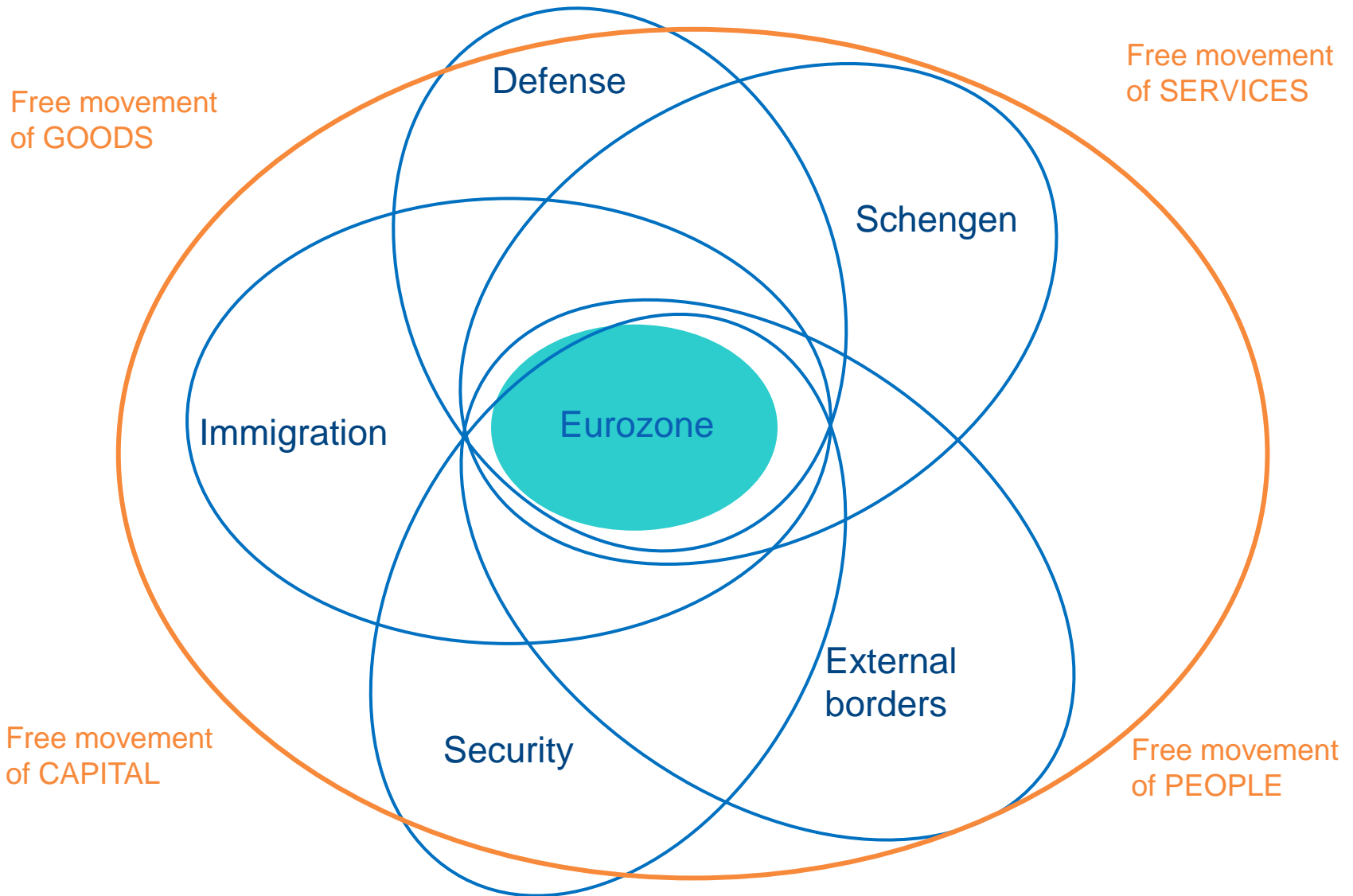
1. Carrying on (i.e. muddling through)
2. Nothing but the single market (retreat)
3. Those who want to do more (multi-speed)
4. Doing less more efficiently (smart retreat)
5. Doing much more together (full political union)



Reflection paper on the Eurozone

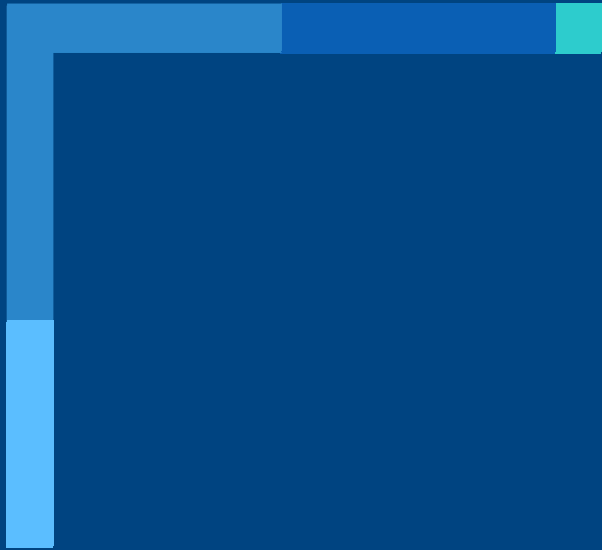
1. Complete Banking Union
2. Issue ESBies and safe bonds
3. Incentives structural reforms
4. European Treasury
5. Fiscal instruments to counter asymmetric shocks

A variable geometry / multispeed EU-27 within the single market



Eurozone: needs and proposals for further integration

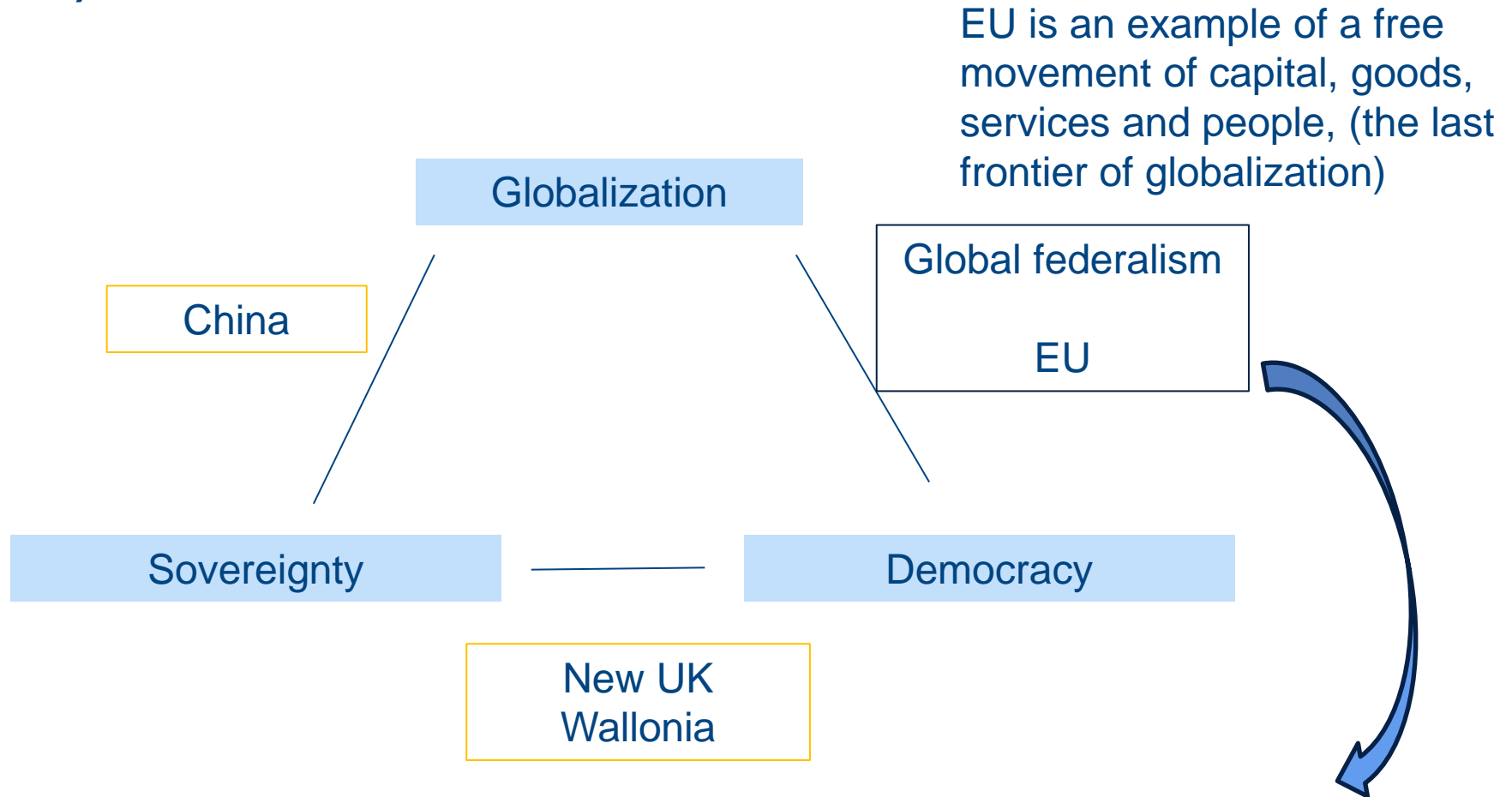
	ACHIEVED	NEEDED	PROPOSED BY EC
BANKING UNION	<p>Single rule book</p> <p>Single supervision (SSM)</p> <p>Single resolution (SRM)</p>	<p>Common deposit insurance (EDIS)</p> <p>Common public backstop for SRF</p>	<p>Addressed</p> <p>Common public backstop for SRF, financed by EMS or member states</p>
FISCAL AND ECONOMIC UNION	<p>Maastricht:</p> <p>No bailout clause</p> <p>Stability and growth pact (SGP)</p> <p>During the crisis:</p> <p>Fiscal compact, 2 and 6-Pack</p> <p>European Semester</p>	<p>EZ-wide fiscal stance (by EZ fiscal authority)</p> <p>EZ-wide fiscal stabilizer for asymmetric shocks</p> <p>Reinforced surveillance of deficit</p> <p>EZ-fiscal authority to allow national debt issuance?</p> <p>Eurobonds (eurobills, ESBies...)</p>	<p>Mentioned but not addressed in practice</p> <p>Unempl reinsurance, investment protection scheme or rainy day fund</p> <p>Addressed</p> <p>ESBies at first stage, and Safe bonds in a second stage, without specifying if they are eurobonds or not. Related to change of regulation of sovereign debt</p> <p>Added: incentives to structural reforms</p>
POLITICAL UNION	<p>Eurogroup as the only Eurozone-specific institution apart from ECB</p>	<p>EZ Parliament (subset of EP) and EU-wide lists</p> <p>European Treasury</p>	<p>Not addressed</p> <p>Addressed: Treasury to issue safe bonds, take functions of EMS – converted into European Monetary Fund. Power remains in Eurogroup</p>



06

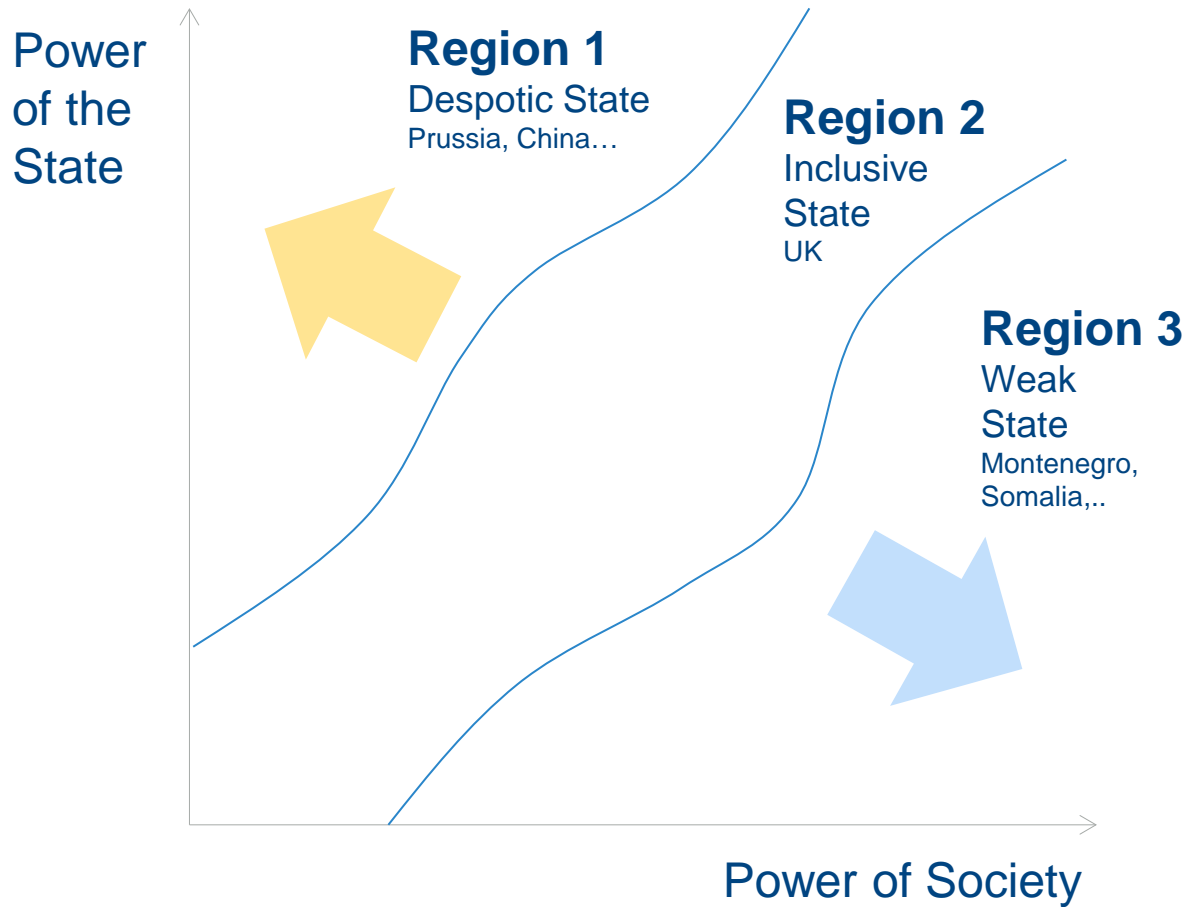
Challenges ahead

From Rodrik's augmented trilemma: maybe a country can pick only two!



Focus on long-term structural policies that tackle the side effects of globalisation

The race between the State and Society (Acemoglu)



Some challenges ahead

Economic challenges

Low productivity growth

**High productivity growth
(robots, no employment)**

**Bilateralism,
lack of coordination**

Political challenges

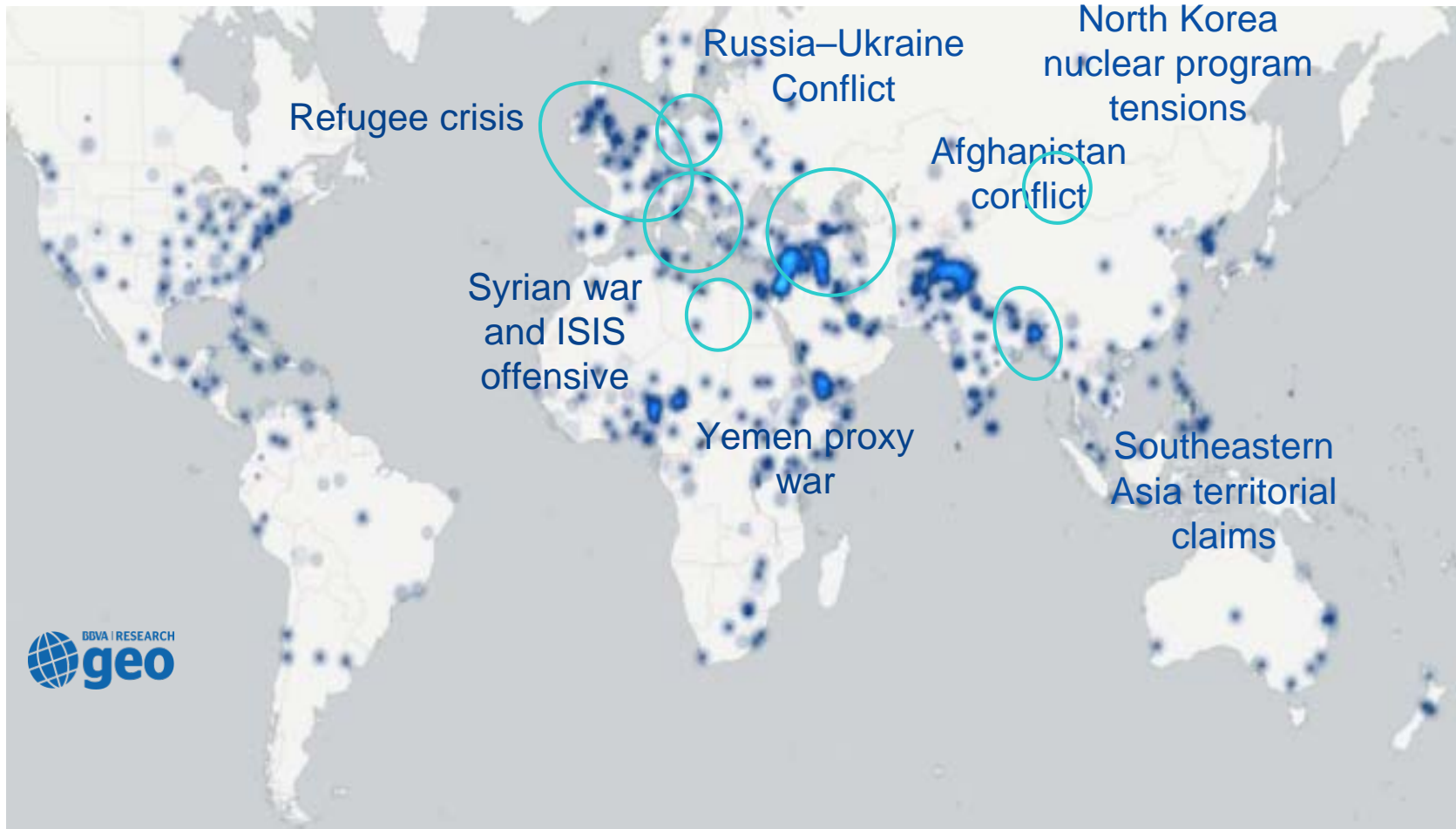
**Trump / Brexit as a vaccine,
but populism is far from over**

**Demands from medium
classes, inequality**

**Social networks polarize
opinion and trigger conflict**

BBVA Conflict Heatmap in 2017

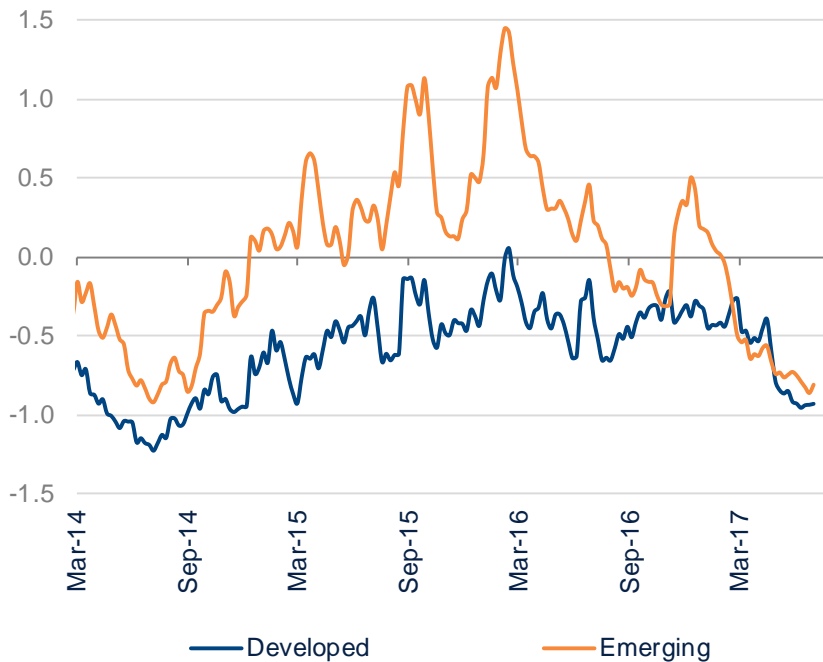
(Number of conflicts / Total events)



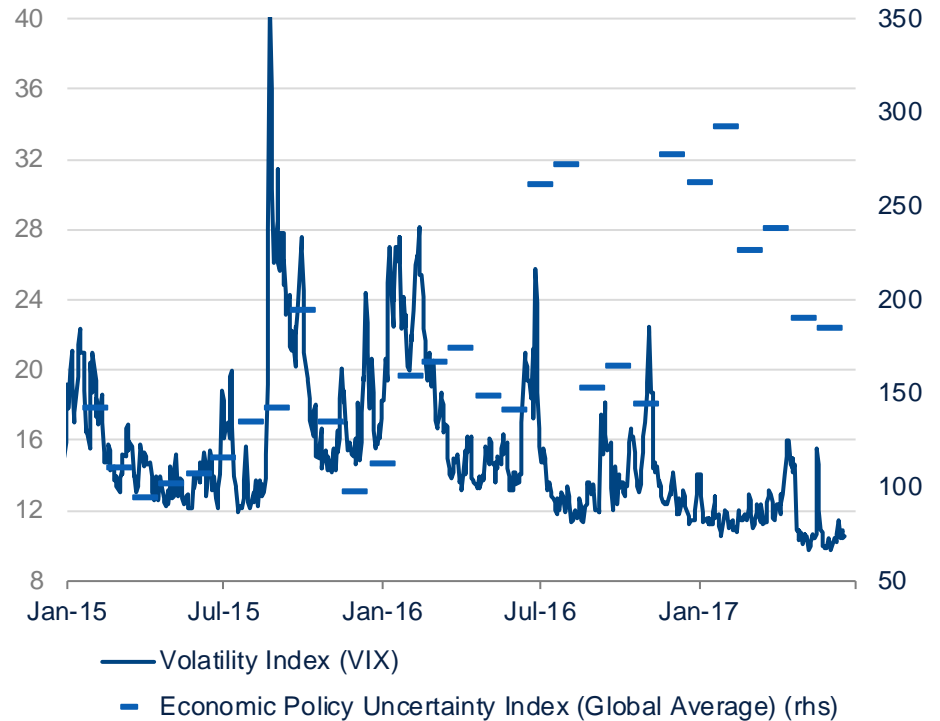
Financial tensions and market volatility remains subdued

Financial markets are immune to still elevated policy uncertainty, declining oil prices and central banks taking steps on the normalization process.

BBVA Research Financial Stress Index in Developed and Emerging Markets (normalized index)



Economic Policy Uncertainty Index and US equity volatility (VIX)



Key messages

1. After widespread benefits, especially and unquestionably for EM's, support for globalization is retreating
2. Digital technologies and robots are seen as a threat to employment, though probably this is not the case
3. The backlash has been manifested in advanced economies through populism, which has complex roots.
4. The populist trend has reached a peak (for now), in Europe mostly but also in the US.
5. Still, there are many challenges ahead, both economic, political and transformational (digital technologies, robotics) that require a better governance.



The logo for BBVA Research, featuring the word "BBVA" in a bold, white, sans-serif font, followed by a vertical line and the word "Research" in a smaller, white, sans-serif font.

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The threat to globalization and technological change: impacts

Jorge Sicilia

June 2017

