№ 4/20 2019

Trade policy

Торговая политика

ВЫСШАЯ ШКОЛА ЭКОНОМИКИ
НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ

Institute of Trade Policy

№ 4/20 2019

Trade policy

Торговая политика

HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY
Institute of Trade Policy

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C. Pauletto[1]

IN PLACE OF A FOREWORD: Russian Panelists Debating at the WTO Public Forum 2019 on Multilateralism and Digitalization

The Institute of Trade Policy, National Research University Higher School of Economics (HSE) had a memorable day in Geneva last October. Every year, the World Trade Organization holds in its Geneva headquarters an international public forum. The 2019 edition was entitled "Trading Forward: Adapting to a Changing World", including a specific dedicated theme called "the next generation — what do Millennials & Gen Z want to see from global trade". So, on 10 October 2019, in a meeting room with a nice view on the Lake of Geneva, a panel of Russian speakers presented their views on "Multilateralism - Expectations from the new generation" in a fully-packed room, where some of the audience was standing on the back of the room and several even behind the panel. The four panelists were Prof. Aleksandr Daniltsev and Prof. Maxim Medvedkov, of the Institute of Trade Policy, National Research University Higher School of Economics (HSE), Alexandra Mochalova, Consultant with the Department for Trade Negotiations, Ministry of Economic Development of the Russian Federation and Daniil Orlov, Master's candidate at the World Trade Institute, University of Bern. The moderation was ensured by Prof. Christian Pauletto of the International University in Geneva.

Key words: *blockchain, digitalization, internet of things, multilateralism, trade in services.*

JEL F13 L81 **doi:10.17323/2499-9415-2019-4-20-7-15**

Introduction

Scope

The presentations touched on many mind-boggling questions. Will digital reality overtake the "physical world"? Will distance learning, distance medicine, distance finance, distance management substitute current methods of commerce? What

1 Christian Pauletto – Professor, International University in Geneva (IUG), Switzerland. E-mail: <cpauletto@iun.ch>.

new realities next-generations of experts and politicians face? What will we trade in? Will it be exchange of objects, thoughts or feelings and emotion? Will the WTO be able to overcome obstacles and assume its role as the central pillar of the world trading system? What do we, as the global community, have to do to ensure the bright future of the multilateral trading system? How can experts address the major challenges to trade and multilateralism?

Future role of trade rules

Speaking first, Prof. Daniltsev explained the current state of play and starting point. He depicted a "new and dramatic era" entailing dramatic changes in technology, business and trade. Much is still unknown, he said, governments do not even agree if digital products should be considered as goods or as services. Many things will change, unavoidably, but the main trust of trade policies will remain. New instruments of protectionism will replace the old ones: as border tariffs and quota will become unsuitable and ineffective to protect a country's market, they will give way to so-called "behind-the-border" measures. Against this background the main principles of the rule-based multilateral trading system will be more important than ever, and must be preserved. The main principles are non-discrimination, transparency and openness. The task of the new generation of policy-makers will be to find ways to implement these principles in the new technological environment (see Fig. 1). Prof Daniltsev expressed his hopes that in doing so the next generation will resist the temptation to be conservative.

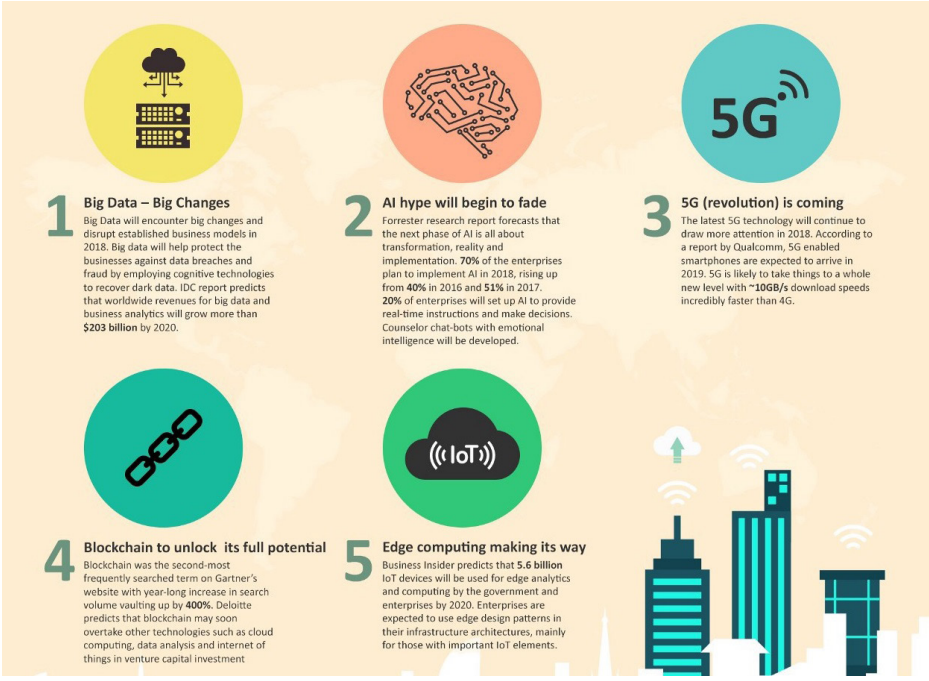

Figure 1. Top digital transformation trends

Source: [1].

Latest technological advances

Alexandra Mochalova followed-up on that by providing to the public a glance into the future. Trade is subject to constant transformation, she noted. Old-days computer used to take the size of a room, and now they can be in your hand. Fixed desk devices were replaced by portable and mobile ones. Digital platforms, internet-enabled services, Internet of Things, blockchain will shape and alter trade flows and economics of production. Advanced robotics, Artificial intelligence (AI) and digital reality will overtake the physical world (see Fig. 2).

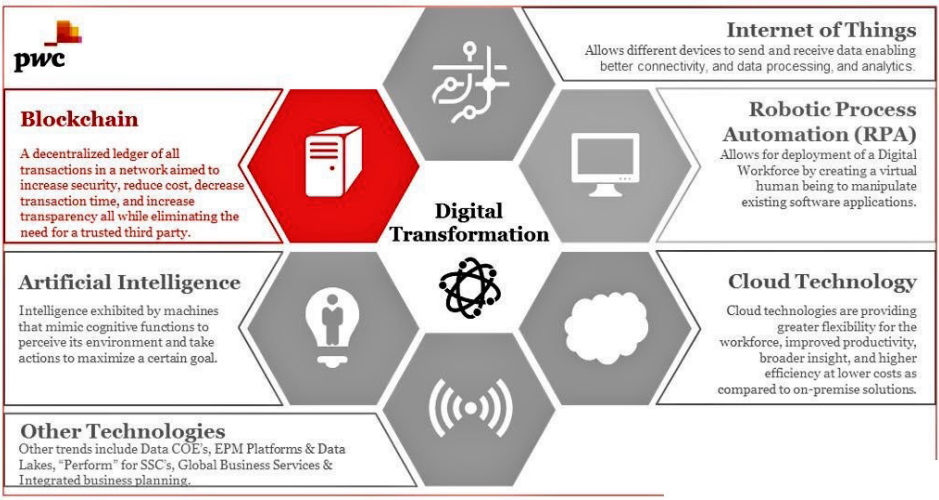

Figure 2. New technological products.

Source: [2].

The future will be packed with robots that (or who) will replace human workers: cleaners, butlers, chefs, waiters, but also bankers and lawyers. Because with more advanced technologies, robots will "compete" not only with manual and repetitive tasks, but also with complex jobs. Virtual reality and augmented reality will open the way for new services, and new ways to supply services. For example, they will transform the tourism and leisure industry and the transport and logistics sector. Air taxis, rockets and commercial space transport will be part of our life as much as space tourism and space hotels.

Three-dimensional printing will revolutionize the directions of trade. With 3D everyone can become the manufacturer of one's own cloth, at home. Car industry will be transformed because car components will no longer be imported but produced on-site, with imported raw material such as iron, aluminum or plastics. International shipping will shrink, while the exchange of data will boom exponentially. This will transform all global value chains. "Hi, am I talking to a human or a machine?" Soon this question will sound normal. 3D printing will allow to produce body parts anywhere and spur human engineering, while human-machine

interfaces and nano-implantation of chips in the body will allow direct interaction with machines. Translating software will eliminate language barriers while machines will act as surrogates for humans. How will that affect the global economy?

Information sharing will be pervasive. In a world of connectivity of everything with everything, any movement of your finger will rely on data sharing, even pressing on the button of your coffee machine. Most of that data sharing would occur across border. Physical borders will disappear and the concept of distance will be eroded. As a result, competitiveness between nations will be redefined, and will depend on data, AI and knowledge. Companies and countries that have AI and virtual reality will be competitive. Will the WTO become virtual? No. The rule-based trading system will continue to matter, in order to provide a level playing field for all nations. The principles named by Prof Daniltsev of non-discrimination, openness and transparency will gain even more importance.

WTO regulatory framework

The WTO was precisely the topic of Prof. Medvedkov, former Russian chief negotiator. He started with a very telling example. The GATT contains a hard-fought provision on cinematographic films. However, in those days the provision was limited to exposed films. Thus, today the clause is meaningless. History may repeat itself. Our future will be filled with robots, which will provide all sorts of services and replace humans, as stated by Ms. Mochalova. Hence, according to Prof. Medvedkov, the WTO General Agreement on Trade in Services (GATS) should treat robots as service suppliers, just like the GATS "mode 4" covers natural persons traveling abroad to supply services. This would be a transformational change in trade policy. If robots were mere goods, then the GATT would prohibit the application of quantitative limits or quotas. But if robots are considered as service suppliers, then entry quotas are possible just like entry quotas for persons supplying services are allowed. In the same vein, when a foreigner supplies services, the competent authority would check if all qualifications requirements are fulfilled. What about performing maybe the same service remotely from another country? IT-enabled remote service supply will be the routine, but who is responsible for the safety and appropriate level of qualification? The next world trading system will need to provide an answer to that question.

Prof. Medvedkov touched on bilateral investment treaties and asked if they can survive 3D printing. There are more than 3,000 such treaties at the moment, with increasing number in Asia, but with that new technology, a major reason to invest abroad will disappear (see Fig. 3). Investors will more and more invest at home. That's will be a challenge for investment treaties.

Sharing with the public his vision of the future WTO, Prof. Medvedkov stated that some of the potential new prospects for the WTO would include regulations governing the use and development of artificial intelligence, ensuring privacy and security of information, preventing "neurohacking", and organizing and managing

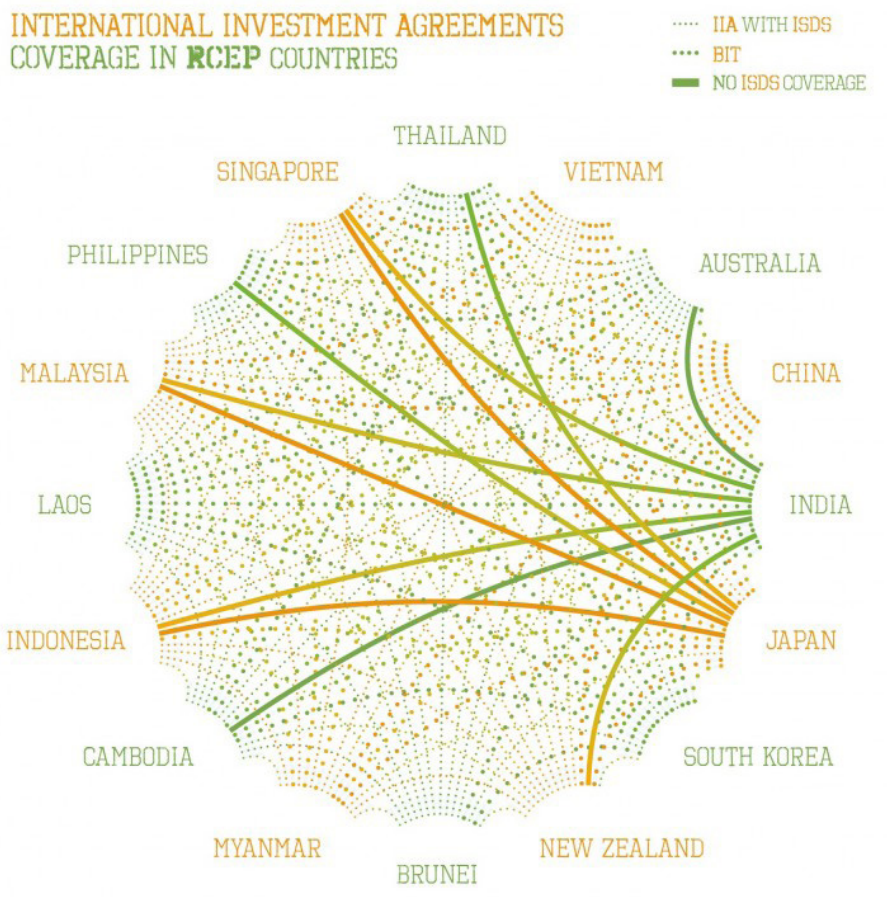

Figure 3. Investment agreements among Asian countries.

Source: [3].

data flows. Competition rules at the multilateral level will have to be developed, and will include pro visions relevant for access and use of technology. WTO's Dispute system will have to become more efficient as artificial intelligence will become progressively involved in it. Failure of the WTO to reform and expand may lead to domination of rules of trade developed by companies for companies and (indirectly) for governments. Abuse of market power by technological leaders and transnational companies will make necessary to develop additional rules of their activities.

More importantly, the following questions will have to be answered: digital product – is it a good or a service? When robots start to replace humans in various spheres of activities – will such machines be treated as services (as robots would essentially be classified as natural persons) or as goods, and how necessary certification is to be performed?

AI-based trade regulation

Daniil Orlov also added his view on how trade in goods and services will be affected by new technologies. There will be a necessity for governments to implement commitments regarding technological leaders and the participants to global value chains and monopolies. This is because new technologies will define the competitiveness and the level of development of countries, which may result in a widening development gap between nations. Advanced countries will be able to influence the development of developing countries by deciding if and how technology is shared. If this happens, it would totally contradict the aim of the WTO which is to ensure well-being and prosperity to all countries. As a result, governments and international organizations would need to act in order to define what is a fair access to global value chains and what is a fair access to data. Maybe they would need to establish specific regulations on data sharing in the WTO. But in any case, it must be avoided that once technological giants have induced others to depend on them and their data, they suddenly increase the price of access to such data. This would be a clear market failure, which would call for government corrective measures. The basic rules such as national treatment or the most-favored-nation need to continue to apply to data, technology and AI.

On a different note Mr. Orlov depicted tomorrow's negotiator. He predicts that AI which evolved dramatically over roughly a century (see Fig. 4) might replace negotiators and be involved in activities such as treaty making or dispute settlement, thanks to their powerful capacity to compute and anticipate all possible scenarios. So, different countries could negotiate through their respective AIs. They would just have to feed their AIs with big data, the negotiating objectives, the rules of engagement, and limits to respect. While history-based AI has the limitation of creating scenarios based on historical data, the more dynamic self-learning AI has the disadvantage of being less predictable. Mr. Orlov also noted that implanted chips and interconnection may allow to control even people's mind.

The fact of the matter is that in a faster changing world, with rapid technological transformations, the WTO dispute settlement system if far too time-consuming. New, technology-based business cannot wait for so long. At the time when a decision on a dispute is reached, it is already irrelevant for the parties. Here, AI may help. Assuming AI have a perfect knowledge of all possible information, and assuming they are unbiased, then decisions in respect of legal disputes could be reached in minutes rather than months or years as is now the case. There would be no need for any kind of appeal, and thus for the Appellate Body. Similarly, the pace of the WTO is too slow in terms of rulemaking.

Concluding remarks

Prof. Pauletto, who teaches inter alia Digital Diplomacy at IUG, added a few words to state that the very philosophy of the WTO will have to be adapted to the emerging environment. The three fundamental pillars of the organization (i.e. goods

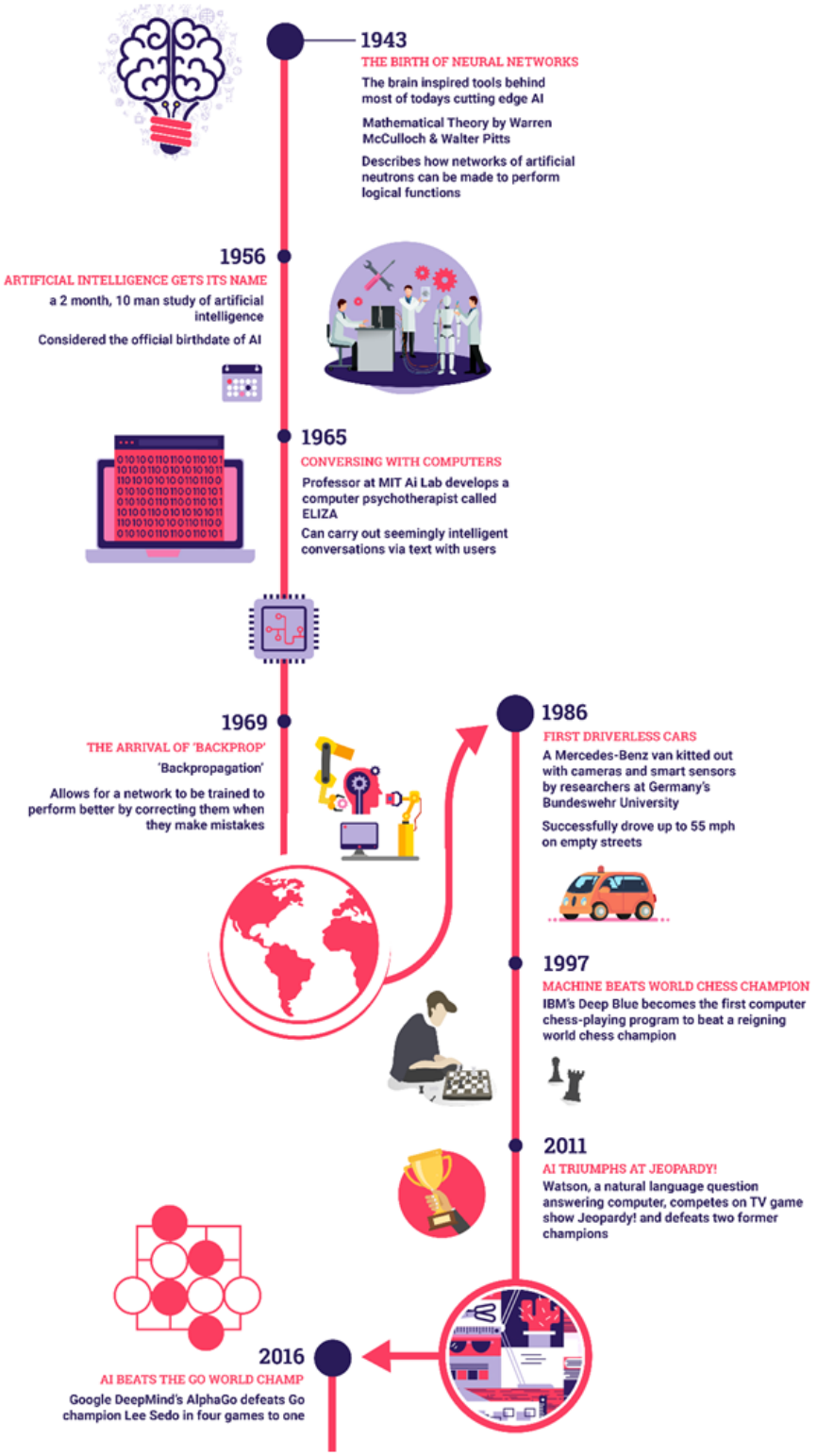

Figure 4. Evolution of AI technologies.

Source: [4].

ruled by the GATT, services ruled by the GATS, and intellectual property ruled by the TRIPS) will have to account for the emergence of products of "dual nature", i.e. products that cannot be attributed to one single category. New technologies do not only break the notion of physical borders, they also induce a convergence in what used to be clear and distinct concepts. And they brought a new animal: data. The legal challenge posed by the categorization of "data" is not unique to trade policy, by far. Domestic private law, such as property law, will also need to tackle that question. This is because in the new world data may carry value in the same manner as classical assets, and the tradability of data has no comparison with the times when the only carrier of data was something called paper.

References

[1] Strategic Systems International. URL: <https://www.ssidecisions.com>.

[2] PricewaterhouseCoopers. URL: <https://www.pwc.com>.

[3] International investment agreements. Coverage in RCEP countries. URL: <https://www.thejakartapost.com/academia/2017/07/27/why-rcep-is-more-dangerous-than-bilateral-investment-treaties.html>.

[4] History of artificial intelligence. URL: <https://blog.hurree.co/blog/the-history-of-artificial-intelligence-infographic>.

Полетто С.[1]

Вместо предисловия: обсуждение мультилатерализма в торговле и цифровизации российскими экспертами на Общественном форуме ВТО — 2019

The Institute of Trade Policy, National Research University Higher School of Economics (HSE) had a memorable day in Geneva last October. Every year, the World Trade Organization holds in its Geneva headquarters an international

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public forum. The 2019 edition was entitled "Trading Forward: Adapting to a Changing World", including a specific dedicated theme called "the next generation — what do Millennials & Gen Z want to see from global trade". So, on 10 October 2019, in a meeting room with a nice view on the Lake of Geneva, a panel of Russian speakers presented their views on "Multilateralism - Expectations from the new generation" in a fully-packed room, where some of the audience was standing on the back of the room and several even behind the panel. The four panelists were Prof. Aleksandr Daniltsev and Prof. Maxim Medvedkov, of the Institute of Trade Policy, National Research University Higher School of Economics (HSE), Alexandra Mochalova, Consultant with the Department for Trade Negotiations, Ministry of Economic Development of the Russian Federation and Daniil Orlov, Master's candidate at the World Trade Institute, University of Bern. The moderation was ensured by Prof. Christian Pauletto of the International University in Geneva.

Ключевые слова: *блокчейн, интернет вещей, многостороннее регулирование, торговля услугами, цифровизация***.**

Статья поступила в редакцию в январе 2020 г.

D. Orlov[1]

On New Challenges for the WTO and International Trade

The following article briefly outlines current challenges faced by the WTO and multilateral trading system, assesses the roles of governments and multilateral organisations within the paradigm of the technological disruption of international trade and attempts to propose hypothetical solutions to this challenges through implementation of artificial intelligence at national and international levels.

Key words: *WTO, international trade, technological development, digital trade, artificial intelligence.*

JEL F13 **doi:10.17323/2499-9415-2019-4-20-16-23**

Introduction

In the recent days, the urgency of the WTO being reformed appears as clear as never before. Current crisis of the Appellate Body is not the only reason for the concerns of the global community. Since the beginning of 2020 the topic of the WTO reform has been actively brought to public attention by the WTO Director-General (DG) at various events: the World Economic Forum in Davos held between 21st and 24th of January [1]; the Washington International Trade Association Conference on 4 February; and it is likely to be on the table for the WTO's 12th Ministerial Conference in the upcoming June in Kazakhstan. At the Washington International Trade Association Conference, DG Roberto Azevêdo stated that structural changes are required for the WTO and "a few coats of paint won't be enough" [2].

Elaborating on the reasons for such a deep change DG Azevêdo mentioned that some of the rules become outdated as those were developed back in 1994, the necessity for the system "to deliver more and quicker", and that wide coverage of the aspects of cross-border economic activity is required [Ibid]. Indeed, it can be seen that current dissatisfaction with the system stands on these particular grounds.

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At the same time, some other questions are worth to be considered as the reasons of potential concerns for the WTO and is Members in the future. Namely: What is the future role of the governments in international treaty making? Is there a necessity for the governments to impose commitments on technological leaders, monopolies and participants of global value chains? What are the mechanisms of dispute settlement and implementation which may be effectively used in future? What are the major changes which will be necessary for the WTO and other multilateral institutions in order to meet new challenges and cover respective needs? What is the future of the World Trade Organisation?

These questions were addressed among others during the session "Multilateralism - Expectations from the new generation" held by the Institute of Trade Policy, National Research University Higher School of Economics (HSE) during the WTO Public Forum 2019. [3] However, these topics were predominantly covered from the perspective of technology: the disruption it brings to the established practices and opportunities it presents for the future development. The fact that technology affects multilateral trade (the goods and services traded, the way we trade them, the way we consume products) means that not only economies and businesses, but also governments and international organisations have to adapt to these transformations [4]. Coupled with the fact that some of the regulations currently in place do not adequately address the challenges which new technologies present, actions from the governments will be required to address these issues at international level.

Artificial Intelligence as a guiding force for trade

With the current pace of development of Artificial Intelligence (AI) it appears to be reasonable to assume that with time AI will be involved in the majority of areas of our lives (see Fig. 1).

As for international treaties, at first, governments could use AI as an assistant in the process of treaty preparation. For instance, it could be used to perform detailed analysis of the existing treaties and search for occurring conflicts and identification of problematic areas. Then AI could be used to develop potential solutions for these areas at international levels by means of comprehensive simulations of outcomes of the proposed decisions.

As the technology advance, AI could even be brought to a level when it will be able to analyse global economic environment for the possibilities of new trade agreements and necessary treaties to support them. Effects of these treaties at both country and international levels will be accounted in order to find an optimal solution and prepare the necessary steps for its implementation. In this case one of the roles for the governments will be to developing AI which will act on their behalf in the future.

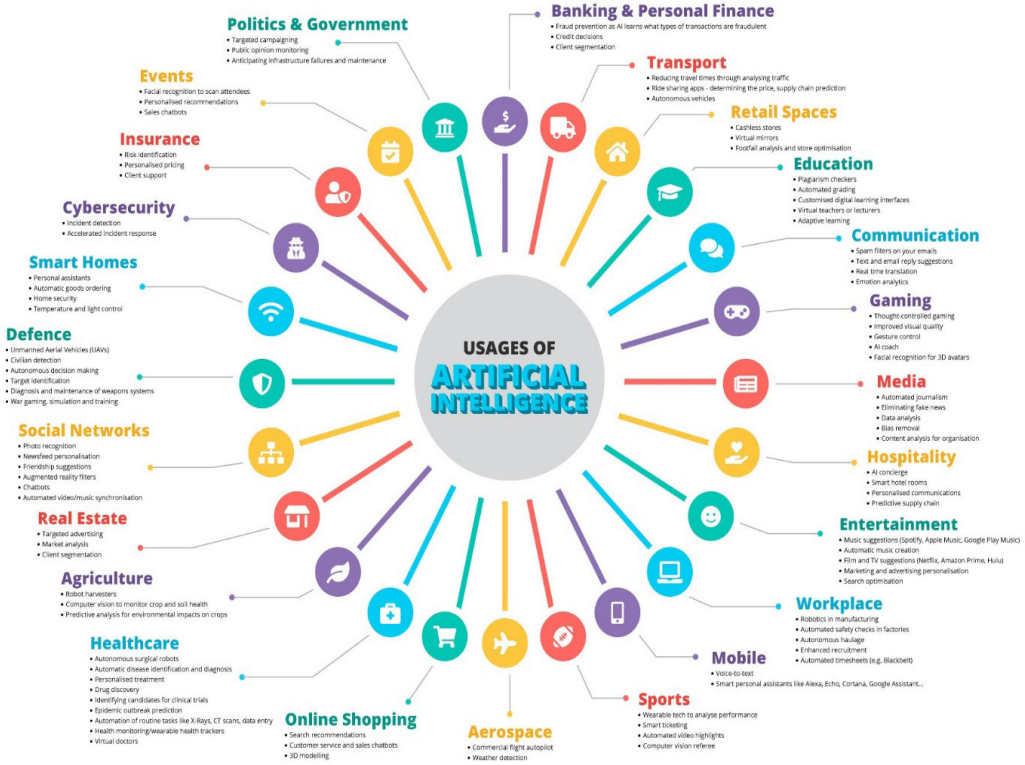

Figure 1. Usages of Artificial Intelligence

Source: [5].

If we assume that AI gets involved in monitoring of trade flows and customs (AI could check compliance of goods and services crossing borders with international standards and tariffs and other charges applied at the borders or behind the borders with international standards), collaboration of governments will be required in order to develop and maintain standardised databases and keep communication between AI from different countries.

However, implementation of AI in such an important part of global economic stability is associated with certain risks. AI is highly dependent on the quality of the input data, which is frequently not available for some regions, which might lead to inaccuracy of the decisions. Of course simulations could be employed to fill in gaps in the data, but then it will be subject to the quality of simulated data.

On the other hand, the behaviour of self-learning AI might appear unreasonable or unpredictable, especially if the decisions made are long-term [6, pp. 15-16]. If not programmed correctly, AI might suggest decisions which come at too high costs, appear unlawful or violate morale standards in the long run.

Therefore, some boundaries to the performance of the AI need to be set, which might affect final outcomes. In this light it will be for the governments to facilitate development of the necessary AI in the fields of treaty making, set necessary development goals, boundaries and analyse AI's performance, with an extremely strong focus on cyber-security, privacy of personal data and protection of citizens being exposed to cyber threats. Global collaboration from all of the governments will be required especially in the fields of prevention of international terrorism abusing these new technologies.

Role of the regulatory framework

The next point that was discussed is the necessity for the governments to impose commitments on technological leaders, monopolies and participants of global value chains. It is likely that technology will define levels of business competitiveness and countries' development, as new inventions allows to produce innovative goods and services, frequently enhancing productivity.

At the same time, even nowadays the technological divide is rising, meaning that in the future some countries will fall behind even more and others will get tools to manipulate levels of development of the outsiders through decisions to share their technologies or not [7].

Furthermore, in Global Technological Chains exchange of technology might occur only among those who are involved in the chain and from this perspective goods and services within each chain will be outside of external competition pressure. For instance, unique data will be available only to the participants of the chain. To add more, if market failures such as monopolies occur or some partic-

ular product appears of extremely high demand, certain businesses might get an enormous advantage over others, further widening the gap. For example, if data storage and computational power become crucial aspect of our lives, Businesses are likely to manipulate prices on data storage facilities, CPUs, and other technology. Such behaviour will contradict WTO principles on ensuring global prosperity and will require further regulation at national and international levels.

Collaboration between national authorities in the fields of antitrust and competition management will be required in order to address such a comprehensive situation. This could be avoided by means of the treaties on access to GVCs, data sharing and sector-specific regulations. However, those would be quite challenging to implement as the owners of information might find it burdensome to share their resources with the outsiders. Ensuring fair access to the vital recourse, which in the future will include information and technology, is a crucial task for the multilateral trading system which will help to avoid conflicts on the global arena.

WTO basic principles in the future

In this light, what are the mechanisms of dispute settlement and implementation which may be effectively used in future? It seems reasonable to assume that fundamental WTO principles of National Treatment (NT) and Most Favoured Nation (MFN) will be of even greater importance than they are today. Perhaps, they will be applied to regulation of access to data and technology, rather than purely goods and services.

Classic mechanisms of dispute settlement (such as conciliation, conflict resolution, mediation, and negotiation) probably will lose significance due to their inefficiency, as these will be challenged by innovative technologies. For instance, the process could be automated with AI, which will mitigate or even prevent conflicts between trading partners. This brings the discussion to the next question: What are the major changes necessary for the WTO and other multilateral institutions in order to meet new challenges and cover respective needs? The challenges which seem of particular importance are:

- The fact that technology develops so rapidly and there is no clear vision in the community on how exactly it operates and what it is capable of, therefore conflict of interest between businesses and governments occur.
- Reflecting the complexity of the world WTO dispute settlement seems quite sophisticated and time consuming. The world becomes more and more high-paced, increasing the cost of participation in timely disputes.
- Another challenge is the principle of consensus – the fundamental principle of the WTO which is also a foundation of the current crisis.

However, as of today there is no solution to these challenges, therefore an innovative solution is required. But what is the future of the World Trade Organ-

isation in this uncertainty? WTO will probably exist in the future, however, it is unlikely to remain in the form we know it today. Simply, because currently it is not fully meeting the needs of its members and does not address the challenges mentioned earlier, which is reflected in the recently uncovered tensions around Appellate Body.

Implementation of AI could be a radical solution to address all of these issues. It could replace panellists and judges, as well as assist WTO in fulfilling its main functions of administering WTO trade agreements; providing forum for trade negotiations; handling trade disputes; monitoring Members' trade policies; providing technical assistance and training to developing and least developed economies; cooperating with other international organizations. In this light crisis of the WTO Appellate Body would not matter, as in theory Parties of a dispute appeal believing that decisions are biased or unlawful. With AI employed both of this issue could be solved as technology will have "perfect knowledge" of all the laws, rules, previous cases and will remain "perfectly unbiased" under any circumstances. And with AI monitoring trade and automatically detecting and preventing any rule violations, settling disputes outside of official dispute settlement process.

However, it would be naïve to believe AI to be a panacea. Development and implementation of such a complex, sophisticated and unbiased systems appears rather unrealistic nowadays, especially with the current WTO decision-making system in place. Furthermore, any AI would have a bias of its designer, raising concerns of the society regarding the very essence of its implementation at the first place. In some cases, AI might neglect moral standards if programmed to achieve particular goal at any costs, which some might find disturbing Therefore, the discussion of the solutions to the challenges listed above remains open.

Conclusion

It is hardly possible to predict how our world will be shaped in 70 years from now. There are as many gaps in our knowledge as opportunities for development. But it seems clear that the solution to the challenges which new technology brings to the society needs to be developed at the level of international organisations, making sure that no countries are left behind. Such an approach will ensure global prosperity in the long run, just as the WTO did over the last 25 years of its existence by lowering trade barriers and enhancing trade.

References

[1] WTO (2020). In Davos, DG Azevêdo hears support — and urgency — for WTO reform. URL: https://www.wto.org/english/news_e/news20_e/minis_24jan20_e.htm

[2] Azevêdo, R. (2020). DG Azevêdo: To modernize the WTO, we will need vision and determination. URL: https://www.wto.org/english/news_e/spra_e/spra301_e.htm

[3] WTO (2019). WTO Public Forum 2019 - Trading Forward: Adapting to a Changing World. URL: https://www.wto.org/english/forums_e/public_forum19_e/pf19_programme_e.htm

[4] WTO (2018). WORLD TRADE REPORT 2018. The future of world trade: How digital technologies are transforming global commerce. URL: https://www.wto.org/english/res_e/publications_e/world_trade_report18_e.pdf

[5] Usages of Artificial Intelligence. URL: https://www.oneragtime.com/24-industries-disrupted-by-ai-infographic

[6] The Economist (2019). The rise of the financial machines. Pp. 11-20. URL: https://www.economist.com/leaders/2019/10/03/the-rise-of-the-financial-machines

[7] International Telecommunication Union and United Nations Educational, Scientific and Cultural Organization (2019). State of Broadband Report 2019: Geneva. Licence: CC BY-NC-SA 3.0 IGO. URL: https://www.itu.int/dms_pub/itu-s/opb/pol/S-POL-BROADBAND.20-2019-PDF-E.pdf

Орлов Д.Э.[1]

О новых вызовах для ВТО и международной торговли

В данной статье кратко излагаются проблемы, с которыми сталкиваются ВТО и многосторонняя торговая система в настоящее время, оценивается роль правительств и международных организаций в рамках парадигмы изменений в международной торговле, связанных с технологическим прогрессом и предпринимаются попытки предложить гипотетические

1 Орлов Даниил Эдуардович — выпускник 2019 г. магистерской программы «Международная торговая политика», НИУ ВШЭ, Россия; выпускник 2020 г. магистерской программы по международному праву и экономике (MILE), Институт мировой торговли, Университет Берна, Швейцария. E-mail: <daniil.orlov9@gmail.com>.

решения этих проблем посредством внедрения искусственного интеллекта на национальном и международном уровне.

Ключевые слова: *ВТО, международная торговля, технологическое развитие, цифровая торговля, искусственный интеллект.*

Статья поступила в редакцию в январе 2020 г.

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Estimation of Brexit Economic Effect on Intra-European Trade in the GTAP CGE Model

This research provides estimation of Brexit economic effects on trade and the overall economy of the UK by means of the GTAP model. The used methodology of both theoretical and empirical model implementation is founded on approved scientific practices and theories and is well-acclaimed in the academic community. The simulation of two scenarios for the studied policy of the UK exiting the European Union is provided: "Hard Brexit" as a no-deal development of the current political situation between the studied regions and "Soft Brexit" as the Free Trade Agreement between the UK and the EU. The shocks for the model are constructed based on combination of two different approaches, which supports the novelty of the research: trade weighted most-favored nation rates of tariffs varying in time and ad-valorem equivalents of the European single-market effect derived from the structural gravity equation. Evidence of trade creation has not been founded by the simulation, although the problem of trade diversion has been outlined in the model. Possible offset strategies for both regions have been traced, which can be used as recommendation for further trade policy regulation. The main outcome of the research has proved the disproportionality of the impact between the EU and the UK and supported the hypothesis with both internal and external trade and economic effects consideration.

Key words: *United Kingdom, European Union, Brexit, foreign trade, GTAP.*

JEL F14, F17 **doi:10.17323/2499-9415-2019-4-20-24-54**

Introduction

The referendum on European membership of 23 June 2016 and the triggered Article 50 by UK Prime Minister Theresa May on 29 March 2017 can lead to the United Kingdom leaving the European Union in 2019, which will have a prominent and complex effect on the economy of the UK and world trade. After accession to the European Economic Community (EEC) in 1973, close economic relations have developed between the UK and other European countries inside the Union. A substantial increase in GDP per capita of the United Kingdom (UK) followed

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the European membership, as well as further development of trade activity [25]. Leaving the EU will inevitably mean a crucial change in the whole external and internal economic system of the UK, international trade and possible total renegotiation of all agreements with all of European partners. The terms of this substantial policy change have still not been defined, as there is no definite decision on a new trade agreement and the forthcoming new mode of economic and trade cooperation between the UK and the European countries.

Quantification and estimation of possible overall Brexit outcome for intra-European and world trade present a challenging target because of different related effects of such a decision, which should be taken into account when estimating Brexit in computable general equilibrium models, as well as changing nature of the studied process. Among most important aspects the following can be listed: reduction in investment flows and activity, new migration policy effect on labor market, decrease in the government savings, decline in FDI, changes in households consumption, trade losses from exiting the Single Market and losing preferential access, increasing trade costs and new tariffs, costs of complying with new standards, decreased spill-over and compound effects and the list goes on. First of all, such research sets a significant requirement on data, which should be comprehensive enough to provide information about not only internal economy of the United Kingdom, but also other countries and trade, finance and migration global flows. From modeling viewpoint, it requires prior estimation of shocks from different origins in order to implement them in the model basing the forecasting environment on additional degrees of uncertainty. And for ensuring practical application of the model it is needed to study several scenarios of final agreements between the UK and European countries, because of the moving target ambiguity.

The novelty of the research is of high importance, as the studied event is still developing, and it requires all attention and possible estimations for better policy implementation and adaptation process with minimum additional losses. Nowadays, the future of the EU and the UK still remains to be vague, as Brexit presents itself as rather threatening manifestation of protectionist backlash. Thus, any estimation of coming effects from this policy change is very useful, because it can be employed if not as quantitative to the most scrupulosity valuation, but at least as a proper recognition of the nature and origins of the repercussions. This work combines two different approaches of shock construction taken from scientific papers in order to come up with the most accurate policy representation in terms of trade regulation.

The main hypothesis of the research is that Brexit is likely to be transferred to the UK and the EU disproportionally with the largest losses for the former and being less threatening for the latter. Although, for the world economy and trade6 as well as the studied internal economies it is going to develop as rather a negative event of long-run decline and structural setback. The main purpose of the research is to provide quantitative estimation of Brexit effect for international trade and internal economies of the studied regions and to analyze all the nature and consequences of the studied event with a limitation of the chosen methodology possibilities.

The economic effect of Brexit was previously prognosed in recent studies, and different approaches were used to provide estimation of this substantive policy change for the UK. The applied scope of the research includes, but not limited by, deep data-intensive econometric assay, evaluation and comparison of existing results, theoretic foundation and models, ex ante simulation of policy options and analysis of the structure of policy regimes. It is important to mention several of the studies, which are relevant to the topic. To estimate integration of the United Kingdom into regional and global value chains and potential effect of leaving the EU, there has been conducted an input-output tables estimation with the sectoral World Input Output Database (WIOD), which was able to look into the economic sectoral linkages and assess the impact on the unemployment, productivity and production [35]. Large-scale macroeconomic models and general equilibrium models (such as NiGEM, COSMO and METRO) have been also applied to study the global and regional economic consequences of Brexit on other countries or on particular sectors. Recent studies incorporate different scenarios for Brexit using various estimations on non-tariff measures, including structural gravity and border effects construction, projecting various forms of the final agreement as well as additionally simulating a potential change in agreements with other important trade partners, such as the US or single European countries [14, p. R49].

The literature paper by Ciuriak et. al., 2017, looks at four alternative simulations of the trade related impacts of the UK's exit from the EU [8]. The research contrasts two basic scenarios of the policy: "Brexit", which re-sets the UK's relationship with the rest of the EU to the WTO-rules most favored nation basis (MFN), versus a situation, under which the UK preserves integration with the rest of the EU at the level similar to that of the European Free Trade Association, henceforth called the "Brefta". In their model, "Brexit" scenario is characterized by introduction of the WTO based tariffs, which will be applied by both regions, while "Brefta" will introduce zero tariffs and new non-tariff measures (NTM), such as Rules of origin (RoO), resulting in new trade costs and administrative costs. Another simulation from the paper assumed a possible preferential trade agreement (PTA) between the regions. However, in this case the elasticities will have to be modified from constant elasticity of substitution to constant ratio elasticity of substitution, homothetic in order to capture the effect of home bias towards the European goods. The scenario simulates the implications of the UK securing an FTA with the United States (US). Estimation of new NTMs used in the simulation relies on comprehensive calculation of the ad valorem equivalents (AVE) between the UK and the EU under the "soft" Brexit scenario, which are constructed using additional administrative costs that stem from a total border effect as an AVE on imports of 2.31% for the goods, largely agriculture and manufacturing sectors [Ibid]. Under "Hard Brexit" scenario they build up weighted average protection levels to create GTAP-level aggregation of implied MFN tariffs from 2010 to 2013 between both regions, which are used as tariff shocks to simulate the impact of leaving the EU. In their results, the GTAP model has predicted a long-term fall in the range of 1% to 2.8% from "soft" to "hard" Brexit scenarios with a possible increase of 0.75% GDP from unilateral liberalization.

In other study Valverde et al., 2018, build a CGE model for estimation of the impact on GDP, welfare, wages and capital originating from economic effects of the UK's exit [29]. They fixed capital and land as sector specific leaving labor totally mobile, so in such a manner effects on production are fully derived from changes in labor demand. The design of their model made use of the GTAP, with which they have also simulated four scenarios, namely "zero tariffs", "very soft", "soft" and "hard" Brexit. In the same way as Ciuriak et al., 2017, under "zero tariffs" they assume that the UK and the EU will continue to enjoy a FTA. Meanwhile, under the "very soft" and the "soft" Brexit it is considered that both regions' tariffs will remain at zero, and there will be applied increased non-tariff barriers (NTBs) between the UK and the EU by 10% and 25% respectively [Ibid]. The "hard" Brexit case has been divided into two subsets: one in which they increase import tariffs between the UK and the EU to the MFN level and the second, where they assume a 50% rise in bilateral NTBs. To simulate the rents and inefficiencies attributed to the NTBs, they rely on estimates of ECORYS, 2009, which has quantified the AVEs of NTBs. The results of their simulations have captured a relatively lesser negative impact on the UK comparing to other previous studies. Trade restrictions are expected to generate a welfare reduction between -0.38% and -1.94% for the UK contrasted with -0.03% and -0.14% for the EU.

"New quantitative CGE models", which derive simplified model features of CGE with theory of choice, are also employed for Brexit estimation, as in a recent study of Felbermayer et al. [15, pp. 2-4]. In the same way, Dhingra and his colleagues [10] compare results from the GTAP model with the quantitative model of Eaton-Kortum (as presented by Costinot and Rodriguez-Clare, 2014 [3]), which can be characterized by use of perfect competition and gravity trade determinants. They look into the cost of the UK leaving the EU with simulation of three scenarios. At the first step, their research focuses on the "soft" Brexit case, which prognoses the UK joining the European Economic Area (EEA) with a permission to remain a part of the single market with zero tariffs and no new barriers to services and goods trade between the two regions. However, not being part of the Customs Union will result in necessity to satisfy Rules of Origin (RoO) requirements, which nevertheless will lead to increased trade costs [10, p. 3]. Another scenario of the research represents a bilateral trade agreement between the two regions. A free trade agreement will remove all tariffs on commodities trade, but it will not facilitate free movement of labor. Along with this, it will lead to higher NTBs due to introduction of new border measures. Lastly, the "hard" Brexit in this paper is modeled through an imposition of the WTO's MFN tariffs between the two regions. Their findings show that if the UK remains in the single market, Brexit will reduce living standards and consequently welfare by 1.3%, meanwhile under the "hard" Brexit with regional trade under the WTO MFN terms the loss doubles to 2.7% [10, p. 5].

In addition, there has been implementation of different panel data gravity studies on trade and welfare effects of Brexit, such as in Oberhofer and Pfaffermayr, 2018.

In light of the use of the CGE model, it is evident that it provides both benefits and limitations to the extent of economic assessment that can be modelled. Nevertheless, from the above literature review one can draw the conclusion that the CGE approach offers an elaborated assessment of the Brexit impact for both micro and macroeconomic determinants, which can be used for purposes of this research. The ability to adequately capture such a wide array of variables across economies is realized by its multi-region and multisector model database, which includes both input and output information from national accounts and detailed foreign trade data from different regions [29]. A CGE model computes long run effects of changes in tariffs and other trade barriers, which is an essential requirement for this kind of analysis. Unlike other models such as the partial equilibrium model, which only computes effects on the assumption that the economy at large does not change, the CGE can account for changes seen in various Brexit scenarios [28, p. 64].

As it will be seen in results of the "soft" and "hard" Brexit simulations of this study, the CGE model also captures inter-sectoral linkage effects. Another very useful feature of the CGE model, which should not be neglected, is the opportunity to predict how the economy actually works and its ability to capture ripple effects of policy changes on the economy as a whole.

The research is structured in the following form: in the first part of the study the description and review of the chosen methodology is provided with construction of the implemented shocks to the model. In the second part the interpretation of the simulation is divided into three sub-chapters: global effects on trade, internal effects for the main regions and labor effects for the UK. In the second part recommendations for further trade regulation is provided as well. And the study finishes with conclusion on the final check of the main hypothesis.

METHODOLOGY

Model specification

In this study, simulation results with the GTAP model under two scenarios are presented: so-named "Hard Brexit" and "Soft Brexit". The standard uncondensed GTAP Model is used for the study. It is a multi-region, multisector, computable general equilibrium model with intermediate linkages from input-out tables, perfect competition and constant returns to scale. The basic closure of the model is conducted on the basis of investment-savings equilibrium. Trade is modelled on Armington structure with iceberg trade costs (a certain amount of goods is lost in shipment; thus, producers need to provide larger goods volume to cover trade costs) [27]. Elasticities are taken from theoretical literature.

Thus, there is a representative consumer, who demands three composite goods: Government, Private goods and Savings with Cobb-Douglas substitution elastici-

ty (spending shares are fixed) [21]. Tax revenues are included in the consumer income, as government revenues are consolidated with private expenditure. Private spending is modelled with non-homothetic preferences, constant distance elasticities: budget shares change with income, which makes possible income elasticities different from 1 and allows for changing average and marginal budget shares with a country's growth. However, demand for government goods is modelled with Cobb-Douglas preferences. Savings have the static utility function: they are homothetic goods in each country, and savings are collected by a global unified agent, which channels them to investment equalizing rates of return.

For the production side, the following assumption is implemented in the GTAP model: there is no scope of substitution between the categories of value added and intermediates inputs and between different intermediates (the Leontief production function [33, p. 104]). Price of intermediates does not affect choice between production factors. The preferences for factors inputs bundles are set by CES functions. Firms are perfectly competitive. Savings equalize investment, and they are collected in the model by a global bank. Then global savings are allocated across countries to buy investment goods in different countries in order to equalize rates of return. The trade balance in the model is varying on four other fixed equations: savings=investment and taxes (defined by tax base and fixed tax rates) = government expenditure (defined as a fixed share of household income with Cobb-Douglas specification). There are four types of goods: private goods, government goods, investment goods and intermediate goods. For each type of a good, buyers choose between domestic goods and imported goods basing on Armington structure: domestic and imported goods are distinct with constant substitution elasticity between import and local production. Trade is also modelled with Armington preferences: goods from different exporters are different for consumers and, because of love of variety between goods from different countries, the Armington framework allows for the possibility that each country imports goods from each and every trading partner. Therefore, there are two Armington preferences functions: nested structure of import demand employs two Armington preferences differentiating across imported and domestic goods for one country and across countries. Price index is compounded as weighted average of all prices from different sources. Such typically immobile factors of production, as land and natural resources, are modelled with an elasticity of transformation function. Factors supply being exogeneous in the model is equal to the sum of all factor demands in order to provide for the equilibrium condition.

Additionally, there is a transport sector modelled as transport margin on prices: the difference between fob-values and cif-values is paid for by using so-called margin (or transport) services supplied by the international transport sector with Leontief specification. The demand for international transportation services along any particular route is proportional to the quantity of merchandise shipped.

In equilibrium all markets clear, except supply of savings = global demand for investment in accordance with the Walrasian law. The difference between sav-

ings and investment is calculated to check consistency of the model. In the GTAP model average factor prices across all factors of production (the pfactwld variable) are chosen for numeraire. The system of equations is written in percentage changes and depending on the coding language as for GEMPACK – in linear equations, and for GAMS – in levels. There are different methods of the model solution varying in complexity and utilized steps of linear approximation: The Johansen one-step approach, the n-step Euler approach and the n+1-step Gragg approach. Exogeneous and endogenous variables are set in the model closure.

Elasticities used in the GTAP model are the following: Substitution elasticity between domestic and imported goods (parameter ESUBD, Armington structure) is estimated as change in the ratio of demand in response to the change in ratio of prices and equals 7.77. Substitution elasticity between imported varieties from different sources (parameter ESUBM, Armington structure) is estimated on variation in prices and must be two times as bigger than ESUBD, reflecting easier substitution between imported varieties from different sources than between imported and domestic varieties, which is called nested Armington structure. The elasticity of substitution between intermediates and value added (ESUBT) equals zero by the basic model assumption. The elasticity of substitution between factors of production (ESUBVA) is taken from empirical studies and differs across commodities and sectors. Parameters INCPAR and SUBPAR are the expansion and substitution parameters of the CDE utility function for private expenditure (setting the parameters at 1 and 0 respectively will collapse consumers preference to the Cobb-Douglas form). The constant elasticity of transformation is defined by the parameter ETRE for the different production factors and represents production factors mobility in combination with SLUG indicator, which can be adjusted to different degrees of factors freedom of movement.

The basic GTAP uncondensed model was used without any extensions and with the standard closure choice for the initial static long-run simulation: Savings = Investment. Estimations of parameters, elasticities were not changed as set by the GTAP. The data used for this study is provided by the GTAP for 2011 in the model version 8.0.

The model aggregation for this simulation includes the following 17 regions: the Great Britain, Germany, France, Italy, Spain, the European Union without the mentioned, other European Economic Area countries (such as Switzerland and Norway), Turkey, Eastern Europe with Russia, North Africa with West Asia, Japan, China, other countries of the Trans Pacific Partnership, other Asian countries, other middle income countries, and low income countries.

Brexit shocks

The "Hard Brexit" scenario is modelled as the most extreme future development of the studied policy, when the trade agreement between the UK and the EU is not concluded. If there is no specific bilateral treaty, then trade will be regulated by international agreements signed previously by the parties. Basically, this simula-

tion represents the outcome of leaving the European Union and "single-market unbinding", as the UK will lose all zero tariffs accrued from the Union trade integration and benefits from harmonization of non-tariffs barriers obtained through the single market. The no-deal case is characterised by application of tariffs between the UK and the European countries on the basis of the World Trade Organisation agreements, which sets the tariff rates in compliance with the Most-Favoured Nation principle. It should be mentioned that tariff shocks were constructed as trade-weighted average bound rates for 10-digit goods GTAP classification and, in accordance with Ciuriak's chosen methodology, they differ for the EU and the UK respectively, as regional trade structure needs to be taken into account: the import-export sectors composition is different for each of the studied 2 regions and also varies across years for the countries [8]. Thus, the tariff shock for this scenario should be defined in time and weighted in accordance to the base sector trade data of the UK and the EU provided by the GTAP. The same "halfway house" approach of Ciuriak for the "excessive tariff protection" limiting tariff rates overestimation for several agricultural goods has also been applied for this simulation (i.e. the UK's imports from Ireland in beef and dairy: from 70% to 23% and from 50% to 30% respectively and the UK imports from France in sugar from 63% to 8%). These assumptions provide for the Brexit shock not being excessive on specific sectors.

In addition to tariff changes, the studied policy shock also implies increased non-tariff barriers (NTBs) to trade. First of all, it is important to mention that estimation of NTBs effect is rather a serious challenge, which does not have an apparent solution. Different approaches are used for this purpose, and they differ across studies. For this research the approach of Egger and his colleagues has been chosen [13, pp. 561-563]. They look into the potential trade effect of the Transatlantic Trade and Investment partnership. Thus, the authors use top-down approach of the Preferential Trade Agreements (PTA) depth focusing on the average effect of PTAs in the past. They have estimated NTBs on goods of the TTIP membership using structural gravity regression on bilateral trade flows as function of exporter/importer-country specific fixed effects, a set of bilateral non-policy barriers to trade in goods, the log tariff margin of a country-pair and a dummy variable of PTA depth measures.

Therefore, impact of a Preferential Trade Agreement is conditional on the depth of PTA in non-tariff barriers liberalization and granted preferential tariffs. They use cross-sectional data for the year 2011 (which is the same year, as in this study aggregation); volume of trade is in the form of exponential function of a log-linear index consisting of the five variables, and the model is estimated separately for each sector in order to account for NTBs variability across goods sectors. Non-tariff barriers are controlled for with two dummy-variables: a binary indicator for the effect of the European membership and an integer variable for the depth of PTA. An important note: the former takes into account both legal and institutional liberalization, which reports not only for policy measures. These coefficients are used for estimation of the European integration, and consequently they represent a broader definition of non-tariff barriers on goods. Therefore, they can be used for construction of ad-valorem tariff equivalents of European non-tariff barriers through trade costs, which

is used for simulation of the "Hard Brexit" NTBs shock on goods trade. Because the shock from NTBs is constructed as cost-increasing by the simulation, it should be modelled in a computable general equilibrium model with changes in iceberg trade costs through productivity shifter named in the model as "ams". It is important to mention that even rent-generating NTBs can be also modelled as increasing trade costs, because they can lead to rent-seeking and in such a manner they can make trade more costly. For the "Hard Brexit" scenario the NTBs AVEs estimations were taken without any reductions, because this scenario represents an extreme no-deal case. There is no tariff shock on services by definition and for simulation of NTBs on services the approach of Egger et al. (2015) has been also followed. For this purpose, data of the Services Trade Restrictiveness Index (STRI) provided by the World Bank's has been used and their ad-valorem estimations of services NTBs commitments have been employed both in the TTIP paper and in this study, as this source is the most reliable and updated to this day on the issue [20].

In the same way, the "Soft Brexit" scenario is modelled only with the NTBs European border effect shock without any application of the MFN tariffs. The NTBs effect has been reduced to the half of the estimation, as it is supposed that it will be possible for the countries to preserve some of the single market non-tariff benefits in future agreements. This scenario represents a possible outcome of a free trade agreement, thus the trade between the UK and the EU will be exercised on the conditions of the European Free Trade Association. Nota Bene, application of non-tariff barriers is not an easy process to model, for one reason because the decision has not been taken yet by the parties on these regulations: it is likely that NTBs will remain in the same form after the UK leaving the EU for some time or they will not change substantially. But as the model is static and long-run, it has been decided to implement shocks of NTBs as for the effect of leaving the EU single market for modelling the crush-out scenario and the FTA case, in full force and half reduced respectively for "Hard" and "Soft Brexit". The new border will imply additional costs for trade between the EU and the UK due to introduction of rules of origin, new regulations and requirements, as well as additional administrative costs.

The model was adjusted with different solution methods in order to increase accuracy of the results.

RESULTS INTERPRETATION

Trad effects

The simulation projects that the effect of Brexit is likely to be distributed disproportionally to the UK and the EU, as well as other regions, which can be explained by substantial differences in sizes and trade flows of the main studied regions. As Fig. 1 shows, the change of utility for the representative household in the UK (-3.89%) is going to be much larger than for European countries (-1.57%) in the no-deal scenario. Variable "u" in the model stands for regional per capita house-

hold utility from aggregate household expenditure. It is defined by the sum of the input-neutral shift in utility function, distributional parameters adjusted to the three demand components (savings, government expenditures and private expenditure) and change in per capita income.

The second largest after the UK welfare losses from "Hard Brexit" are going to be incurred by Spain (-0.372,86%), which is almost as big as the utility change for the Rest of the EU region taken collectively (-0.420,457%). An interesting feature of these results is that there are some potential winners in trade from the studied policy: Turkey (+0.143,258%, which is greater than value of the GDP change for the rest of EFTA) and North Africa and West Asia (+0.118,019%) have a positive change, which can be explained with possible trade creation, as the UK and the EU will face the necessity of trade differentiation, and other countries might benefit from more gainful agreements with Britain or increased trade flows with the European Union.

The proportions remain almost the same for "Soft Brexit": -2.33% and -0.87% respectively. As it can be observed for this policy change, Brexit is going to be 2.5 times more costly for the UK as for the EU. Besides, the regions of Turkey, the USA, North Africa and West Asia might experience a slight increase in the welfare, which can be attributed to potential trade substitution of the UK, as Britain is likely to trade more with other trade partners than the EU after Brexit, which holds true also for other regions outside of the EU and other European countries.

This observation is supported by results of the change in real GDP measured by percentage (see Fig. 3). It is important to mention, that taking into account sizes of the two studied economies (the EU and the UK), the negative impact for all European countries taken together might still be rather threatening because of the relation to the percentage change of the base value, which might be reflected in greater changes of real GDP distributed across all European countries. Additionally, it should not be omitted that this simultaneous decline in welfare for European countries can also partly originate from deep interconnections of the region, such as the structure and nature of the European single market, European developed system of added value chains and European economic integration. Thus, the instant short-term effect for a single European country might not be of the same scale and damage as the long-run effect shown in the simulation results.

Identical results can be studied with Equivalent Variation (see Fig. 3), which reflects the change in income expressed in US dollars required to make the representative household equally better off as with the policy shock, which is calculated by determining required change in income at baseline prices to get the same change in utility as with new prices after a policy shock (i.e. by determining the income that would be required to achieve the current actual utility level "u" in a shadow demand system, in which prices are fixed). It can be noticed that the welfare losses for the United Kingdoms are going to be bigger than for the European countries and rather substantial. The striking importance of impact relation to country

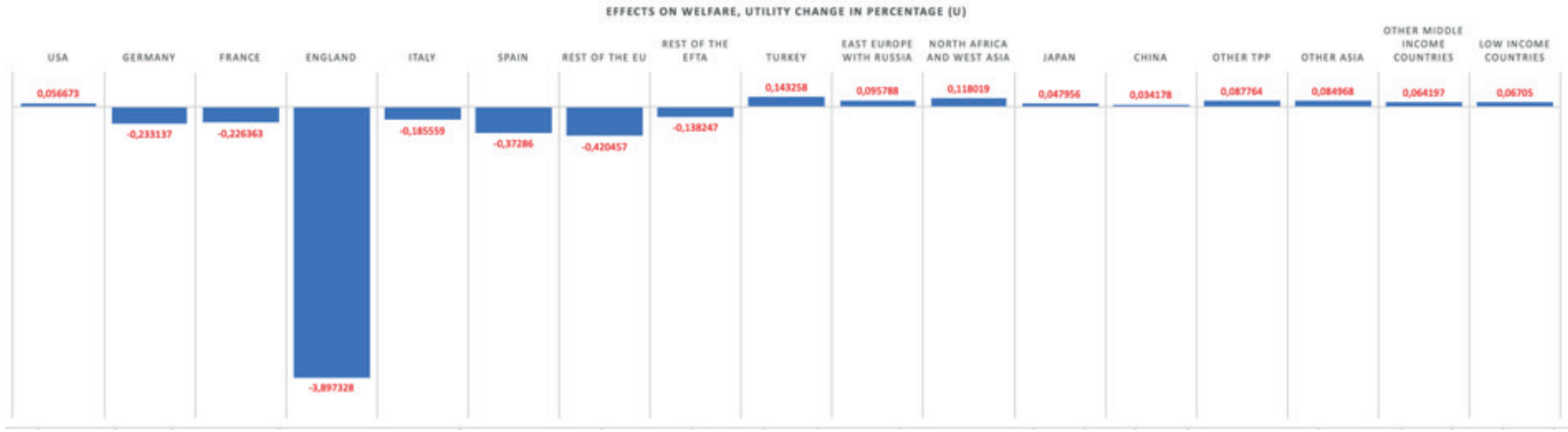

Figure 1. Hard Brexit: Effects on welfare, utility change, % (u).

Source: Author's projections.

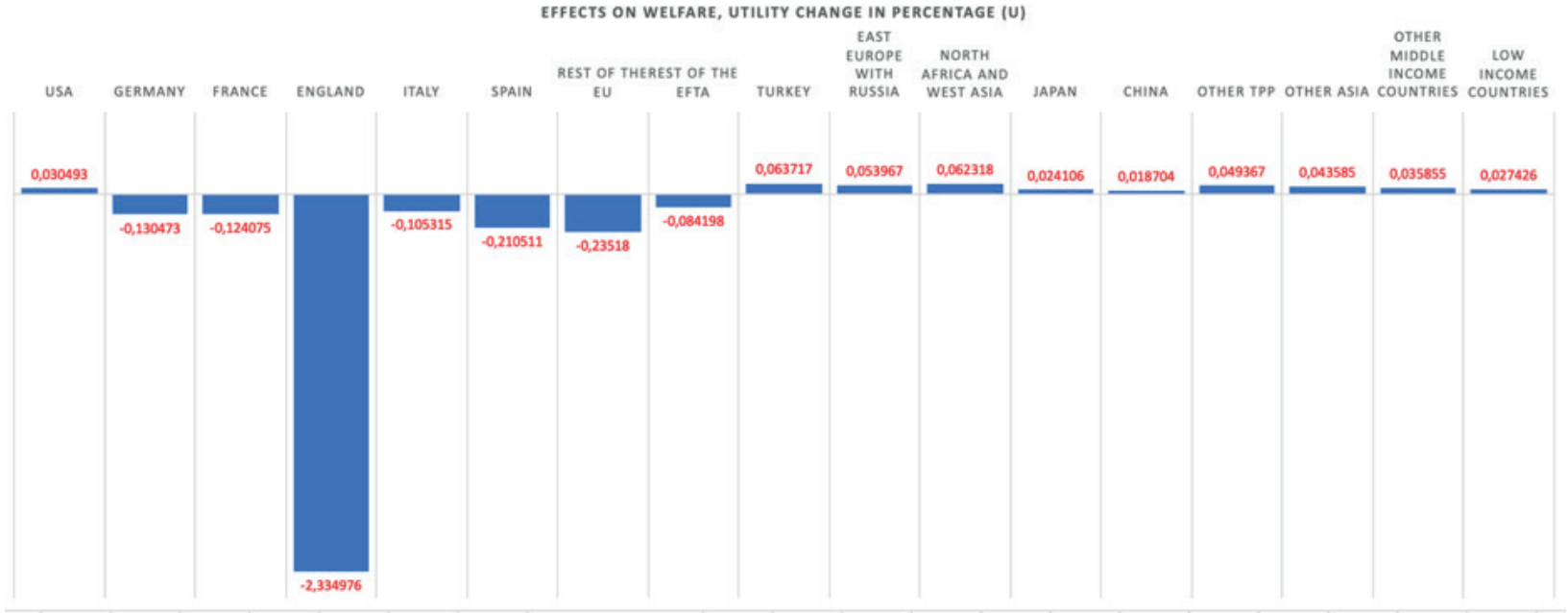

Figure 2. Soft Brexit: Effects on welfare, utility change, % (u)

Source: Author's projections.

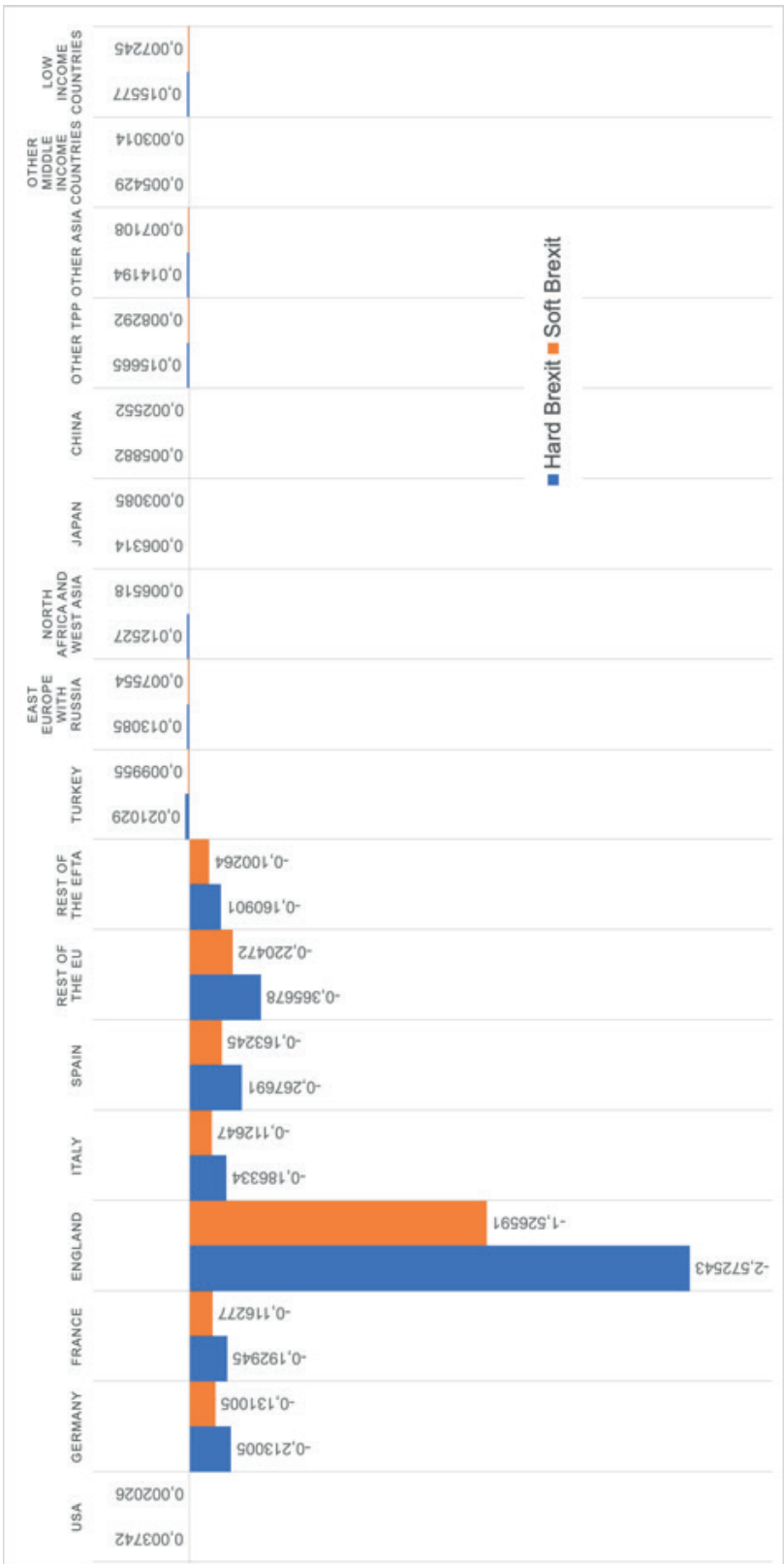

Figure 3. Effects on welfare, qgdp, change in real GDP, %

Source: Author's projections.

size can be observed comparing Fig. 2 and Fig. 4: the positive welfare effect for the United States attributed to the studied policy in real GDP is much less articulated for the relative change than for the absolute equivalent of the Fig. 2. Consequently, the positive effect of Brexit for the USA is bigger than for other regions comparing in absolute values. For instance, the value of positive change for the US is bigger in Equivalent Variation than the value of welfare losses for Germany, which taken into account with the relative change can still indicate that only a small-scale positive welfare gain for America can be expected from Brexit, which is at the same time still greater than gains from Brexit for China.

Comparative analysis of the welfare results for "Hard Brexit" and "Soft Brexit" simulations showcase that more than a half of the policy effect is derived from the "single market unbinding" and application of non-tariff barriers: more than 80% of the impact was caused by the NTMs, while only less than 15% can be attributed to the MFN tariffs (in EV results -88,261 for "Hard" and -52,884 for "Soft Brexit" in millions). It highlights the importance of the single market benefits in terms of non-tariff regulations and its profound effect on the overall trade between European countries. This assumption seems logical, because European tariffs have been measurably decreased since the General Agreement on Tariffs and Trade, all the while non-tariff barriers regulation has become rather advanced and developed in the EU. Additionally, this fact provides ground for the speculation that even in case of "Soft Brexit" the losses for the UK are going to be rather significant and the no-deal case does not differ by the agreement scenario in more than 50% as the main negative effect stems from imposition of the non-tariff barriers. Taken this proportion into account, it should be noticed that even in case of "Soft Brexit" Britain is going to face severe losses for GDP, which can provide a striking example of negative "single market unbinding" and its consequences and also prove the importance and impact of NTB measures. It can be observed that the main negative effect is going to be suffered from the loss of the European single market access, and in both cases the negative welfare effect is going to be serious and substantial.

However, one needs to keep in mind that NTBs do not change instantly and the effect of the single market cannot be reversed in one moment. These obstacles to trade require constitutional changes, legislative changes or technical changes. Additionally, NTBs are not likely to be implemented immediately after Brexit, as they are usually kept by lobbing groups of firms, while at the same time perceived economic benefits lower than costs of changing NTMs. Moreover, the future of the further NTBs regulation between these two regions at this time is not possible to completely foreseen, as following agreements in this field remain to be rather obscure until the 31 December, when the mode of this policy is going to be decided by the UK government.

The decomposition of regional EV is constituted of the allocative effects which are given by various per capita quantity change terms multiplied by initial taxes, terms of trade effects, effects of technical change, and effects of per capita endowment

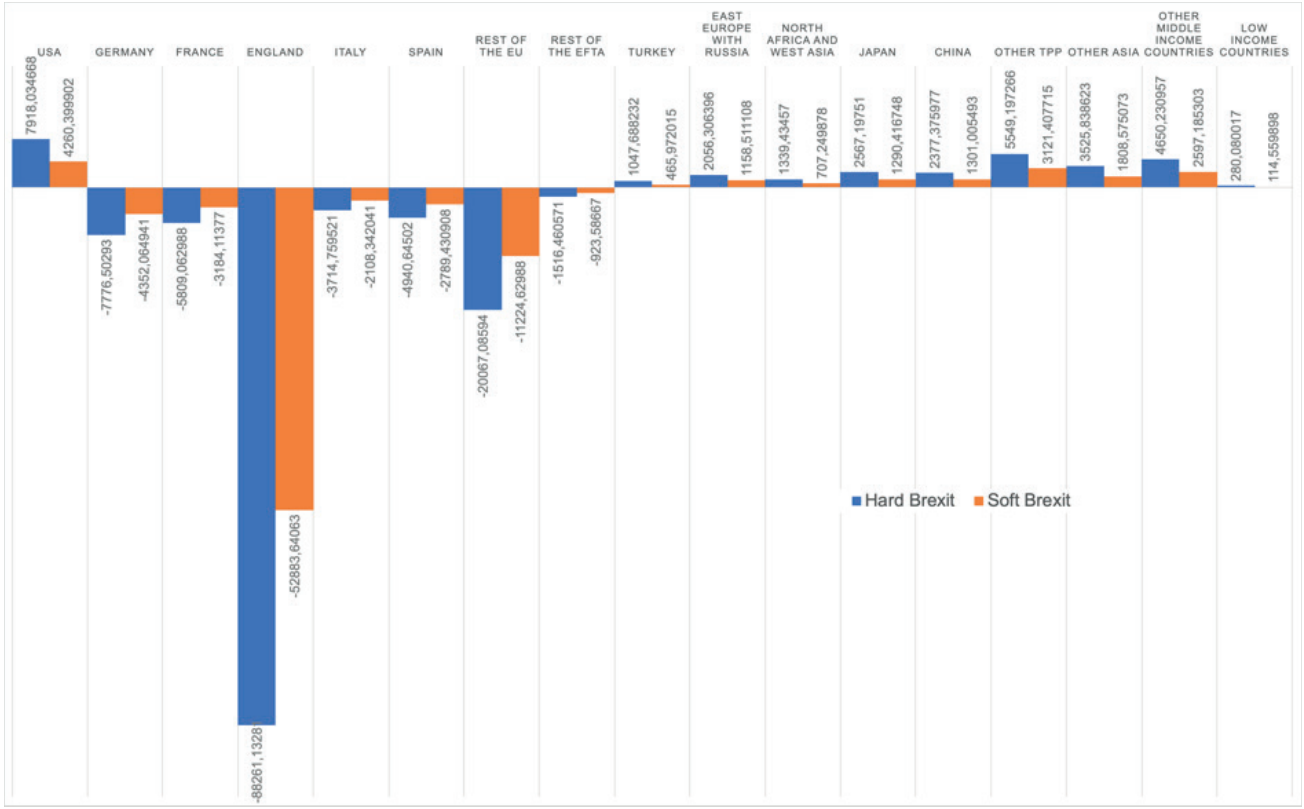

Figure 4. Effects on welfare, EV, Difference in pre- and after shock utility valued at base-year prices measured, million U.S. dollars.

Source: Author's projections.

and population change [24]. It can be noted that positive effect for the rest of the world can be explained with potential trade creation, as the UK and the EU will face the necessity of trade differentiation and other countries might benefit from more advantageous agreements with Britain. However, the studied regions are likely to experience also the problem of trade diversion, which can contribute to the welfare loss. Considering the simulation results, this problem is going to affect at much larger scale world economy than trade creation. Britain will be outside of the European Union, consequently trade flows will be diverted from the UK, because of additional protectionist regulation and the UK being outside of the European single market and customs union. Trade diversion will cause inefficient allocation of resources and increased costs, and in such a way decrease welfare of the regions. This aspect also explains disproportionality in the results, as the UK is going to suffer much more than the EU from Brexit, because Britain is going to become relatively more less attractive export location in terms of trade policy, as other European countries will change its regulation only in respect to the UK, but Britain will have to change its governance in trade with all European countries.

The vast part of negative impacts originates from decreasing technology, which stresses the dominance of NTB's shock impact, as non-tariff barriers have been implemented in the model in form of increased iceberg trade costs with the parameter "ams" incorporated in the production technology. Hence, there is a decline in technology of production, as after the policy is introduced, firms need to produce more goods and services in order to satisfy the same demand, because a bigger part of the total production is lost in export transit. This is the main assumption of the chosen approach for simulation of non-tariff barriers. But technology will be affected only in European countries, as only they are going to change non-tariff barriers regulation because of Brexit. Britain is going to suffer the most damage, because of the compound negative increase in tariff barriers and NTBs from the EU members.

Another important determinant is terms of trade, which is import purchasing power of a country's exports affecting welfare by changing consumption possibilities. In mathematical terms, this variable is defined as export price divided by import price. Derivation of welfare decomposition can be seen in GTAP Technical Papaper №5: "Changes in welfare in the multiregion model are therefore attributed to the interactions between taxes (both pre-existing and newly introduced taxes) and quantity changes taking place over the course of the simulation, as well as the added effect of changes in regional terms of trade and changes in the relative prices of savings and investment" [24]. Because of decreasing trade with the EU and the rise in tariffs and NTBs, the price of English imports increases, and the UK loses purchasing power of its exports, while this setback is reflected in the GDP. Consequently, as terms of trade for Britain are decreasing because of the combined boost from European countries of English import prices, the EU terms of trade improve on the expense of the UK, as European export can buy more import goods from Britain.

To begin with, terms of trade are expressed in the model by the difference between index of prices received for tradeables and index of prices paid for tradeables. However, this determinant for a multi-country model can be estimated with Laspeyres index, as the ration between the Laspeyres price index of exports and the Laspeyres price index of imports, where Laspeyres price index of export is the current value of the base period exports divided by the base period value of the base period exports.. And the opposite holds true: the reversed relation is greater than 1. Therefore, the terms of trade effect is compound from simultaneous application of tariff and non-tariff barriers in all members of the EU against single English export and vice versa. Consequently, for Britain the compound import tariff multiplicator from European prices decreases terms of trade, while for the EU this multiplicator from the product of increased import prices in Europe has multiplicated positive effect. All in all, this fact also explains disparity of the Brexit impact for the UK and the European Union, as terms of trade partly compensate for technology comedown and inefficient allocation of resources in European countries.

Looking into results of "Hard Brexit", the USA has the most positive effect of 4,558.507,324 million U.S. dollars, which is obtained through increase in trade value, as the need for European countries to differentiate trade arises. From the latter only Italy has a positive change (394,346.375 million U.S. dollars) in terms of trade, others vary in the range of 1,000 million. The deterioration in Britain of terms of trade amounts to -23,068.33203 million dollars. Spain has the worst impact on this determinant across all European countries: -842,777.527 million U.S. dollars. All of the effects stem mostly from application of increased tariffs.

From "Soft Brexit" welfare decomposition the following conclusion can be made: the effect of NTBs on terms of trade is rather indirect, whereas in contrast tariffs have immediate impact on price of export/import, and this determinant prevalently depends on trade patterns and particularities. Britain deteriorates by -13822,509766 in terms of trade, which is slightly more than half of the effect for "Hard Brexit". Nevertheless, the same conclusion from the Laspeyres ratio holds true for "Soft Brexit": almost all European countries have positive change, as for this case there is not direct decrease from tariffs.

The rest of the world have an increase in terms of trade, because both the EU and the UK are likely to substitute the missing from increased regulation trade flows and in such a way increase their export value over import value relation. The USA is unsurprisingly the main recipient of the positive change, as this country is one of the main trading partners for every region around the world with unprecedently high overall export value.

Additionally, decrease in efficiency caused by insufficient allocation of resources originates from trade diversion, increased trade costs and a decline in technology. Because of increased export prices and production costs, countries utilize the resources in inefficient way underproducing and shifting trade routes from optimal ones. All of these determinants will negatively affect mostly the economy of Britain,

and only to a lesser extent the European countries. Therefore, the negative impact can be estimated by the difference in income, equivalent variation, which is required to make up for the representative household after the policy shock. Thus, the UK is likely to experience a sharp decline in the welfare, in growth rates, in terms of trade and a drastic negative economic fall, which is going to be also reflected by associated productivity losses. This change is likely to be of structural origin and have long-lasting consequences. It is important to mention that in order to compensate for decreasing trade the UK is likely to use up some of the savings, which is stressed by this model with its closure of balance between investments and savings.

In order to study these effects on trade, it is needed to focus on the impact of terms of trade in relation to the percentage change in the value of merchandise exports ("vxwreg"). These figures provide the results of decreasing terms of trade on the export value. The sharp increase in exports prices contributes to the decline in the welfare and the difference between these two scenarios is substantial for value change of exports: -11.9% for "Hard Brexit" and less than half of it, -5.07%, for "Soft Brexit" correspondingly. The relation of terms of trade to the value of exports is direct, as it can be noticed. The changes reflected in the welfare decomposition are projected on value effects: Spain remains to be relatively the most negatively affected in export across European countries. However, for this case Turkey is going to receive the main gain from Brexit in percentage terms: 0.84% in contrast to the previously studied measures for the USA. Britain is going to experience loss in export value of -72,486.7 million U.S. dollars at world prices for Hard Brexit and -36,974 million for "Soft Brexit", Germany: -1,0468 million U.S. dollars and -5,345 correspondingly, Spain: -3789,5 and -1,879.9. While the USA has an increase in value of 6,530.15 and 3,671.14 million U.S. dollars, which is bigger than losses of all countries in the EU taken separately. Therefore, it can be concluded that in relatively moderate values for the American export this country still can benefit from Brexit. All other regions, among which there is China, are going to gain lesser value of export than the figures above.

Interesting outtakes can be derived when focusing on the effects of terms of trade in relation to the change in the quantity of merchandise exports by regions ("qxwreg"). All European countries are going to face decline in quantity of merchandise traded, although these changes are not directly reflected in the export value, as it can be noticed, because the latter greatly depend on the export structure by commodity and prices. Therefore, even though France faces the greatest losses in quantity, it is still not hurt by Brexit to the same scale in value. Similarly, the USA has a decline in quantity of merchandise, however in value there is a substantial gain in relation to the losses of European countries, which can be explained with this effect generally originating from price changes.

In order to disaggregate export effects by commodities exporter-sector-specific value percentage change is needed (vxwfob). Because the main impact of the policy is going to be incurred by the UK, it is better to begin with this region (see Fig. 6). The general trend from the results can be characterized as greater losses

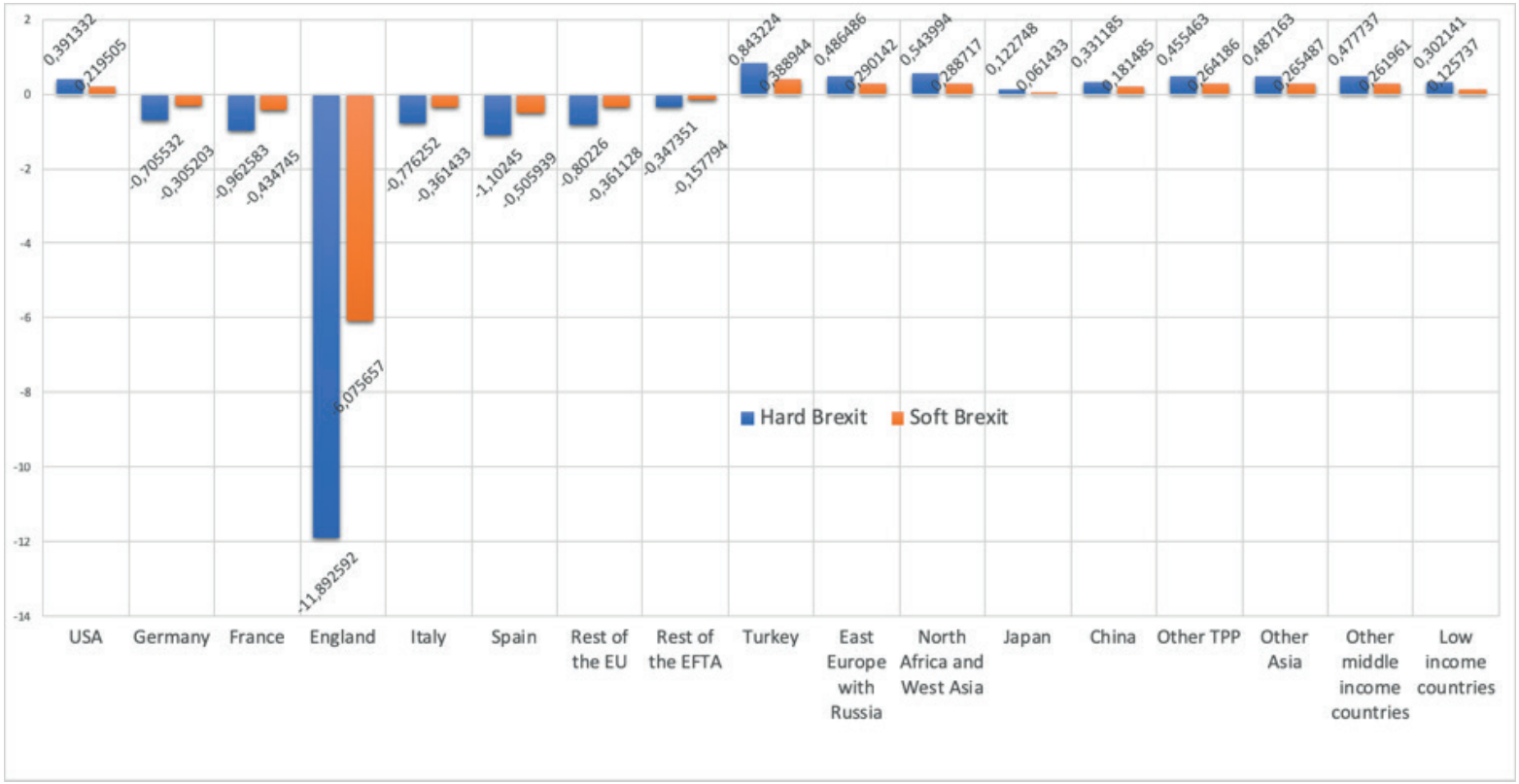

Figure 5A. Value of merchandise exports, by region, % (vxwreg)

Source: Author's projections.

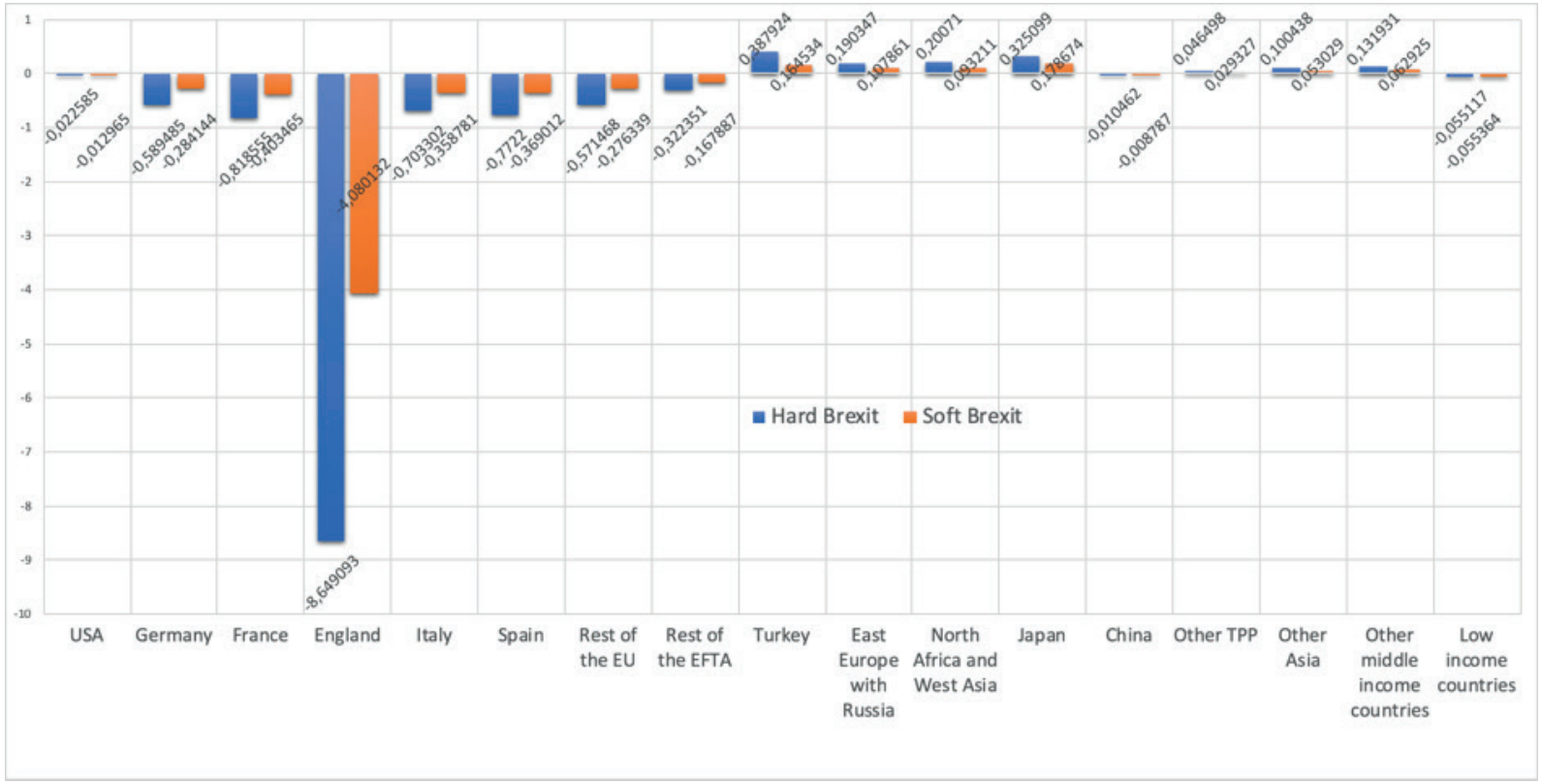

Figure 5B. Volume of merchandise exports, by region, % (qxwreg)

Source: Author's projections.

for both scenarios with some modest increases mostly in services sectors. The main sector at disadvantage is processed foods with -70% for "Hard Brexit" and -43% for "Soft Brexit", because this sector by the shock construction has the most protective MFN tariffs and NTBs. Closely connected to processed foods is primary agriculture, which appears also as rather protected sector in these simulations, and its reduction is of 50% and 22% correspondingly. However, this sector does not have the second place of total losses for "Soft Brexit" simulation, as its ad-valorem equivalent of non-tariff barriers is lower than of metals, fabricated, which is -38% and -29%. Although electrical machinery with a lower AVE is also higher in negative impact (-36% and -23%) for "Soft Brexit" than primary agriculture, which can be explained with the fact that primary agriculture is traditionally supported by subsidies, which helps it to take up some part of the shocks. Primary energy unsurprisingly is not affected by any negative change, because there is no additional protection applied by the simulation both for the EU and the UK. Another important outtake from the results is that beverages and tobacco export is not going to be changed to the same degree as other sectors by Brexit for the UK, which can be explained with consumption demand for this merchandise being inelastic, as these goods are related to dependent usage. Therefore, their export volume is not going to be decreased to the same degree by additional tariffs and NTBs being rather "sticky" even with an increase in prices, as the demand for these goods will stay persistent for some values, which also supports the total value of the trade in this sector. The same can be attributed to petrochemicals, because of these goods being used as fuel, and consequently they are one of the main intermediates for all types of production with additionally lower increased protection, which generates persistent demand for this commodity.

Other machinery sector has the lowest levels of tariff and NTB protection among all commodities, except primary energy, which can signalize that it is possible for Britain to partly offset trade losses with increased export of this goods, especially taking into account that base data in the model indicate that English exports at world prices for this sector is the greatest in value across all of commodity goods. The same conclusion can be attributed to other goods with positive change in export value of 6.6%, because their NTBs regulation for "Soft Brexit" is rather low and relatively lower than tariffs for "Hard Brexit", while their value of trade is moderate, which also makes this sector preferable for trade differentiation and amortization of negative impacts in case of "Soft Brexit".

When looking into effects on services, it can be highlighted that almost for all sectors, except for business and professional services, air transport and other transport, there is an increase in export value. The main explanation for this trend can be provided in the following form: services are not protected by tariffs, as well as their NTBs protection remains to be rather low, which supports their preferability for trade substitution. However, their export is highly dependent on modes of supply and some of services are untradeable being consumed only at local markets. Therefore, this improvement in value does not compensate for the general losses of Brexit, as the main competitive services sector of Britain (business

and professional services with base export value of 88,947 million U.S. dollars) is strongly regulated by NTBs with the highest ad-valorem equivalents across all of services. Other transport and air transport are also under increased protective regulation, which brings negative value changes. The highest increase for services is in the sector of other services, as for this group the data is missing, and for trade and distribution, because the proportion of value-added gain in this sector is the most profitable and the NTBs are low.

Because of the mostly negative change in volume of trade, a sharp decrease in bilateral volume of sales can also be expected. Trade between the UK and the EU is going to fall almost for all goods sectors if "Hard Brexit" takes place. The variable "qxs" stands for regional demand for disaggregated imported commodities by source, and it depends on the productivity shifter (-ams), market clearing conditions (qim(i,s)), elasticity of imports substitution (ESUBM) in relation to world prices and price for aggregate imports (ESUBM*(pms-ams-pim)). These changes should be studied in combination with the base values of bilateral export at world prices (VXWD), as these indicators also represent relative change in percentage. The fall in export volume from the UK to the EU is estimated in the range from -95% in processed foods, -87% in metals, fabricated, -70% in motor vehicles, -69% in electrical machinery, - 68% in primary agriculture to -25% in petrochemicals and -5% in construction. As it can be noticed, goods are affected to a much larger scale in comparison to services, because the former falls under tariffs. For services there is only decrease in construction, transport (except for maritime transport) of approximately -40% for each category and business and professional services of -43%. With a closer look into results of the "Hard Brexit" simulation, it can be noticed that Britain is likely to substitute some of the trade losses with the help of these sectors, which are increasing in sales for all regions despite the studied policy: primary energy and other machinery. Primary energy is not increasing to a large degree though: only approximately 8-9% going up, while other machinery ranges from 4% for the EU to 31% for other regions. These sectors are not declining because, firstly, they are much less regulated than other sectors by tariffs and non-tariff barriers of Brexit, and secondly, they are prevalently auxiliary sectors, thus they contribute to domestic production of regions and their external demand is more stable. Another plausible explanation can be that these sectors produce intermediates, which are highly needed at local markets and domestic prices for the UK, as Brexit is going to disrupt previously set up value-added regional chains, which means that increased quantities of these goods can be expected for new trade in intermediates. Although it should be noticed that these sectors do not increase to a greater extent than the losses from Brexit, which can indicate that they will not become another line of English export specialization only merely trying to compensate for the losses of the studied policy.

Another important observation is that there is an increase in all sectors of bilateral trade with the USA, which can support the assumption that English trade might be more inclined to shift from European trade flows towards America and other destinations. However, the same holds true for Turkey, as well as for all regions

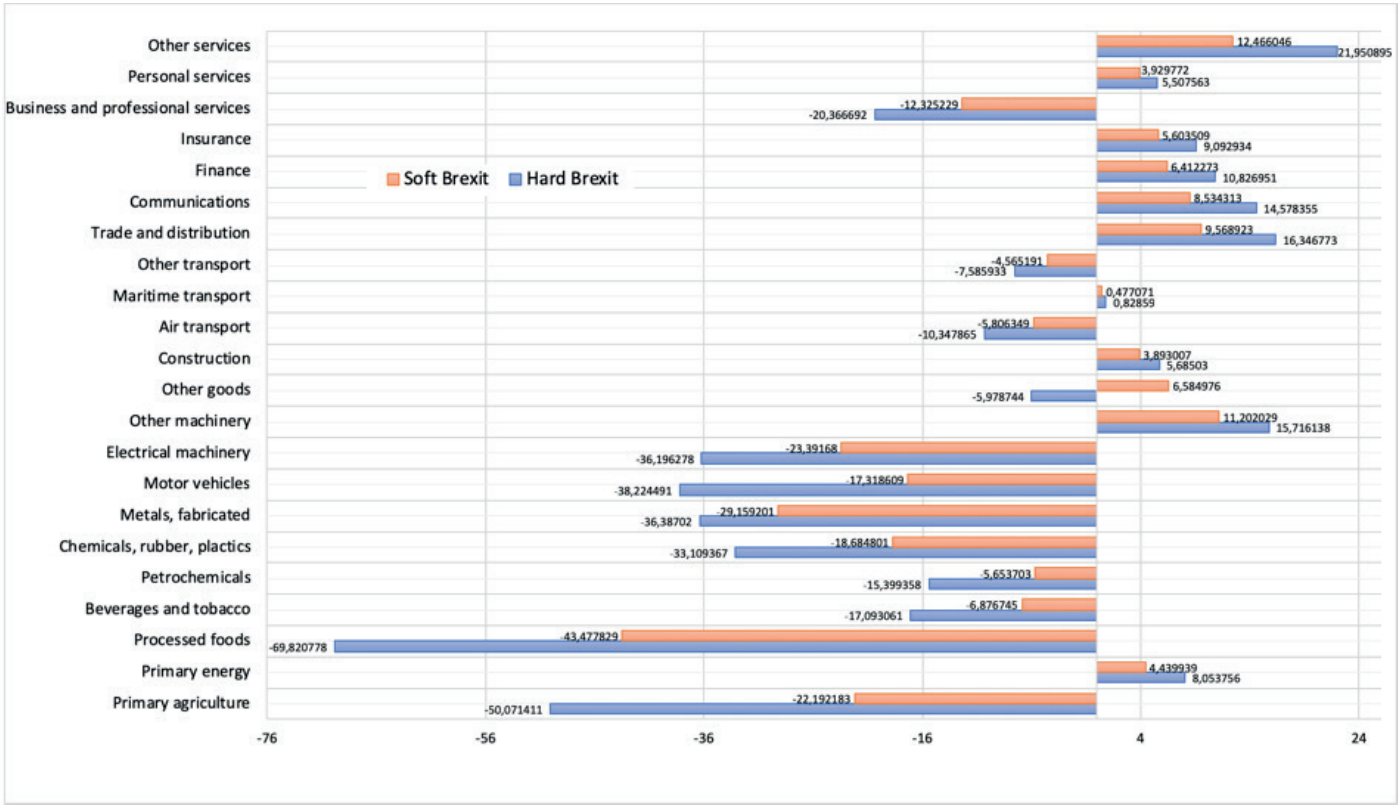

Figure 6. Exporter-sector-specific value of merchandise exports, %, Britain (vxwfob)

Source: Author's projections.

outside the EU in almost the same values, which taking into account the size and intensity of American export and import, generally outlines the trend for trade substitution without any special regional vector. Additionally, more than the half of the sectors are increasing in correspondence to the decreased trade flows. The most increased volume of exports ranging from 2% to 31% is in the following sectors: electrical machinery, primary agriculture, processed foods, other machinery, electrical machinery, other goods and almost all services. Even though all other sectors are largely damaged in export to the same scale as goods, it makes it possible for Britain to partly offset losses of "Hard Brexit" through increased trade in this area, taken into account low ad-valorem equivalents of services in relation to tariffs on goods. Furthermore, almost all service sectors are going to increase in export to the EU, except for air and other transport, construction, business and professional services. Among them the latter is one of the top traded services sectors of the UK, which explains the high level of non-tariff barriers.

One limitation to this research is that it is hard to ascertain from the results, whether there is trade creation by "Hard Brexit", as the substituted trade to other regions does not obviously create additional trade flows. And the future of new trade agreements remains to be unknown, because such international decisions depend not only on economic reasons, but they are also greatly influenced by political and social matters. By the results it is visible, that there is a necessity to compensate for Brexit losses. And the example of "Hard Brexit" simulation provides two possible ways of trade substitution for the UK: 1) sectoral trade substitution, as the UK can potentially increase trade in services in case of "Hard Brexit", because they are regulated to a lesser extent by the studied policy and 2) regional trade substitution: Britain can compensate for the damage to its exports in volume by diversification of their trade structure and trading with other than the EU partners.

By simulation of "Hard Brexit", import volume change to the UK proves the assumption that production of axillary sectors is increasing in Britain, because of a decrease in imports of these goods. The decline in import from the EU to Britain is almost of the same reciprocal scale as the fall in export from the UK to the European countries. However, for the European Union quantities of all sectors are decreasing in exports to the UK, although the European countries are not going to suffer from the same compound effect of simultaneously applied additional obstacles to trade, as it is the case for the UK, because for them only import from Britain is restricted. Furthermore, the EU have better opportunities to cope with Brexit negative changes, which is indicated by lesser welfare loses, because it is possible for them not only to trade more with other regions and in other sectors, but also differentiate and increase the "internal" trade with other European countries. Additionally, low export losses at the global scale for the EU can be explained with the fact that it can be easier for European countries to substitute and differentiate trade inside the European Union and outside with other countries than for the UK, as European trade destinations, agreements and flows are already set up and they don't require additional institutional, legislative and economic regulation after Brexit, therefore, they will not induce additional costs.

This is supported with the observation that there is a modest increase for the EU in exports with all regions except the UK, despite a very limited number of some regional exceptions.

However, for services there is one service sector which is generally decreased for all European countries almost for all destinations, which is finance. To provide an explanation for this change, export of finance services is generally depended on the overall political and economic world situation, as finance is highly influenced by expectations of all agents and prices for these services can change abruptly with any disruptive events. Therefore, it can be wisely and necessary to limit the export of this sector in times of such a global and controversial process as exit of the UK from the EU, because the prices of these services are likely to be unstable during and after Brexit. All other effects to the volume of European export are mostly positive, and in case of the negative ones they are much of a lesser extent of the studied changes, and they mainly depend on regional export structure and peculiarities. The import of all other than the axillary goods sectors to the UK is increasing from all countries other than the EU, because of the increased English import demand, as import from European countries falls, and thus the UK needs additional volumes of imported goods and intermediates in order to satisfy growth of local industries and support the welfare of consumers, as one of the most increased sector in import is processed foods, which has approximately quantity of 100% change from all non-European regions.

However, this situation is not the same with services: construction, trade and distribution, communication, finance, personal services, insurance and other services are declining in imports to the UK. The reason behind this change is the same as with auxiliary sectors: increased English export of these sectors reduces the imports by protectionist policy in order to obtain competitive advantage at global markets. This is supported with the fact that in all of these sectors there is an increase of export from the UK. While on the contrary, import of reduced sectors by additional obstacles to trade (such as business and professional services, transport, etc.) is increasing. Therefore, there is an interesting outtake from "Hard Brexit" simulation that this policy can develop English specialization in finance at the expense of other regions, as this sector is less regulated than the other, and this is proven by corresponding increase in English export to the decrease in global export of these services.

When looking into export changes for the UK under "Soft Brexit", the character of the effects generally remains the same but of lesser extent, which was previously studied with overall dissimilarities of export volume impact by region. However, additionally to the previously increasing sectors in export from Britain there is the sector of other goods, which also shows the same upward trend for all regions. It can be possible for this sector to expand in export because of the tariff staying the same. Therefore, expansion of consumer goods manufacturing is possibly a logical extension of Brexit protectionist policy, because these goods have the smallest AVEs among all goods sectors, except for primary energy and other machinery. The same

corresponding situation with the negative addition of other goods is with changes to import volume destined for the UK. Export from European countries also differs with "Hard Brexit" simulation only in decreased values, but there is no any change of trends, which is not very surprising as the impact of non-tariff barriers is already included in the "Soft Brexit" simulation with halved estimations of AVEs.

To sum up the analysis of export and import changes for "Hard Brexit", this policy change might be beneficial for English specialization in services to some extent and new trade relations of the studied regions, and also Brexit can stimulate trade flows in different direction from the EU. But even these positive effects of no-deal case are highly unlikely to compensate for negative welfare effects in the UK and the global problem of trade diversion.

Conclusion

To sum up the results of the research, it can be concluded that the main hypothesis of the work has been proved: the effects of Brexit on trade and economy are going to be distributed disproportionally to the UK and the EU, and also inside the UK, as they depend on the structure of the internal and external economy systems and also on world trade patterns. Brexit is going to negatively affect the UK at a much larger scale than the EU, which supports the assumption of a greater importance of trade disproportionality. The loss in welfare and income from increased trade costs and inefficient resources allocation is significant for the UK and is not likely to be compensated in a short/medium run perspective, as it has structural nature and its repercussions are going to incur long-lasting negative effects. Not only will Brexit change the export/import structure of the UK, but it is likely to also change the world trade, as the studied countries will have to offset the losses with trade differentiation and new trade policies.

One of the main results of the research illustrated that both Hard Brexit and Soft Brexit will be seriously damaging for economy, as their impacts does not differ from each other by more than a half. Through this outcome of the carried-out simulation the importance of non-tariff barriers in respect to tariffs has been again proven. Almost for all cases the differences between two scenarios were in the scale, although for some aspects Hard Brexit has been discovered to have some different from "Soft Brexit" reactions. And these dissimilarities mostly indicate the different nature of these two factors of the studied policy and their effects: tariffs and non-tariff barriers.

Overall, the effect of Brexit has proved the intuition that Britain will have to substitute the lost trade with other partners increasing protectionists measures towards the EU and additionally liberalising trade in other directions. However, the UK will also likely not only to change its trade patterns, but also to modify its import-export structure, as under Brexit this country will have to shift trade specialization from its comparative advantage to less regulated sectors, increasing the losses of inefficient

allocation, loss in world and national welfare and trade distortion. Although, some sectors might benefit from this policy change – mostly agricultural ones, which typically benefit from government regulation. But even for such a protected and subsidised sector as agriculture, which is relatively small in the UK, the protectionist gain is not going to compensate for the national losses. It can be also mentioned that trade in manufacture and intermediates between the UK and other trade partners is likely to decrease because of the structural change in economy of Britain.

References

A. Sources in English

[1] Anderson, J., Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. American Economic Review, No. 93. Pp. 170–192.

[2] Arriola, C. et al. (2018). The Potential Macroeconomic and Sectoral Consequences of Brexit on Ireland. OECD. URL: <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP(2018)56&docLanguage=En>.

[3] Arkolakis, C., Costinot. A., Rodriguez-Clare, A. (2012). New trade models, same old gains? American Economic Review. Vol. 102. No. 1. Pp. 94-130.

[4] Bacchetta, M. et al. (2012). A practical guide to trade policy analysis. World Trade Organization, United Nations Conference on Trade and Development.

[5] Bastos, M. T., Mercea, D. (2019). The Brexit botnet and user-generated hyperpartisan news. Social Science Computer Review. Vol. 37. No. 1. Pp. 38-54.

[6] Bergin, A. (2019). Ireland and Brexit. URL: <https://www.esri.ie/system/files/publications/QEC2019SPR_SA_Bergin.pdf>.

[7] Burfisher, M.E. (2016). Introduction to Computable General Equilibrium Models. 2nd Edition. Cambridge: Cambridge University Press. URL: <https://b-ok.cc/book/3383781/c14088>.

[8] Dan C., Dadkhah A., Xiao, J. (2017). Brexit Trade Impacts: Alternative Scenarios. SSRN Electronic Journal. URL: <https://doi.org/10.2139/ssrn.2981314>.

[9] Davies, R. B., Francois, J. (2018). Making the Worst of a Bad Situation: A Note on Irexit. The Economic and Social Review. Vol. 49. No. 4, Winter. Pp. 455-462.

[10] Dhingra, S., Hanwei, H., Gianmarco, O., Pessoa, J.P., Sampson, T., Van Reenen, J. (2017). The Costs and Benefits of Leaving the EU: Trade Effects. April 2017. URL: <http://eprints.lse.ac.uk/83612>.

[11] Dixon Peter, B., Michael, J., Maureen, T. (2018). Trade Theory in Computable General Equilibrium Models. URL: <https://www.springer.com/gp/book/9789811083235>.

[12] Dixon Peter, B., Michael, J., Rimmer Maureen, T. (2015). Modern Trade Theory for CGE Modelling: the Armington, Krugman and Melitz Models, Centre of Policy Studies Victoria University, Melbourne, GTAP Technical Paper No. 36 (February 2015). URL: <https://jgea.org/resources/download/7252.pdf.

[13] Egger, P. et al. (2015). Non-tariff barriers, integration and the transatlantic economy. Economic Policy. Vol. 30. No. 83. Pp. 539-584.

[14] Erken, H. et al. (2018). Measuring the permanent costs of Brexit. National Institute Economic Review. Vol. 244. No. 1. Pp. R46-R55.

[15] Felbermayr, G., Gröschl, J. K., Heiland, I. (2018). Undoing Europe in a new quantitative trade model. Ifo working paper No. 250.

[16] Francois, J., Manchin, M. (2017). Economic Impact of a Potential Free Trade Agreement (FTA) Between the European Union and the Commonwealth of the Independent States. URL: <https://econpapers.repec.org/paper/seccnrepo/0084.htm>.

[17] Francois, J.F., Reinert, K.A. (eds.) (1998). Applied Methods for Trade Policy Analysis. Cambridge: Cambridge University Press.

[18] Francois, J.F., Shiells, C.R. (eds.) (2008). Modeling Trade Policy. Cambridge: Cambridge University Press.

[19] Greene, W.H. (2012). Econometric Analysis. New Jersey: Pearson Education. Seventh edition. URL: <http://www.habibelahi.ir/download/green-V7.pdf>.

[20] Grosso, M. G. et al. (2015). Services Trade Restrictiveness Index (STRI): Scoring and weighting methodology. OECD. URL: <https://pdfs.semanticscholar.org/8cf5/edf32ee662b4a5c88cfca53d91bb9c694182.pdf>.

[21] Hertel, T. et al. (2014). GTAP 8 Data Base Documentation. URL: <https://www.gtap.agecon.purdue.edu/databases/v8/v8_doco.asp

[22] Hertel, T. (ed.) (1997). Global Trade Analysis: Modeling and Applications, Chapter 2: Structure of GTAP, Cambridge University Press. URL: <https://www.gtap.agecon.purdue.edu/resources/download/86.pdf>.

[23] Hoekman, B. et al. (2016). UK trade with developing countries after Brexit. URL: <https://assets.publishing.service.gov.uk/media/5b69baa6e-5274a1504efd535/DFID_scoping_paper.pdf>.

[24] Huff, K., Hertel, T. (2000). Decomposing welfare changes in the GTAP model. URL: <https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=308>.

[25] Kierzenkowski, R. et al. (2016). The economic consequences of Brexit. OECD.

[26] Leontief, W.W. (1936). Quantitative Input and Output Relations in the Economic Systems of the United States. The Review of Economics and Statistics, No. 18. Pp. 105-125. URL: <https://www.jstor.org/stable/1927837?seq=1#metadata_info_tab_contents>.

[27] Lloyd, P., Zhang, X. G. (2006). The Armington Model. Melbourne: Productivity Commission. URL: <http://www.pc.gov.au/research/swp/armingtonmodel/armingtonmodel.pdf>.

[28] Minford, P. (2019). The Effects of Brexit on the UK Economy // The World Economy. No. 42 (1). Pp. 57–67. URL: <https://doi.org/10.1111/twec.12771>.

[29] Ortiz Valverde, G., Latorre, M. C. (2018). A computable general equilibrium analysis of Brexit: barriers to trade and immigration restrictions. SSRN No. 3282231. URL: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3282231>.

[30] Revell, B. J. (2017). Brexit and tariff rate quotas on EU imports: a complex problem. EuroChoices. Vol. 16. No. 2. Pp. 10-17.

[31] Sachs, A., Stiftung, B. (2019). Brexit and German-British Pro-duction Chains.

[32] Shepherd, B. (2016). The gravity model of international trade: A user guide (An updated version). United Nations. URL: <https://www.unescap.org/resources/gravity-model-international-trade-user-guide-updated-version>.

[33] Solow, R. M. (1955). The production function and the theory of capital // The Review of Economic Studies. Vol. 23. No. 2. Pp. 101-108.

[34] Troitiño, D. R., Kerikmäe, T., Chochia, A. (ed.) (2018) Brexit: History, Reasoning and Perspectives. Springer.

[35] Vandenbussche, H., Connell Garcia, W., Simons, W. (2019). Global value chains, trade shocks and jobs: an application to Brexit. URL: <https://core.ac.uk/download/pdf/95687555.pdf>.

[36] Zhang, X.G. (2006). Armington Elasticities and Terms of Trade Effects in Global CGE Models, Productivity Commission Staff Working Paper, Melbourne, 2006. URL: <https://www.pc.gov.au/research/supporting/armington-elasticities/armingtonelasticities.pdf>.

[37] Global Trade Analysis Project. URL: <https://www.gtap.agecon.purdue.edu/resources/download/6122.pdf>.

[38] Economic modelling journal (https://www.journals.elsevier.com/economic-modelling).

B. Legal texts and legislation

[39] Department for Exiting the European Union (2018). Legislating for the Withdrawal Agreement between the United Kingdom and the European Union, Cm 9674, July 2018. P. 16.

[40] European Commission (2010). Proposal for a Regulation of the European Parliament and of the Council Amending Regulation (EC) No. 663/2009 Establishing a Programme to Aid Economic Recovery by Granting Community Financial Assistance to Projects in the Field of Energy.

[41] GATT Secretariat (1994). The results of the Uruguay Round of multilateral trade negotiations: The legal texts. – General Agreement on Tariffs and Trade 1994.

[42] Lord Bridge's judgment in R v. Secretary of State for Transport, ex p. Factortame (No. 2) [1991] 1 All ER 70, 2.

[43] House of Commons Exiting the European Union Committee (2018). Oral evidence: The progress of the UK's negotiations on EU withdrawal, HC 372, 3 December 2018, Q3376 5.

C. Sources in Russian

[44] *Алиева Б.Р.* Последствия «брексит» для внешнеэкономических связей Соединенного Королевства Великобритании и Северной Ирландии // Проблемы современной экономики. 2016. №. 4 (60). С. 166–176.

[45] *Андреева Г.Н.* Конституционное право Великобритании и Брексит // Социальные и гуманитарные науки. Отечественная и зарубежная литература. Сер. 4, Государство и право: Реферативный журнал. 2018. №. 3. С. 41–44.

[46] *Демидов И.С.* Брексит: причины и последствия // Европа, Россия, Азия: сотрудничество, противоречия, конфликты. 2018. С. 313–319.

[47] *Лаврусь В.В., Стрельцов Н.В.* Жесткий Брексит // Экономические науки. Современное состояние и перспективы развития. М., 2018.

[48] *Лазарева Е.В., Берстенева А.А.* Великобритания в ЕС: вступление, отступление, Брексит // Вестник Томского государственного университета. 2018. №. 435. С. 127–134.

[49] *Ясин Е., Снеговая М.* Роль инноваций в развитии мировой экономики // Вопросы экономики. 2018. №. 9. С. 15-31.

Анненков Г.[1]

Оценка экономического эффекта Брексита для торговых потоков между Великобританией и Европейским союзом с помощью вычислимой модели общего равновесия GTAP

В исследовании дается оценка экономических эффектов Брексита для внешней торговли и экономики Великобритании в целом с применением модели проекта GTAP. Приводится анализ двух сценариев выхода Великобритании из ЕС: «жесткий Брексит», т.е. выход «без сделки», и «мягкий Брексит», т.е. выход с заключением соглашения о свободной торговле между Великобританией и ЕС. Модель не позволила обнаружить эффект создания торговли. Напротив, присутствует эффект отклонения торговли. В рамках исследования выявлено, что влияние Брексита на Великобританию и на ЕС не является пропорциональным, а также подтвердилась гипотеза о влиянии Брексита на внешнюю торговлю и экономику Великобритании в целом.

Ключевые слова: *Соединенное Королевство, Европейский союз, Брексит, внешняя торговля, GTAP.*

Статья поступила в редакцию в ноябре 2019 г.

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Z. Enikeeva[1]

Digital Agenda in the EAEU Countries: The Case of Kyrgyzstan

Declared 'EAEU Digital Agenda 2025' shows the interest of countries towards the topic of economies' digital transformation. The Kyrgyz Republic is not an exception. The Government accepted national policies that cover the subject of digitalization, some key sectors of which are identified. The article includes the analysis of policies within 'EAEU Digital Agenda 2025', state policies 'National Strategy of Development of the Kyrgyz Republic for 2018-2040' and the 'Concept of Digital Transformation 'Digital Kyrgyzstan' 2019-2023', main indicators of digitalization of all five EAEU member-states, as well as investigation of digitalization in agricultural sector, tourism sector and creative economy.

Key words: *Eurasian Economic Union, Kyrgyz Republic, digitalization, digital agenda.*

JEL F15 O38 **doi:10.17323/2499-9415-2019-4-20-55-82**

Introduction

2019 is named the "Year of Regions' Development and Digitalization" in Kyrgyzstan in purpose to further development of regions and introduction of technologies into daily life of communities. According to the President of the Kyrgyz Republic, Sooronbai Jeenbekov, "digital technologies will enter the whole areas of life – education, medicine, business, tourism"[2].

According to Merriam-Webster's Dictionary, 'digitalization is the process of converting something to digital form'.[3] According to representatives of ministers of the Eurasian Economic Commission (EEC), 'digitalization is horizontal change

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2 Information Agency 'Sputnik'. 2019 is declared the Year of Regional Development and Digitalization of Kyrgyzstan. URL: <https://ru.sputnik.kg/society/20190109/1042778796/kyrgyzstan-zhehehnbekov-2019-god.html>.

3 Merriam-Webster Dictionary. URL: <https://www.merriam-webster.com/dictionary/digitalization>.

of traditional models of the economy'[1], and digital economy is economic activity based on digital processes, models, technologies, digital goods (services), including produced by electronic business[2].

Digital economy is observed under the prism of digital transformation which is formulated by the EEC as change of economic structure, change of traditional markets, social relations, and government related to the penetration of digital technologies into them[3].

The term "digital transformation of the Kyrgyz Republic" used by local public authorities means development of digital government, including parliament, where digital platforms are established by default with focus of digital services on mobile devices[4].

The purpose of this article is to analyze policies where the term 'digitalization' is declared, identify current achievements in digital transformation of important for the country sectors, pointed out in 'National Strategy of Development of the Kyrgyz Republic for 2018-2040' and in the 'Digital Kyrgyzstan', find any reference to digitalization in EAEU's documents and programs in those sectors and look at existing activities in in digital transformation of those sectors in some EAEU member-states.

Policies for Digitalization

All five members of the Eurasian Economic Union (EAEU) accepted the 'Digital Agenda 2025', a medium-term strategic document defining the goals, principles, tasks, directions and mechanisms of cooperation of the EAEU member states on the implementation of the EAEU digital agenda. EAEU Digital Agenda is the

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1 Eurasian Economic Commission (2018). Novyye tekhnologii: vozmozhnosti i riski. Chto dadut YEAES innovatsionnyye finansovyye instrumenty – blokcheyn, kriptovalyuty i t.p.? (New technologies: opportunities and risks. What will the EAEU give innovative financial instruments - blockchain, cryptocurrencies, etc.?). URL: <http://www.eurasiancommission.org/ru/nae/news/Pages/13-02-2018-1.aspx>.

2 Eurasian Economic Commission (2019). Digital Agenda of EAEU. Glossary. URL: <https://digital.eaeunion.org/extranet/about/glossariy.php>.

3 Ibid.

4 State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27>.

range of issues on digital transformations within the framework of developing integration, strengthening the common economic space and deepening cooperation among member states, reflected in the 'Statement on the EAEU Digital Agenda' (signed by the heads of EAEU member states on December 26, 2016).[1]

The main purposes of Digital Agenda are:
- accelerated transition of economies to a new technological way
- high-quality and sustainable economic growth
- creating an enabling environment for innovation
- the formation of new industries and markets
- updating mechanisms of integration cooperation
- increasing the efficiency of economic processes
- enhancing the competitiveness of the economies of EAEU member states

Besides this, each county has own national digital transformation program. Thus, Kyrgyzstan has 'The Concept of Digital Transformation "Digital Kyrgyzstan" 2019-2023' which was accepted in 2019. The Concept determines structure of transformation, management system and basic processes of country's digitalization. Moreover, the Concept determines the main sectors of economy where digital transformation is more than preferable: agriculture, light industry, tourism and creative economy.[2] The Concept defines management system, steps of Concept's realization and target indicators where indicators of 2016-2018 are taken as basic ones.

The Concept puts indicators which Kyrgyzstan should achieve by certain year. Thus, the share of public services provided in electronic format in relation to the total number of public services provided in the traditional way is equal to 7% in 2018, and by 2023 it should be equal to 80%; the share of digitized documents of state authorities was 5% in 2018, and by 2023 this indicator should be 80%.[3]

'The Concept' is not the only national program that declares about digitalization and digital transformation of Kyrgyz economy. Plans about digitalization is described in 'The National Strategy of Development of the Kyrgyz Republic for 2018-2040' (or '2040 Sustainable Development Strategy' briefly), which was

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1 Eurasian Economic Commission. Main Directions Implementation of The EAEU Digital Agenda Till 2025. URL: <http://www.eurasiancommission.org/ru/act>.

2 State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27>.

3 More target indicators are available at: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27>.

signed by the President of Kyrgyzstan in 2018. Notion about Kyrgyzstan's digitalization goes through the whole strategy, and it is declared that by 2040 the Kyrgyz Republic should be a digital hub station on the Great Silk Way, and created datacenters network will provide ICT services to the whole region: Central Asia, EAEU, Middle East, China and Europe.[1] Besides description of country's vision by 2040 with intermediate results achieved by 2030, the Strategy includes priority sector of development: industry, agro-industry complex and cooperation, light industry, tourism.

In addition, the country has the National Program of Digital Transformation on creation of open, transparent, technology intensive community at the level of each citizen, competitive business, stable government and reliable international relations named 'Taza Koom' (or "Clean Community" from Kyrgyz language). 'Taza Koom' is a key component of the '2040 Sustainable Development Strategy'. Taza Koom should assist in activating of transition into digital economy, and creating mobile and flexible state, with modernization of key social spheres of the country (education, health, ecology), economic (energy, agriculture, industry, services) and political (corruption prevention, fair elections). Taza Koom should assist in achievement of all17 Sustainable Development Goal (SDGs)[2] and related to them tasks[3].

Discussions about digital transformation are done with discussions about cyber security. Many countries admit the necessity to make their economies secure and strong from assaults including hacker attacks. Kyrgyzstan accepted 'The Strategy of Cyber Security of the Kyrgyz Republic for 2019-2023'. The Strategy includes definitions of cyber security and related topics, descriptions of the main targets and functions, touches upon international cooperation and technical standardization and depicts expected outcomes from its realization as well as its monitoring[4].

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1 Government of the Kyrgyz Republic. National Development Strategy of the Kyrgyz Republic for 2018-2040. URL: <http://www.gov.kg/?page_id=125892&lang=ru>.

2 The Sustainable Development Goals developed by United Nations Organization, are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it is important that we achieve each Goal and target by 2030.

3 Taza Koom. About the Taza Coom Digital Transformation Program of the Kyrgyz Republic. URL: <http://tazakoom.kg/site/concept/4>.

4 Government of the Kyrgyz Republic. Strategy of Cyber Security of the Kyrgyz Republic for 2019-2023. URL: <http://cbd.minjust.gov.kg/act/view/ru-ru/15479>.

Brief mention of the Digital Great Silk Way in terms of One Belt One Road realization is reflected in the Digital Kyrgyzstan 2019-2023 that its revival along with other international initiatives such as EAEU Digital Agenda, national policies on digital transformation "open up new opportunities for the private sector to expand sales markets and create new types of goods and services and participate in the global production chain"[1]. However, exact programs or activities within this initiative are still unknown.

Some Indicators Related to Digital Transformation

The EAEU Digital Agenda does not define certain indicators which the union itself and members separately should achieve by 2025. The joint survey done by World Bank and Eurasian Economic Commission operates with figures such as 2025 general target indicators. Among them there are increase in the share of the digital economy in the EAEU to annual GDP growth, growth of the number of employees in the high-tech sector, Increase in productivity of the main sectors of the economy, increase in exports of digital goods and services, as well as in digitally-mediated exports of traditional goods and services.

Experts did not divide target indicators by countries and outline common for the EAEU marks. For example, implementation of the EAEU Digital Agenda can assist in achieving target values of up to 3 percent in employment in the ICT sector, and it will be a 2.4 percent increase in employment rates by 2025. The digital services' share of total exports was 28.3 percent in the EAEU in 2015, and by 2025 this value should be about 34–36 percent.[2]

Besides target indicators, the survey quotes figures of potential influence of digital transformation on the economy by 2025. Thus, in case of provision of universal broadband access can secure a total GDP growth of 1.7 percent for the EAEU by 2025. The savings resulting from removing legal barriers to the implementation of the EAEU Digital Agenda can potentially reach 2.6 percent of GDP.

According to the EDB, the share of the digital economy in the aggregate GDP of the EAEU is less than 3%. The share of the digital economy in Russia's GDP is

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1 State Committee of Information Technologies and Communication of the Kyrgyz Republic, "The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023", <http://ict.gov.kg/index.php?r=site%2Fsanarip&cid=27. Accessed October 20, 2019>.

2 World Bank Group. The EAEU 2025 Digital Agenda: Prospects And Recommendations. Overview Report. URL: <http://documents.worldbank.org/curated/en/850581522435806724/pdf/EAEU-Overview-Full-ENG-Final.pdf>.

3.0%, and Kazakhstan - 3.9%. The contribution of the digital economy to Kyrgyzstan's GDP is 0.4% of the country's GDP[1].

The ICT Development Index[2] is used to monitor and compare developments in information and communication technology (ICT) between countries and over time. It includes ICT infrastructure and access indicators such as fixed-telephone subscriptions per 100 inhabitants, percentage of household with internet access, Mobile-cellular telephone subscriptions per 100 inhabitants, International Internet bandwidth per Internet user, Percentage of households with a computer; ICT usage indicators with indicators percentage of individuals using the Internet, active mobile-broadband subscriptions per 100 inhabitants and fixed-broadband subscriptions per 100 inhabitants; ICT skills indicators containing mean years of schooling rate and gross enrollment ratio (secondary and tertiary level). As of 2017, the ICT development index distribution among EAEU members is the following. From 176 countries, among EAEU members the lowest ranking belongs to Kyrgyzstan – 109, the highest belongs to Belarus – 32. Closer to Belarus's ranking is Russia; it has 45, then Kazakhstan with 52 ranking and Armenia with 75 ranking.

Table 1

ICT Development Index.

	Index	**Ranking - 2017**
Armenia	5,76	75
Belarus	7,55	32
Kazakhstan	6,79	52
Kyrgyzstan	4,37	109
Russia	7,07	45

Source: International Telecommunication Union, 2017.

The United Nations E-Government Development Index[3], which describes assessments of e-government development at the national level and is based on the weighted average of three normalized indices. As a composite indicator, the EGDI

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1 Information Agency "Tazabek". Kyrgyzstan 4.0: Vklad tsifrovoy ekonomiki v VVP Kyrgyzstana ne prevyshayet 0,4% (Kyrgyzstan 4.0: Contribution of the digital economy to Kyrgyzstan's GDP does not exceed 0.4%). URL: <www.tazabek.kg/news:1458087?f=cp>.

2 International Telecommunication Union, <https://www.itu.int/net4/ITU-D/idi/2017/index.html. Access October 22, 2019>.

3 E-Government Knowledgebase. URL: <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018>.

is used to measure the readiness and capacity of national institutions to use ICTs to deliver public services.

The highest index belongs to Russia, it is 0.7969 and has 32 ranking among 193 countries; the lowest belongs to Kyrgyzstan and is equal to 0.5835 or 91 ranking.

Table 2
E-Government Development Index.

	Index	Ranking - 2018
Armenia	0,5944	87
Belarus	0,7641	38
Kazakhstan	0,7597	39
Kyrgyzstan	0,5835	91
Russia	0,7969	32

Source: United Nations, 2018.

Networked Readiness Index[1] which measures the propensity for countries to exploit the opportunities offered by ICT. It consists from three components:

- the environment for ICT offered by a given country or community (market, political, regulatory, and infrastructure environment);
- the readiness of the country's key stakeholders (individuals, businesses, and governments) to use ICT;
- the usage of ICT among these stakeholders.

Among 139 analyzed countries, EAEU members have the following indexes and rankings: Kazakhstan has 39th ranking, Russia has 41st, Armenia has 56th and Kyrgyzstan has 95th. There are no data on Belarus:

Table 3
Networked Readiness Index.

	Index		Ranking - 2016
Armenia	4,3		56
Belarus	–		–
Kazakhstan	4,6		39
Kyrgyzstan	3,7		95
Russia	4,5		41

Source: World Economic Forum.

1 World Economic Forum. Networked Readiness Index. URL: <http://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index>.

The Global Innovation Index 2019[1] provides detailed figures about the innovation of 129 countries. It has 80 indicators exploring a broad vision of innovation, including political environment, education, infrastructure and business sophistication. Among 129 countries, the highest ranking belongs to Russia (46th ranking), Armenia (64th ranking), Belarus (72nd ranking), Kazakhstan (79th ranking) and Kyrgyzstan (90th ranking). More about the component "Creative Outputs" is described in chapter "Creative Economy".

Table 4
Global Innovation Index

	Ranking 2019
Armenia	64
Belarus	72
Kazakhstan	79
Kyrgyzstan	90
Russia	46

Source: World Intellectual Property Organization, 2019.

Among 176 countries, ranking of countries dependent on percentage of population with access to Internet and population having a computer is the following[2]:

Table 5
Access to Internet and availability of computers

	% of population with internet access	**% of the population have a computer**	**Ranking - 2017**
Armenia	60.50	64.7	76
Belarus	62.5	67	71
Kazakhstan	84.4	76.2	28
Kyrgyzstan	18.8	21.4	139
Russia	74.8	74.3	52

Source: Informational Portal NoNews, 2017.

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1 World Intellectual Property Organization. Global Innovation Index 2019. Energizing the World with Innovation. URL: <https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019.pdf>.

2 Informational Portal NoNews. URL: <https://nonews.co/directory/lists/countries/households-internet>.

Number of Internet users ranking[1] includes ranking among 182 countries. And the best results belong to Russia (7th ranking), Kazakhstan (40th) and Belarus (61st); Armenia and Kyrgyzstan has 87th and 101st rankings consequently.

Table 6
Percentage of Internet Users.

	% of Internet users	Ranking - 2017
Armenia	58.25	87
Belarus	62.23	61
Kazakhstan	77	40
Kyrgyzstan	20	101
Russia	76.4	7

Source: Informational Portal NoNews, 2017.

Number of Mobile Phone Users ranking[2] was done among 217 countries. Among EAEU states, Russia has the best result, 7th ranking, Kazakhstan has 50th ranking, Belarus has 81st ranking, Kyrgyzstan has 102nd ranking and Armenia has 134th ranking.

Table 7
Mobile Phone Users ranking.

	Ranking - 2016
Armenia	134
Belarus	81
Kazakhstan	50
Kyrgyzstan	102
Russia	7

Source: Informational Portal NoNews, 2017.

Internet Freedom 2018 ranking published by Freedom House[3], depicted that among EAEU states the most free Internet is in Armenia with 27th ranking, then

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1 National Statistics Committee (2019). Analytical Review Assessment Of The Level Of Digital Development In The Kyrgyz Republic. URL: <http://www.stat.kg/ru/news/institut-statisticheskih-issledovanij-i-povysheniya-kvalifikacii-nacstatkoma-podgotovil-analiticheskij-doklad-ob-ocenke-urovnya-cifrovogo-razvitiya-v-kyrgyzskoj-respublike>.

2 Ibid.

3 Freedom House. Freedom On The Net 2018. URL: <https://freedomhouse.org/sites/default/files/FOTN_2018_Final%20Booklet_11_1_2018.pdf>.

the second is Kyrgyzstan with 38th ranking. Belarus, Kazakhstan and Russia are ranked almost next to each other, 64th, 62nd and 67th consequently.

Table 8
Internet Freedom 2018.

	Ranking - 2018
Armenia	27
Belarus	64
Kazakhstan	62
Kyrgyzstan	38
Russia	67

Source: Freedom House, 2018.

Average cost of 1 GB mobile data[1] in 230 countries allows to identify that among EAEU countries, Kyrgyzstan and Kazakhstan have the lowest costs of 1 GB mobile data, then goes Russia with 12th ranking, Armenia (27th ranking) and then Belarus (48th ranking).

Table 9
Cost of 1 GB mobile data:

	Cost	Ranking - 2018
Armenia	$1.65	27
Belarus	$2.36	48
Kazakhstan	$0.49	3
Kyrgyzstan	$0.27	2
Russia	$0.91	12

Source: Worldwide Broadband Speed League, 2018.

Global Cybersecurity Index (GCI)[2] **measures the commitment of countries to cyber security** at a global level – to raise awareness of the importance and different dimensions of the issue. It measures legal measures, technical measures, organizational measures, capacity building, and cooperation – and then aggregated

1 Worldwide Broadband Speed League. URL: <https://www.cable.co.uk/mobiles/worldwide-data-pricing

2 International Telecommunication Union. URL: <https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx

into an overall score. From 152 countries, the best among EAEU states, the best ranking belongs to Russia, it is at the 26th place, the 2nd belongs to Kazakhstan (40th ranking), the 3rd belongs to Belarus (69th ranking), the 4th belongs to Armenia (79th ranking) and the 5th belongs to Kyrgyzstan (111th ranking).

Table 10
Global Cybersecurity Index.

	Ranking - 2018
Armenia	79
Belarus	69
Kazakhstan	40
Kyrgyzstan	111
Russia	26

Source: International Telecommunication Union, 2018.

Kyrgyzstan took 111th place (from 139) within Global Creativity Index (GCI)[1] in 2015. The GCI is a broad-based measure for advanced economic growth and sustainable prosperity based on the 3Ts of economic development — talent, technology, and tolerance. Among the other Eurasian Economic Union member-states, Armenia takes 103rd place, Kazakhstan – 84th, and leaders among the Union, Russia – 38th, and Belarus – 37th.

Table 11
Global Creativity Index.

	Ranking - 2015
Armenia	103
Belarus	37
Kazakhstan	84
Kyrgyzstan	111
Russia	38

Source: Martin Prosperity Institute, 2015.

The analysis of the main indicators of digital transformation of EAEU member-states shows that there is big gap between small economies as Armenia and Kyrgyzstan and bigger Belarus and Kazakhstan and the biggest Russia. Being al-

1 Martin Prosperity Institute (2015). URL: <http://martinprosperity.org/content/the-global-creativity-index-2015

most in one range of ranking, Belarus, Kazakhstan and Russia have better digital indicators that Armenia and Kyrgyzstan (with few exceptions in such as indicators as cost of 1GB mobile data, free Internet etc.) and it might lead to big disruption in achievement of target indicators of digital transformation within Eurasian Economic Union.

Digital Transformations in Kyrgyzstan

First Results

Under the State Committee of Information Technologies and Communication of the Kyrgyz Republic, the main state authority in ICT policy, regulation, coordination, control and support, the state enterprise "Center for Electronic Interaction" was established. This Center is the authorized by the Government of the Kyrgyz Republic operator of the "**Tunduk" system**, the system of interdepartmental electronic interaction[1]. The "Tunduk" system implies that ministries, departments, state enterprises, municipal authorities and other organizations (legal entities and individuals) must exchange information directly with each other on an inter-machine level. Within this system 65 state authorities are connected already.[2] It is expected that by the end of 2019 year 189 public services will be transferred to electronic format.[3]

At the "Tunduk" website the statistics of data exchange number by type of information is available[4]. Thus, the Ministry of Labour and Social Development of KR provided information about active state payments by personal identification number in the amount of 12 in May 2019, while in June 2019 this number was 344; the Ministry of Health shared information about the assigned population to the healthcare organization to the Compulsory Health Insurance Fund 267 times in June 2019 and 4884 in August 2019. Dynamics of data exchange between state authorities shows positive growing trend (see Figure 1), and it proves effectiveness of interdepartmental electronic interaction system, speed of data exchange and absence of paper-laden procedures.

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1 Center for Electronic Interaction 'Tunduk'. URL: <https://www.tunduk.gov.kg/about>.

2 Center for Electronic Interaction 'Tunduk'. Connection Progress. URL: <https://www.tunduk.gov.kg/connection-progress

3 Ibid.

4 Tunduk. Statistics on Tte Exchange of Data from Government Agencies through the MEIS "Tunduk" from 1 September 2018 to 1 September 2019. URL: <https://www.tunduk.gov.kg>.

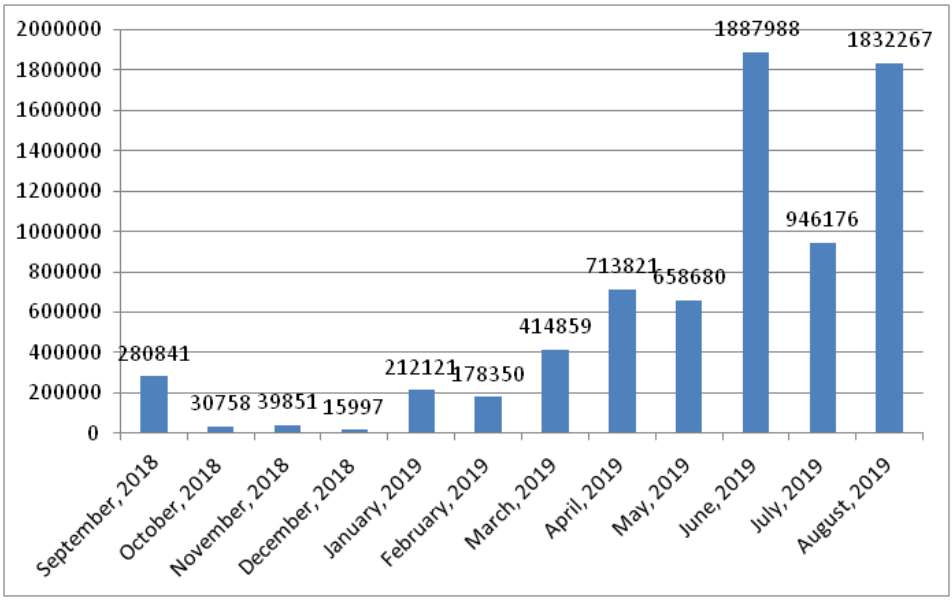

Figure 1. **Number of data exchange between state bodies within Tunduk system**

Source: Tunduk system.

As well, all technical works were done and interdepartmental regulations were signed between Department of State Purchases under the Ministry of Finance of KR, State Tax Service (STS) under the Government of KR and Social Fund (SF) of KR to create base for data exchange.

It was done for elimination of the need to provide paper certificates on the absence of debts of legal entities and individuals, which allows receiving this information automatically from the STS and SF. Currently the system is functioning[1].

Interdepartmental electronic interaction system Tunduk should significantly increase the efficiency of public administration and reduce the human factor and corruption in government agencies. And the first results show that at the moment everything goes in the right way.

It is worth noting that among 130 projects of the world, Kyrgyzstan wins prestigious award for the successful implementation of the "Tunduk" data exchange system in 2019. It is presented annually by the Estonian Academy of Electronic

1 *Tunduk. Statistics on Tte Exchange of Data from Government Agencies through the MEIS "Tunduk" from 1 September 2018 to 1 September 2019. URL: <https://www.tunduk.gov.kg>.*

Governance. The award ceremony was attended by about 500 delegates from 130 countries, representatives of the UN and the European Union.[1]

Within national program "Taza Koom" the component named "**Umnyi Gorod**" ("Clever City" from Russian) operates for several years in Kyrgyzstan. It includes many smaller projects, which should allow citizens to receive public services in electronic format, as well as increase the safety and comfort of people living in Kyrgyzstan. Within "Umnyi Gorod" program there is component named "**Bezopasnyi Gorod**" ("Safe City" from Russian) which should provide safety of citizens with the help of installation of cameras for photo and video recording of violations.

Since March 4, 2019 42 photo and video recording cameras are installed on crossroads in Bishkek, and the rest 68 cameras are going to be installed in other regions of the country[2]. Cameras installation was succeeded by significant increase of fees for violations of road traffic regulations. For example, if earlier driving while drunk was punishable by a fine of up to 10 thousand soms (145 U.S. dollars), now a fine of 17.5 thousand soms (252 U.S. dollars) is provided for ordinary citizens and up to 55 thousand soms (790 U.S. dollars) for officials.

Statistics shows that since the implementation of the Safe City project in Bishkek, the number of accidents has decreased by 49%, in the Chui region by 50%[3]. However, discussions about decrease of amount of fines are led since the moment of the project realization.

Another project which is the results of agreement between the Government of the Kyrgyz Republic and the International Bank for Reconstruction and Development / International Development Association (World Bank) called '**Open Data Action Plan**' (or 'Open Data' project briefly). The goal of the Open Data project is to create a national platform of open data and mechanisms for public access to

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1 Public Broadcasting Corporation of the Kyrgyz Republic (2019). Za uspeshnoye vnedreniye elektronnoy sistemy "Tunduk" Kyrgyzstan udostoyen nagrady (For the successful implementation of the electronic system "Tunduk" Kyrgyzstan awarded). URL: <http://www.ktrk.kg/post/27894/ru>.

2 Information Agency "Sputnik. Kyrgyzstan" (2019). V Bishkeke yeshche na 19 perekrestkakh poyavilis' kamery "Bezopasnogo goroda" — karta (In Bishkek, at another 19 crossroads, Safe City cameras appeared - map), URL: <https://ru.sputnik.kg/society/20190512/1044306516/bishkek-kamery-bezopasnyj-gorod-karta.html>.

3 Information Agency Knews (2019). "Bezopasnyy gorod": statistika za 7 mesyatsev pokazyvayet, chto situatsiya na dorogakh ukhudshilas ("Safe City": statistics for 7 months show that the situation on the roads has worsened). URL: <https://knews.kg/2019/09/13/bezopasnyj-gorod-statistika-za-7-mesyatsev-pokazyvaet-chto-situatsiya-na-dorogah-uhudshilas/>.

them due to special way of publishing information in formats suitable for subsequent processing and analysis. This approach allows for widespread reuse of public government databases by businesses, the media, and civil society.[1]

By October 2019, the platform of Open Data started to operate (see https://data.gov.kg) and it includes statistics from health sectors, investments, transport, industry, agriculture and etc. 12 state authorities such as Ministry of Justice, Mandatory Medical Insurance Fond, State Registration Service started to share information. The work in this direction has already been on track and first results show some progress. After 18 months since project's start, the Open Data project will be transferred to the Digital CASA subcomponent and will continue to be implemented as part of this large-scale 5-year project financed by the World Bank.

Digital CASA Project is regional integrational World Bank's program and has **Digital CASA – Kyrgyz Republic** component which is target-oriented on improving access to the Internet and reducing its cost, attracting private investment in the ICT sector and increasing the government's potential in the provision of electronic public services[2]. The Digital CASA - Kyrgyz Republic Project should create the basis for the implementation of the Taza Coom, which is a key component of the '2040 Sustainable Development Strategy'. The amount of financial assistance is 50 million U.S. dollars: 25 million are allocated in the form of a grant, and 25 million in the form of an interest-free loan with a commission of 0.75% per annum for services. The loan has a repayment term of 38 years, including a six-year grace period[3].

Besides mentioned above projects, the State Committee for Information Technologies and Communications of KR realized such projects as electronic records into preschool and school facilities, work under integration of electronic gates into the project 'Unified System of Accounting for External Migration' for the State Border Service and other projects.

The review of national policies and programs in the sphere of digitalization and digital transformations done by the Government of the Kyrgyz Republic for the last several years show significant progress in this direction, there are first positive results as Kyrgyzstan's award, as achievement of noteworthy characteristics

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1 State Committee of Information Technologies and Communication of the Kyrgyz Republic. About 'Open Data' Project. URL: <http://www.ict.gov.kg/index.php?r=site%2Fproject&pid=61&cid=24

2 State Committee of Information Technologies and Communication of the Kyrgyz Republic. About 'Digital CASA' Project. URL: <http://ict.gov.kg/index.php?r=site%2Fproject&pid=69&cid=25

3 Ibid.

in reduction of traffic regulation violations, solicitude about cyber security of the country, devotion to open data and many others.

But digital transformation of the economy cannot be done without transformation in key sectors. Next part includes analysis of digitalization of the main for the Kyrgyz Republic segments of the economy.

Agriculture

Being an agricultural country, with 11.7% contribution of agriculture, forestry and fishing to GDP in 2018 and 26.5% of employment in agriculture, Kyrgyzstan's state authorities indicate how important the digitalization of this sector is.

The main authorized for agricultural sector state body is the Ministry of Agriculture, Food Industry and Melioration. The Ministry of Agriculture submitted for public discussion government's draft resolution on establishment of state enterprise "Digital Agriculture" under this Ministry. Its activities will be aimed at the development and maintenance of information systems in the agricultural sector for digitalization of processes in the field of agriculture.[1]

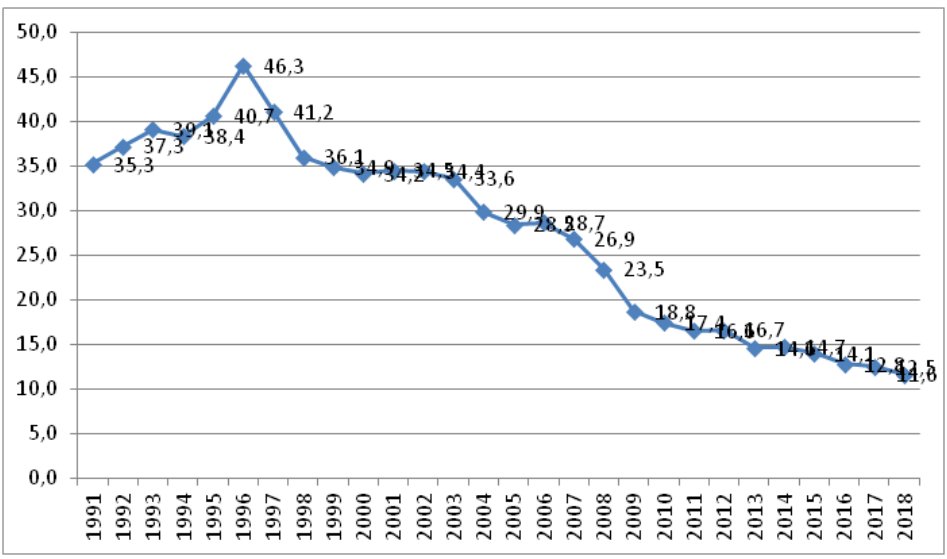

Figure 2. Agriculture, forestry, and fishing, value added, % of GDP

Source: World Development Indicators.

1 *Information Agency '24.kg' (2019). Uchrezhdeniye Tsifrovoye sel'skoye khozyaystvo poyavitsya v strukture Minsel'khoza (The institution "Digital Agriculture" will appear in the structure of the Ministry of Agriculture). URL: <https://24.kg/obschestvo/126722_uchrejdenie_tsifrovoe_selskoe_hozyaystvo_poyavitsya_vstrukture_minselhoza*

Agro-industrial Complex and Cooperation are described in the National Strategy of KR's Development for 2018-2040, where state policy in agriculture is seen as provision of country's population by quality food and turning the industry into a supplier of high-quality environmentally friendly, organic products to global and regional markets. Concrete steps on digital transformation of agro-industry are absent, however, there is mentioned that "the development of unmanned aircraft, together with national and international satellite navigation systems, will contribute to the development of not only agricultural sector, but tourism as well. It is necessary to develop joint orbital constellation of commercial satellites in order to ensure agricultural issues, the deployment of productive forces, the cadastre of real estate, vehicle control, as well as communication satellites and the country's meteorology needs[1].

The Concept Digital Kyrgyzstan also describes necessity of optimizing irrigation, monitoring land quality for sufficiency of minerals, monitoring weather conditions and moisture, monitoring the status of crops and pest threats through the use of technologies such as integrated sensor systems, automated machines for sowing and harvesting, systematic collection and transmission of data, images of agricultural land through use of unmanned drones. As well, digitalization might be useful in farming: electronic identification and monitoring, the use of Internet of things technologies to monitor the condition of animals, the collection and analysis of data from pastures, changes in weather conditions can significantly affect the increase in farmers productivity[2].Whatsoever national documents or programs with detailed action plans on digital transformation of agricultural sector are missing.

The unified program on digital transformation of agricultural sector of the EAEU member states in the EAEU is missing as well. The Eurasian Economic Union gathers the best world practices of digitalization of agriculture. Thus, there was issued the 'Overview of Digital Agenda in the World. Digitalization of Agriculture' as part of the work of the working group for developing proposals for the formation of the digital space of the EAEU[3]. Best practices of large companies of Europe and USA are reported in special issue:

- drone companies produce field survey machines that are already used by farmers for planning of planting crops and harvest;

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1 Government of the Kyrgyz Republic. National Development Strategy of the Kyrgyz Republic for 2018-2040. URL: <http://www.gov.kg/?page_id=125892&lang=ru

2 State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan'- 2019-2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanaripe&cid=27.

3 Eurasian Economic Commission. Overview of Digital Agenda in the World. Digitalization of Agriculture. URL: <http://www.eurasiancommission.org

- robotic technologies are already actively used in agriculture, moreover, both in the field of field care and in harvesting. So, the Spanish robot SW6010 (the development company –AGROBOT) uses cameras to recognize ripe berries and cut them;
- a four-wheeled robot powered by solar energy has been created at the Australian Center for Robotics at Sydney University that can recognize weed fields in vegetable bushes and destroys them by local injection of chemicals;
- sensors and measuring transductors allow to measure the acidity of the stomach of livestock, the condition of the hooves, readiness for fertilization, the course of pregnancy, etc. These data allow better monitoring of health status of animals, developing individual methods of treatment and feeding. All this, as a result, has a beneficial effect on the products received from animals and on the reduction of financial costs, since the necessary medicines and vitamins are delivered to the animals precisely and on time, which prevents the diseases from moving to progressive stages.

It is early to say about implementation of such technologies as robotic technologies into daily routine of farmers of the Kyrgyz Republic. However, something from digital production is used by farmers. For example, some consulting companies in agriculture sell mobile agricultural guidelines on biological methods in agriculture, livestock breeding, integrated protection of tomato, potato, apple, apricot and wheat from diseases and pests. Performed information might be indispensable assistant to farmers, agricultural consultants, trainers and agronomists. As well, there are sold mobile applications such as BioControl, guidelines on biological methods for improving soil fertility and plant protection and other applications.

Another company sells mobile applications for agricultural production in the markets of Kyrgyzstan and Tajikistan. Those applications are integrated into the trading platform and with the GIS system

As well, there was developed a national food security and development atlas, Kyrgyzstan Spatial, by international organizations and academia. This source analyzes food availability, accessibility, stability and utilization, and the resulting nutritional status of individuals[1].

Kyrgyzstan's government plans to implement digital technologies by using intelligent drip irrigation and moisture sensors, e-identification of cattle stock. However, there is no developed action plan for realization of those plans just as financing of them. EAEU member states should develop joint programs on use of technologies in agriculture for better integration into the union, action plan for implementation of innovations into this sector, share best practices and achieve new results. Usage of digital technologies in agriculture by all members might be

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1 Kyrgyzstan Spatial. URL: <http://www.kyrgyzstanspatial.org

useful in creation of unified EAEU brands in agri-food industry and supply the whole world by commodities under this trademark.

Tourism

The share of tourism to GDP was 4.99% in 2018, according to statistics prepared by the Department of Tourism, which is under the Ministry of Culture, Information and Tourism. During the last twenty years there are heard phrases that "let's do Kyrgyzstan as the second Switzerland" or "Kyrgyzstan is paradise place" (which is true), however, the contribution of this sector has always been no more than 5%.

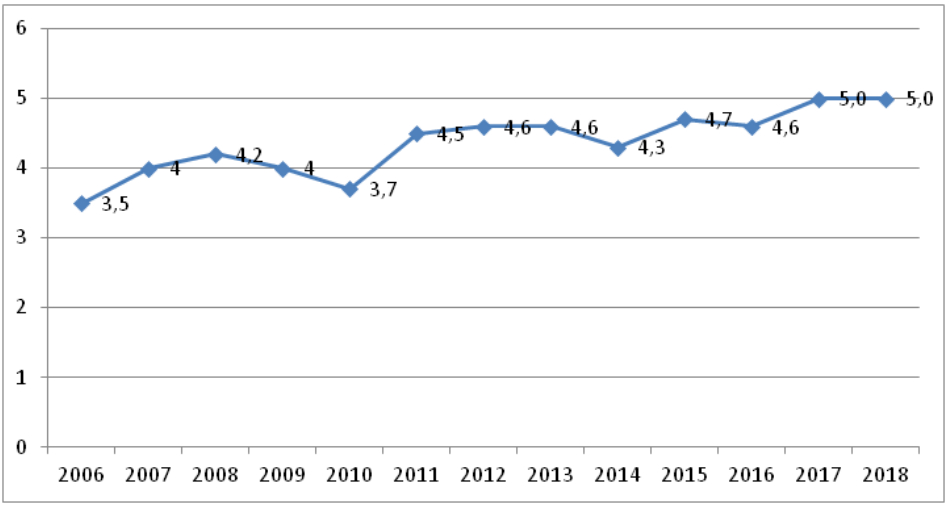

Figure 3. Share of tourism in GDP, %

Source: National Statistic Committee of the Kyrgyz Republic.

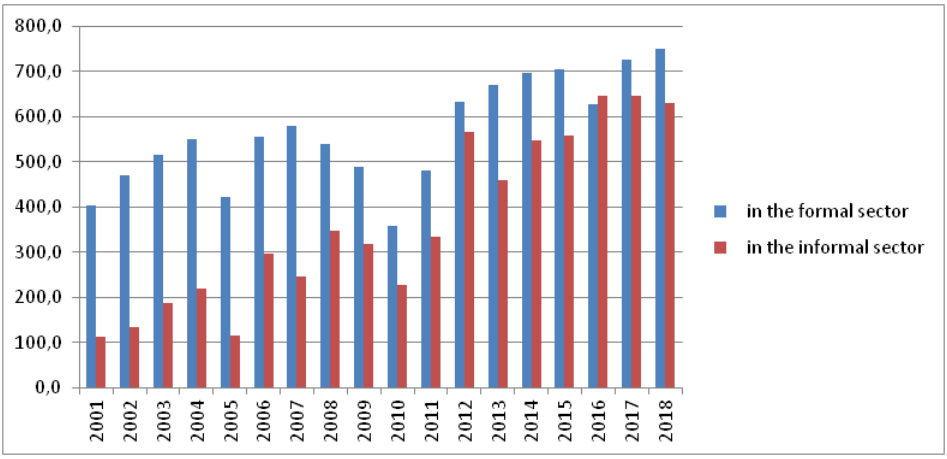

Figure 4. Number of tourists, thousand people.

Source: National Statistic Committee of the Kyrgyz Republic.

The number of tourists visiting Kyrgyzstan shows positive dynamics with few exceptions in 2005 and 2010 years, when the country had revolutions and situation was turbulent. In 2018 the number of tourists was 1,380.4 thousand people, 749.9 thousand of whom have rested in the formal sector and 630.5 had a rest in the informal sector.

Underlining the importance of tourism, Kyrgyzstan's government, however, does not have money for investments into this sector. The Government spent in total 158 billion Kyrgyz soms, 3 billion of which (or 1.9% of total budget expenditures) were spent on the item "Recreation, sport, culture and religion". From the determined amount, 2.2 billion KGS were aimed to the Ministry of Culture, Information and Tourism. As part of the Ministry, there are 25 professional theaters, 3 philharmonic societies, 60 libraries, 40 stationary club institutions, 27 museums, 1 recreation park, 1 Kyrgyzfilm Film Studio named after T. Okeyev, 37 regional and district film directors, 6 regional television and radio broadcasting companies, 49 editorial offices of regional and district newspapers and magazines.[1]

The accepted "Program of the Government of the Kyrgyz Republic for the Development of Tourism Sector for 2019-2023" in January 2019 underlines that tourism is an export-oriented sector.[2] Besides aims, purposes, tasks and target indicators, the Program illustrates that digitalization of tourism sector will be one of the strategic pivot points of its development. The further description of this point shows that under this measure is understood the unified database of economic reproduction, and recording of arriving tourists and receiving all the necessary information about the tourist infrastructure of the country[3].

The Digital Kyrgyzstan underlines that it is necessary to carry out a multilevel digitalization of business processes for that to increase the income of tourism-related enterprises, ensure the convenience and safety of tourists, and improve the image of the country as a tourist destination. Access to fast and high speed Internet and possibility of using various digital services for payments for goods and services might ease tourists' life and increase digitalization of the sector.

As a success case of digital transformation within "Taza Koom" in tourism sector, the example of launch of "E-visa" is provided. This measure makes it easier to

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1 Ministry of Finance (2019). Report on the implementation of the state budget of the Kyrgyz Republic for 2018. URL: <http://www.minfin.kg/ru/novosti/godovoy-otchet-ob-ispolnenii-byudzheta/otchet-ob-ispolnenii-gosbyudzheta-kr-za-2018-god.

2 Ministry of Justice of the Kyrgyz Republic (2019). Program of The Government Of The Kyrgyz Republic For The Development Of The Tourism Sector For 2019-2023. No. 36, 31 January 2019. URL: <http://cbd.minjust.gov.kg/act/view/ru-ru/12943.

3 Ibid.

obtain visa support by foreign citizens directly at the state border of the Kyrgyz Republic using an electronic visa. The applicant can also receive an electronic visa within 72 hours after the application.

Some experts indicate that digitalization in tourism sector might be used as creation of mobile applications for tourists that would inform not only about available services, hotels, cafes, parks, tourist destinations and entertainment, necessary telephone numbers, ATMs, but about emergencies and notifications to escape from visiting some places and tourist zones.

Talking about digitalization of tourism sector, one cannot imagine tourism without access to financial services, ability to receive cash and availability of conduction of cash-free payments. All ATMs in Kyrgyzstan accept Visa, Master Card, Union Pay International however when travelling across the country all tourist are advised to have cash on hand.

Regarding EAEU, tourism itself is not identified as one of priority sectors of union's integration. Consequently, no regulations, plans and related policies were designed by the EEC. However, the idea of creation of touristic package where EAEU as a single tourist destination, when tourists visit all five EAEU member-states at one time, pronounced at the Forum "Eurasian Weeks" in Bishkek, Kyrgyzstan by one of experts was met with warm reception by the attendant audience.

Creative economy

Being identified as one of priority sectors for digital transformation within National Concept 'Digital Kyrgyzstan', the notion 'creative economy' is used as 'creative industry', comprised of "industries that are based on the creation and use of intellectual property, namely: advertising, architecture, crafts, cinematography, design, fashion design, interactive entertainment, music, performing arts, the press, software and computing systems, television and radio"[1].

According to some Kyrgyz experts' calculations, the contribution of creative economy into GDP was 6.5% in 2017, but taking into account innovative technologies - 7.1% of GDP and the potential of the sector is highly underestimated.[2]

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1 Ministry of Economy of the Kyrgyz Republic (2019). The head of the Ministry of Economy at a meeting with the British Ambassador to the Kyrgyz Republic discussed issues of trade, economic and investment cooperation. URL: <http://www.mineconom.gov.kg/ru/post/5885.

2 Financial Publishing Office "Economist" (2019). V Kyrgyzstane sozdan Al'yans kreativnykh industriy. Chem on zaymetsya? OBZOR (An Alliance of Creative Industries has been created in Kyrgyzstan. What will he do? OVERVIEW). URL: <https://economist.kg/2019/02/25/v-kyrgyzstane-sozdan-alyans-kreativnyh-industrij-chem-on-zajmetsya-obzor

Kyrgyz national policies do not have exact action plan on digital transformation of creative economy yet, and it is likely that private sector will be the engine of progress of this sector: ICT specialists, representatives of arts and fashion etc. The 'EAEU Digital Agenda' does not have vision of creative economy's transformation yet.

There is one interesting component named Creative Outputs[1], and it is one of indicators of the Global Innovation Index (GII), which consists of three sub-indicators, divided into several sub-indicators as well. They are Intangible Assets which includes measures of trademarks by origin, industrial design by origin, ICT and business model creation, ICT and organizational model creation. The second subcomponent is Creative Goods and Services consisting of cultural and creative services exports, national feature films, entertainment and media market, printing and other media and creative goods exports. The third subcomponent is Online Creativity with generic top-level domains, country-code, Wikipedia edits and mobile application creation.

Among EAU countries, the best ranking belongs to Armenia, it has 48th ranking, then goes Russia with 72nd ranking, the third is Kazakhstan with 102nd ranking. Kyrgyzstan's Creative Outputs are ranked as 122nd and are the fourth among EAEU states. The fifth is Belarus with 126th ranking.

To support the development of creative economy in Kyrgyzstan, the Alliance of Creative Industries was established in early 2019, which consists of more than 20 companies from different sectors of economy.[2] It is aimed to actualize potentials of this sector, forming national products with high value added and monetization of cultural heritage and domestic culture.

In addition, the British Council, United Kingdom International Cultural Relations and Education organization, promotes the initiative "Creative Economy" in Central Asian countries, including Kyrgyzstan. This is 5-year program for higher education institutions to develop creative economics and entrepreneurial skills.

Potential of development of this sector of economy, its digital transformation is very high in Kyrgyzstan. Though, there are some cautions such as its enlargement in big cities of the country (Bishkek, Osh) without application to regions. Although, the slogan used by the Kyrgyzstan's High Technology Park[3], 'live in Kyrgyzstan and work for the whole world!' seems to be viable.

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1 Global Innovation Index. URL: <https://www.globalinnovationindex.org/gii-2019-report

2 Financial Publishing Office "Economist" (2019). Ibid.

3 High Technology Park is a zone with special regime for its residents establishing exemption from taxes and benefits on insurance premiums in accordance with the legislation of the Kyrgyz Republic. More information is available at http://htp.kg/

Table 12

Creative Outputs component of the Global Innovation Index.

		Armenia		Belarus		Kazakhstan		Kyrgyzstan		Russia	
		Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking
	Creative Outputs	32.2	48	10.8	126	18.4	102	13.3	122	25.1	72
7.1.	Intangible assets	43.2	55	8.	127	31.5	103	23.1	125	39.4	71
7.1.1.	Trademarks by origin	94.7	18	24.8	81	18.8	90	22.4	84	58.1	38
7.1.2.	Industrial designs by origin	1.9	52	1	68	0.2	98	0.5	85	0.9	69
7.1.3.	ICT and business model creation	54.2	88	n/a	n/a	54.7	87	36.5	124	53.3	91
7.1.4.	ICT and organizational model creation	52.8	67	n/a	n/a	48.2	87	34.8	120	58.4	49
7.2.	Creative goods and services	22.4	49	5.	101	6.8.	96	5.5	99	9.8	88
7.2.1.	Cultural and creative services exports, % of total trade	0.6	41	0.2	69	0.1	91	0.4	59	1	27
7.2.2.	National feature films	12.5	11	0.1	105	6	37	0.3	103	1.2	76
7.2.3.	Entertainment & Media market	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.5	43
7.2.4.	Printing and other media	1.5	33	0.5	90	0.5	92	0.7	81	0.8	78
7.2.5.	Creative goods exports, % of total trade	0.6	55	0.4	63	0.1	93	0.1	99	0.3	68
7.3.	Online creativity	19.8	34	22.1	31	3.8	71	1.5	47	12.1	
7.3.1.	Generic top-level domains	3	64	1.7	83	0.3	114	0.2	116	3.5	61
7.3.2.	Country-code	4.6	53	5.2	47	3.2	60	0.8	86	13.3	34
7.3.3.	Wikipedia edits	102.5	6	22.2	47	17.3	52	7.3	69	19.7	49
7.3.4.	Mobile app creation	2.5	60	66.5	6	0	90	0.1	85	18.1	26

Source: Global Innovation Index Report, 2018.

Conclusion

The contribution of the digital economy to Kyrgyzstan's GDP is negligible and digitalization in the Kyrgyz Republic is in its infancy, starting to gain momentum in Kyrgyzstan. However, the Kyrgyz Republic has done a lot for economy's digital transformation at this stage. The National Strategy of Development for 2018-2040 identified digitalization as a key element of development, the national Concept of Digital Kyrgyzstan 2019-2023 identified main indicators of country's digitalization with formulating target values and priority sectors where digitalization should assist in achievement of country's progress.

Thus, the digital market is developing at a steady pace, thereby characterizing the introduction of the digital economy as an integral factor in the sustainable economic development of our republic.

However, the EAEU Digital Agenda 2025 itself still does not have adjusted by all member-states Action Plan for the union and for each member. Following this, there are no developed indicators in priority sectors. Moreover, Kyrgyzstan falls behind other EAEU countries in many ICT indicators, which says that a lot of work should be done as by country itself as by the EEC to align the progress rate of digitalization. As well, harmonization of the legal and regulatory framework for digital transformation of EAEU member-states is required.

References

[1] Center for Electronic Interaction 'Tunduk'. URL: <https://www.tunduk.gov.kg/about/>.

[2] Center for Electronic Interaction 'Tunduk', "Connection Progress". URL: <https://www.tunduk.gov.kg/connection-progress/>.

[3] Financial Publishing Office "Economist" (2019). V Kyrgyzstane sozdan Al'yans kreativnykh industriy. Chem on zaymetsya? OBZOR (An Alliance of Creative Industries has been created in Kyrgyzstan. What will he do? OVERVIEW). URL: <https://economist.kg/2019/02/25/v-kyrgyzstane-sozdan-alyans-kreativnyh-industrij-chem-on-zajmetsya-obzor/>.

[4] Information Agency "Sputnik. Kyrgyzstan" (2019). V Bishkeke yeshche na 19 perekrestkakh poyavilis' kamery "Bezopasnogo goroda" – karta (In Bishkek, at another 19 crossroads, Safe City cameras appeared – map). URL: <https://ru.sputnik.kg/society/20190512/1044306516/bishkek-kamery-bezopasnyj-gorod-karta.html>.

[5] Information Agency Knews (2019). 'Bezopasnyy gorod': statistika za 7 mesyatsev pokazyvayet, chto situatsiya na dorogakh ukhudshilas ("Safe

City": statistics for 7 months show that the situation on the roads has worsened"). URL: <https://knews.kg/2019/09/13/bezopasnyj-gorod-statistika-za-7-mesyatsev-pokazyvaet-chto-situatsiya-na-dorogah-uhudshilas/>.

[6] Kyrgyzstan Spatial. URL: <http://www.kyrgyzstanspatial.org>.

[7] Ministry of Finance. Report on the implementation of the state budget of the Kyrgyz Republic for 2018. URL: <http://www.minfin.kg/ru/novosti/godovoy-otchet-ob-ispolnenii-byudzheta/otchet-ob-ispolnenii-gosbyudzheta-kr-za-2018-god>.

[8] Ministry of Justice of the Kyrgyz Republic. Program Of The Government Of The Kyrgyz Republic For The Development Of The Tourism Sector For 2019-2023. No. 36, 31 January 2019. URL: <http://cbd.minjust.gov.kg/act/view/ru-ru/12943>.

[9] Public Broadcasting Corporation of the Kyrgyz Republic (2019). Za uspeshnoye vnedreniye elektronnoy sistemy "Tunduk" Kyrgyzstan udostoyen nagrady (For the successful implementation of the electronic system "Tunduk" Kyrgyzstan awarded). URL: <http://www.ktrk.kg/post/27894/ru>.

[10] State Committee of Information Technologies and Communication of the Kyrgyz Republic. About 'Open Data' Project. URL: <http://www.ict.gov.kg/index.php?r=site%2Fproject&pid=61&cid=24>.

[11] World Intellectual Property Organization. Global Innovation Index 2018. Energizing the World with Innovation. URL: <https://www.wipo.int/publications/en/details.jsp?id=4330>.

[12] Eurasian Economic Commission. Overview of Digital Agenda in the World. Digitalization of Agriculture. URL: <http://www.eurasiancommission.org/ru/act/>.

[13] Eurasian Economic Commission. Main Directions Implementation Of The EAEU Digital Agenda Till 2025. URL: URL: <http://www.eurasiancommission.org>.

[14] Eurasian Economic Commission (2018). Novyye tekhnologii: vozmozhnosti i riski. Chto dadut YEAES innovatsionnyye finansovyye instrumenty – blokcheyn, kriptovalyuty i t.p.? (New technologies: opportunities and risks. What will the EAEU give innovative financial instruments - blockchain, cryptocurrencies, etc.?). URL: <http://www.eurasiancommission.org/ru/nae/news/Pages/13-02-2018-1.aspx>.

[15] Eurasian Economic Commission. Digital Agenda of EAEU. Glossary. URL: <https://digital.eaeunion.org/extranet/about/glossariy.php/>.

[16] Freedom House. Freedom On The Net 2018. URL: <https://freedomhouse.org/sites/default/files/FOTN_2018_Final%20Booklet_11_1_2018.pdf>.

[17] Government of the Kyrgyz Republic. National Development Strategy of the Kyrgyz Republic for 2018-2040. URL: <http://www.gov.kg/?page_id=125892&lang=ru>.

[18] Government of the Kyrgyz Republic. Strategy of Cyber Security of the Kyrgyz Republic for 2019-2023. URL: <http://cbd.minjust.gov.kg/act/view/ru-ru/15479>.

[19] Information Agency 'Sputnik'. 2019-y obyavlen Godom razvitiya regionov i tsifrovizatsii Kyrgyzstana (2019 is declared the Year of Regional Development and Digitalization of Kyrgyzstan). URL: <https://ru.sputnik.kg/society/20190109/1042778796/kyrgyzstan-zhehehnbekov-2019-god.html>.

[20] Information Agency '24.kg' (2019). Uchrezhdeniye 'Tsifrovoye sel'skoye khozyaystvo' poyavitsya v strukture Minsel'khoza (The institution 'Digital Agriculture' will appear in the structure of the Ministry of Agriculture). URL: <https://24.kg/obschestvo/126722_uchrejdenie_tsifrovoe_selskoe_hozyaystvo_poyavitsya_vstrukture_minselhoza/>.

[21] International Telecommunication Union. URL: <https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx>.

[22] International Telecommunication Union. URL: <https://www.itu.int/net4/ITU-D/idi/2017/index.html>.

[23] Martin Prosperity Institute (2015). URL: <http://martinprosperity.org/content/the-global-creativity-index-2015/>.

[24] Merriam-Webster Dictionary. URL: <https://www.merriam-webster.com/dictionary/digitalization>.

[25] Ministry of Economy of the Kyrgyz Republic (2019). The head of the Ministry of Economy at a meeting with the British Ambassador to the Kyrgyz Republic discussed issues of trade, economic and investment cooperation. URL: <http://www.mineconom.gov.kg/ru/post/5885>.

[26] National Statistics Committee (2019). Analytical Review Assessment of The Level of Digital Development in the Kyrgyz Republic. URL: <http://www.stat.kg/ru/news/institut-statisticheskih-issledovanij-i-povysheniya-kvalifikacii-nacstatkoma-podgotovil-analiticheskij-doklad-ob-ocenke-urovnya-cifrovogo-razvitiya-v-kyrgyzskoj-respublike>.

[27] State Committee of Information Technologies and Communication of the Kyrgyz Republic. The Concept of Digital Transformation 'Digital Kyrgyzstan' – 2019–2023. URL: <http://ict.gov.kg/index.php?r=site%2Fsanarip&cid=27>.

[28] State Committee of Information Technologies and Communication of the Kyrgyz Republic. About 'Digital CASA' Project. URL: <http://ict.gov.kg/index.php?r=site%2Fproject&pid=69&cid=25>.

[29] Taza Koom. About the Taza Coom Digital Transformation Program of the Kyrgyz Republic. URL: <http://tazakoom.kg/site/concept/4>.

[30] Tunduk. Statistics on Tte Exchange of Data from Government Agencies through the MEIS "Tunduk" from 1 September 2018 to 1 September 2019. URL: <https://www.tunduk.gov.kg>.

[31] World Bank Group. The EAEU 2025 Digital Agenda: Prospects And Recommendations. Overview Report. URL: <http://documents.worldbank.org/curated/en/850581522435806724/pdf/EAEU-Overview-Full-ENG-Final.pdf>.

[32] World Economic Forum. Networked Readiness Index. URL: <http://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index/>.

[33] Worldwide broadband speed league. URL: <https://www.cable.co.uk/mobiles/worldwide-data-pricing/>.

Еникеева З.[1]

Цифровая повестка в странах ЕАЭС: анализ ситуации в Кыргызстане

Объявленная «Цифровая повестка ЕАЭС - 2025» демонстрирует интерес стран к теме цифровой трансформации экономики. Кыргызская Республика не является исключением. Государство приняло национальные

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программы, стратегии и концепции, которые охватывают вопросы цифровизации, а также определило некоторые ключевые сектора, подлежащих цифровой трансформации. В статье приведен анализ политики в рамках «Цифровой повестки ЕАЭС - 2025 года», государственной программы «Национальная стратегия развития Кыргызской Республики на 2018-2040 годы» и «Концепции цифровой трансформации «Цифровой Кыргызстан-2019-2023», их первые результаты, основные показатели цифровизации всех пяти стран-членов ЕАЭС, анализ цифровых трансформаций в сельскохозяйственном секторе, секторе туризма и креативной экономики.

Ключевые слова: *Евразийский экономический союз, Кыргызская Республика, Цифровизация, Цифровая повестка***.**

Статья поступила в редакцию в октябре 2019 г.

J.C. Kofner[1]

Five Years of the Eurasian Economic Union: Progress of Macroeconomic Convergence and the Common Financial Market

In 2019, the EAEU officially celebrated its five-year anniversary. The aim of the article is to investigate various issues such as the Union's aggregate economic performance over the past five years, i.e. from 2014 to 2019, its shifts towards macroeconomic stability and macroeconomic convergence, as well as ability to create common markets in banking and insurance sectors. In the conclusion of the paper a short review of findings and recommendations on potential further economic steps are provided.

Key words: *EAEU, macroeconomic convergence, monetary policy, financial market, capital market, economic integration*.

JEL F36, N20 **doi:10.17323/2499-9415-2019-4-20-83-103**

Introduction

On 29 May 2014, the leaders of three core post-Soviet states – Belarus, Kazakhstan and Russia – signed the Treaty on the Eurasian Economic Union (EAEU), which was joined by Kyrgyzstan and Armenia a year later. The Eurasian Economic Union is formally a supranational trade and economic bloc that, according to the EAEU Treaty, aims to:

1. create proper conditions for sustainable economic development of the Member States in order to improve the living standards of their population;
2. seek the creation of a common market for goods, services, capital and labor within the Union;
3. ensure comprehensive modernization, cooperation and competitiveness of national economies within the global economy.

In 2018, its aggregate GDP by purchasing power parity was 4.7 trillion U.S. dollars with a population of 184 million. Based on the EU experience and the WTO rules, the EAEU is aimed, at least in its intentions, at creating greater legality and

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a more rigorous institutionalized setting by which its member states should abide (see Table 1).

Table 1
Governing Bodies of the EAEU and the EU in comparison

EAEU	EU
Supreme Eurasian Economic Council – convenes biannually the heads of state and responsible for strategic decision making.	European Council (Concilium) Council of the European Union
Eurasian Intergovernmental Council – consists of the heads of government and in charge of coordinating national policies.	
Council of the EEC – consists of the deputy heads of state. Board of the EEC – with 10 supranational ministers in charge of various economic sectors (customs, transport, digitalization, etc.) and its employees (situated in Moscow).	European Commission
Court of the EAEU (based in Minsk)	Court of the EU
Eurasian Development Bank (EDB) and Eurasian Fund for Stability and Development (EFSD) with formal headquarters in Almaty – main regional development institutes important for investments in infrastructure and integration projects, as well as for regional macroeconomic stability.	European Investment Bank European Regional Development Fund European Fund for Strategic Investments European Stability Mechanism (ESM)
Financial regulator of the EAEU (to be created by 2025 in Astana) – control of the common financial market.	European Central Bank (ECB)

Source: Compiled by the author.

Economic growth and sustainability

While the EAEU's real GDP fell from 2.4 in 2014 to 1.9 trillion U.S. dollars in 2018, its GDP by purchasing power parity (PPP) actually grew from 4.4 to 4.7 trillion U.S. dollars (see Fig. 1, Table 1). This discrepancy in numbers can be explained by a sharp devaluation of the national currencies of the member states against the US USD in 2014-2015 (see Fig. 2, Table 2).

In 2014-2015 the Union's largest economy – Russia – was hit by several adverse factors: the Ukrainian crisis, international sanctions and a drop in oil prices, which also directly affected Kazakhstan. This led to a recession in the Russian Federation, and consequently in the other member states, which rely on the remittances and consumption from Russia. In 2015 its economy contracted by 2.5%, that of Belarus by 3.8%. By 2016 Armenia's GPD growth rate slowed down to 0.2%. However, from 2017 onwards the Eurasian economies recovered again. In that year the EAEU's GDP growth rate reached 1.9%, in 2018 – already 2.5% (see Fig. 3, Table 3).

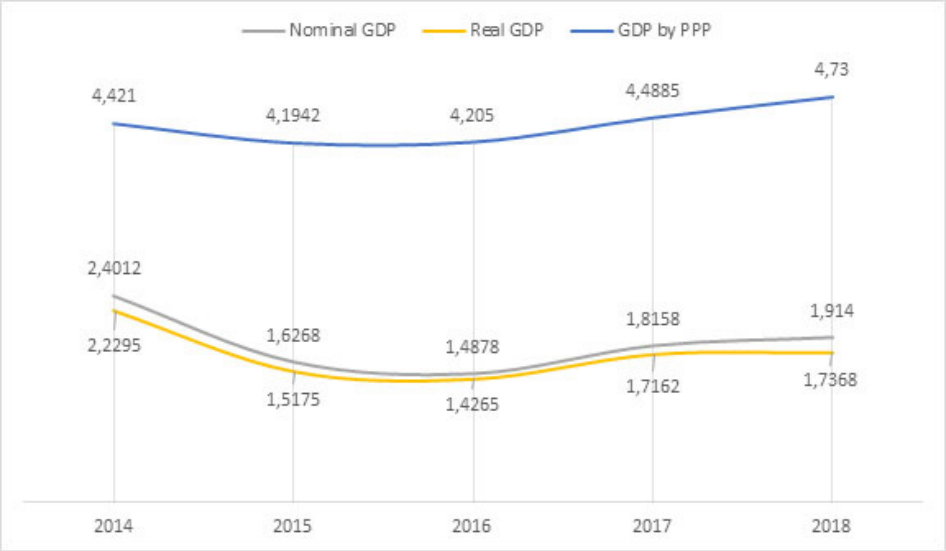

Figure 1. EAEU GDP (2014-2018; nominal, real and by PPP; trillion USD)

Source: [14, p. 391; Author's calculations].

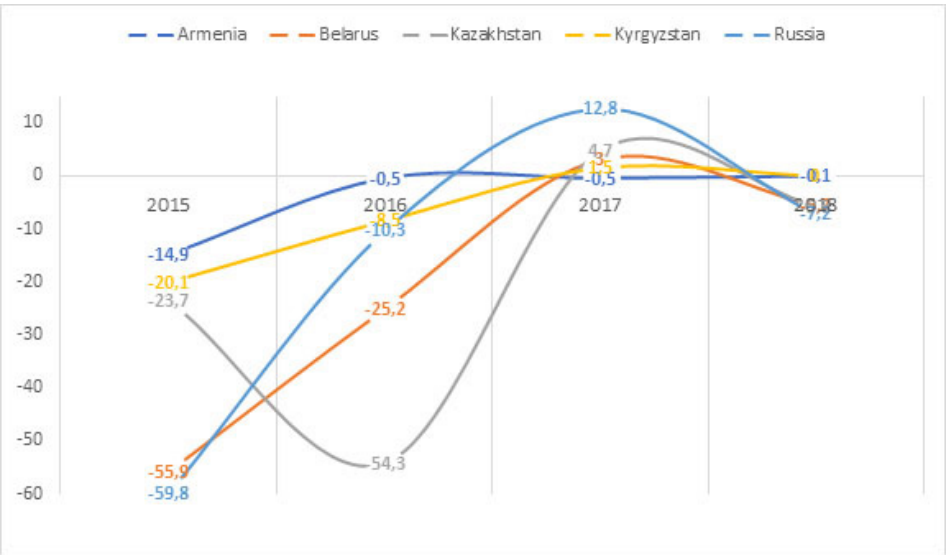

Figure 2. EAEU member states annual average exchange rate change (2014-2018, units of national currency against the US USD, % change)

Note. On 1 July 2016 Belarus changed the denomination of the Belarusian ruble by ratio of 1:10,000.

Source: [14, p. 362; Author's calculations].

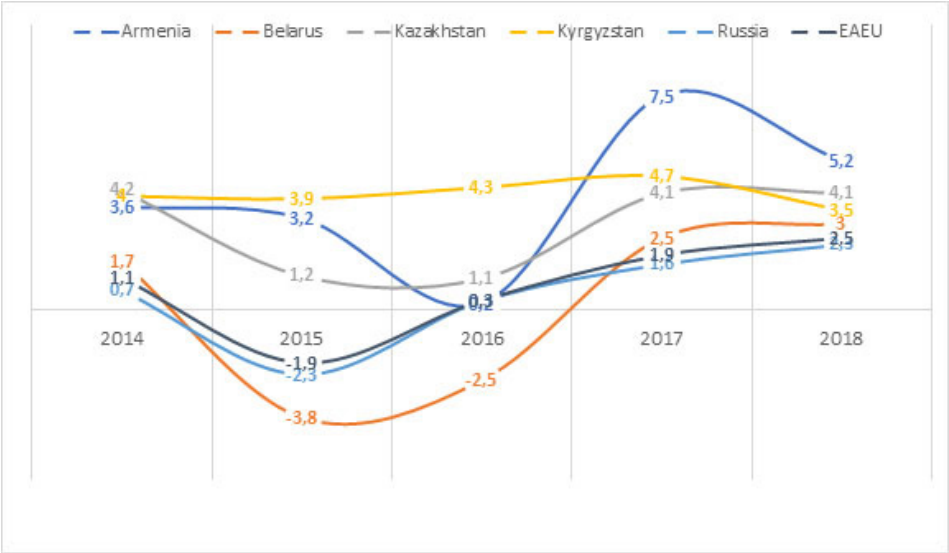

Figure 3. EAEU annual GDP growth rate
(2014-2018, index of physical volume of GDP, % change)

Source: [14, p. 146].

The average growth rate of the Union during the past five years was at 0.8%. This was very low for a group of developing and emerging economies, for whom the average GDP growth rate was around 3.5 to 7% during that period. Even the developed economies grew faster, such as the EU and the USA, which had an average growth rate of 2.1 and 2.4%, correspondingly. Only South America had a comparable low growth rate (see Fig. 4, Table 4).

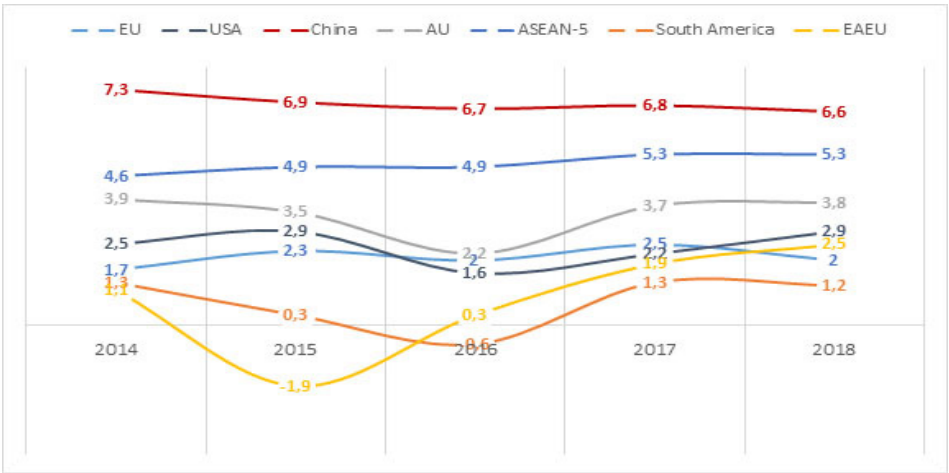

Figure 4. EAEU's GDP growth rate in comparison (2014-2018, % change)

Source: [14, p. 391; Author's calculations].

The German ifo Institute for Economic Research predicts that despite the global economic cooldown, Russia's economy will grow by 2.6% in 2020 and even by 3% in 2021. Russian GDP growth is estimated to be higher than that of Turkey, South Korea, Latin America and the Western countries, which are expected to grow by around 1.7% to 2.4%. As reasons for the relative lively economic upswing, the Munich economists name further interest rate cuts by the Russian Central Bank, which are expected for the coming months, and, above all, a planned expansion of the national fiscal policy. As part of a program for additional investment in infrastructure, health care and the education system, which runs until 2024, the budget will provide funding of around 40 billion U.S. dollars, or 1.5% of the country's GDP. As a result, economic expansion in Russia is expected to strengthen during the forecast period. However, due to the slowdown in the international economy and the new OPEC-Plus agreement, which foresees a reduction in oil production, exports are unlikely to increase during the forecast period. Also, no broad recovery in private investment is expected, – the research publication states. [1, p. 5]

The EAEU's GDP per capita by purchasing power parity grew from 24,686 in 2014 to 25,740 U.S. dollars in 2018. That is an increase of 1,054 U.S. dollars per citizen, or 4.3%, over the past five years in total with an average growth rate of 1.2% (see Fig. 5, Table 5).

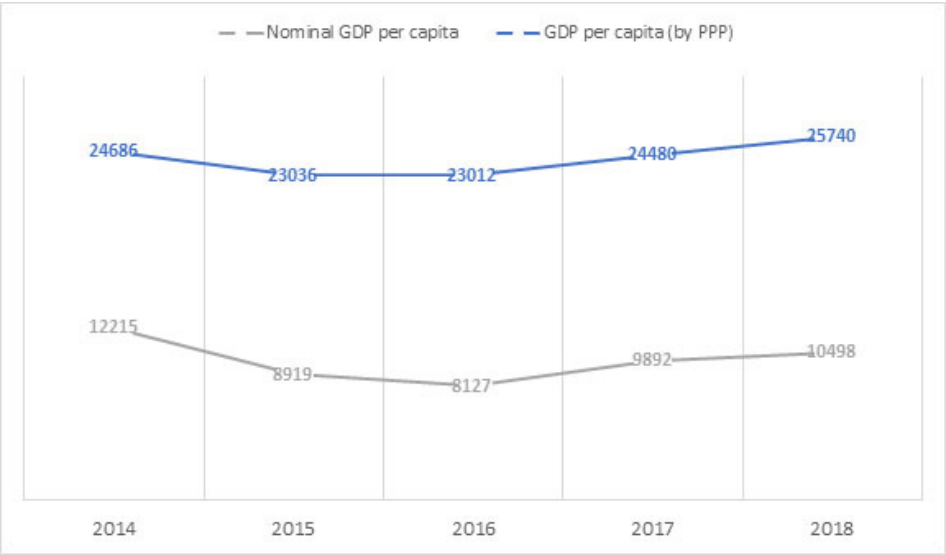

Figure 5. EAEU GPD per capita (2014-2018, USD)

Source: [14, p. 397; Author's calculations].

The more equal the contribution of the member states to the overall GDP of an integration bloc, the better for its sustainable economic development. Unfortunately, as already said, the EAEU is very dependent on Russia's economic performance and its role remained high during that period: 86.7% in 2014 and 86.8% in 2018 (see Fig. 6, Table 6). However, it is worth noting that the large weight of one

of the member states is common for many other regional integrations, including USMCA and MERCOSUR. [2, p. 150]

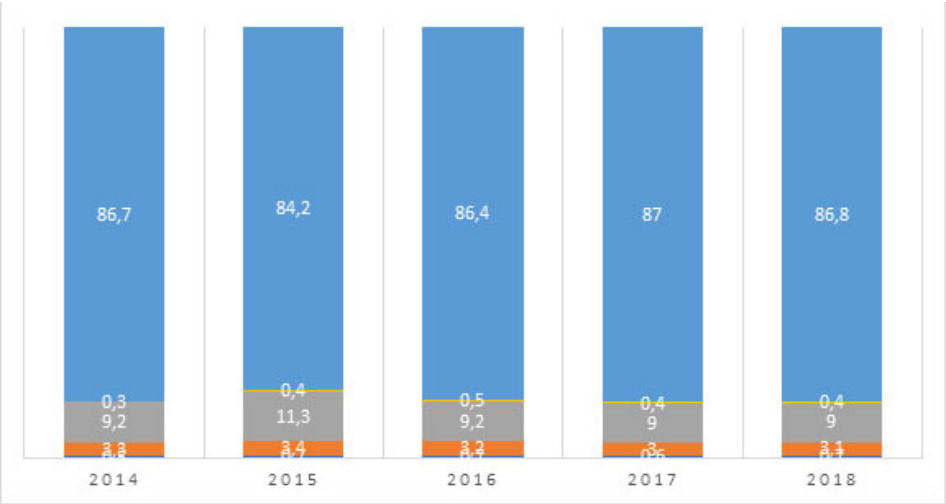

Figure 6. EAEU GDP structure by member state (2014-2018, % of total)

Source: [14, p. 391; Author's calculations].

Macroeconomic stability

Macroeconomic convergence is a very important factor for the sustainable economic development of a given integration bloc. According to the EAEU Treaty, the member states must conduct a "coordinated" exchange rate policy (Article 64), as well as an agreed macroeconomic policy with the following "convergence criteria" (Articles 62, 63):

- the annual deficit of the consolidated budget of a state-controlled sector shall not exceed 3% of GPD;
- the government debt shall not exceed 50% of GDP;
- the inflation rate (consumer price index) per annum shall exceed the inflation rate in the member state with the lowest value by not more than 5%.

Currently, the introduction of a single currency is not planned. Instead, the member states agreed to establish a common financial market (Article 70) together with a "supranational financial regulator" by 2025. These relatively moderate aims of monetary integration in the EAEU, as compared to that of the EU, can be explained by the current trends and developments of the financial markets, monetary policies and macroeconomic conditions in the EAEU region.

The inflation rates in the EAEU member states are relatively high, with an average inflation rate of 7.5% in the EAEU over the past five years (2014 to 2018). During the past five years Belarus overshot the inflation convergence criteria three times (by 10.1 pp. in 2014, by 4.8 pp in 2015 and by 8.2 pp in 2016), Kazakhstan two times

(by 11 pp in 2016, by 1.4 pp in 2017) and Russia two times (by 6.8 pp in 2015, by 3.5 pp in 2016). In 2016 Armenia experienced a deflation rate of -1.4%. In 2018 all the EAEU member states met the inflation convergence criteria (see Fig. 7, Table 7).

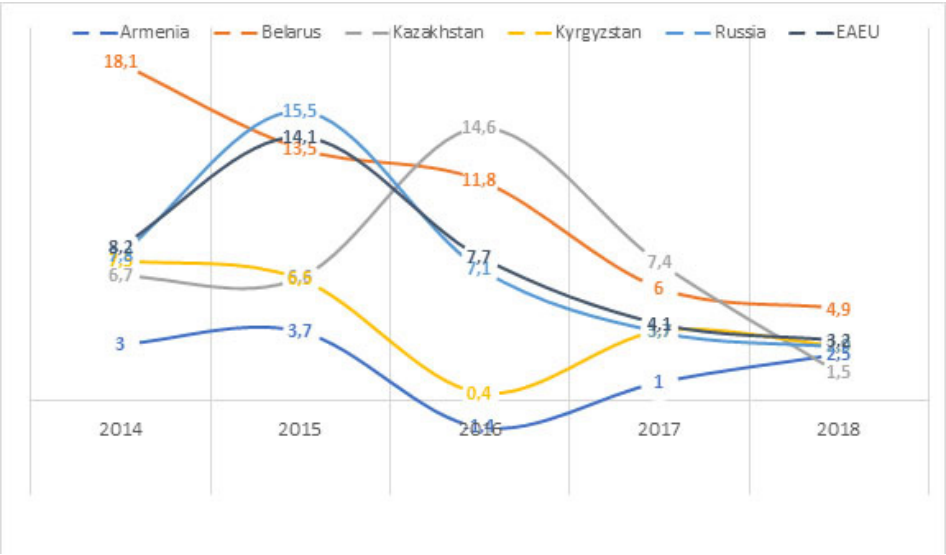

Figure 7. EAEU inflation rate (2014-2018, % change)

Source: [14, p. 116].

No common monetary policy aim, e.g. price stability, is stipulated in the EAEU Treaty. The EAEU member states conduct different monetary policy regimes, but with relatively similar equivalent mid-term inflation targets: Armenia (inflation targeting at 4%), Belarus (monetary targeting at 5%), Kazakhstan (price stability set as the aim with an operational inflation target of 3-4%), Kyrgyzstan (price stability set as the aim with an operational inflation target of 5-7%), Russia (inflation targeting at 4%) [3, p. 3].

Except for Belarus, which always had a sound budget surplus, all of the four other EAEU member states missed the budget deficit convergence criteria at some point during the last five years: Armenia (by 1.8 pp in 2015, by 2.5 pp in 2016, by 1.8 pp in 2017), Kazakhstan (by 1.4 pp in 2016, by 1.2 pp in 2017), Kyrgyzstan (by 1.5. pp in 2016), Russia (by 0.4 pp in 2015 and by 0.7 pp in 2016). Again in 2018 all EAEU member states met this criterion (see Fig. 8, Table 8).

Over the past five years the EAEU as a whole had a comparatively low average government debt of 12.5% of the Union's GDP. Only Armenia and Kyrgyzstan didn't meet the government debt convergence criteria. From 2016 on Armenia exceeded the acceptable level by 7 pp in average and Kyrgyzstan by 9 pp in average during the whole period. Both were able to slightly decrease their excess by the end of the period (see Fig. 9, Table 9).

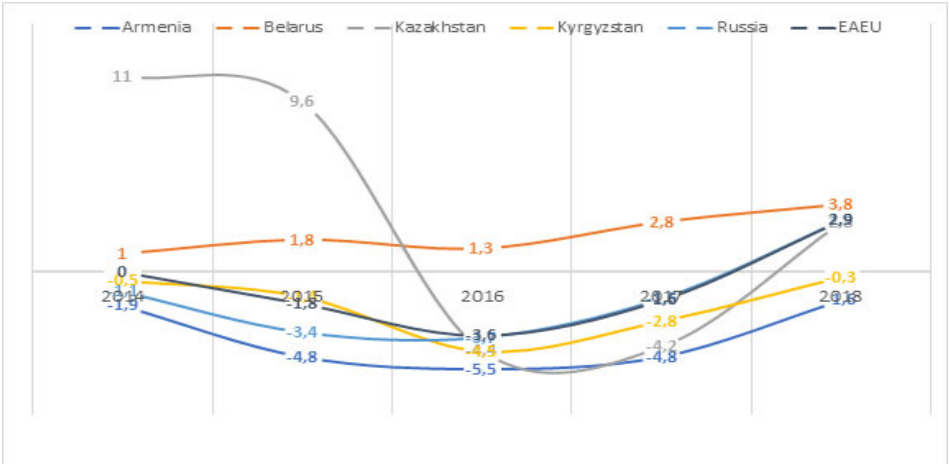

Figure 8. EAEU budget deficit (2014-2018, % in relation to GDP).

Source: [14, p. 374; Author's calculations].

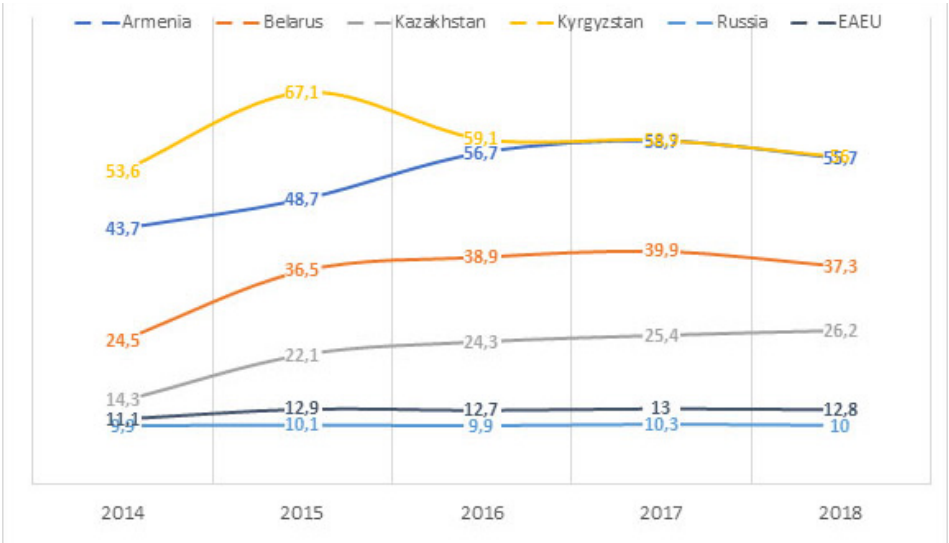

Figure 9. EAEU government debt (2014-2018, % in relation to GDP)

Source: [14, p. 386; Author's calculations].

The EAEU Treaty does not set the aim that the member states should fix or peg their national currencies to the ruble or to an EAEU currency basket, but in Annex 15 of the EAEU Treaty it is stipulated that their "exchange rate policies shall be *coordinated* by an independent authority consisting of the heads of national (central) banks of the member states determined under an international treaty within the Union". In June 2019, the EEC Board approved the draft "Agreement on the Establishment of an Advisory Council on the Exchange Policy of the EAEU member states".

As for now, the EAEU member states conduct different exchange rate regimes: Armenia (officially free float, de-facto pegged to the US dollar), Belarus (managed free float), Kazakhstan (in 2014 changed from pegged to free float), Kyrgyzstan (managed free float), Russia (free float) [4, p. 24].

During the past five years we saw diverging national exchange rates tendencies, with that of Belarus, Kazakhstan and Russia devaluating by 18.8%, 19.8% and 11.7% respectively (in relation to an international currency basket with 2010 as the basis year), while that of Armenia and Kyrgyzstan were revaluating by 4.5% and 14.5% respectively. Despite of this divergence, the exchange rates of all the four other EAEU member states depend more or less on the course of the Russian ruble. The exchange rates of the Russian ruble and of the Kazakhstani tenge themselves are strongly influenced by the international oil price (see Fig. 10, Table 10).

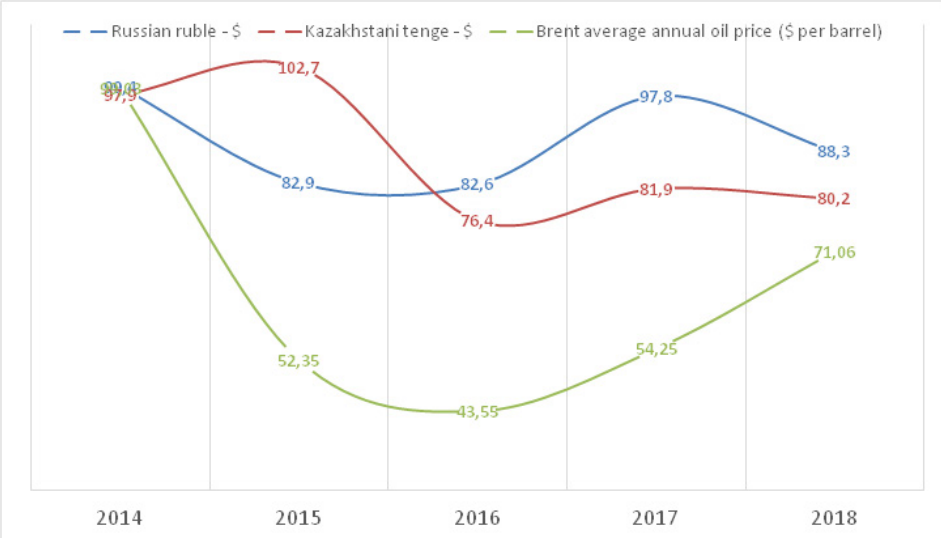

Figure 10. Influence of the international oil price on the real effective exchange rate of the Russian ruble and Kazakhstani tenge against foreign currencies (in % in relation 2010 = 100%, Brent average annual oil price at USD per barrel, 2014-2018).

Source: [14, p. 362].

Dollarization of the financial markets, internal and external trade is considered a major challenge in the EAEU, it seriously impairs the effectiveness of the monetary transmission process. In 2016 in the EAEU on average 45% of the deposits and almost 60% of liabilities were held in U.S. dollars. In the EU these indicators were 22% and 14% respectively. Also, external trade with third parties and internal trade between EAEU members states, except with Russia, is conducted mainly in U.S. dollars and Euro [5, p. 6].

A recently published study by the Eurasian Economic Commission, which compares the degree of integration of various regional economic blocs, has shown,

that the EAEU increased its macroeconomic convergence from 56% in 2014 to 59% in 2017. In this aspect it came second to the EU, which achieved a macroeconomic convergence of 91% in 2017, but was ahead of both ASEAN (33%) and MERCOSUR (34%). [6, p. 73] Deeper macroeconomic convergence within the EAEU might be achieved if, similar to the system in the EU, the EEC would be given the right to impose sanctions on member states that violate the criteria.

At the beginning of 2019, the Eurasian Economic Commission published a report that analyzes the positions of the EAEU member states in 16 international ratings, which assess various spheres of economic development for the period from 2010 to 2018. According to the study, the EAEU overall occupies the highest positions (index values) in macroeconomic stability:

- Reliable money: money supply growth – 8.66 on a 10-point scale, standard deviation of inflation – 8.83 on a 10-point scale (Fraser Institute Index of Economic Freedom);
- Credit market regulation: loans to individuals – 8.48 on a 10-point scale, control over interest rates – 9.84 on a 10-point scale (Fraser Institute Index of Economic Freedom) [7, p. 25] ;
- State of the fiscal system: 87.2 points on a 100-point scale (Heritage Foundation Index of Economic Freedom) [7, p. 29].

Common financial market

The finance sector is like the blood stream to every national economy. Effective integration in this field is therefore of pivotal importance to the proper functioning of any economic integration bloc and its common internal market. At the same time, it is a very challenging and delicate matter, since it most profoundly affects a country's national sovereignty through alterations on the mechanisms of monetary and fiscal policy.

According to the EAEU Treaty its member states plan to establish by 2025 a common financial market in the banking, insurance and equity sectors together with a "supranational financial regulator" to be situated in Kazakhstan. Currently, the EEC, together with national regulators and experts, are working on the preparation of a number of international agreements in this area. One of these key documents for creating the necessary regulatory framework and institutions is the "Concept on the Formation of the EAEU Common Financial Market", which was adopted at a meeting of the Supreme Eurasian Economic Council (SEEC) in October 2019. In September 2018, the chairmen of the central (national) banks of the member states of the Union signed the "Agreement on the harmonization of the legislation of the EAEU member states in the field of the financial market".

Relatively speaking, the banking, insurance and stock markets of the EAEU's member states are characterized by a small number of agents, low capitalization, low liquidity and a developing infrastructure. In 2017 only 661 banks were oper-

ating in the EAEU holding 1.6 trillion U.S. dollars in assets, as compared to 6,250 banks operating in the EU with a total of almost 50 trillion U.S. dollars (43.9 trillion Euros) in assets [8, p. 8]. Russia accounts for about 90% of the Union's banking sector. In 2017 there were only 306 insurance companies operating in the EAEU with a total of 23.6 billion U.S. dollars insurance premiums collected, as compared to 3,400 insurance organizations active in the EU with 1.4 trillion U.S. dollars collected in insurance premiums [9, p. 9]. The same year trading volumes in the Union's stock markets amounted to 848.3 billion U.S. dollars as compared to a staggering 10.2 trillion U.S. dollars traded in total over European stock exchanges [10]. However, in the fintech segment, e.g. instant and contactless e-payments, Russia is relatively competitive in comparison to the EU [11].

Overall, from 2014 to 2018 we can see a consolidation of the EAEU's banking and insurance sectors. During the study period the number of Eurasian banks decreased by almost 40%, the number of insurance companies by almost 45%. However, the overall capitalization of these markets remained relatively the same at an average of USD 1 458.2 bln measured by total bank assets and of USD 23 bln measured by gross insurance premiums, respectively. At the same time the trading volumes on the EAEU's major stock exchanges did indeed increase by almost 40% between 2014 and 2018 (see Fig. 11, Table 11).

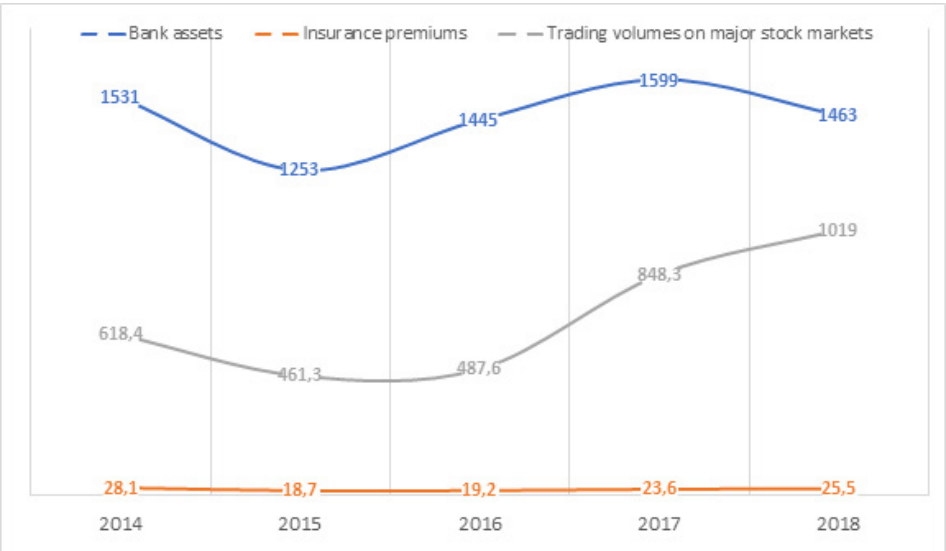

Figure 11. EAEU finance market (in bln USD, 2014-2018)

Source: [14, p. 339].

During the study period the share of banks by member state remained relatively the same. Russian banks made up 86% of EAEU banks on average, with the banks of each of the other countries accounting for only 2.7% to 4.5% on average (Table

12). The concentration of the Union's banking sector is even more pronounced when looking at bank assets. From 2014 to 2018 assets of Russian banks accounted for 91.5% on average of total assets, that of Kazakhstan and Belarus for 5.3% and 2.4% on average (see Fig. 12, Table 13). This asymmetric country structure is also visible in the insurance sector with Russia, on average, accounting for 73.7% of the EAEU's insurance companies and for 92.2% of gross insurance premiums collected (see Fig. 12, Table 14, Table 15). Once again, the situation was different on the Union's stock markets and where one could observe a distinct geographical diversification: Russia's share of trading volumes on major stock exchanges decreased from 89% in 2014 to 63.8%, whereas that of Kazakhstan increased from 10% to 35.5% (see Fig. 12, Table 16). During that period the stock trading volumes of both countries increased, but that of Russia increased by 15.4%, whereas that of Kazakhstan by 83%.

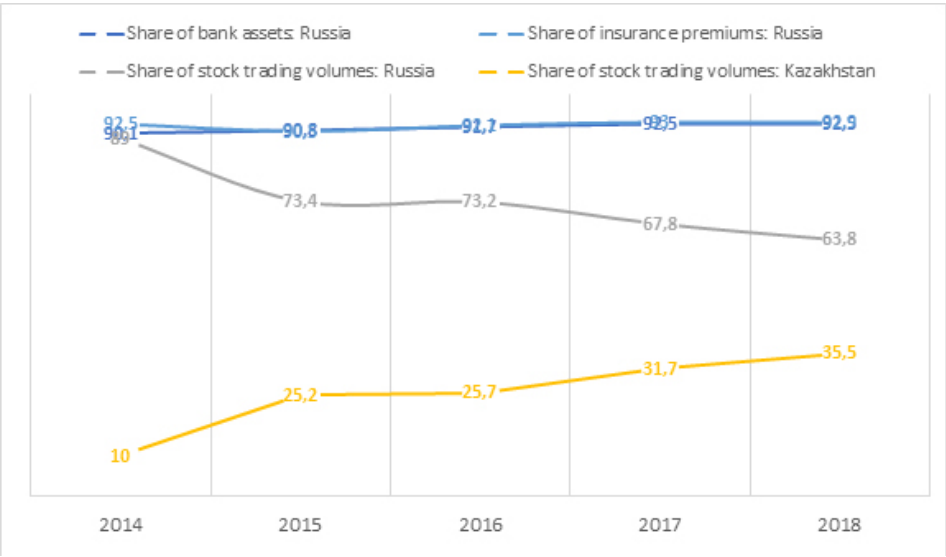

Figure 12. Russia's predominance in the EAEU finance market (in %, 2014-2018)

Source: [14, p. 339; Author's calculations].

Potentially due to the fact that the process of forming the common financial market is still its infancy, there are no obstacles per se registered in the EEC's online obstacle registry. However, the implementation of harmonization procedures and of the common financial policy outlined in the agenda is likely to create various obstacles and frictions. As experts of HSE Eurasian sector noted, the following issues, inter alia, would need to be resolved: language requirements for identification and banking documents; harmonization of national payment systems of the member states (moreover, they do not exist yet in all countries) or the creation of a new supranational payment system; regulating the commission for interbank transfers; restrictions on the amount of money transfer, for example, from Russia

to Kyrgyzstan; and the delicate issue of information exchange and database cooperation [12, p. 49].

Neither the introduction of a single currency, nor the creation of a "Eurasian Central Bank" are included in the plans to create a common financial market in the EAEU. On the one hand, as already mentioned, member states are not ready to transfer their exclusive powers on monetary policy to the supranational level. On the other hand, as stated above, at this stage there remains too much divergence and volatility of the member states' macroeconomic indicators, so that the potential costs would outweigh the possible gains of introducing a single currency in the Union. Much more important for creating a common payment space and for improving the efficiency of the national monetary policies, according to the Commission and to the expert community, would be the de-dollarization of mutual and foreign trade and of the countries' financial markets, as well as the introduction of a single virtual (digital) settlement unit together with a unified interstate interbank clearing system.

At the same time, the EAEU Treaty foresees the creation of a single supranational supervisor of the common financial market, to be located in Kazakhstan, which, for example, could have the competence to monitor prudential regulation and revoke licenses from commercial banks. However, already the central (national) banks of the EAEU member states are inclined not to transfer supervisory functions to the supranational level. In this case, the interstate harmonization of common rules for supervision and regulation of the EAEU financial market will become a lesser alternative. Problems of the EU and Eurozone banking sector, as well as ongoing discussions on creating a European "banking union", have shown how important this question is for the stability of interdependent financial markets. In this regard it should be noted, that in 2018 the Astana International Financial Center (AIFC) was officially opened. It is a new regional financial platform and stock exchange within which special jurisdiction has been introduced, and the regulation of relations between participants is based on the best world standards, procedural principles and norms of English common law. The same year the EEC and the AIFC signed a memorandum of cooperation on the development of financial markets, capital markets, trade and investment interaction, as well as on the protection of the rights and interests of consumers of financial services.

According to the above-mentioned comparative study on the degrees of integration of the EAEU's domestic markets in regard to the free movement of goods, services, capital and labor in comparison to other regional integration blocs [6, p. 72], 46% of the EAEU's common financial market were established by 2017. This represents a rather large step forward on the path to markets integration in comparison with 2015, when this indicator reached only 33%. In this regard, the EAEU was ahead of ASEAN and MERCOSUR, whose capital markets in 2017 were united by only 23% and 25%. At the same time, all three economic blocs lagged behind the EU, where this indicator amounted to 85%.

Conclusion

In general, the following conclusions can be drawn in response to the question of whether the Eurasian Economic Union managed to ensure the stability and convergence of the levels of macroeconomic development of its member states during its first five-year period:

Firstly, evaluating the member states by levels of socio-economic development and the degree of their macroeconomic convergence with each other, the EAEU appears as a "two-tier" economic integration bloc. On the one hand, the EAEU initiating countries - Belarus, Kazakhstan and Russia, form a "core" integration project, where the macroeconomic convergence between them is quite noticeable. On the other hand, the newer and smaller member states - Armenia and Kyrgyzstan, lag behind this "core" in terms of both the level and the speed of convergence. In the medium term, one can hardly expect a change in this trend.

In this regard, for the further development of a coherent macroeconomic policy, the EEC and member states should not chase after some symbolic unity of indicators, behind which real distortions may lie. Instead, they should strive to implement a purely pragmatic policy, which would maximally meet the national interests of all of the member states and would provide them both comparative and absolute integration benefits. Here, further research on the implementation of optimal "multi-speed integration" would be advisable, especially since in recent years this concept has been widely discussed in the European Union [13, p. 8].

Secondly, although between 2014 and 2018 all member states in different years missed the convergence criteria in one area or another, they still generally improved their performance by the end of the study period due to a partial restoration of the regional economic cycle in 2017-2018. Especially noticeable was the convergence of inflation rates, which is partially due to a voluntary coordination and an increased efficiency of the monetary policies of the Union member states.

Thirdly, in order to achieve a sustainable coordinated economic development of the EAEU member states, further improvement of the organizational and institutional environment in this area will be required. One of the right steps in this direction will be the establishment of the "Advisory Council of the National (Central) Banks on the EAEU exchange rate policy". Furthermore, the creation of advisory councils between the national (central) banks and national governments on inflation, budget deficit and public debt would be advisable. These inter-central bank / intergovernmental coordinating bodies on monetary policy could be located on the premises of the EAEU supranational financial regulator, which is to be set up by 2025 in Kazakhstan. And all fiscal policy coordinating bodies could be located either in Yerevan or in Bishkek.

A more concrete specification of the goals, objectives and mechanisms for pursuing a coherent macroeconomic policy would also be required. E.g., in the monetary sphere, the Union central banks could consider the feasibility of a common inflation (price stability) target of 4 percent.

In the longer term, purely voluntary interstate coordination without any supranational levers on the national governments and central banks is unlikely to be sufficient for a more sustainable macroeconomic integration in the future. Looking at the European Union, one might consider the possibility of granting the Eurasian Economic Commission or the future supranational financial regulator in Nursultan the right to impose financial sanctions on member states that violate the convergence criteria. Here it would be important to create both a warning mechanism and a corrective one.

Between 2014 and 2018 a consolidation of the EAEU's banking and insurance sectors in terms of the number of organizations occurred, while their overall capitalization in terms of gross bank assets and gross insurance premiums remained the same. During the same period the Union's stock markets, however, grew by 2/5 and saw a relative structure shift from Russia to Kazakhstan, due to substantial growth (over 80%) of stocks traded on Kazakhstan's exchanges. Fittingly, in 2018 the country launched the Astana International Financial Center (AIFC) with the aim to become the region's main financial hub. Real progress in creating a Union-wide financial market remains to be seem, not due to a lack of effort by the EEC and the national authorities, but since integration work has only just begun in this delicate and key economic sector. In the next five years, progress in harmonizing national regulations and policies will be crucial. Introduction of a single currency and of a Eurasian Central Bank neither is, nor should be an objective. Instead, the priority should be, first: on increasing stability and resilience of the member states' capital markets; and later: on the introduction of a single virtual (digital) settlement unit together with a unified interstate interbank clearing system and ensuring the transfer of effective regulatory powers to the planned supranational financial regulator.

References

[1] ifo Schnelldienst 19/2019. URL: https://www.ifo.de/publikationen/2019/zeitschrift-einzelheft/ifo-schnelldienst-192019

[2] Vinokurov E. (2018). Introduction to the Eurasian Economic Union. Palgrave Macmillan, USA.

[3] EEC, EDB (2017). Monetary Policy of EAEU Member States: Current Status and Coordination Prospects. URL: https://eabr.org/en/analytics/integration-research/cii-reports/monetary-policy-of-eaeu-member-states-current-status-and-coordination-prospects/

[4] EDB (2017). Exchange Rate Fluctuations within the EAEU in 2014–2015: Analysis and Recommendations. URL: https://eabr.org/en/analytics/integration-research/cii-reports/exchange-rate-fluctuations-within-the-eaeu-in-2014-2015-analysis-and-recommendations/

[5] Valdai Club (2018). De-Dollarization in the EAEU: Experience and Prospects. Working Paper Nr. 83. URL: http://greater-europe.org/archives/4573

[6] EEC (2019). Integration indicators. URL: http://eurasian-studies.org/archives/12589

[7] EEC (2019). The economic development of the Eurasian Economic Union and the Member States in 2018: international ratings. Analytical report (In Russian). URL: http://eurasian-studies.org/archives/12589

[8] European Banking Federation (2019). Banking in Europe: EBF Facts & Figures 2018. URL: https://www.ebf.eu/wp-content/uploads/2018/09/Banking-in-Europe-2018-EBF-Facts-and-Figures.pdf

[9] European Insurance and Reinsurance Federation (2018). European Insurance – Key Facts. URL: https://www.insuranceeurope.eu/sites/default/files/attachments/European%20insurance%20-%20Key%20facts%20-%20October%202018.pdf

[10] Official e-portal of the Federation of European Securities Exchanges (FESE) (2019). URL: https://fese.eu/statistics/

[11] OWC (2019). Russia is the leader in cashless payment. URL: https://owc.de/2019/10/10/russland-ist-spitzenreiter-bei-bargeldlosen-zahlungen/

[12] Eurasian sector (2018). Image of the future of the EAEU in the Eyes of the Academic Community. National Research University Higher School of Economics (Russia). URL: https://cceis.hse.ru/en/eurasia

[13] Scharpf Fritz W. (2018). There Is an Alternative: A Two-Tier European Currency Community. MPIfG Discussion Paper 18/7. Max Planck Institute for the Study of Societies. URL: http://www.mpi-fg-koeln.mpg.de/pu/mpifg_dp/2018/dp18-7.pdf

[14] EEC (2019). Statistical Yearbook of the Eurasian Economic Union. URL: http://www.eurasiancommission.org/ru/act/integr_i_makroec/dep_stat/econstat/Documents/Stat_Yearbook_2019.pdf

Appendix

Table A1
EAEU GDP, 2014-2018; nominal, real and by PPP; bln USD)

	2014	2015	2016	2017	2018
Nominal GPD	2 401.2	1 626.8	1 487.8	1 815.8	1 914.0
GPD deflator	107.7	107.2	104.3	105.8	110.2
GDP deflator/100	1.077	1.072	1.043	1.058	1.102
Real GDP	2 229.5	1 517.5	1 426.5	1 716.2	1 736.8
GDP by purchasing power parity (PPP)	4 421.0	4 194.2	4 205.0	4 488.5	4 730.0

Source: [14, p. 391; Author's calculations].

Table A2
EAEU member states annual average exchange rate change, 2014-2018, units of national currency against the USD, % change

	2014	2015	2016	2017	2018
Armenia	–	–14.9	–0.5	–0.5	–0.1
Belarus	–	–55.9	–25.2	3.0	–5.7
Kazakhstan	–	–23.7	–54.3	4.7	–5.8
Kyrgyzstan	–	–20.1	–8.5	1.5	–0.0
Russia	–	–59.8	–10.3	12.8	–7.2

*On 1 July 2016 Belarus changed the denomination of the Belarusian ruble by a ratio of 1:10 000.

Source: [14, p. 362].

Table A3
EAEU annual GDP growth rate, 2014-2018, index of physical volume of GDP, % change

	2014	2015	2016	2017	2018
Armenia	3.6	3.2	0.2	7.5	5.2
Belarus	1.7	–3.8	–2.5	2.5	3.0
Kazakhstan	4.2	1.2	1.1	4.1	4.1
Kyrgyzstan	4.0	3.9	4.3	4.7	3.5
Russia	0.7	-2.3	0.3	1.6	2.3
EAEU	1.1	-1.9	0.3	1.9	2.5

Source: [14, p. 146].

Table A4

EAEU GDP growth rate in comparison, 2014-2018, % change

	2014	2015	2016	2017	2018	Five-year average
EU	1.7	2.3	2.0	2.5	2.0	2.1
USA	2.5	2.9	1.6	2.2	2.9	2.4
China	7.3	6.9	6.7	6.8	6.6	6.9
African Union	3,9	3,5	2,2	3,7	3,8	3.4
ASEAN-5	4.6	4.9	4.9	5.3	5.3	5.0
South America	1.3	0.3	-0.6	1.3	1.2	0.7
EAEU	1.1	-1.9	0.3	1.9	2.5	0.8

Source: [14, p. 391].

Table A5

EAEU GDP per capita, 2014-2018, USD)

	2014	2015	2016	2017	2018
Armenia	3 852	3 512	3 524	3 869	4188
Belarus	8 289	5 829	4 997	5 729	6283
Kazakhstan	12 807	10 510	7 715	9 030	9 462
Kyrgyzstan	1 331	1 163	1 179	1 296	1 332
Russia	14 252	9 356	8 765	10 753	11 312
EAEU	13 215	8 919	8 127	9 892	10 408
EAEU (PPP)	24 686	23 036	23 012	24 480	25 740
EAEU (PPP, % change)	–	-6.7	-0.1	6.4	5.1

Source: [14, p. 397; Author's calculations].

Table A6

EAEU GDP structure by member state, % of total

	2014	2015	2016	2017	2018
Armenia	0.5	0.7	0.7	0.6	0.7
Belarus	3.3	3.4	3.2	3.0	3.1
Kazakhstan	9.2	11.3	9.2	9.0	9.0
Kyrgyzstan	0.3	0.4	0.5	0.4	0.4
Russia	86.7	84.2	86.4	87.0	86.8
EAEU	100.0	100.0	100.0	100.0	100.0

Source: [14, p. 391; Author's calculations].

Table A7

EAEU inflation rate, 2014-2018, % change

	2014	2015	2016	2017	2018
Armenia	3.00	3.7	-1.4	1.0	2.5
Belarus	18.1	13.5	11.8	6.0	4.9
Kazakhstan	6.7	6.6	14.6	7.4	1.5
Kyrgyzstan	7.5	6.5	0.4	3.7	2.9
Russia	7.8	15.5	7.1	3.7	2.9
EAEU	8.2	14.1	7.7	4.1	3.2

Source: [14, p. 116].

Table A8

EAEU budget deficit, 2014-2018, % in relation to GDP

	2014	2015	2016	2017	2018
Armenia	-1.9	-4.8	-5.5	-4.8	-1.6
Belarus	1.0	1.8	1.3	2.8	3.8
Kazakhstan	11.0	9.6	-4.4	-4.2	2.8
Kyrgyzstan	-0.5	-1.4	-4.5	-2.8	-0.3
Russia	-1.1	-3.4	-3.7	-1.5	2.9
EAEU	0	-1.8	-3.6	-1.6	2.9

Source: [14, p. 374; Author's calculations].

Table A9

EAEU government debt, 2014-2018, % in relation to GDP

	2014	2015	2016	2017	2018
Armenia	43.7	48.7	56.7	58.7	55.7
Belarus	24.5	36.5	38.9	39.9	37.3
Kazakhstan	14.3	22.1	24.3	25.4	26.2
Kyrgyzstan	53.6	67.1	59.1	58.9	56.0
Russia	9.9	10.1	9.9	10.3	10.0
EAEU	11.1	12.9	12.7	13.0	12.8

Source: [14, p. 386; Author's calculations].

Table A10

Real effective exchange rate of national currencies of the EAEU member states against foreign currencies, % in relation to 2010 = 100%

	2014	2015	2016	2017	2018
Armenia	102.5	108.4	107.6	104.0	104.5
Belarus	95.8	92.4	84.7	80.7	81.2
Kazakhstan	97.9	102.7	76.4	81.9	80.2
Kyrgyzstan	110.0	115.1	113.2	113.3	114.5
Russia	99.4	82.9	82.6	95.7	88.3
Brent average annual oil price (USD per barrel)	99.03	52.35	43.55	54.25	71.06

Source: [14, p. 362].

Table A11

EAEU financial market, 2014–2018.

	2014	2015	2016	2017	2018
Number of banks	949	840	724	661	578
Bank assets (bln USD)	1 531	1 253	1 445	1 599	1 463
Number of insurance organizations	486	415	337	306	270
Sum of insurance premiums (USD bln)	28.1	18.7	19.2	23.6	25.5
Trading volumes on major stock exchanges (USD bln)	618.4	461.3	487.6	848.3	1 019.0

Source: [14, p. 339]

Table A12

Share of banks of the EAEU member states, 2014-2018

	2014	2015	2016	2017	2018
Armenia	2.3%	2.6%	2.6%	2.9%	2.9%
Belarus	3.3%	3.1%	3.3%	3.6%	4.2%
Kazakhstan	4.0%	4.2%	4.6%	4.8%	4.8%
Kyrgyzstan	2.5%	2.9%	3.5%	3.8%	4.3%
Russia	87.9%	87.3%	86.0%	84.9%	83.7%

*Source: [*14, p. 339; Author's calculations].

Table A13

Share of bank assets of the EAEU member states, 2014-2018

	2014	2015	2016	2017	2018
Armenia	0.5%	0.6%	0.6%	0.6%	0.7%
Belarus	2.7%	2.8%	2.2%	2.2%	2.1%
Kazakhstan	6.5%	5.6%	5.3%	4.6%	4.5%
Kyrgyzstan	0.1%	0.2%	0.2%	0.2%	0.2%
Russia	90.1%	90.8%	91.7%	92.5%	92.5%

Source: [14, p. 339; Author's calculations].

Table A14

Share of insurance organizations of the EAEU member states, 2014-2018

	2014	2015	2016	2017	2018
Armenia	1.4%	1.7%	2.1%	2.3%	2.6%
Belarus	4.9%	5.8%	6.8%	7.2%	5.9%
Kazakhstan	7.0%	8.0%	9.5%	10.5%	10.7%
Kyrgyzstan	3.5%	4.1%	5.6%	6.2%	7.0%
Russia	83.1%	80.5%	76.0%	73.9%	73.7%

Source: [14, p. 339; Author's calculations].

Table A15

Share of insurance premiums of the EAEU member states, 2014-2018

	2014	2015	2016	2017	2018
Armenia	0.3%	0.4%	0.4%	0.3%	0.3%
Belarus	2.5%	2.7%	2.6%	2.3%	2.3%
Kazakhstan	4.7%	6.3%	4.9%	4.3%	4.4%
Kyrgyzstan	0.1%	0.1%	0.1%	0.0%	0.0%
Russia	92.5%	90.5%	92.1%	93.0%	92.9%

Source: [14, p. 339; Author's calculations].

Table A16

Share of trading volumes on major stock exchanges of the EAEU member states, 2014-2018

	2014	2015	2016	2017	2018
Armenia	0.0%	0.0%	0.0%	0.0%	0.0%
Belarus	1.0%	1.3%	1.0%	0.5%	0.6%
Kazakhstan	10.0%	25.2%	25.7%	31.7%	35.5%
Kyrgyzstan	0.0%	0.0%	0.0%	0.0%	0.0%
Russia	89.0%	73.4%	73.2%	67.8%	63.8%

Source: [14, p. 339; Author's calculations].

Кофнер Ю.[1]

Пять лет Евразийскому экономическому союзу: прогресс в сфере макроэкономической конвергенции и создании общего финансового рынка

В 2019 г. исполнилось пять лет Евразийскому экономическому союзу. В статье рассматриваются различные аспекты функционирования ЕАЭС – деятельность экономических агентов и связанные с этим совокупные экономические показатели за пять лет, меры обеспечения макроэкономической стабильности и конвергенции, а также созданию общих рынков в банковском и страховом секторах. В заключении приводится краткий обзор выводов и рекомендаций по дальнейшему экономическому сотрудничеству стран-членов.

Ключевые слова: *ЕАЭС, макроэкономическая конвергенция, монетарная политика, финансовый рынок, рынок капиталов, экономическая интеграция.*

Статья поступила в редакцию в декабре 2019 г.

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Multilateralism: 2070 projections[2]

A potential long-term scenario of multilateral trade in 2070 is presented. Prospective global trade trends are explored, as well as the respective inevitable transformations of the multilateral trading system. Changing cross-border trade patterns and dynamics are considered under the assumption that digital reality progressively overtakes the "physical world". Particular focus is placed on the challenges and opportunities of the expanding technological progress. Consequently, potential implications for the WTO legal framework are examined. A set of approaches aimed at maintaining WTO's central role in regulating multilateral trade is suggested for consideration.

Key words: *WTO, multilateral trade rules, cross-border trade, protectionism, new technologies, additive manufacturing, 3D printing, artificial intelligence, virtual reality, augmented reality, aerial transportation.*

JEL L81, O24 **doi:10.17323/2499-9415-2019-4-20-104-116**

Introduction

Multilateral trade is ever-evolving. Being shaped by various emerging trends and factors in the global economy it is subject to continuous transformations. One of the most prominent of such factors is technology. In the past years, world altering inventions like the Internet, digital platforms, blockchain and the Internet of things have challenged the existing nature of trade flows by changing the economics and location of production, and transforming the actual content of what is being bought and sold across borders [1].

As significantly as the Internet has revolutionized the global economy and international trade in the past decades, the impact of the future technological progress will be even more extensive. The evolution and expansion of ubiquitous digita-

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2 The paper was submitted in November 2019. This paper has been prepared strictly in the authors' personal capacity. The views expressed therein should not be attributed to any organizations with which the author is affiliated. This article is based on the authors' respective intervention at the WTO Public Forum session "Multilateralism: Expectations from the new generation" (Geneva, October 2019).

lization, advanced robotics and artificial intelligence, 3D printing, as well as the spread of numerous other know-how and technological inventions into practically all spheres of life will transform the architecture of international commerce and the very concept of cross-border trade.

To access the possible implications of such changes, the remainder of this article is divided into three sections.

The first part is aimed at creating a visualization of the potential technological transformations that might take place in the coming five decades. The second part examines respective opportunities and challenges of such technological advancements and demonstrates a 2070 vision of the international trade context. The final section addresses the possible ways of accustoming the WTO's legal framework to the new economic realities and reaffirming the WTO's central role in regulating multilateral trade relations.

1. Evolving technological progress: 2070 projections

Predicting the future can be a challenging task. According to many great thinkers, including Abraham Lincoln – the best way to predict the future is to invent it.

In this manner, this article looks at four technological inventions that will have a decisive impact on shaping our future: additive manufacturing (or 3D printing), aerial transportation, artificial intelligence and brain-machine interfaces, and virtual and augmented reality technologies. Respective 2070 projections are built on the already existing achievements in each sphere and demonstrate where the future might take these technologies, given the accelerating pace of innovative progress.

One of the most prominent technological advancements that is already now revolutionizing global trade is *additive manufacturing* (or *3D printing*). 3D printing is "a process of making three-dimensional solid object of virtually any shape from a digital model" [2, p. 7]. Nowadays this technology is adapted to work with a diversified range of materials and has numerous applications. The capabilities of 3D printing are evolving rapidly and are progressively transforming numerous sectors and industries, ranging from architecture, construction, retail and healthcare to aviation, aerospace and automotive industries.

For example, robotics construction company ApisCor has just completed worlds' largest 3D-printed building in Dubai – a 9.5 meters high two-story administrative building with a floor area of 640 square meters [3]. In January this year, the world's longest 3D-printed concrete 26.3-meters-long pedestrian bridge has been completed in Shanghai [4].Researchers from the University of Maine have recently created an 8-meter patrol boat in under 72 hours using a giant 3D printer [5].

However, currently 3D printing is largely focused on working with one single material at a time. When it comes to multi-material 3D printing – it is still at an early stage of its development. 3D printers that can simultaneously work with different material already exist. However, until recently the process of switching between such materials was rather slow. A breakthrough was made in November this year, when a new multi-material multi-nozzle 3D (MM3D) print head was introduced, which was capable of printing and quickly switching between up to 8 materials [6].

It is fair to envision that by 2070 with the advancement of multi-material 3D printing, additive manufacturing would effectively replace other production methods. It would overtake "complex manufacturing" by simultaneously carrying out production of various components that go into one product. To take car manufacturing as an example – everything from airbags to transmission gears and engines would potentially be produced by one 3D printer at the same place and time.

Another factor that would further challenge the existing international trade patters would be the *evolution of alternative transportation methods* of both passengers and cargo. By 2070, aerial transportation will be in full operation (see Fig. 1).

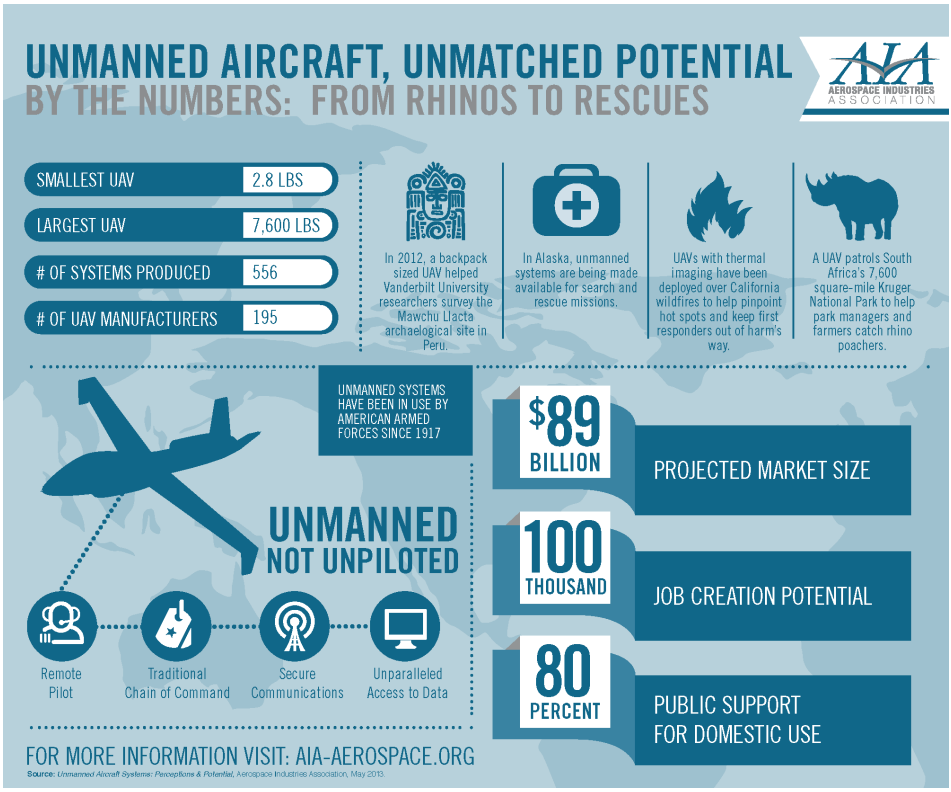

Figure 1. Unmanned aircraft.

Source: AIA-Aerospace. URL: <https://www.aia-aerospace.org

According to Uber, already by 2023 its' flying taxis will be fully functional [7]. In addition, autonomous aerial transportation market will be actively expanding. According to Morgan Stanley, by 2040, accelerating technological advancements have the potential to create a $1.5 trillion market for autonomous aircrafts [8]. For example, at the 2019 Paris Air Show, Airbus presented its Project Vahana – an electric, self-piloted vertical take-off and landing passenger aircraft, or an autonomous flying taxi [9]. What concerns cargo transportation – certain goods' deliveries are already made by autonomous flying vehicles, or delivery drones. However, major limitations remain, as currently battery-powered drones can carry loads of no more than 4.5 kg [8].

Simultaneously, aerial transportation is also advancing in terms of its' speed capabilities. At the 2019 Paris Air Show mentioned above, another technological breakthrough was demonstrated – XB-1 project by Boom Supersonic. Two-seat supersonic jet XB-1, that was demonstrated at the Show, will serve as the foundation for the creation of a supersonic passenger jet Overture [10].

By 2070, supersonic travel will become an ordinary transportation method. In addition, autonomous aerial mobility will become widespread not only in passenger travel, freight and package transportations, but also in military and defense sphere. Capabilities of specialized flying vehicles will be significantly enhanced, enabling both any sized cargo deliveries and large-scale passenger transportations to be performed at supersonic speeds.

Artificial intelligence (AI) will also have a decisive effect on shaping the future of international trade. AI is "the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with humans, such as the ability to reason, discover meaning, generalize or learn from past experience"[2, p. 6].Currently AI is mainly used for repetitive physical work, collection and processing of data in such spheres as production and manufacturing, banking and finance. Moreover, such machines perform these tasks more efficiently than humans and, often, at a lesser cost. However, with time advanced AI will progressively rival and substitute humans in other spheres as well. Already now, robots and computers are increasingly capable of accomplishing activities that include cognitive capabilities, such as making tacit judgements, driving, or even sensing emotion [11].

By 2070, useful robots will also learn to excel at problem solving and logical thinking, creativity and ability to determine and express emotions. According to the WTO DDG Alan Wolff, the world will progress towards achieving Artificial General Intelligence– equivalence in reasoning capability to the human brain, but much faster and with greater capacity [12]. Labour market will have to adapt accordingly to the growing competition posed by the advancements in AI. This will force governments to reconsider labor market strategies, develop new job creation approaches and provide re-training schemes to help the working population adapt to the new realities.

At the same time, there is a great chance that humans will learn to utilize advanced AI for expanding their own capabilities through "brain-machine interfaces"(BMI). Currently, BMIs are progressively becoming non-invasive (i.e. control of robotic devices through brain implants is giving way to noninvasive control over such appliances). A first-ever successful mind-controlled robotic arm exhibiting the ability to continuously track and follow a computer cursor was developed at the Carnegie Mellon University [13]. In the space of five decades, BMIs could progress towards enabling humans to exert ultimate control over the entire machines (of any size), instead of controlling only moderate-sized robotic devices. In this manner, AI in combination with BMIs will offer endless possibilities for enhancing human abilities, allowing machines to eventually become human surrogates (or avatars) [14].

One other factor with potentially large implications for the future of international trade is a large-scale use of *virtual reality (VR)*and *augmented reality (AG) technologies (see Fig. 2)*. In addition to entertainment, these technologies are already successfully used in education, manufacturing, retail, tourism and healthcare industries. For example, VR technologies gave rise to "telehealth" – ability to deliver health care services (including doctor-patient consultations and monitoring of vital signs) outside of traditional health-care facilities [15]. According to Adobe, VR is also transforming educational sphere, and with time will offer people endless possibilities, including various field trips, highly technical training (e.g. in medical and military industries), internships, group and distance learning [16]. In addition, VR and AR technologies are also progressively shaping the field of electronic commerce and with time will be able to provide consumers with exclusive VR shopping experiences.

The ability to recreate real life experience in virtual reality can have numerous prospective applications. By 2070 VR and AR technologies have the potential to open up numerous novel possibilities for delivering services globally and revolutionize the means of communication. They could stimulate the emergence of the new types of services and the transformation of the already existing ones.

These four outlined technological developments represent but a small fraction of all the prospective innovative changes that might occur in the next 50 years. However, the consideration of these four technological breakthroughs alone can already demonstrate the extent of their cumulative impact on multilateral trade.

2. Implication for the future international trade: possible scenario

In the next five decades all the above-mentioned technological advancements – additive manufacturing, aerial transportation, AI, as well as VR and AR technologies – will come to define and dictate the terms of international trade. In accordance with the projections outlined in the previous section, by 2070, the most prominent of the international trade transformations will include the following.

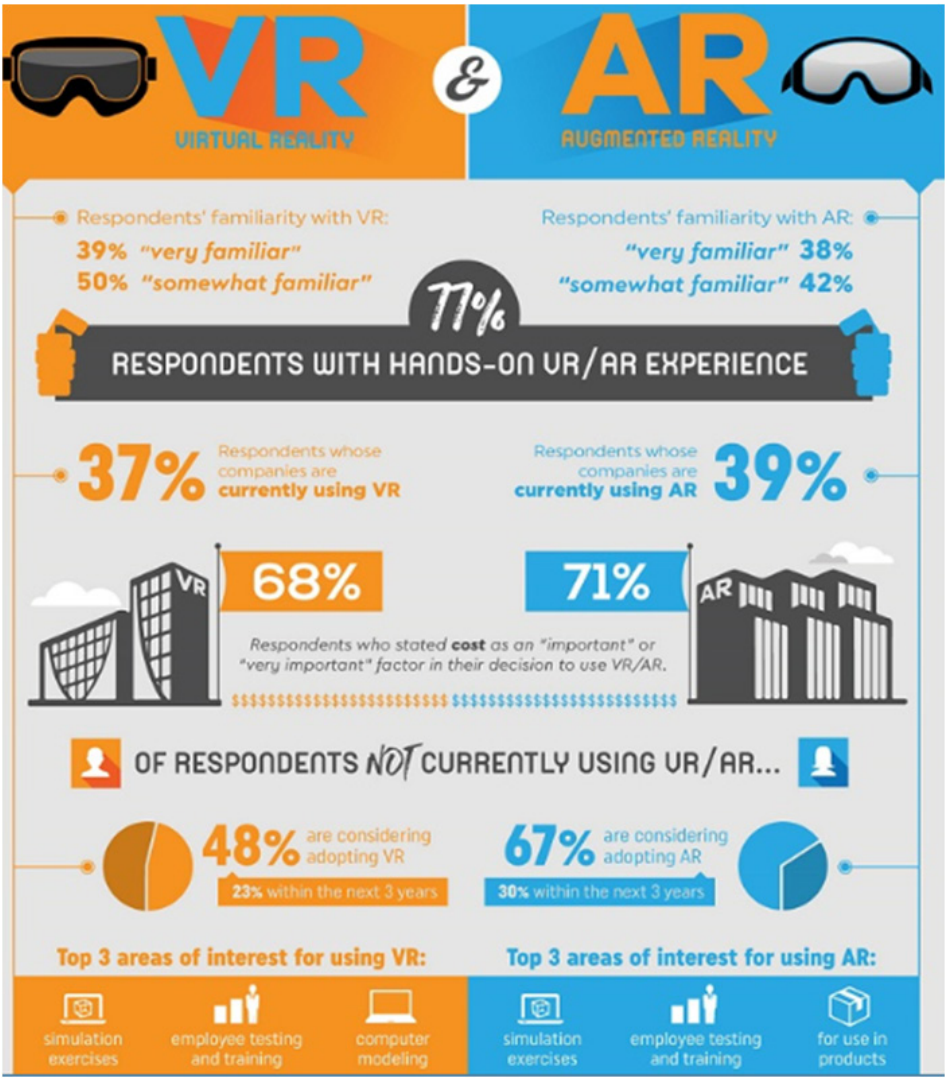

Figure 2. Virtual reality vs Augmented reality.

Source: TechRepublic. URL: <https://www.techrepublic.com/article/infographic-vr-and-ar-are-gaining-traction-for-use-in-the-enterprise.

The *content and nature of cross-border trade* will be largely transformed. High-speed mass-scale 3D printing that is cost-efficient will heavily contribute towards a replacement of traditional exchange in goods and services with the transmission of design files, software and blueprints necessary to produce 3D-printed models [2].For instance, it was estimated that by 2030 additive manufacturing coupled with advanced AI could reduce global goods trade by up to 10%, or $4 trillion in annual trade flows [1]. In addition, 3D printing will stimulate massive reshoring trends across various industries and largely eliminate the need for international shipping, as 3D-printing will allow to produce practically any good near the prospective point of its' use [1]. As the need for imports will continue to decline,

and given that the current growth in investments in 3D printing continues, global trade may soon decrease by as much as 25%, according to certain studies [17].

Furthermore, advancements in AI, VR and AR technologies will progressively redefine the existing *ways (or modes) of supplying services*, including, primarily, cross-border supply. If currently certain services are predominantly supplied in person (e.g. various educational trainings and health-related services), these technologies will enable a remote connection of consumers with service providers, thus progressively expanding cross-border supply of financial, educational, tourism, health-related and many other services. For the service providers, the need to move to a different country to supply a service (e.g. doctors, teachers) will decline accordingly.

Protectionism as we know it today will seize to exist and will be progressive embracing new forms. With the expansion of additive manufacturing "traditional at-the-border" measures, such as tariffs, will effectively lose their relevance. New market protection approaches emerge, including various "behind-the-border" regulations that target data management and organization, use of intellectual property (IP) and operation of AI. In this respect, WTO Agreements, including, for example, certain provision of the General Agreement on Tariffs and Trade governing the use of import duties, quotas, subsidies and antidumping measures, will become increasingly outdated.

Competitiveness will come to be defined by the ability of companies to generate and manage knowledge and data, as well as their possession and control over AI. As a result, transnational companies (TNCs) and highly technological firms that exert monopoly control over data, IP and knowledge, as well as drive innovative progress will come to dominate markets and dictate the terms of access and participation in GVCs. In the absence of an appropriate multilateral legal framework on competition, new global trade rules will be largely written by TNCs and high tech giants for their own benefit with little account for the interests and capabilities of the other players in the international arena. Such abuse of market power will lead to a deterioration of global competitive environment and will largely prevent smaller firms from developing and effectively participating in global trade.

In addition, global transportation market will undergo decisive changes due to advancements in aerial transportation. Cargo deliveries would become much more efficient due to potentially lower technological barriers, fewer regulatory hurdles, decreased shipping costs, lower transportation time, as well as facilitated access to remote locations and rural areas [8]. The same is true for passenger travel – it would become much faster and more efficient. However, novel transportation methods will create new challenges for the global community, including the need to develop appropriate infrastructure for autonomous aerial transportation and a respective air traffic management system. Supersonic travel will also raise various environmental concerns that will have to be adequately addressed by the international policymakers.

These are but a few prospective changes that international trade will have to face in the coming five decades. Taken together they will reshape the nature and con-

tent of global value chains (GVCs), supply chains, foreign direct investments and distribution systems around the world. In this respect, to survive and remain at the center of regulating multilateral trade relations, the WTO of the year 2070 will have to effectively adapt to the changing nature of cross-border trade, protectionism and global competition, as well as to the novel transportation methods. New regulatory framework will have to be developed in time to negate potential problems that might arise in the absence of appropriate effective regulations, but not too early, so as not to distort the ongoing technological progress and prevent it from flourishing.

3. Implications for the WTO: possible solutions

"Institutions that fail to adapt, do not survive [12]. This Darwinian truth is as true for international organizations, as it is to for various species. Being hostage to its own institutional structure, WTO struggles to promptly react to changing global circumstances and efficiently generate respective up-to-date rules. If the existing negotiating impasse is not breached in the nearest future, by 2070, the multilateral legal framework will become entirely unfit to govern global trade relations. As a result, the WTO will lose its power in regulating multilateral trade.

To maintain WTO's relevance and enable governments and businesses to seize opportunities offered by the evolving global trade context, the WTO's fundamentals will have to be reconsidered and modified accordingly.

To start, the existing three fundamental pillars of the WTO (goods, services and IP) will be unable to account for the emerging novel products of "dual nature". Such products will appear in the aftermath of continued technological and innovative progress that will progressively blur the boundaries between the existing WTO's pillars. This novel concept will raise numerous questions for policymakers. For example, when robots start to replace humans in various spheres of activity – will such machines be treated as services (as robots would essentially be classified as natural persons) or as goods? The same concerns VR and AR products. Will they be treated as goods or as services? To answer these questions, the very philosophy of the WTO will have to be adjusted to account for this novel category of "dual natured" products.

Consequently, WTO spheres of competence will have to be expanded to account for the new spheres of regulation, and its' existing Agreements will have to be adjusted accordingly in terms of their structure, coverage and substance. Given the projections outlines in this paper, at a minimum the future multilateral regulatory framework will have to account for the following.

First, *regulations governing the use and development new technologies*. Development in AI, VR, AR and BMI technologies could open up numerous prospects for "neurocrime" and malicious "brain-hacking", including illicit access and manipulation of neural information and computation [18], virtual harassment risks as well as various other safety risks. Therefore, more advanced and complex data protection methods

will have to be devised at the multilateral level. In addition, respective industry standards (including safety standards) will have to be developed to ensure privacy and security of information and prevent "neuro-hacking" (see Fig. 3). Moreover, appropriate penalty measures will have to be designed to prevent unwanted conduct, including potential fraud and false activity.

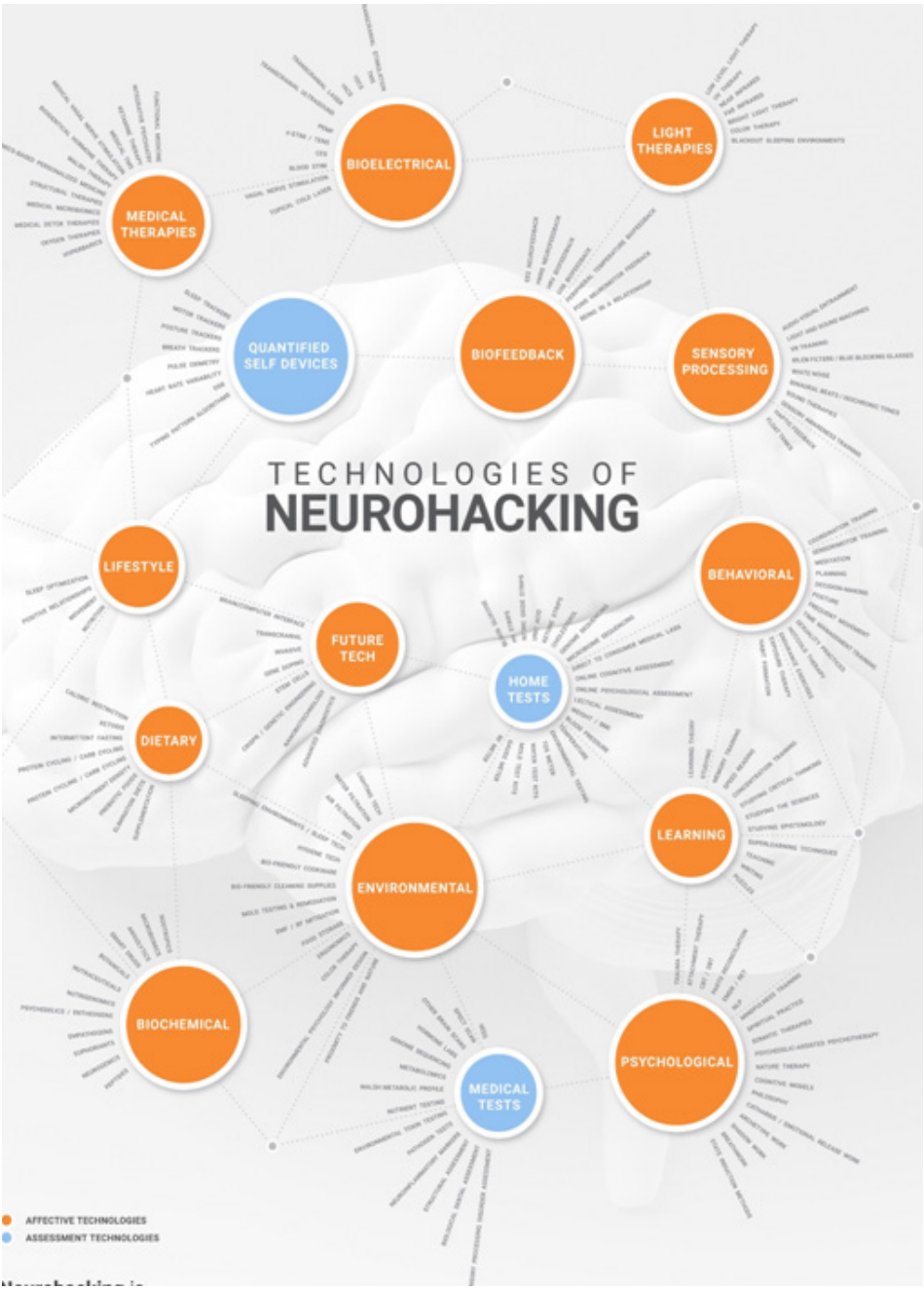

Figure 3.Technologies of neuro-hacking

Source: [19].

Second, *regulations providing for "fair" global competition conditions***.** To prevent the emergence and spread of technological monopolism of large TNCs and big technological giants, appropriate mechanisms will have to be developed to enable barrier-free access to new technologies, including 3D printing, AI, VR and AR technologies.

Third**,** *rules governing IP rights protection* will have to account for technological and innovative developments. Also, given that IP will be increasingly produced by AI, IP protection, including patent and copyright protection, will have to be improved and adjusted accordingly.

Fourth, *air and space transportation regulations*. The advancement and spread of autonomous aerial transportation of passengers and cargo will require the development of respective safety standards, a new set of rules governing its operation and market access conditions. As the current system of international air traffic regulation is partially subject to GATT and General agreement on trade in services (GATS), amendments will have to be introduced to both agreements.

Fifth, structural changes in the nature of *services' supply modes* will trigger the need to adapt the existing WTO legal framework in this sphere. For example, GATS regulations governing "Mode 1: cross-border trade", as well as "Mode 4: presence of natural persons" will have to be developed in line with the ongoing technological changes.

In addition, the WTO will have to undergo certain institutional changes. For instance, *WTO's Dispute settlement mechanism* will have to be adjusted to a progressive involvement of AI in its' procedures and processes. However, most importantly, instead of predominantly exerting disciple on its Members, the WTO will have to start managing the evolving economic environment to remain at the center of the multilateral trading system. It will have to start effectively guiding the new flows of data, IP, knowledge and services across the globe.

Overall, the future WTO legal framework will still remain essential for ensuring full and equal participation of both economies and businesses in the multilateral trading system. Therefore, despite the many changes, risks and challenges envisioned by this article, the WTO's core principles, including transparency, openness, inclusivity and non-discrimination will remain as relevant in 2070, as they are today.

Conclusion

In the next five decades, global economy and international trade architecture will be largely transformed under the impact of technological advancements and innovative progress. To remain at the center of effectively managing evolving multilateral trade context, the WTO of the future will have to embrace new spheres of regulation and generate appropriate up-to-date rules.

These would include, among others, regulations governing the use and development of new technologies and novel transportation methods, development of respective safety standards and regulations aimed at ensuring privacy and security of information, prevention of "neuro-hacking" and establishment of appropriate IP protection. Competition rules will also have to be devised and implemented at the multilateral level to enable barrier-free access to and use of the new technologies.

Most importantly, the very philosophy of the WTO will have to be adapted to the changing environment. The three fundamental pillars of the organization (goods, services, intellectual property) will have to accommodate for the emerging products of "dual nature", which do not fall exclusively under any single WTO category.

Notwithstanding the accelerating pace of technological changes with their respective risks and challenges for the multilateral trade community there will always be a strong need for a level-playing field, where competition conditions are not hindered by artificial advantages. Even in 50 years from now rules-based multilateral framework, strong and fair competition conditions, stability and predictability will remain integral for ensuring continued economic growth, development and innovation. Therefore, the core WTO's values and principles, including transparency, openness, inclusivity and non-discrimination, will remain indispensable and will have to be preserved and promoted by the international policymakers.

References

[1] Lund, S., Bughin, J. (2019). *Next-generation technologies and the future of trade.* VOX CERP Policy Portal – Research-based policy analysis and commentary from leading economists. URL: <https://voxeu.org/article/next-generation-technologies-and-future-trade>.

[2] World Trade Organization (2018). *World Trade Report 2018: the future of world trade: how digital technologies are transforming global commerce.* URL: <https://www.wto.org/english/res_e/publications_e/world_trade_report18_e.pdf>.

[3] Apis Cor. (2019). *Collaborative project with Dubai municipality.* URL: <https://www.apis-cor.com/dubai-project>.

[4] Walsh, N.P. (2019). *Worlds' largest 3D-printed concrete pedestrian bridge completed in China.* ArchDaily. URL: <https://www.archdaily.com/909534/worlds-largest-3d-printed-concrete-pedestrian-bridge-completed-in-china>.

[5] The Economist (2019). *Giant 3D printers for making boats, bridges, buildings and rockets.* URL: <https://www.economist.com/science-and-technology/2019/11/14/giant-3d-printers-for-making-boats-bridges-buildings-and-rockets>.

[6] Bundell S. (2019). *New 3D printer makes multi-material robots.* Nature Research. URL: <https://www.nature.com/articles/d41586-019-03513-4>.

[7] Asenjo, A., Moynihan. R. (2019). *An Uber boss insists its flying taxis will be fully functional by 2023, and says the company is talking with NASA to find a way to manage air traffic.* Business Insider España. URL: <https://www.businessinsider.com/uber-insists-will-have-fully-functional-flying-taxis-by-2023-2019-10>.

[8] Morgan Stanley Research (2019). *Are flying cars preparing for takeoff?* URL: <https://www.morganstanley.com/ideas/autonomous-aircraft>.

[9] Airbus S.A.S. (2019). *Vahana*. URL: <https://www.airbus.com/innovation/urban-air-mobility/vehicle-demonstrators/vahana.html>.

[10] 2019 Boom Technology, Inc. (2019). *Overture.* URL: <https://boomsupersonic.com/overture>.

[11] McKinsey Digital (2019). *Driving impact at scale from automation and AI.* McKinsey & Company. URL: <https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Driving%20impact%20at%20scale%20from%20automation%20and%20AI/Driving-impact-at-scale-from-automation-and-AI.ashx>.

[12] Wolff, A. (2019). *DDG Wolff: Multilateral trading system is vitally important to health of world economy.* World Trade Organization 2019 news. URL: <https://www.wto.org/english/news_e/news19_e/ddgaw_10sep19_e.htm>.

[13] Durham, E. (2019). *First-ever noninvasive mind-controlled robotic arm.* Carnegie Mellon University: College of Engineering. URL: <https://engineering.cmu.edu/news-events/news/2019/06/20-he-sci-robotics.html>.

[14] IHMC Robotics (2019). *Humanoid robots as human avatars. Institute for Human and Machine Cognition.* URL: <http://robots.ihmc.us/humanoids>.

[15] World Health Organization (2019). *Health and Sustainable Development: Telehealth.* URL: <https://www.who.int/sustainable-development/health-sector/strategies/telehealth/en>.

[16] Babich, N. (2019). *How VR in education will change how we learn*. URL: <https://xd.adobe.com/ideas/principles/emerging-technology/virtual-reality-will-change-learn-teach>.

[17] Fan, Z., Chiffelle, C. (2018). These 5 technologies have the potential to change global trade forever. World Economic Forum. URL: <https://www.weforum.org/agenda/2018/06/from-blockchain-to-mobile-payments-these-technologies-will-disrupt-global-trade>.

[18] Ienca, M., Haselager, P. (2016). *Hacking the brain: brain–computer interfacing technology and the ethics of neurosecurity.* Ethics and Information Technology 18(2). URL: <https://www.researchgate.net/publication/301335762_Hacking_the_brain_brain-computer_interfacing_technology_and_the_ethics_of_neurosecurity>.

[19] Neurohacker Collective. URL: <https://www.neurohacker.com>.

Мочалова А.[1]

Многостороннее регулирование торговли: Прогноз на 2070 г.[2]

В статье представлен возможный долгосрочный сценарий развития многостороннего регулирования торговли до 2070 г. Исследованы возможные глобальные тренды и соответствующая неизбежная трансформация многосторонней торговой системы. Рассмотрены динамика и модели трансграничной торговли с учетом растущей роли цифровой реальности, особый акцент сделан на вызовах и возможностях набирающего темпы технологического прогресса. Проанализированы возможные последствия данных процессов для правовой базы ВТО. Предложен ряд подходов, направленных на сохранение центральной роли ВТО в регулировании международной торговли.

Ключевые слова: *ВТО, многостороннее регулирование торговли, трансграничная торговля, протекционизм, новые технологии, аддитивные технологии, 3D-печать, искусственный интеллект, виртуальная реальность, дополненная реальность.*

Статья поступила в редакцию в ноябре 2019 г.

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2 Статья отражает исключительно авторский взгляд и может не совпадать с позицией организации, аффилиация с которой указана выше. Статья основана на выступлении автора на сессии «Многостороннее регулирование: ожидания новых поколений» Общественного форума ВТО (Женева, октябрь 2019 г.).

A. Yessembayev[1]

Trade and competition: necessity and perspectives of universal competition rules

Competition policy is currently an important element of the legal and institutional system for the global economy. While decades ago anticompetitive practices were primarily a local phenomenon, now many areas of competitive law enforcement are international by their nature. This article elaborates on the development and use of the provisions on competition in the main documents of the WTO and free trade agreements. The analysis of the content and scope of competition agreements is carried out. The main problems that antitrust authorities are currently facing in different countries in relation to international cooperation on competition, are identified. The prospects and the need for adoption of universal standards and rules of competition in the world trade system are considered.

Key words: *Competition policy, anti-competitive practices, international trade policy, WTO agreements, regional trade agreements, international cooperation.*

JEL L41 **doi:10.17323/2499-9415-2019-4-20-117-131**

Introduction: Necessity and perspectives of universal competition rules

Competition policy is an important element of the legal and institutional framework for the global economy. Years ago, regulation of competition and competition treatment tended to be an object of domestic legislation. Over the past decades, with the increasing globalization and the proliferation of competition laws across the world, there is a trend of cases on restrictive business practices of large multinational companies, which are being investigated by competition authorities around the world.

Examples include: the investigation and prosecution of price fixing and market sharing arrangements that often spill across national borders and, in important instances, encircle the globe; multiple recent, prominent cases of abuses of a dom-

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inant position in high-tech network industries; important current cases involving transnational energy markets; and major corporate mergers that often need to be simultaneously reviewed by multiple jurisdictions.

The international cartel collusions would be of particular concern. In modern conditions, cartels lose their local dimension and become international; their participants are large multinational companies, whose activities are carried out around the world.

Due to be hidden, these practices hold the potential to undermine the benefits of trade and trade liberalization. On this basis, the significance of competition policy and cooperation in competition law enforcement is doubtless.

The issue of competition policy was on object of negotiations within WTO for a huge period. Thus, the potential need for formal state-to-state arrangements concerning competition policy were recognized already in 1948, in the Havana Charter for an International Trade Organization (the Havana Charter). The Charter included an entire competition-related chapter, which aimed at the prevention of 'business practices affecting international trade which restrain competition, limit access to markets, or foster monopolistic control, whenever such practices have harmful effects on the expansion of production or trade or have other harmful effects e.g. on development]'. But, the Charter was not ratified by the US and never came into effect [Anderson, Kovacic, Müller, Sporysheva 2018].

Further, the issue of competition policy and its significance for trade continued to receive attention in the context of related negotiations and relevant provisions were incorporated in the General Agreement on Tariffs and Trade (GATT) in 1947 and in the World Trade Organization (WTO) agreements e.g. in the framework of the General Agreement on Trade in Services (GATS), the Agreement on Trade-Related Investments Measures (TRIMs Agreement), and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement).

As a result of the Ministerial Conference in Singapore in 1996, the Working Group on the Interaction between Trade and Competition Policy (WGTCP) was established to study various aspects of this issue, with the participation of all WTO Members.

The issue of interconnections between trade and competition policy was also a subject of concerns during the Doha Round of Multilateral Trade Negotiations (Doha Round) in 2001. The Doha Ministerial Declaration (Article 23) recognized 'the case for a multilateral framework to enhance the contribution of competition policy to international trade and development' and called for 'negotiations [to] take place after the Fifth Session of the Ministerial Conference on the basis of a decision to be taken, by explicit consensus, at that session on modalities of negotiations' [WTO.org].

Despite this, at the Cancún Conference, there were no consensus between the WTO Members. In July 2004 the General Council of the WTO decided that the

interaction between trade and competition policy (in addition to investment, and transparency in government procurement) would no longer form part of the Work Programme set out in the Doha Ministerial Declaration and therefore that no work towards negotiations on any of these issues will take place within the WTO during the Doha Round. Subsequently, the WTO Working Group on this topic has since been inactive.

But competition law and policy issues began to appear more often in the international trade system. According to the WTO Regional Trade Agreements Database, which was established in 2009 as part of the WTO's Transparency Mechanism for RTAs and is a repository of the legal texts and annexes of all RTAs notified to the WTO, preferential tariff and trade data provided by RTA parties, and other related documents, 198 of 304 (65%) RTAs in force contains competition-related provisions in one form or another [rtais.wto.org].

There are different objectives of competition-related provisions as they relate to trade. The following are among those most frequently recognized in the RTAs:

- ensuring that the potential gains from trade liberalization are not undermined by anti-competitive practices;
- promoting economic efficiency, development and prosperity;
- ensuring that competition law, itself, is not applied in ways that adversely affect business confidence and/or favor domestic as compared to foreign enterprises.

Most of the RTAs include an entrenched set of provisions, such as references to existing competition laws and their further development; the prohibition of anti-competitive practices; and a cooperation matters. Kazakhstan is a signatory of 12 RTAs, in accordance with the data of the above-mentioned WTO Regional Trade Agreements Database, five of which contains competition topics. The information on these RTAs provided in the Table 1 below.

Competition-related provisions of the Treaty on the Eurasian Economic Union

In this context the Treaty on the Eurasian Economic Union (EAEU) (hereinafter – the Treaty) signed in May 2014 to be considered separately [docs.eaeunion.org].

The Treaty has become effective on 1 January 2015. The Treaty confirms the creation of an economic union that provides for free movement of goods, services, capital and labor and pursues coordinated, harmonized and single policy in the sectors determined by the document and international agreements within the Union. The Treaty was signed by the Presidents of the Republic of Belarus, the Republic of Kazakhstan and the Russian Federation on 29 May 2014 in Astana. Apart from the three states, the Union members will also include the Republic of Armenia that signed Treaty on Accession to EAEU on 10 October 2014 and the Kyrgyz Republic that signed similar Treaty on 23 December 2014.

Table 1

Kazakhstan's participation in RTAs.

RTA Name	Coverage	Type	Date of notification	Notification	Date of entry into force	Status
Armenia - Kazakhstan	Goods	FTA	17-Jun-2004	GATT Art. XXIV	25-Dec-2001	In Force
Eurasian Economic Union (EAEU)	Goods & Services	CU & EIA	12-Dec-2014	GATT Art. XXIV & GATS Art. V	01-Jan-2015	In Force
Eurasian Economic Union (EAEU) - Viet Nam	Goods & Services	FTA & EIA	04-May-2017	GATT Art. XXIV & GATS Art. V	05-Oct-2016	In Force
Georgia - Kazakhstan	Goods	FTA	08-Feb-2001	GATT Art. XXIV	16-Jul-1999	In Force
Russian Federation - Belarus - Kazakhstan	Goods	CU	21-Dec-2012	GATT Art. XXIV	03-Dec-1997	In Force

Source: WTO Regional Trade Agreements Database.

EAEU is an international organization for regional economic integration. It has international legal personality. EAEU is to create an environment for a stable development of the Member-States' economies in order to raise the living standards of their population, as well as to comprehensively upgrade and raise the competitiveness of and cooperation between the national economies in the conditions of the global economy.

Governance of the Union is entrusted to the Supreme Eurasian Economic Council (SEEC) comprised of the Heads of the Member-States. The SEEC sessions are held at least once a year. Other units of governance in EAEU are the Intergovernmental Council at the level of the Heads of the Governments, the Eurasian Economic Commission and the Court of the Union.

Overall the Treaty codified around 70 documents, particularly, on competition policy. The Treaty absorbed the Articles on general principles and rules of competition, regulation of natural monopolies in general and in special areas (energy and transport), public (municipal) procurement, industrial subsidies and state support of agriculture. Special provisions of the Treaty shaped the design of the system of competition law enforcement and the approaches of EAEU competition policy.

This system combines control over meeting competitive conditions within the national jurisdictions on the basis of harmonized laws under the principles formalized in the Union Treaty, and control over observing general rules of competition on the cross-border markets exercised by EEC.

General competition principles specified in the Treaty include, in particular, the principles of:

- existence of competition laws in EAEU members-states, prohibiting agreements between market entities that (have) led or can lead to preventing, restricting, eliminating competition;
- efficient control over economic concentration;
- formalizing penalties and applying fines in EAEU member-states;
- each EAEU member-state having a government body authorized to implement and (or) pursue competition policy with particular powers determined by the Union Treaty;
- informational openness of competition (antimonopoly) policy carried out by the national competition authorities of EAEU member-states, particular, through publishing information about their work in mass media and on the Internet;
- cooperation between the national antimonopoly bodies of EAEU member-states.

The Treaty clearly determines EEC competence, assigning to it powers of control over general competition rules in cross-border markets of EAEU.

General competition rules prohibit abusing market dominance, anticompetitive agreements and unfair competition.

The Treaty determines specifics of applying general competition rules on the cross-border markets, the procedures for EEC control over their observance, and fines. Also, the Treaty determines the procedure for cooperation between national competition authorities of EAEU member-states between themselves and with EEC, describing in detail the grounds for cooperation and its specific forms. The purpose of such cooperation is to enhance efficiency of competition law enforcement on both cross-border and national markets.

EEC decisions in the field of competition can be appealed to the EAEU Court, a standing EAEU judicial body. It should be noted, that for EEC decisions on competition-related cases there are exceptions from the general procedure for filling claims outlined in the EAEU Court Statute.

Any dispute is accepted for consideration by the EAEU Court only after prejudicial settlement in the form of consultations, negotiations or other methods provided for by the Treaty and international treaties within the Union. Appeals against EEC decisions on competition-related cases are filed to the EAEU Court without a preliminary stage of prejudicial settlement. If the EAEU Court accepts an appeal lodged against an EEC decision on a competition-related case, the EEC decision is suspended until the date when the EAEU Court ruling comes into force.

Provisions of the Treaty on regulating relations in the fields of natural monopolies, public (municipal) procurement are pro-competitive, and determine the directions of Union competition policy.

Supporting market pricing and competition development instruments is one of the most important principles of regulating natural monopolies in certain fields, and establishing common markets, for example, energy resources markets and the common market of transportation services.

Developing competition, supporting informational openness and transparency of procurement, providing national procurement schemes for EAEU member-states, safeguarding obstacle-free access of potential suppliers from the member-states to procurement organized in the electronic form also are some of essential regulatory principles in public (municipal) procurement formalized by the Treaty.

To ensure conditions for sustainable, efficient development of EAEU economies and conditions encouraging mutual trade and fair competition between EAEU countries, EAEU member-states have common rules for granting subsidies on industrial commodities and state support to agriculture.

The EEC may request all necessary information for ensuring the observance of common competition rules in EAEU markets. Information – also of a confidential nature – is to be supplied by member States' bodies, local executive bodies, other bodies or organizations performing relevant functions, juridical persons and individuals. The EEC submits an annual report to the Supreme Council on

the state of competition in EAEU markets and measures taken to prevent violations of common rules of competition. The approved report and all decisions in cases of violations of common competition rules are published on the official website of the EEC.

The example of the first competition case of the EEC is reflected in the Box 1 below.

Case on violation of general rules of competition in trans-boundary market of supplying electrical anisotropic steel

Kentau Transformer Plant JSC complained to the EEC about the presence in the actions of Novolipetsk Metallurgical Combine PJSC and VIZ-Steel LLC (hereinafter NLMK) of signs of violation of the general rules of competition in the cross-border markets of the EAEU.

As a result of the investigation, the EEC found that monthly coefficients of macroeconomic risk in the amount of 5.3% to 23% to the price of electrical steel were applied to consumers from the Republic of Belarus and the Republic of Kazakhstan during the analyzed period from 1 January 2015 to 30 June 2016. The coefficients were paid in addition to the cost of purchased electrical anisotropic steel.

At the same time, consumers of the Russian Federation were not subject to additional coefficients when purchasing electrical anisotropic steel.

The Board of EEC on the results of investigation made a decision on the violation of the general rules of competition and on applying of the penalties from September 26, 2017 N 130.

It should be mentioned the decision were appealed by the Russian Federation in order, provided be the EAEU Treaty, to the Eurasian Intragovernmental Council.

In this connection, the decision is still not effective.

Box 1. EEC competition case

As it follows from the above provisions, competition law enforcement, today, is a mostly international phenomenon. Mergers and acquisitions often have a bearing on multiple national markets. The number of cartel investigations involving international participants has increased around the world in recent years.

But, efforts of one state in fighting cartels and anticompetitive practices of transnational companies would be deficient, the coordinated work of the competition authorities of different countries is required in order to prevent, reveal, investigate and eliminate violation in cross-border markets.

In this connection, regional co-operation has become an important tool for competition authorities to strengthen their enforcement and advocacy activities and to improve the design of competition laws and institutions. It has allowed many

jurisdictions to strengthen common interests in the region while at the same time promoting national interests. Regional co-operation can promote convergence in competition laws and instruments in a region and ensure consistency in its application, help ensure effective and efficient enforcement against anti-competitive practices and mergers with anti-competitive effects, reduce enforcement gaps, as well as support a more efficient deployment of scarce resources by minimizing duplicative efforts between member jurisdictions.

International cartels and market sharing agreements between entities in two or more countries are similar in their effects to horizontal price-fixing and other collusive agreements within a single jurisdiction. In both cases, competition is limited, prices are raised, output is restricted, and/or markets are allocated for the private benefits of firms.

Enforcement efforts by national competition authorities relating to international cartels, coupled with voluntary cooperation among national authorities in cases where this has been permitted, has brought satisfactory results and yielded positive spillovers (in the sense of benefits felt in other jurisdictions) in many cases.

Regional cooperation of competition authorities

Kazakhstan is a signatory of the Treaty on Implementation of the Coordinated Antimonopoly Policy of the Commonwealth of Independent States (CIS) (CIS Treaty).

One of the most important general economic tasks of the CIS is the creation of an effective system of anti-monopoly regulation, promoting the development of competitive relations and ensuring reliable protection of consumers - citizens of the CIS Member states.

The beginning of cooperation in the field of antimonopoly policy in the CIS was laid by the signing Treaty on Implementation of the Coordinated Antimonopoly Policy on 23 December 1993 by the Heads of Government of all the CIS member states.

The main objective of the CIS Treaty is the creation of legal and institutional framework for cooperation in implementation of the coordinated anti-monopoly policy and the development of competition, preventing monopolistic activity and / or unfair competition of market entities. Subsequently, the goals, objectives and mechanisms for implementing the coordinated antimonopoly policy in the CIS, defined by the CIS Treaty, were clarified and complemented in a new version of the CIS Treaty, signed by the Council of Heads of Government of the CIS on 25 January 2000.

The CIS Treaty specifies the tasks of the competition authorities to ensure close cooperation in the field of competition policy, provides definitions and general rules of competition regarding the abuse of dominance; restrictive agreements; unfair competition.

The Interstate Council for Antimonopoly Policy, the legal framework for the activity of which were established by CIS Treaty, is the basic platform for interaction of the competition authorities of the CIS Countries. It was established in 1993 aiming at coordinating of formation by the Member-Countries of the CIS of the legal and organizational basis for the purposes of prevention, restriction and suppression of anticompetitive practices and unfair competition within the CIS Economic Area.

To achieve the effective cooperation which would stimulate even deeper integration of the CIS Member-Countries, the ICAP Members adopted the Regulation on Cooperation of the States in Suppression of the Monopolistic Activity and the Unfair Competition which forms an integral part of the CIS Treaty.

The Regulation provides for mechanisms of cooperation of the CIS antimonopoly authorities in investigations of violations of the antimonopoly legislation, of participation in terminating transnational anticompetitive practices and of protection of domestic producers at international and domestic markets.

Within the framework of its operations and following the decisions adopted in the course of its sessions, the ICAP performed the analysis of the antimonopoly legislation of the CIS Countries in order to develop the common approaches to the harmonization.

At the ICAP sessions, the Participants exchange opinions on recent developments in their national antimonopoly legislation and on the overall economic situation with the subsequent information exchange on the most interesting cases currently considered.

In the course of its activity, the ICAP has achieved the following results:
- decrease of antimonopoly law infringements on the international markets of the CIS Countries;
- development of competition both in the domestic markets and in external economic activities;
- elimination of barriers in the movement of goods and services within the CIS Economic Area.

The work carried out by the ICAP has reached a qualitatively new level. To increase the interaction between the competition authorities of the CIS Countries, the participants of the ICAP made the decision to conduct joint investigations of anticompetitive practices in the CIS transboundary markets. For this purpose, the Headquarters for Joint Investigations of the Violations of the Antimonopoly Legislation in the CIS Countries was established in 2006.

Over the past years, a significant amount of work has been done to improve competition law, to provide methodological support for the activities of competition authorities. The main directions of this work included: an analysis of the developed draft laws that are part of the competition law system, the preparation of rec-

ommendations for the improvement of current legislation and law enforcement practice. As a result, over the past few years, the competition legislation of the CIS member states has undergone significant changes due to the need to improve it taking into account modern economic realities and the need to overcome new economic challenges, including the financial and economic crisis of 2009-2010.

Thus, in a number of CIS member states, amendments to national competition legislation were adopted, taking into account international norms and rules and best foreign practices in this field, the adoption process of which was accompanied by their coverage and discussion at the ICAP meetings.

Since 1 January 2009, the Law of the Republic of Kazakhstan "On Competition" entered into force in the Republic of Kazakhstan, which is a law of direct action and combines the provisions of the Laws of the Republic of Kazakhstan "On competition and restriction of monopolistic activities" and "On unfair competition". The main innovations stipulated in the Law are:

- determination of principles of fair competition,
- list of grounds and forms of state participation in business activities,
- cases of admissibility of agreements or concerted actions of market entities,
- extraterritoriality,
- leniency,
- consideration of a group of persons as a single entity,
- collegiality in decision-making by the anti-monopoly authority,
- grounds for the provision of state assistance.

The work carried out by the competition authorities of the CIS member states to improve competition legislation is very important for the development of the economies of the CIS states and is aimed primarily at creating favorable conditions for entrepreneurial and investment activities, as well as at fully satisfying the needs of citizens.

The most important area of work of the ICAP is the development of practical cooperation between the competition authorities of the CIS member states. The work in this direction is carried out within the framework of the Headquarters for Joint Investigations of the Violations of the Antimonopoly Legislation in the CIS Countries (hereinafter referred to as the Headquarters) established under the ICAP.

The objects of the Headquarters research are socially significant markets, the successful functioning of which ensures the creation of infrastructure, which is the basis for the formation of a common economic space within the CIS, and also has a direct impact on the welfare of citizens of the CIS.

Thus, on the results of work conducted the reports on state of competition were developed:

- Report on the state of competition in the air transportation market in the CIS countries (2008)

- Report on the state of competition in the telecommunications market in the CIS countries (2010)
- Report on the state of competition in the market for the sale of food products in retail chains in the CIS countries (2012)
- Report on the state of competition in the markets of oil and petroleum products (2014)
- Report on the state of competition in the drug market in the CIS countries (2015).

On the results of the above study cases the recommendations on the development of competition in these markets were made.

Implementation of the recommendations was reflected in the report on the practical results of ICAP activity, devoted to the 25th anniversary.

At present, report on competition policy development in terms of digital economy is on finalizing stage.

Another priority of the Headquarters's activities is the improvement of methods of fighting cartels.

The case of effective implementation of the cooperation based provisions of the CIS Treaty and concerted actions of the competition authorities of Kazakhstan and Russia in order to eliminate anti-competitive conduct in the markets is exampled in the Box 2 below.

Joint investigation by CIS competition authorities in the roaming services market

In the course of study of the state of competition in the telecommunications market in the CIS countries, signs of violation of competition law were revealed in the formation of tariffs for communication services in roaming. In this connection, competition authorities of a number of CIS countries took antitrust response measures.

Thus, the competition authorities of Russia and Kazakhstan, within the framework of national legislation, conducted joint investigations and initiated cases against the dominant operators. As part of the consideration of cases, Russian and Kazakhstani mobile operators announced a reduction in tariffs for communication services in international roaming in certain areas from 1.5 to 10 times.

In general, it can be stated that the result obtained indicates a high efficiency of the implementation of concerted antitrust response measures. Using of them contributes to the development of competition in the relevant markets, providing consumers with obvious benefits, and also creates a good basis for expanding socio-economic interaction in the CIS countries space.

Box 2. Case of implementation of the CIS Treaty provisions

Nevertheless, some cross-border anti-competitive practices may be beyond the effective reach of the laws in the jurisdictions where their effects are most harmful and despite the clear and significant progress that is being made in this field. The increasing interdependence of markets and economies means that the behaviour of market participants, and its effects, are often not limited to the territory of one jurisdiction. Conduct by foreign entities taking place overseas may therefore have harmful effects on domestic markets.

In this connection the further developments in this field shall address the question "what additional forms of international co-operation may be required in order to ensure an appropriately transparent and non-discriminatory framework for the application of competition policy in global economy, at the same time preserving appropriate scope for policy innovation and regulatory diversity at the national level?".

Today, this question is in the focus of consideration in different international organizations, such as OECD, UNCTAD, International Competition Network, and regional organizations (European Competition Network, European Commission, and Eurasian Economic Commission).

The achievements of these organizations span many areas, including merger review, anti-cartel enforcement, unilateral conduct, competition advocacy, and competition policy implementation. Work products range from recommended practices, case-handling and enforcement manuals, reports, legislation and rule templates, databases, toolkits, and workshops.

These past and ongoing efforts to promote convergence in substantive approaches have contributed to a more coherent international policy environment nowadays.

But, OECD, UNCTAD and ICN have focused on non-binding recommendations. That means voluntary cooperation and voluntary acceptance of recommended practices of national competition authorities and regional office [wto.org; rtais.wto.org; internationalcompetitionnetwork.org].

In that regard, in some cases some jurisdictions may reject the benefits of effective competition law enforcement and cooperation at international level for the sake of industrial policy goals.

Following the above it could be suggested that voluntary cooperation and voluntary acceptance of recommended practices can supply a foundation for the establishment of binding, treaty-based obligations and the role of international organizations in facilitating convergence among competition law systems might thus be considered as a necessary evolutionary step from soft law to hard law.

Thus, global problems would seem to require global solutions. An agreement addressing these issues could reduce the risk of jurisdictional conflict and resolve

conflicts that arise. In addition, without an agreement, as it was already told, national interests will not align sufficiently to resolve conflicts that arise.

Many issues related to the competition in international dimension are interconnected with specific trade policy dimension. Accordingly, the main principles of in the WTO, such as non-discrimination, transparency and procedural fairness are relevant to competition policy.

Taking into account existing WTO agreements and the treatment of competition policy in RTAs, as well as the current general interest of WTO Members in advancing competition policy matters, specific potential contributions of the WTO could be done to greater policy coherence and to a stronger framework for the promotion of competition in global markets.

Work in the WTO would complement and reinforce the work of other international organizations concerning competition-related issues and shall *not* be intended to address the issues which are effectively addressed in that organization:

Also, there is necessity of further codification of generally agreed provisions, such as the general commitments by WTO Members relating to eliminating of anti-competitive practices and international cooperation.

Conclusion

All of the above-mentioned is the evidence that competition policy is no longer viewed mainly as a domestic matter and of interest principally to developed economies. Moreover, it has become an essential element of the legal and institutional framework for the global economy.

To date, efforts to establish a general agreement on competition policy in the framework of the international trading system have been unsuccessful. Nonetheless, different specific provisions concerning competition policy are incorporated in the GATT, GATS, the TRIPS Agreement, the TRIMS Agreement, and in other elements of the WTO agreements.

The important role of competition policy and its significance for global trade is also evident from the discussions within WTO and notifications made on competition policy in the WTO accession process. Another case - the work of the WTO Trade Policy Review Body (TPRB), which systematically references the role of national competition policies in developed and developing jurisdictions.

It could be suggested to sign the multilateral agreement within the WTO framework, which provides universal principles and standards aimed at maintaining competition and restricting monopolistic activity that meet the basic laws of economic development of the WTO member states.

In addition, the existence of such basic principles should have a positive effect on the regulation of entrepreneurial activity in the least developed countries - members of the WTO, where there are no maintained competition laws and regulation or are at the initial stage of development.

References

[1] Anderson, R.D., Kovacic, W.E., Müller, A.C., Sporysheva, N. (2018). Competition policy, trade and the global economy: existing WTO elements, commitments in regional trade agreements, current challenges and issues for reflection, WTO Staff working paper.

[2] Laprévote, F.-C. (2019*). Competition policy within the context of free trade agreements*, Paper to the OECD Global Forum on Competition.

[3] Court of the Eurasian Economic Union. URL: <http://courteurasian.org>.

[4] Treaty on the Eurasian Economic Union. URL: <https://docs.eaeunion.org/Pages/DisplayDocument.aspx?s=bef9c798-3978-42f3-9ef2-d0fb3d53b-75f&w=632c7868-4ee2-4b21-bc64-1995328e6ef3&l=540294ae-c3c9-4511-9bf8-aaf5d6e0d169&EntityID=3610>.

[5] Official web-site of the Committee on protection and development of competition under the Ministry of National Economy of the Republic of Kazakhstan. URL: <http://kzrk.gov.kz>.

[6] WTO official web-site. URL: <https:// www.wto.org>.

[7] Legal information system of Regulatory Legal Acts of the Republic of Kazakhstan «Édilet». URL: <http://adilet.zan.kz/rus>.

[8] The WTO Regional Trade Agreements (RTAs) Database. URL: <http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx>.

[9] ICN official web-site. URL: <https://www.internationalcompetitionnetwork.org>.

[10] UNCTAD official web-site. URL: <https://unctad.org/en/Pages/Home.aspx>.

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Торговля и конкуренция: необходимость и перспективы универсальных правил конкуренции

Конкурентная политика в настоящее время является важным элементом правовой и институциональной системы для глобальной экономики. Если в предыдущие десятилетия антиконкурентные практики являлись преимущественно как локальное явление, то в настоящее время многие направления конкурентного правоприменения носят международный характер. В данной статье рассмотрены тенденции развития и использования положений о конкуренции в документации ВТО, соглашениях о свободной торговле. Проведен анализ содержания и охвата статей о конкуренции в указанных соглашениях. Выявлены основные проблемы, с которыми в настоящее время сталкиваются антимонопольные органы в странах мира, связанные с международным сотрудничеством в сфере конкуренции. Рассмотрены перспективы и необходимость принятия универсальных стандартов и правил конкуренции в системе мировой торговли.

Ключевые слова: *Конкурентная политика, антиконкурентная практика, международная торговая политика, соглашения ВТО, региональные торговые соглашения, международное сотрудничество.*

Статья поступила в редакцию в декабре 2019 г.

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Editor E. Galchenko
Proof-reader T. Ershova
Design V. Kremlev
Making up and design Ya. Aleksandrova

Printed from original layout.

In print 00.12.2019.
Format 70×100/16.
Conventional printing 10,7.

Published quarterly.

Address
National Research University Higher School
of Economics Trade Policy Institute
13 Myasnitskaya Ulitsa, Building 4, Moscow, Russia 101000

Tel: +7 (495) 772-95-90 *22-409 and *22-184

E-mail: tradepolicyjournal@hse.ru
Web: http:// tradepolicyjournal.hse.ru

Federal Service for Supervision in the Sphere of Telecom,
Information Technologies and Mass Communications
(ROSKOMNADZOR)

Reg.No. PI № FS 77-67419 (13.10.2016)

Publisher
National Research University Higher School of Economics

300 copies