

Digital Infrastructure and Services Trade in the CEFTA Region

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Aims and Context

- Aim of paper is to provide exploratory evidence on the effects of digitisation on the economic development of the CEFTA region through the development of services trade using digital platforms.
- First aim is to map the extent of broadband penetration and use in the region
- Second aim is to assess the role of digital infrastructure in explaining the growth of services exports
- Third aim is to explore the barriers to providing services exports directly through e-commerce
- Analysis is relevant to current policy initiatives such as the Berlin process which emphasises on digital integration within a Regional Economic Area



Presentation overview

- Previous research
- Development of digital infrastructure in CEFTA in figures
- Internet access and international trade in services in CEFTA - exploring the relationship
- Conclusions



1. General Issues
2. Internet connectivity and economic growth
3. Internet connectivity and international trade

PREVIOUS RESEARCH

Previous research – general issues

- Internet promotes services trade as it reduces the need for face-to-face contact
 - Distance becomes less important constraint to trade reducing “gravity effects”
 - Friedman (2005) coined the term “flat world” where distance no longer matters for trade
- Internet use reduces transaction costs of search, replication, transportation, tracking & verification (Goldfarb & Tucker, 2019)
- Advances in digital printing will eliminate the need for transportation of components



Previous research - Internet connectivity and economic growth

- Qiang & Rossotto (2009) found a 10% increase in “penetration rate” of broadband leads to an increase of 1.2 percentage points in GDP growth in developed countries and 2.1 p.p. in developing countries (period 1980-2006)
- Koutroumpis (2009) found higher broadband penetration to be associated with greater effectiveness of broadband infrastructure (OECD countries, 2002-2007)
- Czernich et al. (2011) found a 10% increase in broadband penetration rate associated with an increase in growth of GDP per capita of 0.9-1.5 percentage points



Previous research - Internet connectivity and international trade

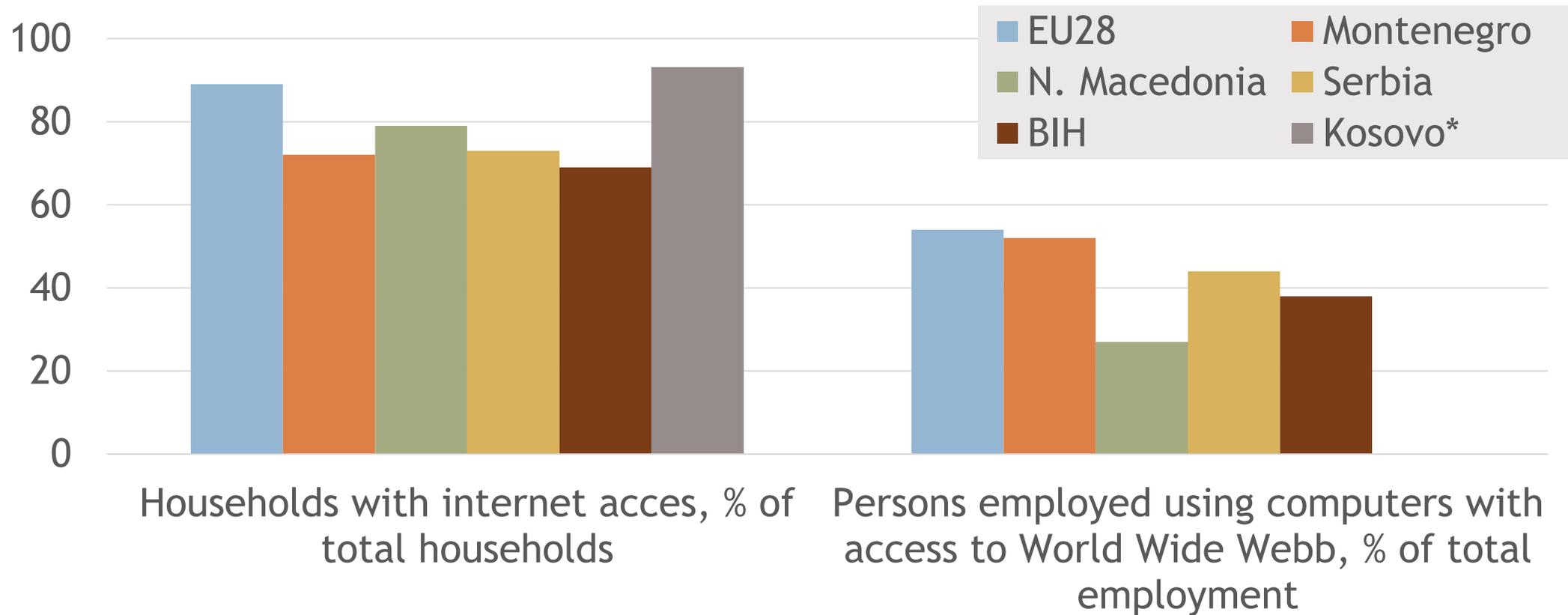
- Liu et al. (2013) found strong evidence that internet subscriptions have a significant positive effects on exports from emerging economies.
- Clarke (2008) found a strong impact of internet access on export performance in low and middle-income countries in Eastern Europe and Central Asia.
- Goswami et al. (2012) found that in developing countries, the growth of services exports is related to the availability of digital infrastructure and the degree of tertiary educational enrolment.



1. Digital infrastructure
2. Usage of infrastructure
3. E-commerce development
4. Skills development

DEVELOPMENT OF DIGITAL INFRASTRUCTURE IN CEFTA

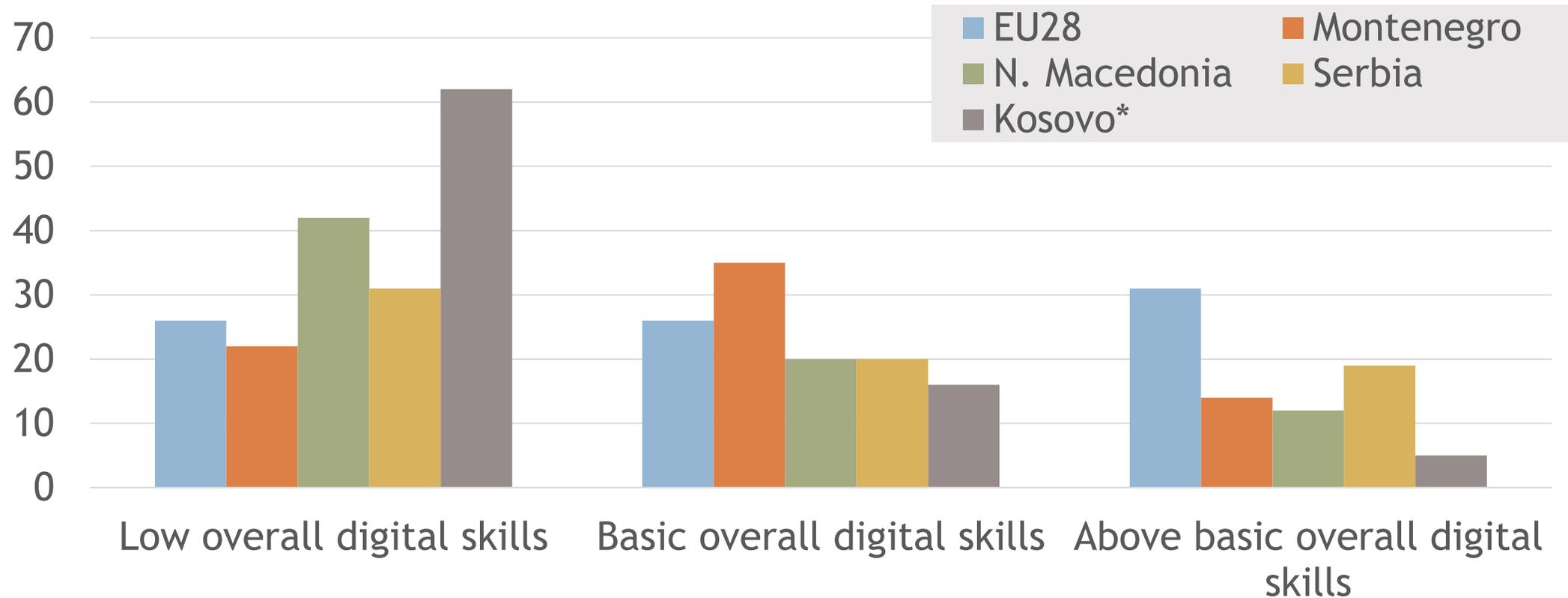
1. Digital infrastructure: Broadband connectivity for households and employees, 2018



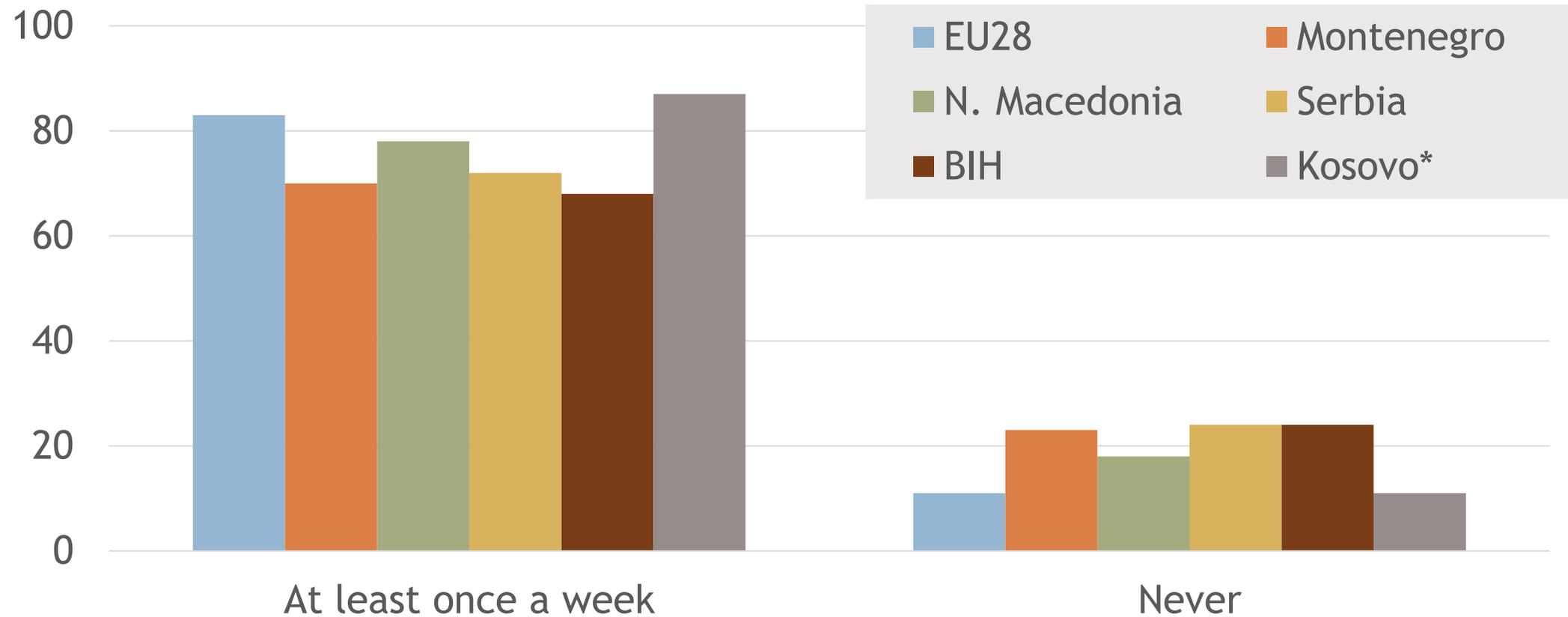
* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.



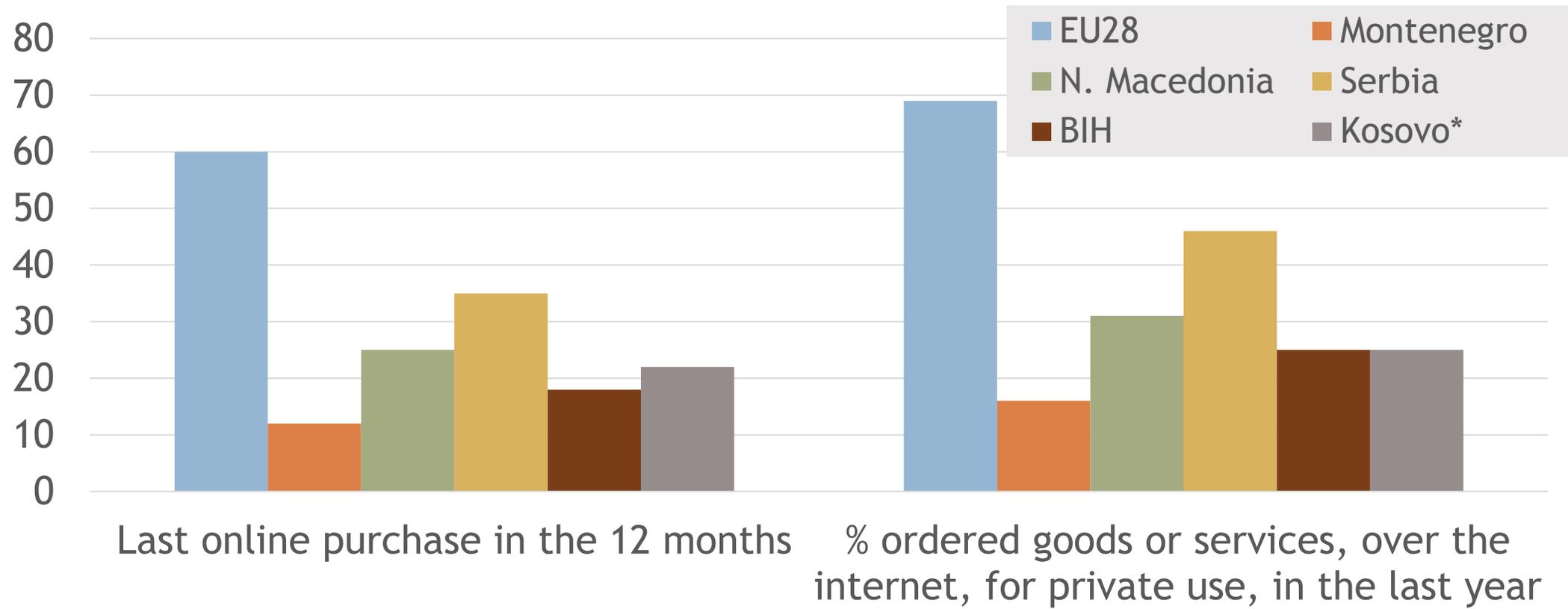
1. Digital infrastructure: Digital skills levels, % individuals, 2017



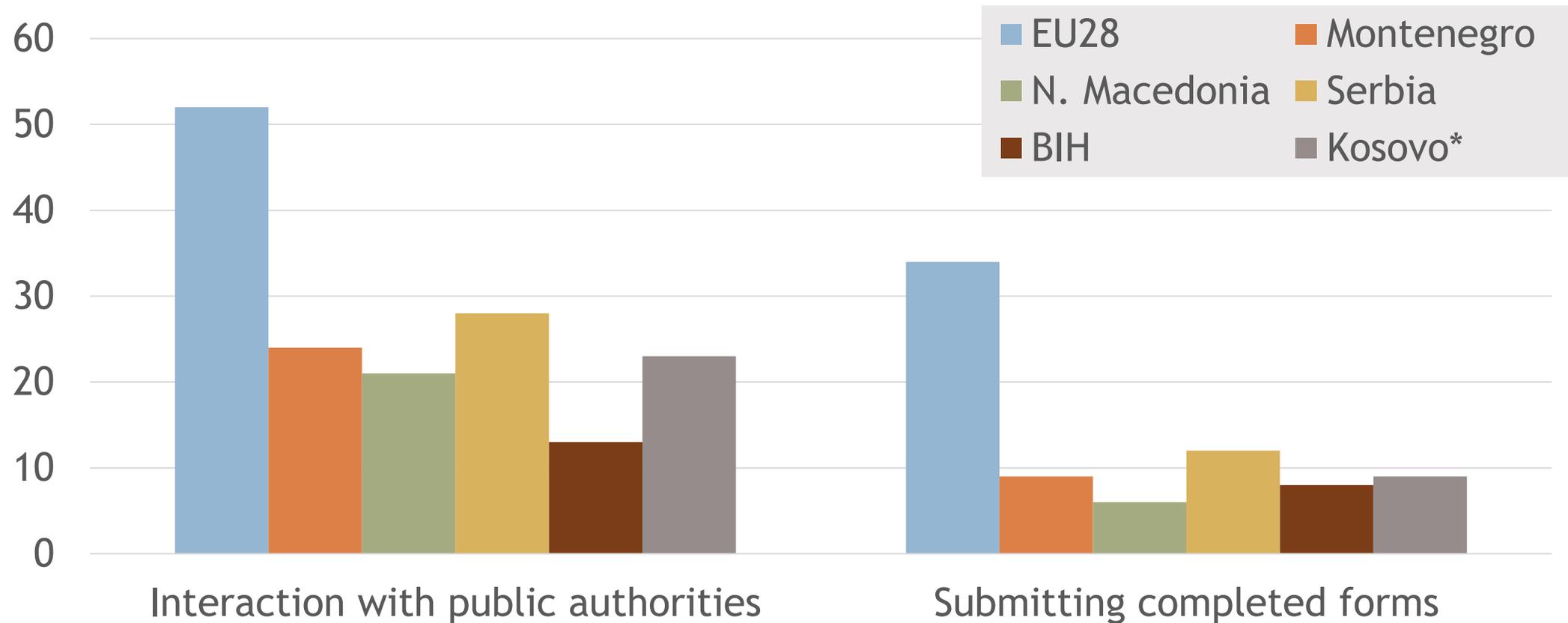
2. Utilisation of digital infrastructure: Internet use by individuals, % individuals, 2018



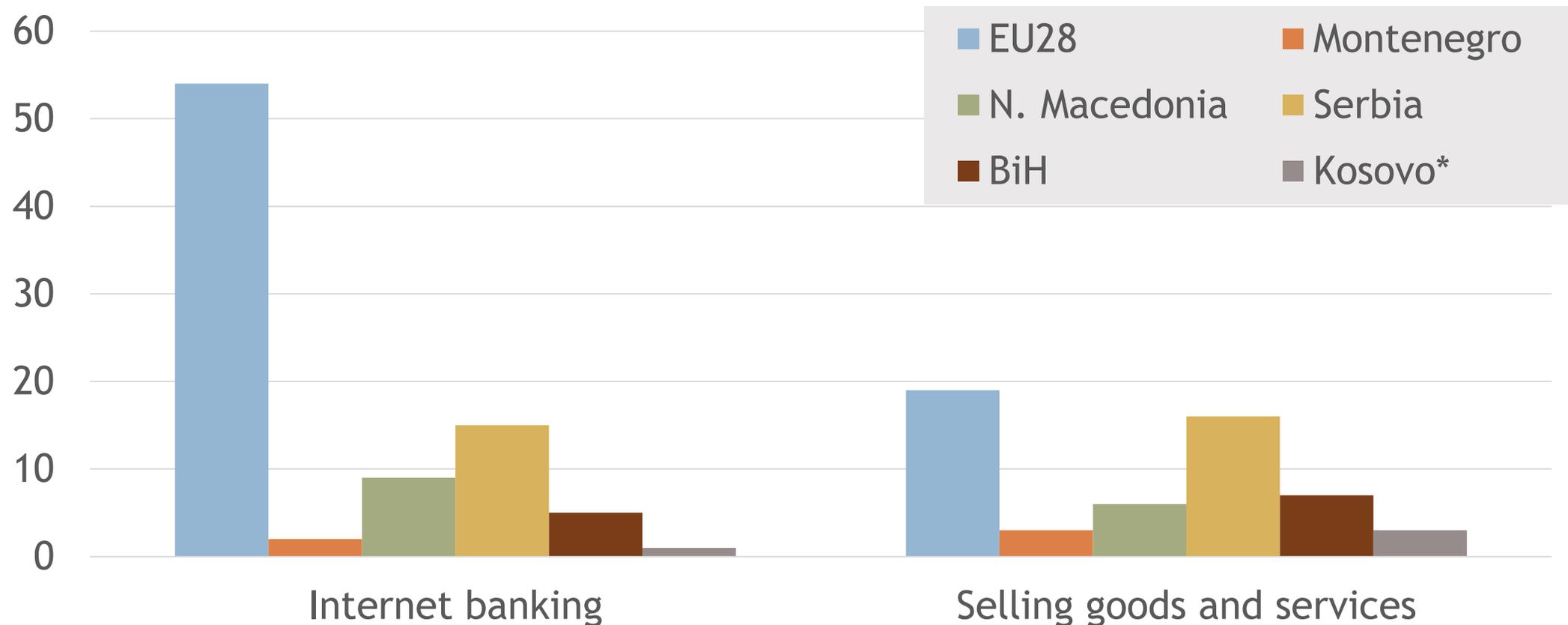
3. E-commerce development: Use by individuals, % individuals, 2018



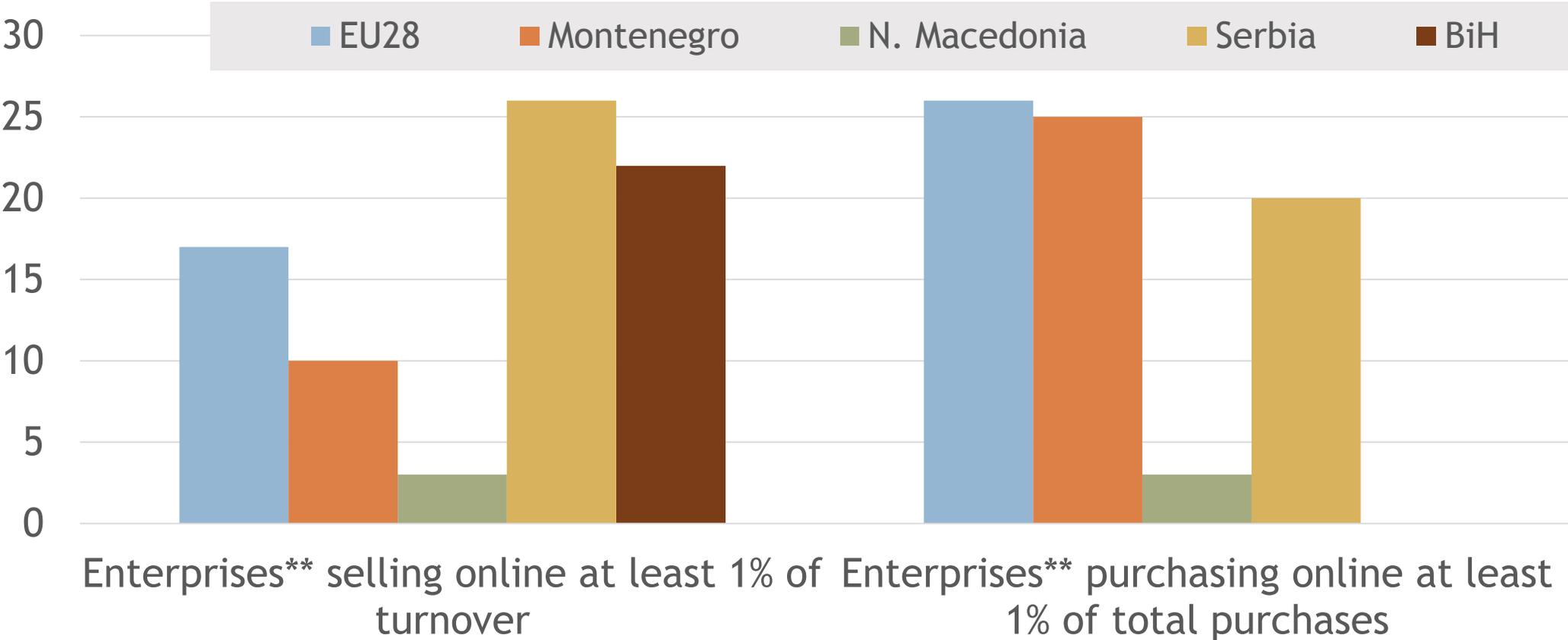
3. E-commerce development: Use of public services, % individuals, 2018



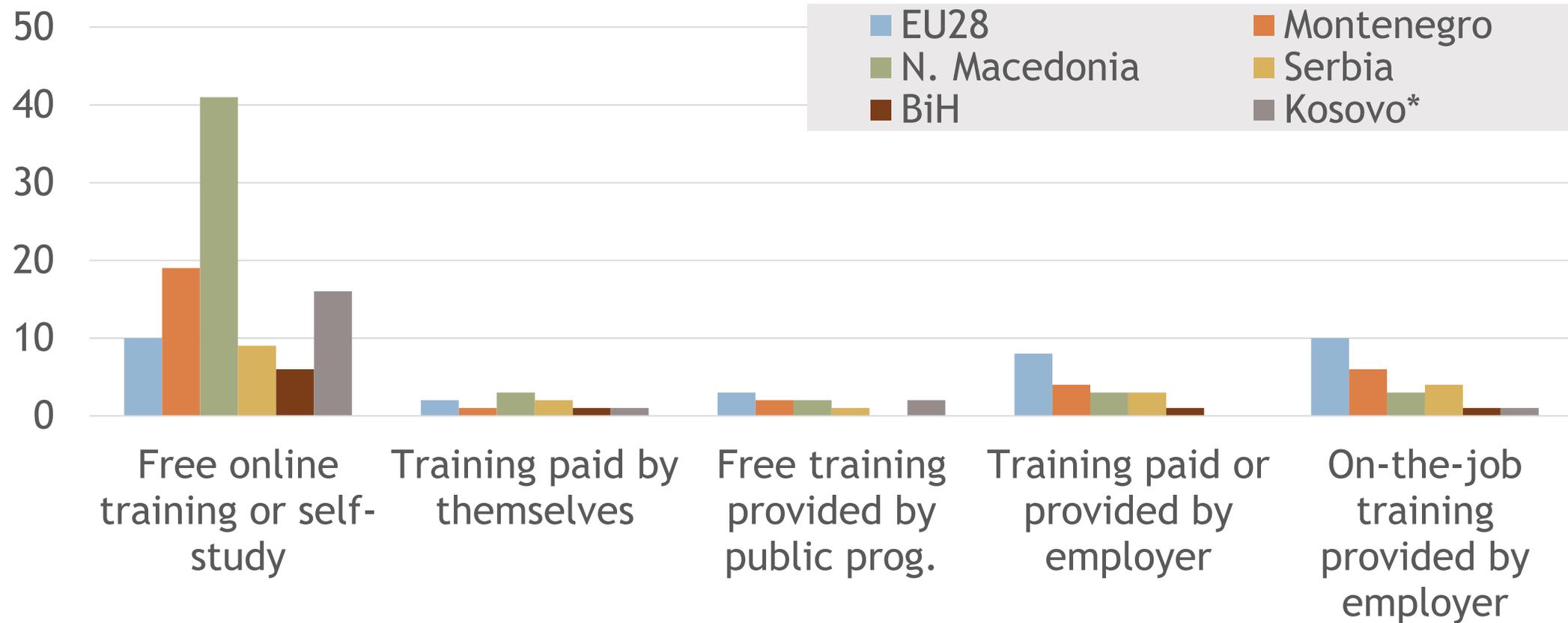
3. E-commerce development: Internet banking and sale of goods and services, % individuals, 2018



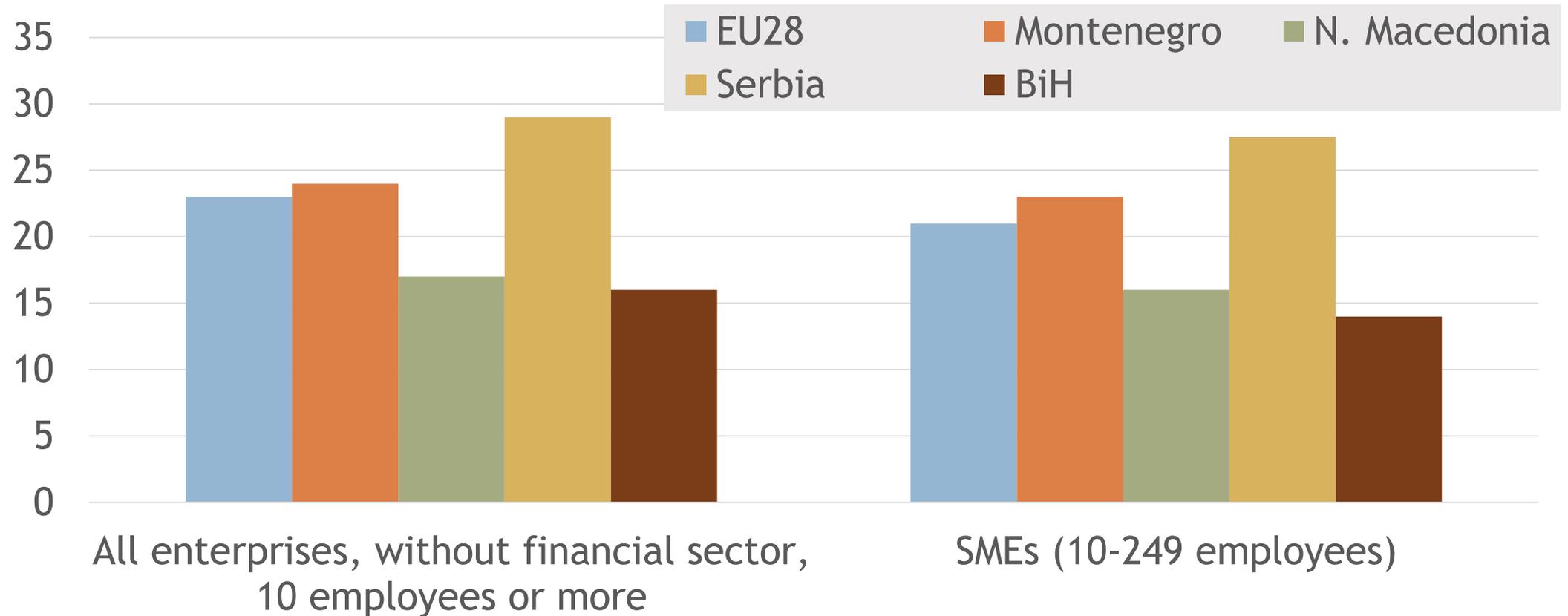
3. E-commerce development: Use of e-commerce by businesses, % enterprises, 2018



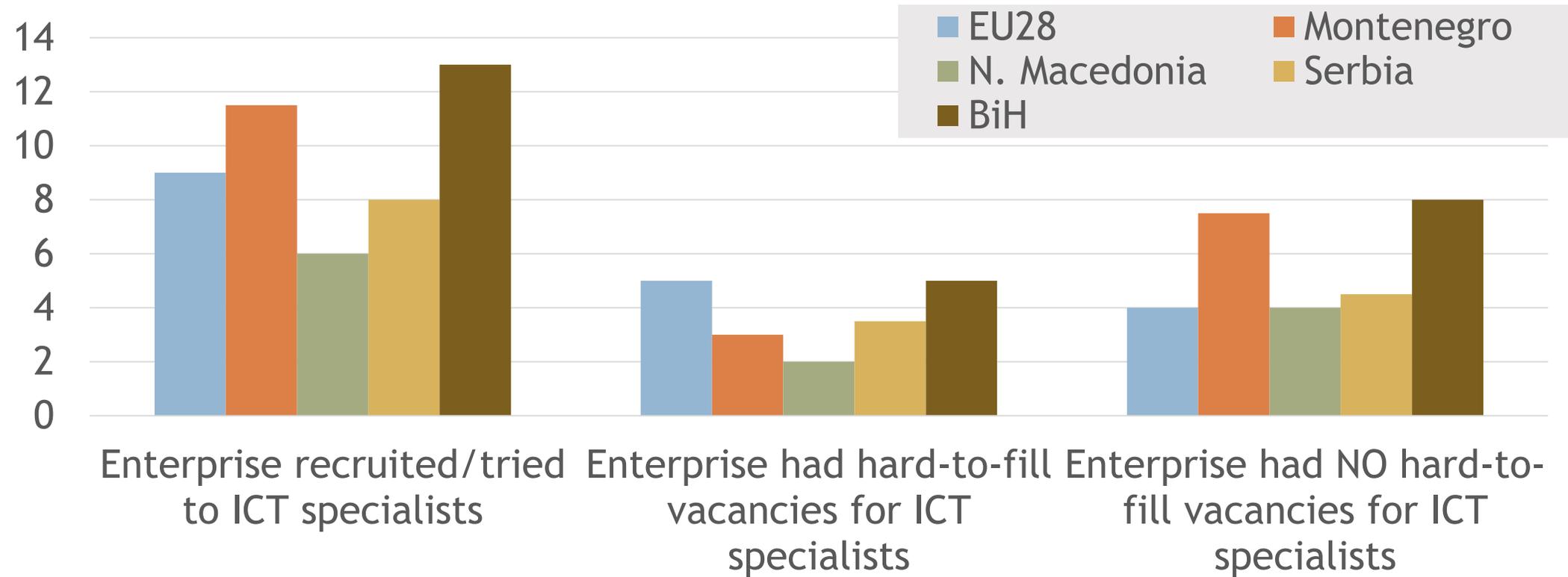
4. Digital skills development: Training for skills relating to the use of computers, software or applications, % individuals, 2018



4. Digital skills development: Enterprises that provided ICT training to their employees, % enterprises, 2018



4. Digital skills development: ICT recruitment, % enterprises, 2018



**INTERNET ACCESS
AND
INTERNATIONAL
TRADE IN
SERVICES**

Growth of services exports in CEFTA region

- Eurostat data show that the economies with the fastest growing services exports are Kosovo* and Serbia (between 2008 and 2018).
- The increase in services exports in Kosovo* and Serbia has been remarkable and has led to an increasing trade surplus in services in both economies.
- In Serbia, the growth in the overall balance of services trade has been most rapid to extra-EU countries
- In Kosovo* the growth of services trade balance has mainly been due to increased exports to the EU



Broadband penetration rate and services exports

- The increase in the broadband penetration rate may be a factor in driving the substantial growth of services exports in Kosovo* and Serbia,
 - while the relatively poor performance of Bosnia and Herzegovina in the service export may be linked to the relatively weak roll-out of broadband services there.
- We use a panel data regression model to explore this relationship in the CEFTA partners for which sufficient data is available,
 - namely Albania, Bosnia and Herzegovina, Montenegro and Serbia.
- Following Goswami, Mattoo and Saez (2012) we also hypothesise that services exports will be higher the greater the amount of human capital proxied by tertiary educated workers in an economy



Model explaining share of services exports in GDP

$$\frac{S_{it}}{GDP_{it}} = \alpha_i + \beta_1 B_{it} + E_{it-n} + \varepsilon_{it}$$

- S_{it} = value of services exports (in country i in year t)
 - GDP_{it} = gross domestic product
 - B_{it} = the penetration rate of broadband contracts per hundred population
 - E_{it-n} = enrolment rate of tertiary students as proportion of population, lagged n years
 - ε_{it} = error term
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- Data taken from Eurostat, ITU and UNESCO



Panel data model, share of services exports in GDP, 2009-2017, (AL, BA, ME, RS)

	Model 1 - 3yr lag		Model 2 - 4yr lag	
	Coefficient	t-stat	Coefficient	t-stat
Broadband penetration rate	0.44***	6.44	0.50***	7.67
Graduate enrolment rate (lag 3)	1.34***	4.47		
Graduate enrolment rate (lag 4)			1.45***	5.50
Constant	6.48***	4.12	5.05***	3.30
N	33		32	
R2 (overall)	0.079		0.036	
F	26.57 (0.00)		34.75(0.00)	



Results of analysis

- The results of the econometric analysis show:
- An increase of 1 percentage point in broadband penetration rate is associated with an increase in 0.44-0.50 percentage points in services exports as a proportion of GDP
- An increase of 1 percentage point in human capital as proxied by lagged tertiary enrolment is associated with an increase in 1.3-1.5 percentage points in services exports as a proportion of GDP



Geo-blocking

- If the internet leads to the “death of distance” a regulatory response may be triggered through the mechanism of geo-blocking, restricting consumer access to internet purchases in order to protect local producers.
- Access to certain websites can be blocked, leading to differences in internet access in different countries.
- A recent European Commission survey found that even in the EU, about 37% of potential cross-border internet purchases were unsuccessful due to geo-blocking of payments (European Commission, 2017).
- It was estimated that removing geo-blocking could yield enormous benefits in increased cross-border trade, and effect that is likely to be applicable to the CEFTA partners.



Conclusions

- Services exports have been increasing rapidly throughout the region especially in Serbia and Kosovo*
 - In Serbia more oriented to extra-EU (start-ups), in Kosovo* more oriented to EU (call centres)
- Broadband has been rolled out widely but mostly still less than in EU
- Usage of broadband for e-commerce and internet skills lag far behind EU
- Significant relationship has been demonstrated between broadband penetration rate and growth of services exports
- However, there are numerous barriers to the use of internet connectivity including long delivery times, concerns over security of payments, and lack of trust in ability to receive or return goods ordered over the internet
- Geoblocking is a particular concern, as in the EU more generally



Thank you for your attention!

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