







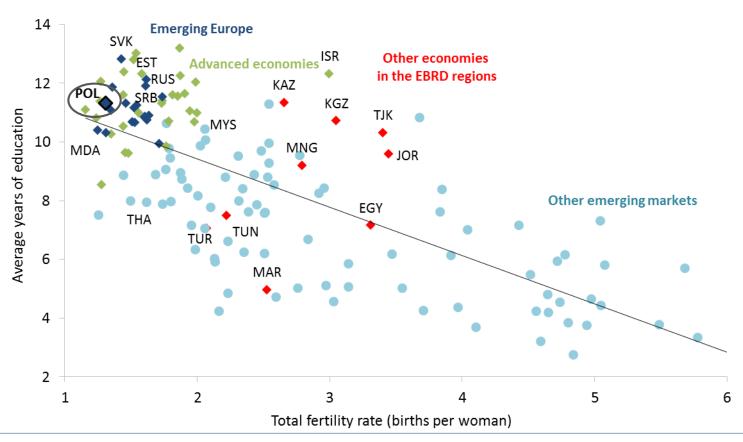




## As countries develop, lower birth rates and higher life expectancy deliver demographic dividends

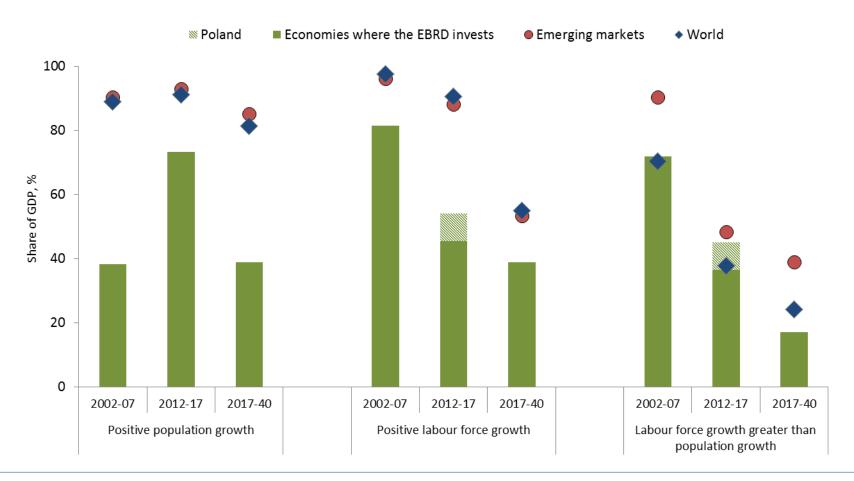
Larger number of workers relative to the overall population size (1<sup>st</sup> dividend) Higher savings and enhanced human capital (2nd dividend)

#### Average years of schooling increase as the total fertility rate declines



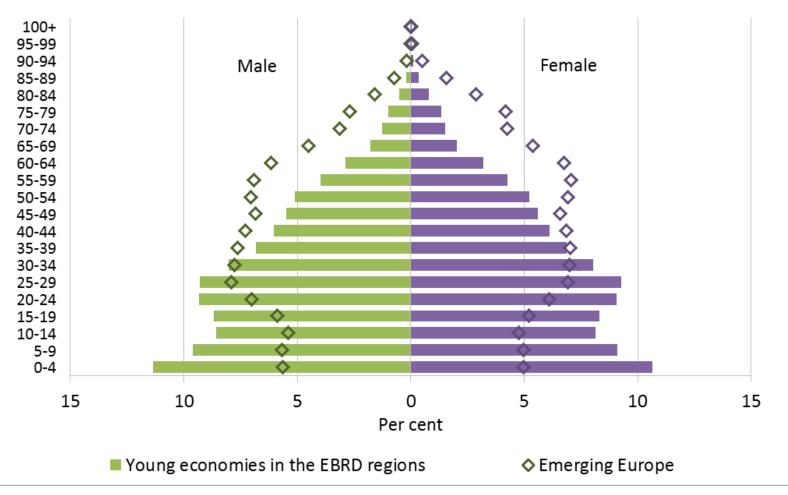
### Aging and below-replacement birth rates may quickly turn demographic dividends into headwinds

#### Share of countries with positive demographic indicators, by contribution to GDP (%)



## SEMED/Central Asia/Turkey/Aze are at earlier stages of demographic transformation than Emerging Europe

The youth bulge: The population of Central Asia, SEMED, Azerbaijan and Turkey is much younger than the population of Emerging Europe



### Poland's demographic pyramid stands on a similarly tight base as Emerging European economies on average

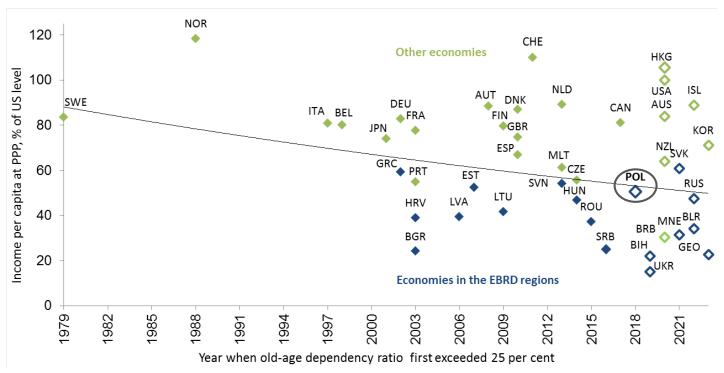
#### Demographic pyramid in Emerging Europe and Poland



# Aging in emerging markets, a relatively recent phenomenon, is most advanced in Emerging Europe

- Reflection of economic development that has brought about higher incomes and better health care
- But a major challenge as favourable demographics no longer contribute to growth or per capita income growth
- Less developed institutions than in advanced economies or emerging markets with similar income levels may make policy response to aging harder to get right

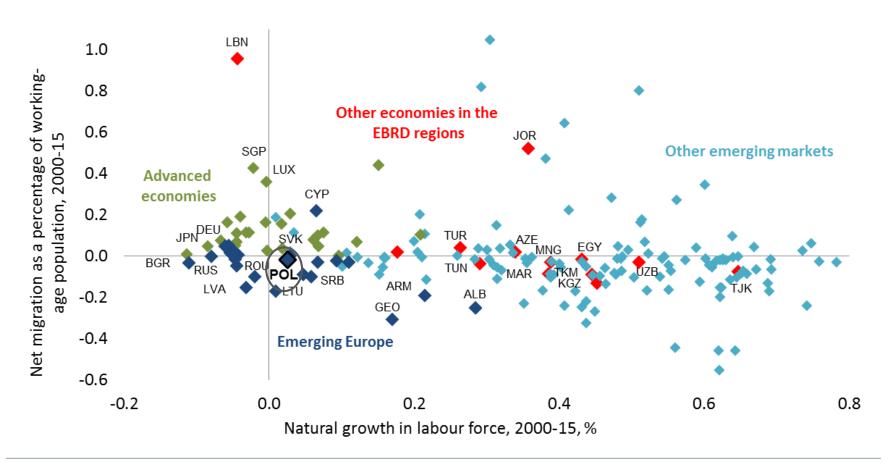
Countries reach the old-age dependency ratio of 25 per cent at ever lower per capita income levels relative to the US



### Immigration, automation, longer working lives have mitigated the impact of aging in advanced economies

Uniquely, emigration exacerbated the effects of demographic change in Emerging Europe

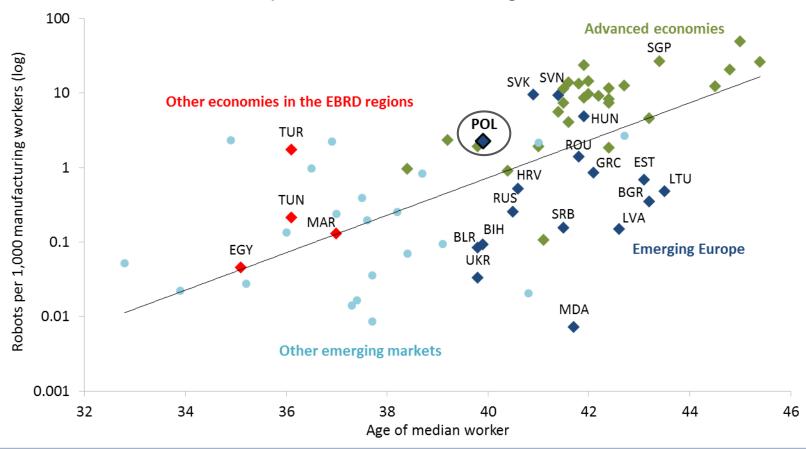
#### Change in working age population: native versus net migration



#### Robots are used more widely in economies with older workforces

As labour force shrink in Emerging Europe and labour costs rise, incentives to automate jobs may be stronger than in other EMs

#### Robots per worker and median age of worker



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Source: International Federation of Robotics (IFR), ILO and authors' calculations. Based on data for 2017 or the latest year available.

# In Emerging Europe, labour force participation among older age groups has remained relatively low

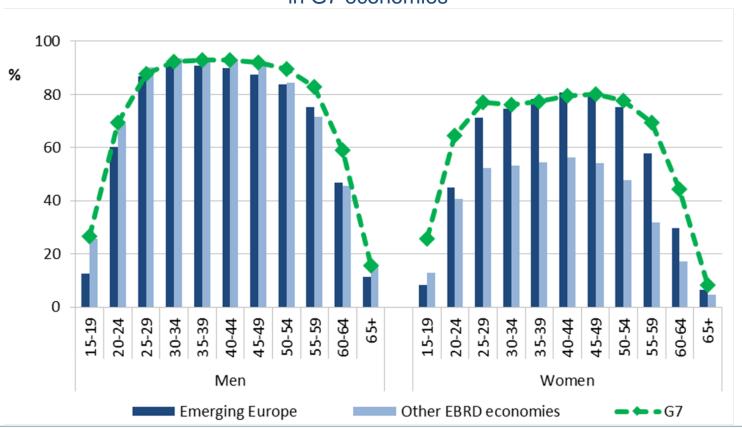
G7 labour force participation among those aged 50-64:
 2017

68% in 1997 → 74% in

EBRD regions:

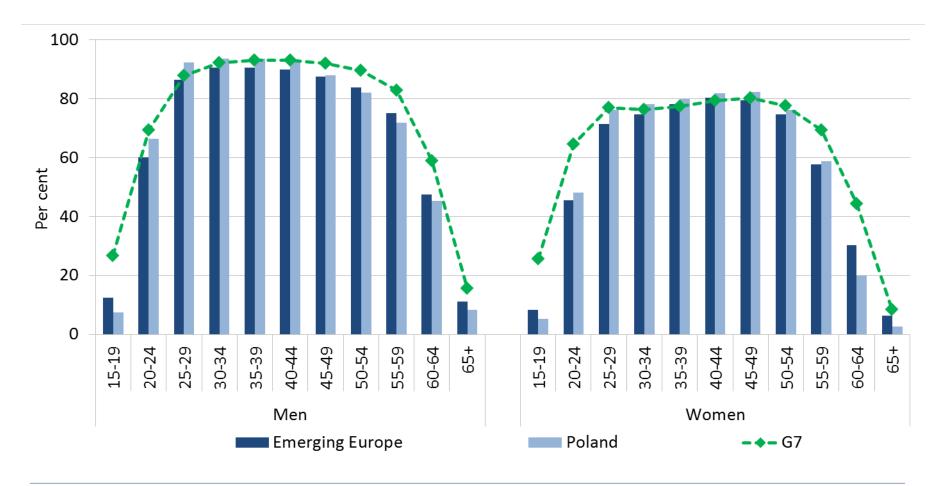
56% in 1997 → 60% in 2017

Labour force participation rates decline with age faster in the EBRD regions than in G7 economies



## In Poland participation rates in the prime working-age are higher than in Emerging European economies

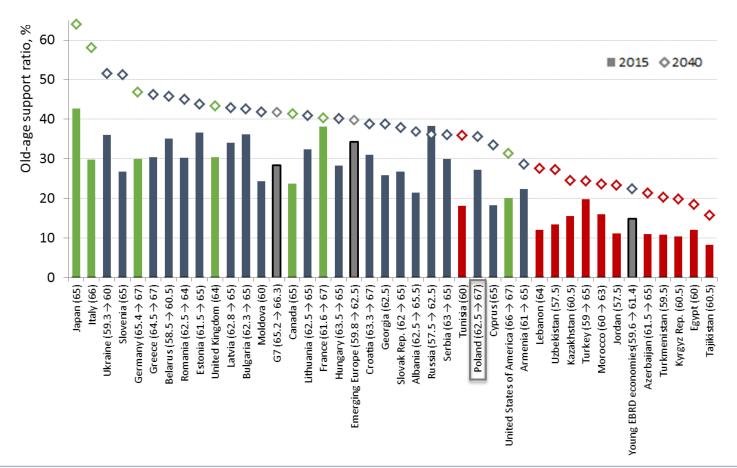
#### Labour force participation rates in Poland, Emerging Europe and G7 economies



### Pension reforms raising retirement ages can strengthen incentives for older individuals to seek employment

As well as tax incentives for firms to hire older workers

Old-age support ratios are projected to rise significantly between 2015 and 2040

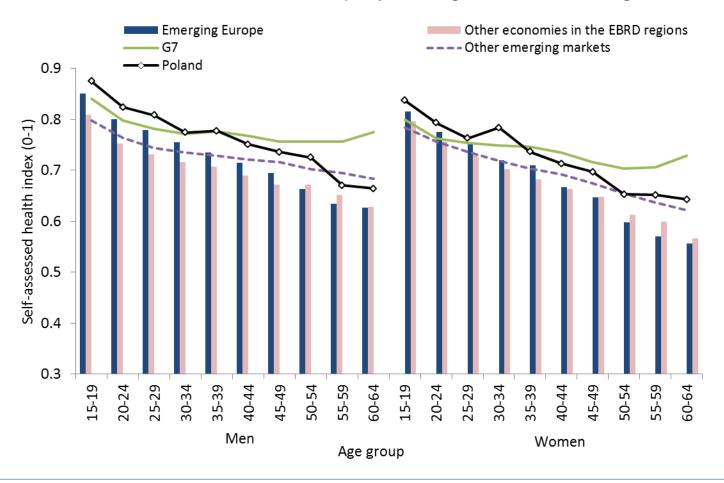


Source: US SSA, UN, authors' calculations. Simple averages of statutory pension ages for women and men in brackets. Support ratio is the ratio of retirement-age population to working-age population based on the statutory retirement ages. Different colours denote regions.

### Improvements in health care are much needed to facilitate longer working lives in EBRD regions

Mirroring declines in labour force participation – in particular, for males aged 50+

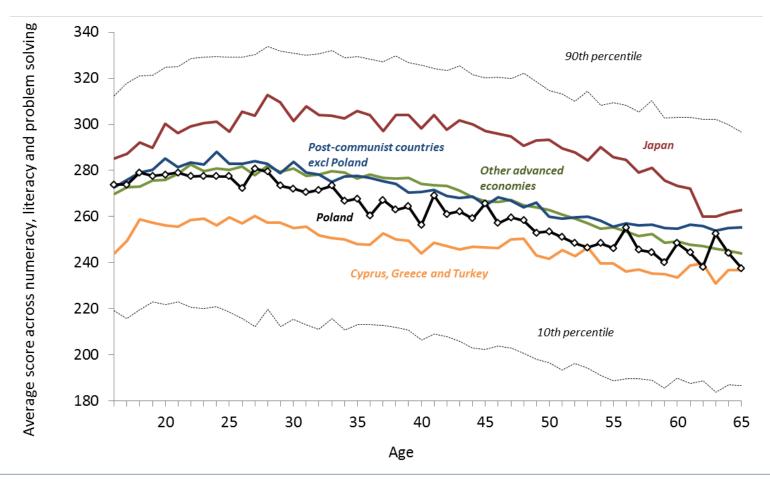
#### Self-assessed health declines rapidly with age in the EBRD regions



### But skills decline with age, in the EBRD regions as well as in advanced economies: PIAAC surveys

Aging + newer cohorts may have more up-to-date skills

#### Average skill scores over the working life



#### Work in transition: Who

- SEMED/Central Asia/ Turkey/ Azerbaijan are at an earlier stage of their demographic transformation: they need boost physical capital per worker, improve human capital to create quality jobs for the young and raise female labour force participation rates
- In emerging Europe, populations are ageing fastest among emerging markets
- In advanced economies, immigration, automation and longer working lives have so far mitigated the economic impact of ageing
- In emerging Europe, emigration exacerbated demographic pressures; labour force participation among those aged 50+ improved but remains low
- Pension reforms and adjustments to tax systems can help to encourage older people to seek employment
- Improvements in healthcare and lifelong learning opportunities are needed to help older employees to retain and upgrade their skills



### Many economies in the EBRD regions have experienced de-industrialisation

Share of employment in agriculture, manufacturing ↓; share of professionals, service and sales workers ↑↑

#### Changes in employment shares by industry, past and projected

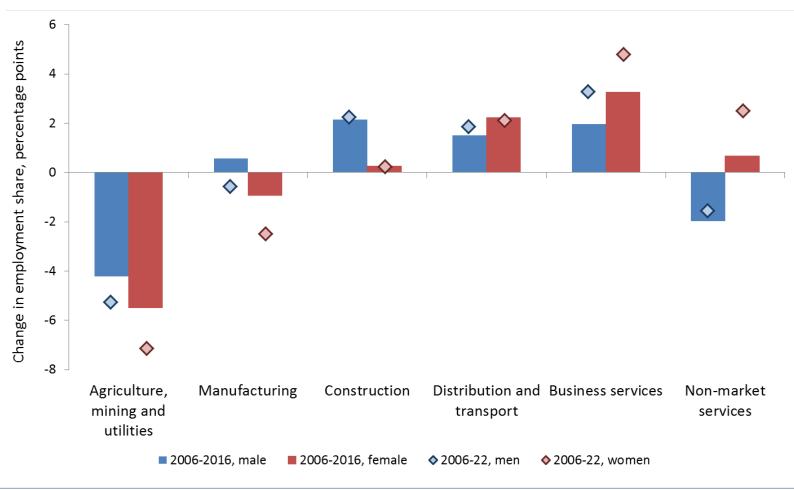


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Source: ILO, authors' calculations. Averages weighted by labour force. Non-market services comprise ISIC sectors O (public administration and defence), P (education), Q (health care and social work) and R, S, T, U (other services).

## De-industrialisation dynamics are similarly pronounced in Poland

#### Changes in employment shares by industry in Poland, past and projected



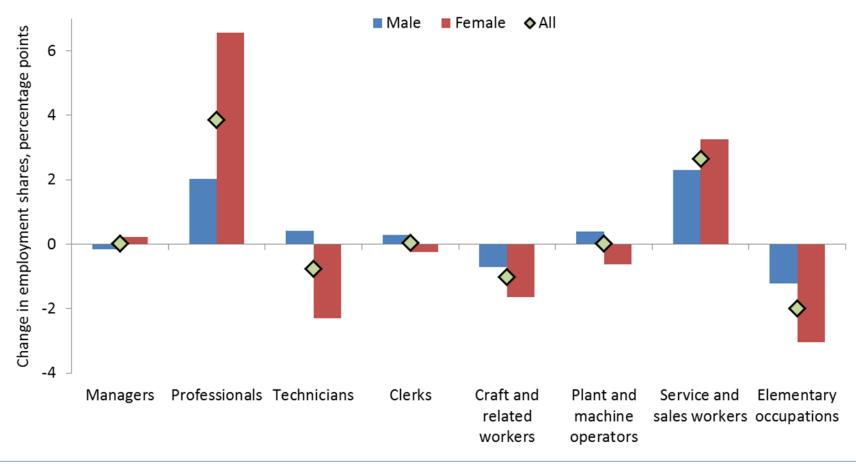
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Source: ILO, authors' calculations. Averages weighted by labour force. Non-market services comprise ISIC sectors O (public administration and defence), P (education), Q (health care and social work) and R, S, T, U (other services).

### The share of service-sector occupations increased by 2 – 4 percentage points in 2006-16

Occupational shifts have been more pronounced among women

#### Changes in employment shares by occupation and gender, 2006-2016

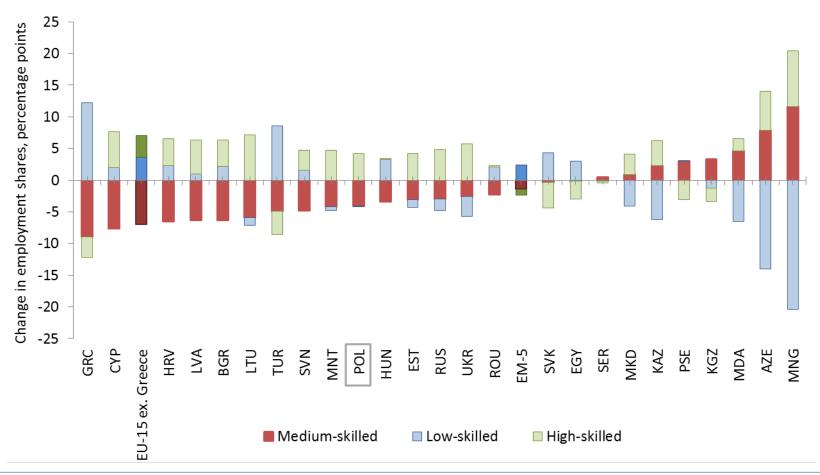


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Source: Authors' calculations based on ILO modelled estimates. Weighted averages across 25 economies. Occupations based on ISCO 08 classification are ranked left-to-right in declining order skill intensity. Elementary occupations include cleaners and helpers, agricultural labourers, etc.

### Job polarisation: % of medium-skilled occupations ↓; low-skilled and high-skilled jobs ↑↑

#### Shares of medium-skilled occupations declined in most economies over the period 2006-16

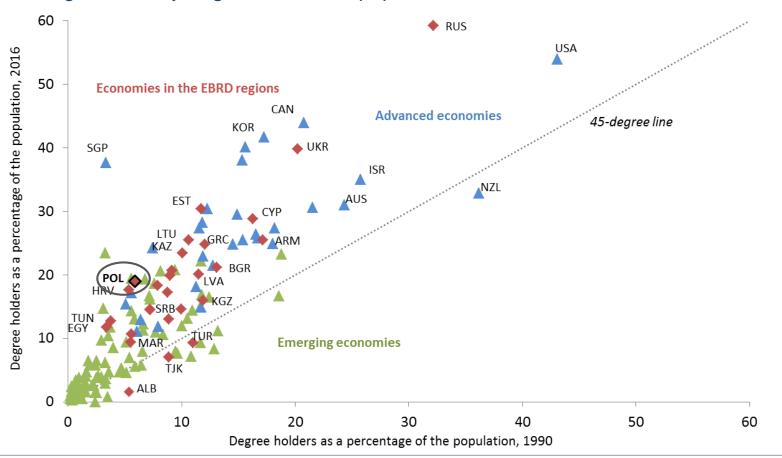


Source: ILO and authors' calculations based on OECD (2017) and ISCO-88. EM-5 comprise of Argentina, Brazil, Malaysia, South Africa and Thailand. Medium-skilled occupations comprise clerks, craft and related trades workers and plant and machine operators and assemblers.

#### Countries across the EBRD regions saw large increases in educational attainment

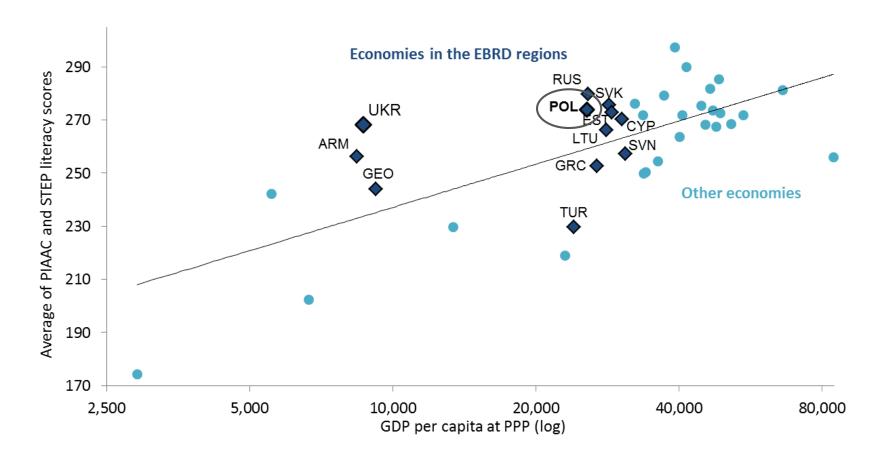
In Russia, Ukraine and Estonia percentage of tertiary degree holders is above the advanced-economy average of 28%

Percentage of tertiary degree holders in population increased between 1990 and 2016



#### Mirrored in good performance in adult skill surveys relative to countries with similar per capita incomes

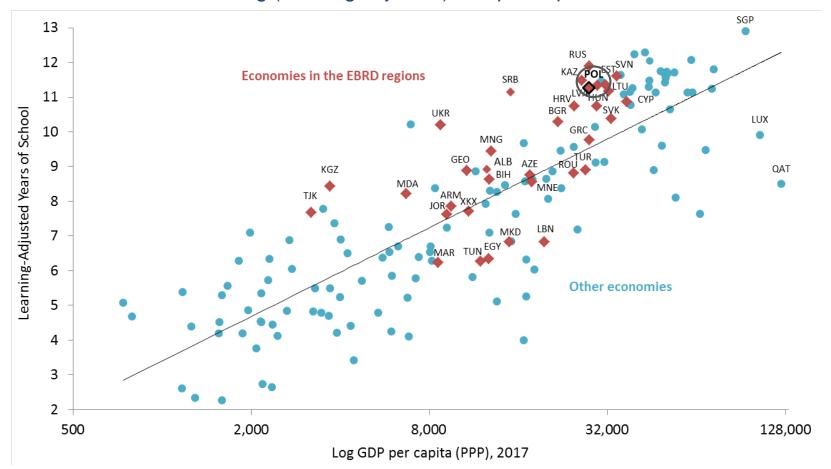
#### Adult skills and per capita income, 2011-2017



### A combined measure of quantity and quality of schooling confirms the good performance...

...however less so for countries in the South-Eastern Mediterranean

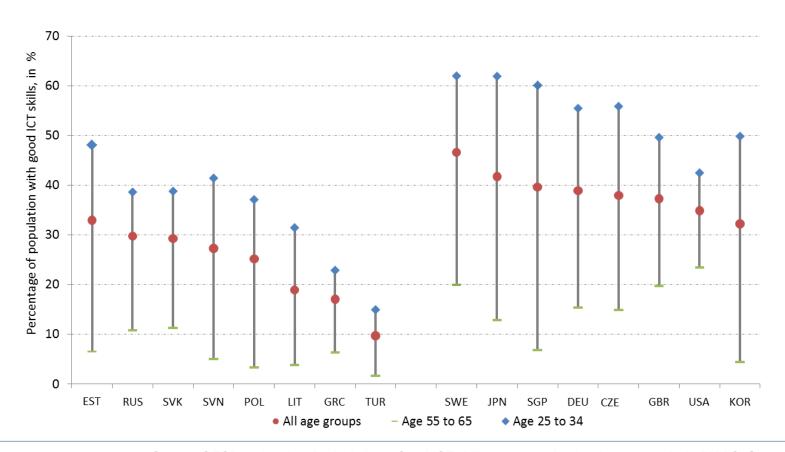
Years of schooling (learning adjusted) and per capita income, 2017



### ICT skills in EBRD regions are weaker than in advanced economies, in particular among older workers

Closing the gap in ICT-related skills will help leverage the benefits of future technological transformation while minimizing the disruptive impact of digitalization on the labour market

#### Share of population with good ICT skills, by age group



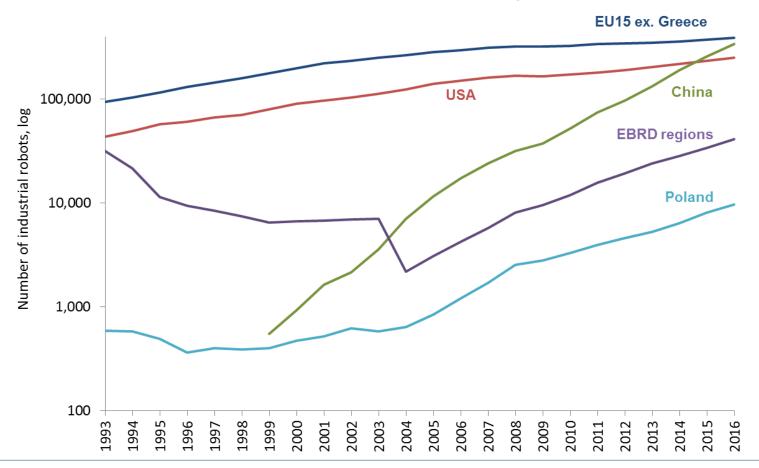
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Source: OECD and authors' calculations. Good ICT skills correspond to level 2 or 3 results in PIAAC. Surveys conducted in 2011-14.

## Profound technological transformation is reflected in the rapidly rising numbers of industrial robots

The global stock of industrial robots is projected to increase by 14% annually, reaching 3 million units by 2020

Stock of industrial robots has been increasing across the world

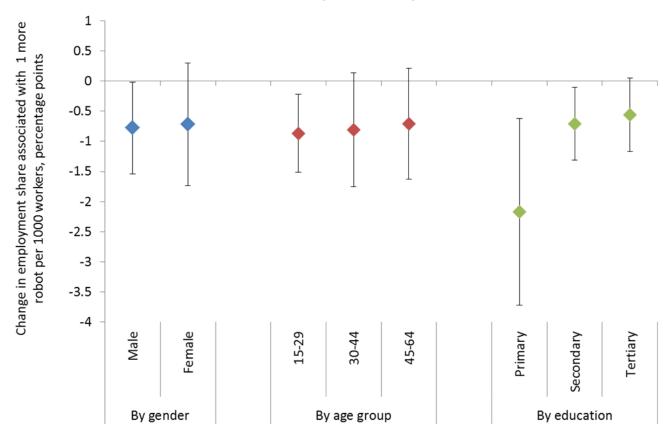


### Robotisation has led to a small drop in employment in Central/SE Europe (0.2% of labour force)

= 13% of the total decrease in employment rate

This effect is particularly pronounced for workers with primary level education

#### Robotisation effect by gender, age, and education

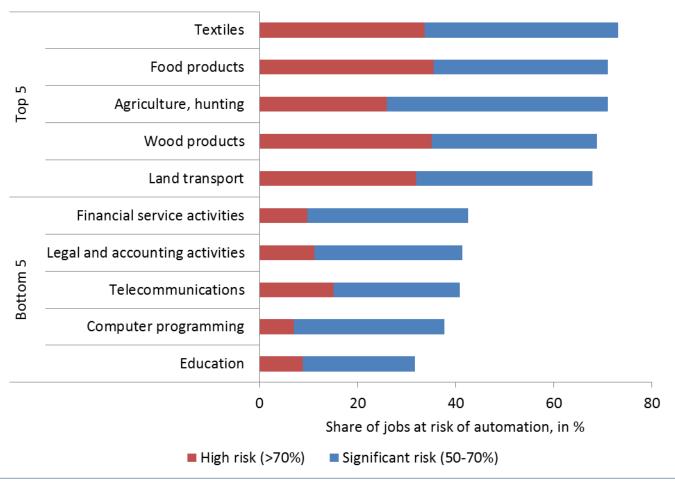


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Source: Eurostat, IFR and authors' calculations. Based on instrumental variables (IV) regression estimates for individual demographic groups where the dependent variables is change in employment to labour force ratio over 2010-16. 95% confidence intervals shown.

### Automation is expected to affect primary sector jobs most and services least

#### Industries expected to be most and least affected by automation in the EBRD regions



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Source: Authors' calculations based on Nedelkoska and Quintini (2018). Based on 2-digit ISIC classification (rev. 4). Jobs are at high (significant) risk of automation if at least 70 per cent (50 to 70 per cent) of tasks involved are at risk.

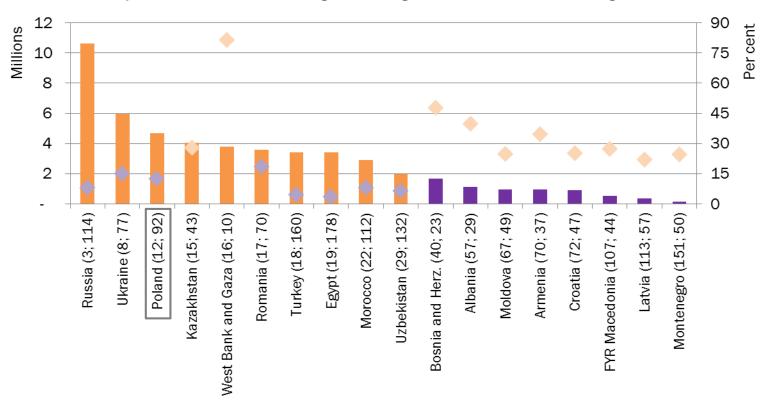
#### Work in transition: How

- The nature of work in the EBRD regions is changing rapidly due to automation and robotics
- Many economies are experiencing deindustrialisation and job polarisation
- This profound technological change increases the demand for skilled labour, but many countries remain plagued by weak ICT skills (especially among older cohorts) and substantial emigration of skilled workers

# International migration has been on the rise, globally and in the EBRD regions

Today 10% of people born in the EBRD regions live outside their country of birth / citizenship

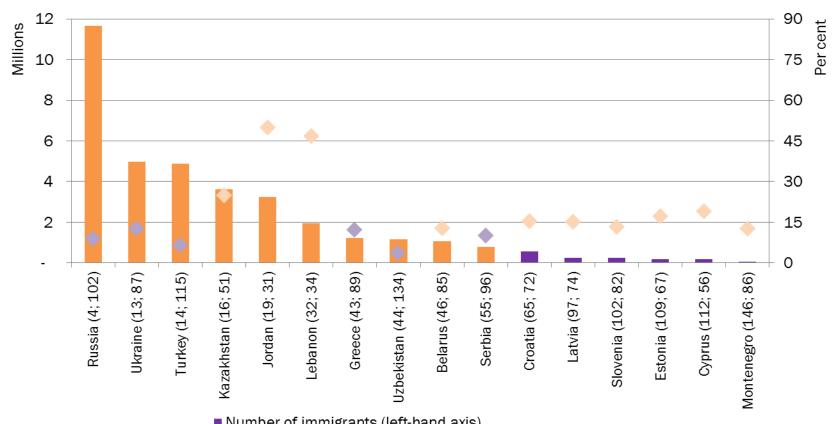
#### Top ten countries of origin of migrants in the EBRD region



- Number of emigrants living abroad (left-hand axis)
- Emigrants living abroad as a percentage of the remaining local population (right-hand axis)

#### International migration has been on the rise, globally and in the EBRD regions

#### Top ten countries of destination for migrants in the EBRD region



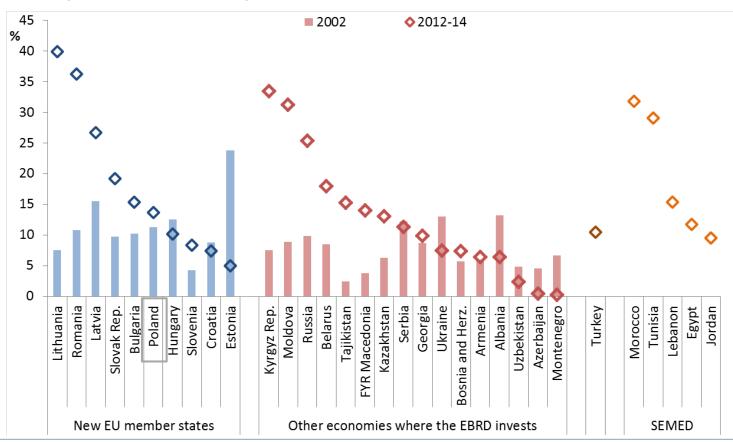
- Number of immigrants (left-hand axis)
- Immigrants as a percentage of the local population (right-hand axis)

Source: UN DESA (2017) and authors' calculations. Data for 2017. Migrant refer to foreign-born / foreign citizens. Positions of each country in the global rankings by number of immigrants and as a percentage of the local population are in parentheses.

## In many countries in the EBRD regions, skill shortages have 33 been exacerbated by skilled emigration

% firms reporting lack of skills as a major constraint to their business in the new EU member states increased markedly between 2002 and 2013, according to the Business Environment and Enterprise Performance Surveys

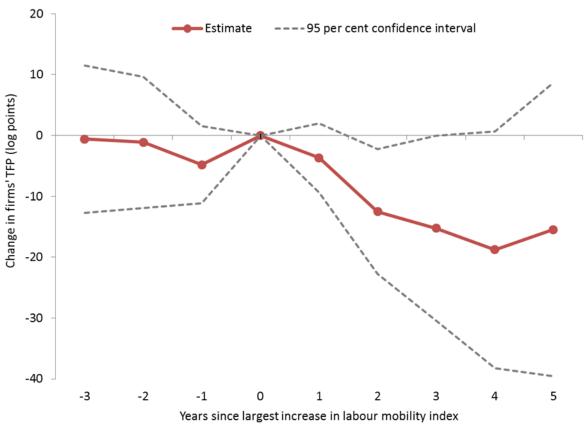
Percentage of firms reporting skills as a major or severe constraint to their operations



## The cumulative negative impact of emigration on productivity increases following "year zero"...

... worth noting that prior to "year zero", firms subsequently exposed to increased emigration were no different from other firms in terms of their productivity trends

Evolution of the impact of increased emigration opportunities on the TFP of firms in the new EU member states



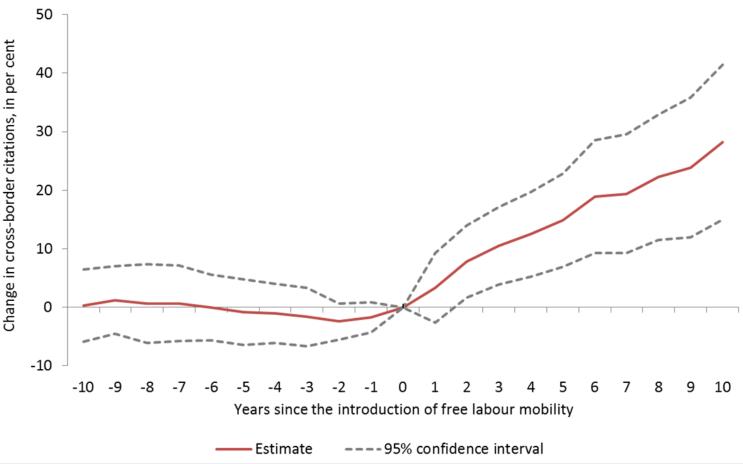
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Source: Amadeus and authors' calculations. The chart presents annual treatment effects of higher within-EU labour mobility on firm performance in NMS, with 95 per cent confidence intervals. Dependent variable - firm TFP, estimated with Levinsohn-Petrin procedure (2003). "Year zero" refers to the data point, which is centred around the year of the largest increase in emigration exposure for a given industry in a New Member State.

#### Longer term: Innovating firms in countries of origin of migrants benefit from increased flows of knowledge

On the back of higher emigration + diaspora links

Increase in cross-border patent citations after introduction of free labour mobility

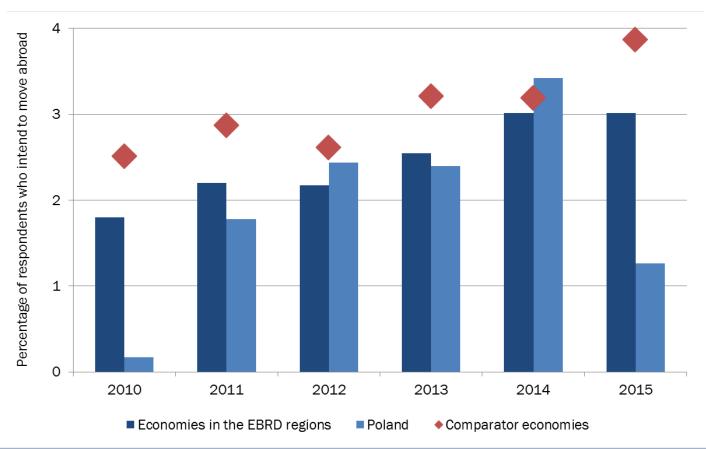


**TRANSITION REPORT 2018-19** WORK IN TRANSITION free labour mobility.

## Declared intentions to migrate in the next 12 months have also been rising

- Based on World Gallup polls representative surveys of 1,000+ individuals in each country in each year
- People who intend to migrate from the EBRD regions tend to be single, male, young, and urban

#### Intention to migrate has been on the rise



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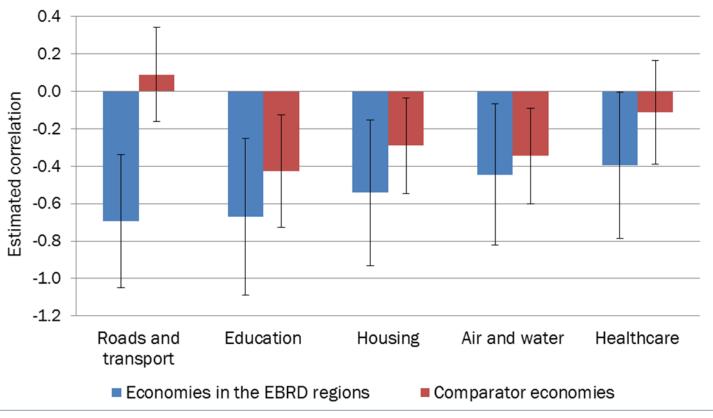
Source: Gallup World Poll and authors' calculations. Comparator economies comprise territories with GDP per capita at purchasing power parity between the minimum and the maximum values observed in the EBRD regions.

# Improving business environment and public services can significantly reduce residents' willingness to emigrate

Improved satisfaction with local public goods has the same impact in terms of lowering intention to migrate as extra US\$ 500 a month in wages in Albania

Satisfaction with education is of particular importance for the young and the highly educated

The relationship between satisfaction with amenities and migration intentions is stronger in the EBRD regions



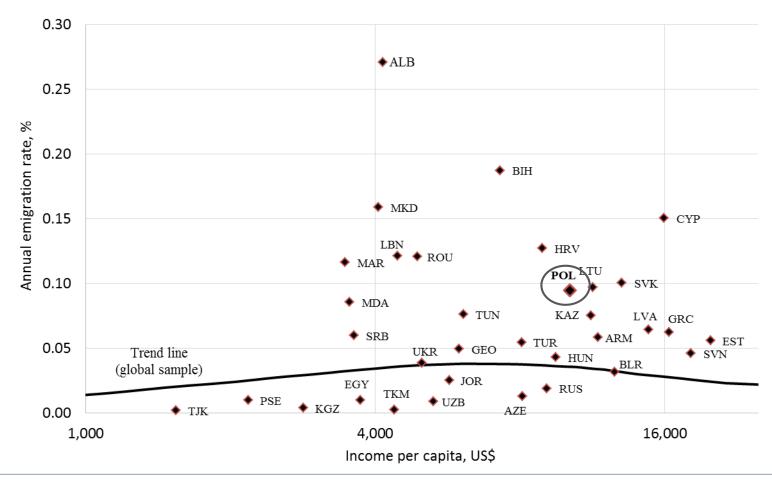
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Source: Gallup World Poll and authors' calculations. Estimates of impact changes in satisfaction with amenities on intention to migrate are obtained using a linear probability model.

# Emigration first rises with income then declines; in poorer countries skilled are more likely to emigrate

In low-income economies, highly skilled people are much more likely to emigrate

As per capita incomes increase, emigration first rises and then falls

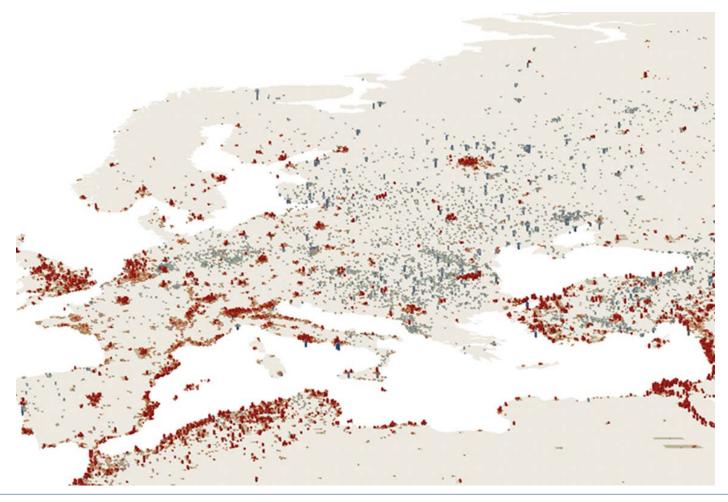


Source: OECD and authors' calculations. Based on a sample comprising 123 economies which excludes periods of major conflict. The results have been obtained using non-parametric kernel density estimation.



### The share of people living in sparsely populated areas and their number decreased

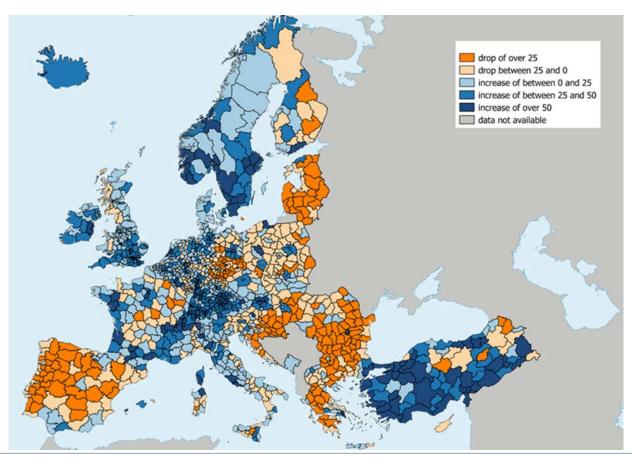
As population growth has been concentrated in major metropolitan areas



# People choose to live in places with better economic opportunities

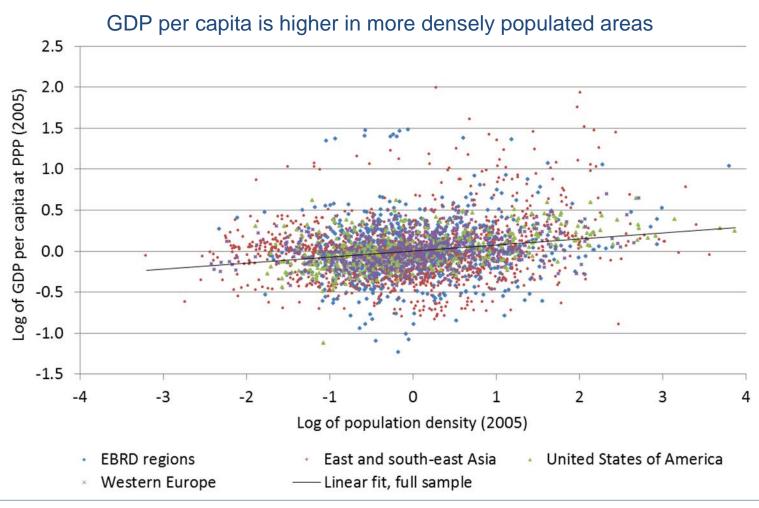
More densely populated areas benefit from larger potential markets, greater pool of skilled workers and economies of scale in provision of public goods

### Net population changes by region (NUTS-3)



# Productivity is around 5% higher if a city is twice the population of a similarly sized city in the EBRD regions

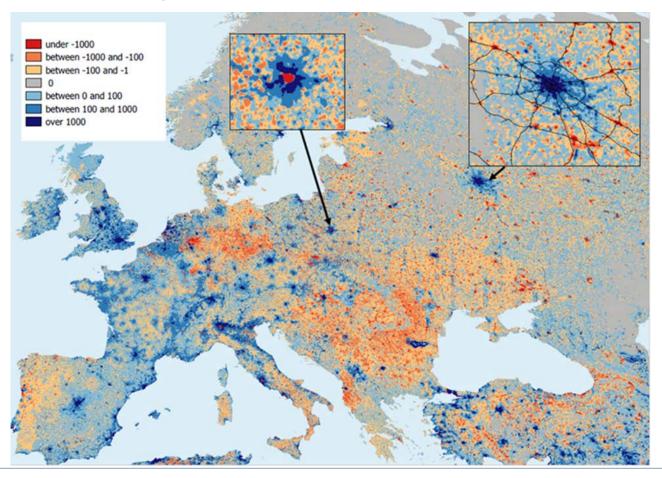
In fact, places where population density increases also appear to be getting more productive



# People concentrate seeking opportunity and move out when 43 facing congestion or better commutes

Warsaw: An example of a city that experienced dispersion of populations

#### Changes in localised population density, 2000-14

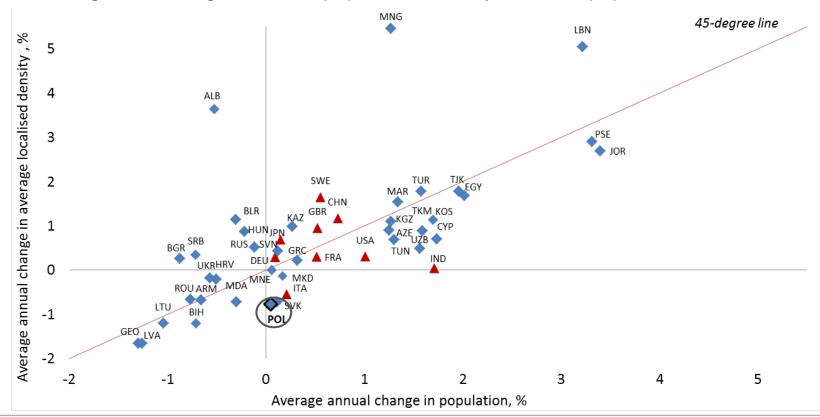


### Generally, changes in average population density is correlated 44 with changes in total population - with notable exceptions

Mongolia showed far greater concentrating of population relative to population growth reflecting a concentration of people at the capital city, Ulaanbaatar

Dispersion of population was observed in Poland and the Slovak Republic where the population grew marginally but localised population density decreased

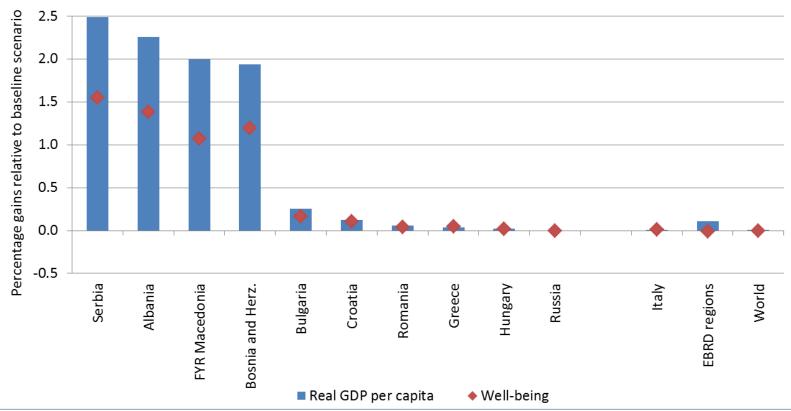
Changes in average localised population density and total population, 1990–2014



# Infrastructure upgrades deliver gains to the communities through which new transport links pass

- Model analyses roads and railways in the Western Balkans
- Since 2001 there have been 17 rail projects and 32 road projects with EBRD involvement in the Western Balkans region, completed or still on-going, with investments of €7.3bn in transportation infrastructure

#### Gains from Western Balkans transportation investments by 2040



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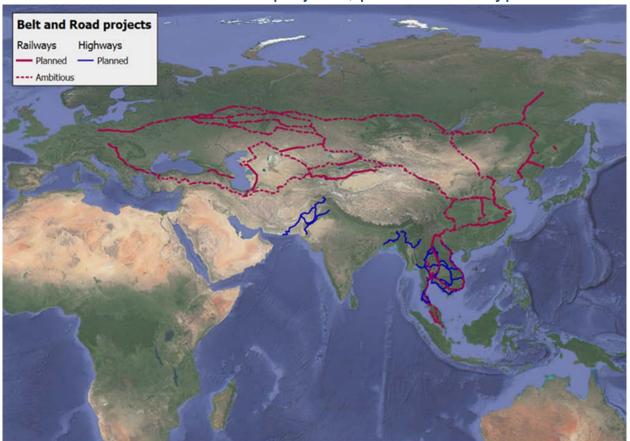
Source: Authors' calculations. The estimates for Kosovo are not available but are reflected in those of its neighbours.

# Extensive upgrades under China's planned and potential investments as part of the Belt and Road Initiative

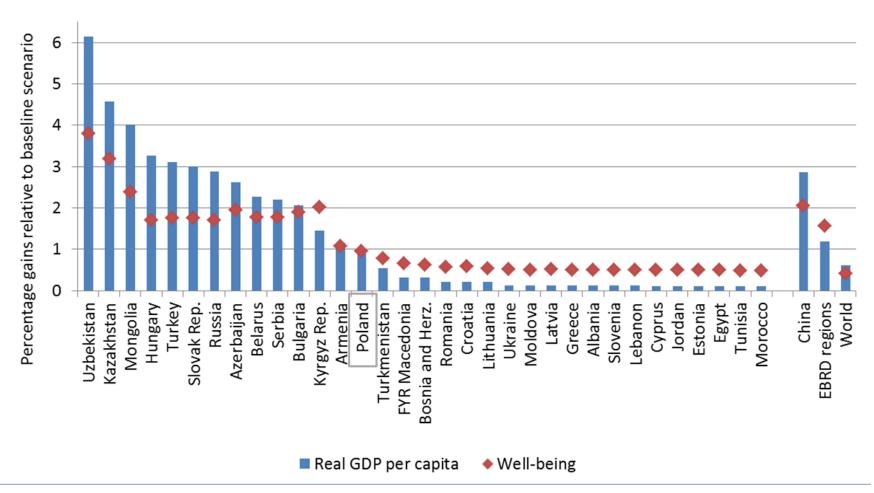
The "planned BRI" envisages a relatively limited set of infrastructure investments in roads and railways, but have a high likelihood of completion

The hypothetical, "ambitious BRI" encompasses additional investments across Eurasia

Belt and Road Initiative projects, planned and hypothetical



Gains in the ambitious Belt and Road Initiative scenario, relative to the baseline



### Small uniform reduction in trade costs between EBRD regions & their neighbours increases local & global output per capita

- In fact gains from Eastern and Western oriented reduction in trade costs are close to equivalent in the medium-run
- The effects match the gains from extensive route-specific upgrades

### Estimated impact of reducing trade costs relative to the baseline scenario (in percentage terms)

	Belt and Road Initiative		2 per cent reduction in trade costs	
	Planned upgrades	Ambitious upgrades	EBRD regions + east Asia + south-east Asia	EBRD regions + advanced European economies
	(2)	(3)	(4)	(5)
Real GDP per capita				
World	-	0.6	0.7	0.9
EBRD regions	-	1.7	1.8	1.8
China	-	2.9	2.1	0.0
Russia	-	2.9	1.8	1.7
Turkey	-	3.1	1.9	1.9
Average well-being				
World	0.2	0.4	0.2	0.5
EBRD regions	0.1	1.7	1.8	1.5
China	0.1	2.0	1.9	0.1
Russia	0.1	1.7	1.8	1.4
Turkey	0.1	1.8	1.8	1.5

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Source: Authors' calculations. Estimates from the 2 per cent reduction are linearly extrapolated from results modelling a 1.0 per cent uniform reduction in the respective areas.

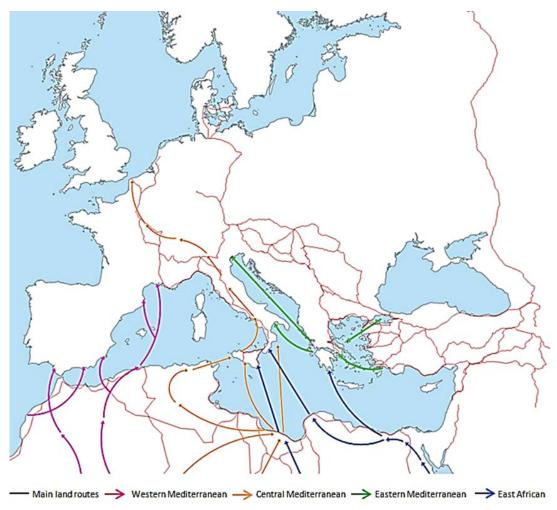
### Work in transition: Where

- Emigration has been a major challenge in the EBRD regions since 1990
- Improving air and water, education, healthcare, housing, and roads and transport can substantially lower intentions to migrate – effect comparable to that of the wages differentials
- Better-educated asylum seekers head for countries where returns to education are higher
- Less-well-educated asylum seekers are looking for countries with better integration policies and more generous welfare state
- Since the start of transition, people have been moving into larger cities but many (often majority) live in areas facing depopulation
- Agglomeration enhances economic opportunities, and regions' most densely populated areas are projected to achieve the highest gains in well-being over the next forty years
- But congestion and pollution can lower the quality of life, need to be managed
- Policy interventions need to target improvements in productivity and relocation opportunities for those in areas with low and falling population density



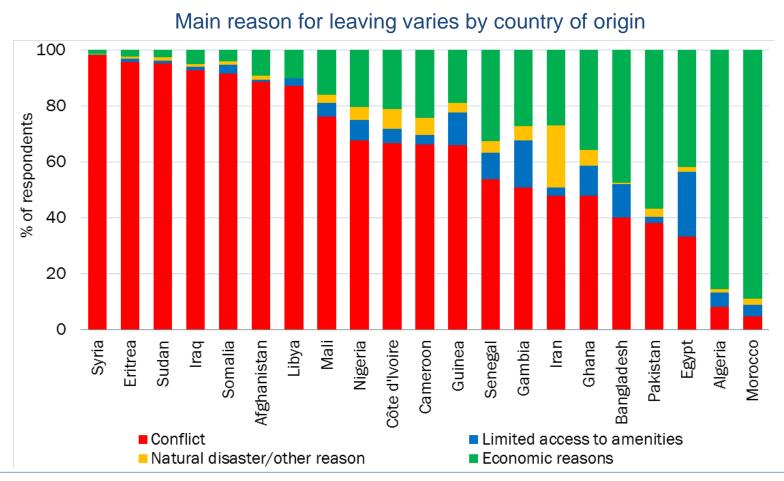
# Many countries in the EBRD regions also serve as transit and/or host countries for refugees and migrants

#### Mediterranean Sea routes and main land routes



# Majority of refugees seek protection from conflict yet some are in search of economic opportunity

Like economic migrants, asylum seekers tend to be single, male, young and have education above the average levels in countries where they come from

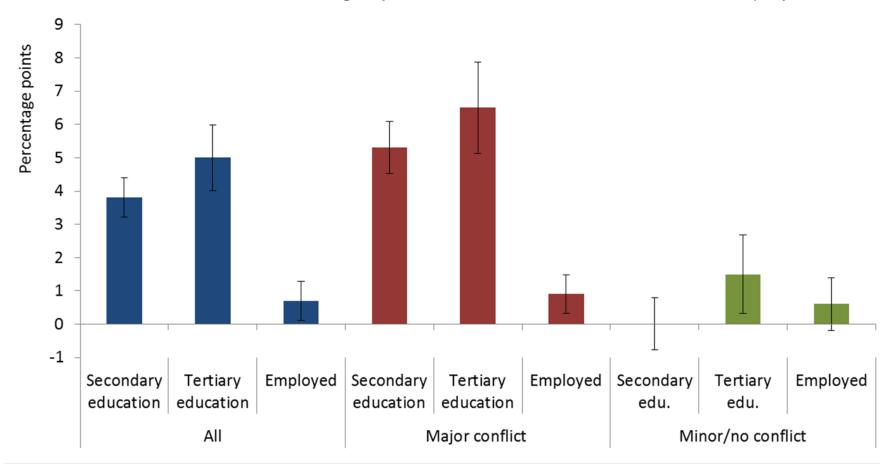


Source: FMS 2015, 2016 and authors' calculations.

# People with secondary/tertiary education, employed are more likely to seek asylum

Particularly if fleeing a major conflict

Increase in likelihood of seeking asylum associated with education and employment

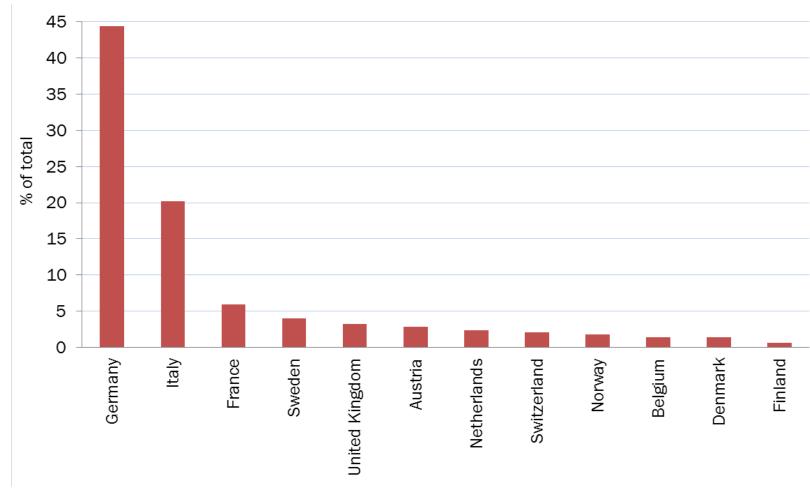


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Source: FMS (2015-16) and Gallup World Poll (2009-14). The dependent variable is equal to 1 for asylum seekers in the FMS data and 0 for participants in Gallup World Polls. People aged 55-64 are the reference age group. A "major conflict" is one with 1,000+ conflict-related deaths a year.

# Most refugees and migrants intend to settle in Germany or Italy



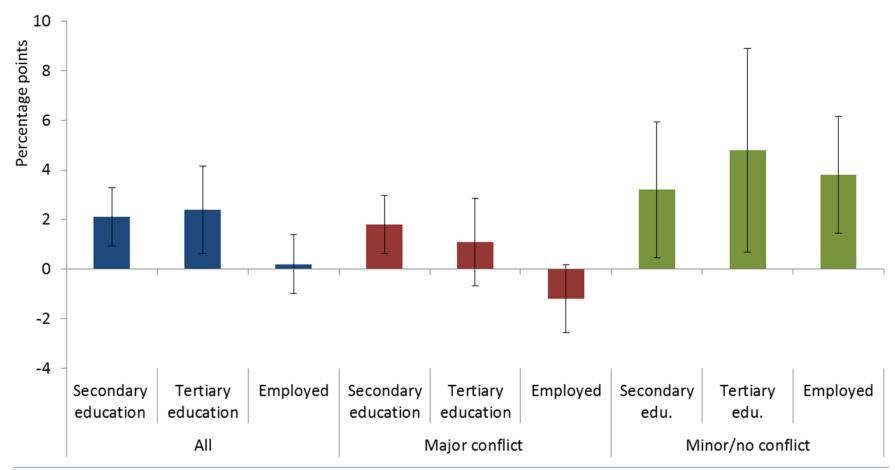


Source: FMS 2015, 2016 and authors' calculations.

# Highly educated asylum seekers are more likely to target countries where returns to education are higher

Skills may be the only asset left in asylum seekers' possession

Increase in likelihood of heading to a country with high estimated returns to education



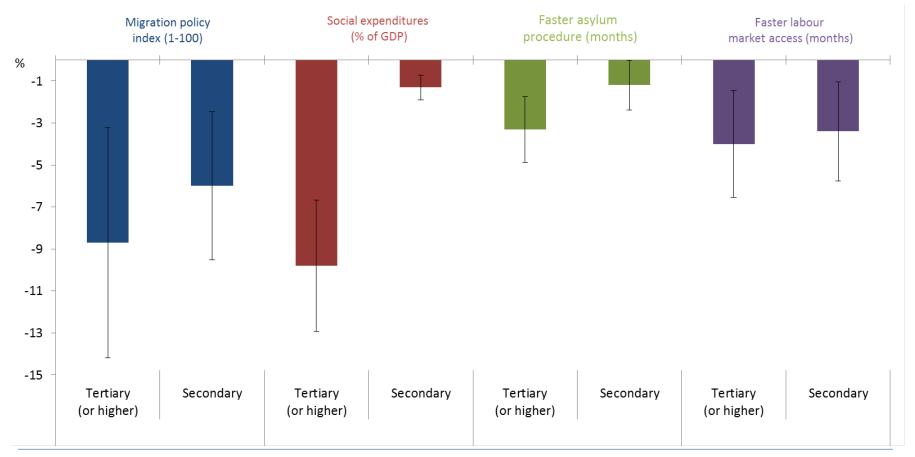
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Source: FMS (2015-16) and Gallup World Poll (2009-14). Dependent variable = dummy for destination countries with high returns to education (calculated based on Gallup data). Base category = no education or primary education. "Major conflict" = 1,000+ conflict-related deaths a year.

# Less educated asylum seekers head for countries with better integration policies, faster asylum processes

As well as easier access to labour markets after asylum has been approved and lower unemployment rates

Increase in destination country characteristics depending on migrant's education level



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Source: Eurofound, FMS (2015-16), MIPEX, OECD and authors' calculations. Based on OLS regressions controlling for various migrant characteristics. Base category = primary education or less.