

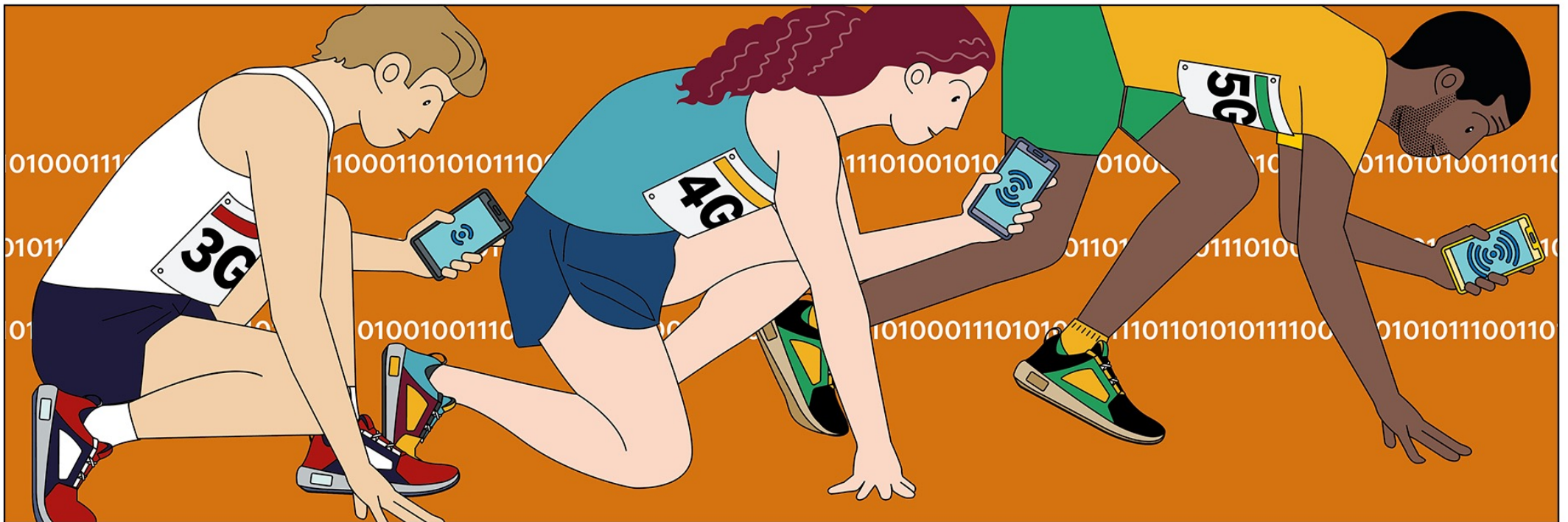
# TRANSITION REPORT 2021-22

## System Upgrade: Delivering the digital dividend

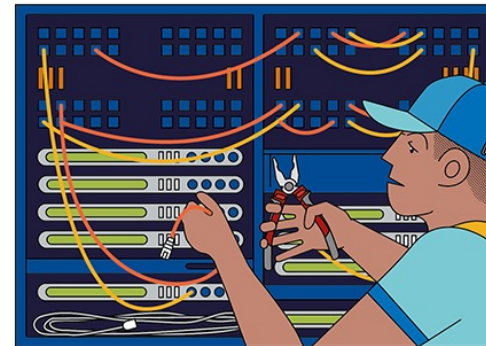
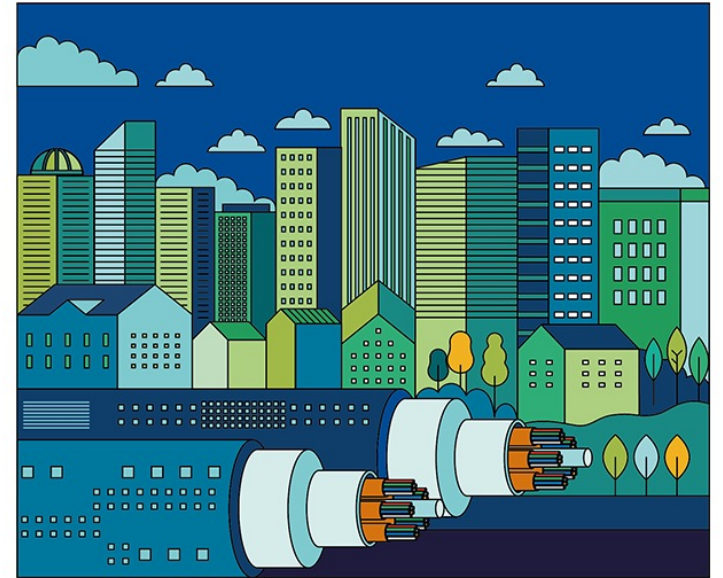


**European Bank**  
for Reconstruction and Development

[2021.tr-ebrd.com](https://2021.tr-ebrd.com)

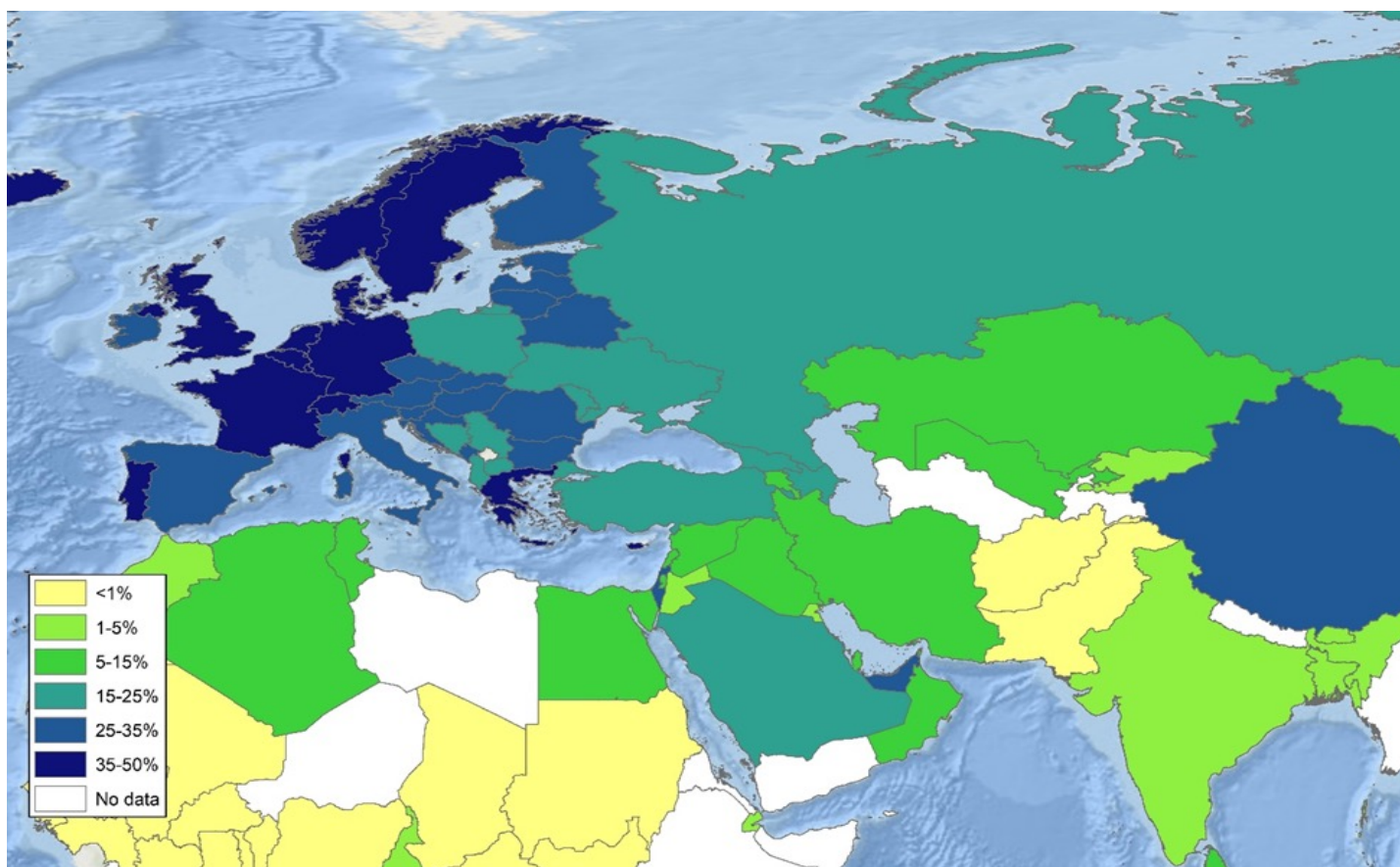


# DIGITAL DIVIDES BETWEEN AND WITHIN COUNTRIES

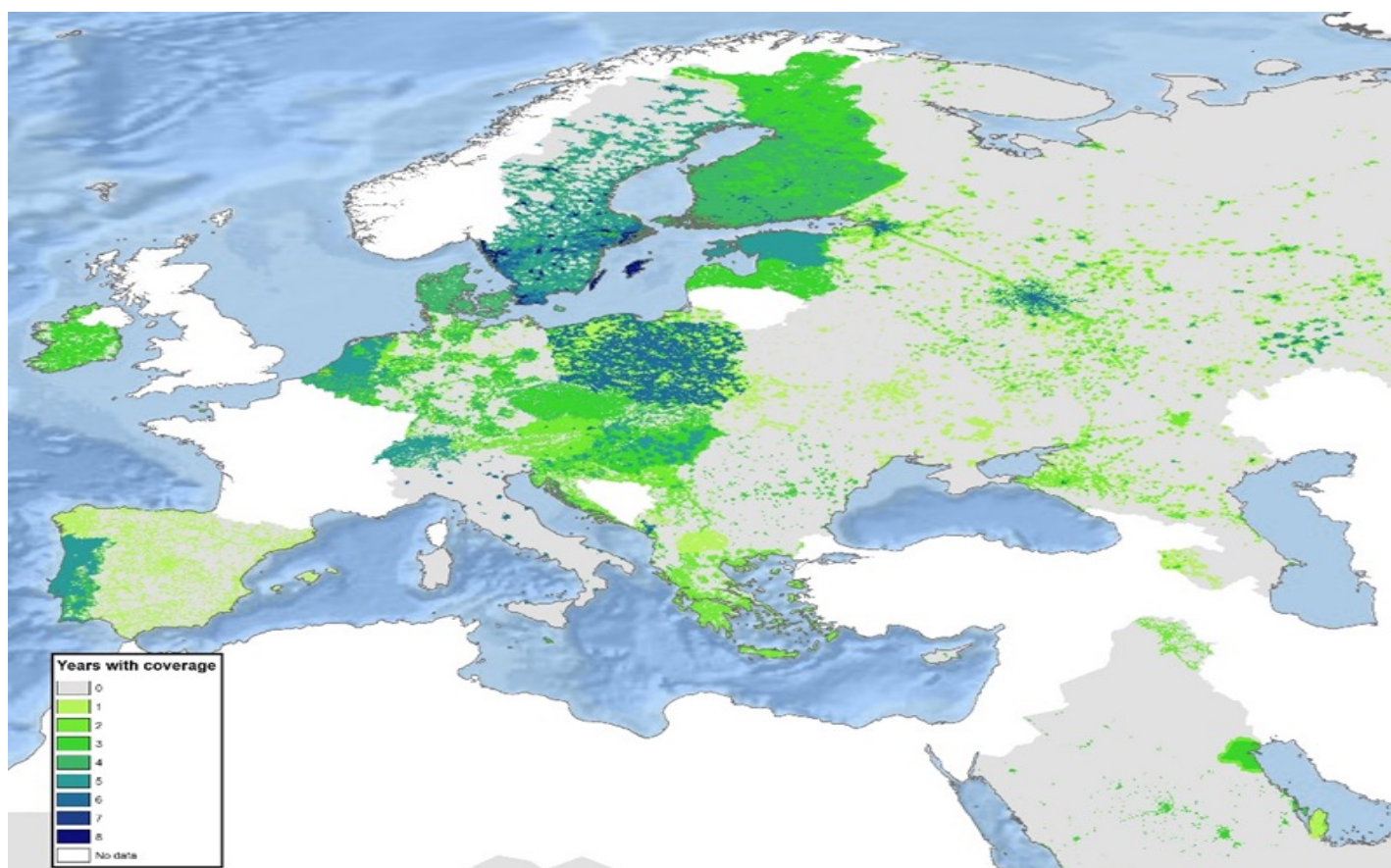


## Adoption of fixed broadband, providing faster internet speeds, remains relatively limited in the EBRD regions

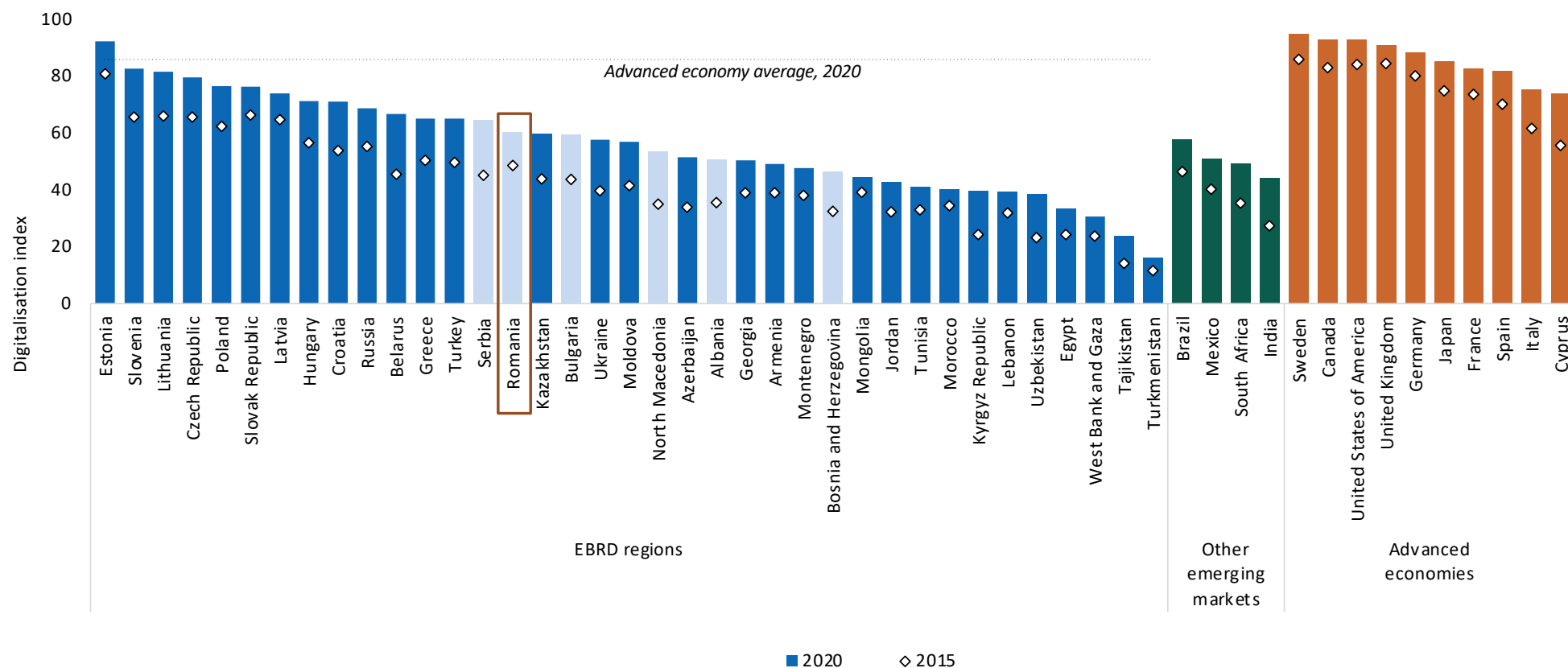
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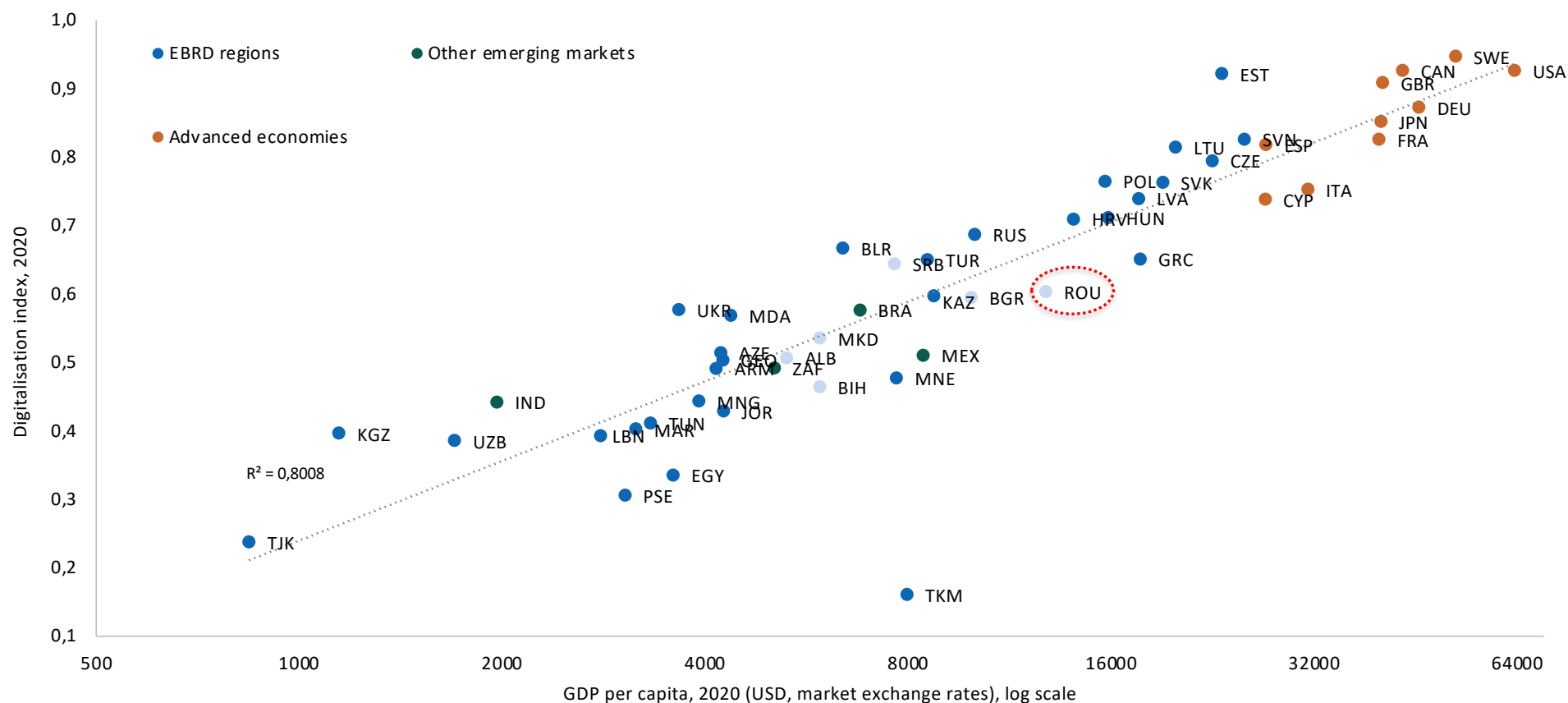
## Many economies in the EBRD regions lag Western European in 4G technologies



# There are large digital divides across countries



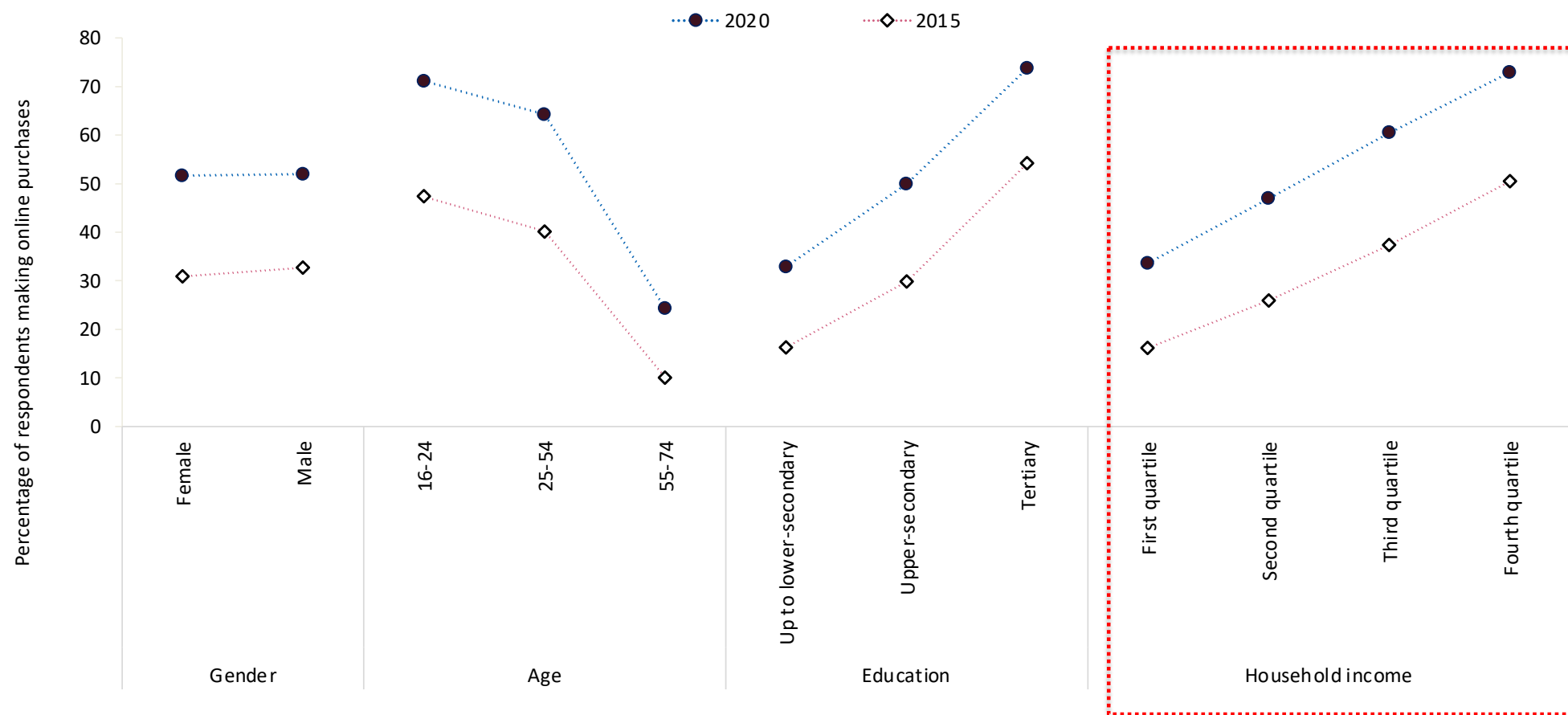
# Countries' levels of digitalisation are closely correlated with their overall levels of development



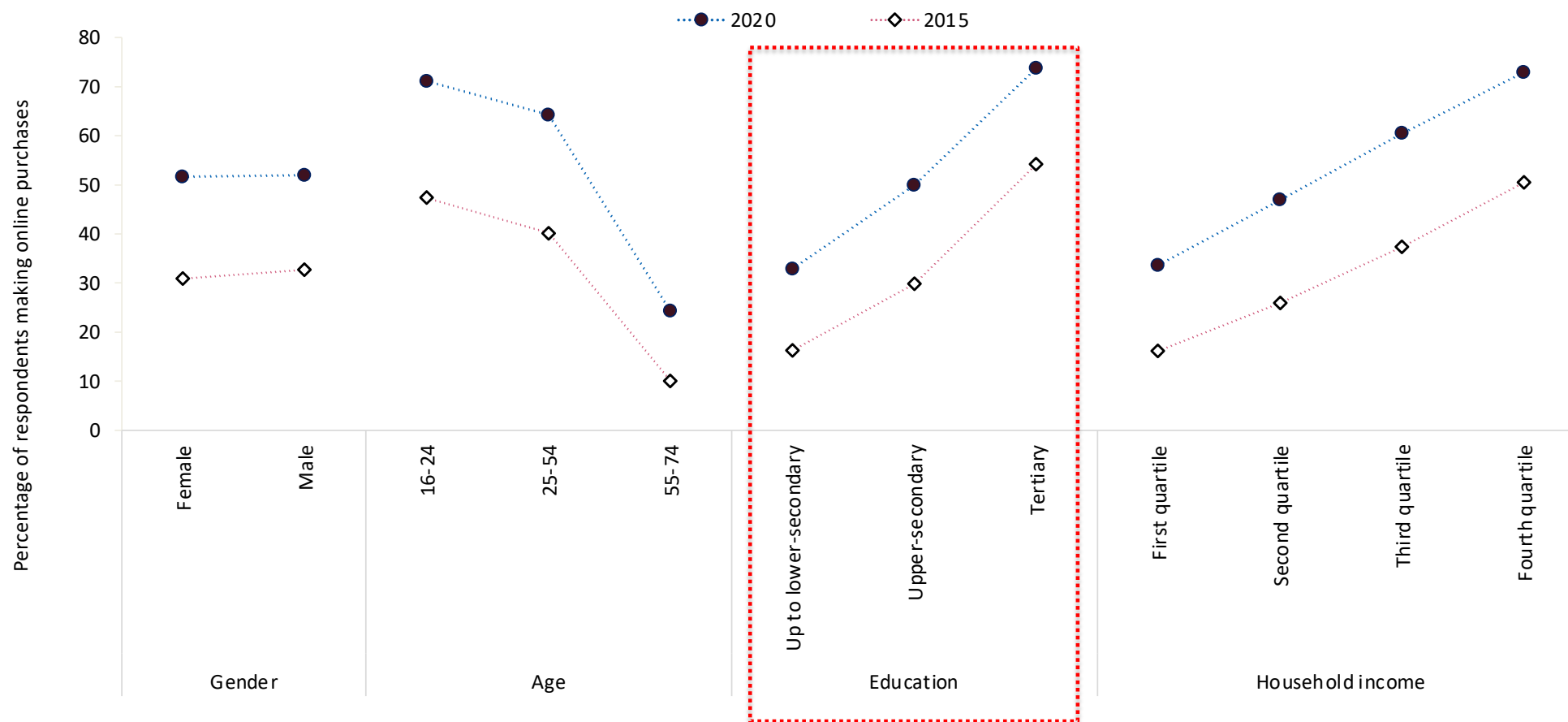
## Countries with medium levels of digitalisation have been catching up with advanced economies



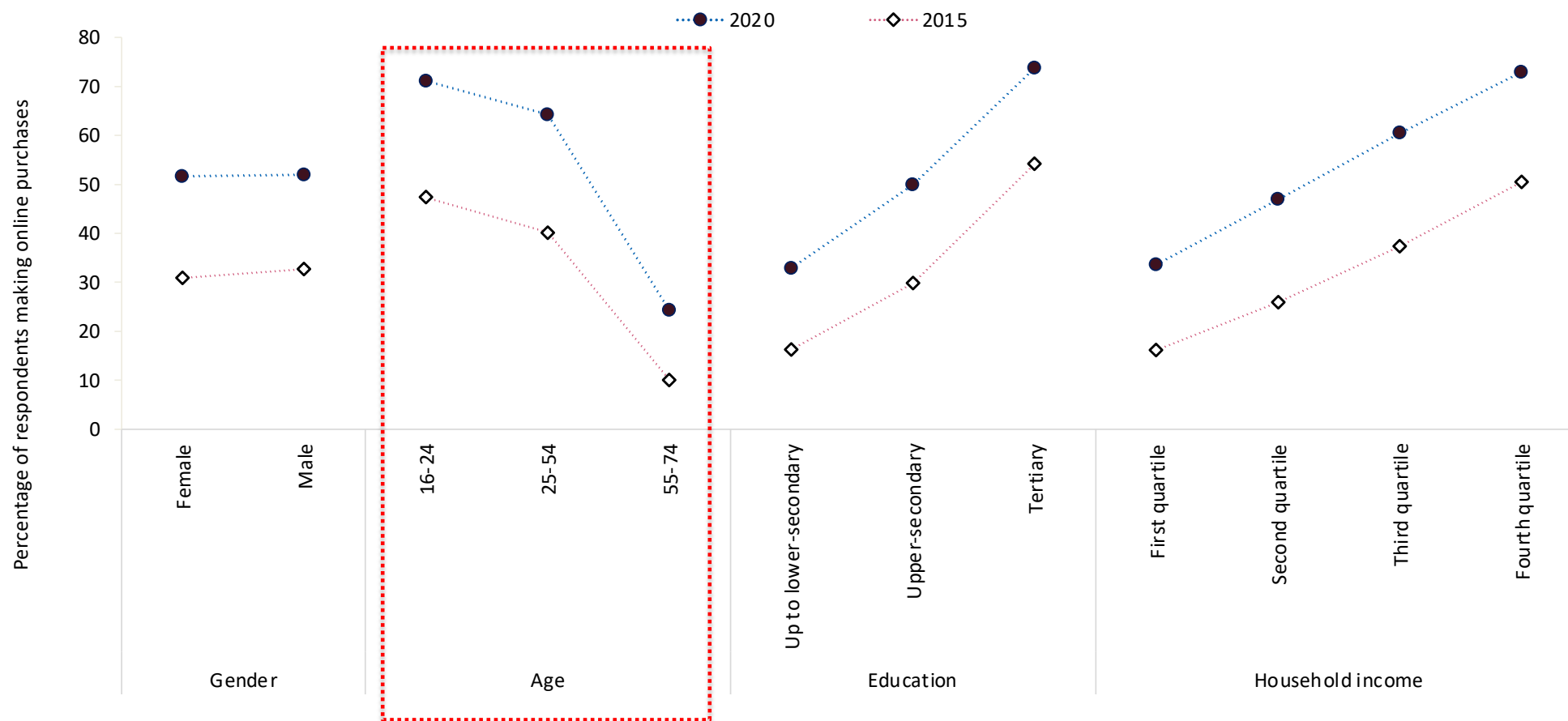
## Large digital divides within economies: younger, more educated and richer individuals are more likely to take advantage of digital technologies



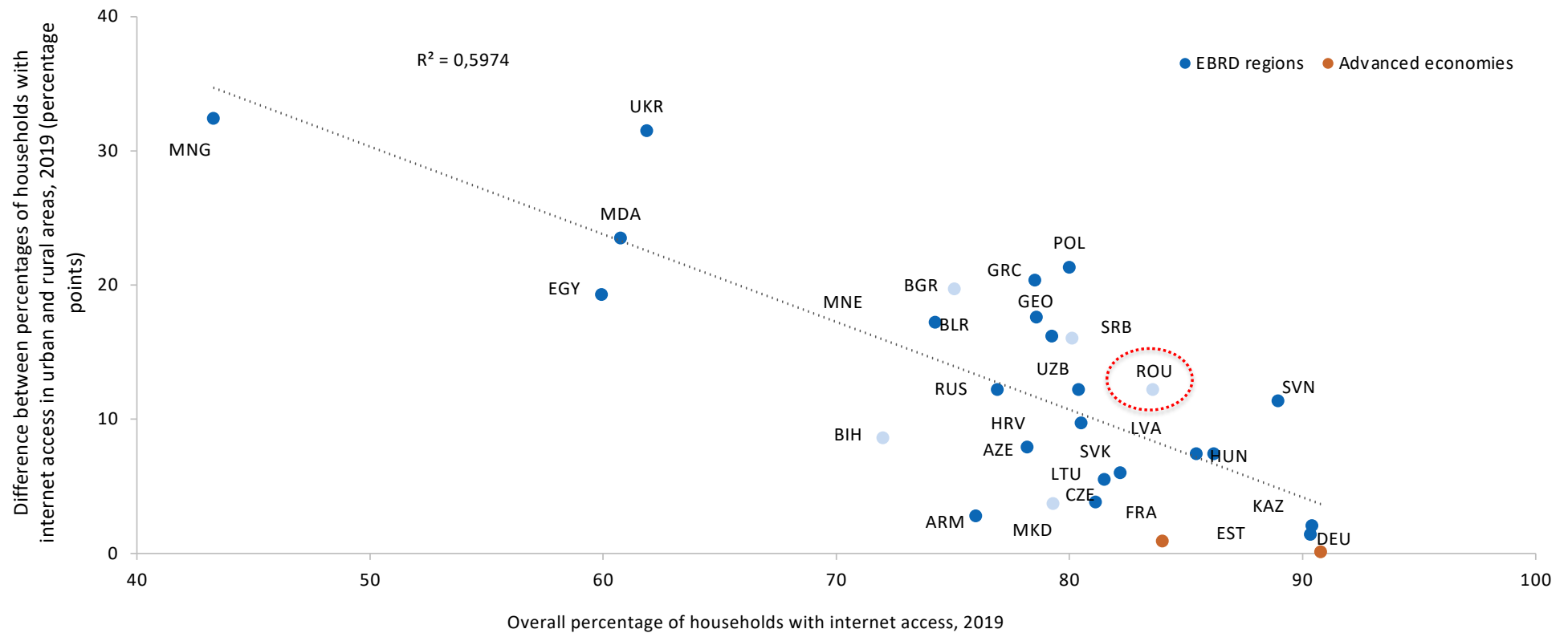
## Large digital divides within economies: younger, more educated and richer individuals are more likely to take advantage of digital technologies



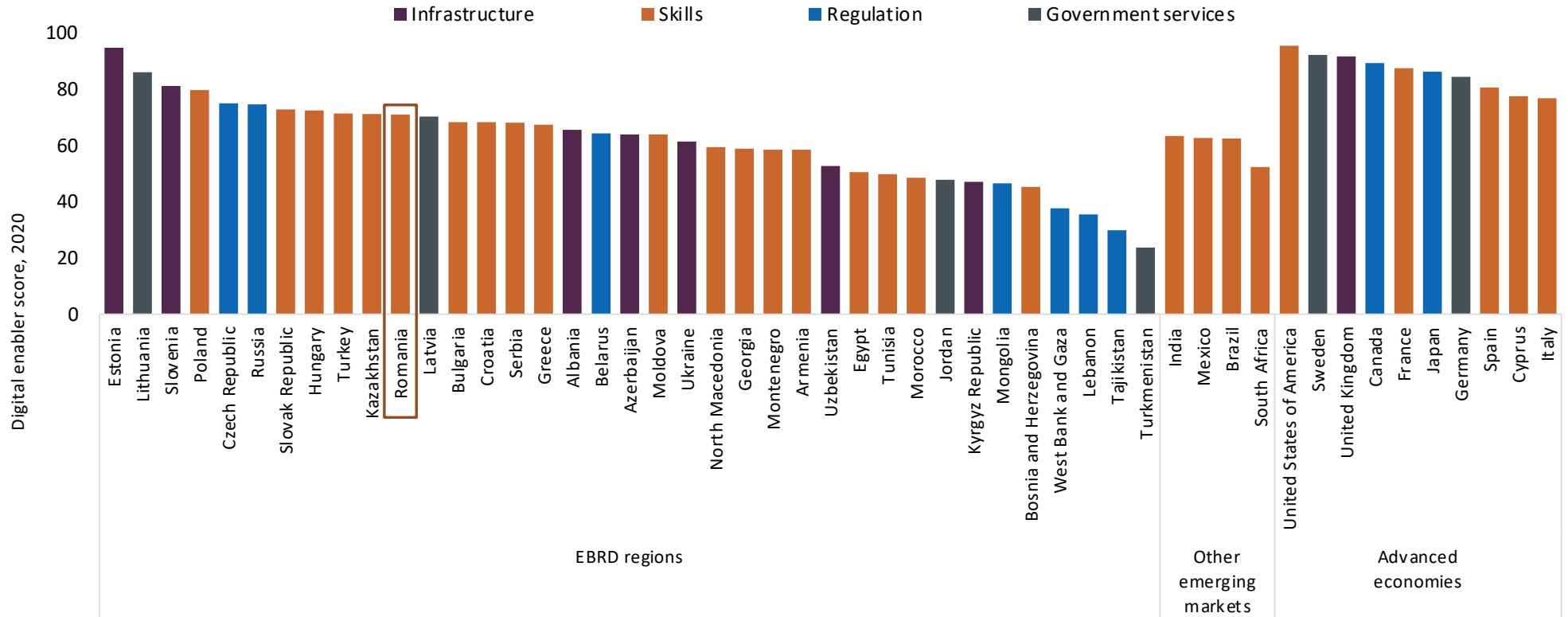
## Large digital divides within economies: younger, more educated and richer individuals are more likely to take advantage of digital technologies



## Rural-urban digital divides remain large in some economies, in particular where overall incidence of internet access is lower



# In the EBRD regions, **skills** are most likely to be the **key constraint** impeding digitalisation

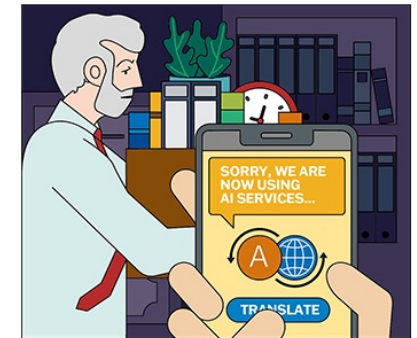
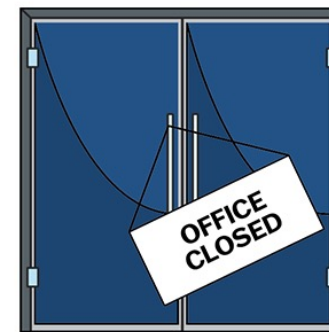
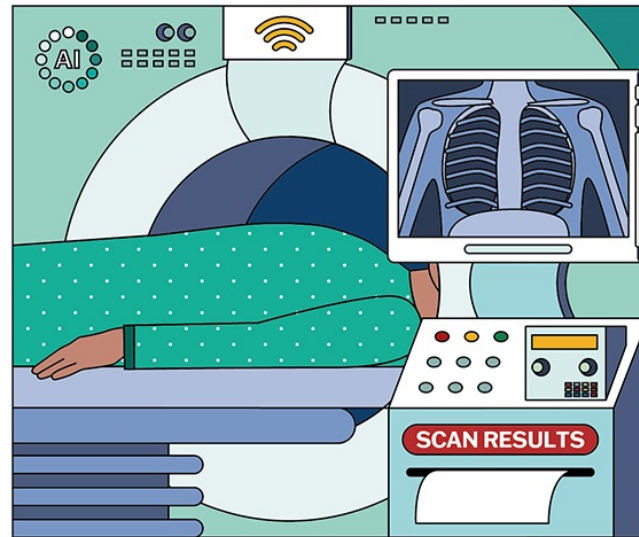
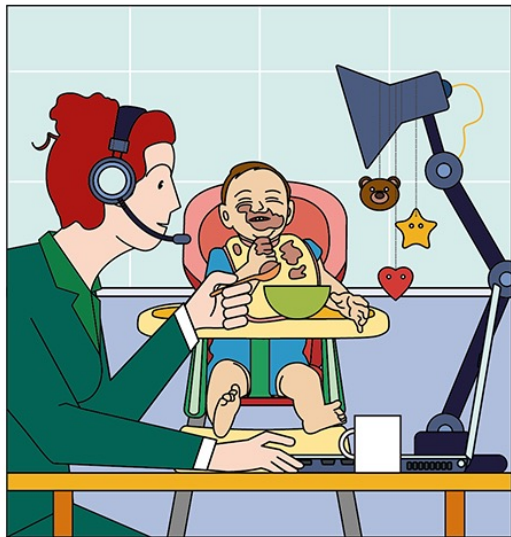


## Summary

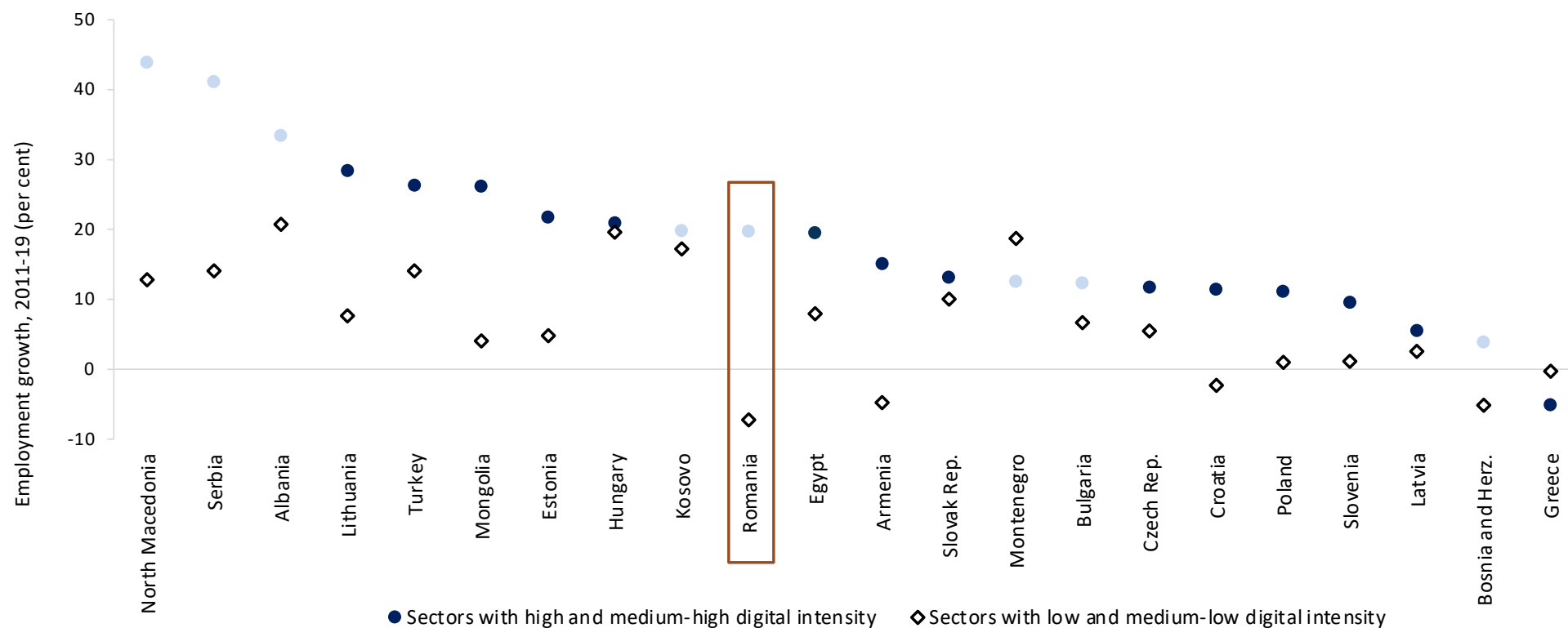
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- Promoting digitalisation is about both **infrastructure** and **skills**
- Danger that those in **rural** areas, **lower income** and **lower education** groups will be left behind
- Will **older workers** be pushed out of the labour market?

# TELEWORKING, ARTIFICIAL INTELLIGENCE AND THE LABOUR FORCE

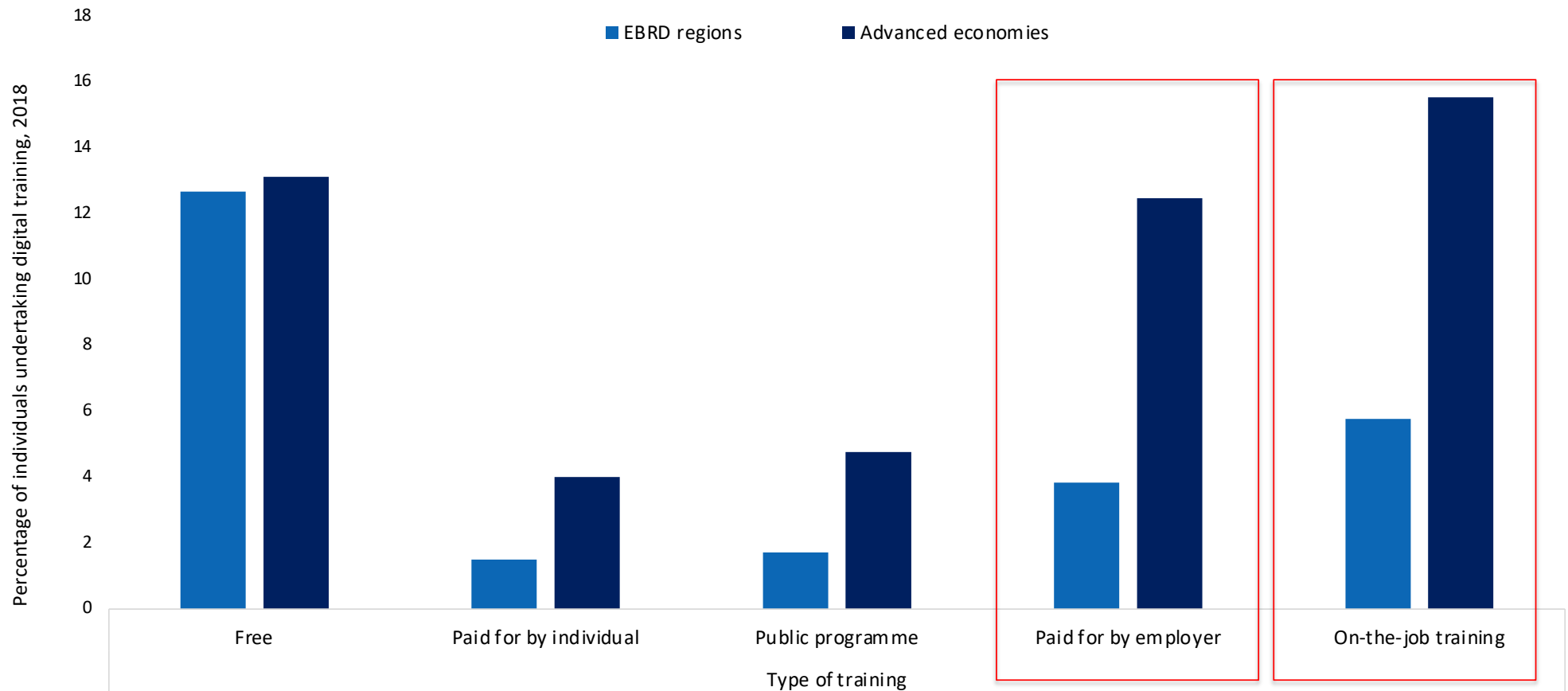


## Ongoing structural change: Economies have been shifting towards more digital-intensive sectors

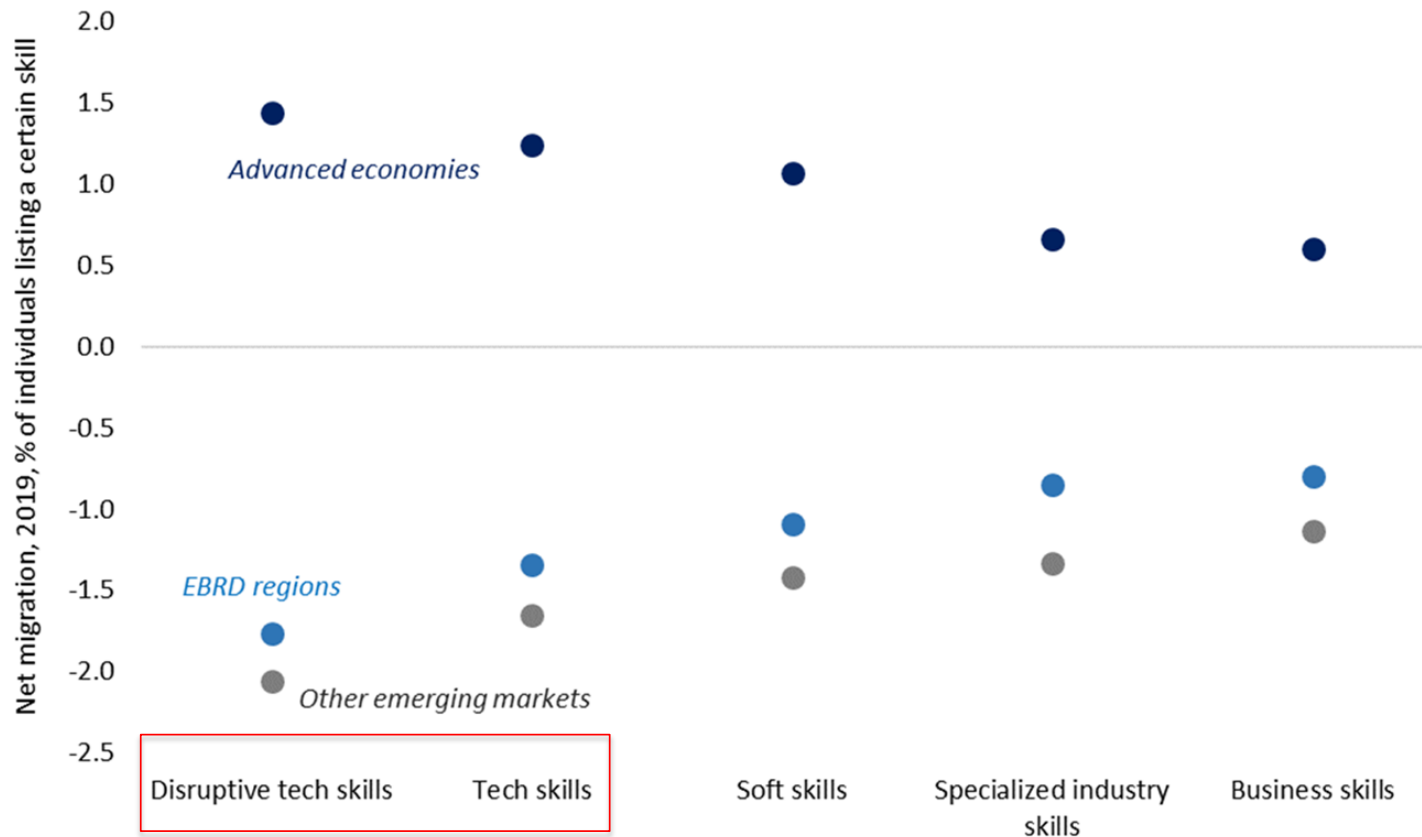


Free digital training is used as much as in advanced economies,  
lower provision of training financed by employers

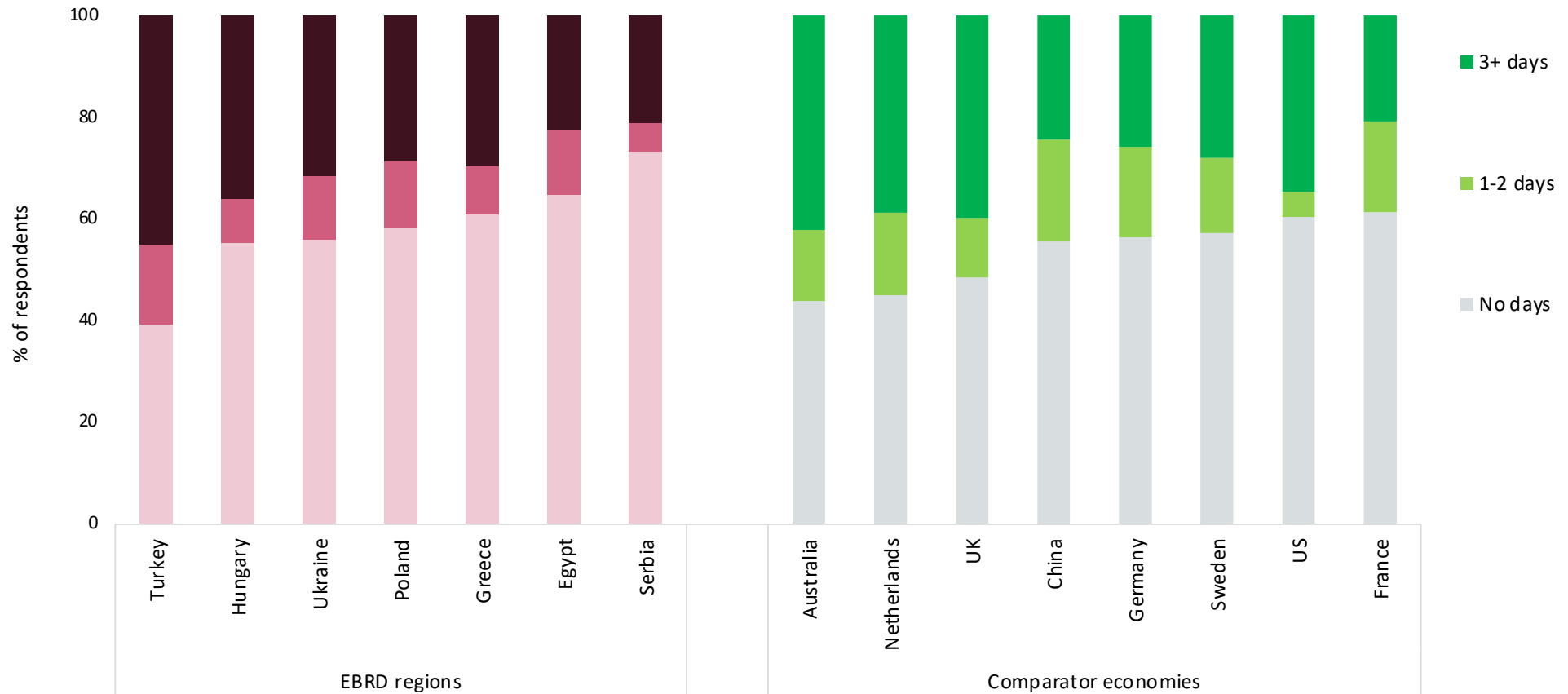
but much



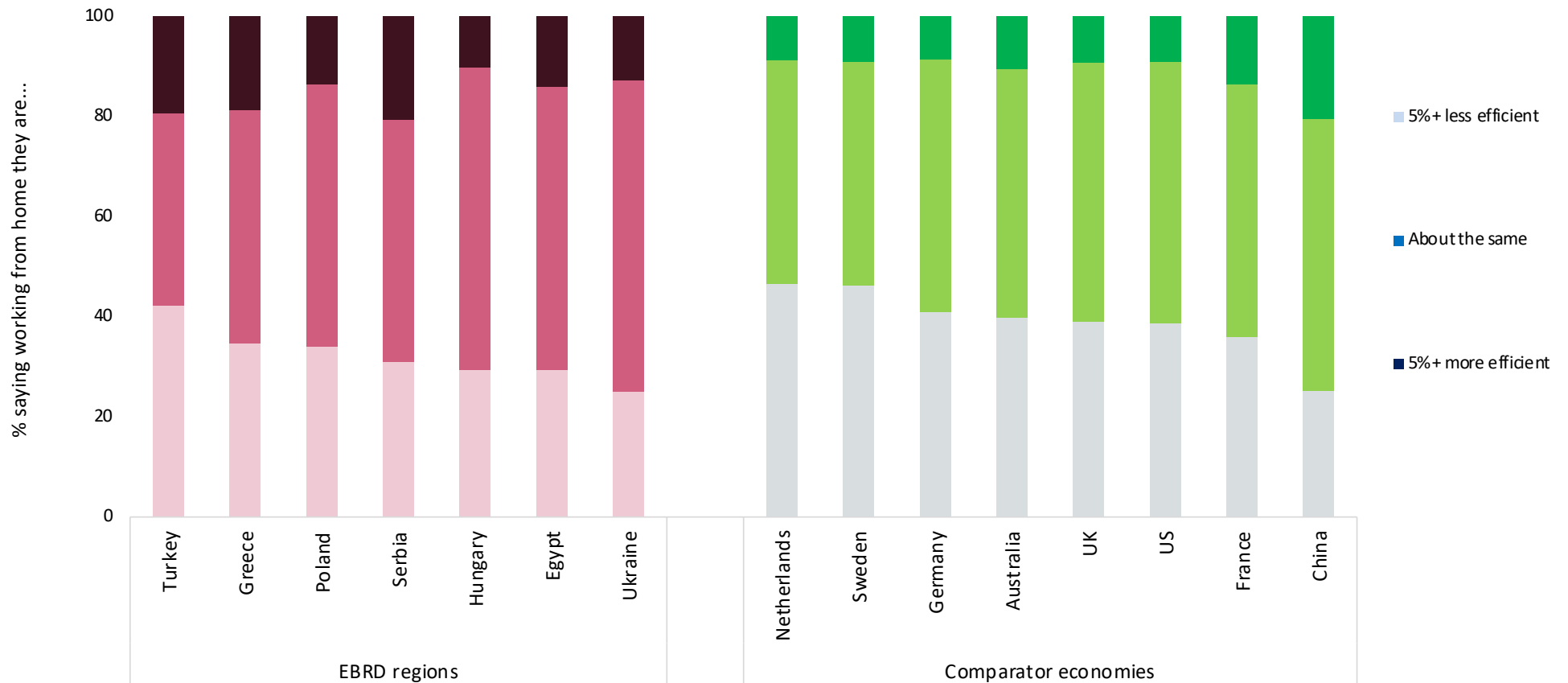
## Many economies in the EBRD regions are experiencing (digital) brain drain



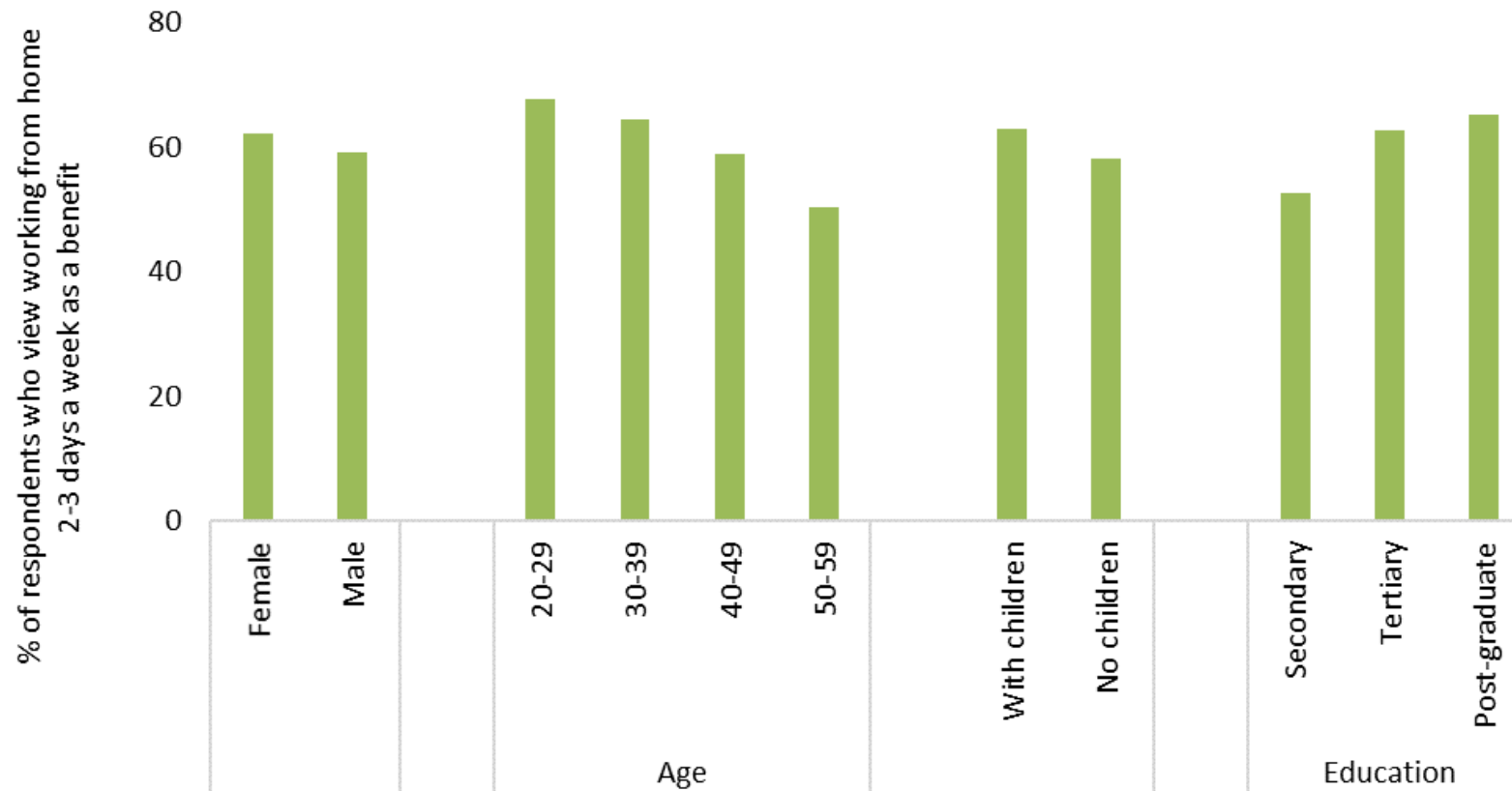
## A substantial proportion of respondents worked from home in August 2021



# Employees, on balance, feel more productive when working from home

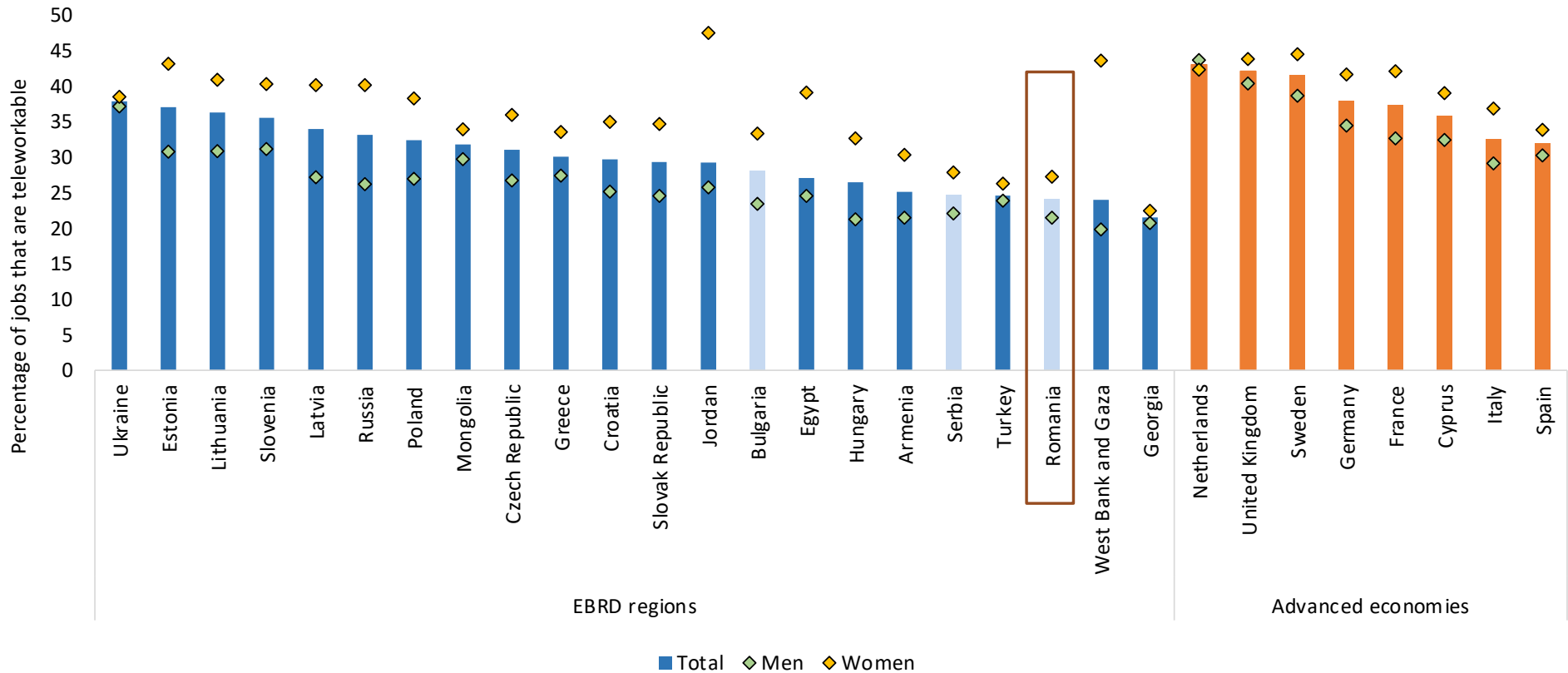


## Most workers view working from home 2-3 days a week as a benefit

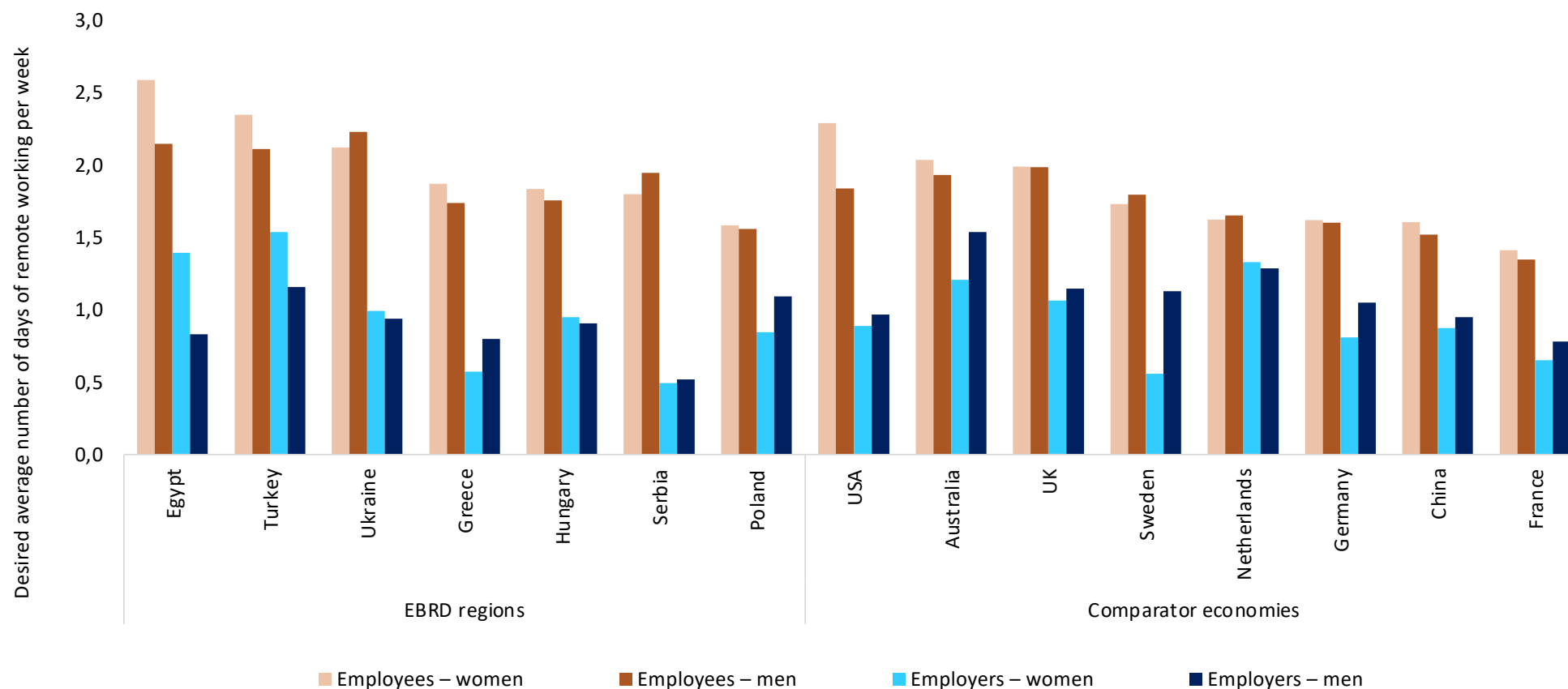


# Youth and women in EBRD regions are more likely to be in occupations where work can be done from home

Teleworkability is lower in EBRD countries and higher for women in all countries

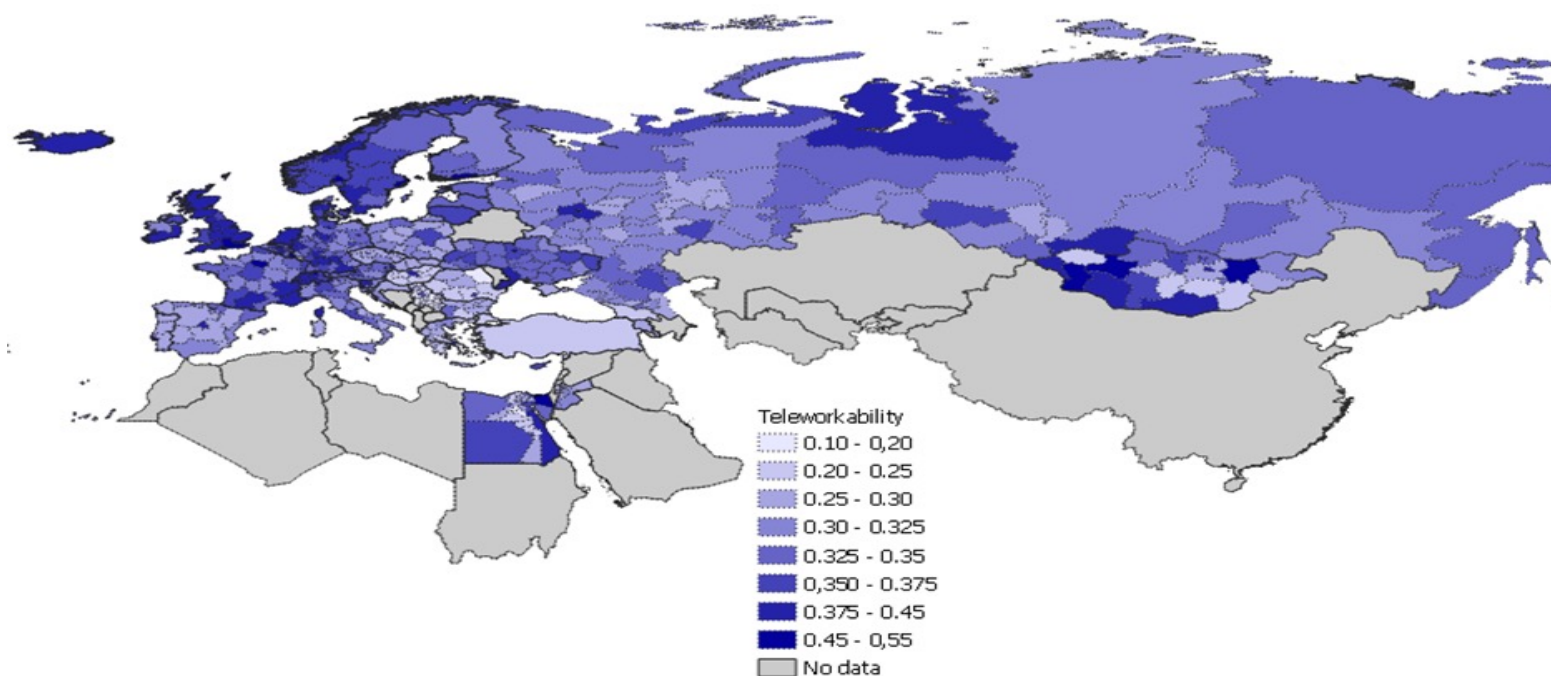


## Employers are, however, less keen on work from home



## Future trends: EBRD regions have similar exposure to potential AI automation as advanced economies

Around 40% of jobs are estimated to be exposed to automation in the medium term

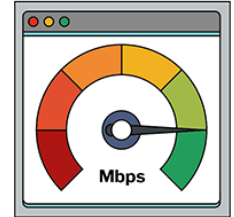
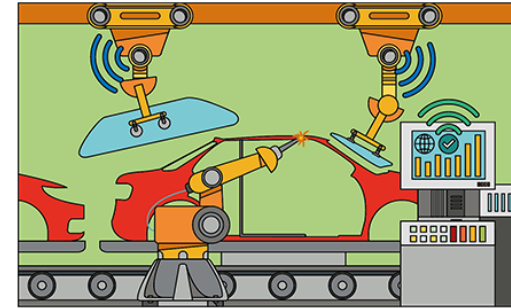


# Summary

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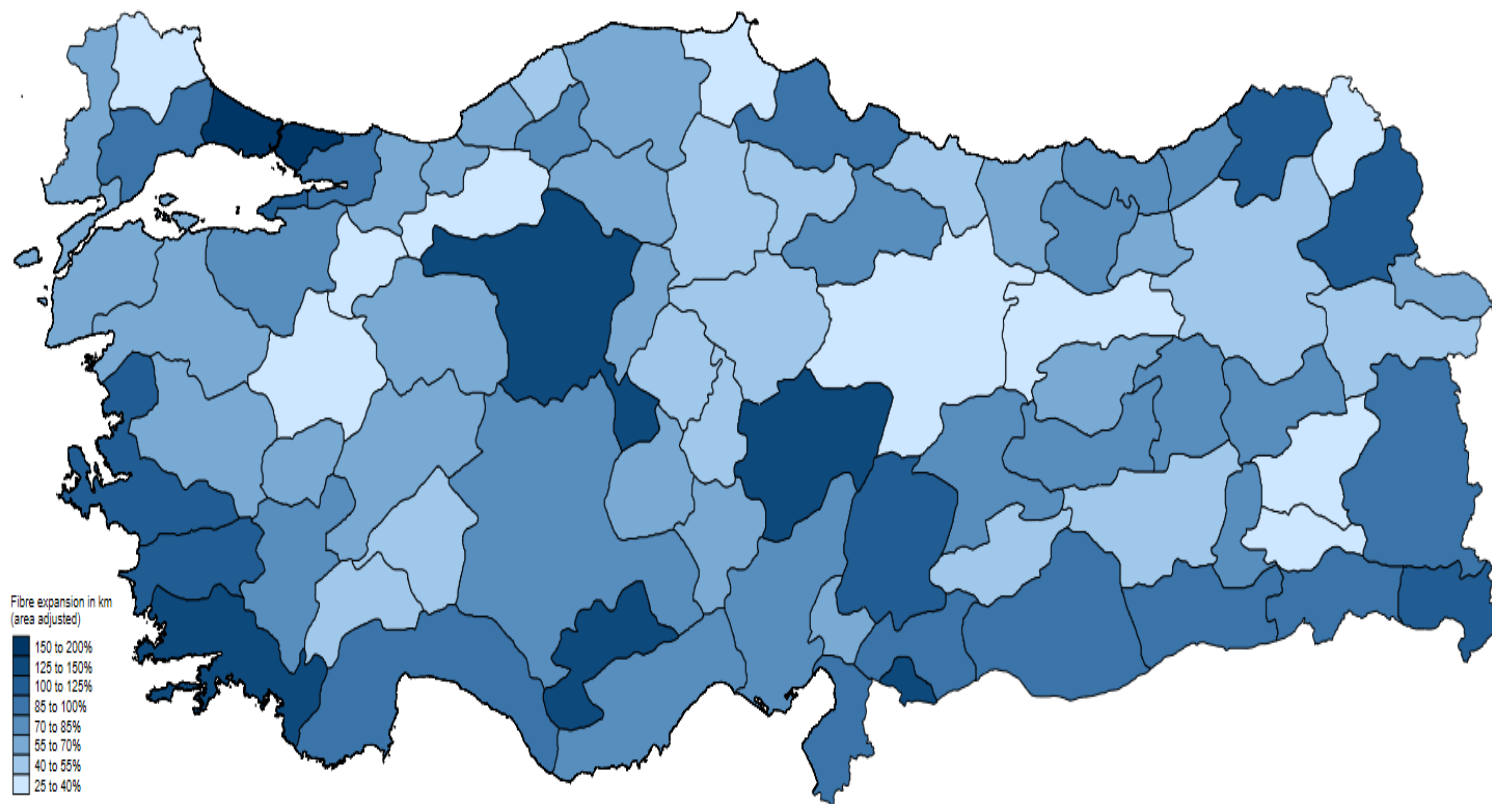
- Digitalisation has already led to **structural changes** in the economy, more is to come
- Working from home will have implications for
  - city centres
  - geography of cities
  - exports of services

# DIGITAL INFRASTRUCTURE AND FIRMS' PERFORMANCE

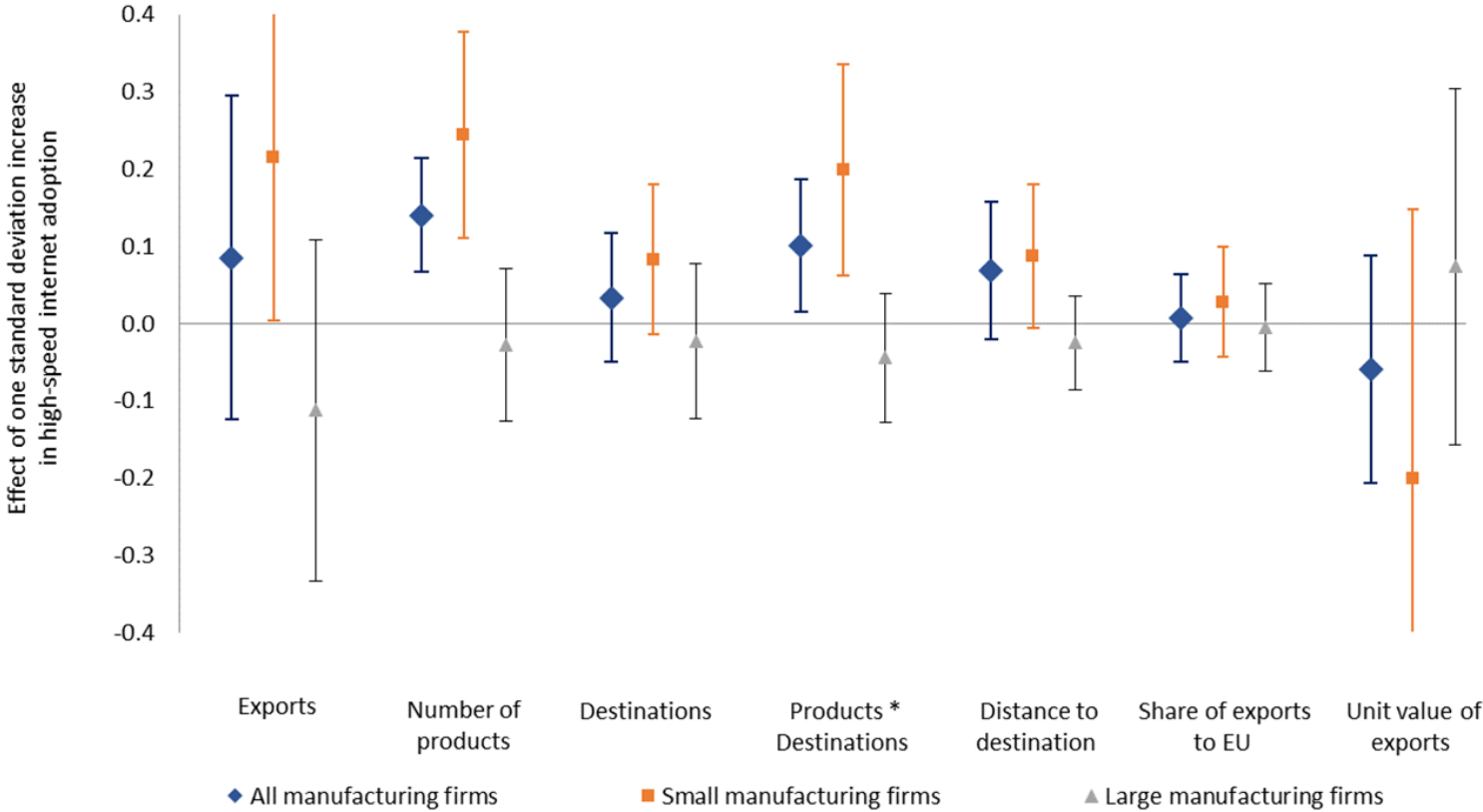


## Case study: Turkey has invested heavily in expansion of fibre internet

Turkey: Expansion of fibre internet (adjusted for area), by province

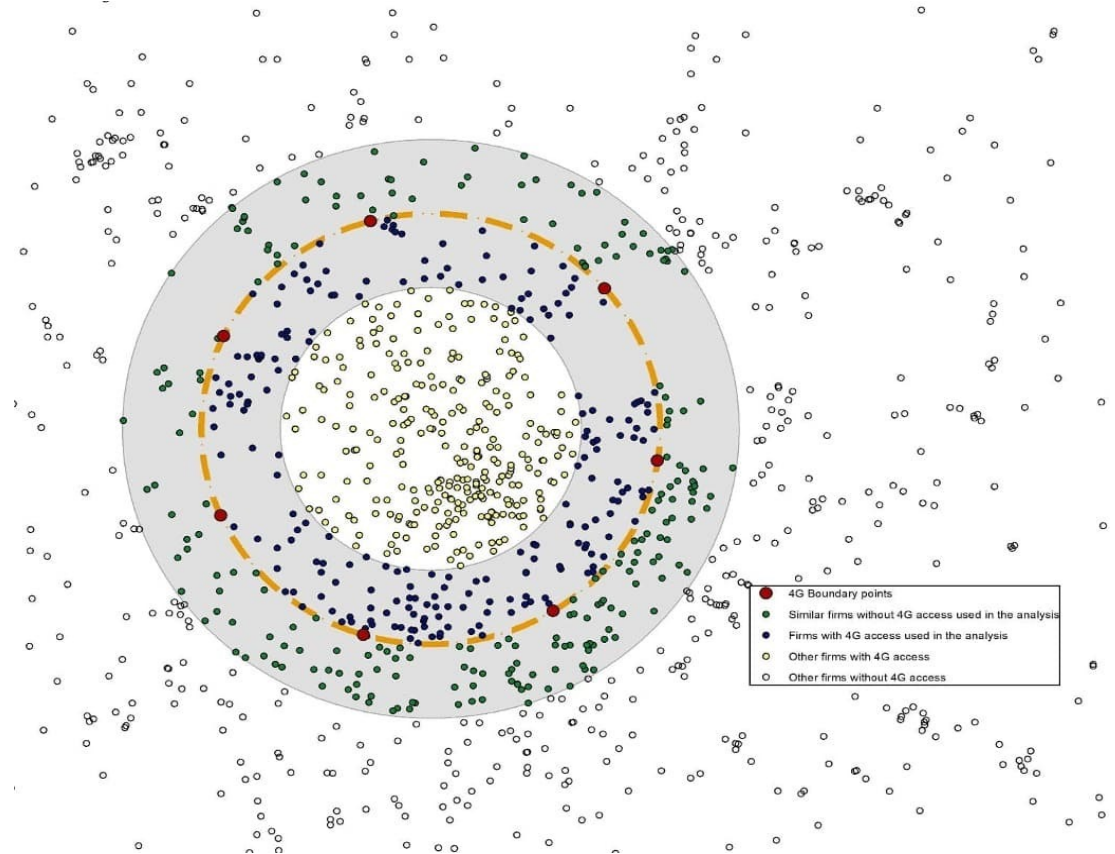


# Small manufacturers in ICT-intensive sectors benefitted by increasing the volume of exports and the range of exported products

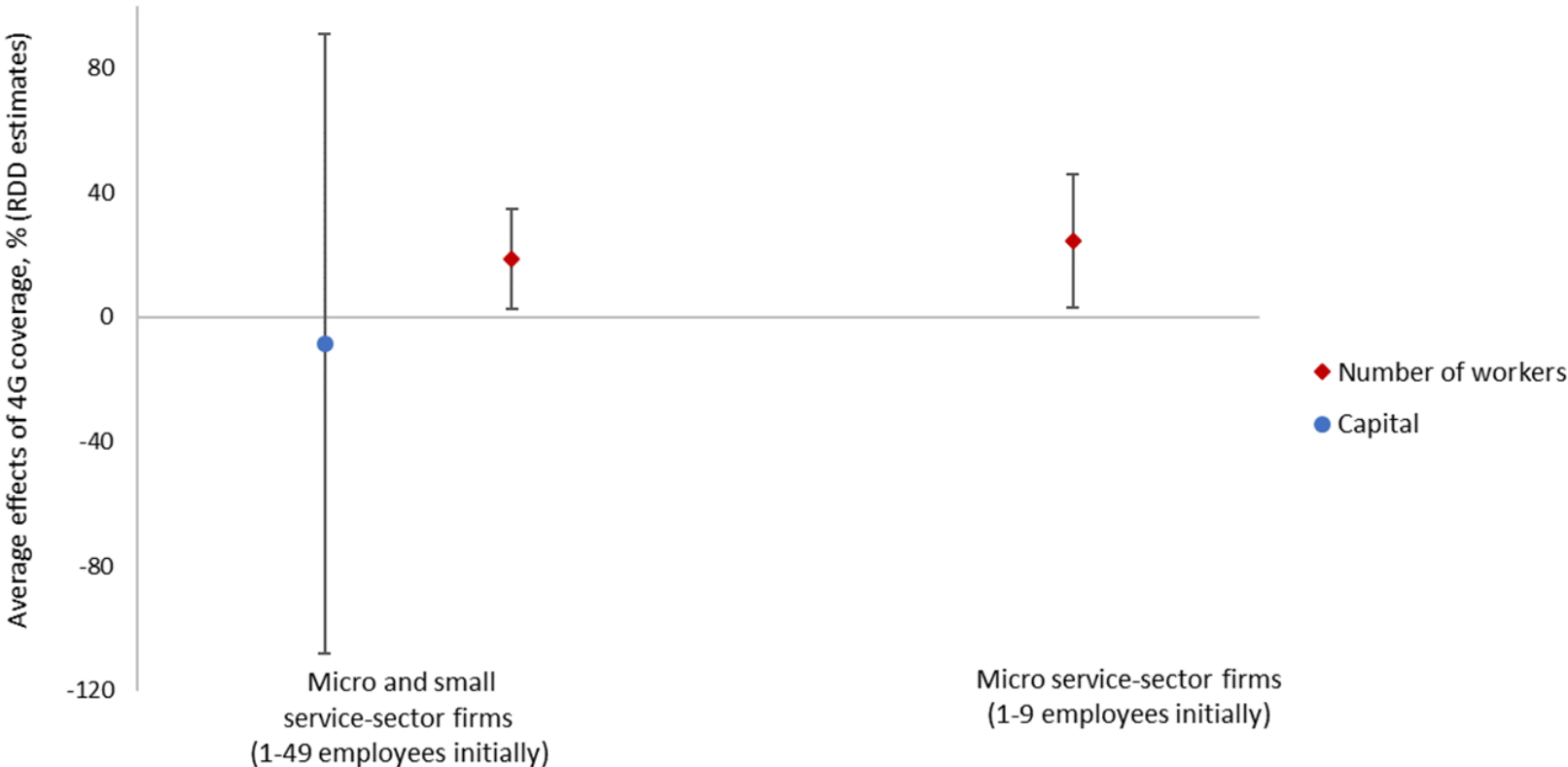


# 4G rollout: Regression discontinuity analysis using firm geolocations

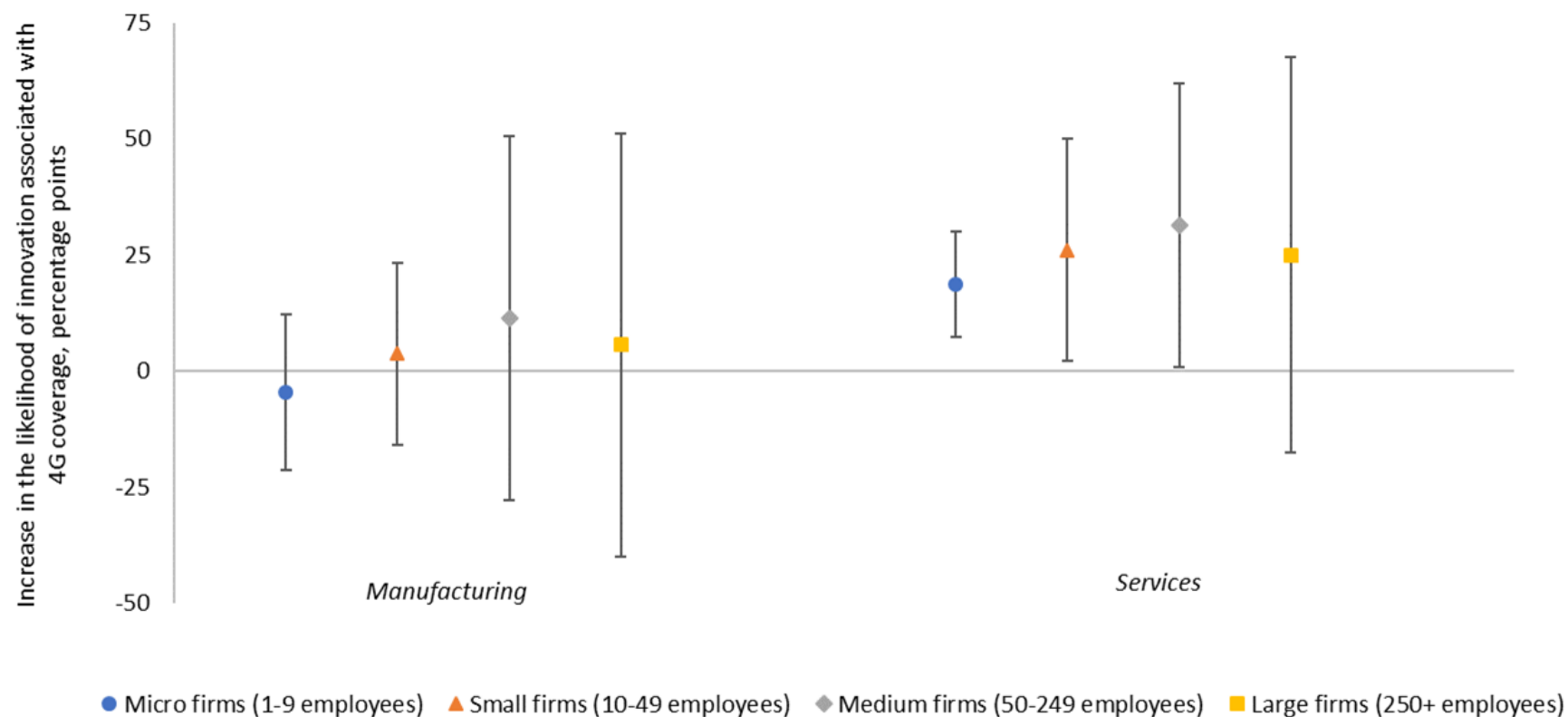
## 4G coverage frontiers and firms' locations around Moscow in 2013



# In Russia, smaller firms increased employment by 18% on the back of 4G rollout



## Small firms in the service sector also introduced new products and services on the back of 4G rollout

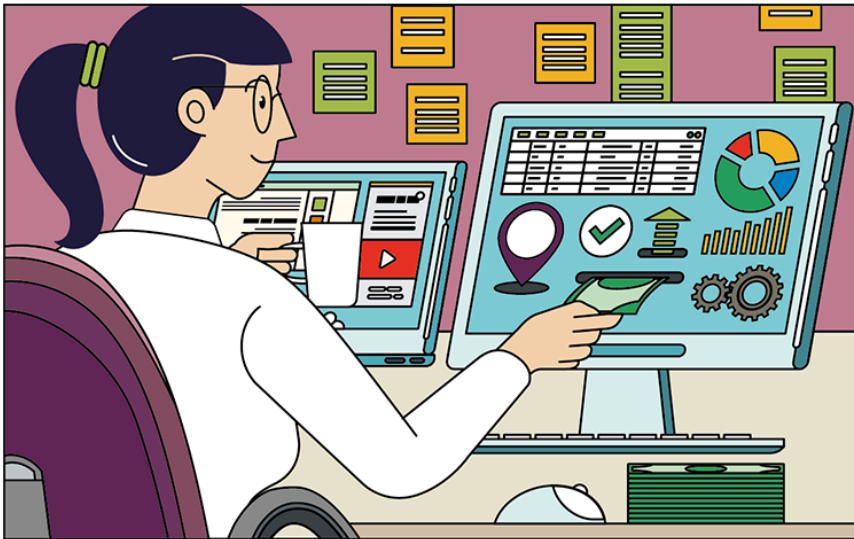
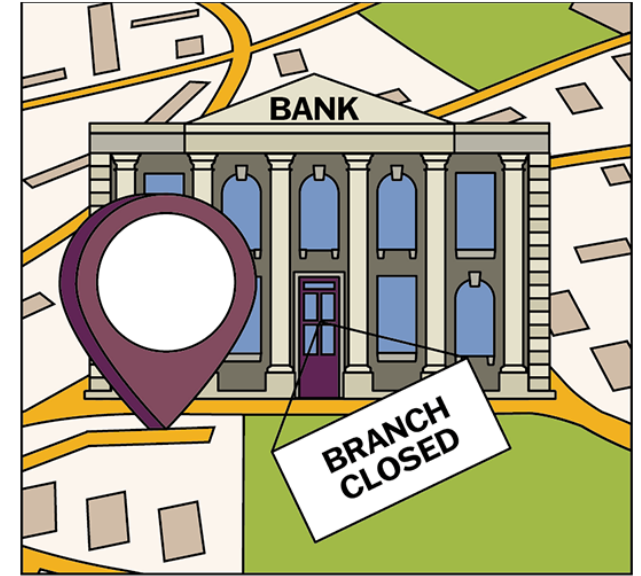


# Summary

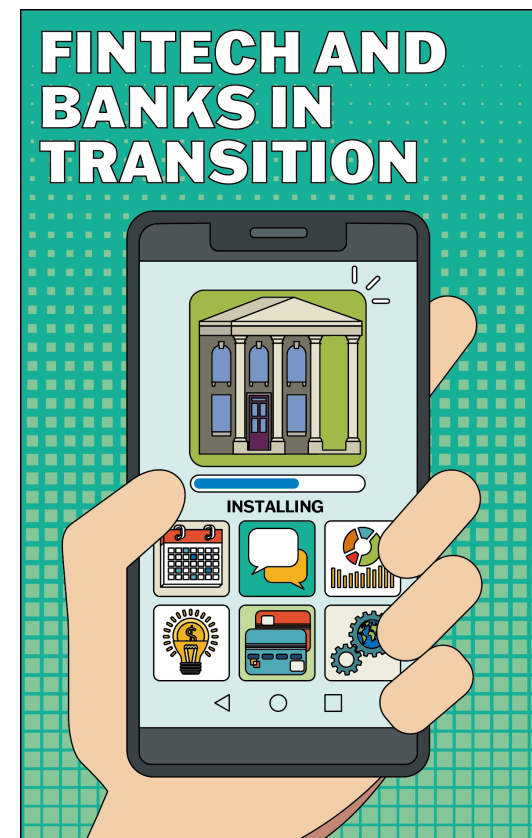
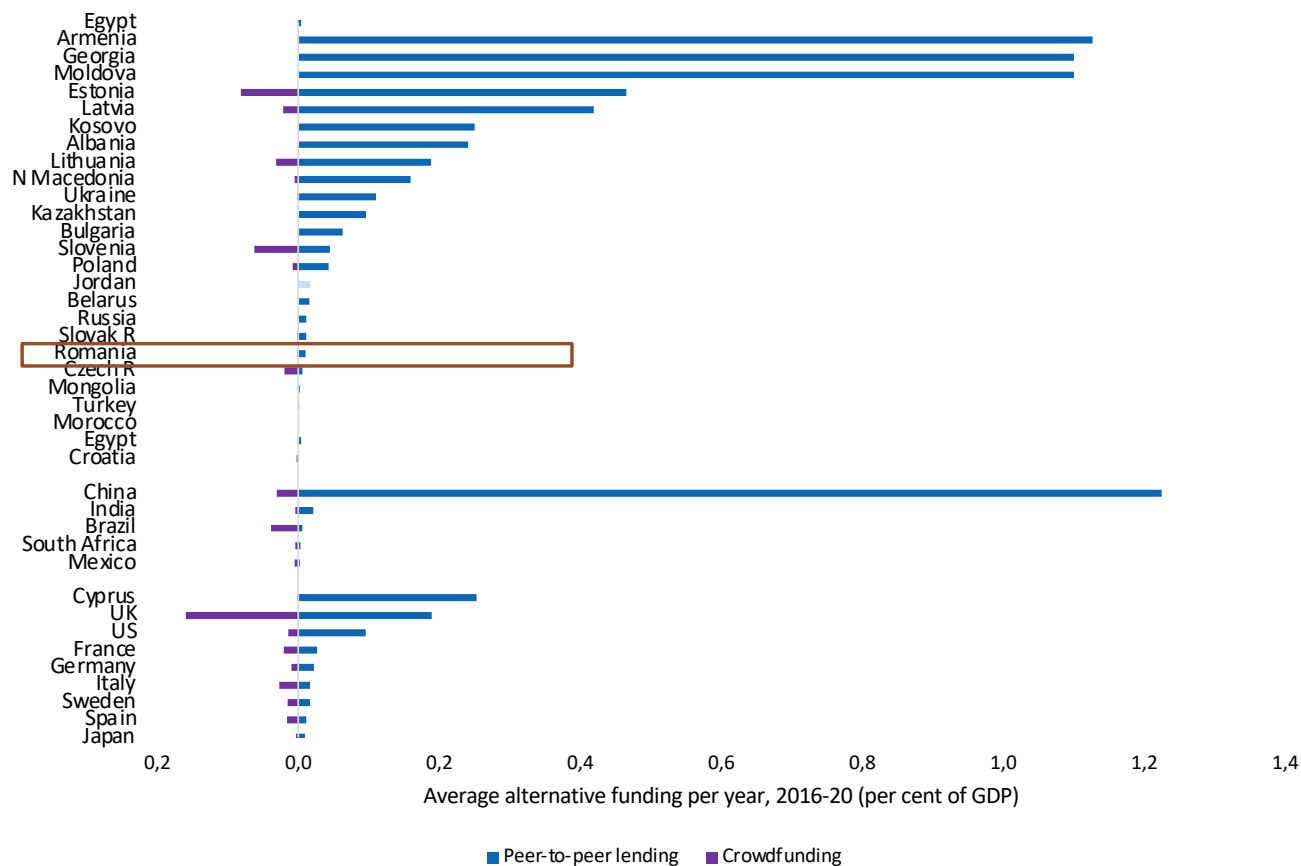
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- Access to **digital infrastructure lowers the costs of obtaining information** about new markets
- Particularly **important for SMEs**
- Digital infrastructure also allows firms to reach new suppliers making **input markets more competitive**

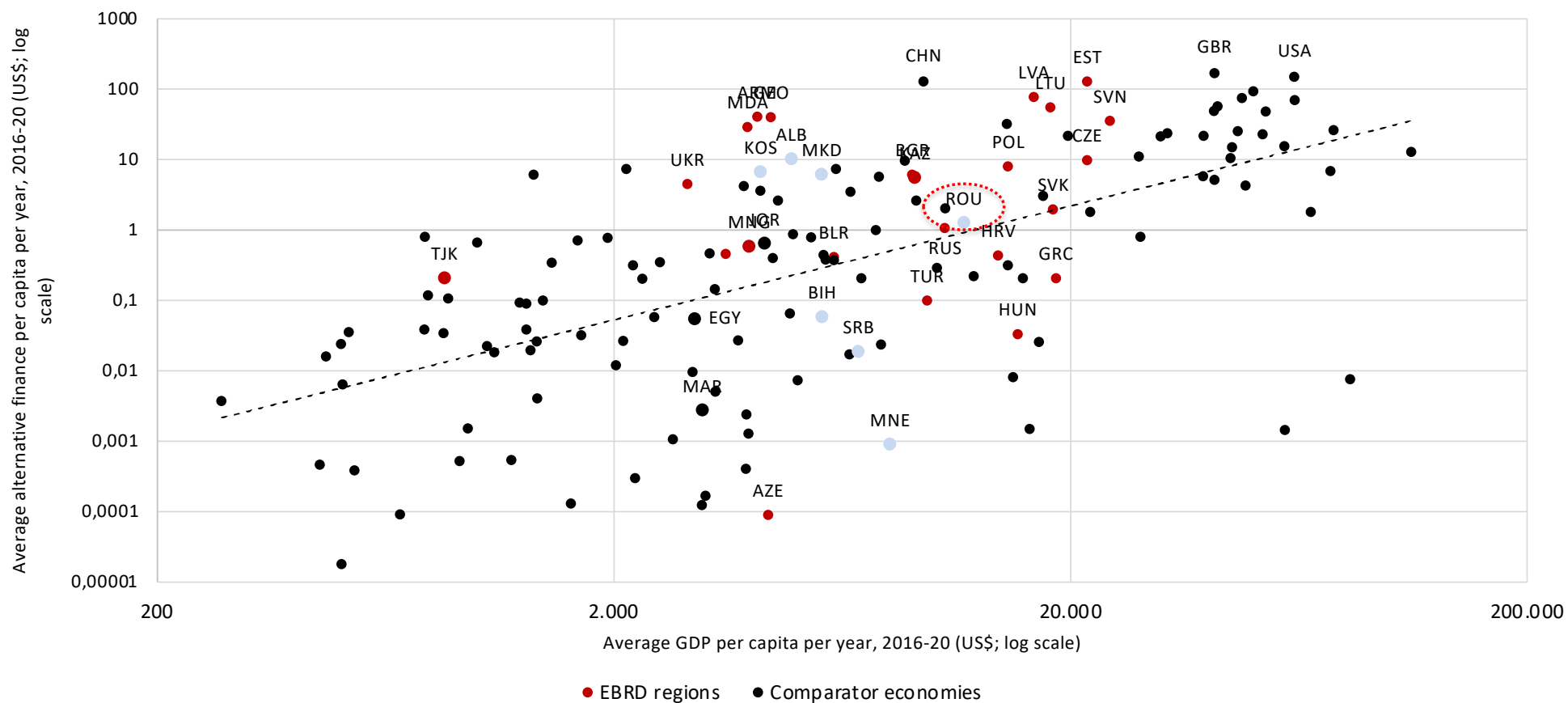
# FINTECH AND BANKS IN TRANSITION



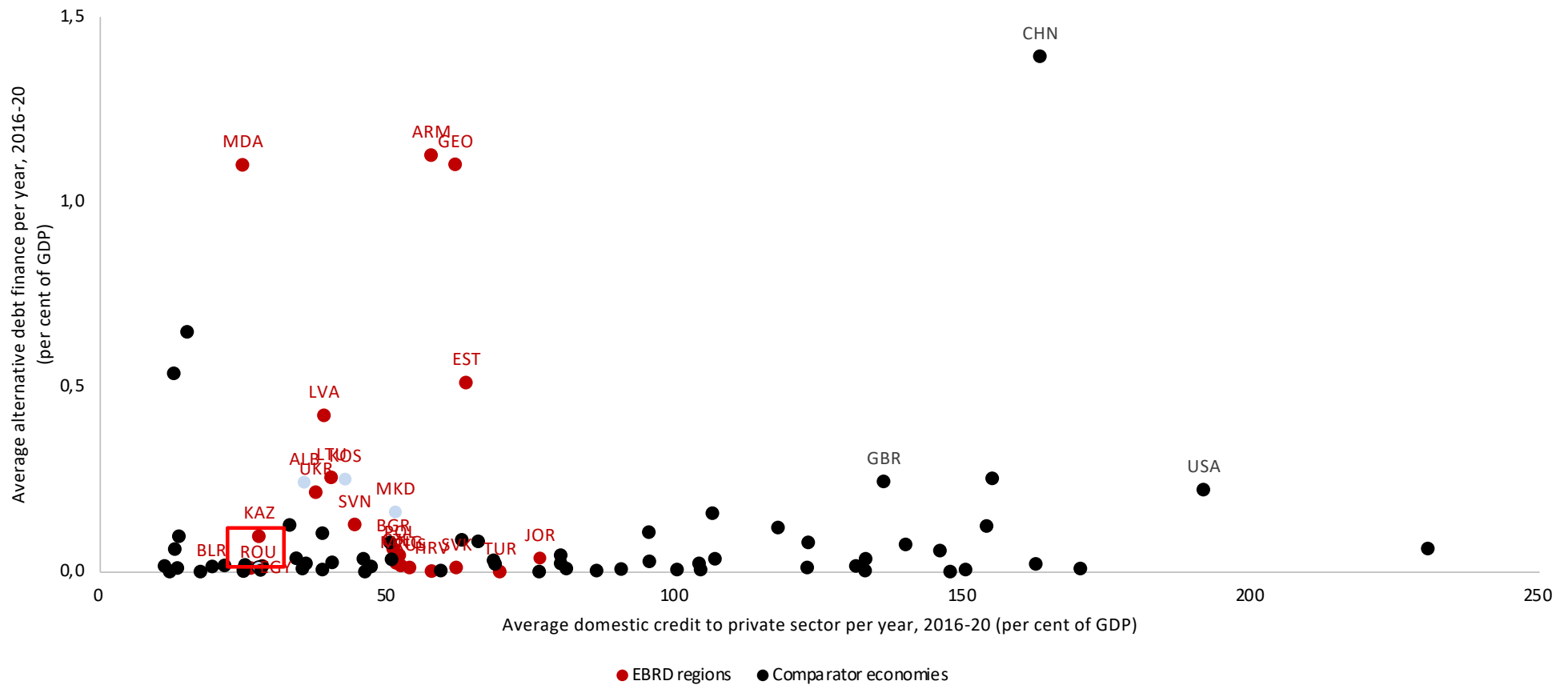
# Technological disruption is transforming financial services across the EBRD regions



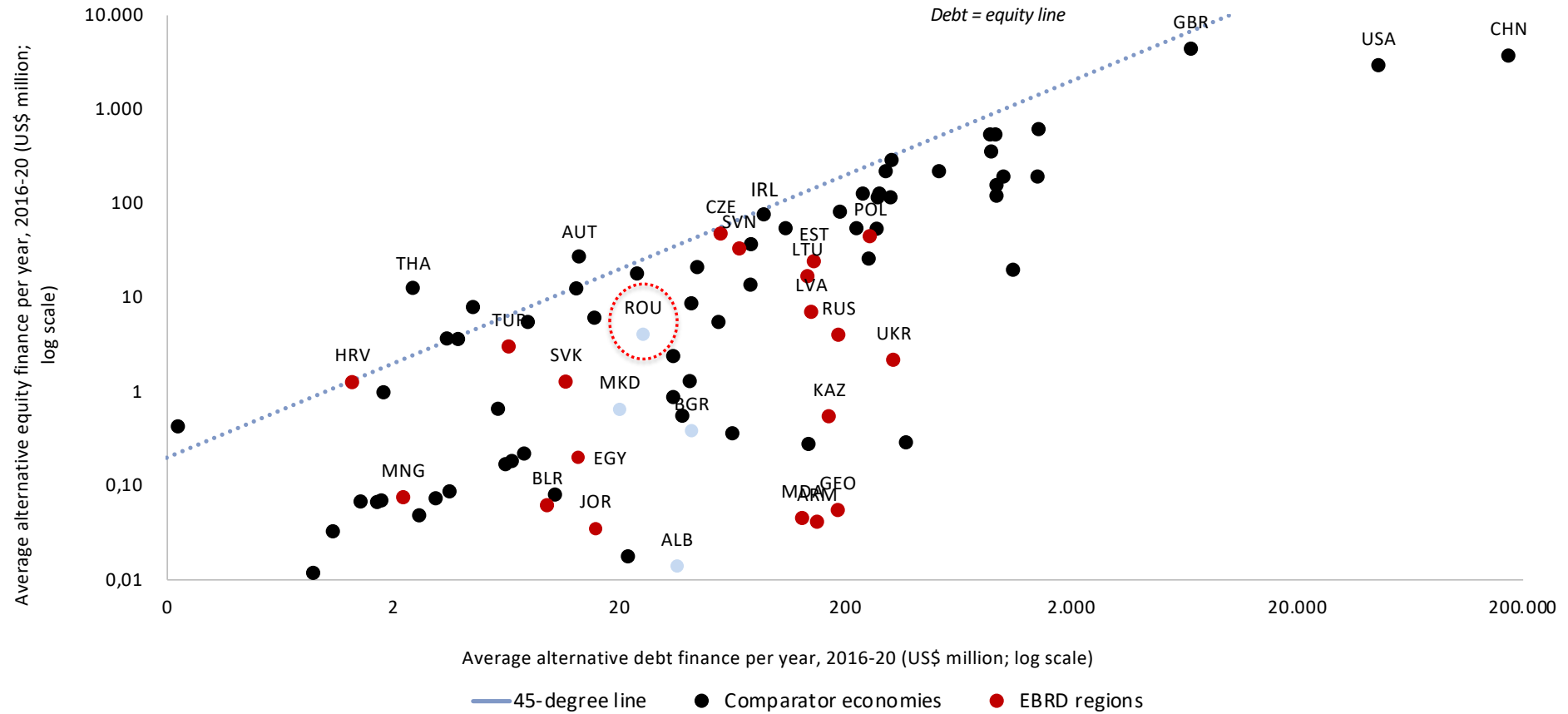
## In some economies in EBRD regions, alternative finance is well above levels that could be expected based on per capita income



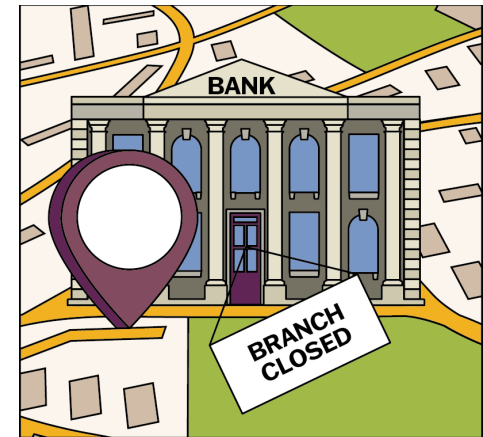
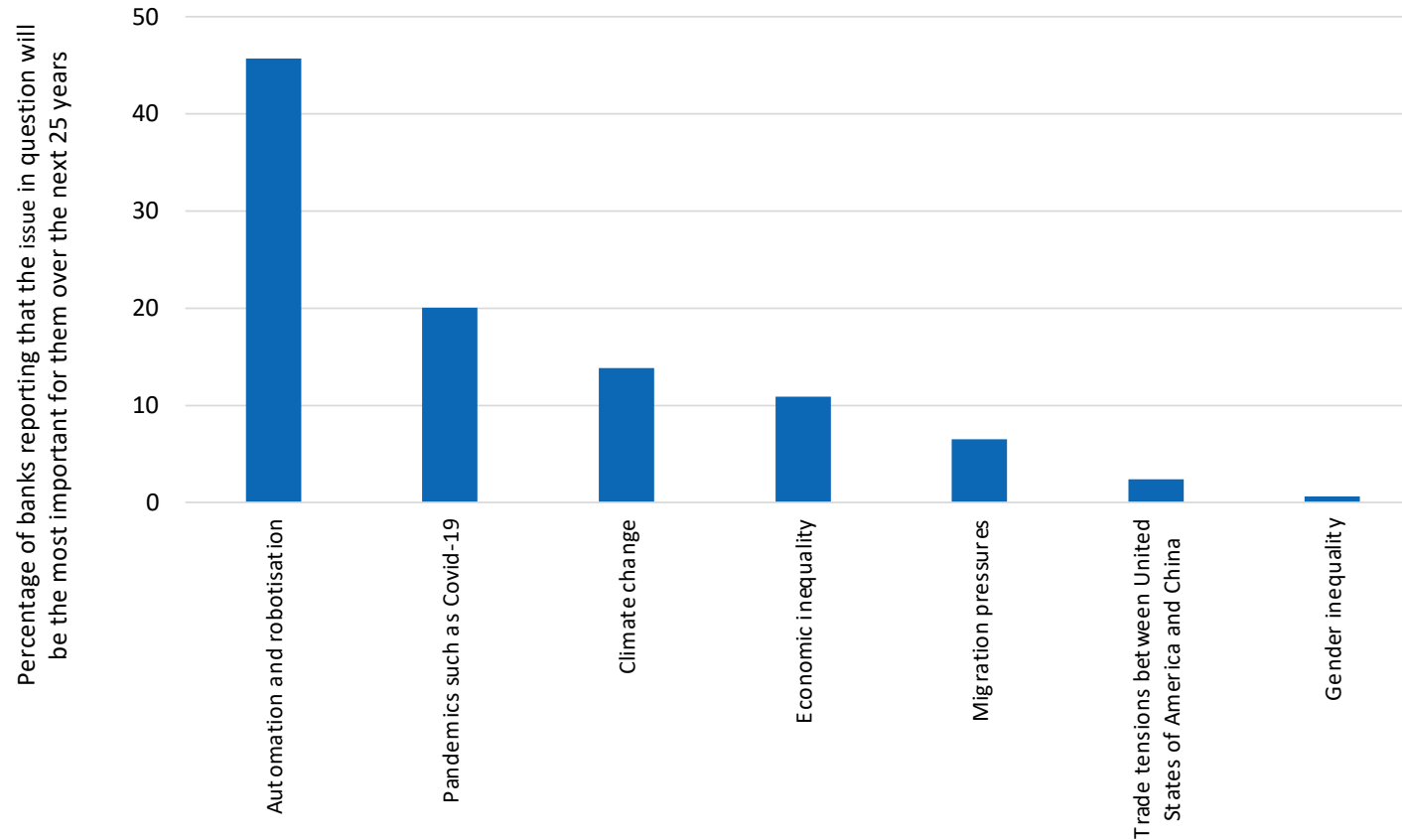
# Large fintech sectors both where banking is highly developed and underdeveloped



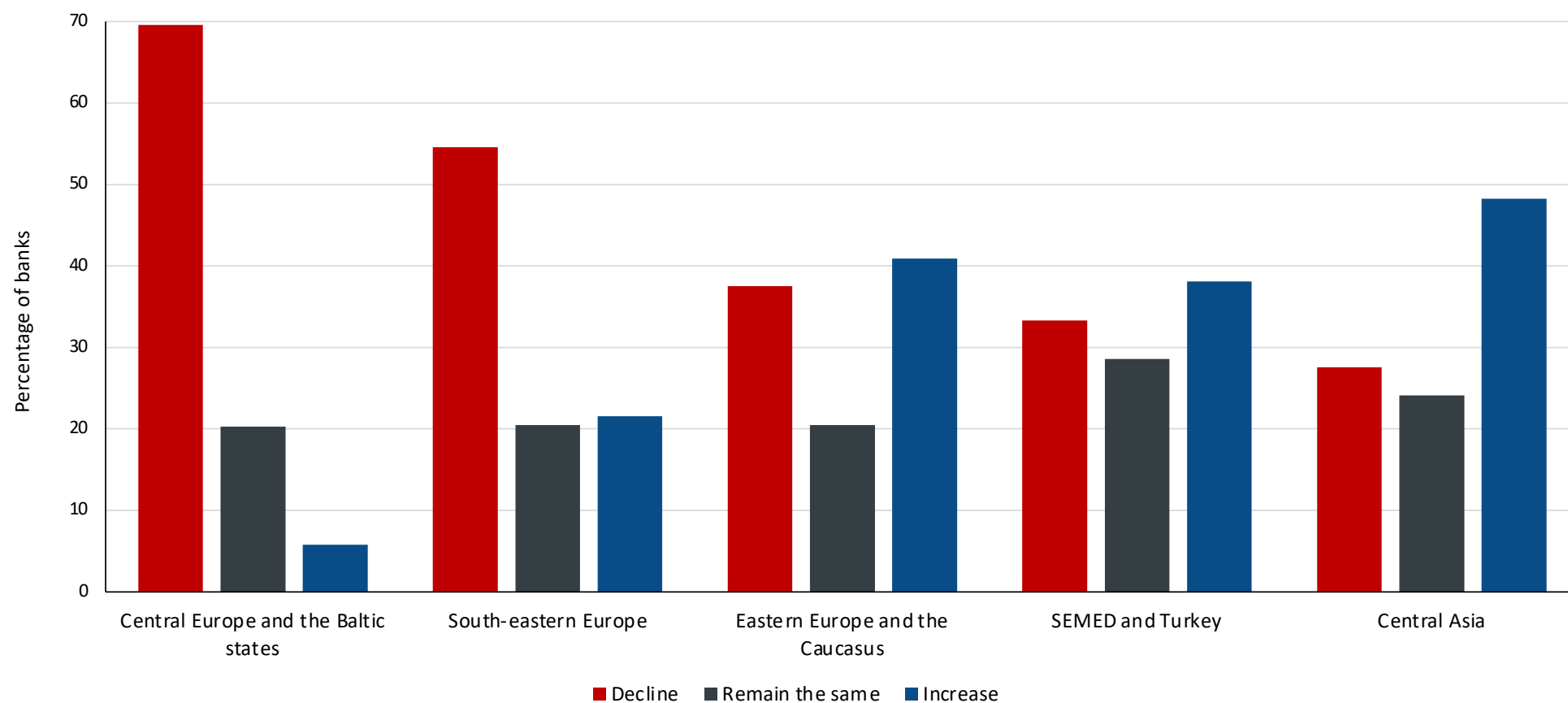
# Fintech lending is far more developed than equity, exacerbating debt bias in the EBRD regions



# Bank CEOs view digitalisation as the biggest challenge they face in coming years



## And respond by expanding online banking services while pruning branch networks



## The dark side of fintech:

### Risks to financial resilience, inclusion, green economy and consumer privacy

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- **Aggravating over-indebtedness** in specific groups: many digital borrowers are repeatedly late with loan repayments, incurring large penalties, caught in a “digital debt spiral”
- Equity concerns: **Algorithms can exacerbate lending biases**, including gender gap
- **Limited privacy protection**: tracking lives in real time
- Network effects create high **market power for the winners**, can eventually reduce competition
- Blockchain “proof of work” is very **energy intensive** – Bitcoin alone may be responsible for 0.06% of global CO<sub>2</sub> emissions; hardware also needs constant replacement
- Digital currencies used by the **underworld** (46% of Bitcoin transactions?)

# Conclusions

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- Large **differences across and within countries** in both digital **infrastructure** and digital **skills**
- Significant **digital brain drain** from the EBRD regions
- Digitalisation has already brought about some **structural changes** in the EBRD regions and **lowered costs** of obtaining information **for SMEs**
- More changes to come, including significant **exposure to potential AI automation**
- **Fintech sector** has grown in economies **with highly developed as well as underdeveloped financial markets . . .** but it is **biased towards debt** (at the expense of equity)

# Acknowledgements

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**Editors:** Ralph de Haas and Alexander Plekhanov

**Chapter 1:** Daniel Diez Alonso, Zsoka Koczan (team leader) and Philipp Paetzold

**Chapter 2:** Cevat Giray Aksoy, Jonas Hjort, Beata Javorcik, Banu Demir Pakel, Han Wang and Nathaniel Young (team leader)

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