

## BALANCING NATIONAL SECURITY AND COMPETITIVENESS IN THE AGE OF INFORMATION<sup>a</sup>

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### Abstract

A secure environment plays a crucial role in the overall stability of the economy, having an impact and contributing to its competitiveness. Although an absence of security risks cannot certainly drive the country's economic development and competitiveness, its existence would definitely have far-reaching consequences for the economy. The paper aims to analyze the national security of the European (EU) countries and Serbia, reflected in the following security indicators: business costs of terrorism, business costs of crime and violence, organized crime, and the reliability of policy services. In this context, the study provides a comparative analysis of the mentioned indicators in order to assess their trend, as well as the correlation between national security and national competitiveness with the aim to determine how national security affects national competitiveness. The empirical analysis of the study includes 28 EU member countries and Serbia as a candidate country, covering the period from 2011 to 2017, with data available in the Global Competitiveness Reports. The findings of this study allow for a better understanding of the overall national security and its impact on the national competitiveness in the context of the EU and Serbia.

**Key words:** national security, competitiveness, indicators, European Union, Serbia.

## БАЛАНСИРАЊЕ НАЦИОНАЛНЕ БЕЗБЕДНОСТИ И КОНКУРЕНТНОСТИ У ДОБА ИНФОРМАЦИЈА

### Апстракт

Безбедно окружење игра изузетно важну улогу у одржавању стабилности привреде и тиме битно утиче на њену укупну конкурентност и доприноси јој. Иако одсуство безбедносних ризика не води само по себи економском развоју и конкурентности, њихово постојање би са сигурношћу имало далекосежне последице по

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привреду. Циљ рада је да се анализира национална безбедност европских (ЕУ) земаља и Србије, на основу следећих показатеља безбедности: пословни трошкови проузроковани тероризмом, пословни трошкови проузроковани криминалом и насиљем, организовани криминал и поузданост политичких услуга. Сходно томе, у раду је дата упоредна анализа поменутих показатеља како би се утврдио ниво показатеља у ЕУ и Србији, сагледао тренд у датом временском периоду, као и корелација између националне безбедности и националне конкурентности с циљем утврђивања утицаја који национална безбедност има на националну конкурентност. Емпиријска анализа укључује 28 земаља чланица ЕУ и Србију као државу кандидата, а за период од 2011. до 2017. године. Информациону основу чине подаци доступни у *Извештају о глобалној конкурентности*. Резултати истраживања пружају могућност бољег разумевања концепта националне безбедности и њеног утицаја на националну конкурентност у контексту ЕУ и Србије.

**Кључне речи:** национална безбедност, конкурентност, индикатори, Европска унија, Србија.

## INTRODUCTION

Extremely rapid scientific and technological development, diffusion of modern scientific achievements and technology and their increasing impact on all areas of social life, boost the complexity of the global environment. In this context, there will be a greater potential for positive impact on the economic development of countries through the implementation of innovative technological solutions that will contribute to the proper use of resources and accelerate productivity growth. However, contrary to expectations that the responsibility of all involved actors will be increased for the use of scientific advances in the general interest and for the benefit of all humanity, it is estimated that the development of science and technology will continue to be subject to various forms of abuse, leading to negative security implications. The dynamics of global information technology development will further facilitate and intensify different crime activities (National Security Strategy of the Republic of Serbia - draft, 2017, p. 4).

The last decade of XX century and the beginning of XXI century were under the influence of new security trends in the world. These trends shifted from, initially, military to other areas, such as the economy, energy, ecology, but also the security of individuals (civilians), as well as the entire society (National Security Strategy of the Republic of Serbia, 2009, p. 4).

National and international security has become one of the biggest challenges over the last years, and the core objective for national and international organizations. Given the ever-changing security environment and the various perspectives that need to be taken into consideration, the concept of security is not easy to define. In general, security is considered the ability of a country to protect its territory and citizens and respond to all kinds of threats that may evolve and emerge over time (Nikolaevich et al., 2018, p. 462). Given its importance from the aspect of urgency and criticality, special attention should be given to a comprehensive analysis of security issues from different perspectives.

The circumstances that lead to security risks at the global level are various, and it is the gap in the level of economic and cultural development that leads to poverty and social vulnerability of the population, negative demographics and negative psycho-social phenomena, to name some of them. Regional and local conflicts, ethnical and religious extremism, terrorism, organized crime, arms trade, illegal migration, lack of natural resources, corruption, etc., jeopardize the stability of economies and thus national and international security. The impact of unstable economies that do not provide safe life and business environment can be reflected in various aspects: a decline in investments, the fall in demand, movement of supply of goods and service including financial flow, etc. The common feature to all security risks is their unpredictable, asymmetrical and transnational character (National Security Strategy of the Republic of Serbia, 2009, p. 4).

The list of security problems that can affect the competitiveness of a country is long and diverse. Among them, special attention should be given to those that harm the international position of a country and its competitiveness. Namely, national security problems, reflected in terrorism, crime, violence, etc., have an equal influence on national competitiveness as other micro and macroeconomic determinants. All these security issues become a part of the national competitive business strategy.

The paper explores national competitiveness through the prism of national security in order to assess the correlation between security and competitiveness. The author identifies the national security indicators that are key to national competitiveness and contribute to a country's position in global economy. Namely, these indicators are: *business costs of terrorism*, *business costs of crime and violence*, *organized crime*, and *the reliability of policy services*, as indicators pertaining to national competitiveness. The subject of the analyses are the EU countries and Serbia in the period from 2011 to 2017.

#### *LITERATURE REVIEW*

Over the last decades and worldwide, many people have benefited from the expansion of the online environment and plenty of economic opportunities have been introduced in this new era. In the information age, only "smart economies" will be competitive on the global market and only these economies will be able to provide a proper nation's defence.

A modern economy cannot be considered the result of actions of million isolated market players, but as a joint result within a framework of national economies (Botos, 2006, p. 13). Improving competitiveness implies not only a well-functioning market, but also strong institutions with the quality of adaptability and capacity for innovation. These essential elements will become even more important in the future, given that competitive economies take risks more easily, and adapt to the rapidly changing

environment (WEF, 2018, p. 2). Cho and Moon (2001, p. 55) define competitiveness as the country's ability to produce products and provide services that meet the tastes of international competition, while the citizens of that country enjoy a sustainable living standard. In general, competitiveness should ensure a high standard of living, poverty reduction and job opportunities to all (Lang, 2009, p. 26).

One of the key roles in national competitiveness belongs to the state, and this role is reflected in the state's aspiration to constantly stimulate the improvement of the economy and the process of innovation (Stanojević, 2018, p. 85). Given that some economies are technologically superior, offering innovative and high quality products, etc., the question of what determines competitiveness must be raised. Individual factors and determinants that contribute to the progress of the economy and its competitiveness should be taken into consideration. Institutions (public and private), the infrastructure, the macroeconomic environment, education, the market (goods, labor, financial) efficiency and size, technology, research and development and innovation, are some of the indicators that need to be analyzed (Krstić, Stanojević & Stanišić, 2016, p. 1038).

Institutions, as one of national competitiveness indicators, can be affected by different security determinants. Threats that jeopardize national security by themselves have a negative impact on national competitiveness. However, strict rules and regulations in order to prevent these threats and protect a nation can also impact competitiveness in a negative manner, impeding the free movement of goods, services, capital and labor (Long, 2013, p. 46).

The concept of security can be elaborated at the individual, national and international level. While individual security is related to the individual impact on security issues, national and international security involves a wide range of national and international organizations and institutions dealing with security risks and trying to prevent, minimize and/or eliminate them (Simanavičienė, Stankevičius, 2015, p. 128).

The traditional concept of national security refers to a nation's intention to protect their territory and natural resources by using military power. Political independence and territory integrity are the values that should be protected. This concept is based on the protection of foreign policy interests in international relations, territories from external aggression, the order of government and governing regimes (in socialist countries), and focusing on the security of people and their participation in international and global security.

In the modern era, instead of the state as a sole "security provider", individuals and non-governmental, subnational and transnational entities take on the role of active security entities. In addition to traditional functions (diplomatic, intelligence and defence), the modern state emphasizes the importance of economic, energy, cultural, environmental, social, information

and other security aspects (Mijalković, 2009, p. 59). All this indicates a change in the concept of national security which is adapted to the conditions and needs of contemporary security reality. Today's national security implies different kinds of treats that require state protection through diplomacy, economic or political power (Borrus, Zysman, 1990, p. 4). National security is a wide term that refers to different types of securities in addition to the military, such as: monetary, political, economic, energetic, environmental and natural resources.

In "The Concept of Security" (Baldwin (1997, p. 14), it is stated that security is a condition difficult to be qualified since "we shall either be secure, or we shall be insecure. We cannot have partial security. If we are only half secure, we are not secure at all". However, security by itself causes certain costs that could be managed with other purposes in mind. In addition to the costs incurred by providing a certain level of national security, there are costs caused by the already existing crime, terrorism and violence. Accordingly, there are indicators and measures that quantify various security risks. In the paper, security indicators are considered to be those related to national competitiveness, and they are listed in the Global Competitiveness Report as (public) institutional competitiveness.

#### DATA AND METHODOLOGY

The aim of the research is to provide an overview and to analyze national security, based on the following indicators: *business costs of terrorism, business costs of crime and violence, organized crime, and the reliability of policy services*. These four indicators go under the public institutions and belong to the first pillar - Institutions among eleven other pillars that compose the Global Competitiveness Index (GCI). "The institutional environment is determined by the legal and administrative framework within which individuals, firms, and governments interact to generate wealth" (Global Competitiveness Report, 2013, p. 4). The quality of institutions has influence on the overall national competitiveness and economic growth by affecting investment decisions and other economic activities. Explicitly, investors are not willing to invest their capital in case of an insecure environment where there is no efficient protection of rights.

The subject of the analysis are the 28 EU countries and Serbia as a candidate country. The information base of the analysis are the World Economic Forum data available in the Global Competitiveness Reports in the period from 2011 to 2017. The methods used in the analysis are descriptive statistics, correlation, and comparative analysis.

The purpose of the analysis is to examine the trend of the four security indicators that reflect the national security of the EU countries and examine the position of Serbia towards them, as well as examine the inter-correlation between individual indicators in the analyzed period.

Further, the correlation analysis highlights the relation between national security and competitiveness in order to estimate the influence of security to national competitiveness.

### RESULTS AND DISCUSSION

#### *a) Comparative analysis of national security as an important factor of overall competitiveness of the EU countries and Serbia*

National security refers to the overall security of a country and the safety of the environment of its citizens, the economy, and its institutions. In the paper, national security is analyzed in terms of the four indicators that are considered as the main determinants of security and accordingly impact the competitiveness of public institutions and overall institutions.

Table 1 provides an overview of the security indicators (*business costs of terrorism, business costs of crime and violence, organized crime, and the reliability of policy services*), as well as the Global Competitiveness Index (GCI), and Pillar 1- Institutions as one of the 12 pillars in the GCI. The analyzed period covers the years from 2011 to 2017 for the EU countries and Serbia. The value of indicators ranges between 1 and 7, where 7 indicates the most desirable outcome.

Based on the data provided in table 1, the highest score of almost all four security indicators in the whole analyzed period is recorded in Finland. Also, Finland records the highest score for the overall competitiveness and the competitiveness of institutions. For some of the security indicators and analyzed years, high scores are also recorded in Germany, Denmark, Luxemburg, Netherlands, Slovenia and Sweden.

As for the lowest score of the security indicators, many countries faced security issues in the analyzed period. Based on the data provided in table 1, Bulgaria is the EU country that suffers the most from the negative security factors. However, other EU countries also record low results for certain security indicators in the analyzed years. Namely, Denmark recorded the lowest score for business costs of terrorism in 2013 and Belgium in 2017. Since 2014, the business costs of terrorism score are the lowest in France.

The score for the Pillar 1 – Institutions is low in Hungary and Croatia, while Italy has the biggest concern regarding organized crime. Other countries with low scores are Romania and Slovakia. Greece is the EU country with the lowest GCI in the entire analyzed period, which is not the case with other the security indicators.

Serbia, as the EU candidate country, shows results pertaining to security indicators that do not deviate from the results of the EU countries. However, for the Pillar 1 in the GCI – Institutions, Serbia records slightly lower results compared to the EU countries.

Table 1. Security indicators for the EU countries and Serbia  
in the period 2011-2017

Country Name	2011					2012					2013					2014								
	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services
Austria	5.1	5.2	6.5	5.6	6.4	5.9	5.2	5.0	6.6	5.8	6.4	6.0	5.2	5.1	6.6	6.0	6.5	5.9	5.2	5.1	6.5	6.1	6.5	5.9
Belgium	5.2	5.0	6.2	5.7	6.3	5.6	5.2	5.0	6.2	5.8	6.1	5.7	5.1	5.0	6.1	5.5	6.0	5.6	5.2	5.1	6.0	5.5	6.1	5.7
Bulgaria	4.2	3.3	4.9	4.0	3.9	3.4	4.3	3.4	4.8	3.8	3.9	3.4	4.3	3.4	4.9	3.9	3.8	3.4	4.4	3.3	5.1	4.3	4.0	3.3
Cyprus	4.4	4.8	5.9	5.7	5.6	5.2	4.3	4.6	6.0	5.6	5.7	5.1	4.3	4.5	6.0	5.5	5.7	4.8	4.3	4.4	6.0	5.7	5.7	4.7
Czech Rep.	4.5	3.6	6.4	5.5	5.5	3.6	4.5	3.7	6.5	5.4	5.4	3.8	4.4	3.6	6.4	5.0	5.0	3.9	4.5	3.8	5.8	4.8	5.0	4.1
Germany	5.4	5.3	5.8	5.6	5.9	5.9	5.5	5.3	5.8	5.8	6.0	5.9	5.5	5.3	5.7	5.6	5.8	6.0	5.5	5.2	5.5	5.2	5.5	5.9
Denmark	5.4	5.9	6.3	6.2	6.8	6.3	5.3	5.4	5.5	5.2	6.1	6.2	5.2	5.2	4.9	4.6	5.5	6.1	5.3	5.3	4.8	4.7	5.5	6.0
Spain	4.5	4.3	5.1	5.4	5.7	5.8	4.6	4.2	5.3	5.5	5.8	6.0	4.6	4.1	5.2	5.5	5.7	5.9	4.6	3.8	5.0	5.2	5.5	5.8
Estonia	4.6	5.0	6.4	5.5	6.6	5.5	4.6	4.9	6.4	5.5	6.6	5.5	4.7	4.9	6.4	5.6	6.4	5.3	4.7	5.0	6.2	5.5	6.3	5.3
Finland	5.5	6.0	6.6	6.3	6.6	6.7	5.6	6.0	6.7	6.4	6.7	6.6	5.5	6.1	6.7	6.3	6.6	6.7	5.5	6.1	6.7	6.3	6.6	6.7
France	5.1	5.0	5.3	5.3	5.7	5.4	5.1	4.8	5.2	5.3	5.8	5.3	5.1	4.8	5.1	4.9	5.5	5.3	5.1	4.7	4.6	4.3	4.9	5.3
UK	5.4	5.3	5.1	5.3	5.9	5.7	5.5	5.4	5.2	5.3	6.0	5.9	5.4	5.4	5.2	5.1	5.9	5.7	5.4	5.4	5.1	5.0	5.8	5.6
Greece	3.9	3.5	5.4	4.8	5.5	4.0	3.9	3.4	5.3	4.7	5.3	3.9	3.5	5.3	4.7	5.4	4.0	4.0	3.6	5.3	4.9	5.5	4.4	
Croatia	4.1	3.6	6.2	5.2	4.9	4.7	4.0	3.5	6.2	5.2	5.2	4.7	4.1	3.6	6.4	5.3	5.5	4.6	4.1	3.6	6.5	5.2	5.4	4.4
Hungary	4.4	3.8	6.4	4.9	5.4	4.2	4.3	3.7	6.5	5.0	5.4	4.2	4.3	3.7	6.4	4.9	5.1	4.2	4.3	3.7	6.2	4.8	4.9	4.1
Ireland	4.8	5.2	6.2	5.7	6.5	6.0	4.9	5.2	6.3	5.6	6.3	6.0	4.9	5.3	6.1	5.5	5.9	6.1	5.0	5.4	6.1	5.5	5.9	6.1
Italy	4.4	3.6	5.5	4.5	3.5	5.1	4.5	3.6	5.6	4.5	3.5	5.1	4.4	3.5	5.7	4.5	3.6	5.0	4.4	3.4	5.6	4.3	3.3	4.8
Lithuania	4.4	3.9	6.4	5.4	5.7	4.2	4.4	4.0	6.3	5.3	5.7	4.3	4.4	4.0	6.3	5.1	5.5	4.2	4.5	4.0	5.7	4.8	5.1	4.3
Luxembourg	5.0	5.7	6.2	6.0	6.7	5.9	5.1	5.6	6.2	6.2	6.8	5.9	5.1	5.6	6.3	6.3	6.5	6.0	5.2	5.7	6.2	6.1	6.3	6.1
Latvia	4.2	3.9	5.9	5.2	5.5	4.2	4.4	4.0	6.0	5.3	5.7	4.3	4.4	4.1	6.2	5.4	5.7	4.4	4.5	4.1	5.9	5.2	5.7	4.6
Malta	4.3	4.7	6.1	6.0	6.6	5.2	4.4	4.6	5.9	5.9	6.4	5.0	4.5	4.6	5.8	5.8	6.0	5.3	4.5	4.5	5.6	5.7	5.8	5.3
Netherlands	5.4	5.6	5.8	5.2	6.1	6.1	5.5	5.7	6.1	5.6	6.3	6.2	5.4	5.6	6.1	5.5	6.2	6.1	5.5	5.5	5.7	5.2	6.0	6.0
Poland	4.5	4.2	6.0	5.5	5.7	4.4	4.5	4.1	6.1	5.5	5.7	4.3	4.5	4.0	6.2	5.4	5.7	4.1	4.5	4.0	6.0	5.4	5.6	4.1
Portugal	4.4	4.2	6.2	5.8	6.2	5.0	4.4	4.3	6.3	5.9	6.2	5.2	4.4	4.3	6.5	5.9	6.2	5.2	4.5	4.4	6.5	6.0	6.3	5.3
Romania	4.1	3.5	5.7	4.9	4.9	3.7	4.1	3.3	5.7	5.1	4.6	3.4	4.1	3.3	5.6	5.1	4.7	3.6	4.3	3.6	4.8	4.4	4.1	4.2
Slovak Rep.	4.2	3.5	6.3	5.0	4.7	3.8	4.1	3.4	6.2	4.9	4.6	3.9	4.1	3.3	6.2	4.7	4.5	3.6	4.2	3.3	5.9	4.5	4.6	3.6
Slovenia	4.3	4.1	6.8	6.1	5.8	4.4	4.3	4.0	6.7	6.0	5.8	4.7	4.3	3.9	6.7	5.8	5.7	5.0	4.2	3.8	6.6	5.5	5.5	4.9
Sweden	5.6	6.1	6.3	6.0	6.6	6.0	5.5	5.7	6.2	5.7	6.0	6.1	5.5	5.7	6.1	5.5	6.0	5.9	5.4	5.4	5.8	5.2	5.6	5.7
EU	4.7	4.6	6.0	5.4	5.8	5.1	4.7	4.5	6.0	5.4	5.7	5.1	4.7	4.5	6.0	5.3	5.6	5.1	4.7	4.5	5.8	5.2	5.5	5.1
Serbia	3.9	3.2	5.5	4.5	4.3	3.9	3.9	3.2	5.6	4.6	4.1	4.0	3.8	3.2	5.6	4.3	4.0	4.0	3.9	3.2	5.5	4.2	4.1	3.8

Source: The World Bank, www.worldbank.org

Note: the lowest results  the highest results 

Table 1. Security indicators for the EU countries and Serbia  
in the period 2011-2017 (continued)

Country Name	2015						2016						2017					
	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services	Global competitiveness index	Pillar 1. Institutions	Business costs of terrorism	Business costs of crime and violence	Organized crime	Reliability of police services
Austria	5.1	5.2	6.3	6.0	6.4	5.9	5.2	5.2	5.8	5.5	6.0	6.2	5.2	5.2	5.6	5.3	5.7	6.1
Belgium	5.2	5.2	5.7	5.4	5.8	5.7	5.3	5.2	4.8	5.1	5.4	5.9	5.2	5.0	4.2	4.8	5.3	5.6
Bulgaria	4.3	3.4	4.8	4.2	3.9	3.3	4.4	3.5	4.5	4.0	3.7	3.5	4.5	3.5	4.5	3.9	3.7	3.6
Cyprus	4.2	4.3	6.0	5.8	5.6	4.7	4.0	4.0	5.5	5.3	5.1	4.5	4.3	4.2	5.3	5.1	4.8	4.7
Czech Rep.	4.7	4.1	6.0	5.2	5.6	4.1	4.7	4.2	6.0	5.3	5.7	4.5	4.8	4.2	6.0	5.5	5.9	4.8
Germany	5.5	5.2	5.1	5.0	5.3	5.9	5.6	5.2	4.9	4.8	5.0	5.3	5.7	5.3	5.1	5.0	5.0	5.3
Denmark	5.3	5.5	5.0	5.3	5.8	6.0	5.3	5.5	5.1	5.4	5.8	6.0	5.4	5.5	4.9	5.2	5.4	5.8
Spain	4.6	3.9	5.2	5.2	5.6	5.8	4.7	4.1	5.4	5.4	5.7	6.2	4.7	4.1	5.3	5.3	5.5	6.2
Estonia	4.7	5.0	6.2	5.5	6.4	5.3	4.8	5.1	6.2	5.5	6.3	6.1	4.8	5.0	6.1	5.6	6.2	6.0
Finland	5.5	6.1	6.7	6.5	6.8	6.7	5.4	6.1	6.4	6.4	6.7	6.8	5.5	6.2	6.5	6.3	6.8	6.8
France	5.1	4.8	4.5	4.5	5.0	5.3	5.2	4.9	4.3	4.8	5.1	5.8	5.2	4.8	4.2	4.9	5.1	5.7
UK	5.4	5.5	5.1	5.2	5.7	5.6	5.5	5.5	4.8	5.1	5.6	6.1	5.5	5.5	4.7	5.0	5.5	6.0
Greece	4.0	3.7	5.4	5.0	5.3	4.4	4.0	3.8	5.4	5.0	5.3	4.7	4.0	3.7	5.3	4.9	5.1	4.4
Croatia	4.1	3.6	6.4	5.4	5.3	4.4	4.1	3.6	6.2	5.6	5.1	4.9	4.2	3.5	5.9	5.3	4.9	4.6
Hungary	4.3	3.5	6.2	5.0	4.6	4.1	4.2	3.3	4.8	5.7	4.6	4.3	4.3	3.5	5.3	5.6	5.1	4.5
Ireland	5.1	5.5	6.3	5.5	6.1	6.1	5.2	5.6	6.1	5.2	5.8	6.1	5.2	5.3	5.5	4.9	5.5	5.8
Italy	4.5	3.4	5.3	4.1	3.3	4.8	4.5	3.5	5.1	4.0	3.5	4.3	4.5	3.5	4.9	4.0	3.5	4.5
Lithuania	4.6	4.1	5.4	5.0	5.2	4.3	4.6	4.2	5.6	5.1	5.4	4.7	4.6	4.1	5.6	5.1	5.5	4.7
Luxembourg	5.2	5.8	6.1	6.0	6.2	6.1	5.2	5.8	5.7	5.8	6.1	6.2	5.2	5.7	5.6	5.9	6.2	6.2
Latvia	4.5	4.2	6.1	5.3	6.1	4.6	4.4	4.0	5.9	5.3	5.8	4.2	4.4	3.8	6.1	5.2	5.5	4.3
Malta	4.4	4.5	5.7	5.7	6.0	5.3	4.5	4.5	5.4	5.4	5.7	5.0	4.6	4.5	5.5	5.5	5.7	4.8
Netherlands	5.5	5.6	5.5	5.2	5.9	6.0	5.6	5.7	5.4	5.2	5.8	6.2	5.7	5.8	5.2	5.1	5.7	6.1
Poland	4.5	4.1	5.7	5.2	5.4	4.1	4.6	4.0	5.5	5.0	5.2	4.1	4.6	3.8	5.3	4.9	5.1	4.1
Portugal	4.5	4.4	6.3	6.0	6.3	5.3	4.5	4.3	6.1	5.9	6.2	5.7	4.6	4.4	6.0	5.8	6.0	5.7
Romania	4.3	3.7	5.2	4.9	4.6	4.2	4.3	3.6	5.7	5.3	5.1	4.2	4.3	3.7	5.3	5.1	4.8	4.4
Slovak Rep.	4.2	3.4	5.8	4.8	4.8	3.6	4.3	3.5	5.8	4.8	4.9	3.6	4.3	3.5	5.8	4.8	5.0	3.5
Slovenia	4.3	3.9	6.3	5.6	5.5	4.9	4.4	4.1	5.9	5.8	5.7	5.5	4.5	4.1	5.6	5.6	5.4	5.3
Sweden	5.4	5.6	5.8	5.4	5.7	5.7	5.5	5.9	6.0	5.8	6.2	5.7	5.5	5.6	5.5	5.2	5.6	5.3
EU	4.8	4.5	5.7	5.3	5.5	5.1	4.8	4.6	5.5	5.3	5.4	5.2	4.8	4.5	5.4	5.2	5.3	5.2
Serbia	3.9	3.2	5.4	4.4	4.3	3.8	4.0	3.3	5.1	4.4	4.1	3.7	4.1	3.4	5.0	4.4	4.1	3.9

Source: The World Bank, [www.worldbank.org](http://www.worldbank.org)

Note: the lowest results  the highest results 



b) *The analysis of interdependence between national security indicators and the Global Competitiveness Index of the EU countries and Serbia*

The interdependence of national security indicators can be determined using correlation analysis. Namely, the *Pearson's correlation coefficient*, as a measure of the linear relationship between indicators, represents a range of values from 0 to 1 indicating the strength of their correlation (Soldić-Aleksić, 2015, p. 177):

$$r = \frac{cov_{xz}}{s_x s_y} = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{(n - 1)s_x s_y}$$

For the values of the Pearson's correlation coefficient between 0.10 and 0.29, the correlation is considered to be low; if the Pearson's correlation coefficient falls between 0.30 and 0.49, the correlation is medium, and the correlation is high if the Pearson's correlation coefficient scores above 0.50 (Soldić-Aleksić, 2015, p. 180).

The relationship between variables can be both positive and negative. If variables change in the same direction, precisely, if a direction change of one variable follows the change of other variable(s) in the same direction, the relationship is positive. On the other hand, the relationship is considered to be a negative one if variables change in opposite directions. However, before the correlation analysis is applied, it is of paramount to investigate the existence of the relationship between indicators, based on the concept of statistical significance.

The coefficient of determination, as a squared Pearson's coefficient of correlation  $R^2$ , can be also used for the purpose of data interpretation (table 2). Namely, the coefficient of determination shows the common variance of two variables, or how much of the variance of one variable is explained and caused by the variance of another variable (Soldić-Aleksić, 2015, p. 180).

Table 2 illustrates the results of correlation analysis between GCI and four security indicators, as well as the correlation with the first GCI pillar - Institutions, for the analyzed countries over the period 2011-2017.

*Table 2. Correlation analysis of the security indicators and national competitiveness, for the EU countries and Serbia, 2011-2017*

Correlation	Pearson Correlation	Coefficient of determination	*Sig. (2-tailed)
Austria: GCI-Pillar 1_Institutions	-0.496	24.60%	0.257
GCI-Business costs of terrorism	-0.216	4.67%	0.642
GCI-Business costs of crime and violence	-0.098	0.96%	0.835
GCI-Organized crime	-0.289	8.35%	0.530
GCI-Reliability of police services	0.482	23.23%	0.273
Belgium: GCI-Pillar 1_Institutions	0.607	36.84%	0.148
GCI-Business costs of terrorism	-0.475	22.56%	0.281
GCI-Business costs of crime and violence	-0.333	11.09%	0.465
GCI-Organized crime	-0.458	20.98%	0.301
GCI-Reliability of police services	0.810	65.61%	0.027

Bulgaria:	GCI-Pillar 1_Institutions	0.627	39.31%	0.131
	GCI-Business costs of terrorism	-0.512	26.21%	0.240
	GCI-Business costs of crime and violence	0.055	0.30%	0.907
	GCI-Organized crime	-0.495	24.50%	0.259
	GCI-Reliability of police services	0.571	32.60%	0.181
Cyprus:	GCI-Pillar 1_Institutions	0.842	70.90%	0.018
	GCI-Business costs of terrorism	0.379	14.36%	0.402
	GCI-Business costs of crime and violence	0.307	9.42%	0.503
	GCI-Organized crime	0.390	15.21%	0.387
	GCI-Reliability of police services	0.763	58.22%	0.046
Czech Republic:	GCI-Pillar 1_Institutions	0.952	90.63%	0.001
	GCI-Business costs of terrorism	-0.566	32.04%	0.185
	GCI-Business costs of crime and violence	0.450	20.25%	0.311
	GCI-Organized crime	0.883	77.97%	0.008
	GCI-Reliability of police services	0.829	68.72%	0.021
Germany:	GCI-Pillar 1_Institutions	-0.047	0.22%	0.921
	GCI-Business costs of terrorism	-0.712	50.69%	0.073
	GCI-Business costs of crime and violence	-0.632	39.94%	0.128
	GCI-Organized crime	-0.800	64.00%	0.031
	GCI-Reliability of police services	-0.854	72.93%	0.014
Denmark:	GCI-Pillar 1_Institutions	0.795	63.20%	0.033
	GCI-Business costs of terrorism	0.494	24.40%	0.259
	GCI-Business costs of crime and violence	0.723	52.27%	0.66
	GCI-Organized crime	0.426	18.15%	0.341
	GCI-Reliability of police services	-0.085	0.72%	0.856
Spain:	GCI-Pillar 1_Institutions	-0.243	5.90%	0.600
	GCI-Business costs of terrorism	0.693	48.02%	0.085
	GCI-Business costs of crime and violence	-0.108	1.17%	0.817
	GCI-Organized crime	-0.304	9.24%	0.507
	GCI-Reliability of police services	0.857	73.44%	0.014
Estonia:	GCI-Pillar 1_Institutions	0.592	35.05%	0.162
	GCI-Business costs of terrorism	-0.814	66.26%	0.026
	GCI-Business costs of crime and violence	0.418	17.47%	0.350
	GCI-Organized crime	-0.935	87.42%	0.002
	GCI-Reliability of police services	0.660	43.56%	0.107
Finland:	GCI-Pillar 1_Institutions	-0.418	17.47%	0.350
	GCI-Business costs of terrorism	0.713	50.84%	0.072
	GCI-Business costs of crime and violence	0.000	0.00%	1.000
	GCI-Organized crime	0.000	0.00%	1.000
	GCI-Reliability of police services	-0.837	70.06%	0.019
France:	GCI-Pillar 1_Institutions	0.154	2.37%	0.742
	GCI-Business costs of terrorism	-0.748	55.95%	0.053
	GCI-Business costs of crime and violence	-0.013	0.02%	0.978
	GCI-Organized crime	-0.379	14.36%	0.402
	GCI-Reliability of police services	0.976	95.26%	0.000
UK:	GCI-Pillar 1_Institutions	0.471	22.18%	0.286
	GCI-Business costs of terrorism	-0.609	37.09%	0.147
	GCI-Business costs of crime and violence	-0.070	0.49%	0.881
	GCI-Organized crime	-0.371	13.76%	0.412
	GCI-Reliability of police services	0.935	87.42%	0.002
Greece:	GCI-Pillar 1_Institutions	0.882	77.79%	0.009
	GCI-Business costs of terrorism	0.167	2.79%	0.721
	GCI-Business costs of crime and violence	0.910	82.81%	0.004
	GCI-Organized crime	-0.383	14.67%	0.397
	GCI-Reliability of police services	0.926	85.75%	0.003

Croatia:	GCI-Pillar 1_Institutions	0.000	0.00%	1.000
	GCI-Business costs of terrorism	-0.436	19.01%	0.329
	GCI-Business costs of crime and violence	0.197	3.88%	0.672
	GCI-Organized crime	-0.370	13.69%	0.414
	GCI-Reliability of police services	-0.163	2.66%	0.727
Hungary:	GCI-Pillar 1_Institutions	0.833	69.39%	0.020
	GCI-Business costs of terrorism	0.705	49.70%	0.077
	GCI-Business costs of crime and violence	-0.635	40.32%	0.126
	GCI-Organized crime	0.692	47.89%	0.085
	GCI-Reliability of police services	-0.209	4.37%	0.653
Ireland:	GCI-Pillar 1_Institutions	0.731	53.44%	0.062
	GCI-Business costs of terrorism	-0.537	28.84%	0.214
	GCI-Business costs of crime and violence	-0.858	73.62%	0.014
	GCI-Organized crime	-0.798	63.68%	0.031
	GCI-Reliability of police services	-0.218	4.75%	0.639
Italy:	GCI-Pillar 1_Institutions	0.000	0.00%	1.000
	GCI-Business costs of terrorism	-0.675	45.56%	0.096
	GCI-Business costs of crime and violence	-0.642	41.22%	0.120
	GCI-Organized crime	-0.079	0.62%	0.867
	GCI-Reliability of police services	-0.510	26.01%	0.242
Lithuania:	GCI-Pillar 1_Institutions	0.854	72.93%	0.014
	GCI-Business costs of terrorism	-0.961	92.35%	0.001
	GCI-Business costs of crime and violence	-0.512	26.21%	0.240
	GCI-Organized crime	-0.580	33.64%	0.172
	GCI-Reliability of police services	0.760	57.76%	0.047
Luxemburg:	GCI-Pillar 1_Institutions	0.519	26.94%	0.233
	GCI-Business costs of terrorism	-0.559	31.25%	0.192
	GCI-Business costs of crime and violence	-0.405	16.40%	0.367
	GCI-Organized crime	-0.860	73.96%	0.013
	GCI-Reliability of police services	0.880	77.44%	0.009
Latvia:	GCI-Pillar 1_Institutions	0.619	38.32%	0.138
	GCI-Business costs of terrorism	0.274	7.51%	0.552
	GCI-Business costs of crime and violence	0.220	4.84%	0.635
	GCI-Organized crime	0.655	42.90%	0.110
	GCI-Reliability of police services	0.782	61.15%	0.038
Malta:	GCI-Pillar 1_Institutions	-0.713	50.84%	0.072
	GCI-Business costs of terrorism	-0.820	67.24%	0.024
	GCI-Business costs of crime and violence	-0.773	59.75%	0.042
	GCI-Organized crime	-0.886	78.50%	0.008
	GCI-Reliability of police services	-0.444	19.71%	0.318
Netherlands:	GCI-Pillar 1_Institutions	0.730	53.29%	0.062
	GCI-Business costs of terrorism	-0.810	65.61%	0.027
	GCI-Business costs of crime and violence	-0.490	24.01%	0.265
	GCI-Organized crime	-0.794	63.04%	0.033
	GCI-Reliability of police services	0.191	3.65%	0.682
Poland:	GCI-Pillar 1_Institutions	-0.701	49.14%	0.080
	GCI-Business costs of terrorism	-0.873	76.21%	0.010
	GCI-Business costs of crime and violence	-0.904	81.72%	0.005
	GCI-Organized crime	-0.901	81.18%	0.006
	GCI-Reliability of police services	-0.389	15.13%	0.388
Portugal:	GCI-Pillar 1_Institutions	0.750	56.25%	0.052
	GCI-Business costs of terrorism	-0.533	28.41%	0.218
	GCI-Business costs of crime and violence	0.000	0.00%	1.000
	GCI-Organized crime	-0.441	19.45%	0.322
	GCI-Reliability of police services	0.824	67.90%	0.023

Romania:	GCI-Pillar 1_Institutions	0.889	79.03%	0.007
	GCI-Business costs of terrorism	-0.645	41.60%	0.117
	GCI-Business costs of crime and violence	-0.202	4.08%	0.664
	GCI-Organized crime	-0.142	2.02%	0.761
	GCI-Reliability of police services	0.955	91.20%	0.001
Slovak Republic:	GCI-Pillar 1_Institutions	0.681	46.38%	0.092
	GCI-Business costs of terrorism	-0.730	53.29%	0.062
	GCI-Business costs of crime and violence	0.000	0.00%	1.000
	GCI-Organized crime	0.907	82.26%	0.005
	GCI-Reliability of police services	-0.584	34.11%	0.168
Slovenia:	GCI-Pillar 1_Institutions	0.762	58.06%	0.046
	GCI-Business costs of terrorism	-0.853	72.76%	0.015
	GCI-Business costs of crime and violence	-0.034	0.12%	0.942
	GCI-Organized crime	-0.281	7.90%	0.542
	GCI-Reliability of police services	0.618	38.19%	0.139
Sweden:	GCI-Pillar 1_Institutions	0.867	75.17%	0.011
	GCI-Business costs of terrorism	0.575	33.06%	0.177
	GCI-Business costs of crime and violence	0.747	55.80%	0.054
	GCI-Organized crime	0.833	69.39%	0.020
	GCI-Reliability of police services	0.341	11.63%	0.454
EU:	GCI-Pillar 1_Institutions	0.091	0.83%	0.846
	GCI-Business costs of terrorism	-0.892	79.57%	0.007
	GCI-Business costs of crime and violence	-0.382	14.59%	0.398
	GCI-Organized crime	-0.778	60.53%	0.040
	GCI-Reliability of police services	0.730	53.29%	0.062
Serbia:	GCI-Pillar 1_Institutions	0.923	85.19%	0.003
	GCI-Business costs of terrorism	-0.924	85.38%	0.003
	GCI-Business costs of crime and violence	0.136	1.85%	0.772
	GCI-Organized crime	0.022	0.05%	0.963
	GCI-Reliability of police services	-0.382	14.59%	0.397

Note: \*Correlation is significant at the 0.01 level (2-tailed).

Source: Prepared by the authors (SPSS Statistics)

Based on the correlation analysis results provided in table 2, the EU itself and the majority of member countries have a positive correlation between GCI and Institutions, as well as between GCI and the reliability of police services, over the period 2011-2017. Accordingly, the rise in the efficiency of the institutional environment, in both private and public sectors, leads at the same time to an increase of GCI. Also, higher reliability of police services leads to an increase of GCI as well. The mentioned correlation is the highest in the Czech Republic, Greece and Romania. However, the correlation between GCI on the one side and business costs of terrorism, business costs of crime and violence, and organized crime on the other side, is negative, with some exceptions. Furthermore, a rise in business costs of terrorism, business costs of crime and violence, and organized crime lead to the decrease in the global competitiveness index (GCI).

### CONCLUSION

A modern understanding of the concept of security has replaced the traditional understanding of security which relies only on military security. This modern concept implies the degree of human development that has been achieved, reflected in the synthesis of the citizens' security and the security of the state, but also their participation in the spheres of international and global security. The state remains the dominant player in all aspects of national security, such as monetary, political, economic, energetic, environmental and that pertaining to natural resources. However, the existence of any of the various security risks can jeopardize the national economy and its competitiveness.

According to the results of the performed empirical analysis, the EU countries and Serbia as a candidate country, experienced fluctuations in the four security indicators (*business costs of terrorism, business costs of crime and violence, organized crime, and the reliability of policy services*) being analyzed for the period 2011-2017. Namely, the country that constantly has satisfactory values of all four indicators is Finland. On the other hand, Bulgaria is a country with almost the lowest performance regarding security issues.

The conducted correlation analysis results confirm the positive correlation between national competitiveness and institutions (public and private), as well as between national competitiveness and reliability on policy services. On the contrary, the rise in the business costs of terrorism, business costs of crime and violence and organized crime all have a negative impact on the overall national competitiveness.

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## БАЛАНСИРАЊЕ НАЦИОНАЛНЕ БЕЗБЕДНОСТИ И КОНКУРЕНТНОСТИ У ДОБА ИНФОРМАЦИЈА

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### Резиме

Изузетно брз научни и технолошки развој, широка примена савремених научних и информационих достигнућа и њихов велики утицај на све области друштвеног живота – повећавају сложеност глобалног окружења. Супротно очекивањима да ће се ниво одговорности свих актера повећати са становишта коришћења научног напретка у општем интересу и за добробит целог човечанства, сматра се да ће развој науке и технологије бити подложен различитим облицима злоупотреба и водити до негативних импликација по безбедност. Динамика развоја глобалне информационе технологије додатно ће олакшати и интензивирати различите криминалне активности. Стога се национална и међународна безбедност јављају као један од већих изазова последњих година, али и као главни циљ националних и међународних организација.

У раду се истражује национална конкурентност кроз призму националне безбедности како би се проценила корелација безбедности и конкурентности. Аутори су препознали показатеље националне безбедности који су кључни за националну конкурентност и доприносе позиционирању привреде на међународној сцени.

Циљ истраживања је сагледавање традиционалног и савременог концепта националне безбедности и њена анализа на основу следећих показатеља: пословни трошкови проузроковани тероризмом, пословни трошкови проузроковани криминалом и насиљем, организовани криминал и поузданост политичких услуга. Четири поменута показатеља припадају првом од дванаест стубова конкурентности који су обухваћени Индексом глобалне конкурентности, а односе се пре свега на државне институције. Квалитет и конкурентност самих институција има утицаја на укупну националну конкурентност и економски раст утичући на инвестиционе одлуке и друге економске активности. Наиме, инвеститори нису спремни да уложе капитал у случају небезбедног окружења и незаштићених права појединаца.

Истраживањем су обухваћене земље Европске уније и Србија као земља кандидат. Информациону базу чине подаци Светског економског форума који су доступни у Извештајима о глобалној конкурентности за период од 2011. до 2017. године. Методе коришћене у анализи су дескриптивна статистика, корелација и компаративна анализа. Сврха анализе је да се испита тренд четири показатеља која одражавају националну безбедност земаља ЕУ и да се испита положај Србије у односу на ЕУ. Такође, корелационом анализом указује се на однос између националне безбедности и конкурентности како би се пре свега утврдио утицај који безбедност има на националну конкурентност.

Према резултатима спроведене емпиријске анализе, земље ЕУ и Србија, као земља кандидат, доживеле су извесна варирања у четири анализирана показатеља безбедности. Земља ЕУ која константно има задовољавајуће вредности сва четири показатеља у анализираном периоду јесте Финска. Са друге стране, Бугарска је земља са готово најнижим перформансама у погледу безбедности. Србија је у анализираном периоду и у дата четири показатеља безбедности остварила вредности које не одступају много у односу на ЕУ. Међутим, са становишта првог стуба конкурентности – Институције, Србија остварује резултате који су благо испод резултата које остварују земље ЕУ.

Резултати корелационе корекције потврдили су позитивну корелацију између националне конкурентности и институција (јавних и приватних), као и између националне конкурентности и поузданости политичких услуга. Са друге стране, раст пословних трошкова проузрокованих тероризмом, пословних трошкова проузрокованих криминалом и насиљем, те раст организованог криминала – негативно утичу на укупну националну конкурентност.