

Pavlo Iavorskyi, Kyiv School of Economics
Svitlana Taran, Kyiv School of Economics
Oleksandr Shepotylo, Aston
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Ukraine's Integration into the EU's Digital Single Market

This brief is based on a study that investigates how Ukraine's integration into the EU Digital Single Market (DSM) could affect EU-Ukraine bilateral trade as well as Ukraine's GDP growth. The major benefits of integration are expected to come from 1) reduction of cross-border regulatory barriers and restrictions to EU-Ukraine digital trade 2) acceleration of the development of Ukraine's digital economy in line with EU standards. According to the results, enhanced regulatory and digital connectivity between Ukraine and the EU is expected to increase Ukraine's exports of goods and services to the EU by 11.8-17% and 7.6-12.2% respectively. At the same time, the acceleration of the digital transformation of the Ukrainian economy and society will produce a positive effect on its productivity and economic growth - a 1%-increase in the digitalization of the Ukrainian economy and society may lead to an increase in its GDP by 0.42%.



Background

Integration into the EU has been one of the key topics on Ukraine's political agenda for a number of years. Recently, more emphasis has been put on an essential component of issue - integration into the EU's Digital Single Market (DSM). The DSM is a strategy aimed at uniting and enhancing digital markets and applying common approaches and standards in the digital sphere across the EU. The Ukraine-EU Summit, held on October 6, 2020, stressed the paramount importance of the digital sector in boosting its economic integration and regulatory approximation under the EU-Ukraine Association Agreement. Implementation of the provisions of this agreement, in particular the updated Annex XVII-3, would introduce the latest EU standards in the field of electronic communications in Ukraine. The country is also gradually approximating its regulations with regard to other components of the EU DSM – electronic identification, electronic payments and e-payment systems, e-commerce, protection of intellectual property rights on the Internet, cybersecurity, protection of personal data, e-government, postal services, etc. These steps will, in turn, ensure Ukraine's gradual integration into the EU's Digital Single Market, which will facilitate digital transformations within the country and open a new window of opportunity for individuals and businesses.

This brief summarizes the results of our recent work (Iavorskyi, P., et al., 2020), in which we estimate the effect that Ukraine's integration into DSM could have on EU-Ukraine bilateral trade as well as Ukraine's GDP growth.

Benefits of Integration into the EU DSM

The EU DSM strategy comprises three pillars: (1) better access for consumers and businesses to digital goods and services across Europe; (2) creating the right conditions and a level playing field for digital networks and innovative services

to flourish; (3) maximizing the growth potential of the digital economy (EC, 2021).

These goals suggest that the major benefits of Ukraine's integration into the DSM are likely to come from 1) reduction of cross-border regulatory barriers and restrictions to EU-Ukraine trade, 2) acceleration of the development of Ukraine's digital economy in line with EU standards.

Indeed, the trade of goods and services is increasingly becoming “digital” - i.e., involving “digitally enabled transactions in goods and services that can be either digitally or physically delivered” (OECD, 2019). Trade digitalization (e.g., electronic contracts, electronic payments, e-customs, etc.) simplifies export and import procedures, reduces trade costs for exporters, and creates new opportunities for trade with the EU, in particular for SMEs. Therefore, the reduction of regulatory restrictions on cross-border digital trade reduces the overall level of restrictiveness of trade in goods and services.

Thus, digitalization is expected to facilitate and intensify the total EU-Ukraine trade in goods and services. It is also anticipated to increase the productivity of Ukraine's economy which will have a positive impact on the country's economic growth.

Major benefits include lower prices and greater access to EU online markets for Ukrainian consumers and business, digital innovative products and services, greater online consumer protection, lower transaction costs for businesses, improved quality and transparency of public digital services and e-government as well as an intensification of innovation development in Ukraine.

At the same time, Ukraine's integration into the DSM entails several obligations: to align national legislation and standards with EU legislation and standards; to ensure institutional and technical capacity as well as interoperability of digital systems. For businesses in Ukraine, this means facing new EU requirements aimed at improving consumer and personal data protection, as well as



increased competition from European companies in digital markets. However, these changes are necessary if the country wants to build a common economic space with the EU, especially given the growing impact of digital technologies on international trade and economy.

Ukraine in International Digital Rankings

Many international digital development rankings show that Ukraine lags behind EU countries, including its neighbors that recently joined the EU.

According to the UN e-Government Development Index (EGDI) for 2020, Ukraine ranks 69th among 193 countries and is included in the group of countries with high levels of e-government development. It received the lowest scores for Telecommunications Infrastructure and Online Services, and the highest for Human Capital. Nevertheless, Ukraine is lagging behind its neighboring EU members, - Poland, Hungary, Slovakia, Romania, Bulgaria, Lithuania, etc., - which belong to the group of countries with very high levels of e-government development (UN, 2020).

In the Network Readiness Index (NRI) ranking for 2019, Ukraine ranked 67th among 121 countries. As for the components of the index, Ukraine ranks worst in the following indicators: Future technologies (82nd out of 121), ICT Use by Government and Online Government Services (87th), and Regulatory Environment (72nd). Neighboring EU countries have higher rankings (Poland – 37, Latvia – 39, Czech Republic – 30, Croatia – 44). Other neighboring countries do somewhat better than Ukraine (Turkey is ranked 51st, Russia – 48th) or occupy positions close to Ukraine (Belarus – 61, Moldova – 66, Georgia – 68) (Portulans Institute, 2019).

In 2019, the country ranked 60th among 63 countries included in the World Digital Competitiveness Ranking (WDCR) rating. Just as in the other rankings, Ukraine scored well in the

Knowledge component (40th among 63 countries), while in terms of Technology and Future Readiness it was at the bottom (61st and 62nd position respectively) (IMD, 2019).

Hence, it is primarily the technological and regulatory issues, that need to be addressed in order to improve Ukraine's digital position in the region and the world.

Methodology

Measuring Ukraine's Digitalization level

In order to estimate the impact of digitalization, a Composite Digitalization Index is calculated for Ukraine, the EU, and other countries included in the model. This index is based on 11 digital indicators, combined into five components that characterize different areas of the digital economy and society – Connectivity, Use of the Internet by citizens, Human capital, Integration of digital technology by businesses, and Digital public services.

Our results confirm that the level of digital development in Ukraine is far below the EU average. It also lags behind the new EU Member States, which have a lower level of digital development compared to the other EU countries. As of 2018, the widest gaps between Ukraine and the EU average are found in Digital Public Services, Connectivity and Use of Internet by citizens. At the same time, Ukraine performed better in Human Capital and Integration of digital technology by businesses.

Measuring Digital Services Trade Restrictiveness in Ukraine

To assess the impact of digital regulatory barriers on trade, we use the Digital Services Trade Restrictiveness Index (Digital STRI) (OECD, 2020). It quantifies the regulatory barriers in five different policy areas (communication infrastructure, electronic transactions, electronic payments, intellectual property, other restrictions) that affect trade in digital services (Ferencz, J., 2019). OECD calculates Digital STRI for OECD



countries and some non-OECD countries. As Ukraine is not included in this index, we estimate it for 2016-2018 using the OECD methodology.

Our estimations show that the level of digital services trade restrictiveness in Ukraine is much higher than the EU average. The regulatory differences in the digital sphere between Ukraine and the EU increase the cost of cross-border digital transactions between countries.

For Ukraine, most barriers are related to cross-border electronic payments and settlements, protection of intellectual property rights on the internet, cross-border electronic transactions (for example, the divergence of the national requirements for foreign trade agreements, including electronic ones, from international practices and standards, lack of practical mechanisms for the application of the electronic digital signature in foreign trade contracts, lack of mutual recognition of electronic identification and electronic trust services between Ukraine and major trading partners, etc.), other barriers (requirements for the use of local software and cryptography, etc.). These regulatory restrictions significantly hinder the development of cross-border cooperation and Ukraine's integration into the European and global digital space.

Ukraine's integration scenarios

In the event of Ukraine's integration into the EU DSM, the country's regulatory environment and digital development are expected to gradually approach the EU averages. We model it through assuming that the regulatory differences between Ukraine and the EU (captured by the Digital STRI Heterogeneity Indices - see OECD, 2020) will be decreasing, and level of digitalization in the country (captured by the Digitalization Index – OECD, 2020) will converge towards that of EU-DSM members.

We considered three integration scenarios that imply high, medium, and low levels of Ukraine's approximation to the regulatory environment and digital development of the EU. For instance, the high scenario implies the highest level of

Ukraine's digital development and the lowest level of regulatory differences between Ukraine and the EU.

Models

We study the effect of reduced regulatory differences in the digital sphere on Ukraine-EU trade using a gravity model - one of the traditional approaches in the international trade literature. A gravity model predicts bilateral trade flows based on the size of the economy and trade costs between countries (affected by distance, cultural differences, FTAs, tariffs, etc.)

The study uses the following specification of the model for exports of goods and services in 2016-2018:

- Dependent variable – the total export flow of goods and services from country into country j (all possible pairs of countries).
- Independent variables – distance between countries and common characteristics (borders, language, law), existence of a free trade agreement, level of tariff protection (for goods), level of regulatory heterogeneity in the digital sphere between the two countries, and a set of fixed effects for each country.

We also estimate how digital development affects technical modernization, productivity, and economic growth. Technically, we use a Cobb-Douglas production function to describe each country's output and model its total factor productivity component as a function of digital development (captured by the Digitalization index).

Results

The results suggest that Ukraine's integration into the EU DSM will be beneficial for both Ukraine and the EU. Under all integration scenarios, bilateral trade between Ukraine and the EU is expected to intensify considerably due to enhanced regulatory and digital connectivity between the two.



Ukraine's total exports of goods and services to the EU are estimated to grow by 11.8-17% (\$2.4-3.4 billion) and 7.6-12.2% (\$302.5-485.5 million), respectively – a cumulative increase throughout the period of implementation of reforms aimed at regulatory and digital approximation of Ukraine to the EU.

The EU would increase its exports of goods and services to Ukraine by 17.7-21.7% (\$4.1-5 billion) and 5.7-9.1% (\$191-305 million), respectively.

The acceleration of Ukraine's digital development will bring productivity gains that would transform into higher GDP growth. It is estimated that a 1% increase in Ukraine's digitalization level is expected to raise its GDP by 0.42%. As a result, the country's gradual approximation to EU levels of digitalization would result in additional Ukraine's GDP growth of 2.4-12.1% (\$3.1-15.8 billion), depending on the scenario.

Conclusion

According to our estimations, improved digitalization and reduction of regulatory barriers in the digital sphere between Ukraine and the EU will have a positive effect on trade for both Ukraine and the EU. There is also a significant potential for economic growth to be attained in Ukraine by increasing digitalization and productivity of various spheres of the economy and society.

Realization of this potential would, however, require a substantial regulatory approximation on the Ukrainian side to achieve alignment with the EU DSM. The main emphasis needs to be put on electronic identification and transactions, payment systems and electronic payments, protection of intellectual property rights on the internet, cybersecurity, and personal data protection.

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Svitlana Taran

Researcher, Kyiv School of Economics
www.kse.ua
staran@kse.org.ua

Svitlana Taran holds an MA in Economics from Economic Education and Research Consortium (EERC) / Kyiv School of Economics. She has more than 10 years of experience as an analyst and consultant on international trade, trade policy, non-tariff barriers to trade, European integration and WTO regulations.

In 2016-2018, Svitlana worked in the Office of the Deputy Prime Minister for European and Euro-Atlantic Integration of Ukraine. In 2018-2019, she completed the Hubert H. Humphrey Fellowship Program in Economic Development at Boston University.

Research fields: International trade, Trade policy, European integration, Transition Economics



Pavlo Iavorskyi

Research Associate, KEI
www.kse.ua
piavorskyi@kse.org.ua

Pavlo Iavorskyi is a Research Associate and Teaching Fellow at Kyiv School of Economics. He obtained Master's degree in Economics at University of Houston in 2011.

He was involved as a researcher and project manager in various policy projects in fields of international trade, public finance and public procurement, public health and tobacco control, anti-corruption and SME development, decentralization and local development.

Research fields: International trade, Labor Economics, Health economics.





Oleksander Sheptylo

Lecturer, Aston Business School
o.shepotylo@aston.ac.uk
<https://www2.aston.ac.uk/>

Oleksandr Shepotylo is a lecturer in Economics at Aston Business School, UK. He previously worked at DEC RG Trade Unit at the World Bank, Kyiv School of Economics, and the Higher School of Economics. He received a PhD in Economics at the University of Maryland at College Park in 2006.

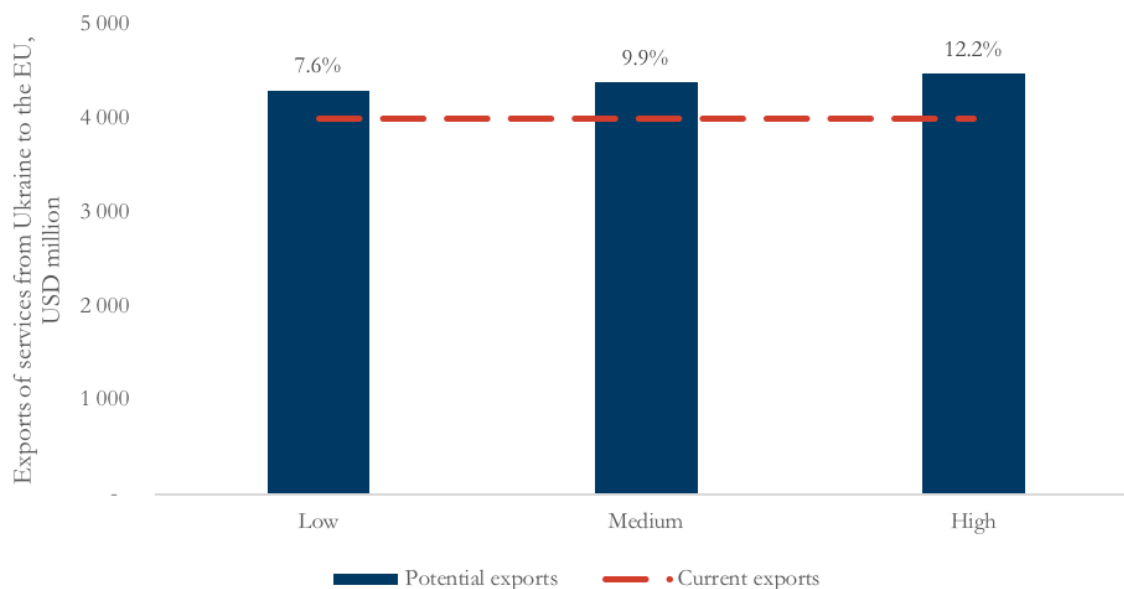
Oleksandr works in the field of international economics. He has extensive experience measuring and quantifying non-tariff measures and analysing trade policy impacts, advising governments about effects of trade policy decisions in developing economies; more than 15 years of professional experience in statistical analysis of trade, both of WTO accession and regional trade agreements, extensive experience of economic modelling in Eastern Europe and former Soviet Union countries.

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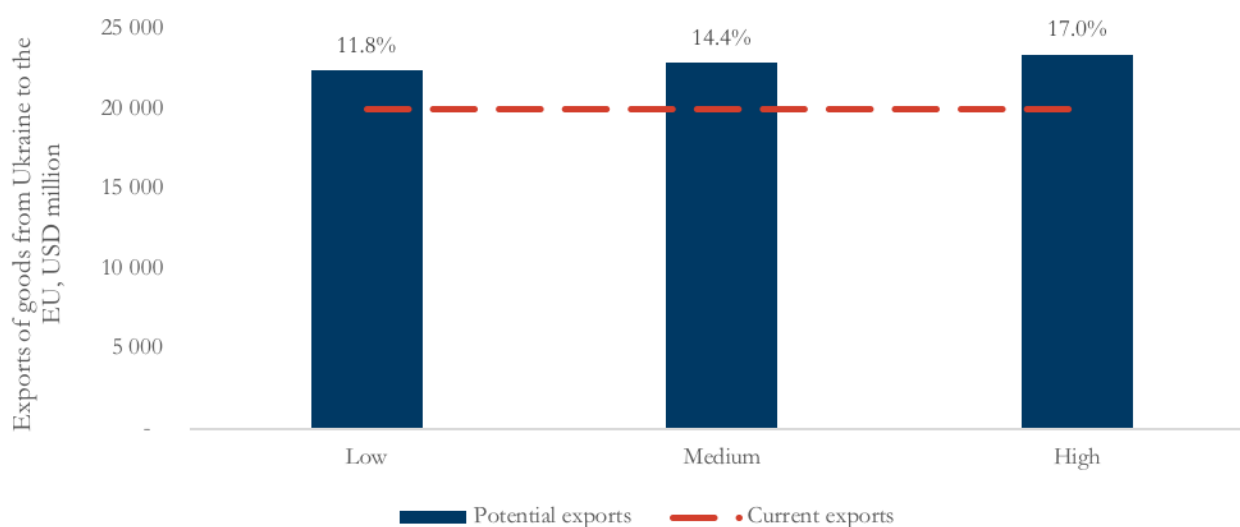
Appendix

Figure 1. The impact of Ukraine's integration into the EU's DSM on the exports of services from Ukraine to the EU*: three integration scenarios



Source: Authors' own calculations. The current level of Ukraine's exports of services to the EU – as of 2018

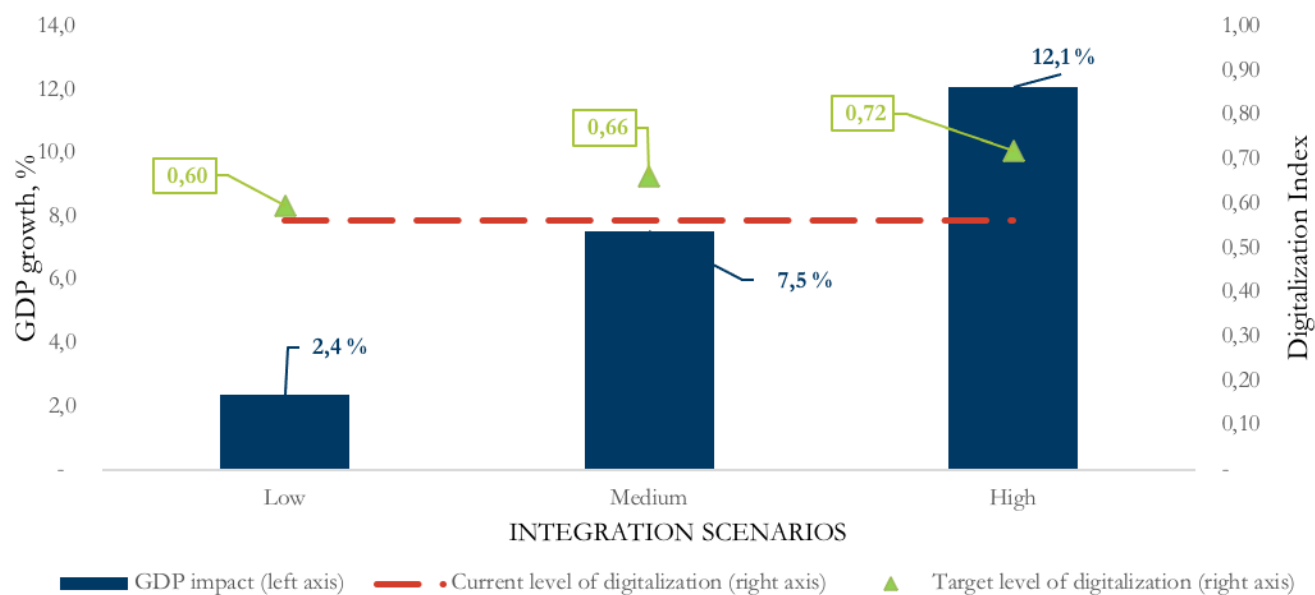
Figure 2. The impact of Ukraine's integration into the EU's DSM on exports of goods from Ukraine to the EU*: three integration scenarios



Source: Authors' own calculations. The current level of exports of Ukrainian goods to the EU as of 2018



Figure 3. Impact of digitalization on Ukraine's GDP growth: three digitalization increase scenarios



Source: own calculations. The left axis – GDP growth (%), the right axis – the level of digitalization. The current level of digitalization of Ukraine as of 2018.