Stabilnost, institucionalni rast i perspektive razvoja hrvatskog financijskog sustava u uvjetima pandemije Covid-19

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STABILNOST, INSTITUCIONALNI RAST I PERSPEKTIVE RAZVOJA HRVATSKOG FINANCIJSKOG SUSTAVA U UVJETIMA PANDEMIJE COVID-19

STABILITY, INSTITUTIONAL GROWTH AND PERSPECTIVES OF THE DEVELOPMENT OF THE CROATIAN FINANCIAL SYSTEM IN THE CONDITIONS OF THE COVID-19 PANDEMIC

Znanstvena monografija – I. izdanje

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Stability, institutional growth and perspectives of the development of the Croatian financial system in the conditions of the Covid 19 pandemic

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PREDGOVOR

Znanstvena monografija pod naslovom „Stabilnost, institucionalna ograničenja i perspektive razvoja hrvatskog financijskog sustava u uvjetima pandemije COVID-19“ predstavlja rezultat zajedničkog rada i napora tri voditeljice znanstvenoistraživačkih projekata koje financira Sveučilište u Rijeci:

- „Efikasnost i regulacija financijskih institucija u funkciji razvoja hrvatskog gospodarstva“
- „Model optimalnog institucionalnog rasta Republike Hrvatske u vrijeme krize uzrokovane pandemijom COVID-19“
- „Regulacija banaka i sustav osiguranja depozita u postizanju bankovne i financijske stabilnosti“.

Tijekom istraživačkog procesa parcijalni rezultati istraživanja projekata međusobno su se ispreplitali i povezivali te sinergijski djelovali na ukupan rezultat znanstvenoistraživačkog rada. Razvijen, reguliran i efikasan financijski sustav uz adekvatan institucionalni okvir neophodan je za napredak svake nacionalne ekonomije zbog sposobnosti da prevlada tržišne nesavršenosti i minimizira sistemske rizike. Stabilnost financijskog sustava reflektira se kroz tri temeljna segmenta: efikasnu regulatornu infrastrukturu (regulacija, supervizija i sustav osiguranja depozita kao „elementi sigurnosne mreže“), razvijena financijska tržišta te efikasne i zdrave financijske institucije. Posljednje desetljeće obilježeno je preispitivanjem funkcioniranja financijskih i regulatornih sustava u svjetlu globalizacijskih procesa, deregulacije i reregulacije financijskih tržišta. Pitanje stabilnosti i likvidnosti financijskih sustava, kao i ukupnih gospodarstava, posebno je bilo istaknuto tijekom i nakon recentnih globalnih financijskih kriza, kako one započete 2007./2008. godine tako i posljednje krize izazvane pandemijom virusa COVID-19. Stoga se činilo opravdanim istražiti stanje i perspektive financijskog sustava i ostalih dijelova europskih gospodarstava (s naglaskom na Republiku Hrvatsku) te odgovoriti na pitanja kako osigurati i unaprijediti konkurentnost i tržišnu efikasnost. Pritom se polazi od pretpostavke da institucionalni okvir i razvijenost institucija trebaju biti poticajni za daljnji razvoj i unaprjeđenje financijskog sustava, što će u konačnici rezultirati i povećanjem ekonomskog rasta.

Uloga institucija u pandemijskoj krizi poprima važnu ulogu, prvenstveno kako bi ekonomija u što kraćem roku izašla iz krize i ostvarila ekonomski rast. U postojećim okolnostima Hrvatskoj bi bile potrebne godine kontinuiranog institucionalnog rasta za ekonomsko približavanje većini bivših tranzicijskih država, ali ova nagla i neočekivana promjena globalnih gospodarskih uvjeta Hrvatskoj pruža novu priliku. Usvajanjem modela sustavnog institucionalnog rasta Hrvatska bi pandemijsku krizu mogla iskoristiti kao priliku za promjenu svoje ekonomske paradigme na način da stvori poticajno institucionalno i poslovno okruženje.

Urednice zahvaljuju svim autorima članaka i članovima projektnoga tima, recenzentima, lektorici, kao i kolegama i svim dobronamjernim suradnicima koji su svojim znanstvenim doprinosima, savjetima i podrškom doprinijeli kreiranju rezultata istraživanja.

Rijeka, siječanj 2022. godine

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MEASURING INSTITUTIONAL RESPONSE AND CONVERGENCE IN THE TIME OF COVID-19: UNIFIED VS HETEROGENEOUS POLICY RESPONSE

Abstract

The COVID-19 pandemic crisis has put enormous pressure on all economic agents, particularly fiscal/monetary authorities and institutions across countries. The purpose of this study is to measure and assert the role of institutional response in fighting the pandemic and avoiding business cycles. Setting up optimal government response to the pandemic requires empirical knowledge on the links between distinct government responses: health and economic policy. The former is designed to address the security of and protection for the population and the latter to prevent global economic fallout. We use data from January 2020 to September 2021 for 47 OECD countries on government response, lockdown and stringency policies, income support, and debt relief response. Data are analysed using panel multinomial logit modelling to predict the chances of avoiding pandemic business cycles resulting from the institutional response. Our study provides empirical knowledge to policymakers and practitioners, enabling them to set up an optimal policy framework in fighting the pandemic. Governments' optimal response to COVID-19 significantly affects institutional response, which is essential not only during the pandemic but also afterwards.

Keywords: institutions and institutional response, OECD, panel multinomial logit, COVID-19 pandemic, business cycles

JEL classification: C3, E6, E02, O43

1. INTRODUCTION

Almost no empirical research has been carried out on the role of institutions in fighting the adverse effects of pandemics on the economy. An influential research of North (1990), Robinson and Acemoglu (2012), Rutherford (2001), and Canova et al. pointed out institutional role in global socio-economic development. However, the response of a country's economic institutions in the time of COVID-19 is limited by its credit rating, interest rates, fiscal spending, and debt position (Benmelech and Ilan, 2020). If the priority is to save lives (a "safety-focused" approach), the economy will have to endure a lengthy lockout and a decline in GDP (Acemoglu et al., 2020). The institutions' efficiency and capacity constrain the government's response. Our study demonstrates that government-, health care-, and economic responses to pandemics are highly heterogeneous and divergent.

With a rise of global COVID-19 pandemic shocks, an unprecedented widespread economic fallout halted the world economy. Most advanced economies registered quarterly gross domestic product decline (GDP) unseen since the 1929 crisis. Unlike the 1929 crisis, the government had to choose between balancing public health safety and saving the economy due to the disruption of global supply chains. Lockdown policies set to slow down the pandemic spread disrupted the economic flows, bringing 'havoc' to all sectors, particularly the service industry (accommodation and food preparation, transportation). The fiscal and monetary response to the crisis was slow, heterogeneous, and uncoordinated within and across countries. We therefore witnessed a troublesome global response to a global world-wide shock proving that today's global supply chain makes the world seem global, but without any world-designed policy or system. In a globally uncoordinated attempt to fight the shock, countries launched discretionary fiscal measures, including fiscal impulse (government spending increase), deferrals and debt relief, liquidity provisions, and backup (guarantees). The divergence in the fiscal intervention is visible from the data (Anderson et al., 2020), with Belgium launching fiscal response (as percentage of GDP) of 1.4%, Germany 8.3%, the USA 9.1%. Large liquidity schemes were also set in Belgium: 21.9%, Germany 24.3%, Italy 32.1%, the UK 15.4%.

Quantitative easing (QE) with central banks buying domestic government assets reach from 5 to > 10% (of GDP) following a significant change in the balance sheet (Hungary, Philippines > 10%, India, Chile, Poland, Indonesia > 5%, Turkey, Mexico, and South Africa < 2% of GDP). Global inflation is surging as we almost forgot all about it (we should still remember Phillip's curve) because of QE creating potential bubbles worldwide. The European Central Bank and Federal Reserve balance sheet sore 8.6 and 8.4 US$ with the Bank of Japan at 6.9 trillion US$. The question is, what will happen to QE in the time of 'pandexit'? Will the real economy be revived, or will a shadow of stagnation zero in?

There is minimal consensus on the role of institutional response to the COVID-19 shock. Previous studies are looking at the fiscal discretionary policy response to pandemics (Anderson et al., 2020; Augustin et al., 2021; Benmelech and Ilan, 2020). Monetary response in the form of (QE) was necessary, but now opens the question on how to reactivate the real economy to work and live without massive (QE) as the study (Lang and Schadner, 2021) shows. Unselective (QE) increases market risks leading to potential market bubbles and 'zombie' firms. Therefore, an optimal policy combination is needed to fight the adverse effects of pandemics (Abuselidze and Slobodianyk, 2021). The institutional response role is important here (Altug et al., 2012; Anakpo and Mishi, 2021), but we lack empirical studies to support such a response. Past research on government response to COVID-19 has concentrated on separate issues: health and safety, economic consequences of COVID-19. To further our understanding, we measure and explore the role of institutions (institutional response) in fighting the adverse impact of COVID-19 on the economy. This paper aims to contribute to the empirical knowledge on the importance of institutional economics in the pandemic era and afterwards. We measure the predicted chance of avoiding COVID-19-generated business cycles due to a proper institutional framework. Our study shows that the institutional response in avoiding pandemic business cycles is significant, accounting for almost 15-20% chance. To this end, we use panel multinomial logit modelling on a sample of OECD countries (47) using daily data from January 2020 to September 2021.

Empirical knowledge generated from this study should provide policymakers and practitioners with a greater understanding of the institutional role in fighting pandemics and novel knowledge on pandemic business cycles.

The remainder of the study is structured as follows: a literature review and a conceptual framework on institutional economics in COVID-19 are presented first. Data and procedures were used next to measure and test the institutional response role in the pandemic, explaining variables and modelling techniques. The findings of the study are then presented and discussed. Finally, the study concludes with a summary of the research contribution and directions for future research on institutional response to the COVID-19 pandemic.

2. LITERATURE REVIEW ON INSTITUTIONAL ECONOMICS IN THE TIME OF COVID-19

The literature review examines available methods that could be used to measure institutional response to COVID-19 shocks under business cycles regime. The institutional responses to the challenges created by the COVID-19 pandemic are explored in the study (Kurdin, 2020). A pandemic shock initiated a heterogeneous and random institutional policy across countries. Current discrete institutional

decisions significantly increase the implementation cost of each policy, resulting in "institutional discontinuum." It is the "institutional continuum" as a necessary condition supporting "institutionalism" that addresses the issues of shocks, structural change, or economic development (Hodgson, 2000). A health institution's response to the pandemic was also uncoordinated and heterogeneous from the start (Collins et al., 2020). Synchronisation between the response of health and economic institutions was very low from the beginning, improving later on, and still missing a structured and coordinated economic and institutional response (post-COVID-19). Institutional divergence in the EU revealed the members' increasing economic and policy divergence limiting the EU policy response to COVID-19 (Camous and Claeys, 2020). EU economic and institutional framework, together with EU government response, failed the pandemic test. The EU will soon face a post-COVID-19 institutional response test requiring a complete redesign of its current institutional framework. The study shows that the heterogeneity of the (fiscal) response to the COVID-19 crisis has been evident since 2020. The government response is functionally limited by the same institutional response efficiency and capability. Our study shows a high degree of heterogeneity in government, health care, and economic response to the pandemic.

A country's economic institutions' response in the time of COVID-19 is limited by its credit rating, interest rates, fiscal spending, and debt position (Benmelech and Ilan, 2020). A serious concern is that countries' "high debt" makes it harder for them to borrow money to address the impact of the crisis. Tax revenues have a statistically significant impact on GDP, which means that less economic activity may lead to lower tax collections and a decline in GDP (Oravský et al., 2020). Monetary response in the time of COVID-19 also opens the discussion on quantitative easing, maintaining free capital mobility and stability in a monetary union, and reducing expansionary monetary policy. To resolve the trilemma, further progress is needed in risk reduction and risk-sharing in the euro area, including the establishment of a European deposit guarantee program and a reduction in banks' exposure to domestic sovereign bonds (Lang and Schadner, 2021). Pandemic global shocks initiated a rapid debt expansion, budget deficits, public debt increase, and sovereign credit spreads (Augustin et al., 2021). An increase in the incidence level results in a 1–3% increase in credit default swaps premiums for troubled deficit countries and 0.24% for fiscally sound ones. For a 30% increase in COVID-19 incidence, the expected default swaps premium rise is 2.1%. The negative impact of COVID-19 is also present in microfinance institutions (Zheng and Zhang, 2021).

A disruption to global supply chains is putting significant pressure on the global output decline due to the COVID-19 pandemic. In particular, the 'lockdown' policy shows significant damaging effects harming large trade economies, and highly significant consequences for small, open economies. Stringency policy can be maintained in the time of pandemic waves but must be redesigned quickly and efficiently afterwards to

mitigate adverse pandemic shocks on global supply chains. Our study shows that a government response is highly correlated and dependent on lockdown policies and income support. To assure optimal government response to COVID-19 economic shocks, an optimal combination of health policy, income policy, and public policy is required (Abuselidze and Slobodianyk, 2021). This is in line with the study results (Acemoglu et al., 2020). When options are limited to uniform policies that treat all age groups symmetrically, policymakers face difficult trade-offs (Robinson, 2021; Gungoraydinoglu et al., 2021; Hafiz et al., 2020). If the priority is to save lives (a "safety-focused" approach), the economy will have to endure a lengthy lockout and a GDP decline. Their study shows that simple, but *ad hoc* interventions may occasionally lead to very unsatisfactory results, but age-specific regulations can significantly improve economic and public health outcomes, especially in the case of the COVID-19 pandemic. In our study, we support evidence of Lucas's critique of running panel multinomial logit simulations searching for an optimal government response. In our model, the Lucas critique is present in the form of institutional response (institutional economics) dependent on changes in the government response to COVID-19 in the form of bi-directional Granger causality.

Here we measure institutional response and show that institutional economics is an essential determinant in setting up optimal government response to pandemics as in the studies by Razumovskaia et al. (2020), Anakpo and Mishi (2021). Persistence (extended memory) in COVID-19 shocks and threshold dynamics in government response requires an optimal combination of health and economic policy to mitigate the pandemic impacts. The institutional response is the necessary determinant for the effectiveness and economic resilience to pandemic shocks. The probability of recession due to COVID-19 is a function of institutional economics and optimal policy combination in health crisis management, income support, monetary and fiscal interventions. The government response is more effective in fighting the adverse effects of pandemics in countries with developed and efficient institutions. However, even with an optimal institutional framework, a high degree of coordination between the above-mentioned policies is still required.

3. DATA AND METHOD: PANEL MULTINOMIAL LOGIT MODELLING

The socio-economic impact of the COVID-19 pandemic once again put forward the role of the government and institutions in addressing the crisis. Here we study the impact on business cycles probability occurrence due to COVID-19 pandemic shocks using a composite index developed by Hale et al. (2020). Limited panel data for business cycles, quarterly growth rates of real GDP, change over the previous quarter (OECD, 2021) are not available as daily data and drive us to use panel multinomial

logit modelling.

We define business cycles as a binary, unordered response variable (dependent) taking values (0/1). Thus, the dependent variable equals 1 in periods of recession (negative GDP growth rate) and 0 with GDP reaching positive values (positive growth rate). Having a dependent variable (GDP) defined in this way enables us to monitor business cycles on daily data and thus measure the impact of independent variables on the dependent variable.

The set of independent variables includes:

- Overall government response index
- Stringency index
- Economic support index.

The data source is Hale et al. (2021) with overall government response index (Government), stringency index (Stringency), and economic support index (Economic) defined as in the appendix. The government response index monitors how governments' "reactions" vary across all indicators in the database and becomes stronger or weaker throughout the outbreak. The stringency index quantifies the severity of policies with a 'lockdown style' that primarily restricts people's behaviour. Finally, the economic support index keeps track of income support and debt alleviation programs for fighting the COVID-19 shocks. For details on the dependent variables, measuring, calculating, and defining each index, see Hale et al. (2021).

Independent variables in the model are case-specific regressors (Government and Stringency) and alternative-specific regressors (Economic). Panel multinomial model takes its form following Wooldridge (2010)

$$\mathrm{P}(y_{it} = j \mid \mathbf{x}_{it}, \mathbf{c}_i) = \mathbf{P}(y_{it} = j \mid \mathbf{x}_i, \mathbf{c}_i) \tag{1}$$

under strict exogeneity $\{\mathbf{x}_{it}: t = 1, \dots, T\}$ conditional on $\mathbf{c}_i$.

To study the impact of institutional response to the COVID-19 shock, our model takes the form

$$y_{it} \mid (\mathbf{x}_{i1}, \dots, \mathbf{x}_{iT}) \sim \mathrm{Multinomial}\left(\mathbf{x}_{it}\boldsymbol{\beta}_1 + \bar{\mathbf{w}}_i\xi_1, \dots, \mathbf{x}_{it}\boldsymbol{\beta}_J + \bar{\mathbf{w}}_i\boldsymbol{\xi}_J\right) \tag{2}$$

including intercept and time dummies.

We measure the probability of business cycle appearance as a response to the change in Government, Stringency, Economics following (3)

$$\mathrm{P}(y = j \mid \mathbf{x}) = \exp\left(\mathbf{x}\boldsymbol{\beta}_j\right) / \left[1 + \sum_{h=1}^{J} \exp(\mathbf{x}\boldsymbol{\beta}_h)\right], j = 1, \dots, J$$

with response probability

$$p_j(\mathbf{x}, \boldsymbol{\beta})/p_0(\mathbf{x}, \boldsymbol{\beta}) = \exp(\mathbf{x}\boldsymbol{\beta}_j), j = 1,2, \dots, J \quad (4)$$

and business cycle regimes

$$\text{Prob}(Y_i = 1 \mid X = 1) - \text{Prob}(Y_i = 1 \mid X = 0) \quad (5)$$

$$\Phi(\hat{\beta}_0 + \hat{\beta}_1 X_i) - \Phi(\hat{\beta}_0) \quad (6)$$

Here we measure the response in the GDP (business cycle) to the changes in the Government, Stringency and Economic index controlling for an unobservable effect – institutional efficiency.

To measure the institutional impact in the time of COVID-19, we use

$$\Phi(\hat{\beta}_0 + \hat{\beta}_1 X_i) - \Phi(\hat{\beta}_0) \quad (7)$$

with

Y_i = Business cycle *Y* = 1 when GDP growth is negative (recession) and *Y* = 0 with GDP registering growth (positive rate)

X_i = independent variable vector (varying across countries) – *Government, Stringency, Economic* as defined in Hale et al. (2021)

U_i = error term

j = unobservable effects (institutional response).

We use data for 47 countries, which were selected based on data availability (GDP growth rates, quarterly data for 2020 and 2021). Government, Stringency, Economic data date from 01/01/2020 to 08/30/2021 from the database by Hale et al. Consult the database for details on the data and methodology.

We assess the impact of institutional response (institutional efficiency) on business cycles as an unobserved effect from the panel multinomial logit model. First, we assess the probability of a business cycle occurrence due to the COVID-19 shock, considering the government response to the shock. After measuring the probability occurrence for business cycles, including the impact on the response (Business Cycle) from Government, Stringency, Economic, we estimate the institutional effect. Setting all indices to 100 (100%) allows us to calculate the probability of the business cycles due to unobservable effects (institutional efficiency). We can estimate the institutional effect on business cycles by taking the difference between the 100% probability of business cycle occurrence and our calculated probability using endogenous explanatory variables (Government, Stringency, Economic).

4. RESULTS

Here we present the results of the estimated model (7) measuring the impact of government responses to the COVID-19 shock using panel multinomial logit modelling. We can observe that governments' response to the pandemic shock varies significantly across countries with different convergence clubs across world regions. Relative transitional convergence paths for each of the convergence clubs are guided by the number of new COVID-19 cases and hospitalisation rates. Governments' response to the COVID-19 crisis is limited by countries' economic power and debt structure. An important limiting factor is an institutional response or institutional efficiency at the time of the pandemic that we measure here.

The estimated probability of business cycle occurrence due to the COVID-19 shock under the *ceteris paribus* condition (no government response) ranges from 81.6 to 83.5%. A country's economic power and resilience to external shock, in the case of pandemic shocks like COVID-19, serves only as a buffer and cannot avoid the economy slipping into recession. The buffer zone is only a 16% chance that a country will not encounter a business cycle when facing COVID-19 shock. The intensity of the pandemic shock also differs significantly across economies and time. That depends on the COVID-19 spreading in the country and the government's response to the crisis.

Table 1 presents the results of the multinomial logistic regression from Equation 7.

In Table 1, it is evident that the model provides an excellent fit for the data in our sample. Moreover, our estimated model gives a reasonable probability of change for the economy going into recession (or not) due to the pandemic shock. Finally, it is evident that large chi-square values also support the overall good fit of the model.

The impact of government response (Government) is calculated and visible in Table 1. A one-unit increase in the government response index is associated with a 0.218 increase in the relative log odds of countries to avoid recession. In terms of odds ratio, for a unit (index points) increase in the Government variable, the odds for a country to avoid recession increase by 24.4%. The result is expected knowing the public debt level in world economies before the pandemic. The estimated coefficient for Stringency is -0.15 per index points increase in Stringency (tightening public health measures to fight pandemics).

Moreover, tightening health measures slow down hospitalisation rates, which leads to a drop in public health expenditures decreasing relative odds to enter a recession. Change in the health safety policy (Stringency) decreases the odds for avoiding recession by 14% for a one-unit increase in Stringency. Finally, lockdowns lead to disruptions to supply chains, driving output down.

Economic measures designed to support the economy measured by the Economic

variables show the probability to avoid recession for a one-unit change in countries' economic response to the pandemic. Table 1 shows that the estimated coefficient for Economic is -0.026. The regression coefficient -0.026 means a one-unit (index points) increase in economic response (Economic variable), the relative log odds to avoid recession decrease. Equivalently, *ceteris paribus*, for an index point increase in Economic, the odds of a country to avoid recession decrease by 2.5%. This is understandable since the effect of economic support to fight COVID-19 has limited results on business cycles if left alone (without government response). Empirically, there is a positive and strong correlation between government response and economic support. With the stringency measure tightening, economic support rose to face each pandemic wave, and with subsequent "normalisation", the economic support was declining (0.49 positive correlation).

The unobserved impact (variables not included in the model) that we set to measure the institutional response to the COVID-19 shock significantly affects the probability of entering the recession. The estimated coefficient for unobserved effects (Constant) is -1.5. Thus, for a one-unit increase in unobserved effects (variable outside the model including institutional response), relative log odds to avoid recession decline by -1.554. The probability of avoiding recession decreases by -78.9%, *ceteris paribus* for other variables outside of the estimated model.

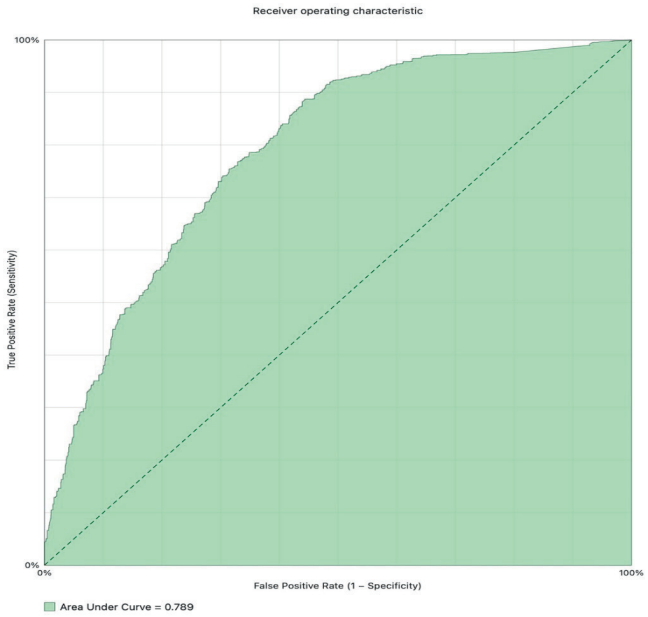
Table 1. Multinomial Logistic Regression Results

Business Cycle	Coef.	Std. Err.	P-value	Z-score
Government	0.218	0.003	0.001	68.8
Stringency	-0.15	0.002	0.001	-64.9
Economic	-0.026	0.000	0.001	-35.2
Constant	-1.554	0.041	0.001	-37.8
Recession (base outcome Business Cycle = 1)				
Number of obs.	28398			
LR chi2 (3)	5256			
Prob > chi2	0.001			
Pseudo McFadden R^2	0.21			

Source: Authors' calculation

In Table 1, we see that the estimated model provides an excellent fit to data with Pseudo McFadden R^2 (Wooldridge, 2010) with the value of 0.21. Furthermore, the logistic receiver operating characteristics (ROC) curve displays the predictive accuracy of the estimated model (Figure 1).

Figure 1. Estimated Model (ROC) Curve



Source: Authors' estimation

The estimated chi-square (3) likelihood ratio of 5256 with a p-value of 0.001 provides evidence of the goodness-of-fit for the estimated model and the statistical significance of predictors (p-value of 0.001).

Figure 1 shows that theoretical classifiers (predicting business cycles) set up here show significant predictive power. Moreover, the metric of interest, area under the (ROC) curve or (AUC), shows the predictive powers of classifiers, in our case, (AUC) =0.789. Thus, the (AUC) parameter is close to 0.80 supporting a good fit for the estimated model.

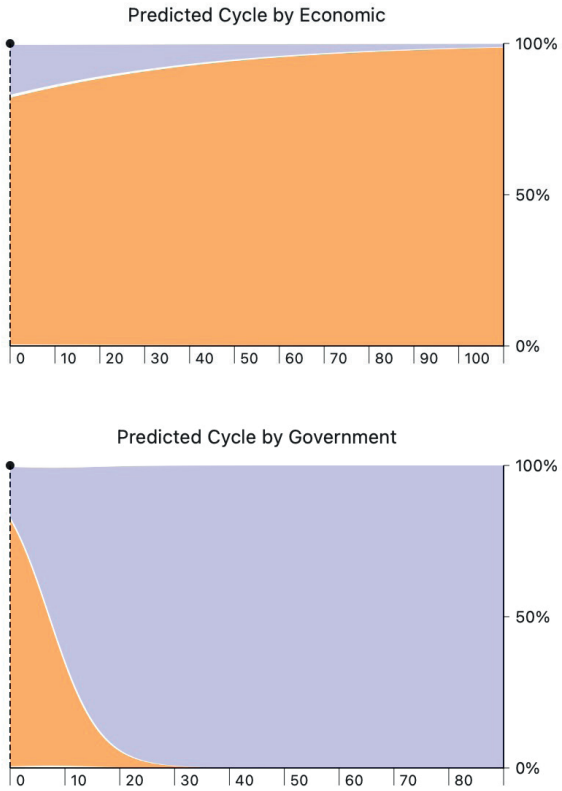
To summarise, we can conclude that the government response to COVID-19 was essential to avoid deeper business cycles in the economy. However, there is noticeable weak convergence in governments' response across countries. Moreover, the government response across countries in our sample was random and poorly coordinated within and between countries. Thus, a low level of convergence in the government response to COVID-19 shocks reveals a significant and essential lack of global policy synchronisation. This is particularly visible between EU members without a well-designed and coordinated EU government response to the pandemic. Instead, each Member State pursued an individual government policy response to the shock resulting in resource waste, lag in response to the crisis, and prolonged

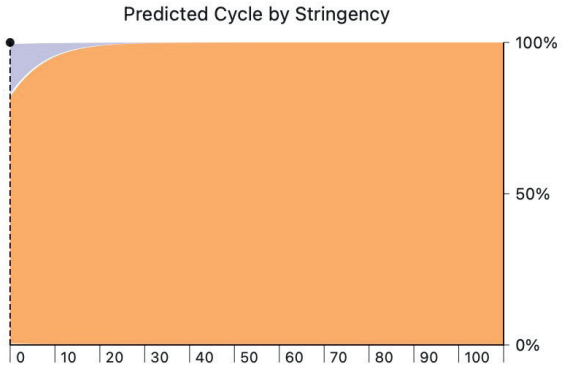
economic shock. Another issue not discussed here is the structural problem within the EU revealed by the pandemic, with individual member economies fighting the shock themselves, resulting in economic structure. Such an issue will be visible after the pandemic gets under control. The lack of global EU response will result in significant difficulties to run joint EU fiscal and monetary policy as it was before the pandemic. Lack in the global response to the pandemic also caused further and future divergence in institutional convergence, future divergences in monetary and fiscal policy worldwide. Global issues must be faced globally and unanimously in a globalised world, and not in a divergent and asymmetric policy response framework.

4.1. Institutional Response to COVID-19: A Simulation

Here we present the results of a simulation of an institutional response (difference in institutional efficiency across countries) and the effect on business cycles resulting from the pandemic. First, we set our model to base outcome with business cycles = one and Government, Stringency, and Economic policy response to zero.

Figure 2. Predicted Business Cycles With No Government Response to COVID-19



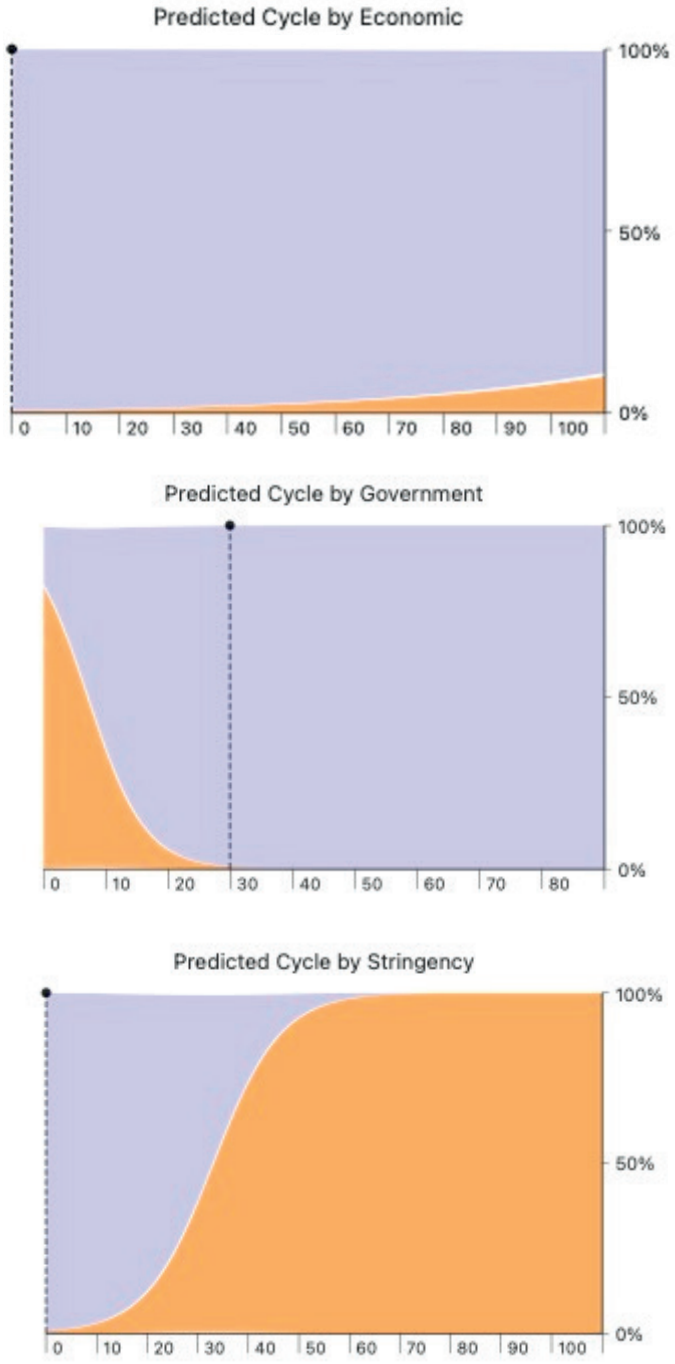


Source: Authors' estimation

Figure 2 shows the calculated (predicted) probability of recession under no government response to COVID-19. The predicted chance for business cycles (cycles=1) under no government response simulation is 81.6–83.5%. Based on panel multinomial logit estimated business cycles coefficients, countries in the panel, under the assumption of no policy response of the regime to the pandemic, on average have an 81.6–83.5% chance to enter business cycles. We must remember that our sample includes pandemic shocks from the beginning of the pandemic (January 2020 to August 2021). Under the assumption of unobserved effects in the model due to institutional framework (institutional efficiency, level of institutionalisation in the country), we measure the institutional response to COVID-19 as the difference between predicted chances of business cycles with no government response and with government response in place. Since the predicted chance of a business cycle with no government response is 81.6 to 83.5%, it means that institutional response (the role of institutions in growth and development) under the COVID-19 regime equals 100 - 81.6% (lower interval) or 100 - 83.5% (upper interval). Moreover, the estimated institutional effect impact in times of COVID-19 equals 16.5% to 18.4%. Thus, we see that countries with more efficient institutional frameworks and policies have a 16.5–18.4% chance to avoid business cycles (recession) when facing the COVID-19 shock compared to economies lacking solid institutions and policies.

Using estimated coefficients from (7), we can measure the institutional response to pandemic shocks under different government response regimes. The previous simulation will show the estimated institutional response if no government responds to the pandemic shocks. Figure 3 shows the trade-off between government and institutional response.

Figure 3. Trade-off Between Government and Institutional Response



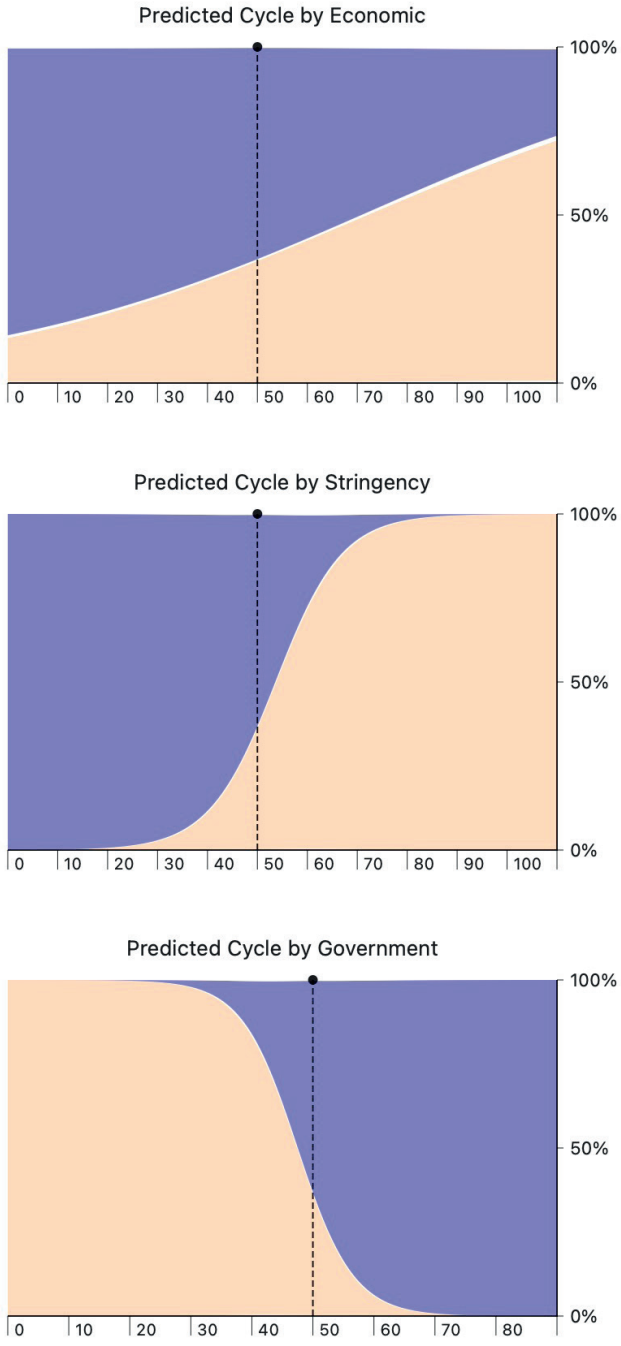
Source: Authors' estimation

Stringency policy shows an inherited threshold effect. Lockdowns and strict control of the pandemic spread harm economics with a strong threshold effect. The predicted chance of business cycle occurrence rises with tightening pandemic health response (lockdown policy)—countries with a stringency index of around 40 face a 100% probability of entering a recession, *ceteris paribus*. Lockdown policy causes significant economic trade-off where strict lockdown (stringency index > 40) eliminates the country's institutional response to the crisis. Thus, countries with a robust institutional framework and flexible lockdown policy (stringency index < 40) have a greater probability of avoiding recession during the pandemic.

Income support and debt relief show a positive correlation with a predicted chance of a business cycle. That is expected since countries build up massive financial support schemes during pandemics to fight their adverse economic effects (employment subsidy, tax exemption, financial aid, debt relief). With an economic support index of about 50, the predicted chance of avoiding the business cycle is 5.1 to 6.1%. Economic support is essential but not sufficient to avoid economic downturns during pandemics. Income support and debt relief policy require coordinated action in lockdown policy and government response. An effective response to pandemics needed to avoid recession requires a carefully designed mix of Government, Stringency, and Economic policy response. Each policy can help lower the predicted chance of the business cycle to some extent. However, an individual policy is not sufficient to avoid recession. Pandemic shocks require a complex and carefully designed government response policy to deal with the problem, and an institutional framework is necessary. The government policy response to COVID-19 between countries shows distinct divergence giving empirical evidence of no systematic response to the pandemic. A coordinated and global response to pandemic shocks would result in convergence dynamics in the government response, but we found no evidence to support the convergence theory in government responses to COVID-19. The institutional effect (institutional response) to the pandemic shock also differs significantly among the countries in the sample.

An optimal government response should reflect a more flexible policy framework with a threshold level of about 50% of the maximum response index. For example, Figure 4 shows that the predicted chance of avoiding business cycles increases to 62.8–64% under a more flexible and agile government policy response.

Figure 4. Optimal Government Policy Response to COVID-19



Source: Authors' estimation

4.2. Discussion

Here we study the role of institutions in COVID-19 and policy response convergence across 47 countries using daily data from January 2020 to August 30, 2021. Our results show a wide divergence in the government response to the pandemic crisis across the countries (Kuncl et al., 2021) supported not only by a health policy response (lockdown policy, vaccination policy) but primarily by economic policy response to the crisis. Income support policy, unemployment subsidy, tax exemption, debt relief policy, consistently vary across countries (divergence with a relative transitional path in policies further diverging). Economies have faced the global economic shocks caused by the pandemic alone, isolated, and with almost no policy coordination (not even in stricter economic associations like the EU, BRIC, MENA, OECD, G7).

Moreover, economies did not only miss a coordinated economic response to COVID-19, but they are also facing a lack of post-COVID-19 economic policy. Each country's government response to shock ultimately relied on the institutional economics within the economy and North's theory of institutions (1990). Empirical results here show that the reach of institutional response to the COVID-19 crisis is estimated to be an average 16–17% of predicted chance to avoid a pandemic business cycle. Thus, institutional response to the crisis significantly diverges across countries due to the role and efficiency of institutions. Such a result should inspire future research on the role of institutions in business cycles (Altug et al., 2012; Altug and Canova, 2014).

Our empirical results show that governments' economic response to COVID-19 was a necessary, but insufficient condition (*ceteris paribus*) to fight shock consequences (Vernengo and Nabar, 2020). The countereffect of government response to the pandemic is most significant in leveraging the negative impact of the pandemic. The results also support evidence of long memory in pandemic shocks (long-term negative impact on economic trends), as evidenced in Skare et al. (2021). The recovery phase in each country during and after pandemic waves depends on optimal policy coordination between health, government, and economic response, supporting the results in Cantillon et al. (2021), and De la Fuente (2021). Without a government response, the economic downturn (recession) in sample countries would be, on average, 65.4 to 64.3% steeper. Moreover, negative amplitude in the business cycles would drop down further by the above-mentioned numbers. Thus, the recession would be much more profound and long-lasting if the government was not responding, as supported in Yeyati and Filippini (2021).

Economic support to fight COVID-19 (under no government response regime) would have an almost negative impact on economic trends. It takes both government response and economic support to slow down the downturn cycle – volatility, amplitude, and excess (Čavrak, 2020). We observe a highly significant threshold effect

in government response. The estimated panel multinomial model shows a decreasing marginal effect for Stringency, Government, and Economic. Government response to mitigation of the damaging economic impact of the pandemic shock is effective with an apparent threshold effect at 43.5 index points. When the government response index reaches 43.5, marginal effects of an increasing government response approach zero, turning negative over the predictive horizon. The threshold effect is not the only one dominating in government response. A time-limited predicted horizon for government response to gain positive effects over the damaging impact of the pandemic is closely correlated with pandemic waves. During the pandemic waves, government response shows the largest mitigating and balancing effects. In the subsequent waves, the marginal effect of government response is not prominent. This results in long market lags and economic agents' individual responses to the pandemic. The marginal government response impact in the pre- and post-pandemic waves is conditioned by the institutional framework and capacities. Economies with solid and efficient institutional capacity register have a higher marginal government response impact in subsequent waves. The marginal effect of government response differs significantly across countries in the sample, reflecting the variance in institutional response.

Stringency shows devastating effects on supply chains and disruption to economic flows within and between countries. Specifically, tightening stringency policy has had damaging economic effects, resulting in high adverse marginal effects. With an increase in Stringency, the predicted chance of avoiding the business cycle is significantly lower, with a threshold effect at 42.5 index points. Lockdown policy and other health closure policies beyond 42.5 Stringency index significantly increase marginal adverse effects on the economy and output after threshold. This leads to additional income support, debt relief, and more robust government support (Hale et al., 2021). In conclusion, our empirical results support the findings of Phillips (1962), asserting that quantitative knowledge is needed to design an efficient economic response to the crisis to avoid, in his words, the 'schizophrenic' behaviour of markets and economic agents. Our analysis proves it and puts forward both empirical facts and claims that quantitative knowledge is necessary to design good government and economic response to the COVID-19 crisis.

5. CONCLUSION

There have been many studies on the COVID-19 impact on output, labour markets, tourism, stock markets, government response, and a lack of studies on institutional response in the time of COVID-19. Our study aims to measure institutional response to the pandemic crisis for 47 OECD economies from January 2020 to September 2021 using daily data. The empirical work was challenging, requiring a panel multinomial logit model capable to model and simulate daily data in measuring institutional

response. In this regard, our work is novel in connecting institutional response and the negative economic impact of the pandemic.

Our data lead to the conclusion that institutional characteristics of 47 OECD countries account for, on average, 16.5–18.4% predicted chance of avoiding recession caused by COVID-19 (*ceteris paribus*). 'Lockdown' policy measured by the stringency index shows a high negative impact on output. Income support and debt relief policies (Economic) impact output under COVID-19 shock is closely linked to the government response (Government). Income support and debt relief policies have limited effects on avoiding recession if they are not backed up by overall government response. Designing and implementing efficient government response and policy to fight the negative impact of the COVID-19 on the economy requires quantitative knowledge. We need empirical knowledge of the links between lockdown policies, income support, debt relief, government response, and business cycles in the time of COVID-19. A threshold effect and persistence are following the negative economic impact of the pandemic. Structuring a proper economic and government response requires quantitative knowledge of the shock's threshold level and long memory. These findings support the conclusion that the economic consequences of COVID-19 will have a long-lasting effect. We are for now in the 'eye of the storm' and need to prepare for the damaging economic aftershocks of the pandemic. Institutional structure and capability to design and implement appropriate government response policies will be crucial. For now, globally implemented policies have only alleviating and short-term results. We need a properly structured set of long-term policies to mitigate the full extent of the adverse effects of COVID-19. Policymakers and practitioners should be aware of this fact and design a new set of economic policies and measures to fight the pandemic aftershocks. A new set of policies must be exact, clearly stated, and synchronised across countries instead of the heterogeneous, *ad-hoc*, and random government responses we now see globally. There is a high degree of heterogeneity in government, health, and economic response to the pandemic.

Global policymakers and other economic agents must work closely and quickly to set up a new economic and institutional architecture capable of fighting the pandemic crisis. We examine the institutional response to the COVID-19 crisis under business cycle chance predictions. To our knowledge, our study is the first to examine the role of institutional response to adverse pandemic effects. In terms of institutional factors, we found that the institutional framework is an essential and robust determinant in fighting business cycles resulting from the pandemic. However, our study is limited to the OECD countries looking at the macro-institutional factors, not taking account of micro-institutional factors (firms' agility, human capital, crisis management). Future studies should extend our panel multinomial logit model to fixed and random effect to capture the heterogeneity and cross-sectional dependence. We have already included the above issues in our model by using a robust standard modelling technique. Potentially

better results could be obtained using multiple random individual characteristics and correlated covariates.

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MJERENJE INSTITUCIONALNOG ODGOVORA I KONVERGENCIJE U VRIJEME COVID-19: HOMOGENI U ODNOSU NA HETEROGENI ODGOVOR POLITIKE

Sažetak

Pandemijska kriza uzrokovana bolešću COVID-19 izvršila je ogroman pritisak na sve gospodarske subjekte, osobito na fiskalna/monetarna tijela i institucije u svim zemljama. Svrha je ove studije mjerenje i utvrđivanje uloge institucionalnog odgovora u borbi protiv pandemije i izbjegavanju poslovnih ciklusa. Uspostavljanje optimalnog odgovora vlade na pandemije zahtijeva empirijsko znanje o vezama između različitih vladinih odgovora: zdravstvene i ekonomske politike. Prvi je osmišljen za rješavanje pitanja sigurnosti i zaštite stanovništva, a drugi kako bi se spriječile globalne gospodarske posljedice. Podatke od siječnja 2020. g. do rujna 2021. g. upotrebljavamo za 47 zemalja OECD-a o vladinim politikama odgovora na krizu, ograničavanja kretanja i strogosti, potpori dohotku te otpisu duga. Podaci se analiziraju pomoću panel multinomnog logit modeliranja kako bi se predvidjele šanse za izbjegavanje poslovnih ciklusa pandemije koji proizlaze iz institucionalnog odgovora. Provedeno istraživanje pruža empirijsko znanje nositeljima politika i praktičarima omogućujući im postavljanje optimalnog okvira politike u borbi protiv pandemije. Optimalan odgovor vlade na COVID-19 značajno utječe na institucionalni odgovor koji je neophodan ne samo tijekom pandemije, već i nakon nje.

Ključne riječi: institucije i institucionalni odgovor, OECD, panel multinomni logit, pandemija COVID-19, poslovni ciklusi

JEL klasifikacija: C3, E6, E02, O43

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UTJECAJ POREZNIH POTICAJA ZA ISTRAŽIVANJE I RAZVOJ NA GOSPODARSKI RAST U EU-u UZ OSVRT NA HRVATSKU[1]

Sažetak

U ovom se radu istražuje utjecaj poreznih poticaja za istraživanje i razvoj na gospodarski rast u odabranim državama članicama Europske unije. Prikazuje se usporedna analiza poreznih poticaja za istraživanje i razvoj, kako u određenim državama članicama Europske unije tako i u Republici Hrvatskoj. Cilj rada je utvrditi postoji li pozitivan utjecaj ovih poticaja na ekonomski rast. Utjecaj poreznih poticaja za istraživanje i razvoj na bruto domaći proizvod po stanovniku analizira se na uzorku 15 odabranih zemalja članica EU-a u razdoblju od 2000. do 2016. godine upotrebom panel modela s fiksnim efektom. Dokazuje se da porezne olakšice imaju statistički značajan i pozitivan učinak na rast bruto domaćeg proizvoda. Daju se i preporuke za Republiku Hrvatsku.

Ključne riječi: porezni poticaji, istraživanje i razvoj, gospodarski rast, porezni kredit, odbitak od porezne osnovice

JEL klasifikacija: H25, F43, O23

1. UVOD

Ulaganja u istraživanje i razvoj (IR) te njihov utjecaj na gospodarski rast u posljednja dva desetljeća postala su zanimljiva tema i čest predmet istraživanja. IR se odnosi na razne aktivnosti kojima se mogu poboljšati postojeći proizvodi i usluge ili stvoriti novi inovativni proizvodi. Stoga članice Europske unije na različite načine pokušavaju potaknuti aktivnosti istraživanja i razvoja. Države IR aktivnosti mogu stimulirati na tri različita načina (npr. OECD, 2010, str. 76; OECD, n. d.; OECD, 2003, str. 10, 11, 23; Appelt et al., 2017, str. 19): putem izravnih proračunskih ulaganja, neizravnim

1 U radu su obrađeni najvažniji rezultati istraživanja poslijediplomskog završnog rada Ene Fibinger "Značaj poreznih poticaja za istraživanje i razvoj u izabranim članicama EU-a i pregled stanja u Republici Hrvatskoj", Ekonomski fakultet Sveučilišta u Rijeci, 2020.

ulaganjima putem porezne politike ili provođenjem samostalnog IR-a. Ulaganjem u IR aktivnosti države potiču poduzeća da koriste nove tehnologije te time postaju konkurentnija na tržištu. Osim izravnog proračunskog financiranja, koje koristi veći broj europskih država, poticanje ulaganja u IR moguće je ostvariti i neizravno, koristeći poreznu politiku, odnosno porezne olakšice. Države diljem svijeta prepoznale su učinkovitost ovih mjera za poticanje IR aktivnosti, a time i gospodarskog rasta.

Iako nema mnogo radova o utjecaju samih poreznih olakšica tj. poticaja na rast BDP-a, mnogi se stručnjaci slažu da se gospodarski rast i zapošljavanje mogu potaknuti poreznim reformama (Kesner-Škreb, 2020). Pozitivan utjecaj poreznih olakšica za IR nije moguće razmatrati samo u okviru povećanja ulaganja u IR, već se takva ulaganja i pozitivan utjecaj prenose i na druge sektore i poduzeća. S obzirom na to da je teško procijeniti utjecaj tih poreznih olakšica, nije iznenađujuće što postoji relativno mali broj radova na tu temu. No većina radova uglavnom ukazuje na pozitivan utjecaj poreznih olakšica na ekonomska kretanja (D'Andria, Pontikakis i Skonieczna, 2017). Značajan učinak izravnih i neizravnih proračunskih ulaganja u IR na gospodarski rast dokazan je i u nekim prethodnim istraživanjima. Tako je Szarowska (2019) analizirala utjecaj izdvajanja za IR i poreznih olakšica na porast BDP-a te pokazala da su ona statistički značajna i imaju pozitivan utjecaj na gospodarski rast. Freimane i Balina (2016) su ispitale u kojoj mjeri izdvajanja za IR utječu na rast BDP-a tako da su promatrale sve zemlje članice Europske unije i usporedile rezultate dviju podskupina – starih i novih članica. U radu je dokazan statistički značajan pozitivan utjecaj izdvajanja za IR na porast BDP-a, kako u starim tako i u novim zemljama članicama. Osim toga, uvrštavanjem *dummy* varijabli, kako bi se odvojile države koje izdvajaju manje i više od 1 % BDP-a za IR, pokazalo se da su za zemlje koje izdvajaju manje od 1 % BDP-a, IR aktivnosti još važnije i potrebnije za gospodarski rast. Appelt, Galindo-Rueda i Cinta Gonzales Cabral (2019) su po prvi put koristili podatke o poreznim olakšicama IR baze Organizacije za ekonomsku suradnju i razvoj (OECD) te ispitali utjecaj poreznih poticaja na povećanje izdavanja za IR iskazanih kao BERD (engl. *Business Expenditure on Research and Development*). Utvrdili su da porezni poticaji pozitivno utječu na privatna izdvajanja za IR, čak i u ekonometrijskim modelima gdje izravna ulaganja kao nezavisna varijabla gube statističku značajnost. Ovom temom bavili su se i hrvatski autori pa su tako Aralica i Botrić (2013) proučavali utjecaj poreznih olakšica za istraživanje i razvoj u Republici Hrvatskoj. Rezultat njihovog istraživanja pokazao je da su takve porezne olakšice utjecale na povećanje broja poduzeća koja izdvajaju sredstva za aktivnosti istraživanja i razvoja. Također su na svome uzorku ustanovili da porezni poticaji pozitivno utječu na inovaciju proizvoda, ali ne i na inovaciju procesa. Radas i Anić (2013) su u svome radu istraživali učinkovitost programa RAZUM (Razvoj na znanju utemeljenih poduzeća) čija je svrha osigurati početna financiranja novih usluga i proizvoda u već postojećim malim i srednjim poduzećima te početno financiranje novih malih i srednjih poduzeća. Između ostalog, njihova je analiza pokazala da je za poduzeća koja su već izdvajala sredstva

za aktivnosti istraživanja i razvoja sudjelovanje u programu još više utjecalo na povećanje intenziteta istraživačkorazvojnih aktivnosti. Temom poreznih poticaja za istraživanje i razvoj bavili su se i Aralica, Botrić i Švaljek (2011) te zaključili da su u njihovom uzorku porezni poticaji doveli do većih izdvajanja za aktivnosti istraživanja i razvoja. Uzimajući u obzir prethodna istraživanja moglo bi se pretpostaviti da porezne olakšice za IR mogu imati značajan učinak na povećanje privatnih troškova za IR dok posljedično povećanje takvih izdvajanja može pozitivno utjecati na gospodarski rast.

Europska unija je 2014. godine pokrenula okvirni program Obzor 2020 kako bi potaknula istraživanje i inovacije s ciljem promoviranja konkurentnosti na svjetskom tržištu. U sklopu programa Obzor 2020 OECD redovito prikuplja podatke o državnim poticajima za IR kroz izravne i neizravne mjere te je tako formirao bazu podataka (OECD, n. d., 1) čijom se analizom mogu istražiti i sagledati različiti utjecaji takvih mjera na razne ekonomske pokazatelje. Upravo je ta baza podataka korištena i u istraživanju za ovaj rad.

Predmet istraživanja ovoga rada su porezni poticaji za IR i njihov utjecaj na gospodarski rast u pojedinim zemljama Europske unije. Osim toga, dan je pregled poreznih poticaja za IR u zemljama Europske unije te prikaz stanja u Republici Hrvatskoj. Kritički se osvrnulo na stanje u Republici Hrvatskoj te su dane preporuke s obzirom na to da ona još u potpunosti ne prati europske trendove.

Svrha istraživanja ovoga rada je analizirati utjecaj poreznih poticaja za IR na gospodarski rast dok je glavni cilj ispitati kako visina poreznih olakšica za IR može utjecati na rast bruto domaćeg proizvoda (BDP-a) u odabranim članicama Europske unije. Ostali ciljevi istraživanja povezani su s definiranjem poreznih poticaja za IR, preciziranjem njihovih vrsta, prezentiranjem poreznih mjera koje koriste države EU-a u tu svrhu te određivanjem utječe li njihova visina na gospodarski rast.

Na osnovi predmeta istraživanja postavlja se temeljna radna hipoteza da veći porezni poticaji za IR mogu pozitivno utjecati na gospodarski rast pojedine države.

Porezni poticaji za IR su u Republici Hrvatskoj prisutni, no i dalje u manjem opsegu u odnosu na neke druge članice Europske unije.

Istraživanje se provodi panel analizom upotrebe modela s fiksnim efektom da bi se ispitalo utječu li, i na koji način, ove olakšice na rast BDP-a u 15 zemalja članica EU-a.

Nakon Uvoda prezentirane su vrste poreznih poticaja za IR koji se koriste u EU-u s detaljnijim pregledom poreznih poticaja u 2020. godini po državama. Slijedi ekonometrijska panel analiza utjecaja poreznih olakšica za IR na gospodarski rast u izabranim članicama EU-a. Na kraju se iznose moguća poboljšanja i preporuke za Hrvatsku.

2. POREZNI POTICAJI ZA IR

Zbog ograničenja financijskih sredstava, neizravni poticaji za IR posljednjih godina postaju sve značajniji (Szarowská, 2019). U usporedbi s izravnim proračunskim financiranjem, korištenje poreznih olakšica je jednostavno i stabilno te se smatra da ono pruža jednake uvjete za sve privatne IR djelatnosti. Pristup sredstvima izravnog proračunskog financiranja često zahtijeva dugotrajniji i kompliciraniji proces. S druge strane, kao nedostatak poreznih olakšica navodi se upravo jednakost prema svim poduzećima jer ih na isti način mogu koristiti i ona koja svojim radom značajno utječu na ostale djelatnosti, kao i ona koja za to imaju manji potencijal (Ognyanova, 2017). Kod izravnih ulaganja moguća je bolja kontrola proračuna jer se za izravnu potporu izdvaja točan iznos koji je tome namijenjen, dok kod poreznih poticaja nije moguće unaprijed znati koliki će biti porezni izdaci (Šimurina i Galić, 2017). Budući da se fiskalne mjere primjenjuju na prihode, neizravna ulaganja povoljnija su za projekte koji će generirati veću zaradu u kratkom roku nego na dugoročne istraživačke projekte i dugoročna ulaganja u istraživačku strukturu (OECD, 2003).

Europska komisija je sve usredotočenija na porezne poticaje kao način povećanja IR aktivnosti (Hodžić, 2012). Razlog tome je prepoznavanje ovog alata kao dobrog načina za poticanje IR-a, usklađivanje različitih mjera koje članice koriste te povećanje efikasnosti ovih ulaganja. Države većinom koriste kombinaciju izravnih i neizravnih ulaganja kako bi potaknule IR aktivnosti, no postoje i članice Europske unije koje i dalje koriste samo izravna ulaganja, poput Bugarske, Estonije i Finske. Istovremeno korištenje izravnih i neizravnih poticaja državama omogućuje da koriste prednosti i izbjegnu nedostatke svakog od njih. Appelt et al. (2019) analiziraju visinu poreznih olakšica za IR u zemljama članicama OECD-a te ostalim europskim državama. Navode da je u zemljama članicama OECD-a prosječni udio neizravnih poticaja putem poreznih olakšica u ukupnim državnim ulaganjima u IR porastao s 36 % u 2006. godini na 46 % u 2016. godini. Osim toga, navode kako se iznos poreznih poticaja izražen kao postotak BDP-a u razdoblju od 2006. do 2016. godine povećao u 26 od ukupno 44 države za koje su podaci dostupni. Šimurina i Galić (2017) usporedno su analizirale različite mjere porezne politike novih i starih članica EU-a te došle do zaključka da nove zemlje članice slabije kombiniraju različite porezne poticaje, dok starije često koriste više različitih mjera porezne politike. Osim toga, navele su da je u starim državama članicama prijava za porezne poticaje poduzećima znatno olakšana i modernizirana te je u velikoj većini omogućena prijava putem interneta dok nove članice u tom pogledu zaostaju te je prijava putem interneta moguća u samo četiri države. Iako su porezne olakšice u EU-u sve raširenije, porezne mjere koje pojedine članice provode s ciljem poticanja IR aktivnosti međusobno se znatno razlikuju.

Porezne olakšice za IR najčešće obuhvaćaju odbitak (od osnovice) i porezni kredit, a neke zemlje primjenjuju i ubrzanu amortizaciju na opremu za istraživanje te smanjenu stopu poreza na dobit.

Odbitak (od porezne osnovice) ili porezni odbitak je iznos koji se odbija od porezne osnovice prije utvrđivanja poreza koji je porezni obveznik dužan platiti. Najčešće se od porezne osnovice oduzima određeni postotak prethodno definiranog iznosa koji je utrošen za IR. Vrlo često je riječ o troškovima koji su namijenjeni za IR. Neke države primjenjuju manji postotak od 100 %, dok neke koriste 100 % ili čak i više, ali obično samo na dio rashoda koji je premašio izdvajanja za IR prethodne godine ili koji je premašio prosjek nekoliko prethodnih godina. Korištenje odbitka na ovaj način potiče poduzeća da svake godine za IR izdvajaju i više nego prethodnih godina što dovodi do konstantnog rasta ulaganja. Porezna se ušteda kod odbitka od osnovice računa kao umnožak odbitka od osnovice i relevantne stope poreza na dobit.

Porezni kredit (odbitak od poreza) druga je vrlo često korištena fiskalna mjera za poticanje IR-a. Njime se umanjuje ukupna porezna obveza. Za razliku od odbitka od osnovice, on se primjenjuje nakon primjene stope poreza na dobit na već izračunati iznos porezne obveze pa njegov ukupni iznos nije ovisan o poreznoj stopi. Tako je porezna ušteda jednaka samom iznosu poreznog kredita. Porezni kredit najčešće se računa kao definirani postotak iznosa koji je utrošen na IR, troška osoblja koji su uključeni u IR aktivnosti i sl. Države mogu primjenjivati samo jedan osnovni porezni kredit, a neke uvode i dodatni porezni kredit koji se najčešće primjenjuje na trošak IR-a koji je premašio prethodno definirani iznos. U tom se slučaju na izdatke koji su manji od definiranog iznosa koji predstavlja prag primjenjuje osnovna stopa, a na izdatke koje prelaze tako definiran prag veća dodatna stopa.

Iako rjeđe, neke zemlje uz jednu ili obje prethodno navedene mjere znaju primjenjivati i ubrzanu amortizaciju i/ili umanjenu poreznu stopu na dobit. Određene države poduzećima dozvoljavaju korištenje umanjene porezne stope na dobit, ali uglavnom samo na prihode koji su ostvareni IR aktivnostima ili od prodaje usluge i proizvoda za čije je ostvarenje i implementaciju potrebno provođenje znanstvenih i istraživačkih projekata. To bi se npr. odnosilo na proizvode visoke tehnologije, softver, hardver, nove lijekove, nove patente itd.

Ubrzana amortizacija, ako je uvedena kao fiskalna mjera za poticanje IR-a, obično se primjenjuje na opremu koja je potrebna za provedbu IR aktivnosti. Na taj se način dodatno potiče ulaganje u visokotehnološku opremu koja je u većini slučajeva poduzeću neophodna za provođenje istraživanja. Moguć je i njen krajnji oblik – 100 %, tj. jednokratni otpis. Navedeno je obuhvaćeno u budućoj Zajedničkoj konsolidiranoj osnovici poreza na dobit za EU, i to već u prijedlogu iz 2011. godine (European Commission, 2011) dok novi prijedlog (European Commission, 2016a i 2016b) nadopunjuje navedeno i dodatnim odbitkom od osnovice za troškove IR-a („super odbitak“), ovisno o visini troškova za IR, na sljedeći način:

1) dodatnih 50 % odbitka za troškove IR-a do 20 mil. EUR
2) dodatnih 25 % za troškove IR-a veće od 20 mil. EUR

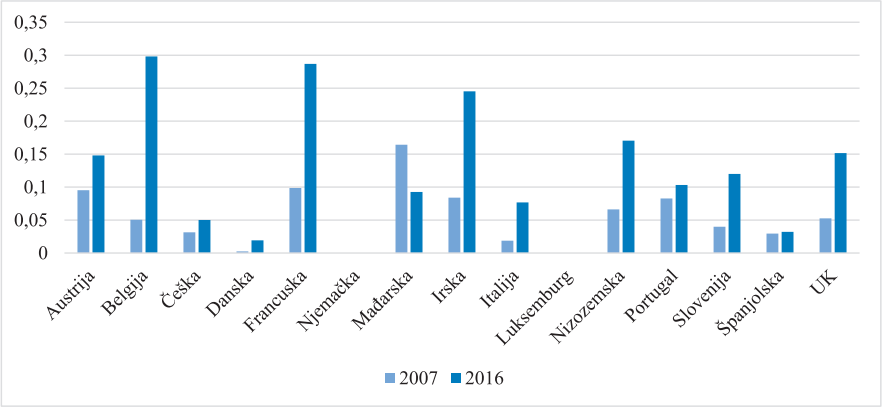
3) dodatnih 25 % za troškove *start-up* poduzeća.

OECD je još 2003. godine dao smjernice o tome koje bi čimbenike svaka vlada trebala uzeti u obzir pri odlučivanju na koji će način postići svoje ciljeve korištenjem poticaja za IR. Čimbenici koje bi trebalo sagledati su (OECD, 2003):

1. administracija – porezni poticaji poduzećima daju sigurnost i omogućuju dugoročno planiranje, a jasne informacije olakšavaju im dostupnost poreznih poticaja
2. oblik poreznih poticaja – porezni krediti i odbitak od porezne osnovice mogu imati različit utjecaj na mala i velika poduzeća te je to potrebno razmotriti kod donošenja odluke o mjerama koje će se uvesti
3. obujam IR-a – primjena poreznih olakšica do visine ulaganja u istraživačkorazvojne projekte ili povećanje izdvajanja u odnosu na prethodne godine može dovesti do različitih rezultata
4. ciljani poticaji – porezne poticaje trebalo bi usmjeriti prema malim poduzećima te javno-privatnim partnerstvima kako bi se postigao što veći učinak prelijevanja
5. definicija IR-a – porezni poticaji mogu biti usmjereni na temeljno istraživanje, primijenjeno istraživanje itd.
6. odredbe koje reguliraju izbjegavanje plaćanja poreza – donošenje posebnih odredbi koje neće dozvoliti da poduzeća bespravno koriste porezne olakšice za IR
7. dostupnost stranim poduzećima – porezni poticaji za IR mogu državu učiniti popularnom za ulaganje i stranim poduzećima.

U posljednjih nekoliko godina države sve više koriste porezne olakšice kao način poticanja IR-a. U grafikonu 1 prikazan je iznos poreznih olakšica za određene zemlje izraženih kao postotak BDP-a u 2007. i 2016. godini.

Grafikon 1. Porezne olakšice za IR kao % BDP-a, 2007. – 2016.

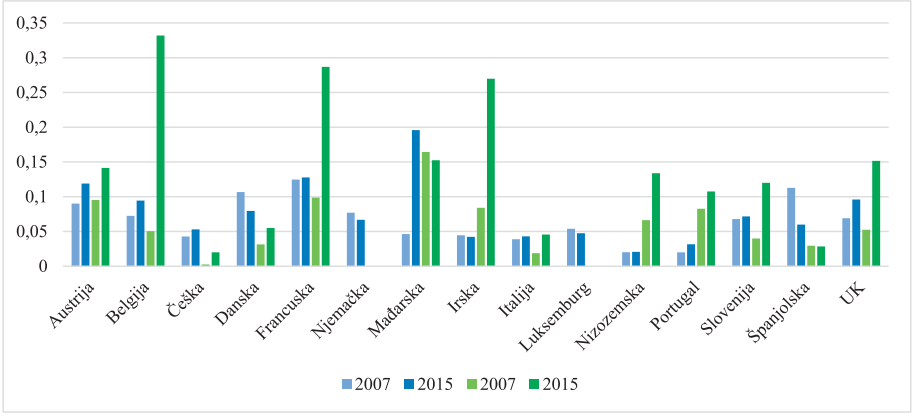


Izvor: Izrada autorica prema podacima s baze OECD -a (OECD, n. d., 1)

Vidljivo je da je za većinu zemalja taj omjer značajno porastao što ukazuje na to da je porezna politika sve češći izbor država pri poticanju poduzeća na IR aktivnosti.

S druge strane, u grafikonu 1 promatra se odnos izravnog proračunskog financiranja privatnih troškova za IR i neizravnog financiranja, tj. poreznih poticaja, u 2007. i 2015. godini (2015. godina je uzeta zbog dostupnih podataka za izravno financiranje).

Grafikon 2. Odnos izravnog i neizravnog ulaganja po državama za 2005. i 2017. godinu



Izvor: Izrada autorica prema podacima s baze OECD-a (OECD, n. d., 1)

Može se zaključiti da je neizravno ulaganje u većini država poraslo u odnosu na izravno. U nekim zemljama, kao što su Irska, Francuska, Belgija, Nizozemska i Portugal, za razliku od 2007. godine, kada je udio poreznih olakšica bio manji, danas one predstavljaju glavni način financiranja IR-a. Time se može potvrditi da se za poticanje IR-a sve više zemalja opredjeljuje za neizravni način, tj. korištenje poreznih mjera.

U 2020. godini sve više zemalja Europske unije koristi poreznu politiku da bi potaknule IR. Prema Europskom poreznom priručniku za 2020. godinu pojedine zemlje, kao što su Nizozemska, Irska i Italija, pokrenule su čak i takozvane „okvirne programe za razvoj znanja i inovacije“ (Alvarado et al., 2020). U sklopu tih programa poduzeća se mogu kvalificirati za porezne poticaje prema određenim uvjetima.

Nizozemska u sklopu svojih programa nudi efektivnu poreznu stopu od 7 % umjesto standardne stope poreza na dobit za prihode ostvarene razvojem proizvoda koji zadovoljavaju definirane kriterije. To podrazumijeva proizvode za čiju su realizaciju potrebne IR aktivnosti, npr. proizvodnja softvera, patenata i inovativnih proizvoda. Stoga se niža porezna stopa primjenjuje samo na dio prihoda koji se računa tako da se omjer prihvatljivih troškova pomnoženih s 1,3 i ukupnih izdataka pomnoži s

prihodom nastalim od prodaje inovativnih proizvoda koji su rezultat IR aktivnosti. Prihvatljivi troškovi odnose se na izdatke nastale pri provođenju IR aktivnosti dok se ukupni izdaci odnose na izdatke za provođenje IR aktivnosti, troškove nabave te ostale troškove (npr. *outsourcing*). Da bi zadovoljilo uvjete, svako poduzeće mora dobiti certifikat za IR koji izdaje Državna agencija za poduzetništvo. Poslodavci imaju pravo koristiti i smanjenje poreza odvojenog za plaće u visini od 32 % iznosa za one zaposlenike koji sudjeluju u IR aktivnostima, tj. 40 % za zaposlenike *start-up* tvrtki koje se bave razvojem tehnoloških proizvoda. Smanjenje poreza u tom postotku moguće je koristiti za troškove plaća do 350.000,00 eura, dok je za troškove koji prelaze tu granicu moguće koristiti smanjenje od 16 %. Nizozemska dozvoljava i proizvoljnu stopu amortizacije za imovinu visoke tehnološke vrijednosti, tj. imovinu koja se koristi za IR.

U Irskoj se provodi slična mjera u okvirnom programu znanja i istraživanja pa poduzeća mogu koristiti smanjenu stopu poreza na dobit od 6,25 %. Kako bi se moglo kvalificirati za povlaštenu stopu unutar okvira programa, poduzeće mora razvijati proizvode kao što su inovativni patenti i softver. Smanjena stopa se primjenjuje na određeni dio prihoda, a on se računa tako da se omjer prihvatljivih troškova i ukupnih izdataka pomnoži s prihodom nastalim od prodaje i plasiranja inovativnih proizvoda. Prihvatljivi troškovi su, slično kao i u slučaju Nizozemske, izdaci nastali pri provođenju IR aktivnosti, dok se ukupni izdaci odnose na izdatke za provođenje IR aktivnosti, troškove nabave te ostale troškove (npr. *outsourcing*). Osim toga, Irska nudi i porezni kredit od 25 % iznosa izdataka utrošenih za IR. Od siječnja 2020. godine porezni krediti za mikro i mala poduzeća povećali su se na 30 %. Poduzeća u Irskoj imaju pravo iznosom kojeg su zadržale zbog korištenja poreznog kredita nagraditi svoje ključne zaposlenike. To se odnosi na radnike čijih 75 % zadataka obuhvaća osmišljavanje novih proizvoda i izuma ili radnike čijih 50 % (ili više) zarade predstavlja prihvatljive troškove za ostvarenje prava na porezni kredit.

Italija u sklopu svog okvirnog programa poduzećima koja se bave IR aktivnostima, ekološkim tranzicijama i tehnološkim inovacijama nudi mogućnost korištenja poreznog kredita. Poduzećima je tako dostupan porezni kredit od 12 % prihvatljivih troškova za temeljna i industrijska istraživanja te eksperimentalni razvoj (uvećan s obzirom na veličinu poduzeća za određene regije u južnoj Italiji), porezni kredit od 6 % prihvatljivih troškova za razvoj novih ili značajno poboljšanih proizvoda i proizvodnih procesa (10 % za ekološke i digitalne inovacije) te porezni kredit od 6 % prihvatljivih troškova za sve ostale inovativne aktivnosti. Povrh toga, moguće je koristiti i odbitak u iznosu od 50 % dobiti ostvarene prilikom proizvodnje softvera i patenata. Relevantni iznos dobiti računa se prema omjeru prihvatljivih troškova za IR intelektualnog vlasništva te ukupnih troškova koji su potrebni za proizvodnju. Naposljetku, u Italiji se dodatno potiču i *start-up* tvrtke kojima je najmanje 15 % rashoda usmjereno prema IR-u i u kojima barem trećinu zaposlenih čine visokoobrazovani i kvalificirani pojedinci ili *start-*

up tvrtke koje su izumitelji inovativnih patenata. Takva *start-up* poduzeća oslobođena su i plaćanja pristojbi za pokretanje poslovanja.

Belgija fiskalnom politikom na razne načine potiče inovacije i razvoj tehnologije, između ostalog tako što nudi porezni kredit od 25 % iznosa uloženog u IR. Osim toga, poduzeća mogu tražiti odbitak troškova za IR te odbitak za ulaganje u održive izvore energije, razvoj patenata te IR novih tehnologija povoljnih za okoliš. Inovativne tvrtke koje su uključene u IR vlastima su dužne platiti samo 20 % iznosa koji su izdvojile kao porez na dohodak za plaće zaposlenika koji sudjeluju u IR aktivnostima. Ostatak iznosa poduzeća imaju pravo zadržati. Zbog novog pristupa OECD-a prema poduzećima koja se bave inovacijama, od 2017. godine dozvoljeno je i korištenje odbitka od 85 % prihoda ostvarenog plasiranjem inovativnih patenata, softvera i drugih izuma. Posebna pravila uvedena su i za ulaganje u *start-up* poduzeća, pa tako ulagači u *start-up* poduzeća imaju pravo na porezni kredit od 30 % ako je riječ o malom i srednjem poduzeću te na 45 % ako je riječ o mikro poduzeću. Također, mala i srednja poduzeća mogu zadržati 10 %, a mikro poduzeća 20 % iznosa poreza za plaće zaposlenika.

U Austriji je moguće koristiti porezni odbitak od 14 % za troškove IR-a. Investitorima koji žele ulagati u IR omogućene su razne porezne olakšice poput povoljnih zajmova, subvencija i novčanih poticaja.

Danska je u 2019. godini znatno proširila i povećala mjere za IR u odnosu na prethodne godine. Da bi se dodatno potaknule aktivnosti u tom području, moguće je ostvariti odbitak troškova za IR koji su nastali ili će nastati u razdoblju od 2018. do 2026. godine, i to u određenim postocima tih izdataka: 101,5 % za 2018. i 2019. godinu, 103 % za 2020. godinu, 105 % za 2021. i 2022. godinu, 108 % od 2023. do 2025. godine te 110 % za 2026. godinu. Osim toga, kako bi se potaknulo ulaganje u IR, Danska kod amortizacije dozvoljava korištenje nabavne vrijednosti koja je veća od cijene plaćene za troškove opreme i strojeva za IR aktivnosti.

Slovenska vlada poduzećima nudi mogućnost smanjenja porezne osnovice u iznosu od 100 % iznosa uloženog u svoje interno istraživanje ili iznosa potrošenog za IR usluge trećih strana. U slučaju da poduzeće ne iskoristi odbitak u godini u kojoj ga je ostvarilo, ima pravo prenijeti i iskoristiti ga u sljedećoj godini. Odbitak je moguće prenositi najviše pet godina od ostvarivanja prava.

U Češkoj poduzeća na sličan način mogu koristiti porezni odbitak u iznosu od 100 % troškova za IR. Moguće je koristiti i dodatni odbitak od 110 % izdataka utrošenih na IR koji prelaze iznos istih troškova prethodne godine. Kako bi se potaknulo poduzeća na veće izdvajanje sredstava za profesionalno usavršavanje radnika, provode se porezne mjere prema kojima se može koristiti i odbitak od 110 % izdataka za opremu namijenjenu profesionalnom usavršavanju radnika. Osim toga, moguće je dodatno odbiti i troškove stručnog školovanja na radnom mjestu u sklopu odobrenih studijskih

programa. Ako je porezna obveza poduzeća u tekućoj godini manja od ostvarenog odbitka na temelju IR aktivnosti, tada se odbitak može prenijeti i u sljedeće godine, najviše do tri godine od ostvarenja prava na odbitak.

U Portugalu se mjere za IR provode u sklopu poreznih kredita, i to osnovnog u iznosu od 32,5 % troškova za IR te dodatnog od 50 % troškova za iznos koji prelazi prosječne troškove za IR aktivnosti za dvije prethodne godine, a maksimalno u iznosu od 1.5 milijun eura. Kredit je moguće prenositi do osam godina ako ga poduzeće odmah ne iskoristi. Osim toga, *start-up* poduzeća i poduzeća koja provode IR aktivnosti za svoje troškove mogu koristiti stopu amortizacije od 33 %.

U Španjolskoj visina odbitka za IR iznosi 25 % IR troškova. Slično kao i u Portugalu, ako nastali troškovi prelaze prosječni iznos izdataka u prethodne dvije godine, za iznos koji je jednak prosjeku se primjenjuje stopa od 25 %, dok se na višak primjenjuje stopa od 42 %. Kredit se može prenijeti i do 18 godina ako ga poduzeće ne iskoristi u godini u kojoj ga je ostvarilo. Povrh toga poduzeća mogu koristiti i dodatni odbitak od 17 % troškova koji se odnose na plaće i 8 % troškova za ulaganja u materijalnu i nematerijalnu imovinu koja se koristi na istraživačkom projektu. Španjolska dozvoljava i primjenu metode slobodnog amortiziranja imovine koja se koristi za IR aktivnosti.

U Mađarskoj je moguće koristiti porezne odbitke za izravne troškove eksperimentalnog IR-a koje porezni obveznik provodi kao svoju djelatnost. Osim toga, porezni obveznik ima mogućnost koristiti i porezni odbitak u trostrukom iznosu troškova ako je uključen u primijenjena istraživanja i eksperimentalni razvoj u suradnji s određenim institucijama, no taj iznos ne smije premašiti 50 milijuna mađarskih forinti (oko 150.000,00 eura).

Ujedinjeno Kraljevstvo nudi mogućnost otpisa troškova za IR, ali po različitim uvjetima za mala i srednja poduzeća u odnosu na velika poduzeća. Mala i srednja poduzeća tako, pod određenim uvjetima, imaju mogućnost korištenja uvećanog dopuštenog odbitka od 230 % izdataka za IR. Osim toga, ako se tim odbitkom stvori gubitak, moguće je tražiti gotovinsku isplatu od 14,5 % nastalog gubitka. Za velika poduzeća dostupan je takozvani „kredit za IR izdatke“ u iznosu od 12 % rashoda.

Francuska također potiče IR koristeći porezne kredite, i to u iznosu od 30 % godišnjih izdataka za IR, za troškove do 100 milijuna eura. Ako troškovi prelaze taj iznos, onda se na ostatak iznosa koji je veći od 100 milijuna eura primjenjuje stopa od 5 %. Veće stope mogu koristiti poduzeća koja tu mjeru nikada prije nisu koristila ili je nisu koristila u zadnjih pet godina. Porezni kredit koji poduzeće ne iskoristi u godini u kojoj ga je ostvarilo može se prenositi tri godine. Ako ni nakon tog vremena ne bude iskorišten, poduzeću se isplaćuje povrat u iznosu ostvarenog poreznog kredita. Francuska ima i posebne mjere za nova, inovativna mala i srednja poduzeća. Uvjet je da poduzeće mora postojati manje od osam godina te se baviti IR aktivnostima čiji troškovi iznose barem 15 % ukupnih rashoda. U tom slučaju poduzeće može biti u potpunosti oslobođeno poreza na dobit za prvu godinu u kojoj ostvari profit te može

koristiti dodatnih 50 % izuzeća za sljedeću godinu u kojoj također mora poslovati s dobiti.

Njemačka u 2020. godini po prvi put uvodi fiskalne mjere za poticanje IR-a. Njemačka je vlada razmatrala uvođenje poreznih olakšica za IR u obliku poreznih kredita još 2017. godine (Ognyanova, 2017). Od 1. siječnja 2020. godine porezni obveznici imaju mogućnost korištenja poreznih kredita za IR, i to za fundamentalni, primijenjeni i eksperimentalni IR. Opravdani troškovi obuhvaćaju plaće zaposlenika koji provode IR projekte ili naknade za IR aktivnosti institucije s kojom kandidat za porezni kredit surađuje. Porezni kredit iznosi 25 % opravdanih troškova.

U Luksemburgu poduzeća mogu ostvariti oslobođenje od poreza u iznosu od 80 % prihoda koji su ostvareni proizvodnjom patenata i softvera te intelektualnih proizvoda. Kako bi ostvarili pravo na takve olakšice, moraju imati prihvatljive troškove za IR aktivnosti koji obuhvaćaju trošak opreme, proizvodnje, naknade za tehničare i istraživače te izdatke koji su potrebni za IR aktivnosti s ciljem stvaranja konačnog proizvoda.

U tablici 1 prikazan je sažeti pregled poreznih mjera za IR koje se primjenjuju u promatranim zemljama.

Tablica 1. Porezni poticaji u odabranim članicama EU-a za 2020. godinu

Država	Porezni kredit	Odbitak (od osnovice)	Ubrzana amortizacija	Snižena stopa poreza na dobit
Austrija	+			
Belgija	+	+		
Danska		+	+	
Češka		+		
Francuska	+			
Irska	+			+
Italija	+	+		
Luksemburg	+			
Nizozemska	+		+	+
Njemačka	+			
Mađarska		+		
Portugal	+		+	
Slovenija		+		
Španjolska		+	+	
UK	+	+		

Izvor: izrada autorica prema Alvarado et al. (2020).

Može se uočiti da većina država koristi odbitak od osnovice ili porezni kredit (ili oboje) kao osnovni način poticanja IR-a. Neke države tu mjeru upotpunjuju ubrzanom amortizacijom ili smanjenom stopom poreza na dobit.

3. EMPIRIJSKA ANALIZA

Istraživanje se provelo na uzorku od 15 zemalja članica EU-a koje su u razdoblju od 2000. do 2016. godine nudile porezne olakšice za IR za barem pet promatranih godina, uključujući i dvije zemlje koje u tom razdoblju nisu poticale IR takvim mjerama (Njemačka i Luksemburg). Podaci o iznosima poreznih olakšica prikupljeni su s baze OECD-a (OECD, n. d.), dok su ostale relevantne varijable prikupljene s baze podataka Svjetske banke (The World Bank, n. d.). Kako na bazi OECD-a za Hrvatsku nisu dostupni podaci o ukupnim iznosima poticaja za IR putem poreznih mjera u promatranom razdoblju (Appelt et al., 2019) ona nije mogla biti predmet ovoga istraživanja.

Ekonomski model formiran je na sljedeći način:

$$\Delta BDPpc_{it} = \gamma BDPpc_{i,t-1} + \beta_1 INV_{it} + \beta_2 POP_{it} + \beta_3 POR\_POT_{it} + \alpha_i + \varepsilon_{it}$$
$$i = 1,\ldots, N \; i \; t = 1,\ldots, T$$

gdje je razlika logaritma BDP-a po glavi stanovnika za zemlju *i* u vremenu *t* i logaritma BDP-a po glavi stanovnika za zemlju *i* u vremenu *t-1*, logaritam BDP-a po glavi stanovnika za zemlju *i* u vremenu *t-1*, logaritam stope ukupnih investicija u zemlji *i* i vremenu *t*, godišnja stopa rasta sredovječnog stanovništva od godine *t-1* do godine *t*, izražena u postocima, te udio poreznih olakšica za IR u zemlji *t* i vremenu *i*, izražen kao postotak, tj. udio u BDP-u. je fiksni ili slučajni efekt, dok su koeficijenti. N je ukupan broj zemalja i iznosi 15, a T broj vremenskih intervala te iznosi 17.

Varijabla	Očekivani predznak
$BDPpc_{i,t-1}$	-
INV_{it}	+
POP_{it}	-/+
POR_POT_{it}	+

U istraživanju se očekuje da će BDP prethodne godine u jedinici promatranja utjecati negativno na promjenu BDP-a u tekućoj godini, odnosno da će promjena BDP-a biti tim manja što je iznos BDP-a u prethodnoj godini viši. Prema tome, u razvijenijim zemljama može se očekivati manja stopa rasta BDP-a. Za varijablu koja se odnosi na investicije očekuje se da će pozitivno utjecati na rast BDP-a, dok se za nezavisnu varijablu stope rasta stanovništva očekuje da bi mogla imati negativan ili pozitivan utjecaj na promatranu zavisnu varijablu. Iako se pretežno zagovara pozitivan utjecaj stope rasta stanovnika na gospodarstvo, ovakvo očekivanje temelji se na činjenici da se u posljednje vrijeme često pokazuje da je ekonomski rast veći u zemljama s manjim porastom broja stanovnika. Naposljetku, pretpostavlja se da će visina poreznih olakšica za IR imati pozitivan utjecaj na rast BDP-a, odnosno da će rast BDP-a biti veći ako država više potiče IR. U tablici 2 u nastavku prikazana je deskriptivna statistika za odabrani uzorak podataka.

Tablica 2. Deskriptivna statistika

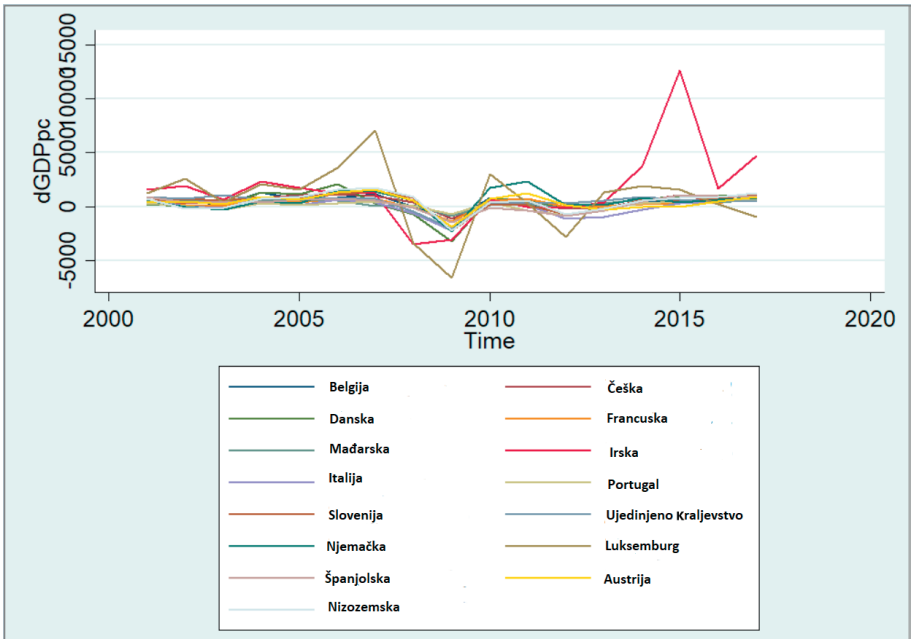
Varijabla		Aritmetička sredina	Standardna devijacija	Minimalna vrijednost	Maksimalna vrijednost	Opažanja
$\Delta BDPpc$	sveukupno	445.5664	1398.573	-6637.74	12658.23	N=255
	između		377.4965	-67.7266	1626.756	N=15
	unutar		1349.992	-6960.21	11477.04	T=17

Izvor: autorice

Na temelju rezultata deskriptivne statistike za zavisnu varijablu može se zaključiti da prosječna vrijednost promjene BDP-a po glavi stanovnika u promatranim zemljama iznosi 445,57 dolara. Standardno odstupanje od srednje vrijednosti iznosi 1.398,57 dolara. Najveće smanjenje BDP-a u uzorku iznosi -6.637,72, a maksimalno povećanje 12.658,23 dolara. Najmanja prosječna promjena BDP-a za neku zemlju iznosi -67,76, a najveća 1.626,76 dolara.

U grafikonu 3 u nastavku prikazano je kretanje zavisne varijable po državama od 2000. do 2016. godine.

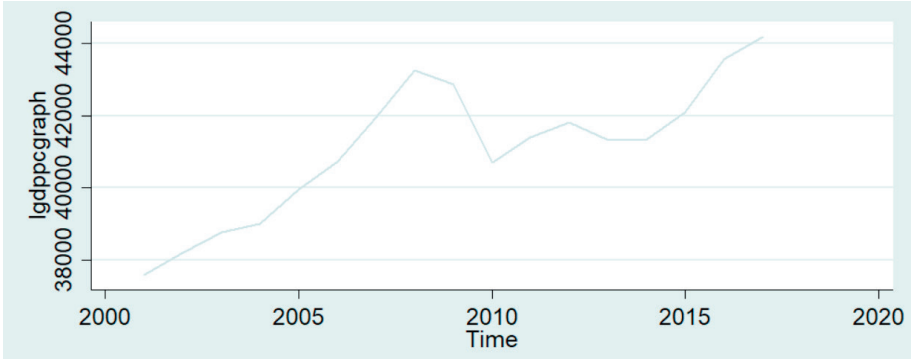
Grafikon 3. Kretanje rasta BDP-a po zemljama



Izvor: autorice prema podacima baze Svjetske banke (The World Bank, n. d.)

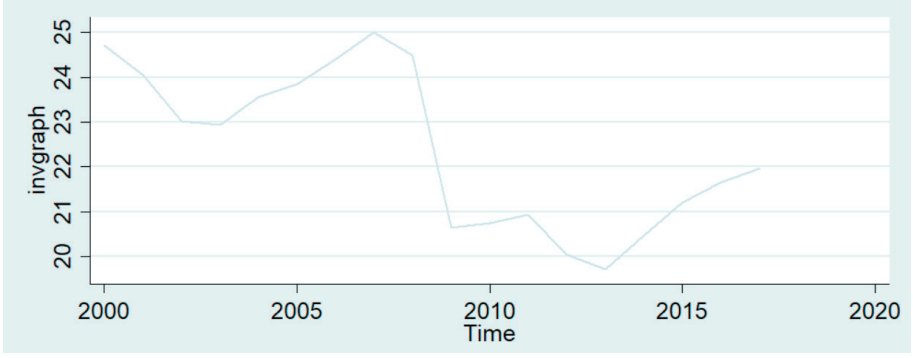
Može se zaključiti da se BDP kretao slično u svim državama, osim u Irskoj i Luksemburgu, čije kretanje BDP-a odskače od prosjeka. Iz grafikona 3 je primjetna i financijska kriza 2007. godine koja je utjecala na pad BDP-a u svim državama. U nastavku su u grafikonima 4, 5 i 6 prikazana prosječna kretanja nezavisnih varijabli kroz godine.

Grafikon 4. Kretanje vrijednosti BDP-a za godinu t-1



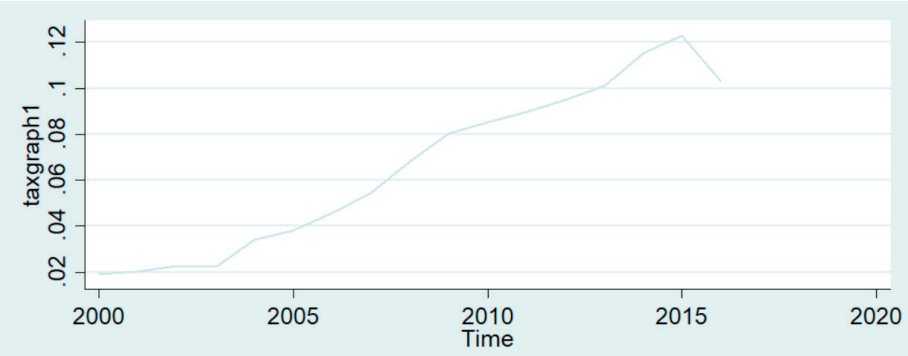
Izvor: autorice prema podacima baze Svjetske banke (The World Bank, n. d.)

Grafikon 5. Kretanje vrijednosti ulaganja za godinu t



Izvor: autorice prema podacima baze Svjetske banke (The World Bank, n. d.)

Grafikon 6. Kretanje vrijednosti poreznih olakšica za IR u odnosu na BDP za godinu t



Izvor: autorice prema podacima s baze OECD-a (OECD, n. d.)

Naposljetku, u tablici 3 prikazani su Pearsonovi koeficijenti korelacije u parovima.

Tablica 3. Pearsonovi koeficijenti u parovima

	$BDPpc_{i,t-1}$	INV_{it}	POR_POT_{it}	POP_{it}
$BDPpc_{i,t-1}$	1.0000			
INV_{it}	-0.2801*	1.0000		
POR_POT_{it}	-0.0920	0.0122	1.0000	
POP_{it}	0.6271*	0.1138	-0.1276*	1.0000

Izvor: autorice

Može se primijetiti da je najveći koeficijent korelacije prisutan između rasta broja stanovnika i logaritmirane vrijednosti rasta BDP-a u prethodnoj godini. Iako je koeficijent korelacije između ove dvije varijable malo veći od 0,5, pri istovremenom uvrštavanju te dvije nezavisne varijable u model ne utječe se na predznake niti se mijenja značajnost ostalih varijabli u modelu pa se može zaključiti da ne bi trebalo dolaziti do problema multikolinearnosti. Ostale varijable imaju niske koeficijente korelacije koji nisu statistički značajni.

Da bi se dobili rezultati istraživanja, bilo je potrebno najprije provesti dijagnostičke testove da bi se odabrao prikladan panel model za analizu.

U tablici 4 prikazani su rezultati dijagnostičkih testova. Prvi je proveden F test, u sklopu provođenja modela s fiksnim efektom, koji je s p vrijednosti 0,00 pokazao da se nulta hipoteza o jednakosti konstantnih članova za sve jedinice promatranja može odbaciti te da je korištenje modela s fiksnim efektom naspram združenog modela opravdano. Nakon toga je proveden LM test da bi se ustanovilo treba li koristiti model sa slučajnim

efektom ili združeni model. S p vrijednosti 0.1139 pokazao je da se nulta hipoteza ne može odbaciti te da je združeni model u ovom slučaju bolji od modela sa slučajnim efektom. Na temelju toga je zaključeno da je fiksni model u ovom slučaju najbolji model za korištenje te nije bilo potrebno provoditi Hausmanov test koji uspoređuje model s fiksnim i slučajnim efektom. Rezultati dijagnostičkih testova prikazani su u tablici 4.

Tablica 4. Provođenje dijagnostičkih testova

	FT	LMT	HT
Združeni model	H0	H0	
Model s fiksnim efektom	H1		H1
Model sa slučajnim efektom		H1	H0

Izvor: autorice

U tablici 5 u nastavku prikazani su rezultati za sva tri panel modela: združeni model (1), model s fiksnim efektom (2) te model sa slučajnim efektom (3).

Tablica 5. Rezultati modela

	$\Delta BDPpc_{it}$
$BDPpc_{i,t-1}$	-0.135***
	(0.0326)
INV_{it}	0.103***
	(0.0157)
POP_{it}	-0.0153***
	(0.00498)
POR_POT_{it}	0.0743**
	(0.0347)
_cons	1.116***
	(0.347)
N	226
R^2	0.246

*, **, *** označavaju statističku značajnost od 10 %, 5 % i 1 %

Izvor: autorice

U tablici 5 prikazani su rezultati modela s fiksnim efektom koji se po dijagnostičkim testovima pokazao najboljim za promatrani uzorak podataka. U tom modelu BDP za prethodnu godinu i rast broja stanovnika imaju negativan predznak i statistički su značajni na 1 % signifikantnosti. Varijable ulaganja i poreznih olakšica imaju pozitivan predznak, s tim da je ulaganje značajno na 1 %, a porezne olakšice na 5 % signifikantnosti.

S obzirom na to da se model s fiksnim efektom pokazao kao najbolji panel model za ovo istraživanje, ako se dobiveni koeficijenti uvrste u ekonomski model, dobije se sljedeća jednadžba:

$$\Delta BDPpc_{it} = -0{,}135\ BDPpc_{i,t-1} + 0{,}103\ INV_{it} - 0{,}0153\ POP_{it} + 0{,}0743\ POR\_POT_{it} + 1{,}116 + \varepsilon_{it}$$
$$\text{i} = 1,..., 15 \text{ i } t = 2000,..., 2016$$

Kada se pogledaju rezultati dobiveni provođenjem modela s fiksnim efektom, može se ustanoviti da su sve četiri nezavisne varijable statistički značajne za rast BDP-a. BDP po glavi stanovnika prethodne godine ima negativan utjecaj na rast te se na temelju toga može pretpostaviti da zemlje s većim BDP-om iz prethodne godine mogu očekivati manji rast u tekućoj godini. Varijabla investicija ima pozitivan utjecaj na rast BDP-a kako je bilo očekivano i već prethodno dokazano u raznim istraživanjima. Za rast broja stanovnika ispostavilo se da negativno utječe na promjenu BDP-a pa bi se to moglo protumačiti da manji porast broja stanovnika rezultira većom promjenom BDP-a. Kako je već spomenuto, izostanak jakog utjecaja rasta broja stanovnika na ukupan gospodarski rast u novije je vrijeme sve prisutnija činjenica. Mnogi se autori bave ovom temom te se pokazuje kako je u razvijenim zemljama s većim gospodarskim rastom prisutna manja stopa rasta broja stanovnika (Wesley i Peterson, 2017). Naposljetku, pokazalo se da je iznos poreznih olakšica za IR izražen kao udio u BDP-u statistički značajan na 5 % signifikantnosti te utječe pozitivno na rast BDP-a što se ovim radom primarno htjelo istražiti. Može se zaključiti da veći IR poticaji kroz neizravna ulaganja, tj. fiskalne mjere i porezne olakšice, pozitivno utječu na rast BDP-a. Kako je navedeno u trećem poglavlju ovoga rada, poticanjem IR aktivnosti ne utječe se pozitivno samo na poduzeća koja se time izravno bave, već i ostala poduzeća koja mogu koristiti takve inovativne proizvode za poboljšanje vlastitih proizvodnih procesa. Tako poduzeća mogu poslovati efikasnije, stvarati kvalitetnije proizvode i ubrzati poslovne procese. Ulaganje u IR i poticanje IR aktivnosti može imati pozitivan utjecaj na cijelu ekonomiju države, a ne samo na pojedina poduzeća koja takve porezne poticaje imaju pravo koristiti.

4. STANJE I PREPORUKE ZA REPUBLIKU HRVATSKU

Porezni poticaji za aktivnosti istraživanja i razvoja u Republici Hrvatskoj postoje još od donošenja Zakona i Uredbe o državnim potporama 2003. godine te su se otada do danas raznim zakonima mijenjali, ukidali i ponovno uvodili. U srpnju 2018. godine usvojen je Zakon o državnoj potpori za istraživačko-razvojne projekte (*NN* 64/2018) koji je i danas na snazi. U ovome zakonu definicija IR-a temelji se na kriterijima koji su definirani u Frascati priručniku (Frascati Manual, 2015) u kojemu stoji kako aktivnost, da bi bila definirana kao IR, mora biti kreativna, nova, sistematična, neizvjesna i prenosiva, tj. mora je biti moguće reproducirati.

Ovim je zakonom Republika Hrvatska napravila pozitivan pomak te se približila poreznim politikama koje provode druge članice Europske unije. U odnosu na prethodne zakone, kod ovog je prisutna promjena u organizaciji gdje je, umjesto

dotadašnjeg Ministarstva financija, u novom zakonu davatelj potpore Ministarstvo gospodarstva i održivog razvoja.

Potpora koju Ministarstvo pruža ovim zakonom dodjeljuje se u obliku odbitka od osnovice. Porezni obveznik prije obračuna porezne obveze smanjuje poreznu osnovicu što na kraju umanjuje poreznu obvezu. Ukupni iznos koji korisnik potpore može ostvariti na temelju ovog zakona ovisno o različitim vrstama istraživanja može biti do (Zakon o državnoj potpori za istraživačko-razvojne projekte, *NN* 16/2018, čl. 11.):

1. 100 % iznosa prihvatljivih troškova projekta za temeljna istraživanja
2. 50 % iznosa prihvatljivih troškova projekta za industrijska istraživanja
3. 25 % iznosa prihvatljivih troškova projekta za eksperimentalni razvoj
4. 50 % iznosa prihvatljivih troškova za studije izvedivosti.

Osim toga, za eksperimentalna i industrijska istraživanja moguće je ostvariti i dodatne postotne bodove, i to 20 postotnih bodova za male i 10 postotnih bodova za srednje poduzetnike te 15 postotnih bodova ako projekt uključuje učinkovitu suradnju. Ukupna potpora ne smije prijeći više od 80 % prihvatljivih troškova. Osim kod eksperimentalnih i industrijskih istraživanja, intenzitet je moguće povećati i kod studije izvedivosti, i to 20 postotnih poena za male i 10 za srednje poduzetnike.

Ukupni iznos potpore koje korisnik može ostvariti po projektu iznosi (Zakon o državnoj potpori za istraživačko-razvojne projekte, *NN* 16/2018, čl. 12.):

1. 300.000 eura u protuvrijednosti u kunama za temeljno istraživanje
2. 200.000 eura u protuvrijednosti u kunama za industrijsko istraživanje
3. 100.000 eura u protuvrijednosti u kunama za eksperimentalni razvoj
4. 50.000 eura u protuvrijednosti u kunama za studiju izvedivosti.

Umanjenje porezne osnovice računa se tako da se na prihvatljive troškove za IR primijeni odgovarajuća stopa, i to (Zakon o državnoj potpori za istraživačko-razvojne projekte, *NN* 16/2018, čl. 13.):

1. 200 % za temeljno istraživanje
2. 150 % za industrijsko istraživanje
3. 125 % za eksperimentalni razvoj
4. 150 % za studiju izvedivosti.

Iznos za koji će se osnovica umanjiti (IUPO) računa se po sljedećoj formuli:

$$IUPO = T \times UPO$$

gdje je T iznos prihvatljivih troškova po kategorijama, a UPO stopa kojom se trošak

ovisno o kategoriji množi. Tako izračunat iznos potrebno je prijaviti u prijavi poreza na dobit.

Ako se želi izračunati iznos dodijeljene državne potpore (DP) kod umanjenja porezne osnovice na prethodno opisan način, može se primijeniti sljedeća formula:

$$DP = IUPO \times S.IUPO$$

gdje je državna potpora jednaka umnošku iznosa za koji se osnovica umanjuje (IUPO) i trenutno važeće porezne stope na dobit S.IUPO. Drugim riječima, iznos potpore jednak je razlici između iznosa poreza kojeg bi porezni obveznik morao podmiriti bez korištenja poreznog poticaja i iznosa poreza kojeg plaća nakon primjene poreznog poticaja i umanjenja porezne osnovice.

Hrvatska se nalazi pri samom dnu po visini iznosa državnih poticaja za IR kada se promatra u odnosu na ostale članice EU-a (Šimurina i Galić, 2017). Uzevši u obzir da je Hrvatska u IR u ovom stoljeću izravno ulagala puno manje u odnosu na ostale članice EU-a koje donedavno nisu, ili i dalje ne koriste, neizravne mjere za poticanje IR-a (OECD, n. d.), može se zaključiti da Hrvatska ne prati europske trendove izravnog ulaganja u taj sektor. Za Hrvatsku u bazi OECD-a trenutno nisu dostupni iznosi poreznih poticaja za IR aktivnosti te nije moguće napraviti usporednu analizu Hrvatske i ostalih zemalja članica u pogledu iznosa neizravnih ulaganja. No, Hrvatska zaostaje za ostalim članicama Europske unije kada se razmatraju ulaganja u IR aktivnosti (npr. Hodžić, 2012). Međutim, pomak je ipak vidljiv, naročito nakon uvođenja novog Zakona o poreznim poticajima za IR, koji je pojasnio proceduru prijave za porezne poticaje te ih učinio dostupnijima poduzećima. Osim toga, jasno je definirao način praćenja ispunjavanja obveza poduzeća tijekom korištenja poticaja te samu evidenciju korisnika potpore, što je veoma važno kako se poticaji ne bi zloupotrebljavali.

Trenutno poticaje koristi trideset hrvatskih poduzeća[2], i to većinom u području računalnog programiranja, što iznosi svega 0,0111 % registriranih hrvatskih poduzeća (Državni zavod za statistiku, 2019). Moguće je da u ovom trenutku uistinu samo toliko poduzeća i provodi IR aktivnosti, no mali broj korisnika može biti i rezultat nedovoljne informiranosti poduzeća o poreznim poticajima. Ako je to slučaj, nakon uvođenja novog zakona, broj poduzeća trebao bi se svake godine povećavati.

Može se ustanoviti da se porezna politika u Hrvatskoj u posljednje dvije godine ipak počela značajnije približavati trendu porezne politike EU-a. Za Hrvatsku je važno da teži novim tehnologijama i razvoju inovacija te da u proces proizvodnje inovativnih proizvoda i usluga ulaže od samog početka. Stoga je važno investirati i u modernizaciju visokog obrazovanja, moderno opremanje sveučilišta i istraživačkih laboratorija te kvalitetno obrazovno osoblje. To su predispozicije za stvaranje radne snage, budućih istraživača i stručnjaka u svom području koji onda mogu djelovati u IR

2 Ministarstvo gospodarstva i održivog razvoja, putem elektroničke pošte.

procesima i razvoju inovativnih proizvoda. Međutim, ni to samo po sebi nije dovoljno. Osim ovog osnovnog uvjeta, potrebno je i poticanje i rasterećenje poduzeća, osobito privatnog sektora, u provođenju IR projekata. U ovom se radu pokazalo da izdvajanje državnih sredstava za porezne poticaje za IR može imati pozitivan utjecaj na rast BDP-a. Osim toga, i mnogi su drugi radovi pokazali pozitivan utjecaj državnih poticaja za IR, izravnih i neizravnih, na gospodarski rast zemlje. Nadalje, s obzirom na ideju i ciljeve koje predlaže okvirni program Europske unije Obzor 2020, jasno je kako važnost IR-a za ekonomiju promovira i Europska unija na razini svih zemalja članica. Sve su to dokazi da je investiranje u IR posebno značajno za gospodarski razvoj i napredak pojedine zemlje. Stoga se može zaključiti da bi u Hrvatskoj bilo potrebno izdvojiti dodatna izravna sredstva te još više proširiti porezne mjere. Trebalo bi težiti tome da se što prije i što šire potaknu IR aktivnosti kako bi se Hrvatska još više približila brojkama koje imaju druge zemlje Europske unije. Osim toga, ulaganje u IR inovativnih tehnologija nužno je za razvitak i opstanak domaćih poduzeća na tržištu te napredak cjelokupne ekonomije.

5. ZAKLJUČAK

Ulaganja u IR su važan čimbenik za poticanje ekonomskog rasta. Ta je činjenica globalno prepoznata u mnogim državama. U zadnjih nekoliko godina države članice EU-a se uglavnom sve više okreću poreznim poticajima umjesto izravnog proračunskog ulaganja. Najčešće se opredjeljuju za porezni kredit ili odbitak od osnovice koje ponekad kombiniraju s ubrzanom amortizacijom na opremu potrebnu za IR procese ili s umanjenom stopom poreza na dobit.

Koristeći ekonometrijski panel model s fiksnim efektom, na uzorku od 15 zemalja članica EU-a za razdoblje od 2000. do 2016. godine, pokazalo se da ulaganja i poticaji za IR putem poreznih mjera pozitivno utječu na rast BDP-a. Pritom su ostale nezavisne varijable statistički značajne za porast BDP-a po glavi stanovnika, i to BDP prethodne godine, porast broja stanovnika i ukupne investicije na 1 %, dok su porezne olakšice značajne na 5 % signifikantnosti.

U radu se analiziralo stanje u Republici Hrvatskoj koja je 2018. godine donijela novi zakon kojim se dodjela poticaja za IR uredila te se time Hrvatska približila idejama koje slijede ostale članice Europske unije i koje nalaže program Obzor 2020. U Republici Hrvatskoj u ovom trenutku svega trideset poduzeća koristi ovakve olakšice. S obzirom na to da je posljednji zakon relativno nov, moguće je da puno poduzeća nije ni upoznato s poticajima koje mogu koristiti. Veoma je važno da nadležne institucije – HAMAG BICRO (Hrvatska agencija za malo gospodarstvo i investicije) te Ministarstvo gospodarstva i održivog razvoja – prate visinu iznosa utrošenih za korištenje ove mjere te bolje informiraju javnost kako bi poduzeća bila upoznata s mogućnostima korištenja poticaja. Moguće je da bi se neka poduzeća odlučila na ulaganje u IR

aktivnosti kada bi bila bolje upoznata s potporama koje nudi država, što je u suštini i cilj ovakvih mjera. Prvenstveno bi trebalo težiti tome da postojanje mjera potakne pokretanje IR projekata kod poduzeća koja se bez njih na to ne bi odlučila. Osim toga, veoma je važno da davatelji potpore detaljno provjeravaju i prate projekte koji koriste mjeru kako ne bi došlo do zlouporabe poticaja.

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THE INFLUENCE OF TAX INCENTIVES FOR RESEARCH AND DEVELOPMENT ON ECONOMIC GROWTH IN THE EU WITH REFERENCE TO CROATIA

Summary

This paper investigates the impact of tax incentives for research and development on economic growth in the selected EU Member States. The comparative analysis of tax incentives for research and development is presented both in selected Member States of the European Union as well as in the Republic of Croatia. This paper aims to determine whether there is a positive impact of these incentives on economic growth. The impact of tax incentives for research and development on gross domestic product per capita in 15 selected EU member states for the period from 2000 to 2016 is analysed using the econometric panel model with fixed effect. It has shown that tax reliefs have a statistically significant and positive effect on gross domestic product growth. Some recommendations for the Republic of Croatia have also been provided.

Keywords*:* tax incentives, research and development, economic growth, tax credit, tax allowance

JEL classification: H25, F43, O23

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ALTERNATIVNA ULAGANJA I MIROVINSKI FONDOVI

Sažetak

Ulaganja u mirovinske fondove nalaze se pred velikim izazovom niskih prinosa. Mirovinski fondovi u Hrvatskoj su u većoj mjeri orijentirani prema klasičnim oblicima ulaganja. Alternativni oblici ulaganja su gotovo nezastupljeni te je potrebno provesti raspravu o mogućnostima ulaganja u alternativne oblike imovine i što je sve potrebno napraviti kako bi se provela takva ulaganja. Alternativna ulaganja su rizična te je potrebno ovladati svim rizicima kako bi se izbjegli mogući gubitci za članove mirovinskih fondova. Definicija alternativnih ulaganja je fluidna i razvija se usporedo s razvojem tržišta. Cilj rada je usporediti strukturu ulaganja mirovinskih fondova u europodručju i Hrvatskoj te identificirati razloge i dati preporuke. Rezultat rada pokazuje da razlika u strukturi ulaganja postoji te se daju preporuke i perspektive alternativnih ulaganja.

Ključne riječi: financijska tržišta, vrijednosnice, tržište kapitala, mirovinski fondovi, financijski instrumenti, alternativna imovina, diversifikacija portfelja

JEL klasifikacija: G1, G12, G110, G230

1. UVOD

Ulaganja mirovinskih fondova u okruženju niskih kamatnih stopa nalaze se pod pritiskom kako pronaći zadovoljavajuće prinose uz dovoljnu sigurnost. Dosadašnji pristup mirovinskih fondova, posebno u Hrvatskoj, bio je zasnovan na ulaganjima u državne obveznice koje su nosile visoki prinos uz visoku razinu sigurnosti. Međutim, pad kamatnih stopa te prinosa na obveznice, što traje više od pet godina, natjerao je mirovinske fondove u potragu za višim prinosima. Pozicija mirovinskih fondova na financijskom tržištu je sve važnija i oni postaju sve važniji igrači, posebno zbog demografskih promjena. Stoga su mirovinski fondovi u stalnoj potrazi za novim klasama imovine koje često nazivamo alternativnim ulaganjima; međutim, za razliku od razdoblja prije financijske krize, danas mirovinski fondovi puno opreznije pristupaju toj temi. Naime, prije velike financijske krize 2008. godine mirovinski fondovi su

3 Autor je u vrijeme pisanja ovoga rada predsjednik Upravnog vijeća Hrvatske agencije za nadzor financijskih usluga. Stavovi autora izneseni u ovom znanstvenom radu su njegovi osobni stavovi i ne odražavaju stavove institucije u kojoj je zaposlen niti se izneseni stavovi odnose na instituciju u kojoj je zaposlen.

ulagali u alternativne klase imovine koje su se sastojale od kompleksnih financijskih proizvoda. Ulaganja u kompleksne financijske proizvode nisu prošla bez problema pa su ta ulaganja izazvala veliku pozornost regulatora mirovinskih sustava. U Hrvatskoj su u to vrijeme mirovinski fondovi imali vrlo konzervativne strategije i bili su tek na početku svog poslovanja pa nisu bili značajnije izloženi rizicima kompleksnih proizvoda.

Precizna definicija alternativnih investicija nije u potpunosti određena jer se radi o investicijama koje kontinuirano mijenjaju svoj oblik u skladu s promjenama na financijskom tržištu. Općenita definicija alternativnih ulaganja odnosi se na investicije koje su različite od uobičajenih tržišnih financijskih instrumenata kao što su gotovina, dionice, obveznice, investicijski fondovi i drugi financijski instrumenti kojima se vrijednost može odrediti na dnevnoj razini. Prema tome, alternativna ulaganja se odnose na udjele u poduzećima koja nisu na burzi, razne derivate, rizične investicijske fondove, nekretnine, podređene investicije, sekuritizirane instrumente; dakle, sve investicije u kojima se veća pozornost daje vještinama investicijskog menadžera kada ne postoji objektivna tržišna evaluacija. Ključne karakteristike alternativnih ulaganja su rizik likvidnosti, rizik druge ugovorne strane, slabosti u evaluaciji, sukob interesa, operativni rizik, ograničena transparentnost i rizik integriteta (IOPS WP No13).

Cilj ovoga rada je da u prvom poglavlju analizira ulagačke politike mirovinskih fondova u EU-u te da se prikažu specifičnosti ulaganja mirovinskih fondova u Republici Hrvatskoj. Nakon toga se analizira razvijenost alternativnih klasa imovine te rad završava zaključkom.

2. PREGLED ALTERNATIVNIH KLASA IMOVINE

Financijska industrija se mijenja nevjerojatnom brzinom i u posljednjih 30 godina mogu se vidjeti velike promjene u klasama imovine u koje investitori mogu ulagati. Prije nekoliko godina bilo je teško zamisliti da ozbiljni investitori dio svojih ulaganja ulažu u kriptoimovinu, dok je danas to postala sasvim uobičajena praksa. Naime, računalna moć je omogućila kreiranja raznih klasa imovine gdje su se diferencirale dvije grupe: klasična i alternativna ulaganja.

Prije razrade klasičnih i alternativnih ulaganja treba ponoviti da u osnovi postoje dvije vrste financijskih instrumenata, a to su dužnički i vlasnički. Dužnički instrument proizlazi iz ugovora u kojem je druga ugovorna strana obvezna platiti kamatu na financijski instrument. U suprotnosti s dužničkim instrumentom, vlasnički financijski instrument predstavlja udio u vlasništvu s udjelom u dobiti ako se ostvari. Neki financijski instrumenti spadaju u obje kategorije, kao što su, primjerice, preferencijalne dionice koje su vlasnički instrument s fiksnim prinosom. Postoji još primjera, npr. dužnički instrument, konvertibilne obveznice koje se pod određenim uvjetima mogu

konvertirati u vlasničke udjele (Anson et al., 2011).

Moderna literatura daje odgovore na određena pitanja oko definicija alternativnih klasa imovine, ali ne postoji jedinstvena definicija pa će se ovdje dati pregled utemeljen na raspoloživoj literaturi. U knjizi *Alternativne investicije* urednika Bakera i Filbecka (2013) daje se pregled alternativnih ulaganja koja su podijeljena u dvije skupine. U prvu skupinu se svrstavaju tradicionalna alternativna ulaganja, a u drugu skupinu moderna alternativna ulaganja. Među tradicionalna alternativna ulaganja se ubrajaju nekretnine, izravna ulaganja u privatne tvrtke i razne sirovine. Među moderna alternativna ulaganja svrstavaju se budućnosnice, fondovi rizičnih ulaganja te ulaganja u teško naplative vrijednosnice.

Prva skupina tradicionalnih alternativnih ulaganja najrašireniji je oblik alternativnih ulaganja, a ulaganja u nekretnine se odnose na kupovinu zemlje i građevina čija kupovina može biti izravna ili posredna. Izravna ulaganja su u Hrvatskoj vrlo česta i odnose se na izravnu kupovinu zemlje ili nekretnina, dok su posredna ulaganja kroz poduzeća ili nekretninske fondove manje zastupljena, ali je zamjetan porast takvih ulaganja, posebno u turističkom sektoru. Sljedeća skupina tradicionalnih alternativnih ulaganja odnosi se na ulaganja u privatne kompanije (engl. *private equity*) koja mogu biti javna, putem burze, ili izravna, u kapital društava koja nisu izlistana na burzi. Ova vrsta ulaganja obuhvaća i niz drugih oblika ulaganja kao što je financiranje kapitala novih rastućih kompanija i slično (Baker i Filbeck, 2013). Ovdje treba istaknuti da ulaganja putem dionica na burzi ne bi trebala ulaziti u kategoriju alternativnih ulaganja jer im se cijena svakodnevno može odrediti na tržištu. Međutim, izuzetak su dionice kojima se dovoljno ne trguje pa im se cijena mora određivati procjenom.

Među tradicionalna alternativna ulaganja ulaze i ulaganja u sirovine koja se realiziraju kroz ugovore o kupnji materijalne imovine ili nekog konkretnog fizičkog dobra koje je homogeno u prirodi. Tri najvažnije klase sirovina su energija, metali i poljoprivredni proizvodi (Baker i Filbeck, 2013).

Moderne alternativne investicije odnose se na budućnosnice (engl. *futures*) koje se odnose na skup investicija u razne oblike imovine što može koristiti kao poluga investitorima u raznim ulagačkim strategijama. Upravljanje budućnosnicama kreira potencijal za smanjenje volatilnosti portfelja i omogućuje potencijalnu zaradu investitoru. Investitori u ulaganjima u budućnosnice mogu zauzimati i dugu i kratku poziciju, a mogu biti vezana za sirovine, kamate, dionice te valutna tržišta. Fondovi rizičnih ulaganja (engl. *hedge funds*) su fondovi koji su labavije regulirani i aktivno upravljaju skupnim investicijama koje koriste razne ulagačke strategije tijekom kojih se agresivno zauzimaju duge i kratke pozicije, te arbitraža i financijska poluga. Budući da takvi fondovi mogu poprimiti različite oblike, ne postoji jedinstveno prihvaćena definicija. Kao i kod budućnosnica, od ovih se fondova očekuje da smanje volatilnosti portfelja te da kreiraju prinos za investitora. Prema ovim autorima, posljednja skupina

modernih alternativnih ulaganja odnosi se na teško naplative vrijednosnice. Ovdje se misli na dionice i obveznice kompanija i država koje su u financijskim problemima, a postoji mogućnost djelomične naplate. Radi se o vrlo rizičnom ulaganju jer se dužnici možda nikada neće oporaviti i naplata ne bi bila moguća (Baker i Filbeck, 2013).

Kada se danas govori o modernim alternativnim ulaganjima, ne mogu se zaobići ulaganja u kriptoimovinu, ali ovdje treba odmah naglasiti da se radi o imovini koja nije regulirana i čije rizike nije moguće kontrolirati. Stoga se u ovom radu neće ni razmatrati ulaganja u takve oblike imovine.

Pregled druge literature također potvrđuje da je definicija alternativnih ulaganja fluidna. Dakle, alternativna ulaganja najčešće spadaju u već navedene skupine. Zanimljivo je da se općenito može definirati da su alternativna ulaganja rizičnija i manje likvidna od tradicionalnih oblika ulaganja kao što su dionice ili obveznice. Zagovornici alternativnih ulaganja također sugeriraju da prinosi na takva ulaganja nisu u korelaciji s ulaganjima na tržištu kapitala te da mogu pomoći pri diversifikaciji portfelja i ublažavanju volatilnosti. Međutim, pri alternativnim ulaganjima treba voditi računa o nizu izazova. Primjerice, radi se o vrlo kompleksnim ulaganjima pri kojima investitori možda neće uvijek u potpunosti razaznati sve rizike. Nadalje, vrlo je složeno osigurati prave procjene vrijednosti takvih ulaganja, a kompleksnost ulaganja povećava naknade koje se plaćaju za alternativna ulaganja. Općenito možemo zaključiti da prije 25 godina alternativna ulaganja nisu imala značajne udjele u portfeljima institucionalnih investitora, dok u današnje vrijeme imaju veću važnost (Aubry et al., 2017).

Druga literatura također potvrđuje da postoji velika razlika između definicija alternativnih investicija, a jedan od razloga zašto je to tako mogao bi biti vezan uz razloge za koje se koriste te investicije. Treba uzeti u obzir i činjenicu da se radi o novom području u ekonomiji pa je potrebno neko vrijeme da definicija postane stabilna. Jedan od načina prepoznavanja alternativnih investicija moguć je i kroz isključivanje tradicionalnih investicija. Naime, alternativne investicije bi se mogle definirati kao sve investicije koje nisu tradicionalne – dionice na burzi, obveznice i novac. Drugi način se odnosi na uključenost alternativnih investicija koje autori svrstavaju u već navedene četiri kategorije: nekretnine, fondovi, nelistani dionički kapital, strukturirani proizvodi (Chambers et al., 2020).

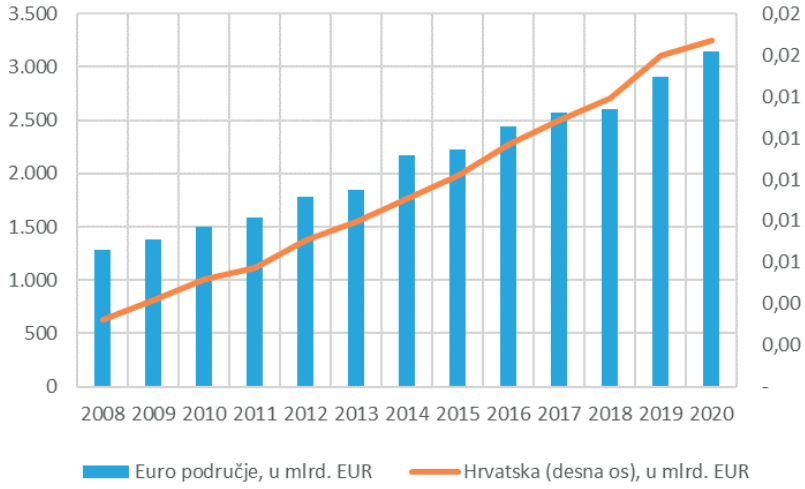
3. ANALIZA ULAGAČKIH POLITIKA MIROVINSKIH FONDOVA U EU-u

Mirovinski fondovi postaju sve značajniji financijski posrednici, posebno u kontekstu starenja stanovništva u Europi. Naime, državni sustav mirovina koji je baziran na „*pay-as-you-go*“ sustavu u kojemu nema kapitalizirane štednje pod sve je većim pritiskom povećanog odljeva i umanjenog priljeva doprinosa. Stoga mirovinske sheme

utemeljene na cjeloživotnoj štednji postaju sve veći oslonac kućanstvima tijekom odlaska u mirovinu. Mirovinske sheme nisu iste u svim zemljama, ali uglavnom prevladavaju dva tipa mirovinskih shema: definirana naknada i definirani doprinos. Definicija definirane naknade (engl. *defined benefit*) odnosi se na mirovinsku naknadu koja je definirana kroz formulu koja se zasniva na povijesnim prihodima, radnom vijeku i godinama osobe. Buduća mirovina zasnovana na definiranim naknadama ne ovisi o prinosima mirovinskog fonda jer je isplata unaprijed fiksirana. S druge strane, mirovine u shemama definiranog doprinosa (engl. *defined contribution*) ovise o veličini uplate i o prinosima mirovinskog fonda u koji se uplaćuju doprinosi. U ovoj shemi mirovina ovisi o prinosima koje je fond ostvario (Curos et al., 2020).

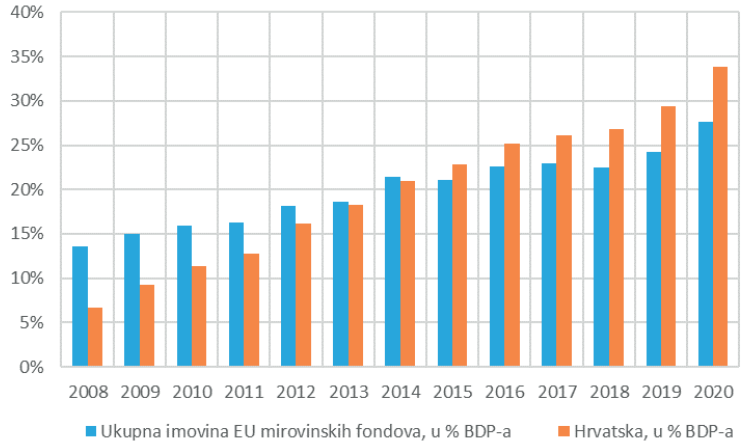
Posljednjih godina mirovinski fondovi u Europi bilježe značajan rast, posebno iz razloga niskih (nultih) kamatnih stopa u bankama. Takva situacija potiče stanovništvo na alternativne oblike štednje, a uz razne državne poticaje mirovinski fondovi djeluju najsigurnije i najprivlačnije. Stoga se stanje mirovinskih fondova u europodručju više nego udvostručilo u odnosu na 2008. godinu (grafikon 1). Ukupna imovina mirovinskih fondova u europodručju porasla je s 1.285 milijardi eura na 3.144 milijardi eura. Kao udio u BDP-u europodručja, mirovinski fondovi su se također udvostručili s 14 % na 28 % (grafikon 2). Hrvatska bilježi još i veće stope rasta imovine u mirovinskim fondovima što je dijelom i posljedica obveznih doprinosa (grafikon 1 i 2).

Grafikon 1. Imovina mirovinskih fondova od 2008. do 2020. godine



Izvor: ECB (2020) i vlastiti izračun

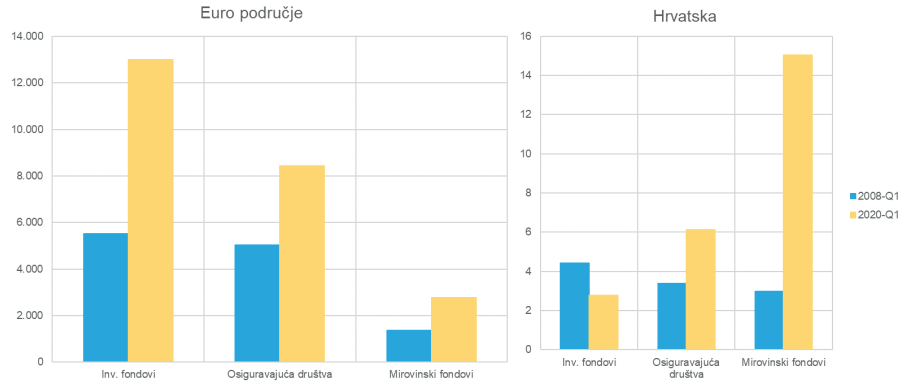
Grafikon 2. Imovina mirovinskih fondova kao udio u BDP-u od 2008. do 2020. godine



Izvor: ECB (2020) i vlastiti izračun

Mirovinski fondovi su pokazali i veliku dinamičnost u odnosu na druge nemonetarne financijske sektore. Banke su isključene iz ove analize jer je financijski sustav u zemljama Europe prilično bankocentričan pa je teška objektivna usporedba. Stope rasta u europodručju su za investicijske fondove i mirovinske fondove preko 100 % u razdoblju od 2008. do 2020. godine dok su osiguravajuća društva nešto sporije rasla, vjerojatno suočena s izazovima niskih kamatnih stopa na koje nisu adekvatno dogovorila. Zanimljivo je da se investicijski fondovi u Hrvatskoj još uvijek nisu oporavili od velike financijske krize te su prije krize COVID-19 bili na 60 % razine iz 2008. godine, a tijekom krize COVID-19 su pali na samo 35 % imovine iz 2008. godine. Mirovinski fondovi pokazuju posebnu dominaciju na hrvatskom tržištu kapitala (grafikon 3).

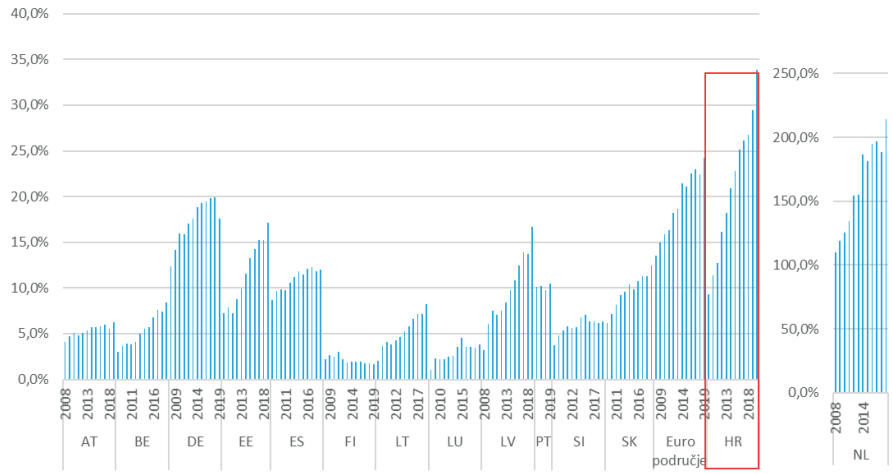
Grafikon 3. Ukupna imovina odabranih nemonetarnih financijskih institucija



Izvor: ECB (2020) i vlastiti izračun

Analiza po zemljama posebno ističe Hrvatsku kao zemlju u kojoj su mirovinski fondovi u kratkom razdoblju dosegli značajnu razinu udjela u BDP-u. Među zemljama europodručja se uz Hrvatsku ističe Nizozemska. Hrvatska ima za deset postotnih bodova veći udio mirovinskih fondova u BDP-u nego što je to prosjek u EU-u (grafikon 4).

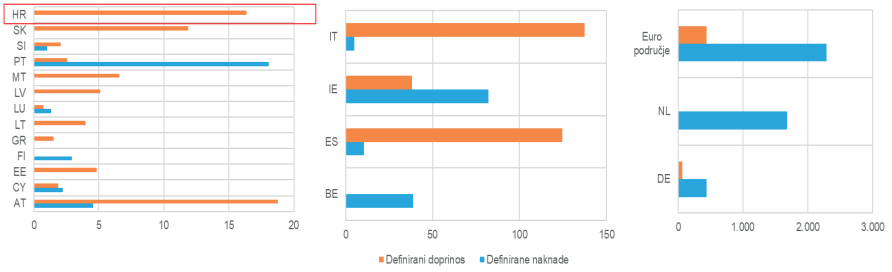
Grafikon 4. Imovina mirovinskih fondova po državama (% BDP-a)



Izvor: ECB (2020) i vlastiti izračun

Europski sustav mirovinske štednje vrlo je razvijen, ali raspoznaje dvije vrste obveza mirovinskih fondova prema svojim članovima: definirana naknada ili definirani doprinos. U zemljama europodručja nema jedinstvenog obrasca, već pojedine zemlje imaju oba sustava mirovinske štednje. Kada gledamo kapitalizirani sustav, u Hrvatskoj prevladava shema definiranog doprinosa (grafikon 5). Međutim, prvi mirovinski stup najbolje bi opisivao sustav definiranih naknada.

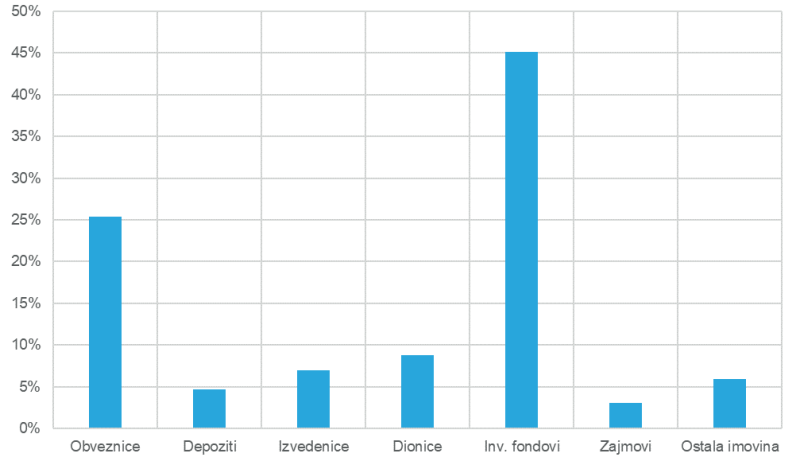
Grafikon 5. Imovina mirovinskih fondova prema mirovinskim shemama (milijarde EUR)



Izvor: ECB (2020) i vlastiti izračun

Ulagačke politike fondova u europodručju prilično su okrenute prema investicijskim fondovima u kojima mirovinski fondovi u europodručju drže preko 45 % svoje imovine. Nakon investicijskih fondova ulaganja mirovinskih fondova su okrenuta prema obveznicama te dionicama (grafikon 6).

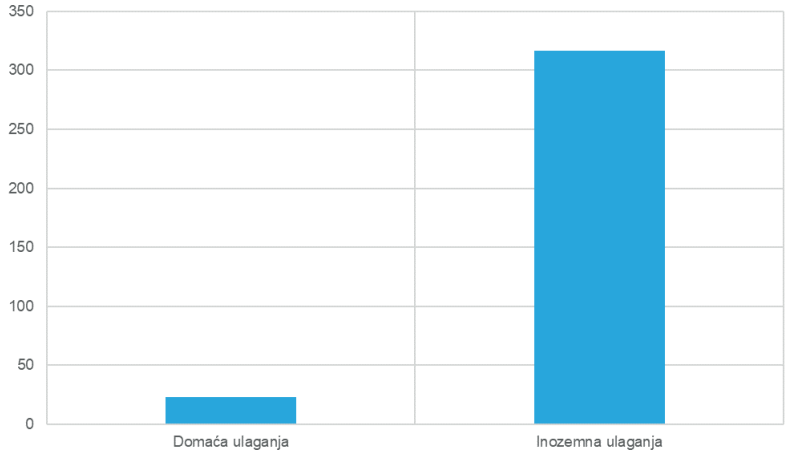
Grafikon 6. Struktura ulaganja mirovinskih fondova europodručja (% ukupne imovine)



Izvor: ECB (2020)

Geografska izloženost mirovinskih fondova unutar europodručja usmjerena je na inozemne investicije; dakle, izvan domicilnih zemalja. Inozemne investicije se odnose na investicije izvan zemlje rezidenta, ali istovremeno i unutar europodručja.

Grafikon 7. Geografska podjela dioničkih ulaganja mirovinskih fondova europodručja (mlrd. EUR)



Izvor: ECB (2020)

4. SPECIFIČNOSTI ULAGANJA MIROVINSKIH FONDOVA U REPUBLICI HRVATSKOJ

Mirovinski sustavi u Europi su obično podijeljeni na tri stupa. Prvi stup obično organizira država i temelji se na tzv. „*pay-as-you-go*" sustavu. Drugi stup je kapitalizirana mirovinska štednja, ali obično vezana uz profesionalne grupe koje su vezane za specifične profesije, dok je treći stup kapitalizirana dobrovoljna osobna mirovinska štednja. (World Bank, 2008) Treba napomenuti da je hrvatski drugi stup obvezan i organiziran od strane države što je specifičnost mirovinskih reformi koje su provedene prije 20-ak i više godina.

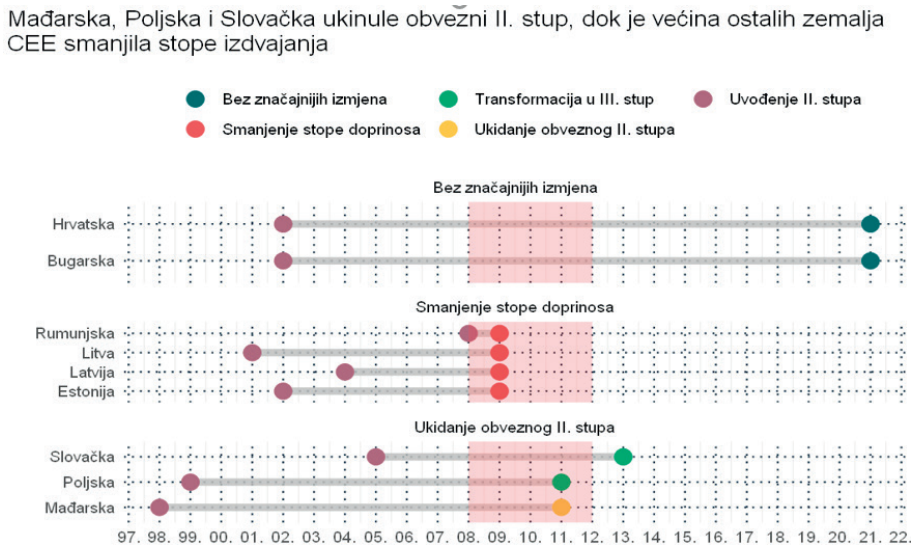
Shema 1. Mirovinske sheme

* mirovine koje se kapitaliziraju kroz obvezne uplate osiguranika

Izvor: vlastita izrada

Hrvatska je započela reformu mirovinskog sustava prije 20 godina i jedna je od rijetkih zemalja koja je uspjela očuvati mirovinsku reformu i kapitaliziranu mirovinsku štednju. Slika 1 pokazuje razvoj mirovinskih sustava u nekadašnjim tranzicijskim zemljama Središnje i Istočne Europe. Prema provedenom istraživanju jedino su Hrvatska i Bugarska očuvale mirovinski sustav u izvornom obliku, dok su ostale zemlje na određeni način modificirale sustav ili su ukinule kapitaliziranu mirovinsku štednju. Rumunjska je usporila dinamiku rasta stope doprinosa za II. stup, dok su baltičke zemlje smanjile stope doprinosa. Poljska i Slovačka pretvorile su II. stup u dobrovoljni uz povrat dijela sredstava u I. stup, dok ga je Mađarska u cijelosti ukinula. Ukidanje drugog mirovinskog stupa i uplata novca u proračun ne znači istovremeno i smanjenje duga jer se radi o osobnom dugu koji država i dalje ima prema osiguranicima.

Slika 1. Razvoj mirovinskih sustava u zemljama Srednje i Istočne Europe

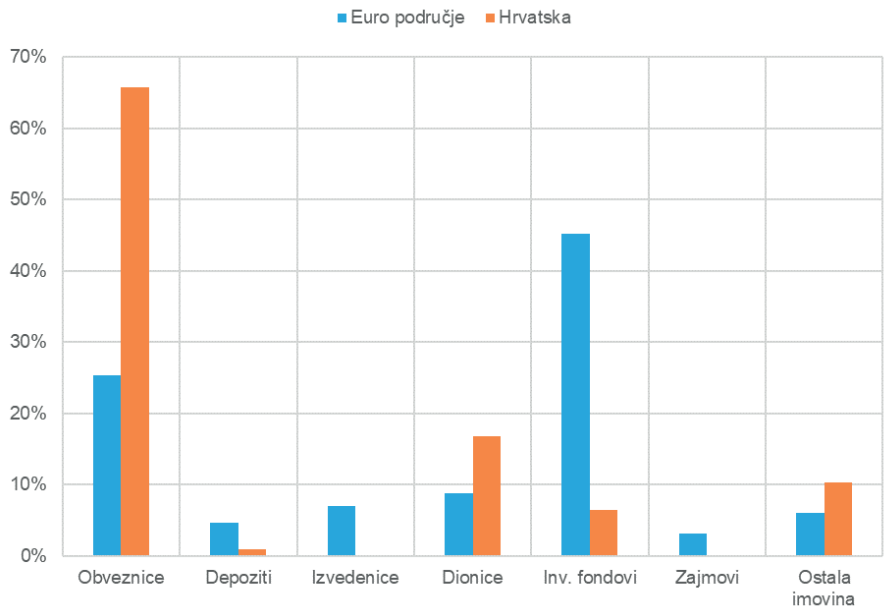


Napomena: Označeno područje označuje period trajanja globalne financijske krize.

Izvor: vlastiti izračun

Prethodna shema i slika ukazuju na specifičnosti sustava kapitalizirane mirovinske štednje u Hrvatskoj. Drugi mirovinski stup u Hrvatskoj ima snažno pokroviteljstvo države, dok je u literaturi drugi mirovinski stup više zamišljen kao mirovinski fond za pojedine profesije (npr. novinari, sindikati, bankari, državni službenici i slično). Priljevi u takav fond se ostvaruju kroz uplate poslodavaca koji na taj način nagrađuju zaposlenike za njihovu vjernost te kroz individualne uplate zaposlenika. Zbog te razlike su i ulaganja hrvatskih mirovinskih fondova vrlo specifična, ali pokazuju važnu evoluciju što je i tema ovog rada. Statički pogled na ukupnu imovinu mirovinskih fondova u europodručju i Hrvatskoj jasno pokazuje da su mirovinski fondovi u Hrvatskoj još uvijek „u zagrljaju“ države te da su u najvećoj mjeri okrenuti prema tradicionalnim oblicima ulaganja. Većina imovine je uložena u obveznice (više od 65 %), i to gotovo u potpunosti u državne obveznice. Na drugom mjestu su dionice sa 16,75 % ukupne imovine što također spada u grupu tradicionalnih investicija. Slijede ulaganja u investicijske fondove s oko 6,4 % ukupne imovine koji su uglavnom okrenuti prema obvezničkim portfeljima. Sve to zajedno s depozitima čini više od 80 % imovine uložene u klasične, odnosno tradicionalne oblike imovine.

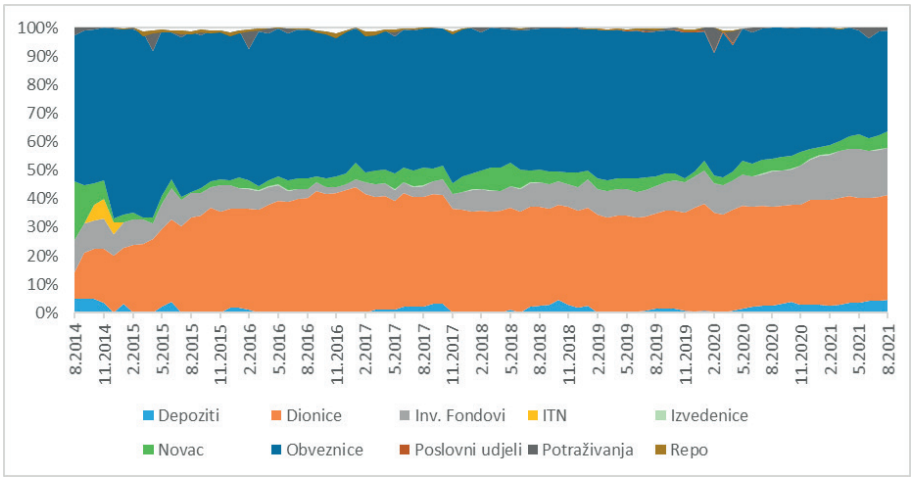
Grafikon 8. Struktura ulaganja mirovinskih fondova europodručja i Hrvatske (% ukupne imovine)



Izvor: ECB (2020) i vlastiti izračun

Ako se promatraju ulaganja hrvatskih mirovinskih fondova kroz vrijeme, onda se jasno vidi evolucija u njihovim ulaganjima. Obično bi svakom mirovinskom reformom došlo do dodatne liberalizacije ulaganja mirovinskih fondova. Na grafikonima 9, 10 i 11 prikazana su ulaganja hrvatskih mirovinskih fondova od 2014. do 2021. godine po mjesecima prema kategorijama fondova. Naime, još jedna posebnost hrvatskog mirovinskog sustava je uvođenje životnog ciklusa u fazi prikupljanja na način da mirovinski fondovi imaju tri faze životnog ciklusa i tri strategije ulaganja. Za mlade i oni koji prvi put ulaze u svijet rada uvodi se Kategorija A koja ima agresivniju strategiju (grafikon 9). Zatim je, za one srednje dobi, kreirana Kategorija B (grafikon 10), dok je za one koji su u posljednjoj fazi akumulacije, pred mirovinom, uvedena Kategorija C (grafikon 11).

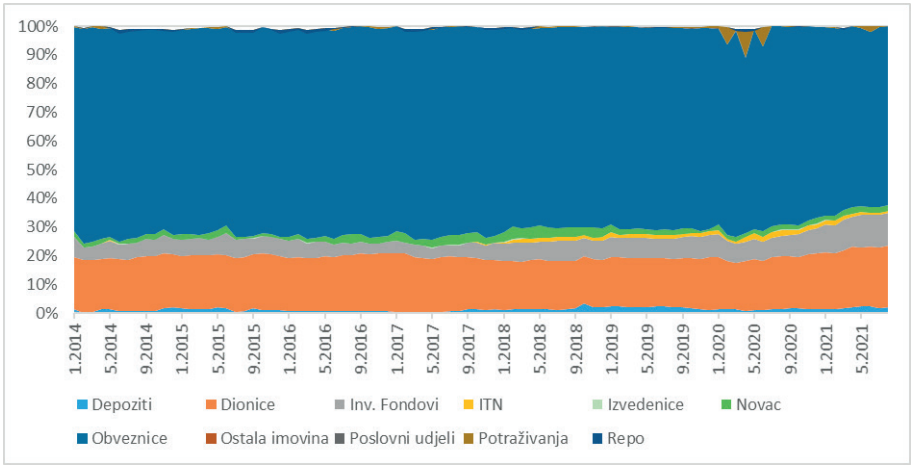
Grafikon 9. Struktura ulaganja mirovinskog fonda kategorije A od 2014. do 2021. godine



Izvor: vlastiti izračun

Strategija ulaganja fonda Kategorije A pokazuje veću orijentaciju prema dionicama i investicijskim fondovima, posebno od sredine 2020. godine jer na tržištu više nije moguće pronaći obveznice sa zadovoljavajućim prinosima. Međutim, ovaj fond je u kolovozu 2021. g. imao vrijednost imovine od 1,3 milijarde kuna. Struktura ulaganja je većim dijelom okrenuta prema klasičnim oblicima imovine: obveznicama, dionicama i novcu. Navedena tri oblika imovine čine 83,64 %, a ako tome priključimo i investicijske fondove koji se sve manje smatraju alternativnim oblicima ulaganja, dolazimo do 100 % imovine.

Grafikon 10. Struktura ulaganja mirovinskog fonda kategorije B od 2014. do 2021. godine



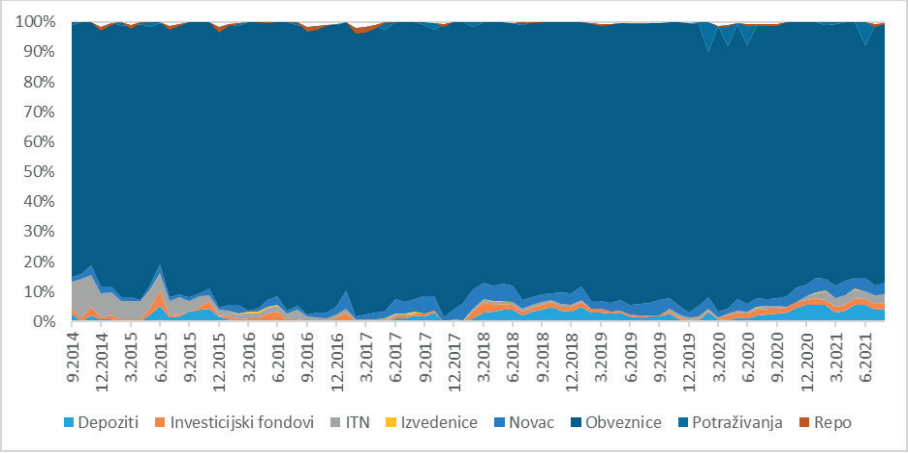
Izvor: vlastiti izračun

Mirovinski fond kategorije B, koji je ujedno i najveći fond s imovinom vrijednom oko 120 milijardi kuna, još uvijek je u značajnoj mjeri okrenut obveznicama koje su u najvećoj mjeri državne obveznice (62,5 %), ali značajno manje u odnosu na 2014. g. kada su obveznice imale udio od 71 %. Kada se obveznicama pribroje dionice (21,8 %) i novac (3,9 %), tada je udio klasične imovine 88,2 %, a ako tome pribrojimo i investicijske fondove (11,3 %) dolazimo do 99,5 %. Možemo zaključiti da je cjelokupna imovina investirana u klasične oblike imovine.

Mirovinski fond kategorije C ima najkonzervativniju ulagačku strategiju pa kod njega obveznice zajedno s novcem i depozitima čine 95,7 % imovine. Budući da mirovinski fond kategorije C ne smije ulagati u dionice, preostali dio čine investicijski fondovi i instrumenti tržišta novca (ITN).

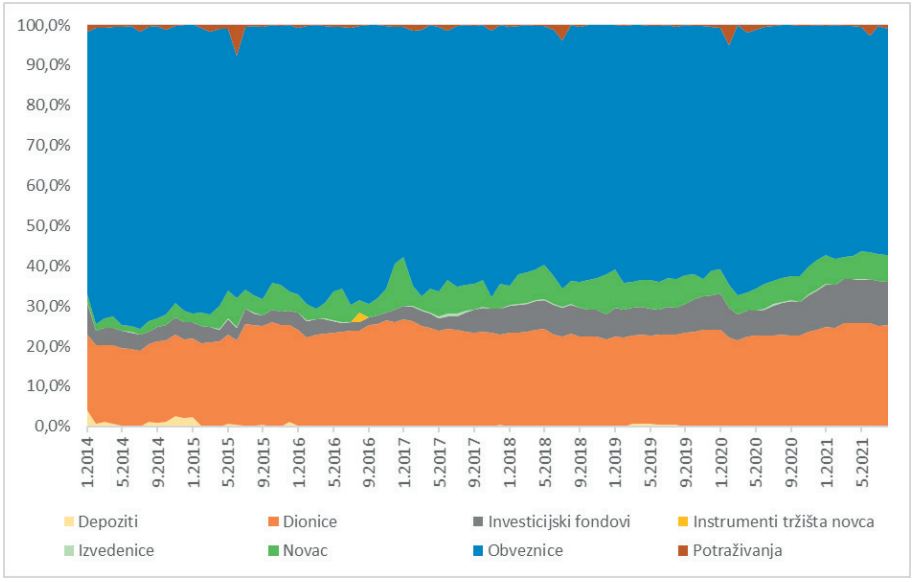
Ulaganja dobrovoljnih mirovinskih fondova koji imaju ukupnu imovinu od 7,3 milijarde kuna također su okrenuta klasičnim oblicima imovine, ali ipak manje obveznicama, a više dionicama i investicijskim fondovima (grafikon 12).

Grafikon 11. Struktura ulaganja mirovinskog fonda kategorije C od 2014. do 2021. godine



Izvor: vlastiti izračun

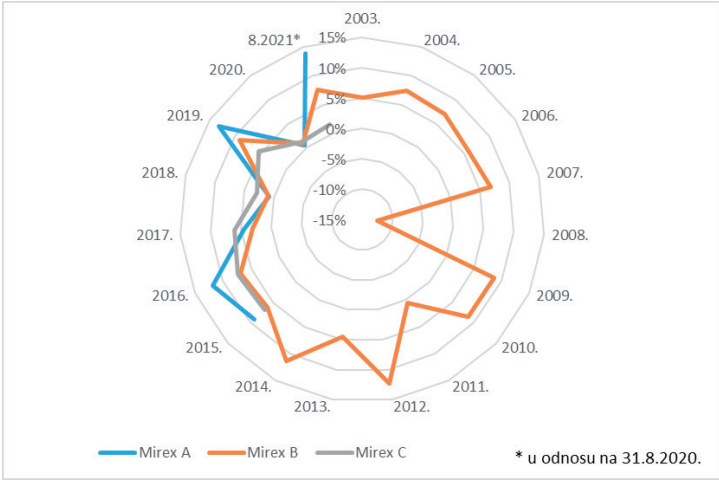
Grafikon 12. Struktura ulaganja dobrovoljnih mirovinskih fondova od 2014. do 2021. godine



Izvor: vlastiti izračun

Prinosi mirovinskih fondova su prilično visoki unatoč konzervativnoj investicijskoj strategiji (Slika 2), a prosječno se kreću oko 5,5 % godišnje. Ovakvi prinosi su jednim dijelom visoki zahvaljujući portfelju državnih obveznica koje još uvijek nose visoke prinose. Međutim, taj se portfelj obveznica s visokim prinosima polako smanjuje pa je potrebno otvoriti mogućnost alternativnim investicijama.

Slika 2. Prinosi mirovinskih fondova

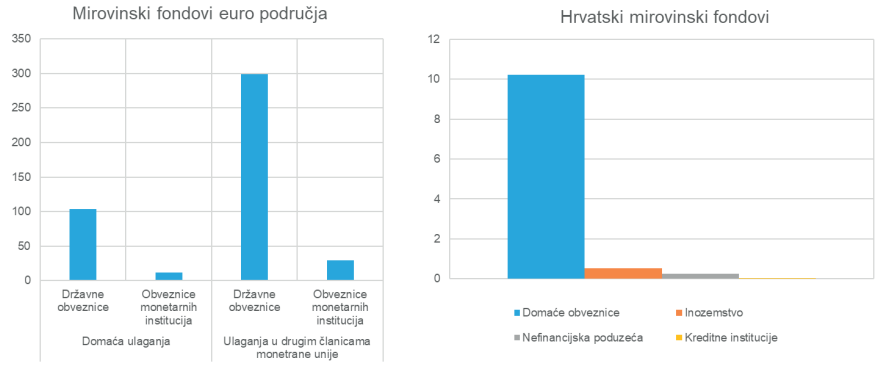


Izvor: vlastiti izračun

Mirovinski fondovi imaju ograničenja ulaganja definirana zakonom; međutim, ta ograničenja još uvijek imaju dovoljno prostora za alternativne oblike ulaganja.

Geografska struktura ulaganja mirovinskih fondova u europodručju i u Hrvatskoj prilično je različita. Naime, hrvatski mirovinski fondovi prilično su koncentrirani i orijentirani prema domaćem tržištu, dok su mirovinski fondovi iz europodručja ipak više okrenuti drugim zemljama članicama (grafikon 13).

Grafikon 13. Izloženosti prema sektorima i geografska podjela obveznickog portfelja (mlrd. EUR, 1. kv. 2021)



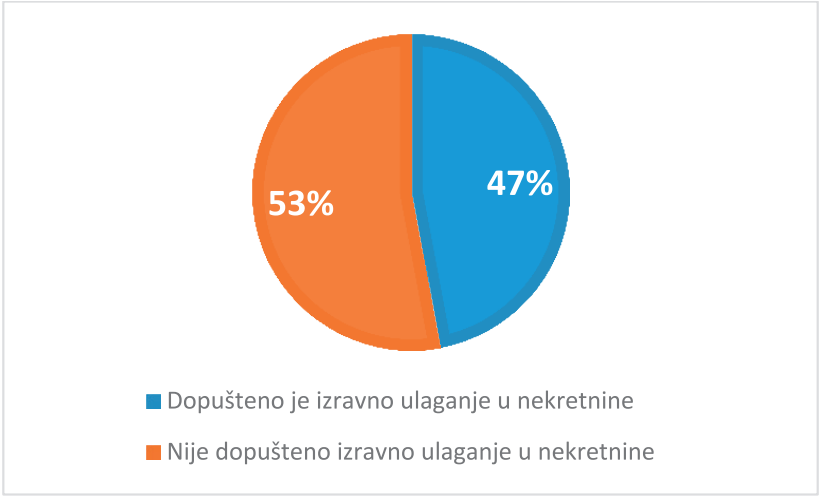
Izvor: ECB (2020) i vlastiti izračun

5. PERSPEKTIVE ALTERNATIVNIH ULAGANJA MIROVINSKIH FONDOVA U REPUBLICI HRVATSKOJ

Ulaganja hrvatskih mirovinskih fondova još uvijek su u najvećoj mjeri okrenuta klasičnim investicijama: obveznicama i dionicama. Budući da mirovinski fondovi ne mogu ulagati izravno u nekretnine i poduzeća, u posljednje vrijeme se mogu vidjeti izolirani slučajevi alternativnih ulaganja u poduzeća i nekretnine koji se kasnije izlistaju na burzi i vode kao ulaganje u dionice. U tom dijelu svakako je potrebno otvoriti prostor za ulaganja u nekretnine kao alternativne investicije zbog velike orijentacije hrvatske ekonomije prema nekretninama. Pritom je važno voditi računa o transparentnosti i osigurati da mirovinski fondovi redovno i ažurno izvještavaju o stanju svojih alternativnih investicija. Različita je praksa ograničenja ulaganja mirovinskih fondova u nekretnine, ali očito su nositelji ekonomske politike podijeljeni oko ove teme.

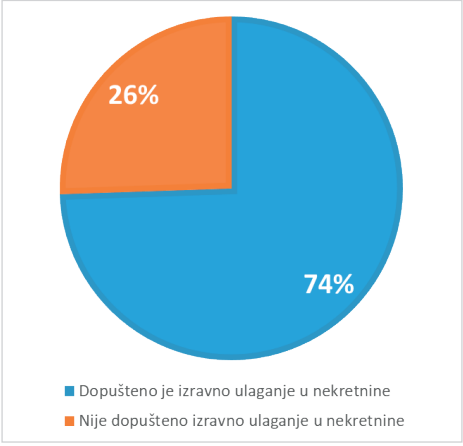
Prema vlastitim analizama, od 16 obveznih mirovinskih fondova u osam je dopušteno izravno ulaganje u nekretnine (grafikon 14). Kod dobrovoljnih mirovinskih fondova, od 46 analiziranih fondova u 34 je dopušteno izravno ulaganje u nekretnine što čini 74 % (grafikon 15). Analizirani su fondovi u EU-u koji su vrlo slični hrvatskim obveznim i dobrovoljnim mirovinskim fondovima iz 27 zemalja članica EU-a, uključujući i Hrvatsku.

Grafikon 14. Ulaganje u nekretnine kod obveznih mirovinskih fondova u EU-u



Izvor: vlastiti izračun

Grafikon 15. Ulaganje u nekretnine kod dobrovoljnih mirovinskih fondova u EU-u



Izvor: vlastiti izračun

Alternativno izravno ulaganje u vlasničke vrijednosne papire (engl. *private equity*) također je nešto što bi bilo prihvatljivo mirovinskim fondovima kao novi oblik ulaganja. Naime, zasad je moguće izravno ulaganje u poduzeće koje nije izlistano na burzi, ali mirovinski fond mora u roku od godinu dana to poduzeće izlistati na burzu. Ovdje je također potrebno osigurati transparentnost za sve članove fondova kako bi mogli pratiti investicije svojih fondova mimo burze.

Alternativna ulaganja u financijske izvedenice, derivate i slično danas su dopuštena za

mirovinske fondove samo u svrhu zaštite od promjene tečaja pojedinih valuta. Tako se, recimo, fondovi mogu zaštiti od ulaganja u dolar. U ovom slučaju je također moguće dopustiti mirovinskim fondovima više slobode oko ulaganja u financijske izvedenice, ali je pritom opet potrebno osigurati transparentnost i ograničiti takva ulaganja. Ono što literatura naglašava je i potreba poznavanja rizika u koje se mirovinski fondovi upuštaju pa je stoga potrebno pojačati upravljanje rizicima. Međutim, izvedenice se mogu koristiti i u druge svrhe, uključujući špekulacije i financiranje portfelja, što može biti u sukobu s osnovnim ciljevima mirovinskog fonda (OECD/IOPS, 2011).

6. ZAKLJUČAK

Zajednička nit u odnosu prema alternativnim ulaganjima za mirovinske fondove je osiguravanje transparentnosti i osigurati da su oni koji upravljaju mirovinskim fondovima detaljno upoznati s proizvodima u koje investiraju i da znaju njihove rizike. Hrvatski mirovinski fondovi su u značajnoj mjeri okrenuti klasičnim, odnosno tradicionalnim oblicima investiranja i bilo bi vrlo korisno da se otvore prema alternativnim investicijama jer su suočeni s vrlo niskim prinosima na klasičnim oblicima investicija. Regulatori mirovinskih fondova općenito smatraju da se u mirovinskim fondovima premalo zna o rizicima alternativnih ulaganja. Rizici koji se otvaraju kroz alternativna ulaganja su: rizik likvidnosti, operativni rizici, ograničena transparentnost, slabosti u procjenama vrijednosti, problemi kontrole i sukob interesa. O svim ovim rizicima je važno povesti računa prilikom okretanja alternativnim investicijama jer te investicije donose i problem dugog trajanja. Ovladavanje ovim rizicima zahtijeva sofisticirane kvantitativne metode. Svakako je potrebno u potpunosti odbaciti izravna i neizravna ulaganja mirovinskih fondova u bilo koji oblik kriptoimovine ili kriptovaluta.

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ALTERNATIVE INVESTMENTS AND PENSION FUNDS

Abstract

Investments in pension funds face challenges of low returns. Croatian pension funds are more oriented towards traditional forms of investment. There are almost no alternative forms of investment, and it is necessary to discuss the possibility of investing in alternative forms of property and what needs to be done for that kind of investment. Alternative investments are risky, and it is necessary to manage all risks to avoid possible losses for members of pension funds. The definition of alternative investments is fluid and follows market developments. This paper aims to compare the investment structure of pension funds in the euro area and Croatia, to identify the reasons for differences and to provide some recommendations. The result of the paper shows that there are differences in the structure of investments, and recommendations and perspectives of alternative investments are provided.

Keywords: financial markets, securities, capital market, pension funds, financial instruments, alternative assets, portfolio choice

JEL classification: G1, G12, G110, G230

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TAKEOVERS, INTEGRATION PROCESSES AND THEIR IMPACT ON BUSINESS AND STABILITY

Abstract

The COVID-19 pandemic, among other changes, has led to a change in trends related to company takeovers. Namely, due to the change in market relations, many well-to-do companies suddenly became accessible to potential acquirers, including hostile bidders. A takeover of a company means any acquisition of another company. The motives for the takeover can vary, with numerous advantages and disadvantages of the takeover. If the management recommends acceptance of the takeover bid, the bid is considered friendly; if the management officially rejects the offer, the takeover is considered hostile. In a hostile takeover, there is a high possibility that the target company will seek to defend itself, with the management of the target company having certain strategies at their disposal to defend themselves against unwanted takeovers. The authors analyse the history of integration processes and observe them in the context of specific business decisions that largely determine the future of both the acquirer and the target company.

Keywords: takeovers, integrations, profits, strategies

JEL classification: D4, F2, G3

1. INTRODUCTION

By merging or integrating, companies are merged into one company in such a way that the assets of all companies included in the merger are merged and that, after the completion of the procedure, there is only one company. In the broadest sense, a takeover means any acquisition of another company or a significant share in the equity of another company, regardless of whether the acquisition was made by purchasing the assets or ownership interest of the acquired company or by pooling ownership interests. Motives can be the value of synergies, growth, market concentration, acquisition of new and unique competencies, diversification, benefits for managers, tax benefits, hidden value, business internationalisation. If the management recommends

acceptance of the takeover bid, the bid is considered friendly; if the management officially rejects the offer, the takeover is considered hostile.

Hostile takeover processes are particularly evolving under the influence of globalisation and market liberalisation, and takeover waves can be very consistent with expansion cycles. In order to gain a stable position in the global market, the total number and value of integration processes are increasing. Acquiring companies should plan in detail the process of hostile takeovers in accordance with their own strategic development goals, especially bearing in mind the danger arising from the potential overpayment of company values. In a hostile takeover, there is a high possibility that the target company will seek to defend itself, with the management and the management of the target company having certain strategies at their disposal to defend themselves against unwanted takeovers.

2. FRIENDLY AND HOSTILE TAKEOVERS

Unlike mergers or acquisitions, which are generally consensual business combinations, takeovers can be carried out with a friendly or hostile intent. Mergers and acquisitions can be friendly or hostile, depending on the attitude or recommendation of the management of the target company. If the management recommends acceptance of the takeover bid, the bid is considered friendly; if the management officially rejects the offer, the takeover is considered hostile. At the same time, the attitude of the management sometimes changes during negotiations (Curnić, 2020).

A takeover is a process of business integration that takes place when the acquirer's goal is to take over a majority stake and acquire management rights in the company that is the target of the takeover. Depending on the attitude of the company management, i.e. the goal of the takeover, takeovers can be divided into friendly and hostile takeovers. The takeover process is usually initiated by larger firms that take over smaller target firms to gain a larger market share and a more stable position in the target markets. The acquired companies thus become part of stronger and larger companies on the market. The difference between a merger and a takeover is that the merged company ceases to exist as a legal entity, while the result of the takeover process is the continuation of the business of both companies (Filipović, 2011).

In addition to money and shares, significant borrowings can be used to take over companies, which is often the case in practice. Takeover transactions of companies in which a significant share of debt is primarily used are called leverage buyouts. In leverage, the acquirer finances the purchase of the company by a combination of debt and equity. After the takeover, the capital structure of the acquired company changes significantly, and the debt ratio is much higher than before the takeover. Leverage takeovers are often used when taking over a company by managers but also by

employees (Kaplan and Stromberg, 2008).

A friendly takeover is a form of a company takeover in which there is no resistance from the management of the company that is the target of the takeover. Company management agrees with the owners on the sale of shares, and it is recommended to the owners to sell their shares to the acquirer. With a friendly takeover, there are direct negotiations between the management of the company that is interested in the takeover and the management of the target company. The company that is the subject of the takeover must, in the case of a decision to continue negotiations, provide accurate data for review and assessment of the value of the company. These negotiations are preceded by a series of activities aimed at gathering information and compiling a list of potential takeover companies (Spajić, 2019). In other words, in a friendly transaction, the buyer company can obtain data from the target company. The results of the company analysis will influence the decision on whether to proceed with the takeover process. With such a takeover, there are no difficulties and quarrels between the management of the company that is taking over and the management of the target company and there are no strategies against the takeover. The takeover decision is made when representatives of both companies conclude the takeover agreement.

A friendly takeover brings many benefits to the target company. The biggest benefit is the share price for the target company, which by acquisition becomes better than the current market price. That also includes better opportunities for business expansion and entering new markets. Unlike a friendly takeover, when the management of the target company does not oppose the takeover and considers the takeover to be a good choice for all business owners, a hostile takeover is completely different.

In the context of the Croatian economy as a post-transition economy, it is important to emphasise that mergers and acquisitions are one of the forms of foreign direct investment in the economy. Namely, foreign direct investments are realised by taking over or merging domestic companies with an existing company abroad (Buterin and Blečić, 2013). The motivation for a corporation to take over another corporation may be to expand, increase the range of customers, products, or geographical reach. Corporations that strive for horizontal or vertical expansion diversify into industries wanting to acquire attractive resources or manage risks more effectively. Hostile takeovers mainly represent a battle for corporate control and are most often initiated by an external entity, usually another corporation, that attempts to access the target company's shareholders through various mechanisms (Gaughan, 2010).

In case the company management clearly opposes the takeover process, it is believed that such a change in the ownership structure and management rights will not result in positive business developments. The possibility of establishing a negotiation process and an agreement between the management of the acquiring company

and the target company does not exist due to the lack of common interests and reaching a compromise solution. The way in which the management of the acquiring company seeks to take over the target company is directly through a hostile public offering. Attempts to acquire a majority stake and management rights directly from shareholders seek to circumvent the management of the target company. In these cases, the management of the target company is replaced, while in a friendly takeover it remains in the position in which it was before the company takeover (Filipović, 2011).

The takeover can be marked as hostile if the management of the target company rejects the takeover bid and the acquirer persists in taking over the target company and in the event that the acquirer's management starts the takeover without notifying the management of the target company. In the case of a successful hostile takeover, the management of the target company is usually removed, in contrast to a friendly one when the management of the taken-over company in many cases retains the position it had before the takeover.

A hostile takeover is an expensive undertaking and is generally opted for in the event of a significant underestimation of the company. The takeover price is determined, among other things, by the costs of engaging funds intended for shareholder payments. These are often significant amounts of money because, to persuade shareholders to sell shares, they are offered a price higher than the market price, because they often think about keeping shares, convinced that they will be worth more after the takeover process. Hostile takeovers are often concluded at a much higher price than friendly ones because they can attract other customers who were not originally interested in the target company. Such takeovers affect self-confidence of the employees of the target company, which can very quickly lead to resentment towards the company that attacks. For this reason, but also since the integration of the target company into the business system of the acquirer is much faster, the actors of the takeover tend to takeovers that have a friendly character (Ban, 2017). In a hostile company transaction, the buyer must use publicly available information because the target company provides them only with the information prescribed by law.

The management of the acquiring company can use a variety of strategies and tactics to accomplish the intent of a hostile takeover. However, if an enemy takeover approach is chosen, there is a high possibility that the target company will seek to defend itself. There are many effective ways in which the target company can defend itself from takeovers, i.e., strategies the company can use in case of takeovers.

3. HISTORICAL WAVES OF INTEGRATION PROCESSES

Business takeover processes are intensifying simultaneously with the development of globalisation and market liberalisation. The first wave of takeovers was recorded in the

late 1890s. The development of an organised capital market on the NYSE and the new regulatory framework related to mergers have stimulated the process of consolidation in the industrial production sector. In order to strengthen their market position, the companies consolidated to gain a market monopoly. Price competitiveness of consolidated companies was sought in this way (Martynova and Renneboog, 2008).

The first wave of takeovers from the late 19th and early 20th century through horizontal integration processes led to the emergence of a number of large corporations with a high concentration of ownership. At the same time, there was a wave of integration processes on the European continent, but to a lesser extent than in the United States (Martynova and Renneboog, 2005). This process was greatly influenced by the development of industrial production and the technological advances achieved during the Industrial Revolution. A significant decline in stock prices was recorded in the United States from 1903 to 1905. As early as 1910, the United States began to develop concerns about the high concentration of ownership in certain industrial sectors and its threat to free-market competition, which resulted in the development of the first antitrust laws (Dobbin and Dowd, 2000).

The enactment of antitrust regulations has caused the collapse of a number of giant companies created by horizontal integration, and the struggle for dominant market power and position within the industrial sector has continued, but through vertical integrations. The wave of vertical integration processes that began in the 1910s in the United States continued until 1929, that is, until the outbreak of the Great Depression of 1929–1933. The first wave of integration processes was marked by the emergence of monopolies, and the second by the formation of oligopolistic market structures that are also a form of imperfect market competition. Companies that became involved in vertical integration processes during the second wave of mergers and acquisitions tended to achieve economies of scale.

The aftermath of the Great Depression and World War II delayed the next wave of mergers and acquisitions until the 1950s. The third wave of mergers and acquisitions lasted from the 1950s to the 1970s and was halted under the influence of the 1973 oil crisis when the coverage of money in gold was also abolished. The takeover wave that lasted from the 1950s to the 1970s focused on a business diversification strategy in the United States to facilitate risk management, and numerous conglomerates were created in this way. In the area of the European continent and the United Kingdom, there has been a trend of takeovers aimed at horizontal integration or consolidation of the ownership structure of companies within the industrial sector (Kolaković, 2013).

During the third wave of mergers and acquisitions, US corporations focused on the implementation of the diversification strategy, largely due to the existing regulatory framework, i.e., antitrust laws. By focusing on the implementation of the strategy of related and unrelated diversification, companies focused on growth and

expansion through integration processes outside the core business. During this period, multidivisional organisational structures suitable for the implementation of conglomerate-type integration processes were also developed (Davis et al., 1994).

In the merging and taking over companies in the third wave, the motive of managerial synergy is also noticeable (Wang and Xie, 2009). Management skills were in the background of many integration processes, especially the takeover process, and the acquiring companies would select those target companies whose management had complementary management skills to the management of the acquiring company. Retaining the managerial structure in the target companies was one of the fundamental features of the third wave of integration processes.

The fourth wave of takeovers lasted from 1981 to 1989. It was prompted by changes in the previous antitrust regulations as well as the process of deregulation in the financial sector. The development of alternative financial instruments and markets has also significantly spurred a new wave of company takeovers. At the same time, there was significant technological progress in the field of information and communication technology and the possibility of electronic data processing. It was the fourth wave of takeovers that was marked by the emergence of many hostile takeovers, and due to the growing intensity of competition, in numerous economic sectors (Bhagat et al., 1990).

The hostile takeovers that took place during the 1980s were characterised by the invasive offers of the takeover companies, the so-called 'corporate raids' in which the acquirer seeks to acquire as large a share as possible in the ownership structure of the target company and to influence a temporary increase in the share price although this negatively affects the value of the company's assets (Henriques, 2001). As the acquirers had in mind the acquisition of short-term profits, they did not acquire majority ownership interests or control over management rights.

Lazonick (2014) calls this type of hostile takeovers a profit without prosperity and points out that the wave of hostile takeovers from the 1980s represented a turning point in the previous motives for hostile takeovers. Corporate attackers often used claims that the management did not ensure profit maximisation for shareholders, which was, in fact, an accusation that the management was not acting in the best interests of shareholders, which is its legal obligation. Such criticisms were fuelled by corporate management in which corporate attackers had significant stakes in the ownership structure to reconcile management and shareholder interests, and material shareholder compensation and stock prices themselves recorded significant growth trends. The management of many companies has made decisions on mass buyouts of shares to meet the growing expectations related to EPS value, i.e., earnings or profit per share (Holmstrom and Kaplan, 2001).

In this way, the financial resources of many companies were misallocated into stock

price manipulation in order to achieve short-term profitability goals, while long-term and strategic interests such as investment in R&D or employment and human resource education were neglected. It is for this reason that the hostile takeovers of the 1980s were disastrous for the long-term preservation of the value of the company's assets. The basic trend that marked the period of the 1980s was the trend of de-diversification in business operations since conglomerates are very inflexible and unable to react in time to changes in the environment and because of their size which often led to volume diseconomy (Chen and Anderson, 2020).

By the 1990s, companies had introduced several corporate governance mechanisms to protect themselves from destructive influence on assets through corporate attacks, but another reason why this form of hostile takeovers was much less frequent was the change in the market-to-book value of the company shares. The growth of the market and book value ratio of the company or market capitalisation is the result of shareholders' expectations that company value will grow in the future. In such circumstances, shareholders focus on long-term investments and the motivation to raise the share price in the short term while reducing the value of the company's assets significantly decline. Therefore, companies with a very low ratio of market and book value are at risk of corporate attacks. The number of such companies is decreasing, so at the same time, the tactics of corporate attack aiming to increase the share price in the short term have become expensive and unprofitable for enemy takeovers.

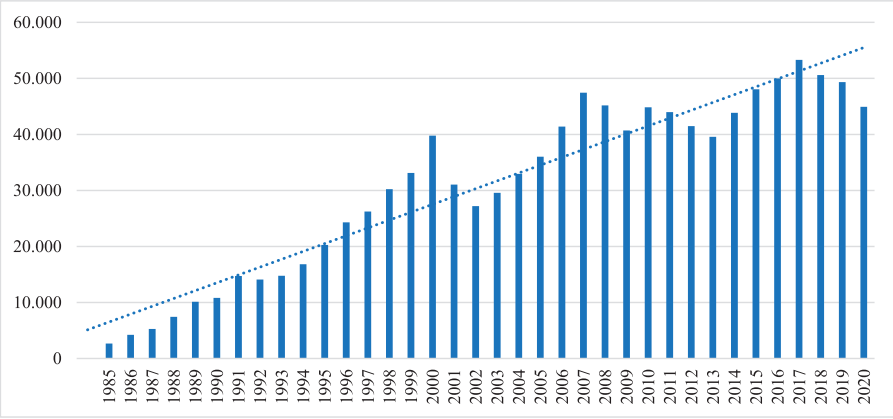
The fifth wave of takeovers began in 1993, thanks to the business cycle of expansion, and ended in 2000 when the economy once again faced a business cycle of contraction. The total value of the takeover in the period from 1993 to 2001 was higher than in all previous waves of takeovers combined (Martynova and Renneboog, 2005). The fifth wave of company takeovers is significant not only because of the overall value of the takeovers but also because of the global character of the takeover integration processes. The largest number of acquisitions took place in the United States and Europe during the 1990s, but there was also an increase in the number of acquisitions in Asian markets, which entered a phase of rapid expansion and growth during this period.

4. INDICATORS OF INTEGRATION PROCESSES

Statistical indicators on integration processes include data on mergers, acquisitions, and takeovers at the global level regarding the number and value of transactions and the representation of these integration processes in individual regions. The total number of statistical indicators on the number and value of mergers, acquisitions, and takeovers at the global level is shown in Chart 1 for the period 1985–2020.

In the observed period from 1985 to 2020, there was a trend of continuous increase in the number of mergers, acquisitions, and takeovers at the global level. During 2020, a total of 44,926 mergers, acquisitions, and takeovers were recorded, which is 16 times more than in the initial observed year of 1985. During the year 2000, a significant number of mergers, acquisitions, and takeovers were realised in the amount of 39,783 integration processes. From 2001 to 2003, there was a trend of decline or slowdown in the total number of integration processes, and re-growth was recorded from 2004 to 2007. During 2007, the total number of integration processes increased to 47,445, and as this is the year of the outbreak of the global financial crisis, a gradual decline in the total number of transactions followed again. From 2014 to 2018, the number of transactions grew again and reached a record number of 50,607 in 2018, and during 2019 and 2020 there was a slight decline in the total number of transactions related to mergers, acquisitions, and takeovers of companies globally.

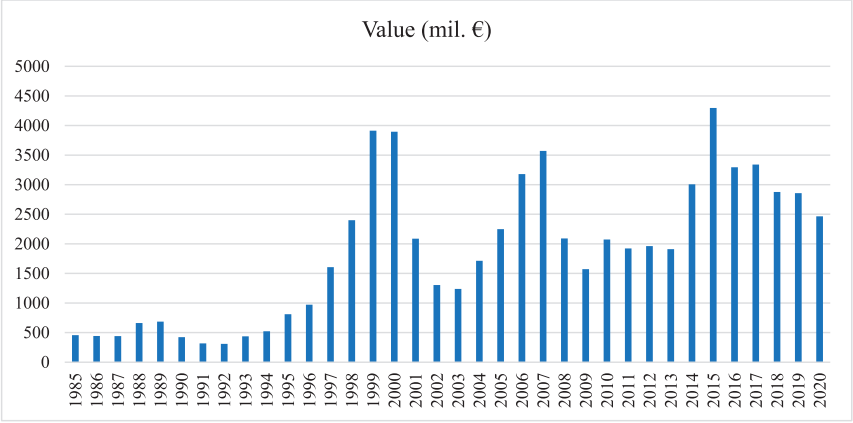
Figure 1. Total Number of Mergers, Acquisitions, and Takeovers from 1985 to 2020



Source: IMAA Institute, https://imaa-institute.org/mergers-and-acquisitions-statistics/

Figure 2 is a visual representation of the movement of the total value of transactions related to integration processes at the global level. The value of transactions is expressed in billions of euros and is also shown for the period from 1985 to 2019.

Figure 2. Total Value of Mergers, Acquisitions, and Takeovers Globally from 1985 to 2019

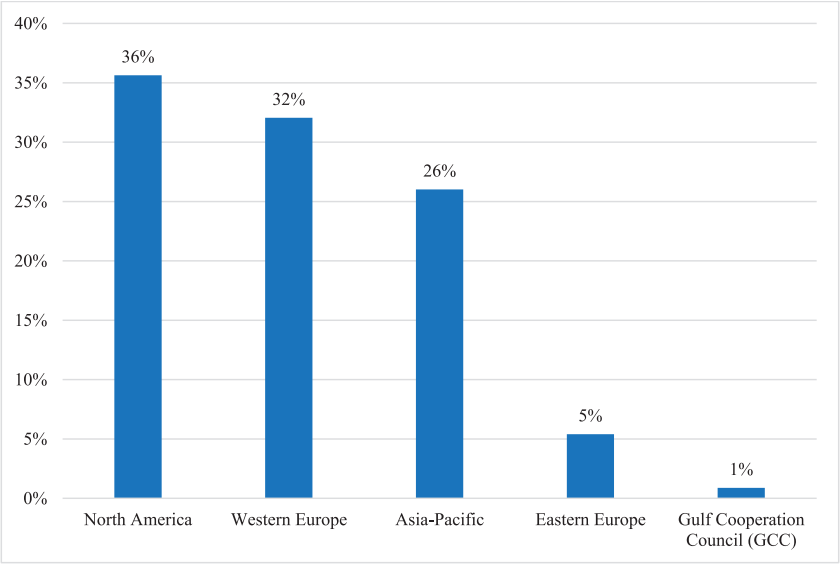


Source: IMAA Institute, https://imaa-institute.org/mergers-and-acquisitions-statistics/

The total value of transactions related to mergers, acquisitions, and takeovers of business entities at a global level also records a continuous growth trend from 1985 to 2019. Despite the general upward trend in the value of transactions, there are evident cyclical developments related to this parameter. The growth trend was recorded from 1985 to 1989 when the value of total transactions amounted to 685 billion euros. After a downward trajectory of value that lasted from 1990 to 1992, from 1993 to 1999 there was again a trend of increasing value, which in 1999 reached 3,913 billion euros. From 2000 to 2004, the total value of transactions at the global level decreased, and from 2004 to 2007 it started recording an upward trend again, with a value of EUR 3,571 billion. The record year in terms of transaction values is year 2015 with 4,297 billion euros, after which there is again a downward trend in the value of mergers, acquisitions, and takeovers.

Chart 3 shows the individual shares in the total number of mergers, acquisitions, and takeovers in individual regions of the world, namely the USA, Western and Eastern Europe, the Asia-Pacific region, and the Gulf countries. The data refer to 2019.

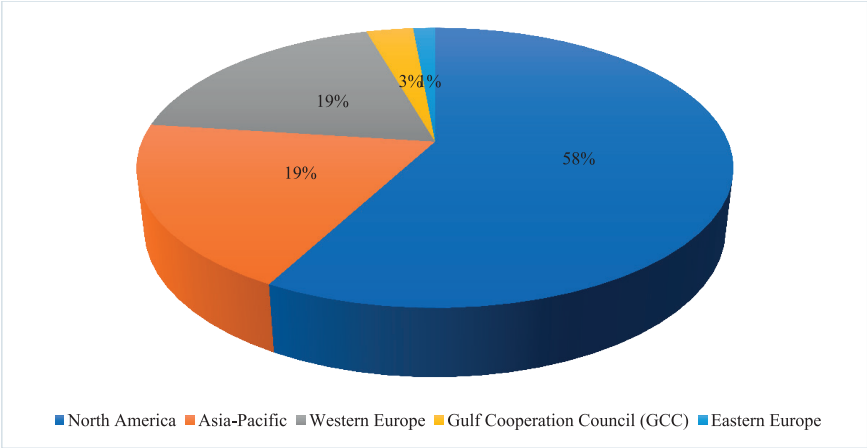
Figure 3. Transaction Shares in the Total Number of Mergers, Acquisitions, and Takeovers in Selected Regions of the World



Source: IMAA Institute, https://imaa-institute.org/mergers-and-acquisitions-statistics/

Of the total number of transactions related to mergers, acquisitions, and takeovers in the presented regions of the world, the largest transaction share, 44,266, relates to the United States (36%). In 2019, 32% of the total number of mergers, acquisitions, and takeovers were realised in Western Europe and only 5% in Eastern Europe. The Asia-Pacific countries participate in the total number of mergers, acquisitions, and takeovers with a share of 26%, while the integration processes of mergers, acquisitions, and takeovers are least represented in the Gulf countries with a share of only 1%. Chart 4 shows the individual shares in the total value of mergers, acquisitions, and takeovers in individual regions of the world, namely the USA, Western and Eastern Europe, the Asia-Pacific region, and the Gulf countries. The data refer to 2019.

Figure 4. Shares in the Total Value of Mergers, Acquisitions, and Takeovers in Individual Regions of the World

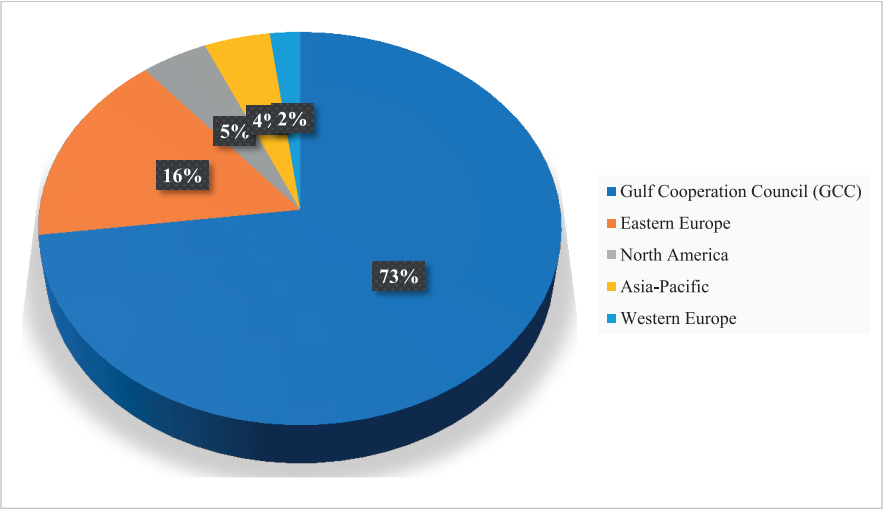


Source: IMAA Institute, https://imaa-institute.org/mergers-and-acquisitions-statistics/

In terms of the value of mergers, acquisitions, and takeovers in 2019, the United States lead with a share of 58%. The Asia-Pacific countries participate in the value of mergers, acquisitions, and takeovers with a share of 19%, which is equal to the share of value in transactions in Western Europe. The share of the value of integration processes in the Gulf countries is 3%, while the value of integration processes in Eastern Europe is the lowest and amounts to 1% of the total value of the presented regions of the world.

Graph 5 shows the average value per transaction for a specific region (USA, Western and Eastern Europe, Asia-Pacific region, and Gulf countries). When looking at the average value of mergers, acquisitions, and takeovers, it can be concluded that the highest average transaction value is realised in the Gulf countries (as much as 73%), then in Eastern Europe (16%), followed by the US with 5% average value of the investment, Asia-Pacific countries with 4% and, finally, Western Europe with a share of 2% according to the amount of average investment per transaction related to mergers, acquisitions, and takeovers.

Figure 5. Average Value per Transaction in Certain Regions of the World



Source: IMAA Institute, https://imaa-institute.org/mergers-and-acquisitions-statistics/

Globalisation has caused a very sharp increase in competitive intensity and international corporations have begun to use takeovers as a strategy for maintaining and growing companies in conditions of dynamic and intensified competition. Acquisitions at the international level have enabled globally significant businesses (multinational corporations) to rationalise costs based on investment in production in countries with lower tax rates, workers' expenditures, or the environment. The global nature of takeovers could come to life in the 1990s thanks to deregulation and liberalisation processes in a number of sectors that had hitherto been natural monopolies, such as the telecommunications sector, real estate market or the electricity sector (Martynova and Renneboog, 2005).

During the 1990s, along with the strong intensification of competition at the global level, the importance of investing in research and development to gain innovative capabilities of companies, and thus a sustainable competitive advantage, increased. In this way, there has been a strong increase in the number and value of takeovers in high-tech sectors, such as ICT technology, biochemistry, or the pharmaceutical industry.

The rapid increase in competitive intensity has caused an increased number of takeovers of companies operating in related industries with comparative products and services. Such a trend is related to company takeovers in domicile and international markets. The intention to take over a company was implemented during the 1990s to strengthen the market position in the global market, and there was a high share of horizontal and vertical integration takeover processes. Horizontal investments are

made by the company to expand its core business, i.e., to conquer foreign markets. Vertical direct investments are motivated by lower production costs in the country of investment, so these are investments in new activities that complement and complete the core business (Buterin et al., 2017; Boras et al., 2002).

The growth in the number and value of mergers and acquisitions in the 1990s also required strong support from the financial sector. One of the problems became the tendency to overpay the value of target companies, which caused unrealistic growth of stock prices in the capital market, and when the price bubble in the real estate market collapsed, there was another stock market crash in 2007 and the downward curve in the economic crisis in the US with the debt crisis in the European Monetary Union (Olgić Draženović et al., 2018). A significant role in the emergence of the described situation was played by the favourable price of capital (interest rate), which attracted many speculatively oriented investors in the capital market. During the global crisis, there was another decline in the number of takeovers and recovery after the crisis, and today the takeovers of companies operating in accordance with the postulates of the digital society and Industry 4.0 are becoming increasingly important (Elia, 2019; Emmerich and Norwitz, 2021).

The latest trends related to hostile takeovers have been recorded since the outbreak of the COVID-19 pandemic. Numerous industrial sectors have found themselves in unenviable positions in terms of share price, even if they are not directly affected by the impact of the pandemic. Namely, the drop in stock prices is not limited to industries that have been hit hard by the pandemic, such as the oil and gas industry or tourism. Such companies, which otherwise have an enviable market position, have become very accessible to competitors, private equity funds and other potential acquirers, including hostile bidders, who offer them extremely high premiums. Due to the situation of economic uncertainty caused by the COVID-19 pandemic, shareholders are not only willing to support hostile bidders but increasingly show a willingness to initiate unwanted takeover bids themselves, either alone or in partnership with an enemy corporation.

5. CONCLUSION

With a friendly takeover of the company, there is no resistance from the management of the target company because its management agrees with the owners on the sale of shares and recommends selling their shares to the acquirer. A friendly takeover involves direct negotiations between the company that is interested in the takeover and the target company. The company that is the subject of the takeover must, in doing so, participate with accurate and precise data relevant to the assessment of the company value.

On the other hand, a hostile takeover can become a very expensive and even unprofitable endeavour. The takeover price is largely determined by the funds intended for shareholders. These are mainly total amounts that exceed the market value of the company due to the acquisition of shareholders for sale. Namely, in cases of hostile takeovers, the prevailing attitude among shareholders is that the shares will be worth more after the takeover process, so they tend to keep the shares and bid on their price. Enemy takeover processes can therefore significantly burden the acquirer financially and change the course of its business in the long run.

In the conditions of dynamic and intensified competition induced by globalisation, the takeover has become a strategy of maintenance and growth of many multinational companies. At the end of the last century, there was a global process of deregulation and liberalisation so that numerous monopolies in hitherto protected sectors became targets for interested acquirers. Nevertheless, it can be established that these processes are related to expansion cycles. A specific exception are takeovers during the changed business conditions caused by the COVID-19 pandemic when the shares of many companies suddenly became undervalued. Depending on the development of the situation with the global pandemic of the COVID-19 virus and its further economic consequences, it will be especially interesting to look at the latest trends in integration processes in future research.

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PREUZIMANJA I INTEGRACIJSKI PROCESI TE NJIHOV UTJECAJ NA POSLOVANJE I STABILNOST

Sažetak

Pandemija virusa COVID-19, između ostalih promjena, dovela je i do promjene trendova u vezi s preuzimanjima tvrtki. Naime, zbog promjene tržišnih odnosa, brojne dotad dobrostojeće tvrtke odjednom su postale dostupne potencijalnim stjecateljima, uključujući i neprijateljske ponuditelje. Preuzimanje tvrtke znači svako stjecanje druge tvrtke. Motivi za preuzimanje mogu biti različiti, s brojnim prednostima i nedostacima preuzimanja. Ako uprava preporuči prihvaćanje ponude za preuzimanje, ponuda se smatra prijateljskom; ako uprava službeno odbije ponudu, preuzimanje se smatra neprijateljskim. U neprijateljskom preuzimanju postoji velika mogućnost da će se ciljna tvrtka nastojati obraniti pri čemu će njena uprava imati na raspolaganju određene strategije za obranu od neželjenih preuzimanja. Autori analiziraju povijest integracijskih procesa te ih promatraju u kontekstu konkretnih poslovnih odluka koje uvelike određuju budućnost kako stjecatelja tako i ciljnog društva.

Ključne riječi: preuzimanja, integracije, profit, strategije

JEL klasifikacija: D4, F2, G3

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PODUZETNIČKI EKOSUSTAV I INSTITUCIONALNA POTPORA *STARTUP* PODUZETNIŠTVU U REPUBLICI HRVATSKOJ[4]

Sažetak

Zbog obilježja visoke inovativnosti i značajnog potencijala postizanja brzog rasta i skalabilnog ekonomskog modela, *startupovi*, posebice u digitalnoj ekonomiji, čine ključni izvor gospodarskog rasta i zaposlenosti. Potrebe *startup* poduzetnika za stabilnim poslovnim okruženjem i uređenim poduzetničkim ekosustavom nameću razvoj i implementaciju institucionalnih potpora kroz cijeli niz mjera i aktivnosti; stoga se snaga *startup* poduzetničke aktivnosti često mjeri upravo kroz kvalitetu poduzetničkog ekosustava. Svrha rada je ukazati na važnost razvoja poduzetničkog ekosustava i institucionalne potpore za razvoj *startup* poduzetništva te utvrditi izazove i preporuke za razvoj poduzetničkog ekosustava za potrebe *startupova* u Republici Hrvatskoj. Na temelju prezentiranih indikatora poduzetničkog ekosustava Republike Hrvatske te usporedbe s odabranim državama zaključuje se da je poduzetnički ekosustav te institucionalna potpora u Hrvatskoj na niskoj, te stoga demotivirajućoj, razini u kontekstu pružanja potpore razvoju *startup* aktivnosti. Također, kvalitativna analiza recentnih događaja u *startup* zajednici u Hrvatskoj implicira postojanje značajnog potencijala za razvoj poticajnog i učinkovitog *startup* ekosustava čije su koristi posebice naglašene u kriznim gospodarskim razdobljima, kao što je poslovanje u uvjetima pandemije virusa COVID-19.

Ključne riječi: poduzetnički ekosustav, institucionalna potpora, potporne poduzetničke institucije, *startup*, Republika Hrvatska

JEL klasifikacija: O30, O38, O43

1. UVOD

Vodeći akteri u stvaranju digitalne ekonomije i efikasan mehanizam transformacije dobrobiti primjene digitalne tehnologije u gospodarstvo i društvo općenito su *startupi*. *Startup* predstavlja tvrtku s ciljem brzog širenja i rasta te postizanja repetitivnog i

4 Ovaj rad temelji se na diplomskom radu koji je studentica Melita Oštarić izradila pod mentorstvom doc. dr. sc. Mirjane Grčić Fabić.

skalabilnog ekonomskog modela na osnovi inovativnog poduzetničkog koncepta (European Commission, 2020; Ries, 2011; Damodaran, 2009; Blank, 2005). U literaturi se sâm koncept *startupa* ponekad percipira na različite načine te se često izjednačava s bilo kojom novoosnovanom tvrtkom, tj. specifičnom razvojnom fazom poduzeća (The World Bank, 2018; GEM, 2016). Međutim, ono što razlikuje *startup* od bilo kojeg drugog poslovnog subjekta je njegovo obilježje visoke inovativnosti poslovnog koncepta, tj. poslovnog modela te značajan potencijal brzog rasta i skaliranja poslovnih aktivnosti. Upravo primjena digitalne tehnologije omogućava *startupovima* postizanje skalabilnog poslovnog modela (Huang et al., 2017; Nambisan, 2017; van Welsum, 2016) te, posljedično, značajnog utjecaja na rast i razvoj gospodarskih aktivnosti (Ivanović-Đukić et al., 2019; Steve, Dorf, 2014; Moreno i Casillas, 2007). Navedeno posebno dolazi do izražaja u izazovnim kriznim gospodarskim razdobljima, kao što je poslovanje u uvjetima pandemije virusa COVID-19. Kriza COVID-19 ubrzala je proces digitalne transformacije gospodarstava te potaknula poduzetnike na kreiranje inovativnih digitalnih rješenja. Upravo su digitalni *startupovi* izvor značajnog potencijala povećanja razine inovativnosti i konkurentnosti nacionalnih gospodarstava te postizanje gospodarskog rasta i razvoja nužnog za oporavak gospodarstava u uvjetima pandemije (Skawinska i Zalewski, 2020; The State of European Tech, 2020).

Za razvoj te uspješnu realizaciju cilja *startup* tvrtke bitno je poduzetničko okruženje u kojemu namjerava poslovati. Kvaliteta i održivost poduzetničkog ekosustava (Audretsch i Belitski, 2016; Stam, 2015) od presudne je važnosti za uspješan opstanak *startupova*, ali i od velike važnosti za odluku poduzetnika o pokretanju vlastitog poslovanja. Poduzetničko okruženje stvaraju, između ostalog, lokalne samouprave kroz poduzetničku potpornu infrastrukturu u poduzetničkim zonama i poduzetničkim potpornim institucijama. Uloga potpornih institucija u razvoju poduzetničke aktivnosti je pružanje kvalitetne i sigurne logističke potpore od strane državnih i lokalnih institucija upravo toj kategoriji poduzetnika, osiguravajući im, između ostalog, potrebnu poduzetničku infrastrukturu kao što su poduzetničke zone, *startup* inkubatori, znanstveno-tehnološki parkovi, uključivanje u programe globalne umreženosti *startupova*, kreiranje programa koji će *startupovima* omogućiti veći izlazak na nova tržišta te dodjelu bespovratnih sredstava u području poticanja višeg stupnja digitalizacije u društvu. U zemljama na višem stupnju gospodarskog razvoja poduzetnici ulaze u poduzetničke aktivnosti iz uočene prilike, a djelatnosti kojima se bave temelje se najčešće na znanju te primjeni visokoinovativnih tehnologija. Vidljivo je to i iz poduzetničkih aktivnosti *startupova*, koji svojim inovativnim i na znanju temeljenim idejama i poslovnim rješenjima stvaraju nove sektore, poput sektora zelenih tehnologija, Fintech sektora i dr.

Svrha rada je ukazati na važnost razvoja poduzetničkog ekosustava i institucionalne potpore za razvoj *startup* poduzeća kao jednih od presudnih pokretača ekonomskog rasta i razvoja te ostvarenja kako ekonomskih tako i društvenih dobrobiti. Cilj ovoga

rada je istražiti obilježja koncepta poduzetničkog ekosustava te ulogu i značaj institucionalne potpore rastu i razvoju *startup* poduzetništva općenito te ključnih obilježja poduzetničkog ekosustava Republike Hrvatske. Slijedom navedenog, u radu će se pokušati odgovoriti na sljedeća istraživačka pitanja: u čemu se ističe posebnost poduzetničkog okruženja za poticanje *startup* poduzetništva? Koja su obilježja poduzetničkog ekosustava u Republici Hrvatskoj? Koje komponente poduzetničkog ekosustava imaju obilježja manje razvijenosti i više razvijenosti u Republici Hrvatskoj u odnosu na druge usporedne zemlje? Koji su izazovi i preporuke u daljnjem razvoju poduzetničkog ekosustava i institucionalne potpore razvoju *startup* zajednice u Republici Hrvatskoj?

U nastavku se navodi struktura rada. Nakon uvoda, u drugom dijelu rada prikazan je pregled literature o konceptima 'poduzetnički ekosustav', 'institucionalna potpora' i '*startup* poduzetništvo' s ciljem sagledavanja njihove međusobne povezanosti. U sljedećem poglavlju prezentirani su rezultati istraživanja o značajkama poduzetničkog ekosustava i institucionalne potpore u Republici Hrvatskoj te njihova usporedba s odabranim državama. Nadalje slijedi rasprava dobivenih rezultata istraživanja te izvođenje zaključaka, preporuka i smjernica za daljnje istraživanje ove problematike.

2. PODUZETNIČKI EKOSUSTAV, INSTITUCIONALNA POTPORA I *STARTUP* PODUZETNIŠTVO

Startup poduzetništvo termin je koji se u svjetskoj ekonomiji uvriježio tek u novije vrijeme, odnosno zadnjih pedesetak godina. U Hrvatskoj se ova vrsta poduzetništva intenzivnije razvila tek prije dvadesetak godina. Koncept *startupa* nije jednoznačan te se u stručnoj, a ponekad i u znanstvenoj literaturi susreću njegove različite interpretacije. Steve Blank (2005) postavio je jednu od prvih i najpoznatijih definicija *startupa*: "*startup* je privremena organizacija koja je u konstantnom traganju za repetitivnim i skalabilnim poslovnim modelom". Definicija je vrlo sažeta, no i dovoljno široka da obuhvati bit djelovanja ovih aktera. Sâm pojam u literaturi je u početku često bio zamišljen kao organizacija u nastajanju te se *startup* nerijetko izjednačava s bilo kojom novoosnovanom tvrtkom. Ipak, koncept *startupa* u posljednje vrijeme postiže konsenzus, kako od strane akademske zajednice tako i političkih predstavnika. Vodeća institucija u području razvoja i promocije *startupova*, *European Startup Monitor* (ESM), definira *startup* putem tri karakteristike (European Startup Monitor, 2019./2020.):

1. subjekt mlađi od 10 godina
2. razvija inovativan proizvod i/ili uslugu i/ili poslovni model te
3. teži postići skalabilnost (teži zamjetnom rastu broja zaposlenih i/ili prihoda i/ili tržišta na kojem djeluje).

Navedena karakterizacija sukladna je definiciji koju je postavio Steve Blank (2005). Obilježje inovativnosti i sposobnost skalabilnosti ključne su odrednice razlikovanja *startupova* od ostalih novoosnovanih organizacijskih subjekata. Europska komisija u izvještaju *EU Startup Monitor* (2018) daje osvrt na promatrane parametre *startup* poduzetništva na osnovi kojih se može zaključiti da je kapital za ostvarivanje rasta *startupa* obično znatno veći nego za rast ostalih subjekata u sektoru malih i srednjih poduzeća. Nadalje, izvori financiranja su različiti; dok je za malo i srednje poduzeće izvor financiranja najčešće bankovni kredit, za financiranje *startupa* bankovni kredit je tek nužnost ako nisu realizirane ostale mogućnosti (vlastiti kapital, obiteljska i prijateljska pomoć, poslovni anđeli, fondovi rizičnog kapitala).

Kao što je i prethodno navedeno, Blank (2013) ističe da *startup* istovremeno mora težiti postići „repetitivnost poslovnog modela“ (sposobnost postizanja održivosti poslovnog modela u stalnom stvaranju dobiti) i“skalabilnost“ (sposobnost profitabilnog opsluživanja sve većeg broja kupaca, tj. sposobnost brzog poboljšanja performansi uz prisutnost niskih troškova). Sposobnost skalabilnosti posebice dolazi do izražaja u digitalnoj ekonomiji (Autio et al., 2018; Ahmad i Ribarsky, 2018; Bukht i Heeks, 2017), zbog obilježja kao što su niži početni troškovi poslovanja, značajno veći pristup tržištu i potencijalnim kupcima te investitorima na globalnoj razini, poboljšani odnosi s klijentima putem društvenih medija i, posljedično, potencijal za vrlo brzi rast (OECD/European Union; The Missing Entrepreneurs 2019; Van Welsum, 2016). Sukladno tome, većina *startupova* nalazi se u digitalnom sektoru (*European Startup Monitor*, 2018). *Startup* poduzeća dio su novih trendova u ekonomiji. Učinci razvoja i napretka informacijskih i telekomunikacijskih tehnologija nužno dovode do zaključka da je u takvim uvjetima intelektulni kapital najtraženiji i najvrjedniji resurs. Taj resurs nosi značajne promjene ponašanja i mijenja dosadašnje ekonomske postulate. Globalizacija, porast vrijednosti vremena, porast dohotka i pojava novih proizvoda i usluga posljedice su razvoja tehnologija. Navedene promjene dovode do većih zahtjeva konzumenata roba i usluga, što nameće konstantnu potrebu za nečim novim. Zahvaljujući značajkama inovativnosti i značajnog potencijala postizanja brzog rasta, *startupovi* čine ključni izvor gospodarskog rasta i zaposlenosti (Ivanović-Đukić et al., 2019; Steve i Dorf, 2014; Valliere i Peterson, 2009) te interesa političkih predstavnika.

Procesu kreiranja i eksploatacije poduzetničke ideje općenito su inherentni nelinearnost, kompleksnost, eksperimentiranje, improvizacija i efektualna logika (Alsos et al., 2020; Lindholm-Dahlstrand et al., 2019; Sarasvathy, 2001), što posebice dolazi do izražaja u *startup* poduzeću i najranijoj fazi poduzetničke aktivnosti. U toj fazi *startup* poduzetnici ulažu napore u izgradnju legitimiteta među vanjskim dionicima kako bi se olakšao proces pribavljanja resursa te vrednovanja i eksploatacije inicijalnog poduzetničkog koncepta. Međutim, parametara za ocjenu prikladnosti poslovnog koncepta sukladno zahtjevima dionika je malo (poslovni rezultat još ne postoji, inicijalni koncept je maglovit, nejasan, kako zainteresiranim dionicima

tako i samim poduzetnicima) te je problematika eksterne validacije organizacijskog djelovanja od strane okruženja i osiguravanje adekvatne potpore poduzetničkom djelovanju posebno izražena u slučaju *startup* poduzetnika te je stoga i od strateške važnosti za uspjeh *startup* poduzetnika na tržištu.

Za stvaranje i uspjeh *startupova*, kao i gospodarstva u cjelini, vrlo su bitni uvjeti u kojima djeluju, a oni se očituju u kvaliteti političkog i pravnog, ekonomskog, socijalno-kulturološkog i tehničko-tehnološkog okruženja. Stupanj razvijenosti svakog od navedenih čimbenika okruženja i njihova povezanost utječu na pozicioniranje određenog gospodarstva na ljestvici uspješnosti. Pojam 'poduzetnički ekosustav' (Audretsch i Belitski, 2016; Stam, 2015), analogan terminima 'prirodni' i 'biološki ekosustav', terminološki je postavljen sa svrhom da obuhvati elemente u poduzetničkom okruženju koji olakšavaju uspjeh poduzetnicima u ostvarenju vlastitih poduzetničkih namjera. Uvažavajući kontekst *startup* poduzetništva, često korišteni termin u literaturi također je *startup* ekosustav (Fredin i Lidén, 2020; Ojaghi et al., 2019) koji predstavlja zajednicu dionika koji podržavaju efikasan i učinkovit razvoj *startup* poduzetnika. Za snažno i poticajno *startup* poduzetništvo od presudne je važnosti kvaliteta i održivost poduzetničkog ekosustava koji kreira vlada svake zemlje svojim mjerama i politikama kroz vladine institucije ili suradnju s drugim društvenim institucijama koje mogu doprinositi razvoju gospodarstva pojedine zemlje, ali i šire, u slučaju internacionalizacije poslovanja kojem suvremeni *startupovi* teže. Prema izvješću *EU Startup Monitor* (2018) zemlje sa stabilnim poduzetničkim ekosustavom planiraju veći broj zaposlenih u *startupovima*, poput Francuske (17) ili Njemačke (17,2) dok prosječan broj zaposlenih u *startup* poduzećima u EU-u iznosi 12,8. No ne treba zanemariti ni aktivnosti zemalja s poduzetničkim (ne)iskustvom koje, s obzirom na društveno-povijesne događaje, do prije dvadesetak godina gotovo da nije ni postojalo. Tako je zamjetan plan zapošljavanja u Slovačkoj u 2019. g. od gotovo 21 radnika, uz postojećih (2018.) prosječnih 9,5 ljudi. Iskazani podaci govore o tendenciji rasta zapošljavanja u *startup* poduzetništvu, što se može povezati s razvojem poduzetničkog ekosustava.

Isenberg (2010) ističe da poduzetnički ekosustav predstavlja dinamičan koncept koji se konstantno unaprjeđuje, vodeći računa o povezanosti njegovih komponenti, te da je bit održivosti ekosustava holistički pristup poduzetništvu uzimajući u obzir geografske, kulturne i društvene prilike zemlje koje bi mogle doprinijeti potencijalnom rastu, no činjenica je da vlada ne može sama sudjelovati u izgradnji poduzetničkog ekosustava, ali je bitna njena uloga u kreiranju. Također, ekosustav pojedine zemlje ne bi smio biti kopija nekih uspješnica, već prilagođen uvjetima koji vladaju na određenom području sa sposobnosti prilagodbe dinamičnim promjenama na svim razinama društvenih i gospodarskih aktivnosti (Transfer poslovanja u MSP, 2018).

Poduzetnički ekosustav mogao bi se podijeliti u nekoliko ključnih segmenata koji ga definiraju kao interaktivni koncept za rast i razvoj poduzetništva (Mapiranje ekosustava,

2017): strukovna udruženja, mentori, sveučilišta, investitori, procesi povezivanja/udruživanja, udruge, velika poduzeća, vlada. Prema Masonu i Brownu (2014) ključne komponente, tj. obilježja poduzetničkog ekosustava uključuju jezgru velikih poduzeća, uključujući tzv. „poduzetničke *blockbustere*“, poduzetničko recikliranje, pri čemu uspješni poduzetnici reinvestiraju svoje vrijeme, novac i stručnost u potporu novim poduzetničkim aktivnostima, okruženje bogato informacijama u kojemu su te informacije dostupne i djeljive, kulturu, raspoloživost kapitala za rast i razvoj *startupova*, sveučilišta. Gotovo da se ne može izdvojiti koji je element važniji jer su svi elementi povezani u homogenu cjelinu čija se homogenost i uspješnost ogleda u brzini rasta *startup* poduzeća, potpornih institucija i, u konačnici, cijelog gospodarstva.

Pojmom poduzetničkih potpornih institucija mogu se objediniti sve institucije koje svojim politikama, programima, uslugama, ukratko, načinom svog djelovanja, utječu na stvaranje poticajnog poduzetničkog okruženja. U Republici Hrvatskoj to su uglavnom javne institucije koje kroz svoje mjere i posredničke uloge nastoje olakšati poslovanje poduzetnika. Kao najčešći primjeri poduzetničkih potpornih institucija mogu se navesti poduzetnički inkubatori, poduzetnički akceleratori, poduzetnički centri te znanstveno-tehnološki parkovi. Iako se potporne institucije razlikuju prema osnivačima, načinima financiranja, vrstama i načinima pružanja usluga krajnjim korisnicima, cilj im je zajednički, a usmjeren je na stvaranje pozitivnog i poticajnog poduzetničkog okruženja koje će biti prilagođeno rastu i razvoju poduzetničkih aktivnosti. Uz poduzetničke potporne institucije ističu se i poduzetničke zone, a objedinjene predstavljaju poduzetničku infrastrukturu. Stvaranje i unapređenje poduzetničke infrastrukture provodi se s ciljem unapređenja poduzetništva kroz širenje poduzetničkih aktivnosti, povećanje broja gospodarskih subjekata, povećanje investicija i broja zaposlenih sa svrhom ravnopravnog regionalnog i gospodarskog razvoja. Poduzetnička infrastruktura obuhvaća prometnu, energetsku, komunalnu i komunikacijsku infrastrukturu. Kvaliteta organizirane i uspješne poduzetničke infrastrukture sagledava se kao vrlo bitan element za razvoj poduzetničkih zona i poduzetničkih potpornih institucija. Kvaliteta poduzetničke infrastrukture može se pratiti kroz uspješnost poslovanja poduzetničkih zona i njihovih stanara, ali i kroz gospodarski razvoj određenog lokaliteta, što je i temeljni cilj poduzetničkih zona – čim ravnomjerniji gospodarski razvoj različitih područja, regija.

Poduzetnički ekosustav i potporne institucije čine važan element okruženja na kojemu se temelji opstanak i daljnji razvoj *startup* poduzeća te je time njihova uloga u razvoju poduzetništva od presudne važnosti. Skawinska i Zalewski (2020) na osnovi istraživanja o ključnim faktorima uspjeha *startupova* na području Europske unije zaključuju da gospodarski razvijenije države stvaraju institucionalnu konkurentnu prednost *startupovima*, dok se jaz u čimbenicima uspjeha između visokorazvijenih i manje razvijenih država može ponajviše pripisati ljudskom kapitalu i institucijama. Tripathi et al. (2019) u empirijskom istraživanju učinkovitosti komponenti

poduzetničkog ekosustava na softverski intenzivne *startupove* u Finskoj ističu kako adekvatan *startup* ekosustav može potaknuti stvaranje za softverske *startupove* učinkovitog tzv. „minimalnog održivog proizvoda" (engl. *minimum viable product*) u svrhu testiranja proizvodnih ideja i pronalaženja odgovarajućeg proizvodno-tržišnog sklada.

3. ZNAČAJKE PODUZETNIČKOG EKOSUSTAVA I INSTITUCIONALNE POTPORE PODUZETNIŠTVU U REPUBLICI HRVATSKOJ

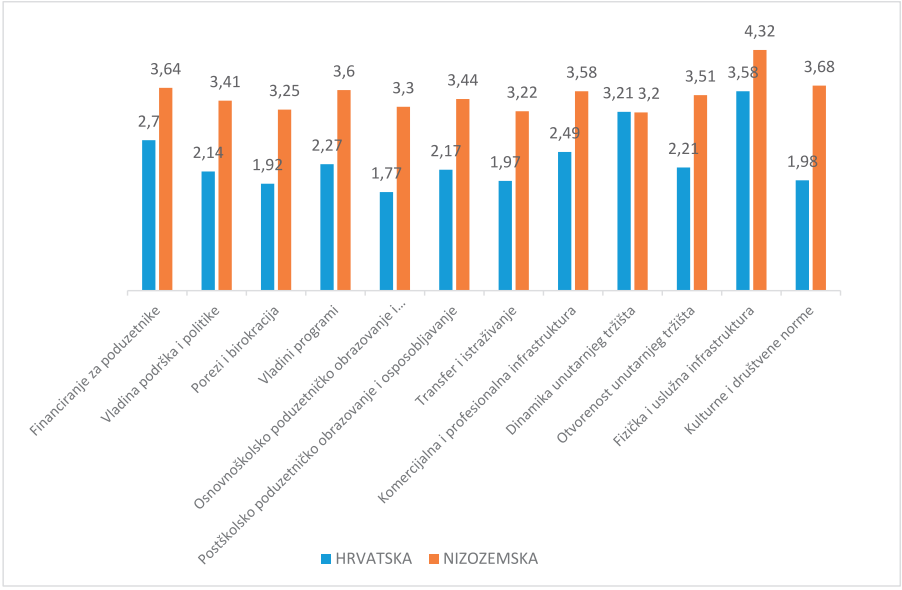
Tek u posljednjih dvadesetak godina u hrvatskom se gospodarstvu malim koracima pokreće razvoj malog i srednjeg poduzetništva općenito, privatne inicijative individualaca, a u posljednje vrijeme i *startup* zajednice. Razvoj tehnologije i informacijska revolucija dovode do globalizacije gdje razvoj interneta igra veliku ulogu. Otvaraju se nova područja znanja i djelovanja. Tim putem kreću i hrvatski poduzetnici koji svojim udruženjima i umrežavanjima okupljaju interesne skupine i djeluju na Vladu, koja ih počinje uvažavati uz osnivanje državnih tijela namijenjenih upravo poticanju takvih gospodarskih aktivnosti.

Uvrštavanjem i praćenjem Hrvatske u rezultatima renomiranih svjetskih istraživanja o poduzetništvu, odnosno po poziciji Hrvatske u tim istraživanjima, vidljiv je i razvoj poduzetničkog ekosustava te potpornih institucija koje sudjeluju u poticanju poduzetništva, odnosno ocjena kvalitete okruženja u kojima poduzetnici djeluju. U Hrvatskoj CEPOR (Centar za politiku razvoja malih i srednjih poduzeća i poduzetništva) prati i objavljuje rezultate međunarodnih istraživanja kao što su: GEM (*Global Entrepreneurship Monitor*, konzorcij Global Entrepreneurship Research Association), *Lakoća poslovanja* (*Doing Business*, Svjetska banka), *Izvješća o globalnoj konkurentnosti* (Svjetski gospodarski forum), *Indeks percepcije korupcije* (Transparency International) te *SBA* (*Small Business Act*) i *Izvješće europskog semestra* (oba provodi Europska komisija) (Hrvatska u međunarodnim izvještajima, 2019).

Cilj rezultata GEM istraživanja, konzorcija sastavljenog od nacionalnih timova akademskih institucija, je razvoj nacionalnih poduzetničkih ekosustava. Da bi se uspješno ostvario cilj istraživanja i implementacija dobivenih rezultata, odnos prema poduzetništvu se promatra kroz ekonomski, političko-pravni, socio-kulturoški, tehničko-tehnološki segment promatranog gospodarstva. Podaci se prikupljaju kroz dva komplementarna alata: *APS* (*Adult Population Survey*) i *NES* (*National Expert Survey*). Izvještaj na bazi *NES*-a formiran je kako bi se uskladile nacionalne mjere kao indeksi dijelova poduzetničkog okruženja – *Entrepreneurial Framework Conditions* (*EFC*). Za *NES* istraživanje karakteristično je da se sastoji od 36 stručnjaka iz svake zemlje sudionice GEM-a. Prikupljeni regionalni i nacionalni podaci se uspoređuju i

usklađuju. Usklađivanje se vrši prema grupi pitanja za određeni aspekt poduzetničkog okruženja za sve sudionike istraživanja te se na taj način dobivaju jedinstveni parametri svakog uvjeta poduzetničke okoline. Primjerice, uvjet poduzetničke okoline – pristup novcu – formiran je grupom pitanja od šest stavaka koje uključuju informacije o pristupu različitim izvorima financiranja: kapital, dug, poslovni anđeli, vladin udio u financiranju, inicijalna javna ponuda (IPO) (Nacionalno stručno istraživanje, 2019). Po tim principima dobivaju se i indeksi ostalih uvjeta poduzetničkog okruženja. Na grafikonu 1 prikazana je usporedba Hrvatske, kao predzadnje zemlje po razvijenosti poduzetničkog okruženja, i Nizozemske, kao zemlje s najboljim uvjetima za razvoj poduzetništva unutar Europske unije.

Grafikon 1. Indeksi poduzetničkog okruženja Hrvatske i Nizozemske (*NES*) u 2019.



Izvor: autorice prema podacima *Global Entrepreneurship Monitor* (2019)

Iz navedenog se može zaključiti da hrvatska Vlada i institucije moraju biti agilnije te krenuti s radikalnim promjenama u načinu provođenja institucionalnih mjera kako bi poduzetničko okruženje pružalo bolje uvjete poduzetnicima te ih na taj način zadržalo na svom teritoriju, a prema podacima iz grafikona, najlošije pozicionirano je osnovnoškolsko obrazovanje poduzetnika.

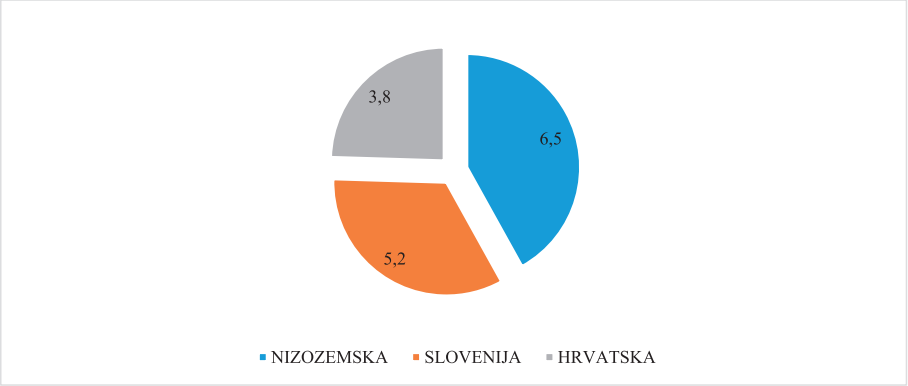
Slijedom novih pristupa poduzetništvu i razvojem samog poduzetništva kao djelatnosti, nužna je i primjena novih pitanja i tema obuhvaćenih u istraživanjima. Mnogobrojnost komponenti ima svojih prednosti i nedostataka. S obzirom na to da je zbog mnogobrojnosti teško sagledati kvalitetu poduzetničke okoline kao homogene cjeline,

od 2018. godine GEM usvaja novi indikator – kompozitni indeks procijenjene snage nacionalne poduzetničke okoline (*NECI – National Entrepreneurship Context Index*) utemeljen na 12 društvenih kategorija poduzetničkog okruženja. Istraživanjem su obuhvaćene 54 zemlje svijeta. Cilj ovoga izvještaja je ocjena poduzetničkog okruženja svake pojedine zemlje po svim promatranim parametrima. Ocjenu donose nacionalni timovi stručnjaka rangirajući pojedina gospodarstva prema dobivenim rezultatima koji su ocjena snage poduzetničkog okruženja u cjelini i predstavljaju izvor informacija za određene interesne skupine. Obuhvaćene komponente poduzetničke okoline u *NECI* izvještajima su: pristup novcu, vladine politike – prioriteti i podrška, vladine politike – porezi i regulative, vladini programi usmjereni poticanju poduzetništva, poduzetničko obrazovanje – osnovno i srednje, poduzetničko obrazovanje – tercijarno, prijenos istraživanja i razvoja, profesionalna i komercijalna infrastruktura, otvorenost tržišta – dinamika promjena, otvorenost tržišta – barijere ulasku, fizička infrastruktura, kulturne i društvene norme (*Komponente poduzetničke okoline*, 2019).

NECI se izračunava kao ponderirana aritmetička sredina važnosti i stanja (kvalitete) 12 komponenti poduzetničke okoline. Procjena važnosti temelji se na mišljenju stručnjaka koliko je pojedina komponenta ključna za stimuliranje i podržavanje poduzetničkih aktivnosti u gospodarstvu zemlje u godini u kojoj se istraživanje provodi. Percepciju važnosti svake od 12 komponenti eksperti izražavaju koristeći Likertovu skalu 1–10, gdje je ocjena 1 = nimalo važno, ocjena 10 = iznimno važno.

NECI vrijednosti za pojedinu zemlju predstavljaju procijenjenu snagu nacionalnog poduzetničkog okvira. Dobivena ponderirana vrijednost *NECI* indeksa interpretira se korištenjem raspona od 1 do 10, gdje je 1 = vrlo loš poduzetnički kontekst, 10 = vrlo dobar poduzetnički kontekst. Navedene vrijednosti osnova su za rangiranje poduzetničke okoline / konteksta zemalja koje sudjeluju u GEM istraživanju (*NECI* indeks, 2019). Na grafikonu 2 izdvojene su i prikazane tri zemlje sudionice obuhvaćene istraživanjem. To su Nizozemska, kao jedna od najprikladnijih zemalja za razvoj poduzetništva prema GEM-ovim indikatorima, Slovenija, kao susjedna zemlja, te Hrvatska, kao zemlja u kojoj je nužno učiniti puno promjena u svim elementima poduzetničkog okruženja. Takvu tvrdnju opravdava i mjesto koje Hrvatska zauzima u *NECI*-jevu poretku za 2018. godinu. Od ukupno 54 mjesta, Hrvatska je na 53., a iza Hrvatske je još samo Mozambik (3,2).

Grafikon 2. Rezultati istraživanja *NECI* (*National Entrepreneurship Context Index*) za 2018.



Izvor: autorice prema podacima iz *Global Entrepreneurship Monitor* (2019)

U odnosu na promatrane zemlje prikazane na grafikonu, i u odnosu na sve zemlje obuhvaćene istraživanjem, Hrvatska ima vrlo nizak indeks poduzetničke aktivnosti što upućuje na vrlo nisku ocjenu poduzetničkog okruženja. Utjecaj i kvaliteta regulatornog okruženja predmet su istraživanja o lakoći poslovanja koje provodi Svjetska banka. Indikatori koji pokazuju mogućnost ostvarenja poslovnih aktivnosti obuhvaćenih ovim istraživanjem su opskrbljenost električnom energijom, dobivanje građevinske dozvole, plaćanje poreza, zaštita investitora, uknjižba imovine, kreditiranje, rješavanje nesolventnosti, propisi o tržištu rada i propisi za otvaranje poduzeća. Istraživanje Svjetske banke iznosi rangiranje zemalja po pojedinačnim indikatorima, ali i ukupno za svaku zemlju. U tablici 1 su usporedbe Hrvatske s dvije europske zemlje (Njemačka i Slovenija) i s ukupnim svjetskim poretkom s obzirom na dva indikatora regulatorne okoline (propisi za otvaranje poduzeća i plaćanje poreza) promatrane u istraživanju o lakoći poslovanja u 2018. godini.

Tablica 1. Lakoća poslovanja – dva odabrana indikatora kvalitete regulatorne okoline za 2018. g.

Regulatorno područje	Pokazatelj			
	Hrvatska	Najbolji indikator (zemlja)	Njemačka	Slovenija
PROPISI ZA OTVARANJE PODUZEĆA				
Broj procedura	8	1 (Gruzija i Novi Zeland)	9	3
Vrijeme (dani)	22,5	0.5 (Novi Zeland)	8	8
Trošak (% dohotka *pc*)	6,6	0 (Slovenija)	6,7	0
Najniži iznos temeljnog kapitala koji je potrebno uplatiti (% od dohotka *pc*)	11,6	0 (Australija i Kolumbija)	31	6,8
PLAĆANJE POREZA				

Broj plaćanja godišnje	34	3 (Hong Kong i Saudijska Arabija)	9	10
Vrijeme (broj sati godišnje)	206	49 (Singapur)	218	233
Ukupno porezno opterećenje (% dobiti)	20,5	26.1 (Kanada i Singapur)	49	31

Izvor: The International Bank for Reconstruction and Development / The World Bank (2019)

U tablici 2 učinjena je usporedba Hrvatske u odnosu na susjedne zemlje uz prikaz prvih pet pozicija na ukupnoj ljestvici svjetskog poretka indikatora o lakoći poslovanja. Vidljivo je da prvih pet mjesta uzastopno zauzimaju iste zemlje, sa zanemarivim promjenama (Danska – 2018. godine bila je na 3. mjestu, Hong Kong na 4., dok su u 2019. godini zamijenili pozicije pa je Danska 4., a Hong Kong 3.).

Tablica 2. Rangiranje *Doing Business* – usporedba Hrvatske sa susjednim zemljama i s ukupnim svjetskim poretkom u 2018. i 2019. godini

	2018.		2019.	
	Pozicija na rang-ljestvici	Broj ostvarenih bodova	Pozicija na rang-ljestvici	Broj ostvarenih bodova
Novi Zeland	1	86,59	1	86,8
Singapur	2	85,24	2	86,2
Danska	3	84,64	4	85,3
Hong Kong	4	84,22	3	85,3
Republika (Južna) Koreja	5	84,14	5	84
Sjeverna Makedonija	10	81,55	17	80,7
Slovenija	40	75,61	37	76,5
Kosovo	44	74,15	57	73,2
Srbija	48	73,49	48	75,7
Crna Gora	50	72,73	50	73,8
Hrvatska	58	71,4	51	73,6
BiH	89	63,82	90	65,4
Somalija	190	20,04	190	20

Izvor: autorice prema podacima iz The World Bank (2018, 2019)

Hrvatska bilježi pozitivne pomake; 2018. godine zauzimala je 58. mjesto, dok se u 2019. godini pozicionirala na 51. mjestu. Popravljanje položaja na svjetskoj listi izazvano je porastom kvalitete indikatora uknjižbe imovine. No ipak, treba spomenuti da je, od svih susjednih zemalja, samo Bosna i Hercegovina iza Hrvatske, a ostale zemlje su ispred. Somalija uvjerljivo drži zadnje mjesto na rang-listi ovoga istraživanja.

4. RASPRAVA I ZAKLJUČCI

Startup poduzeće je oblik poduzeća s ciljem rasta i brzog širenja temeljenog na inovaciji koja može biti potpuno nova ideja, ali i inovativno rješenje kroz unapređenje postojećeg proizvoda ili usluge, s ambicijama globalnog širenja, uključujući nezanemariv rizik od neuspjeha (Bortolini et al., 2018; Kuester et al., 2018). Potencijal *startupa* je uglavnom intelekt samog osnivača, njegova ideja, prije svega, a potom slijede ostale karakteristike uspješnog poduzetnika, a to su, između ostalih, kreativnost, sklonost riziku, prihvaćanje promjena i prilagođavanje promjenama. *Startup* poduzeća imaju značajan potencijal za povećanje razine inovativnosti i konkurentnosti nacionalnih gospodarstava, što posebice dolazi do izražaja u kriznim razdobljima, kao što je poslovanje u uvjetima pandemije virusa COVID-19. Naime, većina *startupova* posluje u digitalnom sektoru te im upravo digitalna tehnologija omogućava postizanje ubrzanog poslovnog rasta, tj. skalabilnosti te su digitalni *startupovi* vrlo efikasan mehanizam za kanaliziranje prednosti digitalne tehnologije u gospodarstvo i društvo te postizanje gospodarskog rasta i razvoja nužnog za oporavak gospodarstava u uvjetima pandemije.

Na osnovi dobivenih rezultata istraživanja vidljivo je da su potporne institucije u Hrvatskoj još uvijek vrlo neučinkovite u svojoj funkciji pružanja potpore *startup* poduzetnicima. Prema rezultatima analize zaključuje se da su poduzetnički ekosustav te institucionalna potpora u Hrvatskoj na niskoj, te stoga demotivirajućoj razini u kontekstu pružanja potpore razvoju poduzetničkih, a posebice *startup* aktivnosti. Hrvatska se ne može uspoređivati sa SAD-om, koji je prepoznao značenje vrijednosti inovativnih ideja i od toga stvorio svjetski prepoznatljivu kategoriju – Silicijsku dolinu, ali može učiti na tom i sličnim primjerima. Doduše, da bi se ostvarili uvjeti kakvi su u Silicijskoj dolini, puno je drugih faktora koji trebaju biti zadovoljeni na nacionalnoj razini te u svim društvenim segmentima, a u tome su od presudne važnosti upravo poduzetničke potporne institucije. Međutim, u Hrvatskoj postoji nekoliko vrlo uspješnih *startupova* te se može istaknuti da je Hrvatska u kriznoj 2020. godini dobila svog prvog jednoroga Infobip (engl. *unicorn*), *startup* tvrtku vrijednu milijardu ili više dolara. Primjerice, Njemačka ima 15 takvih tvrtki, Francuska osam, a Japan četiri (*Number of unicorns worldwide as of April 2021*, 2021). Na tragu takvih uspješnih *startup* primjera na globalnom tržištu, u Hrvatskoj je dodatno potaknuto stvaranje pozitivne društvene percepcije o *startup* poduzetničkim aktivnostima, što svakako predstavlja bitan element poduzetničkog okruženja koji mora djelovati motivirajuće za ulazak u vrlo inovativne, ali i rizične aktivnosti *startup* poduzeća. Uloga potpornih institucija vidljiva je već u razvojnoj fazi *startupa*, gdje je nužnost stabilnog i pozitivnog poduzetničkog okruženja od presudne važnosti za nastavak motivacije i izgradnju temeljnih vrijednosti poslovanja. U fazi ostvarivanja prihoda bitna je uloga financijskih potpornih institucija koje su spremne uložiti u *startup* projekte. U Hrvatskoj je najpoznatija financijska institucija CRANE – mreža poslovnih anđela – od kojih je veliki broj nastao upravo iz

startup poduzeća.

Prema svemu navedenom, može se zaključiti da se u Hrvatskoj vide pomaci u razvoju poduzetništva te da hrvatski *startup* ekosustav ima veliki potencijal, ali za još veće pomake i bolje rezultate potrebno je značajno poboljšanje svih komponenti poduzetničkog ekosustava te je uputno pridržavati se smjernica koje proizlaze iz raznih svjetskih izvješća kojima je obuhvaćena i Hrvatska. Konkretno, *SBA* (*Small Business Act*) te izvješće (*Pristup financijskim sredstvima*, 2019) u segmentu svog istraživanja upućuju na dio vladinih politika koje se moraju mijenjati u kontekstu olakšavanja pokretanja poduzeća, razvijanja uvjeta za nastup na jedinstvenom tržištu, od kojih je jedno od mogućih rješenja i pronalaženje komparativnih prednosti kao izvor konkurentnosti, poticanje i razvoj inovacija kroz subvencije i olakšice za inovatore. Nadalje, u kontekstu poticanja *startup* poduzetničkih aktivnosti važna je podrška dodatnih izvora rizičnog kapitala za financiranje *startupova*, uključivanje hrvatske *startup* zajednice u programe globalne umreženosti *startupova*, kreiranje programa koji će omogućiti veći izlazak na nova tržišta te dodjelu bespovratnih sredstava u području poticanja višeg stupnja digitalizacije u društvu.

Osim toga, bitna je veća suradnja sa sveučilištima i znanstvenim ustanovama. Stvaranje znanstveno-tehnoloških parkova pruža poticaj i sigurnost mladim inovatorima. U Hrvatskoj su znanstveno-tehnološki parkovi uglavnom smješteni u regionalnim centrima kao i postojeći poduzetnički inkubatori. Veća decentralizacija mogla bi dovesti do razvoja manjih sredina, no za to je potrebna motivacija potencijalnih stanara koji su spremni odreći se urbanih središta i otići u neka udaljenija mjesta. Lokalna uprava putem kreiranja i donošenja takvih ciljanih poticajnih mjera može u tom smjeru pozitivno utjecati. Također, neke od mjera su i organizacija mjesta okupljanja *startup* poduzetnika s namjerom povezivanja postojećih uspješnih zrelih poduzeća sa *startupovima* s naglaskom na postizanje umrežavanja te dijeljenje znanja i vještina, što svakako predstavlja stimulativni alat "nicanja" poduzetničkog sjemena temeljenog na inovaciji i znanju. Vrijednost umreženosti vidljiva je u uspješnosti opstanka i rasta *startupova*. Da bi se osigurali uvjeti uspješnog umrežavanja, neophodno je osnivanje centara, središta (engl. *hub*) u kojima se odvijaju komunikacijske aktivnosti sudionika ekosustava. Aktivno sudjelovanje u takvim centrima donosi dobrobiti za postojeće poduzetnike koji kroz volontiranja i/ili savjetovanja učvršćuju svoju poziciju u zajednici, a za mlade ili tek potencijalne poduzetnike predstavlja poticaj za lakše rješavanje administrativnih, organizacijskih ili bilo kojih drugih problema s kojima se susreću na samom početku pokretanja poslovanja. Zajedništvo je osjećaj koji općenito motivacijski djeluje na mnoge poduzetnike, stoga ga izuzetno cijene jer smatraju da je upravo osjećaj zajedništva motiv bolje suradnje poduzeća s lokalnim zajednicama što rezultira boljim poslovanjem, koje se manifestira kroz veće prihode i bolje proizvode. *U fokusu je modernog gospodarstva holistički pristup te i u kontekstu kreiranja poticajnih startup ekosustava, kako su istaknuli Mason i Brown (2014),*

gdje se jednako preferiraju i društveni i ekonomski prioriteti, s istim ciljem, a to je zadovoljavanje ljudskih potreba rastom i razvojem održivog gospodarstva.

Nedostatak objedinjene evidencije broja *startupova* u Hrvatskoj te prilična odsutnost Hrvatske u recentnim svjetskim i europskim programima i projektima u području analize *startupova*, njihovih značajki i trendova daljnjeg razvoja predstavljao je poteškoću u istraživanju i donošenju zaključaka o obilježjima i razini kvalitete poduzetničkog ekosustava. Poželjan smjer daljnjih istraživanja o ovoj problematici je provedba empirijskih istraživanja detaljnije kvantitativne i kvalitativne usporedbe poduzetničkog ekosustava Republike Hrvatske i odabranih država regije. Posebno se to odnosi na ispitivanje pojedinih komponenti poduzetničkog ekosustava koje pružaju značajniji doprinos stvaranju uspješnih *startupova*. Nadalje, vrlo korisnim se smatra provođenje osnovice kvalitativnih istraživanja koja mogu pružiti detaljnije razumijevanje problematike i specifičnosti *startup* ekosustava i *startup* poduzetnika u Hrvatskoj.

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ENTREPRENEURIAL ECOSYSTEM AND INSTITUTIONAL SUPPORT TO STARTUP ENTREPRENEURSHIP IN THE REPUBLIC OF CROATIA

Abstract

Startups are a key source of economic growth and employment, which can be attributed to their characteristics of high innovation and significant potential for achieving rapid growth and a scalable economic model, especially in the digital economy. Startup entrepreneurs' demand for a stable business environment and an appropriate entrepreneurial ecosystem impose the development and implementation of institutional support through a range of measures and activities. Therefore, the strength of startup entrepreneurial activity is often measured through the quality of the entrepreneurial ecosystem. The purpose of this paper is to point out the importance of the development of the entrepreneurial ecosystem and institutional support for the development of startup entrepreneurship and to identify challenges and recommendations for the development of the entrepreneurial ecosystem for startups in the Republic of Croatia. Based on the presented indicators of the entrepreneurial ecosystem of the Republic of Croatia and comparison with selected countries, it is concluded that the entrepreneurial ecosystem and institutional support in Croatia are at a low, and therefore demotivating level in the context of supporting startup activities. However, a qualitative analysis of recent events in the startup community in Croatia implies the existence of a significant potential for the development of a stimulating and effective startup ecosystem, the benefits of which are especially emphasised in times of economic crisis, such as doing business in the COVID-19 pandemic.

Keywords: entrepreneurial ecosystem, institutional support, entrepreneurial support institutions, startup, Republic of Croatia

JEL classiffication: O30, O38, O43

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KAKO DO VEĆE ZASTUPLJENOSTI OSIGURANJA RIZIKA OD POTRESA U HRVATSKOJ?

Sažetak

Republika Hrvatska je među zemljama koje su izložene riziku od potresa jer se nalazi na seizmički i tektonski aktivnom području. U 2020. godini stanovništvo su zadesila dva razorna potresa. Prvi se dogodio na području Zagreba i okolice, a drugi na području Banovine, oba magnitude iznad pet. Štete nastale potresima ukazale su na vrlo visok udio neosiguranih šteta te vrlo nisku zastupljenost osiguranja od potresa. Time je financiranje nastale štete u velikoj mjeri naslonjeno na proračunska sredstva i ulogu države te pomoć Europske unije. Cilj ovoga rada je analizirati nove metode transfera rizika od potresa te pristupe poticanju veće zastupljenosti osiguranja od potresa kao jednog od oblika financiranja katastrofalnih šteta. Metodološki okvir u radu čini kvalitativno istraživanje metodom intervjua kroz triangulacijski proces intervjuiranjem stručnjaka različitih profila i stručnosti. U radu se ukazuje na inozemna iskustva u oblikovanju poticajnog okvira osiguranju od rizika od potresa te novije proizvode i tehnike osiguranja, dok se kroz istraživanje raspravljaju mogućnosti i pristupi oblikovanju sustava osiguranja i umanjenja rizika od potresa kao i modeli financiranja katastrofalnih šteta izazvanih potresom.

Ključne riječi: potres, osiguranje od potresa, financiranje rizika od potresa, kvalitativna analiza, triangulacija

JEL klasifikacija: G22, G28, G52, H84

1. UVODNA RAZMATRANJA

Rizik koji nosi potres i sama mogućnost njegova nastupanja postali su jednom od najaktualnijih tema nakon niza potresa koji su zadesili kontinentalnu Hrvatsku. Štete koje su nastale kao posljedica potresa su izrazito visoke, oko 86 milijardi kuna za Zagreb i okolicu te oko 41,6 milijardi kuna za Banovinu. Sveukupni iznos je oko 128 milijardi kuna koji je jednak iznosu oko 90 % proračuna (Ministarstvo prostornog uređenja, graditeljstva i državne imovine, 2021).

U slučaju događaja potresa, države tj. vlade u pravilu se izložene značajnim troškovima u vezi s hitnim reagiranjem, obnovom javne imovine, financijskom pomoći i naknadama pogođenim područjima, uključujući aranžman javnog osiguranja. Ekstremne katastrofalne štete mogu uzrokovati financijsku nestabilnost društava za osiguranje ako gubici izazvani isplatama šteta premašuju rezerve i kapital, uključujući prihode od aranžmana za reosiguranje (OECD, 2018).

Visoka je važnost osiguranja i reosiguranja za makroekonomsku stabilnost zemlje kad su u pitanju rizici od prirodnih katastrofa (Von Peter et al., 2012). Često se ističu primjeri Haitija i Novog Zelanda, država koje su bile pogođene snažnim potresima magnitude 7,0 i 7,1 u 2010. godini, koji su uzrokovali velike materijalne štete. Ekonomski gubici Haitija koji se mogu izravno pripisati katastrofi iznosili su 8 milijardi američkih dolara ili 126 % njihovog BDP-a 2010. godine. Uz materijalne i ekonomske gubitke Haiti je imao visok broj smrtnih slučajeva koji se procjenjuje na oko 2,25 % ukupne populacije. Neizravni makroekonomski učinci koji su rezultat potresa 2010. g. uključuju pad realnog rasta s 3,5 % na -5,1 % samo u 2010. godini. U slučaju Novog Zelanda, izravni gubici bili su slične veličine u apsolutnom iznosu – oko 6,5 milijardi dolara (5,3 % BDP-a), a sâm događaj nije donio smrtne slučajeve u populaciji od 4,3 milijuna. Neizravni makroekonomski učinci znatno su drugačiji od onih na Haitiju. Četvrto tromjesečje bilježi ekonomski rast od 1,7 %, dok je u prethodnom tromjesečju iznosio 1,2 %. Nakon drugog potresa u veljači 2011. g., rast je ostao pozitivan, ali nešto niži, na razini od 1,1 do 1,6 %, da bi sredinom 2012. godine narastao do 2,0 %. Glavni razlog takvoj razlici je u financijskoj pripremljenosti za takve događaje: 81 % nastalih izravnih gubitaka na Novom Zelandu pokriveno je i naknadno isplaćeno na temelju postojećih ugovora o osiguranju. Pokrivenost osiguranja na Haitiju bila je ispod 1 % pa su bili ovisni o isplati inozemne pomoći. U slučaju Novog Zelanda, sanaciju štete u velikoj mjeri pokrili su inozemni reosiguratelji i financijsko tržište kroz dobro pokriće osiguratelja ugovorima o reosiguranju te kroz alternativne metode transfera rizika. Prema Von Peter et al. (2012) velike prirodne katastrofe imaju značajne negativne učinke na gospodarsku aktivnost, kako kratkoročno tako i dugoročno. Međutim, uglavnom su neosigurani gubici ti koji uzrokuju naknadne makroekonomske troškove, dok su dovoljno osigurani događaji beznačajni s obzirom na propuštenu proizvodnju.

Za većinu zemalja najveći problemi u upravljanju fiskalnim rizicima prirodnih nepogoda su manjak sredstava, slaba koordinacija i loša reakcija, a s takvim problemima se suočava i Hrvatska (Primorac i Golub, 2019). Prirodne nepogode su sve učestalije i stvaraju veliko opterećenje za državni proračun kao glavni izvor financiranja troškova.

Cilj ovoga rada je analizirati nove metode transfera rizika od potresa te pristupe poticanju veće zastupljenosti osiguranja od potresa kao jednog od oblika financiranja katastrofalnih šteta. Metodološki okvir u radu čini kvalitativno istraživanje metodom intervjua kroz triangulacijski proces intervjuiranjem stručnjaka različitih profila i stručnosti. U radu se ukazuje na inozemna iskustva u oblikovanju poticajnog okvira osiguranja od rizika od potresa te novije proizvode i tehnike osiguranja, dok se kroz istraživanje raspravljaju mogućnosti i pristupi oblikovanju sustava osiguranja rizika od potresa kao i modeli financiranja katastrofalnih šteta izazvanih potresom.

U prvom dijelu rada iznesena su uvodna razmatranja te ciljevi i motivacija za predmetno istraživanje. U drugom poglavlju prikazan je pregled literature o problemu *protection gapa* kod imovinskog osiguranja od prirodnih katastrofa te vrste pokrića rizika potresa koje uključuju obvezno osiguranje, standardno pokriće u imovinskim policama te obveznu ponudu osiguranja od potresa. Također su objašnjeni alternativni transfer rizika putem reosiguranja te parametarsko osiguranje. O potresima na području Republike Hrvatske prouzročenim štetama i pokrivenosti osiguranjem te zakonodavnom okviru govori se u trećem poglavlju. Nadalje, u četvrtom poglavlju opisano je primarno kvalitativno istraživanje u obliku triangulacijskog procesa, metodologija i istraživački proces. U petom poglavlju izneseni su rezultati te doneseni zaključci o mogućim rješenjima financiranja u Hrvatskoj. Na kraju rada zaključak donosi preporuke nositeljima politika te ukazuje na ograničenja istraživanja i preporuke za daljnja istraživanja u ovome području.

2. OSIGURANJE RIZIKA OD POTRESA: PREGLED LITERATURE I VRSTE POKRIĆA

2.1. Pregled literature

Niska zastupljenost osiguranja od prirodnih katastrofa indicira visoki *protection gap* koji podrazumijeva neosigurani dio šteta nekog događaja, tj. razliku između ukupnih ekonomskih i osiguranih gubitaka (Holzheu i Turner, 2018). Prema Holzheu i Turneru, u 2016. godini *protection gap* rizika od prirodnih katastrofa iznosio je oko 180 milijardi američkih dolara na globalnoj razini. Tijekom posljednjih 40 godina zbog ekstremnih prirodnih katastrofa globalni gubici iznosili su oko 4.000 milijardi američkih dolara, od čega su 1.100 milijardi USD od prirodnih katastrofa potresa i tsunamija. 1.100 milijardi USD nadoknađeno je putem osiguranja, a oko 2.900 milijardi ostalo je neosigurano te upravo taj iznos označava *protection gap*. U prosjeku je neosigurano čak oko 70 %

gubitaka u ekonomskim katastrofama.

Različiti su čimbenici visokog *protection gapa.* Istraživanja pokazuju da iskustvo prirodnih katastrofa povećava očekivanje stanovništva za ponovnim takvim događajima, a posljedično utječe i veću potražnju za ugovaranjem polica osiguranja imovine. Cameron i Shah (2012) ukazuju na to da pojedinci koji su nedavno pretrpjeli poplavu ili potres pokazuju veću averziju prema riziku u odnosu na osobe koje žive u sličnim područjima, a utjecaj traje nekoliko godina, osobito ako je katastrofa imala značajne posljedice. U relevantnoj literaturi neki od ostalih razloga za potražnju za imovinskim osiguranjima ističu ekonomski standard države, financijsku pismenost, razvijenost financijskog sustava, pravnu sigurnost i zakonsku regulaciju. Važnu ulogu u prodoru osiguranja u nekoj državi imaju financijska pismenost i ulaganje u edukaciju građana o financijskim proizvodima i njihovoj važnosti za financijsku i ekonomsku stabilnost. Istraživanje Treerattanapun (2011) ukazuje na to da bi obrazovanje podiglo svijest o riziku i dovelo do financijske stabilnosti olakšavajući razumijevanje proizvoda osiguranja. Hofstede (1995) ističe da je osiguranje nematerijalni proizvod koji potencijalni osiguranici subjektivno cijene kroz tri važne vrijednosti: solidarnost, neovisnost i predvidljivost. Uvjetovan je i vrijednostima koje dominiraju u određenom društvu i vrijednostima koje su nastale tijekom godina.

Slaba regulacija prava vlasništva, posebice prisutna u gospodarstvima u razvoju, može ograničiti potražnju za osiguranjem. Esho et al. (2004) pokazuju pozitivnu vezu između zaštite imovinskih prava i kupnje osiguranja. Treerattanapun (2011) utvrđuje da korupcija i politički rizik mogu smanjiti potražnju za osiguranjem jer štete izvršenju ugovora o osiguranju. Empirijski rezultati sugeriraju da je kulturno uvjerenje potrošača snažna odrednica potražnje za proizvodima neživotnog osiguranja. Za poticanje prodaje polica osiguranja bitna je i razvijenost financijskog sektora, a posebice konkurencija na tržištu osiguranja. Browne et al. (2000) ističu da prisutnost stranih konkurenata na tržištu povećava konkurenciju i raznolikost proizvoda te potiče mogućnost povećanja prodora osiguranja, dok velika koncentracija na tržištu smanjuje potražnju i prodor.

Prema Browneu i Hyotu (2000) očekivanja državne pomoći nakon katastrofe mogu smanjiti potražnju za privatnim osiguranjem, kako na razvijenim tako i na tržištima u razvoju. Također, istraživanje američkih vlasnika kuća (Kousky et al., 2013) otkrilo je da povećanje prosječnih potpora za 1 USD smanjuje prosječni iznos osiguranja za oko 6 USD.

Dio problema koji naglašavaju *protection gap* u svijetu inherentni su i za cjelokupan sustav osiguranja. Specifičnost sektora osiguranja je njegova cikličnost u formi ponavljajućeg obrasca uspona i padova cijene osiguranja i dobiti (re)osiguratelja (Meier i Outreville, 2006). Imovinsko i industrijsko reosiguranje izuzetno su pod utjecajem ciklusa osiguranja. Iako je cikličnost osiguranja prisutna u ugovorima o

proporcionalnom reosiguranju, a posebno su neproporcionalni i fakultativni ugovori o reosiguranju ciklični (Swiss Re, 2002). Mnoge empirijske studije istraživale su postojanje i uzroke cikličnosti društava za osiguranje tijekom posljednjih dvadeset godina. Istraživanje Lenga i Meiera (2006) dokazali su da ciklusi neživotnog osiguranja ovise o specifičnostima lokalnog tržišta i unutarnjim utjecajima, a ne o međunarodnim kretanjima.

Protection gap predmet je istraživanja i EIOPA-e (Europskog nadzornog tijela za osiguranje i strukovno mirovinsko osiguranje) koje radi na prikazu povijesnog i procjenu trenutnog *protection gapa* kroz mapu rizika. Ciljevi EIOPA-e u smjeru smanjenja ovoga problema su: povećati svijest svih dionika o *protection gapu*, promovirati znanstveno zasnovan pristup upravljanju nedostacima zaštite od prirodnih katastrofa i donošenju odluka vezanih za prevenciju nastanka šteta, identificirati rizična područja i temeljne pokretače rizika *protection gapa*, razviti proaktivne mjere prevencije na temelju detaljne procjene pokretača rizika, identificirati potencijal sinergije između nacionalnih politika za poboljšanje zaštite od prirodnih katastrofa preko granica na europskoj razini (EIOPA, 2020).

Prema publikaciji OECD-a o financijskom upravljanju rizikom od potresa (2018), mogućnost osiguranja od rizika od potresa uključuje niz pitanja oko osigurljivosti rizika zbog kojih društva za osiguranje naplaćuju premije za pokriće osiguranja od potresa koje premašuju iznos koji je većina osiguranika spremna platiti, a to posljedično dovodi do ograničenog dobrovoljnog ugovaranja polica osiguranja od potresa.

2.2. Obvezno osiguranje od potresa

Prema OECD-u (2018) obvezno osiguranje od potresa promovira širenje svijesti o važnosti osiguranja imovine od prirodnih katastrofa i raznolikost pokrivenih rizika, što bi trebalo doprinijeti smanjenju ukupnih troškova osiguranja. Prednost je ovog sustava i u tome što eliminira rizik od nepovoljnog odabira (tj. oni koji smatraju da nisu u opasnosti možda neće ni kupiti osiguranje, što potencijalno povećava rizike u bazenu). Također, suzbija potencijalne pristranosti u ponašanju koje inače mogu dovesti do neadekvatne pokrivenosti te služi za pojašnjenje raspodjele troškova katastrofe i smanjuje implicitne vladine potencijalne obveze. Negativna strana ovoga sustava osiguranja je njegova nepopularnost među građanima jer se doživljava kao vrsta nametnutog poreza, a može biti i u suprotnosti s kulturom zemlje i biti suočen s ustavnim ograničenjima (npr. ograničenje na privatnu autonomiju). Također, provođenje kupnji može biti teško, a s obzirom na zatvoreno tržište, sektor osiguranja može nastojati izgraditi snažne profitne marže u premijskim stopama. S druge strane, neadekvatne cijene mogu dovesti do gubitaka u osiguranju i odvesti kapital iz industrije. Island, Rumunjska i Turska uspostavili su obvezne zahtjeve za kupnju police osiguranja (na nacionalnoj razini ili u određenim regijama).

U Turskoj je zakonom koji je stupio na snagu 27. rujna 2000. godine izdavanje osiguranja postalo obvezno za sve stambene zgrade koje spadaju u općinske granice, a osnovan je i Turski fond za osiguranje od katastrofe (*Turkish Catastrophe Insurance Pool, TCIP*) putem kojeg je ponuđeno to osiguranje. Cilj je programa obveznog osiguranja od potresa ponuditi takvo osiguranje po pristupačnim premijama, ublažiti financijsko opterećenje potresa na državni proračun (posebno u vezi s izgradnjom stambenih objekata nakon katastrofe), osigurati podjelu rizika među stanovnicima, poticati standardne građevinske prakse i uspostaviti dugoročne rezerve za financiranje budućih gubitaka od potresa. Prema podacima OECD-a (2018) otprilike 42 % stambenih zgrada unutar općinskih granica obuhvaćeno je politikama potresa TCIP-a. U Turskoj se obavezna kupnja provodi provjerom tijekom transakcija u zemljišnim knjigama i pretplata za vodu i električnu energiju. Privatna društva za osiguranje koja nude komercijalne ili veće pokrivenosti potresima u stanovima ne mogu odrediti odbitke iznad 2 % ili nametnuti suosiguranje veće od 20 % osigurane svote. Na visinu stope osiguranja utječu seizmičnost i tip građevine. Nacionalna karta opasnosti od potresa dijeli zemlju na pet zona rizika te ju TCIP koristi kao osnovu za određivanje premija obveznog osiguranja od potresa za police. Također, stopa se određuje i ovisno o tipu konstrukcije građevine. Kao rezultat takva dva grupiranja, primjenjuje se petnaest različitih stopa prema lokaciji i vrsti građevine koje se kreću od 0,44 promila za najmanje rizičnu nekretninu do 5,50 promila za najrizičniju (Yazici, 2006). U Turskoj je uvođenje obveznih zahtjeva za kupnju dovelo do povećanja pokrivenosti imovine od rizika od potresa s 5 %, kada je potres u Marmari pogodio Tursku 1999. godine, na 42 %. Na Islandu se pokriće za potres i druge prirodne opasnosti koje osigurava javno društvo za osiguranje (*Iceland Catastrophe Insurance*) automatski dodaje policama obveznog osiguranja od požara. Stoga je prodor osiguranja od rizika potresa 100 %. Privatna društva za osiguranje u Rumunjskoj distribuiraju obvezno osnovno pokriće od poplava, potresa i klizišta osigurano putem *Insurance Pool Against Natural Disasters* (*PAID-a*), a nude i svoje dodatno pokriće potresa, obično kao automatsko uključivanje u police osiguranja stambenih nekretnina (kao i pokriće za poslovnu nekretninu). Procjenjuje se da 20 % kućanstava ima potresnu pokrivenost putem *PAID-a* (OECD, 2018).

2.3. Rizik od potresa kao standardno pokriće u imovinskim policama

Rizik od potresa kao standardno pokriće u imovinskim policama uključuje pokriće za rizik od potresa u standardne police stambenih (a ponekad i komercijalnih) imovinskih osiguranja. Može biti učinkovito ako je stopa prodora osnovnih pokrića po policama imovinskih osiguranja relativno visoka pa se koriste kao sredstvo za širenje osiguranja od katastrofe. U usporedbi s kupnjom obveznog osiguranja od potresa, ova opcija podrazumijeva niži stupanj prisile i može biti popularnija. S druge strane, može imati

negativne učinke na tržište osnovnih polica na koje se primjenjuje ako dodatak dovodi do viših premija ili do izlaska društava za osiguranje koja nisu spremna preuzeti rizik od katastrofe. Ova vrsta osiguranja koristi se u Francuskoj, Novom Zelandu, Španjolskoj, Tajvanu, Španjolskoj itd. Razine iskorištenosti ove vrste osiguranja u Španjolskoj se približavaju vrijednosti od preko 70 %, a na Novom Zelandu gotovo 100 % (OECD, 2018).

Na Novom Zelandu stanovništvo se oslanja na Povjerenstvo za potres (*The EarthQuake Commission*) koje nudi pokriće za osiguranje od potresa kao produžetak komercijalne i stambene imovinske police dok privatna društva za osiguranje nude pokriće za komercijalne rizike i za prekomjerno pokriće kućanstva za iznose iznad ograničenja EQC-a (OECD, 2018). Glavne tri zakonske funkcije EQC-a su: pružanje osiguranja od prirodnih katastrofa za stambenu imovinu, financiranje istraživanja i obrazovanja o prirodnim katastrofama i načinima smanjenja njihovog utjecaja te upravljanje Fondom za prirodne katastrofe (NDF). EQC državi godišnje plaća 10 milijuna dolara iz Fonda za prirodne katastrofe te na taj način dobiva jamstvo da će država uskočiti u pomoć ako Fond bude u potpunosti potrošen. Nadalje, od 1988. godine EQC na godišnjoj razini kupuje reosiguranje kako bi osigurao dodatna financijska sredstva za podmirivanje šteta u slučaju veće prirodne katastrofe. Vlada igra veliku ulogu u osiguranju pokrića za rizik od potresa te ima posebno uspostavljene programe za rješavanje visokih razina izloženosti potresima. Nadalje, 2016. godine donesen je Zakon o izmjenama i dopunama građevina za zgrade sklone potresima.

2.4. Obvezna ponuda osiguranja od potresa

Prednost ovoga sustava je da osigurava dostupnost osiguranja od katastrofe tako da tvrtke i pojedinci koji su spremni kupiti financijsku zaštitu mogu to učiniti. S druge strane, nedostatak je što može dovesti do nepovoljnog odabira: oni koji smatraju da nisu u opasnosti možda neće kupiti osiguranje, što može povećati rizike u bazenu i dovesti do stopa primanja koje nisu optimalne; svijest o niskom riziku ili kognitivne pristranosti mogu pogoršati ovaj učinak. Ako stopa penetracije ostane vrlo niska, moglo bi doći do neadekvatnog udruživanja rizika.

U Japanu i Kaliforniji (SAD) društva za osiguranje su obvezna ponuditi pokriće za osiguranje od potresa kućanstvima koja kupuju standardno osiguranje imovine. Iako su neobavezna, osiguranici moraju izričito naglasiti da ne žele kupiti dodatno pokriće za rizik od potresa. Stambeno osiguranje od potresa u Japanu oslanja se na dva glavna aktera: privatna neživotna društva za osiguranje i kooperativna uzajamna društva za osiguranje koja djeluju na neprofitnoj osnovi. Penetracija osiguranja od potresa od strane privatnih društava za osiguranje iznosi 25 % kućanstava, dok penetracija od strane uzajamnih društva za osiguranje iznosi 14 %. Kooperativna uzajamna društva za osiguranje nude politike koje imaju sveobuhvatnije pokriće od

politika dostupnih putem privatnih društva za osiguranje i stoga se mogu promatrati i kao mehanizam štednje koji osigurava financiranje popravaka kuća, bilo da su uzrokovane prirodnim katastrofama ili drugim štetnim događajima (The World Bank, 2012). Privatna neživotna društva za osiguranje podliježu Zakonu o osiguranju od potresa i svoju izloženost potresu moraju reosigurati kod *Japanese Earthquake Reinsurance* (JER) koji podržava Vlada, a zaštitu reosiguranja za uzajamna društva za osiguranje pružaju međunarodna tržišta reosiguranja i kapitala bez vladine intervencije (OECD, 2018). U Kaliforniji osiguranje od potresa nije obavezno, kao što je, primjerice, obavezno osiguranje od automobilske odgovornosti. Postoji standardna polica osiguranja za vlasnike kuća koja ne pokriva oštećenja koja su nastala potresom. Privatna društva za osiguranje zakonski su obvezna ponuditi pokrivanje potresa, bilo svojim pokrićem ili pokrićem koje pruža Kalifornijsko tijelo za potres. Najčešće nude pokriće za rizik od potresa kao neobavezni dodatak policama stambene i poslovne imovine ili kao zasebnu samostalnu policu. Zbog tog rizika se građani koji žive na rizičnim područjima osiguravaju od potresa dodatnom kupnjom zasebne police koju nudi Kalifornijsko tijelo za potres (CEA). CEA djeluje u javne svrhe, ali ga ne financira država, tj. nije u sklopu državnog proračuna. Kalifornijsko tijelo za potres se financira privatno, isključivo doprinosima društava za osiguranje, premijama osiguranika i povratom vlastitih ulaganja. Trenutno je najveći pružatelj stambenih osiguranja od potresa u SAD-u, posjeduje više od milijun aktivnih polica i pruža dvije trećine polica osiguranja od potresa u Kaliforniji (CEA, 2021).

2.5. Alternativni transfer rizika

Prema Godi et al. (2015), osim samog osiguranja, konvencionalni pristup prijenosu rizika od katastrofe je reosiguranje kod globalnih društava za reosiguranje i vlada. Zbog toga društva za reosiguranje zaračunavaju premiju prilično visokog rizika društvima za osiguranje i traže alternativna sredstva za prijenos rizika (Cummins, 2008), što zauzvrat utječe na premije rizika za pokriće primarnog osiguranja. Društva za reosiguranje također koriste retrocesiju, tj. prijenos rizika s jednog društva za reosiguranje na drugo kako bi smanjili utjecaj najvećih rizika. Nedavno su instrumenti financijskog tržišta, takozvani vrijednosni papiri povezani s osiguranjem (*insurance-linked securities*), dostupni putem tržišta kapitala (Grace et al., 2003; Lalonde, 2005), a češće ih koriste društva za osiguranje, društva za reosiguranje i vlade, tj. države (Cummins, 2008). Društva za osiguranje koriste ovaj financijski alat na nekoliko načina: kao financijski alat za smanjenje ili prijenos rizika osiguranja na financijska tržišta i na investitore, povećanje likvidnosti, rasterećenje kapitala itd. U imovinu osiguranja koja se može sekuritizirati spadaju portfelji životnog osiguranja, hipotekarni portfelj, zaštita od katastrofalnih rizika, troškovi i rezerve na premijama osiguranja, prihodi od reosiguranja itd. (Pavković i Krišto, 2009).

2.6. Parametarsko osiguranje

Prema Bayliss et al. (2020) parametarsko osiguranje oblik je novije vrste osiguranja koje brzo i transparentno isplaćuje odštetu na temelju nekoliko mjerljivih značajki događaja. Smatra se da je takva vrsta osiguranja obećavajući put za povećanje penetracije osiguranja od prirodnih katastrofa. U kontekstu seizmičkog rizika, parametarske politike mogu koristiti lokaciju i jačinu potresa kako bi utvrdile treba li izvršiti plaćanje. Tradicionalne politike mogu postati nedostatne kad su hitno potrebna plaćanja da bi se pokrenuo postupak oporavka. Velik broj istodobnih zahtjeva i povezane inspekcije oštećenja obično zahtijevaju dugo vrijeme za obradu. Složenosti i neslaganja u uvjetima politike mogu pokrenuti dugotrajne sporove koji na kraju djeluju kao odvraćanje od brzog i urednog oporavka. Popularnosti ove vrste osiguranja od prirodnih katastrofa doprinosi i napredak u tehnologiji, posebice analize podataka i modeliranja čime se pojednostavljuje, usavršava i poboljšava osigurljivost rizika od prirodnih katastrofa. Također, vjeruje se da će s vremenom napredak satelita i raznih senzora omogućiti jednostavnije i preciznije predviđanje nastanka događaja prirodnih katastrofa.

3. RAZMJER I ŠTETE IZAZVANE POTRESIMA U HRVATSKOJ U 2020. GODINI

Prema Swiss Re (2019) potresi su među najrazornijim prirodnim katastrofama. Rastuća urbanizacija u seizmički aktivnim područjima dovela je do sve veće izloženosti opasnosti od potresa u mnogim dijelovima svijeta. Tijekom proteklog desetljeća, niz velikih potresa, koji su među najjačima ikad zabilježenima, prouzročio je gubitke života i nanio katastrofalnu štetu u nekoliko regija, što je dovelo do visokih troškova obnove. Velika materijalna šteta uzrokovana potresima 2011. godine u Japanu i Novom Zelandu pokazuje da su čak i bogate, razvijene zemlje koje imaju iskustva u suočavanju s potresima loše pripremljene kad ih pogode potresi. U 2010. i 2011. godini svijet je pogodilo najviše jakih potresa u posljednjih 20 godina. Potresi i druge prirodne katastrofe imaju dugotrajan štetni utjecaj na proračun javnih subjekata i države stvarajući financijske gubitke koji proizlaze iz nastale materijalne neosigurane štete (Swiss Re, 2017).

Potresi i potresne aktivnosti na širem zagrebačkom području nisu rijetkost. (Markušić et al., 2020). Prema priopćenju Gradskog ureda za strategijsko planiranje i razvoj grada (2020), u nedjelju, 22. ožujka 2020., u 6 sati i 24 minute, Zagreb i šire područje pogodio je snažan potres magnitude M=5,5 s epicentrom kod Markuševca. (Grad Zagreb, 2020) Smatra ga se najjačim instrumentalno zabilježenim seizmičkim događajem u Zagrebu otkad je Andrija Mohorovičić uspostavio prvi seizmograf 1908. godine (Markušić et al., 2020). Istoga dana uslijedila su još dva podrhtavanja magnitude M=5,0 i 3,7 po Richteru. Dan kasnije, 23. ožujka 2020., na području grada

Zagreba proglašena je prirodna nepogoda uzrokovana potresom. U sljedećih nekoliko tjedana zabilježeno je oko 145 potresa koje su osjetili građani, dok su seizmografi zabilježili još oko 850 potresa magnituda manjih od 1,3 po Richteru (PMF, 2020).

Nakon više od 100 godina mirovanja na području Banovine, 28. prosinca 2020. u 6 sati i 28 minuta jak potres pogodio je područje grada Petrinje i okolice. Prema informacijama seizmološke službe pri geofizičkom odsjeku PMF-a magnituda je iznosila M=5,0. Istoga dana uslijedila su dva jača potresa magnitude 4,5 i 3,8 po Richteru te je nakon serije tih potresa došlo do pretpostavke da slijedi razdoblje smirivanja. Međutim, sljedeći dan u 12 sati i 19 minuta područje je pogodio razoran potres magnitude M=6,2 nakon kojeg je također uslijedio niz naknadnih potresa.

Prema podacima Ministarstva prostornog uređenja, graditeljstva i državne imovine, štete izazvane potresima su ogromne te se radi o 86 milijardi kuna za Zagreb i okolicu te 41,6 milijardi kuna za Banovinu (MPGI, 2021). Sveukupni iznos od gotovo 128 milijardi kuna jednak je iznosu od oko 90 % proračuna. U Hrvatskoj su ukupne ekonomske štete od zagrebačkog i petrinjskog potresa 2020. godine iznosile 127,6 milijardi, a likvidirane, tj. osigurane štete samo 483 milijuna kuna u 2020. godini i prvih osam mjeseci 2021. godine. *Protection gap* je iznimno velik i iznosi oko 127,2 milijarde kuna, tj. 99,62 %.

Od 6. veljače 2021. godine u Republici Hrvatskoj u sklopu financiranja šteta od potresa na snazi je Zakon o obnovi zgrada oštećenih potresom na području grada Zagreba, Krapinsko-zagorske županije, Zagrebačke županije, Sisačko-moslavačke županije i Karlovačke županije. Ovim se Zakonom uređuje način i postupak obnove odnosno uklanjanja zgrada oštećenih odnosno uništenih uslijed prirodne nepogode ili katastrofe, gradnja zamjenskih obiteljskih kuća i stambeno zbrinjavanje osoba pogođenih tim nepogodama. Cilj mu je uspostava normalnog života na pogođenim područjima kroz zaštitu života i zdravlja ljudi, životinja, imovine, okoliša, prirode i kulturne baštine (Zakon o obnovi zgrada oštećenih potresom na području grada Zagreba, Krapinsko-zagorske županije, Zagrebačke županije, Sisačko-moslavačke županije i Karlovačke županije, 2020).

Provedba Zakona se financira iz različitih izvora. Financiraju ga Republika Hrvatska državnim proračunom u visini od 60 %, Grad Zagreb, Krapinsko-zagorska županija, Zagrebačka županija, Sisačko-moslavačka županija i Karlovačka županija u visini od po 20 % u svojim proračunima za nekretnine na svojim područjima te vlasnici, odnosno suvlasnici nekretnina u visini od po 20 %. Iznimno, Republika Hrvatska osigurava sredstva u državnom proračunu u visini od 100 % na područjima jedinica područne (regionalne) samouprave za koje Vlada Republike Hrvatske proglasi katastrofu u smislu zakona kojim se uređuje sustav civilne zaštite.

Sukladno Zakonu i programu mjera obnove, osnovan je Fond za obnovu, provedbena ustanova koja nastupa nakon odluke o obnovi koju donese Ministarstvo prostornog

uređenja, graditeljstva i državne imovine. Osnovan je od strane Republike Hrvatske s osnivačkim udjelom od 70 %, Grada Zagreba s osnivačkim udjelom od 20 %, Krapinsko-zagorske županije s osnivačkim udjelom od 5 % i Zagrebačke županije s osnivačkim udjelom od 5 % (MPGI, 2021). Ministarstvo je prema Zakonu odlučilo da će do 17. rujna 2022. g. provesti naknadnu procjenu učinaka ovoga Zakona.

4. METODOLOGIJA I ISTRAŽIVAČKI PROCES

Istraživanje u radu provodi se kvalitativnom analizom kroz triangulacijski proces provodeći intervjue s dionicima iz tri ključne skupine: nadzornog tijela, provedbene agencije i udruženja (tri ispitanika) s jedne strane, društva za osiguranje (sedam ispitanika) s druge strane te znanosti, visokog obrazovanja i potrošača (četiri ispitanika) s treće strane. Ukupno je obavljeno 14 intervjua u razdoblju od svibnja do lipnja 2021. g. u Zagrebu. Intervjuirane osobe bile su kontaktirane elektroničkom poštom s priloženim dokumentom koji je sadržavao opis istraživanja i pitanja. Neki ispitanici odgovorili su na pitanja iz intervjua u pisanom obliku i poslali odgovore povratno elektroničkom poštom, dok je s drugim dijelom ispitanika proveden telefonski razgovor uz paralelno skriptiranje njihovih odgovora.

Intervjui su obavljeni sa stručnjacima koji su najupućeniji u tematiku istraživanja. Svi ispitanici iz društava za osiguranje bili su članovi uprave u svojim društvima u vrijeme intervjuiranja. Ispitanici iz znanstvenih i obrazovnih institucija su viši predavač i dekan fakulteta tehničkih znanosti, redoviti profesor na fakultetu prirodoslovnih znanosti te izvanredni profesor na fakultetu društvenih znanosti. Jedan od ispitanika član je uprave konzultantske kompanije i član predstavnika potrošača oštećenih u potresu. Predstavnici nadzornog tijela i agencija su rukovodeće osobe u navedenim institucijama.

Kriterij za uključivanje stručnjaka iz industrije osiguranja bio je stručnost i ekspertiza u području imovinskih osiguranja te djelatnost njihovih poduzeća i institucija u dijelu imovinskih osiguranja, tržišta nekretnina i ostalih djelatnosti povezanih sa sanacijom šteta uzrokovanih potresom. Nadzorna tijela odabrana su na temelju supervizorske nadležnosti, a profesionalna udruženja odabrana su temeljem zastupanja industrije osiguranja i potrošača oštećenih potresom. Kriterij za uključivanje znanosti i visokog obrazovanja bio je multidisciplinarnost i stručnost u području istraživanja. Svi ispitanici su tržišni profesionalci s dugogodišnjim iskustvom u svom području. Spremnost za sudjelovanje bila je velika, a ispitanici su bili upoznati s tematikom zbog ranije održane konferencije na tu temu. Sve ih je zanimala tema istraživanja, bili su svjesni njene aktualnosti u Republici Hrvatskoj te su se zanimali za krajnji rezultat.

Individualni intervju uobičajena je metoda prikupljanja podataka u zdravstvenim i socijalnim istraživanjima. Pojedinačni intervju vrijedna je metoda stjecanja uvida u percepcije, razumijevanja i iskustva ljudi o danom fenomenu koja pridonosi dubinskom

prikupljanju podataka (Frances et al., 2009). Triangulacija je metoda koja se koristi za povećanje vjerodostojnosti i valjanosti nalaza istraživanja (Cohen et al., 2000). Ona omogućuje usporedno gledanje podataka pruženih iz različitih izvora, a obično se koristi u kvalitativnim istraživanjima kako bi se povećala valjanost i autentičnost studije (Bryman, 2012). Triangulacija se odnosi na korištenje više metoda ili izvora podataka u kvalitativnim istraživanjima za razvoj sveobuhvatnog razumijevanja fenomena (Patton, 1999). Točnije, triangulacija izvora podataka, koja uključuje prikupljanje podataka od različitih tipova ljudi, uključujući pojedince, skupine, obitelji i zajednice, korištena je za stjecanje više perspektiva i potvrđivanje podataka (Carter, 2014). Triangulacija dionika jedan je od načina na koji istraživači mogu provjeriti različite perspektive složenog pitanja (Strier i Werner, 2016). Prema Strieru i Werneru (2016), triangulacijska perspektiva dionika osmišljena je tako da istraži najširi spektar gledišta, otkrije eventualno prešućena pitanja i omogući sudionicima da u povjerenju razotkriju stajališta i zabrinutosti u okruženju.

Intervju je činilo pet pitanja koja su tražila mišljenje ili percepciju ispitanika o temi. Prvo pitanje tražilo je mišljenje ispitanika o razlozima niske zastupljenosti osiguranja od potresa u razdoblju prije potresa. Drugo se odnosilo na mišljenje o percepciji stanovništva i posljedičnim kretanjima na tržištu osiguranja. Treće pitanje tražilo je od ispitanika da izraze svoj stav o poziciji države u sanaciji i financiranju šteta. Četvrto ispituje koje bi se izmjene trebale napraviti kako bi se izgradio suvremeniji i otporniji sustav financiranja prirodnih katastrofa, a među njima i potresa. Peto pitanje tražilo je ocjenu prednosti i nedostataka modela. Ponuđeni modeli bili su: obvezno osiguranje od potresa, državni poticaji za kupljene police osiguranja (porezne olakšice), trajni fond te prijedlog drugih mogućnosti.

5. REZULTATI I RASPRAVA O MODELIMA POTICANJA KORIŠTENJA OSIGURANJA OD POTRESA

Rezultati kvalitativne metodologije provedene kroz intervjue uvažavajući triangulacijski pristup kategorizirani su u tri ključna područja koja se odnose na: (1) razloge niske zastupljenosti osiguranja od potresa, (2) uloge države u financiranju katastrofalnih šteta izazvanih potresom i (3) prijedloge izgradnje sustava i mogućih pristupa financiranju šteta izazvanih potresom. Područja su kategorizirana na uže teme, a sažetak kategoriziranih područja, tema i pripadajućih citata prikazan je u tablici 1.

5.1. Razlozi niske zastupljenosti osiguranja od potresa

Svi se ispitanici u pravilu slažu da su razlozi niske zastupljenosti osiguranja od potresa višeslojni; tiču se ekonomskog standarda, financijske pismenosti stanovništva, percepcije društva za osiguranje od strane potrošača te njihove slabe ponude.

Jedan od ispitanika iz društva za osiguranje tvrdi da je "*u Hrvatskoj prisutna općenito niska zastupljenost osiguranja imovine, pa tako i od potresa, a rizik nastanka štete i mogućnost imovinskog gubitka nisu dovoljno prepoznati. Činjenica je da katastrofalnih potresa u Hrvatskoj nije bilo duže vrijeme zbog čega većina građana nije o tome razmišljala, a posebno ne kao o opasnosti koja je ostvariva i može uzrokovati velike gubitke*." Također, jedan od predstavnika akademske zajednice izjavio je da "*ljudi nisu svjesni opasnosti od potresa jer je potres rijedak događaj, a ljudi brzo zaboravljaju.*" Međutim, predstavnik profesionalnog udruženja smatra da društva za osiguranje imaju dobru ponudu proizvoda te da rade na poboljšanju reputacije. Tvrdi da je "*problem opće nepovjerenje Hrvata u brojne institucije, a društva za osiguranje rade na transparentnosti. Izvansudska zaštita potrošača dobro je razvijena kroz Centar za mirenje i pravobraniteljstvo. Europska legislativa unosi puno propisa koji nisu* digital-friendly *što je posebno problem za mlade generacije koje nemaju vremena ni volje baviti se s puno papirologije pa i to dovodi do manje penetracije osiguranja.*"

Istraživanje u ovome radu pokazalo je da je jedan od većih problema slaba financijska pismenost stanovništva pa ispitanici kroz više aspekata naglašavaju važnost financijske edukacije i potencijalne pozitivne učinke na povećanje penetracije osiguranja, ali i mijenjanje potrošačeve percepcije društava za osiguranje. To je u skladu i s inozemnim istraživanjima; primjerice, Treerattanapun (2011) ukazuje na to da bi obrazovanje podiglo svijest o riziku i dovelo do financijske stabilnosti, olakšavajući razumijevanje naknada osiguranja. Ipak, na tom području više je inicijativa: "*Prisutna je nedovoljna financijska pismenost na kojoj se radi još od 2009. godine. Potrebno je i da se javni sektor pobrine da financijska edukacija uđe u obrazovne sustave i kurikule kako bi djeca od školskih dana spoznala važnost osiguranja i određene rizike koji će ih pratiti kroz život.*"

Nedostatak povjerenja u društva za osiguranje i potreba za višom razinom transparentnosti ističu se kao važna tema: "*Nedovoljna financijska pismenost za koju nisu krivi potrošači, već manjkava aktivnost društava za osiguranje te njihova inertnost. Treba staviti naglasak i na zaštitu potrošača – društvo za osiguranje mora razumljivo napisati uvjete, a neprihvatljivo je da je stavka o franšizi stavljena u uvjete osiguranja, a nije istaknuta u polici.*" Ispitanik iz nadzornog tijela pak tvrdi: "*Regulatori su nametnuli da je potrebno detaljno iskomunicirati uvjete i elemente police.*" Predstavnik akademske zajednice ukazuje na to da "*potrošači percipiraju cijenu imovinskih osiguranja kao vrlo visoku te time nisu adekvatno informirani niti su zainteresirani za ovaj oblik osiguranja jer ga smatraju neprištivim.*"

Potresi u Hrvatskoj utjecali su na percepciju stanovništva i kretanje na tržištu osiguranja. Predstavnici društava za osiguranje iznose kako su "*zaračunate bruto premije i broj polica osiguranja od potresa imali snažan rast u dva vala – u travnju nakon zagrebačkog potresa i u siječnju nakon petrinjskog. Međutim, utjecaj je bio kratkotrajan te je, nakon inicijalne povećane potražnje za osiguranjem imovine u*

razdoblju nakon potresa, nakon nekoliko mjeseci potražnja uprosječena." i "*Postoji povećani, ali nedovoljan interes da dođemo do značajnije penetracije, a trenutno je pokrivenost na 15–16 %. Treba težiti da 80–90 % nekretnina bude općenito osigurano i osigurano od potresa.*" Predstavnik nadzornog tijela utvrdio je: "*Tijekom prošle godine uplata premija osiguranja od potresa povećala se za 30 %, međutim, to je još uvijek vrlo nizak udio (cca 1,1 %) u ukupnim premijama koje iznose oko 10 milijardi kuna.*"

5.2. Uloga države u financiranju katastrofalnih šteta izazvanih potresom

Uloga države u oblikovanju sustava osiguranja i financiranja katastrofalnih šteta je ključna jer utječe na očekivanja osiguranika, odgovorna je za oblikovanje sustava poticanja osiguranja različitim modelima, kao i u dijelu sufinanciranja viška šteta. Proračunskim i linearnim financiranjem katastrofalnih šteta država negativno utječe i na očekivanja potrošača i vlastitu odgovornost pojedinca za osiguranje imovine (Browne i Hyot, 2000 i Kousky et al., 2013). Ispitanici iz društava za osiguranje smatraju da država treba smanjiti opseg svog djelovanja, prestati financirati osigurljive rizike na teret proračuna i prepustiti ih privatnoj inicijativi. Jedan od predstavnika sektora osiguranja tvrdi: "*Država, osim u slučajevima kada se to radi zbog općeg dobra, može pomoći, ali ne bi trebala u cijelosti preuzeti odgovornost koju ima vlasnik nekretnine.*" Predstavnici društava za osiguranje, nadzornog tijela i profesionalnog udruženja ističu svijest o važnosti individualne odgovornosti, a predstavnik udruženja naglašava da se "*stanovništvo prečesto oslanja na državu te se očekuje čarobno rješenje, ali ipak treba biti svjestan budžeta.*"

Ispitanici se slažu da ima prostora za promjene i poboljšanje, a da bi sustav bio funkcionalan, treba riješiti problem nedostatne i spore zakonske regulative. Ispitanik koji je član uprave konzultantske kompanije i član predstavnika potrošača oštećenih u potresu tvrdi: "*Zakon o obnovi nema nikakav vremenski horizont, zbog manjka unutarresornih diskusija puno je rupa zbog kojeg je neprovediv, a obnova još nije ni krenula.*" Država bi trebala pokazati na svojem primjeru, osiguranjem svojih nekretnina, te time poticati pozitivnu percepciju osiguranja.

Član uprave provedbenog tijela za obnovu tvrdi da "*država ima važnu stratešku ulogu koju može ostvariti dobrom praksom kroz predviđanje i spremnost na suočavanje s rizikom od potresa, izradom mapa rizika te donošenjem standarda projektiranja koji se posebno odnose na gradnju novih zgrada.*" Predstavnik skupine akademske zajednice napominje: "*Nakon obnove je predviđen seizmički certifikat koji će pomoći građanima da znaju koliko je zgrada sigurna, koliki je određen vijek trajanja materijala i nekretnine te što se može očekivati, a društvima za osiguranje će omogućiti da znaju što osiguravaju. Problem je što nemamo informacije o stambenom fondu. Treba propisati redovita pravila održavanja koja zgrade moraju imati. Zgrada sa zelenom*

naljepnicom ne znači da je sve u redu; i nju treba obnoviti, potrebna je revitalizacija da bude sigurna za svoje korisnike. Nužna je izrada elaborata postojećih stanja."

5.3. Prijedlozi izgradnje sustava i mogućih pristupa financiranju šteta izazvanih potresom

U zadnjem pitanju ispitanici su iskazali svoj stav o predloženim modelima i rješenjima financiranja i zaštite od rizika od potresa. Nitko nije pobornik uvođenja sustava obveznog osiguranja od potresa, a predstavnik nadzornog tijela naglašava: "*Obvezno osiguranje bi bio veliki problem za obraniti kako politički tako i socijalno.*" Ispitanici se slažu da treba zaštititi socijalno ugroženo stanovništvo, ali da financijskim educiranjem građana treba prebaciti odgovornost s javnog na privatni sektor. Svi smatraju da bi model državnih poticaja putem poreznih olakšica ili prilagođene cijene stambene pričuve bio dobro rješenje. Ispitanik iz društva za osiguranje kaže: "*Jednostavnije i financijski učinkovitije je svake godine predvidjeti 400 milijuna kuna u državnom proračunu za subvencije polica osiguranja od potresa nego u jednom trenutku da je potrebno više od 100 milijardi kuna. RH treba biti organizator i inicijator, a ne se baviti sanacijom.*" Od ispitanih stručnjaka nijedan ne zagovara model trajnog fonda te ne vidi značajnije prednosti takvog sustava.

Ispitanici su se složili da je model obveznog osiguranja neprovediv u Hrvatskoj. Predstavnik nadzorne institucije naglašava da je "*potrebno odgovorno odnositi se prema imovini i osigurati se. Što se tiče obveznog osiguranja od potresa, treba uzeti u obzir nekoliko faktora specifičnih za RH: nisu svi dijelovi jednako potresno osjetljivi pa se nameće pitanje građanskih sloboda, a Hrvati posjeduju velik broj nekretnina pa ukupno plaćanje premije za sve nekretnine u posjedu može ukupno ispasti veliki financijski teret.*" Ispitanik koji je član uprave provedbenog tijela za obnovu usporedio je sustav obveznog osiguranja u Turskoj te zaključio kako je "*tursko stanovništvo slabo obrazovano pa je njima teže ukazati na rizike putem edukacije, a lakše im je samo nametnuti.*"

Ispitanik koji je član uprave provedbenog tijela za obnovu naveo je: "*Treba razmotriti opcije stimulacije od strane države za stanovništvo da se osiguraju porezne olakšice, prilagođene komunalne pričuve, ovisno o tome je li zgrada osigurana i ima li energetski obnovljenu fasadu.*" Na prijedlog modela neke vrste trajnog fonda predstavnik osiguranja tvrdi da je "*za tehničku struku to odlično rješenje; međutim, pitanje je je li takav sustav pravičan*."

Ispitanici nisu iskazivali naklonost prema suvremenim oblicima financiranja rizika od potresa poput parametarskog osiguranja ili sekuritizacije kroz prijenos rizika na tržišta kapitala izdavanjem obveznica za pokriće rizika katastrofe (*catastrophe bonds, Cat Bonds*). Ispitanik iz društva za osiguranje tvrdi da parametarska osiguranja "*dobro funkcioniraju u Kaliforniji koja se trese skoro svaki dan i gdje je velika svijest o riziku*

od potresa. U Hrvatskoj bi takve police trebale jako puno koštati te ne bi bila dovoljna potražnja za njima. Prvo je potrebno objasniti stanovništvu važnost osiguranja od potresa te općenito važnost osiguranja imovine, a kada dođemo do većih stopa penetracije (70–80%), onda će biti vrijeme da se razmatra ideja o novim inovativnim proizvodima."

Tablica 1. Rezultati kvalitativnog istraživanja metodom intervjua

Područje	Tema	Citat
Razlozi niske zastupljenosti osiguranja	slaba financijska pismenost	"Prisutna je nedovoljna financijska pismenost na kojoj se radi još od 2009. godine. Potrebno je i da se javni sektor pobrine da financijska edukacija uđe u obrazovne sustave i kurikule kako bi djeca od školskih dana spoznala važnost osiguranja i određene rizike koji će ih pratiti kroz život."
	nedostatak povjerenja i nedovoljna transparentnost	"Društvo za osiguranje mora razumljivo napisati uvjete, a neprihvatljivo je da je stavka o franšizi stavljena u uvjete osiguranja, a nije istaknuta u polici."
Uloga države u financiranju šteta od potresa	poboljšanje percepcije osiguranja	"Država ima važnu stratešku ulogu koju može ostvariti dobrom praksom kroz predviđanje i spremnost na suočavanje s rizikom potresa, izradu mape rizika, donošenje standarda projektiranja."
	rješavanje problema nedostatne i spore zakonske regulative	"Zakon o obnovi nema nikakav vremenski horizont; zbog manjka unutarresornih diskusija puno je rupa zbog kojeg je neprovediv, a obnova još nije ni krenula."
	naglašavanje važnosti individualne odgovornosti	"Stanovništvo se prečesto oslanja na državu te se očekuje čarobno rješenje, ali ipak treba biti svjestan budžeta."
Prijedlozi izgradnje sustava i mogućih pristupa financiranju šteta izazvanih potresom	model obveznog osiguranja	"Hrvati posjeduju velik broj nekretnina pa ukupno plaćanje premije za sve nekretnine u posjedu može ukupno ispasti veliki financijski teret."
	porezne olakšice	"Državi je jednostavnije i financijski učinkovitije svake godine predvidjeti 400 milijuna kuna u proračunu za subvencije polica osiguranja od potresa nego u jednom trenutku da je potrebno 100 milijardi kuna."
	trajni fond	"Za tehničku struku je to odlično rješenje; međutim, pitanje je je li takav sustav pravičan."
	suvremeni oblici pokrića rizika od potresa	"Sekuritizacija nije neophodan i prikladan alat za hrvatsku industriju osiguranja zbog slabog razvoja imovinskog osiguranja i reosiguranja."
		"U Hrvatskoj bi police parametarskog osiguranja trebale jako puno koštati te ne bi bila dovoljna potražnja za njima."

Izvor: kvalitativno istraživanje autora

6. ZAKLJUČAK

Nedavni potresi u Republici Hrvatskoj ukazali su na izražen problem visokog *protection gapa* te neadekvatan sustav financiranja katastrofalnih šteta i već tradicionalno vrlo nisku penetraciju imovinskih osiguranja. Postojeći mehanizam financiranja potrebno je u što većoj mjeri transferirati na osiguratelje te smanjiti opterećenje na javne financije. Rezultati istraživanja u radu ukazuju na to da su razlozi niske zastupljenosti osiguranja od potresa višeslojni. Ovise o ekonomskom standardu zemlje, financijskoj pismenosti stanovništva te percepciji potrošača o društvima za osiguranje i manjkavim ponudama polica osiguranja koje nisu prilagođene potrebama potrošača. Potresi su utjecali na percepciju građana o važnosti osiguranja imovine od rizika potresa, ali vrlo kratkoročno te se, nakon inicijalne povećane potražnje za osiguranjem imovine, kroz nekoliko mjeseci potražnja uprosječila. Problematiku osiguranja od potresa bi se trebalo početi ozbiljnije shvaćati jer se, prema ranijim projekcijama seizmologa, i na ostalim područjima Republike Hrvatske mogu očekivati potresi razorniji od ovih iz 2020. godine.

U radu je korišten multidisciplinaran pristup kroz kvalitativnu metodologiju te triangulaciju čime se zaključci mogu smatrati relevantnima. Prema saznanjima autora ovo je prvi takav rad u Hrvatskoj koji koristi kvalitativnu metodologiju kroz triangulacijski proces na području osiguranja od potresa i preispituje problematiku mogućnosti financiranja katastrofalnih šteta uzrokovanih potresom. Rezultati analize u radu ukazuju na to da među ispitanicima prevladava razmišljanje u smjeru prijedloga uvođenja državnih subvencija s ciljem poticanja penetracije osiguranja. Državne subvencije bi mogle uključivati porezne olakšice, prilagođene komunalne pričuve, paušalne novčane poticaje. Takav model predstavlja horizontalna, stimulativna rješenja kroz, primjerice, porezne olakšice za one koji se odluče osigurati, a država će kasnije, u slučaju nastanka katastrofalne štete, morati izdvojiti manje proračunskih sredstava.

Ovaj rad ima ograničenja u istraživanju jer je prvi takve tematike na području Hrvatske nakon serije potresa iz 2020. godine. Jedno od ograničenja su nedostatni podaci te se predlaže za buduća istraživanja da se osim kvalitativne metodologije preispitaju relevantni podaci koji će već tada biti dostupni javnosti. Osim toga, bilo bi poželjno proširenje spektra ispitanika kako bi se dobila još šira slika i opsežniji zaključci. Tema rada je iznimno aktualna i relevantna te zaključci rada mogu biti korisni donositeljima odluka i zainteresiranim stranama u oblikovanju sustava osiguranja od potresa. Također, radom se otvaraju područja za daljnja istraživanja čime bi se dobio detaljniji uvid u ovo složeno područje. Prostor za daljnje istraživanje može se naći u analizi efikasnosti državnog financiranja sanacije štete te na koji je način navedena uloga države utjecala na odluku o kupovini osiguranja od potresa i potražnju za ovim osiguranjem. Istraživanja mogu biti usmjerena i na detaljno vrednovanje fiskalnih učinaka eventualnih poreznih poticaja, učinke ovih politika na državni proračun te

izloženost riziku budućeg financiranja katastrofalnih šteta.

Hrvatska, kao i većina drugih zemalja, ima velik problem *protection gapa* u osiguranju rizika od prirodnih katastrofa. To ukazuje i na širok prostor za povećanje penetracije imovinskih osiguranja s naglaskom na osiguranje od potresa. Odgovornost je zasigurno na zajedničkim naporima države, društva za osiguranje i nadzornog tijela kako bi razvili svijest potrošača i potaknuli veću potražnju za imovinskim osiguranjima te time u budućnosti rasteretili porezne obveznike – državu za financiranje katastrofalnih šteta.

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HOW TO INCREASE EARTHQUAKE INSURANCE PENETRATION IN CROATIA?

Abstract

The Republic of Croatia is among the countries at risk of earthquakes because it is located in a seismically and tectonically active area. In 2020, the population was hit by two devastating earthquakes. The first occurred in the area of Zagreb and its surroundings, and the second in the area of Banovina, both magnitudes above 5. Earthquake damage indicated a very high share of uninsured damage and a very low representation of earthquake insurance. Thus, the financing of the damage is largely based on the budget and the role of the state and the assistance of the European Union. This paper aims to analyse new methods of earthquake risk transfer and approaches to encourage greater representation of earthquake insurance as one of the forms of financing catastrophic damages. The methodological framework in the paper consists of qualitative research by the method of interviews through the triangulation process by interviewing experts of different profiles and expertise. The paper points out foreign experiences in designing an incentive framework for earthquake risk insurance, points to recent insurance products and techniques, while the research discusses the possibilities and approaches to designing earthquake insurance and mitigation systems and models for financing catastrophic earthquake damage.

Keywords: earthquake, earthquake insurance, financing earthquake risk, qualitative analysis, triangulation

JEL classification: G22, G28, G52, H84

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DIGITALNE PLATFORME I POREZ NA DODANU VRIJEDNOST

Sažetak

Ubrzani tehnološki razvoj pred poreznu politiku postavio je izazove koji su najvećim dijelom rezultat digitalizacije. Pandemija virusa COVID-19 dodatno je pogoršala porezne izazove povećavajući pritisak na politiku javnih financija u svim zemljama članicama Europske unije. Kao glavni cilj ističe se prikupljanje poreznih prihoda s naglaskom na porez na dodanu vrijednost. U tu svrhu, digitalizacija je omogućila obavljanje poslova u znatno većem opsegu i s veće udaljenosti, upravo primjenjujući nove poslovne modele i platforme više nego što je to slučaj kod tradicionalnih modela. Cilj rada je prikazati i analizirati važnost digitalnih platformi u cilju ispunjavanja poreznih obveza kod poreza na dodanu vrijednost. Za pokretanje takvih platformi veliku ulogu i važnost ima porezna uprava pred koju se postavljaju veliki izazovi u mijenjanju prirode poslovanja i kreiranja javne politike. Utjecaj digitalizacije na međunarodna porezna pravila i politiku predstavlja samo jedan dio šire transformacije društva.

Ključne riječi: digitalizacija, digitalne platforme, porez na dodanu vrijednost, Europska unija

JEL klasifikacija: H20, H24

1. UVOD

Pojava interneta krajem 20. stoljeća utjecala je na promjene u društveno-ekonomskom okruženju te svakodnevnim odnosima. Upravo se razvojem informacijsko-komunikacijske tehnologije obilježio brži tehnološki napredak koji je ubrzao postupak digitalizacije. Sâm postupak digitalizacije potaknuo je inovacije u svim sektorima, povećao učinkovitost te znatno unaprijedio usluge čime je povećana njihova dostupnost. Osim toga, digitalizacija je omogućila obavljanje poslova u znatno većem opsegu i s veće udaljenosti upravo primjenjujući nove poslovne modele i platforme više nego što je to slučaj kod tradicionalnih modela. Moderni poslovni modeli i platforme uključuju e-trgovinu, trgovinu aplikacijama, mrežno oglašavanje,

participativne umrežene platforme, računarstvo u oblaku, usluge internetskog i mobilnog plaćanja i sl. Upravo je u tu svrhu pokrenut projekt OECD-a *Going Digital* (2017) kako bi se pomoglo kreatorima politika da bolje razumiju cjelokupan proces digitalne transformacije te ujedno razviju i primijene okvir koji razvija digitalno gospodarstvo i društvo. U toj su ulozi vrlo važnu ulogu imale digitalne platforme koje su danas prisutne u svim područjima; od konkurentnosti, inovacija, rada i zaposlenosti do oporezivanja, zdravstva i ostalog.

Prema studiji OECD-a (2019) dvije trećine svih prekograničnih *online* trgovina ostvarene su upravo zahvaljujući digitalnim platformama. To je jedan od ključnih elemenata u cilju učinkovitije naplate poreza na dodanu vrijednost kako bi se povećali porezni prihodi u svim zemljama članicama Europske unije, ali i izvan nje.

Cilj rada je prikazati i analizirati važnost digitalnih platformi u cilju ispunjavanja poreznih obveza porezom na dodanu vrijednost. Doprinos rada se očituje u analizi važnosti digitalnih platformi koje su u svakodnevnoj primjeni kako bi se učinkovitije ispunila porezna obveza porezom na dodanu vrijednost te dodatno prikupili porezni prihodi. Osim uvoda i zaključnih razmatranja, rad se sastoji od tri glavna poglavlja. U prvom poglavlju analiziraju se osnovne karakteristike poreza na dodanu vrijednost te ukratko opisuju njegove najznačajnije zakonske odredbe. U drugom poglavlju prikazuju se stope poreza na dodanu vrijednost te njegov financijski učinak, dok se u trećem poglavlju analizira važnost i uloga digitalnih platformi u cilju ispunjavanja poreznih obveza porezom na dodanu vrijednost. Nakon zaključnih razmatranja daju se preporuke za daljnja istraživanja.

2. KARAKTERISTIKE POREZA NA DODANU VRIJEDNOST

Porez na dodanu vrijednost (PDV) predstavlja svefazni porez na promet koji se obračunava u svakoj fazi proizvodno-prodajnog ciklusa, ali samo na iznos dodane vrijednosti koja se oblikovala u toj fazi, a ne na cjelokupnu vrijednost proizvodnje. Dodana vrijednost može se definirati kao razlika između vrijednosti prodaje proizvedenih dobara i usluga i vrijednosti kupovina inputa (ali ne inputa rada) kojima su ta dobra i usluge proizvedeni. Drugim riječima, dodana vrijednost je vrijednost koju proizvođač dodaje inputima prije nego što ih proda kao nove proizvode (Kesner-Škreb, 1995). Nadalje, karakteristično za porez na dodanu vrijednost je da se zaračunava jednom u tijeku ciklusa isporuka dobara i usluga. Također, stavlja se naglasak na poduzetnike koji obavezno naglašavaju iskazivanje poreza na dodanu vrijednost na računima, iz razloga odbitka tzv. pretporeza.

Ključne karakteristike poreza na dodanu vrijednost ogledaju se u izdašnosti i jednostavnosti. Drugim riječima, kada se govori o izdašnosti, misli se na oporezivanje što većeg broja dobara i usluga kako bi se prikupilo što više poreznih prihoda zbog

financiranja izdataka predviđenih u državnom proračunu. Pod jednostavnosti misli se na oporezivanje dobara i usluga po jedinstvenoj stopi, što podrazumijeva primjenu jedne stope na sve proizvode usluga i dobara, što gotovo nijedna zemlja članica Europske unije ne primjenjuje. Nedostatak se očituje u regresivnosti poreza na dodanu vrijednost, odnosno njegovu učinku na socijalni status, a to podrazumijeva da osobe s visokim ili niskim prihodima plaćaju istu stopu poreza na dodanu vrijednost. To zapravo dovodi do načela nejednakosti. U cilju smanjivanja regresivnosti na socijalni status pojedine zemlje imaju mogućnost uvođenja snižene i nulte stope poreza na dodanu vrijednost.

U teoriji postoje tri oblika poreza na dodanu vrijednost, odnosno dohodovni, proizvodni i potrošni oblik, gdje pritom svaki od oblika može imati dva načela – načelo porijekla i načelo odredišta. Sâm iznos poreza na dodanu vrijednost može se izračunati na tri načina – metodom zbrajanja, metodom oduzimanja i kreditnom metodom. O dohodovnom obliku poreza na dodanu vrijednost je riječ kada se prilikom prodaje proizvoda i usluga, osim odbitka vrijednosti kupljenih sirovina i materijala, dozvoljava i odbitak amortizacije kupljenih kapitalnih dobara. Proizvodni oblik poreza na dodanu vrijednost podrazumijeva odbitak samo vrijednosti sirovina i materijala utrošenih u proizvodnom ili uslužnom procesu, dok se odbitak amortizacije kupljenih kapitalnih dobara ne dozvoljava, zbog čega dolazi do dvostrukog oporezivanja ulaganja u kapital (Kesner-Škreb, 1996). Kod potrošnog oblika porezni obveznik prilikom izračunavanja dodane vrijednosti od vrijednosti prodaje oduzima sve troškove. Time se oduzima cjelokupna vrijednost kapitalnih izdataka od vrijednosti prodaje te je time spriječeno dvostruko oporezivanje.

Načelo porijekla je načelo prema kojemu se dobro oporezuje porezom na dodanu vrijednost u zemlji u kojoj je proizvedeno bez obzira na to u kojoj se zemlji u konačnici troši. Porez na dodanu vrijednost se zasniva na načelu porijekla kada se oporezuju sva dobra proizvedena u nekoj zemlji, bez obzira na to troše li se u zemlji ili se kasnije izvoze. Dakle, domaći proizvodi koji su namijenjeni izvozu opterećeni su porezom na dodanu vrijednost, dok su ona dobra koja se uvoze u zemlju oslobođena plaćanja poreza na dodanu vrijednost.

Načelo odredišta je načelo prema kojemu se u nekoj zemlji oporezuje ukupna dodana vrijednost, i to kako ona dodana u zemlji tako i ona dodana u inozemstvu. Porezom na dodanu vrijednost se oporezuju sva dobra koja se u konačnici troše u zemlji, bez obzira na mjesto proizvodnje, odnosno bez obzira na to jesu li uvezena ili proizvedena u zemlji. Prema načelu odredišta izvoz je izuzet od plaćanja poreza, dok se uvoz oporezuje (Kesner-Škreb, 1996). Porezni sustav većine zemalja članica Europske unije primjenjuje načelo odredišta gdje je u najvećoj mjeri obuhvaćen potrošni oblik, a za izračun osnovice najčešće se koristi kreditna metoda.

Za usklađivanje sustava indirektnog oporezivanja unutar Europske unije od strane

Vijeća izdano je niz direktiva koje reguliraju porez na dodanu vrijednost, od kojih je najznačajnija Šesta direktiva (77/388/EEC) koja se odnosi na određivanje zajedničke porezne osnovice. Ta direktiva osigurava primjenu poreza na dodanu vrijednost na iste transakcije u svim zemljama članicama. Postignut je dogovor prema kojemu zemlje članice primjenjuju standardnu stopu poreza na dodanu vrijednost, koja ne može biti niža od 15 %, te jednu ili dvije snižene stope, koje ne mogu biti niže od 5 % (Kesner-Škreb, 2007). U razdoblju od 1977. do 2006. godine, Šesta direktiva više je puta nadopunjavana s obzirom na složenost poreznog sustava i netransparentnost; stoga je značajno da je došlo do donošenja nove Direktive Vijeća 2006/112/EZ, koja zapravo predstavlja pročišćeni tekst Šeste direktive.

Nadalje, značajne su i ostale direktive koje također reguliraju porez na dodanu vrijednost, i to (Europski parlament, 2021):

1. Direktiva Vijeća (EU) 2018/2057 od 20. prosinca 2018. g. o izmjeni Direktive 2006/112/EZ o zajedničkom sustavu poreza na dodanu vrijednost u pogledu privremene primjene općeg mehanizma prijenosa porezne obveze na isporuke robe i usluga iznad određenog praga
2. Uredba Vijeća (EU) br. 904/2010 od 7. listopada 2010. g. o administrativnoj suradnji i suzbijanju prijevare u području poreza na dodanu vrijednost
3. Direktiva Vijeća 2009/132/EZ od 19. listopada 2009. g. o utvrđivanju područja primjene članka 143. točaka (b) i (c) Direktive 2006/112/EZ o oslobođenju od plaćanja poreza na dodanu vrijednost prilikom konačnog uvoza određene robe
4. Direktiva Vijeća 2008/9/EZ od 12. veljače 2008. g. o utvrđivanju detaljnih pravila za povrat poreza na dodanu vrijednost, predviđenih u Direktivi 2006/112/EZ, poreznim obveznicima koji nemaju poslovni nastan u državi članici povrata, već u drugoj državi članici
5. Direktiva Vijeća 2007/74/EZ od 20. prosinca 2007. g. o oslobođenju od poreza na dodanu vrijednost i trošarina na uvoz robe za osobe koje putuju iz trećih zemalja
6. Direktiva Vijeća 2006/79/EZ od 5. listopada 2006. g. o oslobođenju od plaćanja poreza na uvoz malih pošiljaka robe nekomercijalne naravi iz trećih zemalja
7. Direktiva Vijeća (EU) 2020/2020 od 7. prosinca 2020. o izmjeni Direktive Vijeća 2006/112/EZ u pogledu privremenih mjera povezanih s porezom na dodanu vrijednost koji se primjenjuje na cjepiva protiv bolesti COVID-19 i *in vitro* dijagnostičkih medicinskih proizvoda za tu bolest kao odgovora na pandemiju bolesti COVID-19
8. Direktiva Vijeća (EU) 2020/285 od 18. veljače 2020. g. o izmjeni Direktive 2006/112/EZ o zajedničkom sustavu poreza na dodanu vrijednost u pogledu posebne odredbe za mala poduzeća i Uredbe (EU) br. 904/2010 u pogledu administrativne suradnje i razmjene informacija u svrhe praćenja ispravne primjene posebne odredbe za mala poduzeća

9. Direktiva Vijeća (EU) 2020/284 od 18. veljače 2020. o izmjeni Direktive 2006/112/EZ u pogledu uvođenja određenih zahtjeva za pružatelje platnih usluga
10. Direktiva Vijeća (EU) 2019/1995 od 21. studenoga 2019. g. o izmjeni Direktive 2006/112/EZ u pogledu odredaba koje se odnose na prodaju robe na daljinu i određene isporuke robe na domaćem tržištu.

Na temelju navedenog možemo zaključiti da se s razvojem tržišta postepeno mijenjaju i zakonske odredbe čime se želi postići transparentnost i harmonizacija s naglaskom na porez na dodanu vrijednost unutar zemalja članica Europske unije.

3. FINANCIJSKI UČINAK POREZA NA DODANU VRIJEDNOST

Europska unija je od svog nastanka utemeljena na tzv. „četiri slobode“: slobodi kretanja ljudi, dobara, usluga i kapitala. Upravo su ovo bitni uvjeti postojanja i uspješnog djelovanja jedinstvenoga europskog ekonomskog prostora. Stoga su osnovni zadaci porezne politike Europske unije posljednjih godina usko vezani za razvoj unutarnjeg tržišta, jačanje monetarne unije i ekonomske integracije (Arbutina et al., 2003). Usklađivanje poreznih stopa u Europskoj uniji je dugotrajan proces koji je započeo još 1993. godine. Standardna stopa poreza na dodanu vrijednost određena je člankom 97. Direktive 2006/112/EZ prema kojem standardna stopa ne smije biti niža od 15 % dok maksimalna stopa nije zadana.

Za donošenje poreznih stopa značajan je, između ostalog, i makroekonomski okvir pojedine zemlje članice; stoga svaka zemlja članica sukladno svom makroekonomskom okviru donosi kako standardne tako i snižene stope poreza na dodanu vrijednost. U tablici 1. prikazane su visine stopa poreza na dodanu vrijednost u zemljama članicama Europske unije u 2021. godini.

Tablica 1. Visine stopa poreza na dodanu vrijednost u Europskoj uniji u 2021. godini (od 1. siječnja 2021. godine)

ZEMLJA	STANDARDNA STOPA	SNIŽENA STOPA	VRLO SNIŽENA STOPA	PARKING (SREDNJA) STOPA
AUSTRIJA	20	10 / 13	-	13
BELGIJA	21	6 / 12	-	12
BUGARSKA	20	9	-	-
CIPAR	19	5 / 9	-	-
ČEŠKA	21	10 / 15	-	-
NJEMAČKA	19	7	-	-
DANSKA	25	-	-	-
ESTONIJA	20	9	-	-
GRČKA	24	6 / 13	-	-

ŠPANJOLSKA	21	10	4	-
FINSKA	24	10 / 14	-	-
FRANCUSKA	20	5,5 / 10	2,1	-
HRVATSKA	25	5 / 13	-	-
MAĐARSKA	27	5 / 18	-	-
IRSKA	23	9 / 13,5	4,8	13,5
ITALIJA	22	5 / 10	4	-
LITVA	21	5 / 9	-	-
LUKSEMBURG	17	8	3	14
LATVIJA	21	12 / 5	-	-
MALTA	18	5 / 7	-	-
NIZOZEMSKA	21	9	-	-
POLJSKA	23	5 / 8	-	-
PORTUGAL	23	6 / 13	-	13
RUMUNJSKA	19	5 / 9	-	-
ŠVEDSKA	25	6 / 12	-	-
SLOVENIJA	22	9,5	-	-
SLOVAČKA	20	10	-	-

Izvor: Europska unija (2021)

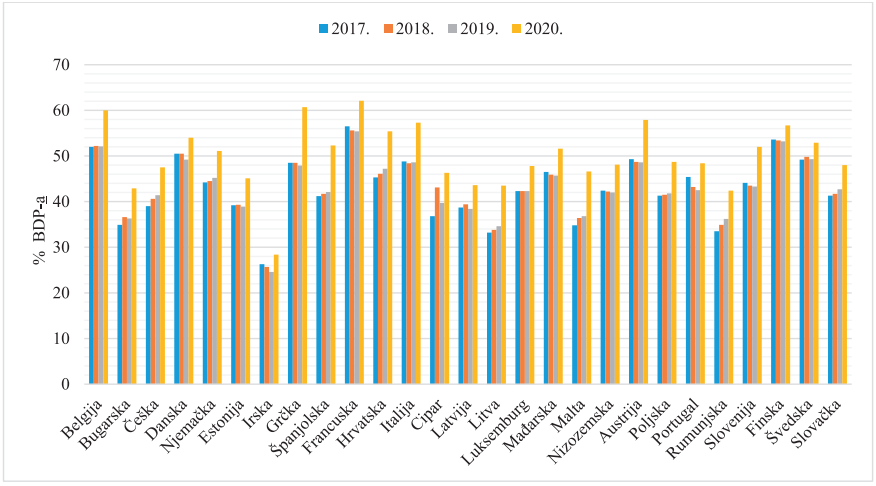
Prema podacima iz tablice 1 najviše standardne stope zabilježene su u Mađarskoj (27 %), Republici Hrvatskoj (25 %), Švedskoj (25 %) te Danskoj (25 %), dok najniže standardne stope imaju Njemačka (19 %), Cipar (19 %), Rumunjska (19 %), Malta (18 %), Luksemburg (17 %). Osim standardne stope koja ne može biti niža od 15 %, postoje i posebne stope koje se razvrstavaju u tri kategorije, i to: 1) vrlo snižene stope; 2) nulte stope i 3) parking (srednje) stope. Vrlo snižene stope primjenjuju se na prodaju robe i usluga s ograničenog popisa u određenim zemljama članicama Europske unije te su one niže od 5 %, dok se parking (srednja) stopa primjenjuje na određene isporuke roba i usluga koje nisu obuhvaćene prilogom 3. Direktive o PDV-u gdje stope nisu niže od 12 %. Tako se, primjerice, parking (srednja) stopa od 12 % primjenjuje u Belgiji na određene energetske proizvode, u Irskoj se stopa od 13,5 % primjenjuje na usluge veterinarstva, turističkih vodiča, održavanja sati vožnje u autoškoli i sl.; u Austriji se stopa od 13 % primjenjuje na proizvodnju vina na farmama, dok za istu proizvodnju vina Portugal primjenjuje stopu od 13 % te Luksemburg od 14 %.

Zbog utjecaja pandemije virusa COVID-19, nekoliko je zemalja članica provelo privremene promjene stopa poreza na dodanu vrijednost. Smanjenje stope poreza na dodanu vrijednost na robu i usluge koje se odnose na industrije koje su posebno pogođene ekonomskim posljedicama pandemije, poput hotelskog sektora, bile su najčešće. Dvije zemlje članice Europske unije prihvatile su širi pristup. Tako je Njemačka smanjila svoju standardnu stopu poreza na dodanu vrijednost s 19 % na 16 %, a sniženu stopu sa 7 % na 5 % od 1. srpnja do 31. prosinca 2020. godine. Irska je smanjila svoju standardnu stopu s 23 % na 21 % od 1. rujna 2020. g. do 28. veljače

2021. g. (Asen, 2021). Sve je to rezultiralo i manjim poreznim prihodima od poreza na dodanu vrijednost. Prema metodologiji Eurostata, prihodi od poreza i socijalnih doprinosa mogu se grupirati u tri glavne kategorije: (1) neizravni porezi definirani kao porezi povezani s proizvodnjom i uvozom (poput poreza na dodanu vrijednost), (2) izravni porezi koji se sastoje od poreza na dohodak, kapital i bogatstvo te (3) neto socijalni doprinosi. Razlika između izravnih poreza i neizravnih poreza je u tome što se za izravne poreze teret njihovog plaćanja ne može lako prebaciti na druge stranke. Za neizravne poreze, poput poreza na dodanu vrijednost, tko na kraju plaća porez ovisi zapravo o cjenovnoj elastičnosti ponude i potražnje (Eurostat, 2020). Porezni pokazatelji sastavljeni su u usklađenom okviru koji se temelji na Europskom sustavu nacionalnih računa (ESA 2010), omogućujući preciznu usporedbu poreznih sustava i poreznih politika između država članica Europske unije.

Ukupni omjer poreznih prihoda i bruto domaćeg proizvoda podrazumijeva zbroj poreznih prihoda i neto socijalnih doprinosa kao postotak bruto domaćeg proizvoda. Taj omjer iznosio je 41,1 % u EU-27 u 2019. godini što je pad u odnosu na 2018. godinu (41,2 %). U eurozoni (EA-19) su porezni prihodi u 2019. godini činili 41,6 % bruto domaćeg proizvoda te su zapravo nepromijenjeni u odnosu na 2018. godinu (Jansen, et al., 2020). U apsolutnom iznosu, od 2018. do 2019. godine porezni prihodi Europske unije povećali su se za 177 milijardi eura, a porezni prihodi europodručja povećali su se za 141 milijardu eura (Eurostat, 2020). U grafičkom prikazu 1 prikazan je trend kretanja poreznih prihoda poreza na dodanu vrijednost u zemljama članicama Europske unije (EU-27) u razdoblju 2017. – 2020. godine.

Grafikon 1. Trend kretanja visine prihoda od poreza na dodanu vrijednost u Europskoj uniji od 2017. do 2020. godine (% BDP-a)



Izvor: obrada autorica prema podacima Eurostata (2021)

Prema podacima iz grafičkog prikaza 1 zemlje koje su zabilježile najmanji udio prihoda od poreza na dodanu vrijednost u bruto domaćem proizvodu u promatranom razdoblju bile su Irska (prosječno 26,2 %), Litva (prosječno 36,3 %), Rumunjska (prosječno 36,8 %) te Bugarska (prosječno 37,7 %), dok najveći udio imaju Danska (prosječno 53,3 %), Belgija (prosječno 54,1 %) i Francuska (prosječno 57,4 %). Stoga neujednačenost prihoda od poreza na dodanu vrijednost ukazuje na raznolikost poreznih sustava među zemljama članicama, iako postoji niz direktiva za njihovo ujednačavanje. Različitost poreznih stopa između članica rezultira time da se porezni prihodi svake zemlje, između ostalog, značajno razlikuju zbog nehomogenosti cijena proizvoda i usluga.

4. DIGITALNE PLATFORME U CILJU ISPUNJAVANJA POREZNIH OBVEZA

Zbog brzog tehnološkog razvoja razne organizacije, a jedna od njih je i porezna uprava, sve više prepoznaju važnost digitalizacije. Sama korist i važnost digitalizacije je poboljšanje odnosa između poslovanja i kupaca omogućavanjem veće i brže razine povezivanja (Berman i Marshall, 2014). Iako postoje brojne definicije digitalizacije u literaturi, većina ima zajedničke karakteristike, a to je da se odnosi na ubrzani razvoj tehnoloških alata te njihovu primjenu. Tako, primjerice, autori Schreckling i Steiger (2016) digitalizaciju definiraju kao postupak promjene analognog u digitalni oblik što dovodi do promjene postojećih obrazaca i inovacija u ekonomiji i društvu. Samom digitalizacijom stvoren je postupak digitalne transformacije, a neke od prepreka pri provođenju procesa primjene digitalne transformacije su naslijeđena tehnologija, umor od inovacija, stavovi starijih radnika, politika, nedostatak poslovnih slučajeva za digitalnu transformaciju te poticaji (Fitzgerald et al., 2013). Unatoč preprekama, zadatak digitalne transformacije je usredotočiti se na razvoj i primjenu novih tehnologija u poslovni model u cilju efikasnijeg načina poslovanja.

Iako je pandemija virusa COVID-19 uvelike promijenila potrošačke navike, potrošači sve više koriste digitalne (*online*) platforme za kupnju i/ili prodaju određenih roba i usluga. Osim društvenog učinka, ekonomski i financijski učinci primjene takvih platformi puno su veći. Posebno se to odnosi na porezne izazove porezne uprave koji su proizašli iz procesa digitalizacije. Upravo se projekt BEPS (engl. *base erosion and profit shifting*), koji je pokrenuo OECD/G20 (2018) u svom planu *Action 1*, obvezao istražiti porezne izazove unutar izravnog i neizravnog oporezivanja kao posljedice digitalizacije.

Jedan od izazova javio se u području naplate poreza na dodanu vrijednost na rastuće količine roba i usluga koje se kupuju preko digitalnih (*online*) platformi. Iz tog razloga zemljama je preporučeno da implementiraju OECD-ove *Međunarodne PDV smjernice* (2017). U okviru tih smjernica posebno se ističe načelo određivanja mjesta

oporezivanja prekograničnih isporuka i primjena mehanizma za djelotvornu naplatu poreza na dodanu vrijednost. U tu svrhu važno je primjenjivati načela porezne politike od kojih se ističu načelo jednostavnosti, transparentnosti, neutralnosti i stabilnosti. Stoga je porezna uprava dužna slijediti načela u odnosu s poreznim obveznicima kako bi osigurala jedno od temeljnih načela, a to je načelo neutralnosti. U tu svrhu se poreznu upravu potiče da (OECD, 2001):

1. primjenjuje porezne zakone na pošten, pouzdan i transparentan način
2. priopćava poreznim obveznicima njihova prava i obveze kao što su dostupni žalbeni postupci i mehanizmi pravnog lijeka
3. dosljedno dostavlja kvalitetne informacije i adekvatno postupa s upitima, zahtjevima i žalbama poreznih obveznika na točan i pravodoban način
4. pruža pristupačnu i pouzdanu uslugu o pravima poreznih obveznika te njihovim obvezama prema zakonu
5. osigurava da se troškovi usklađenosti drže na minimalnoj razini koja je potrebna za postizanje poštivanja zakona
6. porezni obveznici imaju prilike iskazati mišljenje o promjenama u administrativnim politikama i postupcima
7. koriste podatke o poreznim obveznicima samo u mjeri u kojoj je to zakonom dozvoljeno te
8. razvijaju i održavaju dobre radne odnose među klijentima i šire.

Iako digitalizacija te korištenje digitalnih platformi uvelike utječu na promjenu rada porezne uprave, upravo se kroz digitalne platforme i tehnologiju sâm postupak ispunjavanja porezne obveze znatno može ubrzati i olakšati. Stoga, u cilju uspostave pokazatelja za ispunjavanje uvjeta za primjenu režima PDV-a preko digitalnih platformi, porezna uprava treba razmotriti sljedeće aspekte porezne politike (OECD, 2019a):

1. utvrditi da se svi pokazatelji za ispunjavanje uvjeta za digitalne platforme u okviru režima PDV-a temelje na funkcijama, a ne na vrstama platformi. Izgradnja pokazatelja na temelju funkcija vjerojatno će biti sigurnija u budućnosti te će potaknuti veću dosljednost u poreznom tretmanu platformi obavljajući slične funkcije neovisno o poslovnom modelu i modelu isporuke koji se koriste
2. razmotriti primjenu pravila hijerarhije za rješavanje slučajeva u kojima sudjeluje više od jedne digitalne platforme u opskrbnom lancu
3. za definiranje prihvatljivosti digitalnih platformi za režim PDV-a morat će se redovito preispitivati njihov tehnološki i komercijalni razvoj kako bi se osigurala njihova djelotvornost
4. za dizajn i djelotvoran rad režima PDV-a ključno je savjetovanje s poslovnom zajednicom. To je nužno da bi porezna uprava te ostala tijela stekla temeljito razumijevanje digitalne sposobnosti platformi da preuzmu punu obvezu PDV-a.

5. pružiti jasne i transparentne informacije o pokazateljima da digitalne platforme ispunjavaju svoju ulogu u cilju prikupljanja poreznih prihoda od PDV-a.

Stoga je, kao rezultat ovih aktivnosti te u cilju poboljšanja suradnje poreznih uprava u zemljama članicama EU-a, donesena 7. Direktiva o administrativnoj suradnji (DAC7). Cilj te direktive je omogućiti zemljama EU-a da jednostavnije prate oporezive transakcije na digitalnim platformama i pojednostave naplatu PDV-a te ostalih poreza od strane lokalnih poreznih ureda. DAC7 uveden je 22. ožujka 2021. g., a nova pravila izvješćivanja primjenjivat će se od 1. siječnja 2023. godine.

5. ZAKLJUČAK

Ubrzani razvoj digitalnih tehnologija koji je djelomično uzrokovan pandemijom virusa COVID-19 otklonio je potrebu za lokalnim poslovnim jedinicama, ne samo unutar zemalja članica EU-a, već i šire. Na taj način domaće i strane kompanije mogu ostvariti veći profit od digitalnih aktivnosti što predstavlja veliki izazov za poreznu politiku, naročito u sustavu poreza na dodanu vrijednost. U mnogim zemljama članicama Europske unije, pa tako i u Republici Hrvatskoj, Italiji, Francuskoj i Sloveniji, već dugi niz godina provode se brojne porezne reforme s ciljem harmonizacije poreza na dodanu vrijednost. Cilj tih reformi, osim harmonizacije sustava poreza na dodanu vrijednost, bio je i zadovoljavanje potreba javne potrošnje. Tijekom tog razdoblja dolazilo je do promjena stopa poreza kako bi se osigurala transparentnost i fleksibilnost odnosa između zemalja članica EU-a. Prikupljanje novčanih sredstava za zadovoljenje javnih potreba samo je jedan od zadataka koji se postavljaju pred porezni sustav i poreznu politiku. Prema analiziranim prihodima od poreza na dodanu vrijednost u zemljama članicama EU-a za razdoblje 2017. – 2020. godine, najveći udio u bruto domaćem proizvodu imale su Danska (prosječno 53,3 %), Belgija (prosječno 54,1 %) te Francuska (prosječno 57,4 %). Iako su udjeli u bruto domaćem proizvodu dosta visoki, zbog ubrzane digitalizacije i internetske prodaje, pretpostavlja se da su udjeli i znatno viši. U tu svrhu porezne uprave zemalja članica EU-a upravo kroz digitalne platforme i tehnologije pronalaze rješenje za brže i učinkovitije prikupljanje poreznih prihoda. Oslanjanje na digitalne platforme za bržu i učinkovitiju naplatu poreza na dodanu vrijednost motivirano je činjenicom da su digitalni lanci opskrbe često dugi i složeni te da dobavljači u tom lancu možda nisu svjesni uloga različitih strana u samom lancu. Ovakve vrste promjena proizašle kroz proces digitalizacije ne donose samo novu tehnologiju, proizvode i usluge, već iz temelja mijenjaju sustav poslovanja porezne uprave, a time i ljudsko ponašanje. Preporuka za buduće istraživanje je istražiti pojedine slučajeve prikupljanja i oporezivanja porezom na dodanu vrijednost kroz digitalne platforme u zemljama članicama EU-a kako bi se dodatno ispitala njihova učinkovitost.

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THE DIGITAL PLATFORMS AND VALUE-ADDED TAX

Abstract

Accelerated technological development has set challenges for fiscal policy that are mostly the result of digitalisation. The COVID-19 pandemic has additionally aggravated tax challenges by increasing pressure on public finance policies in all the EU Member States. The main goal is to collect tax revenues with a special emphasis on value-added tax. Therefore, digitalisation has made it possible to do business on a much larger scale and from a greater distance by applying new business models and platforms, more than is the case in traditional models. This paper aims to present and analyse the importance of digital platforms with the objective of tax collection of value-added tax. To develop and establish such platforms, tax administrations have an important role and are facing great challenges in connection with changing the nature of their business and policy-making. The impact of digitalisation on international tax rules and policies is only a part of the wider transformation of society.

Key words: digitalisation, digital platforms, value-added tax, European Union

JEL classification: H20, H24

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CHALLENGES FOR INFORMATION AND CYBER SECURITY OF BANKS IN A PANDEMIC ENVIRONMENT AND USER ATTITUDES

Abstract

Information security and cyber security are important elements of business and are of great importance for business continuity and reputation preservation. Given that banks in most cases use personal and sensitive data of their users when providing financial services, they represent a very attractive target for cyber-attackers, which was especially evident during the COVID-19 pandemic and changed business conditions that created new vulnerabilities in information security. Therefore, financial institutions must develop and implement effective and efficient safeguards to maintain their information security at a high level at all times. This paper analyses the impact on information security of banks in a pandemic environment by conducting a survey and protecting confidential data from the aspect of banking service users. The survey contains 18 questions that are pre-defined and distributed to the respondents. The main conclusion is that banks have largely managed to maintain satisfaction by fulfilling the level of security of information systems in the provision of services and storage of confidential data observed from the aspect of users.

Keywords: bank, information security, IT control, security risks

JEL classification: G29, M15

1. INTRODUCTION

Information security deals with the protection of information regardless of the format in which they are stored. They include paper documents, digital documents, intellectual property, and verbal communication. Cyber security deals with the protection of digital resources. It covers everything, from networks to hardware and information

that is processed or transmitted (Cybersecurity fundamentals study guide, 2015). Cyber security is a process specifically designed to protect computers, computer networks, and data in digital format from unauthorised access by third parties or their destruction and attacks in cyberspace (Al-Sassam and Al-Alawi, 2019). Every financial institution, including banks, must pay due attention to its resources, which results in concern for the protection of its intellectual property, confidential data, and business reputation. Computer networks serve as the backbone of modern information flow and communication technology. These networks have no physical boundaries (Khan, 2018).

The COVID-19 pandemic has strongly affected the financial stability of all participants in the financial services market, increasing the instability of financial markets and disrupting normal operations. In response to the pandemic, financial institutions have transferred all or part of their business, relocating employees to a new work environment involving working from home (Frank and Greenman, 2020). Cyber-attacks are becoming more frequent, sophisticated, and widespread. Although attacks on major banks and large retail chains generate the most attention from stakeholders, many smaller banks have also experienced cyber incidents – for example, being targeted by malicious viruses or identity theft attempts to misappropriate confidential customer data. Many banks have been the target of fraud with automatic payments and account theft. Unfortunately, many small and medium-sized banks may generally lack the resources needed to combat cyber-attacks (Servidio and Taylor, 2015).

Although the global COVID-19 virus pandemic has affected all areas of human activity, the subject of this research will be the challenges regarding information- and cyber security of banks in a pandemic environment and the attitudes of users. Over the last year and a half, banks were compelled to conduct many forced activities in their operations and required rapid organisation and execution without prior analysis and appropriate planning activities. This primarily includes work outside the office which, before the onset of the pandemic, included mainly field work that was carried out in accordance with the planned activities, which included certain security solutions. However, with the emergence and spread of the COVID-19 virus pandemic, work outside the office has predominantly become work from home. This means that the banking sector has experienced probably the deepest business changes in the past 20 years. Every significant business change brings about challenges for information security, which can sometimes be less, and sometimes more important.

The main change is certainly the relocation of employees or some of the employees from business offices to their own houses or apartments. This also means moving to an external environment that is not at all friendly towards the bank's information system, which is the safest workspace for employees. For the IT support service, this transformation meant the occurrence of certain events, and some of them could be the following (Rahman, 2021):

- Growth in the number of extranet connections, which is directly related to the risk based on Internet service providers,
- The emergence of the need to provide secure and reliable access to the internal corporate network using at least a VPN connection,
- The growth in the number of network services and the number of their users as a result of the pandemic has led to burdening of existing IT capabilities and strained the performance of the information system,
- The emergence of the need to provide all employees with the necessary equipment for several weeks of constant work outside the office, which included, among other things, the provision of a sufficient number of laptops, active licenses for VPN connection and the likes, and
- The emergence of the need to include private computers in the internal corporate network for those employees who opted for the use of private computers, which was a specific security challenge.

National governments have imposed certain measures and restrictions in response to the spread of the COVID-19 virus. Consequently, the application of advanced technologies has become a need of the vast majority of users of banking services who have moved from going to the bank for transactions or using other services to using electronic banking and the application for online transactions. The main mistake of an average computer user is the mistake of naivety, i.e., the assumption that they have nothing to hide and are therefore not interesting to those who seek to exploit security vulnerabilities in their system. Another big mistake is the mistake of trust, i.e., average users have absolute confidence in the companies to which they give their personal data. The consequences of these errors are omissions in taking privacy measures (Putnik et al., 2014).

There are cases of incidents that have been reported during the provision of Internet banking services that arise from certain security threats. To counter this problem, banks apply a variety of security techniques throughout the field of Internet banking (Kyungroul et al., 2020). Fraud attempts by financial institutions have tripled since the COVID-19 pandemic and a wide range of new scams has emerged affecting those more affected by the pandemic and those who were isolated from Internet services before the pandemic and who had difficulties using such services with the onset of the pandemic crisis. The pandemic has provided a great opportunity for cyber-criminals and fraudsters who focus on client vulnerability based on the risk of job loss and financial security (Hoffman, 2020).

2. LITERATURE REVIEW

The results of a study (Falzon and Vella, 2020) show that banks that have stronger risk management practices do not benefit from superior bank performance and market rewards during periods of crisis. This is a consequence of the significantly changing business environment, primarily at the level of an individual employee who has had to work from home, which has opened new risks to the information security of banks. Previous network security and authentication systems and user authentication had to respond to new challenges in the form of remote access via private networks to a single business system where sensitive data are stored. The use of numerous applications and logging on to various sites has created a large space for security vulnerability of financial institutions in a pandemic environment.

The COVID-19 pandemic has caused the need for significant adjustments in the workplace in all areas of human labour, including the operations of financial institutions. Work processes and the manner of performing work tasks have become increasingly decentralised and diversified, which creates new security risks and opens new questions concerning the information security of financial institutions. In Nigeria, the working hours of employees in financial institutions have been reduced to 6 hours per day compared to 9–10 hours per day during the COVID-19 pandemic (Agba et al., 2020). Another study states that incidents that occur in information systems lead to increasing irregularities and negative consequences, although attackers are increasingly using quite simple and easily identifiable tools and tactics. The vast majority of the total number of potential incidents can be effectively prevented by implementing adequate protection measures that should be in line with the degree of identified risk affecting the security environment of the system (Andrović et al., 2017).

The third study argues that easy and simple detection of insiders is almost impossible. They can make seemingly innocent and spontaneous mistakes that are individually of small significance and through them, they can transfer confidential data to a third party who must not have confidential data of the bank in their possession and who is as such considered a malicious party. This segment of security risk has become especially important in the pandemic environment and with the work-from-home regime, when internal control procedures have had to be relaxed to a certain extent and when defined work protocols found their implementation in the new, changed environment. This is why it is important for banks to implement real-time supervision and to regularly make predictions and updates of regular and extraordinary control procedures in order to protect the information system, confidential internal and external communication and data integrity (Adane, 2020).

In order to prevent losses that may occur as a result of vulnerability and vulnerability to security attacks and threats to information security, banks should strive to develop an alert system that would ensure the awareness of both bank employees and all

user groups (Akinbowale et al., 2020). Creating awareness of vulnerabilities and recognising security risks can prevent the subsequent occurrence of major financial losses. It is also of great importance for the financial sector to try to predict how threats based on the application of cryptography will be manifested and how the progress that has been achieved regarding information security of the execution of basic banking and payment will be measured. For banks as financial institutions, the implementation of cryptography is a considerably long-term process that requires significant effort (Covers and Doeland, 2020).

3. THE CONCEPT OF ANALYSIS

The research was conducted by creating a survey on banks' information security challenges in a pandemic environment and protection of confidential data from the aspect of users of banking services. The questionnaire contains 18 questions that are pre-defined and distributed to respondents through widely available channels in the form of social networks. The questionnaire was available for completion during the first and second week of July 2021, i.e., in the period from July 1 to July 11, 2021. A total of 923 responses were received to the distributed questionnaire, of which 900 responses were completed in full and can be considered relevant. The answers to the survey resulting from the conducted research were analysed using descriptive analysis in SPSS Programme, after which they were explained in detail in the paper and presented in the form of graphical and tabular representations.

This research is subject to multiple and numerous limitations that have to some extent reduced its scope and the quality of its results, which have remained at a satisfactory level of perception and knowledge. The primary and main limitation is the occurrence of a limited number of responses in the form of feedback to the questions from the questionnaire which was distributed to the selected respondents via social networks. A larger number of answers would provide greater support and reliability to the presented conclusions and findings, but despite this limitation, the presented conclusions have satisfactory and appropriate support in the results of the questionnaire. Another limitation relates to the fact that respondents may often provide overly optimistic answers or answers that do not fully reflect their actual views when providing a survey response. The third limitation concerns the representativeness of the sample. For the above-mentioned reasons, it is necessary to take the presented data with a great deal of caution during their interpretation and their official use.

Taking into account the above limitations, the research conducted has led to significant conclusions in the field of cyber security and its growing importance for financial institutions, especially in the domain of user attitudes and their exposure to internal and external security risks that can significantly jeopardise the execution of financial services and personal data of the users of financial services. Banks and other financial

institutions can use the results of this research as a guide to increase their security and ensure business continuity and smooth execution of financial services, which would to some extent increase the security and satisfaction of users of financial services. The results of this research certainly contribute to the aggregation of existing knowledge in the field of information security of financial institutions and their upgrading, primarily in the direction of internal controls, risk response, and training of employees to prepare them for an adequate response to security attacks.

4. EMPIRICAL DATA AND ANALYSIS

The aim of the research that is the subject of this paper is to examine whether bank information systems ensure sufficient data confidentiality, availability of financial services and security of users from the point of view of banking service users worldwide. The questions were categorised into four groups, each group of questions containing a number of sub-questions that explore the main statements. The questions are presented below in the form of a matrix of research questions.

Table 1. Matrix of research questions for users of banking services

Group of questions	Sub-question	The goal	Number
Introductory questions	In which country do you mostly work?	To determine which country the respondents come from.	Question1
	How old are you?	To determine the age structure of the respondents.	Question2
	During the previous year, during the COVID-19 pandemic, did you use the online services of banks to a greater extent (Internet banking ...)?	To determine whether the users used the online services of banks to a greater extent during the COVID-19 pandemic in the previous year.	Question3
	Rate on a scale of 1 to 5 to what extent do you think COVID-19 has influenced your relationship with the bank.	To determine how respondents' rate, on a scale of 1 to 5, the extent to which they feel that COVID-19 has influenced their relationship with the bank.	Question4
	Do you think that the security of your data when paying online has been more at risk during the COVID-19 pandemic than before?	To determine whether respondents believe that the security of their data when paying online has been more compromised during the COVID-19 pandemic than before.	Question5

Do information systems sufficiently ensure data confidentiality to banks?	Do you think that banks adequately store your personal data?	To determine whether service users believe that banks are adequately storing their personal data.	Question6
	How would you rate the bank's attitude towards your personal data on a scale from 1 to 5?	To determine how the users evaluate the bank's attitude towards their personal data.	Question7
	Have you been in a situation where a third party has come into possession of your personal data that you had given to the bank whose services you use?	To determine whether the users were in a situation where a third party came into possession of their personal data which they had given to the bank whose services they use.	Question8
	If you were in such a situation, how did you react?	To determine how the users reacted in a situation where a third party came into possession of their personal data provided to the financial institution whose services they use.	Question9
	Do you know for what purposes the bank whose services you use processes your personal data?	To determine whether the users are aware of the purposes for which the bank whose services they use processes their personal data.	Question10
Do the information systems in banks sufficiently ensure the availability of services?	Were the services of banks you use unavailable during the previous year (Internet banking, ATMs...)?	To determine whether the users of banking services have had problems with their availability during the previous year.	Question11
	Did the unavailability of the service last longer than 24 hours?	To determine whether the unavailability of services lasted longer than 24 hours.	Question12
	Did the unavailability of the service have negative consequences for you (financial, psychological...)?	To determine whether unavailability had negative consequences for the users.	Question13

Do the information systems in banks sufficiently ensure users' security?	Have you received a malicious E-mail in the last year that has been related to your bank?	To determine whether the respondents have received a malicious E-mail in the past year that has had links to their bank.	Question14
	Does the bank regularly inform you about possible attacks and how you can protect your data by behaving responsibly on the Internet?	To determine whether the bank regularly informs customers about possible attacks and how they can protect their data by behaving responsibly online.	Question15
	How would you rate your trust in banks on a scale from 1 to 5?	To determine how the respondents, on a scale of 1 to 5, would rate their confidence in banks.	Question16
	How would you rate your online safety on a scale from 1 to 5 while using banking services?	To determine how the respondents, on a scale from 1 to 5, would rate their online safety while using banking services.	Question17
	How would you rate the bank's care of the security of your personal data on a scale from 1 to 5?	Determine how the respondents would rate, on a scale from 1 to 5, whether the bank cares enough about the security of their personal data.	Question18

Source: Authors

The initial hypothesis that was used in the paper is that, even in the pandemic environment, the existing bank information systems have sufficiently ensured data confidentiality, availability of financial services and security of users from the point of view of users of banking services worldwide. Out of 923 total responses, 23 were not completed, which is why they were eliminated. The standard deviation of the age structure of the respondents is 13,257, and the median is 35. The questionnaire was answered by respondents from 33 countries. Most respondents are from Europe, among which the leading respondents are from Serbia, Croatia, and Bosnia and Herzegovina.

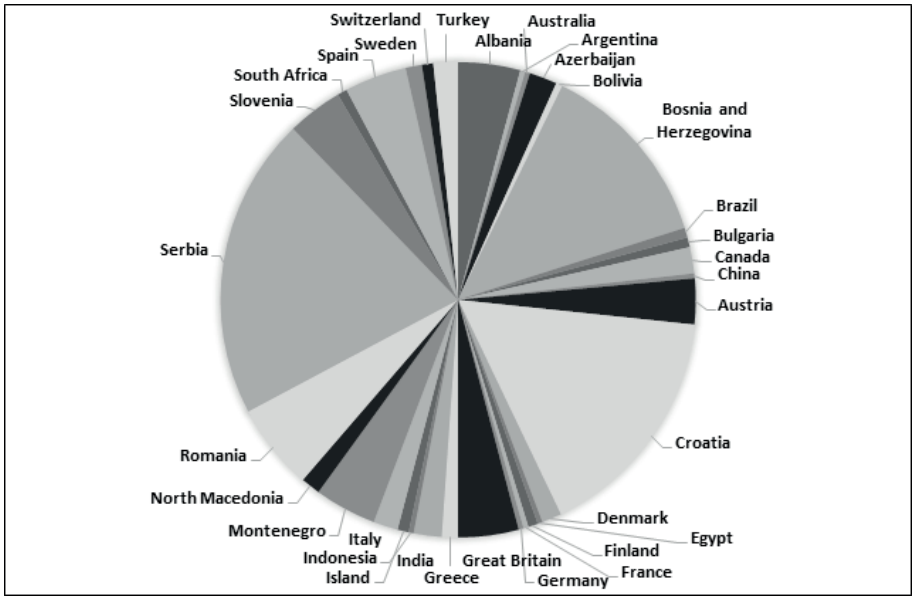
Table 2. Frequencies and Descriptive Statistics of the Age Structure

Valid	Frequency	Percent	Valid Percent	Cumulative Percent	Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Albania	38	4.2	4.2	4.2	Great Britain	37	4.1	4.1	50.0
Argentina	3	0.3	0.3	4.6	Greece	10	1.1	1.1	51.1
Australia	3	0.3	0.3	4.9	India	17	1.9	1.9	53.0
Austria	28	3.1	3.1	26.7	Indonesia	3	0.3	0.3	53.3

Azerbaijan	17	1.9	1.9	6.8	Iceland	7	0.8	0.8	54.1
Bolivia	4	0.4	0.4	7.2	Italy	15	1.7	1.7	55.8
Bosnia and Herzegovina	116	12.9	12.9	20.1	Montenegro	38	4.2	4.2	60.0
Brazil	6	0.7	0.7	20.8	North Macedonia	12	1.3	1.3	61.3
Bulgaria	6	0.7	0.7	21.4	Romania	53	5.9	5.9	67.2
Canada	16	1.8	1.8	23.2	Serbia	185	20.6	20.6	87.8
China	3	0.3	0.3	23.6	Slovenia	34	3.8	3.8	91.6
Croatia	146	16.2	16.2	42.9	South Africa	6	0.7	0.7	92.2
Denmark	12	1.3	1.3	44.2	Spain	38	4.2	4.2	96.4
Egypt	3	0.3	0.3	44.6	Sweden	10	1.1	1.1	97.6
Finland	6	0.7	0.7	45.2	Switzerland	7	0.8	0.8	98.3
France	3	0.3	0.3	45.6	Turkey	15	1.7	1.7	100.0
Germany	3	0.3	0.3	45.9	Total	900	100.0	100.0	

Source: Authors based on analysis of the results using SPSS

Graph 1. Structure of Respondents Based on Their Country of Origin



Source: Authors based on the result analysis using Excel

Table 3. Frequencies and Descriptive Statistics of the Survey Completion Date

Date	Frequency	Percent	Valid Percent	Cumulative Percent
July 1, 2021	89	9.9	9.9	9.9
July 2, 2021	88	9.8	9.8	19.7
July 3, 2021	73	8.1	8.1	27.8
July 4, 2021	89	9.9	9.9	37.7
July 5, 2021	85	9.4	9.4	47.1

July 6, 2021	72	8	8	55.1
July 7, 2021	72	8	8	63.1
July 8, 2021	95	10.6	10.6	73.7
July 9, 2021	69	7.7	7.7	81.3
July 10, 2021	91	10.1	10.1	91.4
July 11, 2021	77	8.6	8.6	100
Total	900	100	100	

Source: Authors based on the result analysis using SPSS

The respondents answered the survey during the first and second weeks of July 2021, i.e., in the period from July 1 to July 11, 2021. The variance of responses received is 7.623E + 10, and the majority of answers arrived on July 8, 2021.

5. RESULTS AND DISCUSSION

The first group of questions were introductory questions. For this purpose, it included six questions, three of which were used to determine the country of origin of the respondents, the age structure of the respondents and the date on which the questions were answered.

Table 4. Frequencies and Descriptive Statistics of the First Group of Questions

	Question3	Question4	Question5
Valid	900	900	900
Missing	0	0	0
Mean	1.11	3.77	1.48
Std. Error of Mean	0.011	0.028	0.017
Std. Deviation	0.316	0.854	0.5
Variance	0.1	0.73	0.25
Skewness	2.461	-1.181	0.062
Std. Error of Skewness	0.082	0.082	0.082
Kurtosis	4.067	1.965	-2.001
Std. Error of Kurtosis	0.163	0.163	0.163

Source: Authors based on the result analysis using SPSS

When asked whether they used the online services of banks, Internet banking, etc. during the COVID-19 pandemic in the previous year (Question3), 799 respondents, i.e., 88.8% of the total number, answered “yes”, and the remaining 101 respondents, i.e., 11.2% of the total number, answered “no”. When asked, on a scale from 1 to 5, to what extent they thought COVID-19 influenced their relationship with the bank (Question4), 27 respondents, or 3.00% of the total number, answered “1” (very little), 45 respondents, i.e., 5.00% of the total number, answered “2” (slightly), 159 respondents, i.e., 17.7% of the total number, answered “3” (moderate), 547 respondents, i.e., 60.8% of the total number, answered “4” (significant), and the remaining 122 respondents, i.e., 13.6% of the total number, answered “5” (very significant). When asked whether

they thought that the security of their data when paying online was more at risk during the COVID-19 pandemic than before, 464 respondents, or 51.6% of the total number, answered “yes”, and 436 respondents, or 48.4% of the total number, answered “no”. The second group of questions examined whether information systems sufficiently ensured the confidentiality of data from the point of view of users. For this purpose, it included five questions.

Table 5. Frequencies and Descriptive Statistics of the Second Group of Questions

	Question6	Question7	Question8	Question9	Question10
Valid	900	900	900	900	900
Missing	0	0	0	0	0
Mean	1.35	2.61	1.88	1.14	1.99
Std. Error of Mean	0.016	0.035	0.011	0.014	0.012
Std. Deviation	0.477	1.048	0.32	0.426	0.356
Variance	0.227	1.098	0.102	0.182	0.127
Skewness	0.635	0.469	-2.409	3.063	-0.123
Std. Error of Skewness	0.082	0.082	0.082	0.082	0.082
Kurtosis	-1.6	-0.145	3.812	8.892	4.923
Std. Error of Kurtosis	0.163	0.163	0.163	0.163	0.163

Source: Authors based on the result analysis using SPSS

When asked whether they thought the banks adequately stored their personal data (Question6), 586 respondents answered “yes”, which represents 65.11% of the total, and 314 respondents answered “no”, which is 34.89% of the total number of respondents. When asked how they rated the banks’ attitude towards their personal data on a scale from 1 to 5 (Question7), 121 respondents, i.e., 13.44% of the total number, answered “1” (very bad), 321 respondents, i.e., 35.67% of the total number, answered “2” (bad), 307 respondents, i.e., 34.11% of the total number, answered “3” (average), 94 respondents, i.e., 10.44% of the total number, answered “4” (good), and the remaining 57 respondents, or 6.33% of the total number, answered “5” (excellent). When asked whether they were in a situation where a third party came into possession of their personal data that they had given to the bank whose services they used (Question8), 104 respondents, or 11.56% of the total, answered “yes”, and 796 respondents, or 88.44% of the total, answered “no”. When asked if they had been in such a situation, how did they react, 796 respondents, i.e., 88.44% of the total number answered that they had not been in such a situation, 78 respondents, i.e., 8.67% of the total number answered that they contacted the bank, and the remaining 26 respondents, or 2.89% of the total number, answered that they contacted the police station. When asked if they knew for what purposes the bank processed their personal data, 61 respondents, i.e., 8.67% of the total number, answered “yes”, 786 respondents, i.e., 87.33% of the total number, answered “no”, and the remaining 53 respondents, i.e., 5.89% of the total number, answered that it was not applicable.

The third group of questions examined whether information systems sufficiently ensured the availability of services to banks from the point of view of the users. Three questions were asked for this purpose.

Table 6. Frequencies and Descriptive Statistics of the Third Group of Questions

	Question11	Question12	Question13
Valid	900	900	900
Missing	0	0	0
Mean	1.48	1.63	1.65
Std. Error of Mean	0.024	0.02	0.02
Std. Deviation	0.71	0.607	0.61
Variance	0.503	0.369	0.373
Skewness	1.138	0.399	0.372
Std. Error of Skewness	0.082	0.082	0.082
Kurtosis	-0.12	-0.665	-0.664
Std. Error of Kurtosis	0.163	0.163	0.163

Source: Authors based on the result analysis using SPSS

When asked if banking services (Internet banking, ATMs...) were unavailable to them during the previous year (Question11), 582 respondents, or 64.7% of the total number, answered “yes”, 204 respondents, i.e., 22.7% of the total number, answered “no”, and the remaining 114 respondents, i.e., 12.7% of the total number, answered “not applicable”. When asked whether the unavailability of the service lasted longer than 24 hours (Question12), 393 respondents, i.e., 43.7% of the total number, answered “yes”, 446 respondents, i.e., 49.6% of the total number, answered “no”, and the remaining 61 respondents, i.e., 6.8% of the total number, answered “not applicable”. When asked whether the unavailability of the service had negative consequences for them (Question13), 381 respondents, i.e., 42.3% of the total number, answered “yes”, 454 respondents, i.e., 50.4% of the total number, answered “no”, and the remaining 65 respondents, i.e., 7.2% of the total number, answered “not applicable”.

The fourth set of questions examined whether the information systems in the banks provided adequate security to the users. For this purpose, it comprised five questions.

Table 7. Frequencies and Descriptive Statistics of the Fourth Group of Questions

	Question14	Question15	Question16	Question17	Question18
Valid	900	900	900	900	900
Missing	0	0	0	0	0
Mean	1.8	2,77	2.12	2.74	2.78
Std. Error of Mean	0.018	0.016	0.04	0.034	0.039
Std. Deviation	0.539	0.472	1.185	1.022	1.176
Variance	0.291	0.223	1.404	1.045	1.383
Skewness	-0.112	-1.945	0.811	0.421	0.135
Std. Error of Skewness	0.082	0.082	0.082	0.082	0.082

Kurtosis	-0.07	3.014	-0.322	-0.628	-0.801
Std. Error of Kurtosis	0.163	0.163	0.163	0.163	0.163

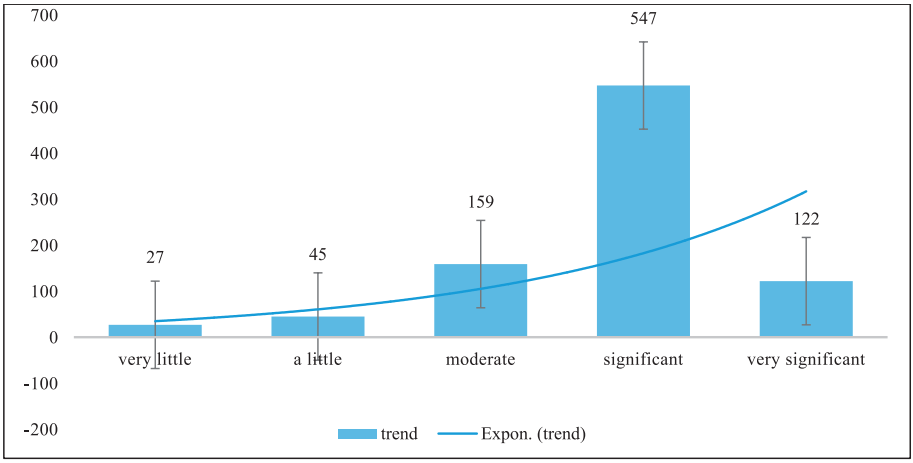
Source: Authors based on the result analysis using SPSS

When asked whether they received a malicious E-mail in the past year that had to do with their bank (Question14), 236 respondents, or 26.2% of the total number, answered “yes”, 604 respondents, or 67.1 % of the total number, answered “no”, and the remaining 60 respondents, or 6.7% of the total number, answered: “I do not know”. When asked whether the bank regularly informed them about possible attacks and how they could protect their data by responsible behaviour on the Internet (Question15), 21 respondents, or 2.3% of the total number, answered “yes”, 163 respondents, i.e., 18.1% of the total number, answered “no”, and the remaining 716 respondents, i.e., 79.6% of the total number, answered: “I do not know”. When asked how they would rate their trust in banks on a scale from 1 to 5 (Question16), 365 respondents, i.e., 40.6% of the total number answered “1” (very bad), 235 respondents, i.e. 26.1% of the total number, answered “2” (bad), 168 respondents, or 18.7% of the total number, answered “3” (average), 89 respondents, or 9.9% of the total number, answered “4” (good), and the remaining 43 respondents, or 4.8% of the total, answered “5” (excellent). When asked how they would rate their online safety while using banking services on a scale from 1 to 5 (Question17), 62 respondents, or 6.9% of the total number, answered “1” (very bad), 383 respondents, i.e. 42.6% of the total number, answered “2” (bad), 223 respondents, i.e., 24.8% of the total number, answered “3” (average), 187 respondents, i.e., 20.8% of the total number, answered “4” (good), and the remaining 45 respondents, or 5.0% of the total number, answered “5” (excellent). When asked how they rated, on a scale from 1 to 5, whether the bank cared enough about the security of their personal data (Question18), 148 respondents, or 16.4% of the total number, answered “1” (very bad), 224 respondents, i.e., 24.9% of the total number, answered “2” (bad), 282 respondents, i.e., 31.3% of the total number, answered “3” (average), 171 respondents, i.e., 19.0% of the total number, answered “4” (good), and the remaining 75 respondents, or 8.3% of the total number, answered “5” (excellent).

Based on the presented data and the analysis of the obtained answers, we can conclude the following: although the research had a global character and although the answers of respondents from all continents were received, the answers of respondents from the Balkan Peninsula prevail, mostly from three countries: Serbia, Croatia, and Bosnia and Herzegovina. The survey was active during the first two weeks of July 2021, which is a period that followed shortly after the turbulent global situation with the COVID-19 virus pandemic subsided and after a significant reduction in the number of the infected and deceased people. This seems reasonable, considering that more than a year and a half passed from the beginning of the global pandemic to the beginning of the research, which is a long enough period during which the respondents could

form their opinion and answer the questions that are part of the survey.

Graph 2. The Trend of Respondents' Attitudes Based on the Change in Their Attitude Towards Banks During the Pandemic



Source: Authors based on the result analysis using Excel

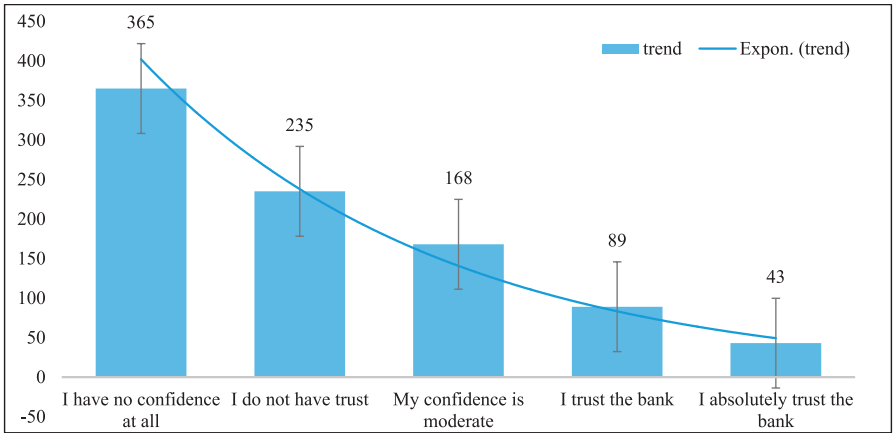
The vast majority of the total number of respondents, more precisely 88.8%, answered that they used the online services of banks during the COVID-19 pandemic to a greater extent. This confirms the initial hypothesis in the form of the statement that the pandemic caused significant changes in the operations of banks, primarily in the domain of their relationship with customers. The spread of the COVID-19 viral disease is the most transformative non-financial risk in this decade that triggered the Great Crisis of the non-financial risk. Combining strategy and risk management has never been more crucial for financial institutions (Tullo, 2020).

A significant number of respondents answered that they believed that their data security in online payments was more at risk during the COVID-19 pandemic than before, as much as 51.6% of the total number. This may be partly due to risk aversion and insufficient knowledge of the respondents of the measures taken by banks on a daily basis. This is confirmed in the answer to the question of whether the bank has regularly informed them about possible attacks and how they could protect their data by responsible behaviour on the Internet, where 716, or as much as 79.6% of the total number of respondents, answered "no". In this domain, there is some room for improving the co-operation between banks and insurance companies, especially with a focus on finding a point of agreement with the users of banking services who have an aversion to risk. The co-operation between banks and insurance companies can create a favourable environment and climate suitable for the development of new business trends. Insurance companies can play a key role in taking risks and cost reimbursements in the event of a security attack and loss of sensitive data. In addition,

insurance companies can make a significant contribution to preventing attacks and repelling potential attackers and responding in a timely and effective manner and mitigating the consequences when security mechanisms fail (Camillo, 2017). Buyers of insurance packages often do not think about their packages and their contents in relation to circumstances that do not include emergencies. The COVID-19 pandemic has caused general and widespread insecurity among insurance beneficiaries. Buyers of insurance packages are now probably considering including and paying for insurance and protection against information security and hacker attacks in their insurance packages (Mehmet and Ganji, 2021).

An interesting conclusion can be drawn from the answer to the question of whether the respondents thought that banks adequately stored their personal data, where 65.11% answered “yes”, which is a significantly more favourable outcome than in the previously analysed questions.

Graph 3. The Trend of Respondents’ Attitudes Based on their Trust in Banks



Source: Authors based on the result analysis using Excel

Although the respondents’ opinion on personal data keeping by the bank is satisfactory, the same does not apply for the general trust in banks, which is at a low level, which may be a consequence of the new environment caused by the COVID-19 pandemic. Only 11.45% of the total number of respondents were in a situation where a third party came into possession of their personal data, which they, among other things, had given to the bank. The ingenuity, seriousness, resourcefulness, and frequency of security attacks on financial institutions continue to grow, both globally and locally. Financial institutions need to define adequate security risk management strategies and update them regularly in line with changing trends if they are to deal effectively with growing threats (Camillo, 2017). A third party who acquires confidential information may use it to transfer money from the bank client’s account to their possession and

thus commit a criminal act that may include identity theft when using the bank client's personal data to carry out transactions (Butler and Butler, 2018).

The growing sophistication, frequency and severity of cyber-attacks targeting financial sector institutions highlight their inevitability and inability to fully protect the integrity of critical computer systems. In this context, cyber resilience offers an attractive complementary alternative to the existing cyber security paradigm (Dupont, 2019). E-business is accompanied by risks, the basic characteristic of which is the phenomenological diversity, which is becoming more and more extensive every day (Raičević et al., 2014).

Most respondents rate their online security as risky when using banking services and this can be improved. Identity protection on the Internet is gaining importance by increasing the volume of digital communication and the use of the Internet in the modern age (Staletić, 2014). However, during the COVID-19 pandemic, bank information systems showed an enviable level of security and, above all, flexibility in adapting to new business challenges and taking advantage of new technological opportunities, which was partly confirmed by the attitudes of the respondents as users of banking services.

6. CONCLUSION

The extremely dynamic growth and progress of the technological environment and IT tools used in the daily execution of financial services leads to an increase in the vulnerability of banks in the field of information security, which is primarily reflected in increasing exposure to hacker attacks, computer system hardware failures and hacking unauthorised access of third parties to confidential and security-sensitive data. This creates a strong need for banks to consider effective strategies and practical tools to use in their day-to-day operations, which are directly or indirectly related to information security, to protect confidential and security-sensitive data. The past few years have brought significant changes in processes, operations and the way transactions are executed, which is a consequence of new technologies, among which cryptocurrencies and blockchain stand out. Responsible persons in financial institutions face growing challenges in the field of data protection due to the increased use of computer networks in all business aspects (Creado and Ramteke, 2020). Information security in banks has been a leading topic and a key point for years, requiring the need for continuous consideration with constantly present elements of continuous monitoring and supervision. All banks have digitalised their services with the application of artificial intelligence and modern technological solutions. Once data and systems are connected via the Internet, they become vulnerable and susceptible to various influences, so it is necessary to continuously apply up-to-date mechanisms for their protection.

The previous century was filled with a large number of major innovations, many of which have affected the work of financial institutions. The recent wave of financial innovations, especially innovations related to the application of information and communication technologies, represents a serious challenge to the business model of the financial industry in terms of its banking and non-banking components (Đorić, 2020). The emergence and spread of the COVID-19 virus have further accelerated the process of digitalisation and the provision of financial services via the Internet and the use of advanced IT solutions. Certain banks have faced significant challenges in the field of information security due to the rapidly growing number of users and the amount of information that has led to vulnerability of the information system and its occasional collapse, resulting in delays in financial services and financial losses, which were not insignificant in certain cases. However, there are certain and, to some extent, specific issues and problems related to the operations of banks and their information security. Banks have a wide range of different types of services in their portfolio of services, some of which rely heavily on third-party information systems that are not under the direct or indirect control of banks. This has significantly raised the interest of cyber attackers, i.e., hackers and other criminals about the weaknesses and security shortcomings that they can use for their benefit to the detriment of the bank and its clients. Therefore, banks should take into account potential risks and security vulnerabilities to prevent information system crashes and to protect their business and in particular their customers and their personal data and assets.

In response to growing security threats, financial institutions need to adopt programmes in writing and implement them sufficiently to ensure the protection of their records and confidential data of their clients and identity theft (Belevetz, 2018). In recent years, forensic techniques have been of great importance for identifying and preventing fraud in financial institutions. Due to the high direct and indirect costs of fraud, financial institutions are increasingly seeking to accelerate action to identify fraudulent activities and fraudulent parties. The use of forensic techniques can be very useful in identifying fraudulent losses in the financial institutions' sector (Mehmet and Ganji, 2021).

The current COVID-19 crisis has drawn attention to the importance of robust risk management practices and well-established risk management cultures in financial institutions (Falzon and Vella, 2020). Analysts point out that, unlike previous crises that arose in the financial sector and then spread to the real sector of the economy, the financial sector faced this crisis in a much better condition, with large reserves of capital and liquidity, which allowed banks, even in the declining economic environment, to continue to provide services to its clients (Vasić, 2020).

Activities that can be taken pre-emptively to achieve a satisfactory level of general safety can be the following (National CERT of the Republic of Serbia):

1. Regular updating of the operating system and antivirus software,
2. Regular data backup,
3. Creating complex passwords with at least 9 alphanumeric characters,
4. Use of different passwords for accounts,
5. Deletion of suspicious E-mails or marking them as spam/junk,
6. Urgent notification of the bank in case of sharing/loss of bank account data,
7. Antivirus activation and complete device scan, and
8. Changing the password for all accounts in case of a password loss.

Risks to the information security of financial institutions have proven to be a significant threat to the financial sector (Uddin et al., 2020). In the realm of financial institutions, digitalisation introduces many new elements, such as new channels of communication and sales, new amounts of customer data and new service platforms. The trend of digitalisation is accompanied by the dominant use of cyberspace as one of the basic channels of communication, which burdens the world of financial institutions with both old and some new risks that accompany the cyber-environment (Šehović, 2017). In unforeseen situations, such as the COVID-19 global pandemic, banks are ready to respond immediately to challenges and manage changes that threaten to overtake them if responses are not adequate and timely (Zelenović et al., 2020).

Regulators and financial institutions must focus their efforts on making effective systemic investments to prevent current (present) and future threats to the information security of financial institutions (Grody, 2020). The digitalisation of everyday activities and processes in the internal and external environment of financial institutions, among which banks stand out, significantly increases the risks in terms of information security. Therefore, it is crucial to develop awareness among bank employees about the types of information risks and cyber-attacks, as well as to take preventive actions on their early detection and elimination. There are no security solutions that provide absolute protection against malicious attacks. Any technological solution that deals with information security issues in banks creates relative protection of limited scope and duration, considering the degree of security risk. Therefore, banks must by no means rely entirely on technological solutions and built-in system (general) and application controls, expecting that this will be sufficient to form a safeguard mechanism and ensure business security. In parallel with the implementation of modern technological and digital tools, they must also develop the work performance, logical perception, and awareness of employees.

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IZAZOVI U INFORMIRANJU I *CYBER*-SIGURNOSTI BANAKA U PANDEMIČNOM OKOLIŠU I STAVOVI KORISNIKA

Sažetak

Informacijska sigurnost i *cyber*-sigurnost važan su element poslovanja koji je od velike važnosti za kontinuitet poslovanja i očuvanje ugleda. S obzirom na to da banke u većini slučajeva pri pružanju financijskih usluga koriste osobne i osjetljive podatke svojih korisnika, predstavljaju vrlo atraktivnu metu za *cyber*-napadače, što je bilo posebno vidljivo tijekom pandemije COVID-19 i promijenilo poslovne uvjete koji su stvorili nove ranjivosti u informacijskoj sigurnosti. Stoga je važno da financijske institucije razviju i provedu efikasne i učinkovite zaštitne mjere kako bi svoju informacijsku sigurnost u svakom trenutku održale na visokoj razini. U ovom se radu analizira utjecaj na informacijsku sigurnost banaka u pandemijskom okruženju provođenjem istraživanja i zaštite povjerljivih podataka s aspekta korisnika bankovnih usluga. Anketa sadrži 18 pitanja koja su unaprijed definirana i podijeljena ispitanicima. Glavni zaključak je da su banke u velikoj mjeri uspjele održati zadovoljstvo ispunjavajući razinu sigurnosti informacijskih sustava u pružanju usluga i pohrani povjerljivih podataka promatranu s aspekta korisnika.

Ključne riječi: banka, informacijska sigurnost, IT kontrola, sigurnosni rizici

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CORRUPTION IN THE ERA OF THE COVID-19 PANDEMIC: A LITERATURE REVIEW

Abstract

This paper analyses the theoretical background of corruption and its determinants and, empirically, relevant studies of the corruption activities before and after the COVID-19 pandemic era, mainly in the health care sector. The COVID-19 pandemic has created a context where governments all around the world have been able to assume extraordinary powers and avoid inspection. Any situation where a large number of public resources is available with no sufficient controls and supervision can lead to corruption. Governments must ensure a fair and transparent distribution of all funds with adequate resources to combat corrupt decision-making. Strong reporting mechanisms, public reporting of illegal activities and public access to reliable up-to-date information are key to preventing corruption. Therefore, the purpose of this paper is to present the literature review of the most relevant studies of corruption activities in the era of the COVID-19 pandemic. Although this paper presents the up-to-date situation in the research carried out by a number of authors, it may be regarded as the basis for further empirical research on the potential corruption activities and their negative outcomes in the Republic of Croatia.

Keywords: illegal activities, pandemic, public policies

JEL classification: D73, I18, K42

1. INTRODUCTION

Corruption has fierce impacts on economic and social development. Unfortunately, corruption permeates through entire portions of society and the economy. Corruption is a complex socio-economic phenomenon and the motivations to engage in corrupt behaviour are multifaceted.

The era of the COVID-19 pandemic increases corruption risks, especially in the health care sector. Corruption risks should not be underestimated in a state of emergency and concentration of power when a large amount of money is injected into the economy to alleviate the crisis. Transparency in the public sector is one of the most important means of preventing corruption. The need for regular and reliable information from public institutions is crucial in emergencies. The Organisation for Economic Co-operation and Development (OECD) estimates that 45% of global citizens believe the health care sector is corrupt or very corrupt, with large variations across countries. In addition, it is estimated that 10–25% of all money spent in procurement globally is lost to corruption (OECD, 2017; Teremetskyi et al., 2021).

The purpose of this paper is to present the literature review of the most relevant studies of corruption activities in the era of the COVID-19 pandemic. The theoretical part of the paper analyses the concept of corruption and its determinants. Previous authors' studies on corruption and its effects before and after the era of the COVID-19 pandemic are emphasised in the empirical part of this paper.

2. THE CONCEPT OF CORRUPTION AND ITS DETERMINANTS

Many authors, studies and institutions have their own versions of the corruption definition. The World Bank (1997) defined corruption as the "use of public office for private gain". Similarly, the most used definition of corruption in the literature cites "the misuse of public office for private gains". A world-renowned sociologist Alatas (2015[5]) defines corruption as the "subordination of public interests to private aims involving a violation of the norms of duty and welfare accompanied by secrecy, betrayal, deception and a callous disregard for any consequence suffered by the public." The three types of corruption commonly referred to are the following (Alatas, 2015): *bribery* or the acceptance of gifts by an official in return for granting special consideration to the interests of the donor; *nepotism* or the appointment of relatives, friends, and political associates to public offices regardless of the merits and consequences upon the public; and *extortion* or the demand for gifts in return for the execution of public duties.

In corruption, common welfare is deliberately subordinated to personal welfare. Corruption is usually surrounded by secrecy, betrayal of trust, deception, suppression, exploitation, inequality, and disregard for consequences suffered by civilians. Corruptors influence definite decisions and camouflage their transactions by some kind of justification.

5 The author's first definition of corruption can be found in: Syed Hussein Alatas, 1968. The Sociology of Corruption: The nature, function, causes and prevention of corruption. Donald Moore Press. Singapore.

After defining the term of corruption, one of the most important issues from the economic perspective is how corruption can be measured. The literature stated the measurement of corruption could be subjective and objective (Chaudhry and Shabbir, 2007). The subjective measurement of corruption is at the micro-level and not applicable for cross-country comparison while the objective measurement is a general or target-group perception of corruption. The latter shows the feelings of the public or a specific group of respondents concerning the "lack of justice" in public transactions. All things considered, this method indirectly measures the (actual) level of corruption. The Corruption Perception Index (CPI), constructed by Transparency International, is one of the globally best-known corruption indices, which indicates the perceived level of corruption rather than the actual level of corruption. Although CPI is not analysed in more detail in this paper, many studies examine the connection between corruption, i.e., CPI and economic growth (e.g., Domashova, Politova, 2021; Malanski, Póvoa, 2021; Christos et al., 2018; Buterin, 2015).

The issue is how to investigate and measure the determinants of corruption. Corruption determinants can be divided into economic determinants and non-economic determinants (Chaudhry and Shabbir, 2007). Among other things, economic determinants can include economic development (measured mostly by GDP per capita), economic freedom or market regulation, openness to trade or globalisation, level of education, distribution of income, etc. The non-economic determinants list may consist of democracy, press freedom or freedom of information, legal system, political rights or political instability, religion, decentralisation (federalism), etc. (Chaudhry and Shabbir, 2007; Serra, 2006)

Besides the connection between corruption, i.e., CPI and economic growth, empirical contributions on determinants of corruption can be found in the literature about the existence of some negative correlation between corruption and economic development (e.g., Audi, Ali, 2017; Persson, Tabellini, Trebbi, 2003; Adsera, Boix, Payne, 2000; Treisman, 2000; Ades, Di Tella, 1999; La Porta et al., 1999). In addition, a number of empirical studies tried to find out the relation between corruption and some other economic and non-economic factors. For instance, studies analyse the relationship between corruption and government involvement in the (market) economy, inequality, absence of competition in the market, the size of the unofficial economy, state intervention and income distribution (positive relation with corruption) or the relation between corruption and growth level of education, economic freedom, and income (negative relation with corruption). Moreover, some studies investigate corruption and economic integration or trade openness, level of development, press freedom (e.g., Brunetti, Weder, 2003), fiscal decentralisation (e.g., Fisman, Gatti, 1999), democracy and share of the population affiliated with a particular religion (Chaudhry and Shabbir, 2007).

Corruption has fierce impacts on economic and social development and is subject to a vast range of institutional, jurisdictional, societal, and economic conditions. Examining the existing literature covering the determinants, i.e. the causes and effects of corruption, Dimant and Tosato (2018) indicate the following causes of corruption: bureaucracy and inefficient administrative and political structure, civil participation/ press freedom, economic freedom, economic growth, ethnic diversity, gender, globalisation, government size, governmental structure, government system, historical drivers, legal system, market and political competition, natural resource endowment, political instability, poverty, property rights, religion, trade (openness), transparency, urbanisation, wages (research provided before 2006); contagion effects, economic prosperity, education, E-government, immigration and the Internet (research provided after 2006). On the other hand, they indicate the following effects of corruption (Dimant, Tosato, 2018): bureaucratic inefficiency, business and (local) investment climate, civil and political rights, economic growth, foreign direct investment, income inequality/poverty, international trade, political legitimacy, shadow economy (research provided before 2006); brain drain, fiscal deficit, and human capital (research provided after 2006).

3. LITERATURE REVIEW OF THE CORRUPTION AND ITS EFFECTS

3.1. Empirical review of the corruption before the pandemic started

Naher et al. (2020) examine the current situation and prospects regarding health sector corruption at the frontlines of service delivery in nine low- and middle-income countries of South and Southeast Asia during the period from January 2007 to August 2017. A total of 15 articles and documents on corruption and 18 on governance were selected for analysis. The dynamic intersection of a pluralistic health system, large informal sector, poor regulatory environment, lack of good governance, and poor salary and benefits, poor incentives and motivation have provided conditions favourable for corruption in these countries.

Mostert et al. (2012) point out and warn of the negative effect of corruption on medical care, i.e., pediatric oncology care in low-income countries. Analysing three types of participants in corruption (corruptor, partner in corruption, and victim of corruption) and the effects on pediatric oncology care, it is stated that health care providers grow rich at the expense of poor cancer patients. In addition, there is social injustice in public hospitals in the sense that poor and powerless patients are exploited and feel unsafe. The conclusion is that the problem of corruption deprives childhood cancer patients of access to medical care, contributes to the high rates of abandonment of treatment, and leads to lower chances of survival.

Analysing 41 developing countries to investigate the determinants of corruption, Chaudhry and Shabbir (2007) reveal that all economic determinants are negatively related to the perceived level of corruption, except distribution of income, and non-economic determinants are not significantly explaining the variations in the level of corruption. This shows that the socio-political and religious norms are so weak that they cannot affect the corruption level. The contribution of religion in people's practical life is very little, so the cultural values of these developing countries are not religion-based. Therefore, the perceived level of corruption is not affected by religion. The study concluded that the government should focus on economic factors to curb the level of corruption.

First of all, Serra (2006) found that richer countries tend to have less corruption than poorer ones. Secondly, democratic institutions exert a certain control on corruption only when they have been continuously held for decades. Thirdly, countries characterised by more political instability become more corrupt. Fourthly, prevalently Protestant countries seem to be less corrupt, and, finally, colonial heritage appears to be strongly correlated with the current level of corruption.

3.2. Empirical review of the corruption in the era of the COVID-19 pandemic

The disease caused by COVID-19 was discovered in December of 2019. However, the beginnings of the COVID-19 pandemic era appeared in the first half of 2020, when the World Health Organization declared an outbreak of the novel coronavirus on January 30, 2020, at Public Health Emergency International Concern (World Health Organization, 2020b) and a pandemic on March 11, 2020 (World Health Organization, 2020a). In the context of the pandemic caused by COVID-19, it has caused unprecedented shocks in modern history. Countries provide huge spending packages to mitigate the crisis and help save the economy and lives to the greatest possible extent. This period of social and economic instability enables corrupt actors to take advantage of public resources for personal gain. Therefore, this section presents an overview of studies dealing with the potential corruption activities in the era of the COVID-19 pandemic.

Dincer and Gillanders (2021) investigate the connection between corruption and compliance with social distancing during the COVID-19 pandemic in the United States. Both theoretical and empirical evidence point to a corrosive effect of corruption on trust/social capital, which in turn determine people's behaviour towards compliance with public health policies. Using data from all 50 states, the authors indicate that people who live in more corrupt states are less likely to comply with the so-called "shelter in place" or "stay at home" orders.

Farzanegan (2021) evaluates whether the level of public corruption influences COVID-19 case fatality rates in 64 countries. The research results indicate a strong (positive and significant) connection between public corruption in 2019 and the level of COVID-19 case fatality rates by the end of 2020. The average fatality rate in the sample of 64 countries is 2%, while Mexico, Iran, Nicaragua, and the Russian Federation have the highest level of corruption index (4.5), and Mexico has by far the largest COVID-19 fatality rate. The study also cites shocking facts that, according to Transparency International estimations, approximately 140,000 children die every year as a result of corruption in health systems. In monetary terms, Transparency International estimates that, of the total amount of $7.5 trillion spent globally on health each year, $500 billion is lost to corruption (Transparency International, 2021).

In their paper, Goel, Nelson, and Goel (2021) identify some pitfalls and drawbacks in vaccine delivery in the period of the COVID-19 pandemic. More specifically, the authors argue that the speed of vaccine delivery and its scale can create opportunities for corrupt behaviour. It is necessary to point out different avenues of abuse or corruption in order to undertake some preventive government actions.

Rose-Ackerman (2021) emphasises three characteristics of the COVID-19 crisis that have jointly significantly increased corruption risks. Firstly, the rapidly unfolding pandemic and the accompanying economic recession have led to fierce competition for essential resources. Secondly, governments have rapidly mobilised public funds (for both health care and economic stabilisation), creating opportunities for potential corruption and/or fraud. Thirdly, politicians, bureaucrats, and medical professionals exercise substantial discretion in the allocation of resources, which can lead to inequitable distribution or even illegal activities, such as corruption. It is analysed how these features interact in procurement processes, in government assistance to individuals and businesses, and the development and licensing of pharmaceuticals.

Teremetskyi et al. (2021) analyse the nature and extent of corruption in the health care sector during the COVID-19 pandemic, involving various kinds of corruption. Some of the worst examples of corruption are pointed out, such as corruption in public procurement of goods and services for the treatment of diseases, bid-rigging in public procurement or falsification of public contracts, embezzlement of health care funds, misuse of power, nepotism and favouritism in the management, petty corruption in levels of service, fraud and theft or embezzlement of medicines and medical devices, etc.

Gallego et al. (2020) analyse the evolution of public procurement during the COVID-19 crisis in Colombia. They find that the spending rush led by the pandemic increases the usage and value of discretionary procurement contracts which are more likely to be corrupt. They also show that these effects are higher after the relaxation of procurement requirements and are more pronounced in the procurement of crisis-

related goods and services, such as food. Their evidence suggests that large negative shocks that require fast and massive spending may increase corruption.

Gomez (2020) analyses several cases in the world where governments need to take emergency measures that lack checks and curtail certain rights, because of the threatening health context caused by COVID-19. These emergency measures and incentives can lead to crime in several ways, such as corruption. In addition, a possible case of misuse of public trust in Brazil during the pandemic was analysed in the case study section.

Facing the challenges of COVID-19 in South Africa, some positive strategies and tactics have occurred during the initial stages of the pandemic. However, as time has passed, chronic corruption at all levels and sectors, especially water and public health, had serious negative repercussions for the poorest of the poor and the marginalised communities. In the study, Mantzaris and Pillay (2020) aspire to research, analyse, and dissect the direct and indirect effects of corruption and its consequences and repercussions on the impact of COVID-19 to the most vulnerable communities in South Africa. The article deals with corruption, its types, monitoring and assessment, effectiveness and efficiency of the security and enforcement agencies and their operations.

Terziev et al. (2020) give an overview of the increased risk of corruption activities in the Republic of Bulgaria during the COVID-19 pandemic. It is emphasised that the health care sector is particularly vulnerable due to the immediate need for medical supplies and protective equipment, which leads to simplification of the rules for public procurement. In this regard, public services undertake a number of inspections upon signals from citizens, media and non-governmental organisations for possible illegal spending of public resources allocated for combating the COVID-19 pandemic. It has been recognised that there is a need for serious monitoring of the procedures for the utilisation of financial funds, as there is a prerequisite for the development of a corrupt environment.

4. CONCLUSION

Based on the literature review, this paper analyses the theoretical background of corruption and its determinants, and empirically, relevant studies of the corruption activities before and after the COVID-19 pandemic era, mainly in the health care sector.

The COVID-19 pandemic has created a context where governments all around the world have been able to assume extraordinary powers and avoid inspection. An important lesson to be learned from these studies is that any situation where a large number of public resources is available with no sufficient controls and supervision

can lead to corruption (Gomez, 2020). In addition, it is emphasised that, to mitigate the potential for exploitation and financial loss, the massive funding that accompanies disaster response, such as the COVID-19 pandemic, must have controls in place from the beginning. Talking about the hurtfulness of corruption, Pascale Helene Dubois, an international anti-corruption expert, said the following: "In this international health crisis, when actual lives are at stake, you want every single penny that's given to kill the virus to actually be spent on killing the virus." It is necessary to ensure that, even in crises, governments, international financial institutions, aid organisations, and others can require rigorous vetting and establish auditable mechanisms to track financial flows, especially as funds generally move electronically. In order to ensure the quality of supplies, spot inspections, publicised complaint mechanisms, and whistleblower protections are especially important in an emergency response like today's COVID-19 pandemic (Thorp, 2020).

Governments must ensure a fair and transparent distribution of all funds with adequate resources to combat corrupt decision-making. This is best achieved by providing reliable information and making public data freely available on the Internet including disaggregating financial data and taking this data into account during decision-making. Strong reporting mechanisms, public reporting of illegal activities and public access to reliable up-to-date information are key to preventing corruption (Teremetskyi et al., 2021).

According to the analysed literature, the conclusion is that corruption activities have mostly occurred in the health care sector and other public services related to the COVID-19 pandemic. This was to be expected given the huge available public funds in the COVID-19 pandemic.

Finally, this paper opens the way for new research and may be regarded as a basis for further empirical research on the potential corruption activities and their negative outcomes in the Republic of Croatia.

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KORUPCIJA U DOBA PANDEMIJE COVID-19: PREGLED LITERATURE

Sažetak

U radu se analizira teorijska pozadina korupcije i njezine odrednice te empirijski relevantne studije o korupcijskim aktivnostima prije i poslije razdoblja pandemije COVID-19, ponajviše u zdravstvenom sektoru. Pandemija COVID-19 stvorila je kontekst u kojem su vlade diljem svijeta mogle preuzeti izvanredne ovlasti i izbjeći inspekcije. Svaka situacija u kojoj je dostupna velika količina javnih resursa bez dovoljnih provjera i nadzora može dovesti do korupcije. Vlade moraju osigurati pravednu i transparentnu raspodjelu svih sredstava s odgovarajućim resursima za borbu protiv koruptivnog odlučivanja. Snažni mehanizmi prijavljivanja, javno prijavljivanje nezakonitih aktivnosti i pristup javnosti pouzdanim ažurnim informacijama ključni su za sprječavanje korupcije. Stoga je svrha ovoga rada predstaviti pregled literature o najrelevantnijim studijama korupcijskih aktivnosti u doba pandemije COVID-19. Iako ovaj rad predstavlja aktualnu situaciju u istraživanju brojnih autora, može se smatrati podlogom za daljnje empirijsko istraživanje o potencijalnim korupcijskim aktivnostima i njihovim negativnim ishodima u Republici Hrvatskoj.

Ključne riječi: nezakonite aktivnosti, pandemija, javne politike

JEL klasifikacija: D73, I18, K42

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DECARBONISATION PATH IN THE EUROPEAN UNION – CURRENT SITUATION, MEASURES, AND POLICIES

Abstract

Climate change has become an ongoing issue in the modern world. In the past twenty years, many changes have happened in the economic and social spheres. Decarbonisation is the process that encourages European Union leaders to develop ambitious measures and policies to reduce greenhouse gas emissions. This study aims to present the meaning of the decarbonisation process, the progress achieved and the policies and measures that are encouraging this process. The study provides an overview of energy consumption and GHG emissions data and shows that European Union is well on its way to decarbonisation. Although fossil fuels account for the largest share of energy consumption, the European Union is developing strategies to introduce hydrogen as the fuel of the future. Nevertheless, the decarbonisation process has started in Europe and there is still much to do, especially in the field of innovation and development.

Keywords*:* GHG emissions, carbon footprint, European Union, climate policies

JEL classification: Q40, Q54, Q56

1. INTRODUCTION

Most global economies strive to achieve the highest possible GDP growth. Along the way, sustainability could be neglected and few countries in the world could proudly say that sustainability is the key concept in their growth path. However, sustainability starts with individuals. Sustainable development and growth could be seen as a tree with roots and branches and compared to ourselves. The roots are the knowledge and skills people gain throughout their lives and the values they bring from their families. All of this is complemented by personal attitudes and instincts, which have a great influence on society. Just as a tree needs to be nurtured to grow and flourish, so should sustainability. Throughout life, people gain new experiences, expand their knowledge, learn to distinguish between good and bad practices and make their own choices. If individuals are fortunate enough to receive a quality education that allows qualities to rise to the top without pigeonholing people, achieving and building a sustainable society would be a no-brainer. From kindergarten days, throughout primary, secondary and

tertiary education, individuals should be aware of the consequences of their actions. They should also commit to changing bad habits and behaviours and adopting a sustainable lifestyle. In this way, there would be less social and economic inequalities, less poverty, and biodiversity would be improved. Sustainable development is defined as meeting present needs and demands without compromising the needs of future generations (WCED, 2021). Furthermore, sustainability means that three dimensions are taken into account – social, economic and environmental.

One without the other does not result in sustainable development and growth. It is often the case that concern for the environment is ignored when the goal is to increase economic indicators such as GDP or employment. Excessive overexploitation leads to the decline of natural resources such as clean water and forests, which leads to an imbalance in wildlife. These also seriously affect people's health and lives. Nature is taking revenge for the decades and centuries of neglect. We have been witnessing many natural disasters, like tornadoes, floods, forest fires, and earthquakes destroying cities and villages. Although these natural disasters have occurred before, they have become more frequent and severe in the past fifty years, causing great damage to the inhabitants. According to UNICEF (2021), more than one billion children worldwide live without the satisfaction of basic needs – nutritious food and clean water. One of the reasons is the increasing inequality on a global scale and environmental degradation.

2. DECARBONISATION PROCESS

Global warming and climate change have become an ongoing issue and a major concern for world leaders. The process of decarbonisation has begun to reduce pollution and climate change. It refers to the process of reducing and limiting the amount of greenhouse gas (GHG) emissions from the atmosphere. Nakićenović (1993) emphasised that decarbonisation can be expressed as a product of two factors – first, specific carbon emissions per unit of energy and second, energy intensity. Energy intensity describes the energy demand per unit of value-added. Energy is the driver of every sector and economy, the key question being whether it is from "green" sources or from the fossil fuels that have a devastating impact on the environment and people's lives.

In the past twenty years, there have been major shifts in the political and social spheres. In 1997, the Kyoto Protocol was adopted by 192 parties and entered into force in 2005. The main objective is to reduce and limit greenhouse gas emissions according to each party's target. The main mechanism of the Protocol is the establishment of flexible market mechanisms based on emissions trading (UNFCCC, 2021a). A more serious instrument to combat global warming and climate change is the Paris Agreement, which was adopted by 196 parties in 2015. Its goal is to limit global temperature below 2 degrees Celsius compared to pre-industrial times (UNFCCC, 2021b). Just two years

after the adoption, the United States has withdrawn from the Agreement, putting sustainable future at risk. However, in 2021, the United States rejoined, which is an important action due to its huge impact on global economic flows. Although the Paris Agreement set the goal to keep global warming below 2 degrees Celsius, scientists from the Intergovernmental Panel at Climate Change (IPCC) highlighted that half a degree of warming has huge implications. Their research has shown that an increase within 1.5 degrees Celsius has significant effects on the climate, but 2 degrees shows even worse effects. The World Resources Institute (2018) has explained the impact on the planet. If we maintain warming at 2 degrees Celsius, the burden of intense heat would be 2.6 times worse than in the 1.5-degree Celsius scenario. Sea level rise by 2100 would be 0.06 meters higher than in the 1.5 scenario, while the impact on the Arctic ice would be 10 times worse. In addition, 18% of insects, 16% of plants and 8% of vertebrates could be lost under a 2-degree Celsius scenario, but 2/3 of insects and half of plants and vertebrates could be lost under a 1.5-degree Celsius warming. Higher temperatures will definitely lead to changes in ecosystems and loss of shelter and food for some species. As mentioned earlier, all of this would have a negative impact on humans and their way of life. It is predicted that higher temperatures would reduce crop yields by 2.3 times and lead to shortages in food production. It would also lead to economic losses, especially in middle-income countries.

Under the Paris Agreement, the European Union has developed a series of ambitious measures and policies to combat global warming. The decarbonisation process began with the European Green Deal, whose goal is to become a carbon-neutral continent by 2050. UNFCC (2021c) explains carbon neutrality as the process of achieving net-zero GHG emissions, meaning that the emissions produced are equal to or less than the emissions removed by the planet's natural absorption. Furthermore, the goal is to transform the European Union into a modern, resource-efficient, and competitive economy. The benefits of this strategy are numerous. Some of them are the promotion of biodiversity, clean and fresh air, water and soil, improvement of energy efficiency, healthy and nutritious food, and technological improvements (European Commission, 2021).

Decarbonisation is a very broad process that affects different sectors in the economic and social spheres. Many technological changes are expected in the industry, the energy sector and transport. About 25 years will be needed to achieve changes. That is, in fact, a whole generation. Decarbonisation mainly promotes the use of "clean" energy sources such as wind power, hydropower, solar energy, or biomass. In addition, technological advances have enabled the use of hydrogen as a fuel and energy source of the future. The European Union has developed an energy strategy that focuses on hydrogen. As it produces no CO_2 emissions and almost no air pollution, hydrogen offers the solution for decarbonising industries such as the chemical and steel sectors (European Commission, 2020).

3. CARBON FOOTPRINT – A TOOL FOR THE LIMITING OF GHG EMISSIONS

An efficient decarbonisation process in each country and region should start from individuals, families, businesses, and institutions. They should examine their activities and determine what impact they have on global carbon emissions. It is important to detect which activities in human lives have the greatest impact on pollution. Carbon footprint was introduced to carry out these activities. The WHO (2008) defined carbon footprint as means of measuring the impact of people's activities on the total amount of produced carbon dioxide. It is measured in tonnes of CO_2 emissions and is usually expressed for one year. This could be an efficient tool in the fight against climate change, as it allows individuals to calculate the number of carbon emissions released into the atmosphere. The WHO (2008) suggested that carbon footprint reduction activities could be grouped into five main categories – transport, food, energy use, water use, and waste management. As transport is one of the main contributors at a global scale, people should cycle or walk to work more, use public transport or carpool. However, this requires that people have alternatives, especially a strong public transport system (buses, trains, and trams). According to the OECD (2021), food production and agriculture account for up to one-third of greenhouse gas emissions. Based on these data, it is crucial to reduce food waste and buy local and organic food. In addition, reduced consumption of animal products has a significant impact on carbon emissions. Energy is the main driver of the economy, but fossil fuels are still the main source – 71% of gross available energy in the EU. However, it has decreased by 10.9 percentage points since 1990 (Eurostat, 2021a). To reduce emissions from energy usage, it is important to turn down heating and cooling when it is not necessary. Keeping the home well insulated and programming the thermostat to maintain the optimal temperature in the room should help significantly. Last, but not least, waste management is also important, as everything we consume goes back into nature. We should stick to the phrase: reduce, reuse, and recycle. We should primarily shop smart and reduce waste and recycle plastic and paper afterwards. By recycling, we also save materials and energy needed to make a new product.

To achieve the goals set by the Paris Agreement, all companies and institutions have to calculate their carbon footprint and set measures for its reduction. That would help governments to detect which industries and sectors contribute to the national carbon footprint the most and to target appropriate policies and measures. All EU Member States have to monitor emissions in all sectors like transport, energy, industry, and agriculture as well as make projections and develop strategies and measures to reduce GHG emissions. In 40 countries around the world, carbon reporting is mandatory. It is a part of non-financial reporting. In the EU, it is governed by the Non-Financial Reporting Directive and covers the information about companies' performance, position and impact on the environment, society and economy, respect

for human rights, anti-corruption, and bribery matters. A corporate standard for carbon reporting is established by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). It provides instructions, guidance, and standards for governments, NGOs, companies, and institutions in carbon emissions reporting (GHG Protocol, 2021). This standard categorises activities that produce GHG emissions in three scopes. Scope 1 includes all direct emissions that are the result of fuel consumption by company vehicles and facilities. Scope 2 includes emissions from the purchased electricity, heating, and cooling systems. All other activities like transportation, investments, processing of sold products, end-of-life treatment of the products are grouped in Scope 3.

Kauffmann et al. (2012) listed the motivations and challenges for governments, companies, and investors to measure and report GHG emissions. Governments should promote the transition to a low-carbon economy by developing effective climate policies that would encourage accounting and monitoring of emissions by companies and individuals. Additionally, carbon and energy taxes could be a good weapon for reducing environmental degradation. If there is no mandatory reporting for companies, a small portion of them would do it voluntarily. However, reporting on emissions would reveal the potential cost savings and risk factors. Companies would then be able to reduce them and increase their competitiveness. Moreover, potential investors would get the impression that the company is striving for sustainable development and that it would be an attractive investment.

4. LITERATURE REVIEW

Energy is the key driver of economic growth and development, but it is also a major carbon emitter and polluter. The relationship between energy consumption, CO_2 emissions and economic growth has been studied by Pao and Tsai (2010), Hossain (2011), Farhani and Rejeb (2012), and Saidi and Hammami (2015). All researchers have reached similar conclusions on this issue. Pao and Tsai (2010) found a long-run equilibrium relationship between emissions, energy consumption and real output for the panel of BRIC countries and concluded that higher energy consumption responds to changes in emissions. Similarly, Hossain (2011) conducted a study in emerging economies and concluded that higher energy consumption leads to an increase in CO_2 emissions over time. Farhani and Rejeb (2012) also found that high economic growth leads to high energy demand. Moreover, a short-run causality was found leading from energy consumption to economic growth and CO_2 emissions. Saidi and Hammami (2015) found that the increase in economic growth increases energy consumption and CO_2 emissions.

However, the aim of decarbonisation is to reduce the use of fossil fuels and promote the use of renewable sources. Sadorsky (2009), Apergis and Payne (2014), and

Kahia et al. (2019) studied the relationship between renewable energy consumption, GDP level and CO_2 emissions. Sadorsky (2009) concluded that, in the long run, an increase in real GDP per capita and CO_2 emissions per capita increases renewable energy consumption in G7 countries. Apergis and Payne (2014) concluded that, in the short run, an increase in per capita carbon dioxide emissions increases per capita renewable energy consumption. Moreover, an increase in per capita renewable energy consumption reduces per capita carbon dioxide emissions. Kahia et al. (2019) concluded that renewable energy deployment could significantly improve environmental quality in the Middle East and North African countries.

Increased economic activity, better connections between nations and regions indicate that more energy is consumed. Although it has many positive sides, the globalisation process has caused many environmental problems. Shahbaz et al. (2018), Dinda (2006), Kalayci and Hayaloglu (2018), Sabir and Gorus (2019) have studied the relationship between globalisation and pollution level. Shahbaz et al. (2018) concluded that globalisation increases carbon emissions in most developed countries, while Dinda (2006) found that globalisation reduces pollution in developed countries but increases it in developing countries. Kalayci and Hayaloglu (2018) studied NAFTA countries and Sabir and Gorus (2019) studied South Asian countries. Both studies concluded that greater economic globalisation and trade openness leads to higher CO_2 emissions. Globalisation has an impact on increased economic activity and increased use of energy sources that end up causing pollution. To reduce these negative impacts, more climate policies and strategies should be established both at the global level and at the national level of each region and country. People should also be educated more to raise their awareness of environmental issues.

However, when a country achieves a certain level of economic development, social and environmental needs become more important. Sustainable development becomes desirable to enable future generations to live in prosperity. A theory of environmental Kuznets Curve, EKC, was introduced by Grossman and Krueger in the 1990s. It was named after Kuznets, who demonstrated that income inequality first increases and then decreases as economic development is higher. EKC concluded that degradation and pollution would increase at lower levels of per capita income. After a threshold of per capita income is reached, pollution decreases (Stern, 2004). Atici (2009), Iwata et al. (2010), Leitão and Shahbaz (2013), Shahbaz et al. (2015) studied the existence of the environmental Kuznets curve. Atici (2009) confirmed the existence of the EKC curve in Central and Eastern European countries. Iwata et al. (2010) found evidence of EKC in France. Leitão and Shahbaz (2013), Shahbaz et al. (2015) found a positive correlation of per capita income with carbon emissions. All of these studies confirmed that, after reaching a certain threshold in per capita income, environmental degradation and carbon emissions decrease.

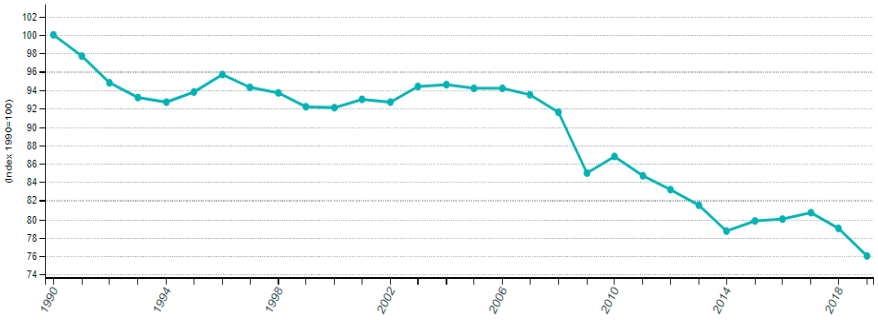
As decarbonisation is a complex process, it requires technological innovations and improvements. R&D investment would play a major role, especially green investment. Since Romer and endogenous growth theory, technological progress has a significant role in sustainable development. Decarbonisation requires an increase in energy efficiency and new energy sources that would have a mild impact on the environment. Fernandez et al. (2018) analysed the effect of aggregate R&D expenditures on CO_2 emission reduction in the EU-15, the US, and China, while Wang and Wang (2019) studied the effect of R&D expenditures in the US. Both concluded that R&D spending has a positive effect and that carbon emissions decrease in both cases. Moreover, Mourshed and Quddus (2009) confirmed that renewable energy research, development, and demonstration (RERD&D) spending will have a positive impact on reducing CO_2 emissions in the EU-15.

It takes at least 25 years or a generation to change habits and practices. The European Union still has time until 2050 to reach its targets and become a climate-neutral continent. The current situation of greenhouse gas emissions and energy consumption is presented in the following section.

5. DATA AND ANALYSIS

Various targets were set within the EU Green Deal. The 2020 package had three main targets – to reduce GHG emissions by 20% from 1990 levels, to generate 20% of the EU's energy from renewables and to improve energy efficiency by 20%. Progress has been made and GHG emissions have been reduced by 24% since 1990, while the economy has grown by 60% over this period. Figure 1 shows the trend of GHG emissions in the European Union in the period 1990–2019. A significant decrease can be seen in the past thirty years.

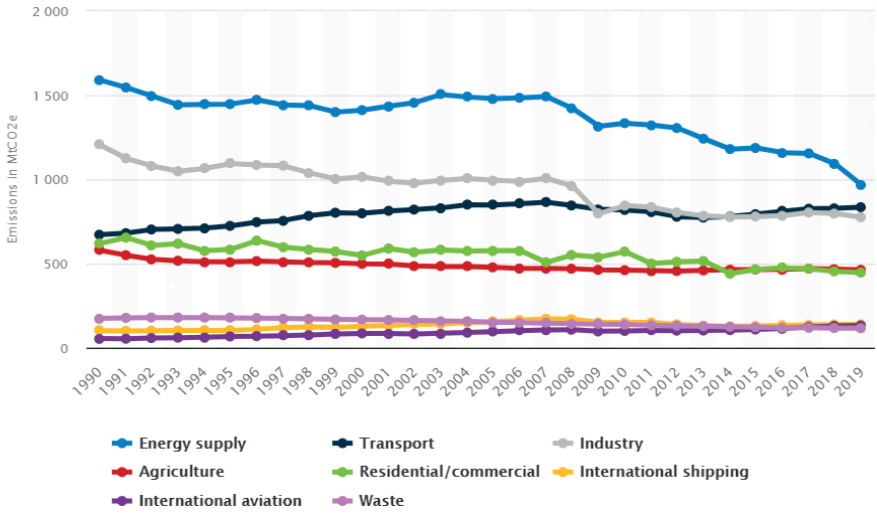
Figure 1. GHG Emissions Trend in the EU, 1990–2019 (including international aviation, excluding LULUCF)



Source: Eurostat (2021b)

Figure 2 provides an overview of GHG emissions by sector over the period 1990–2019. The energy sector has the largest impact on total GHG emissions with 967 $MtCO_2e$. This is followed by transport with 835 $MtCO_2e$ and industry with 775 $MtCO_2e$. These sectors are the largest contributors to the European Union, so the decarbonisation process will have a significant impact on them. According to Eurostat (2021c), transport, households and industry are dominant in final energy consumption. In 2019, transport accounted for 289 Mtoe, which is 31% of total final energy consumption, making the transport sector one of the largest energy consumers. International air transport and road transport have the largest impact on transport energy consumption, accounting for 90%.

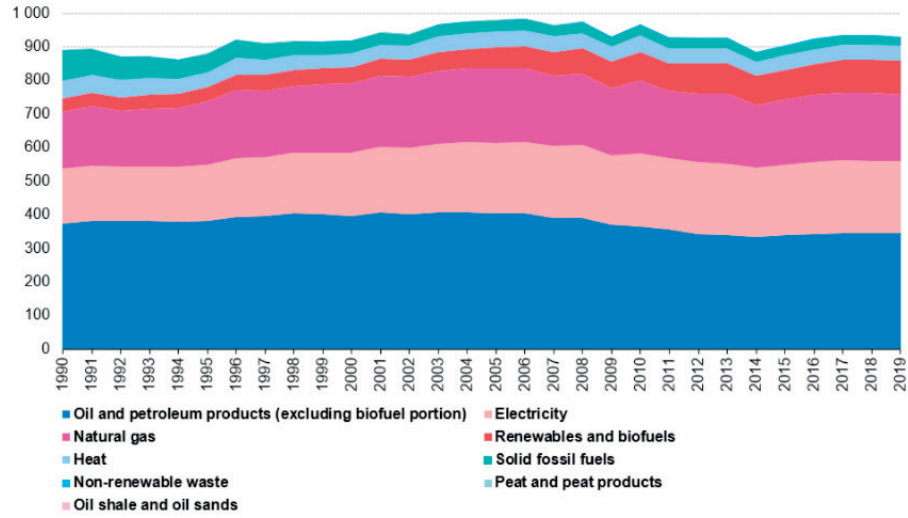
Figure 2. Annual Greenhouse Gas Emissions in the European Union from 1990 to 2019, by Sector (in million metric tons of CO_2-equivalent)



Source: Statista (2021)

Although there are positive achievements in reducing GHG at the EU level, it is evident that final energy consumption still contains mostly fossil fuels. In 2019, final energy consumption was 935 million tonnes of oil equivalent (Mtoe). The largest share is oil and petroleum products – 37%, followed by electricity – 23%, and natural gas – 21%. The more detailed situation is shown in Figure 3.

Figure 3. Final Energy Consumption by Fuel in the EU, 1990–2019 (million tonnes of oil equivalent)

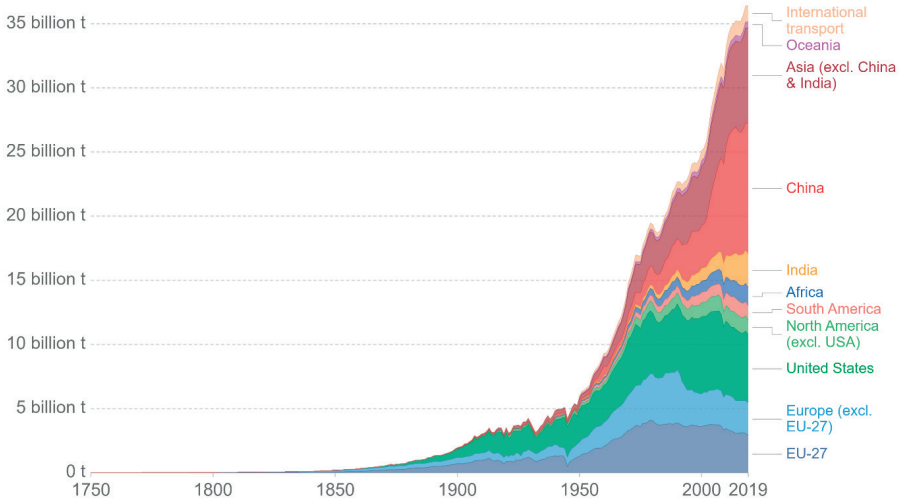


Source: Eurostat (2021c)

The increase in CO_2 emissions has surged after World War II. It can be associated with the second wave of globalisation that began in the 1950s – in the post-war period when economies were recovering in the social and economic spheres. During these years, economic integrations such as the European Union, World Bank and the WTO were established. The aim was to accelerate recovery from economic losses and establish fair and free global trade and cooperation. Economic activity increased, leading to environmental degradation, overconsumption of resources, and climate change.

Figure 4 shows which world regions have the greatest impact on pollution. For many years, the United States was the economic leader, both positively and negatively. After 2010, the balance of power has changed, and China has been experiencing an economic boom but has also become the world's largest polluter. To comply with the Paris Agreement, emissions at the global level should be reduced drastically, by 25 to 50%. While the European Union has evolved the Green Deal, the United States also share the same preferences and want to achieve climate neutrality. This is encouraging news because Europe's plan without serious partners does not make too much sense. The United States is planning to increase funding for stronger energy efficiency standards, clean energy sources and energy infrastructure (WEF, 2021).

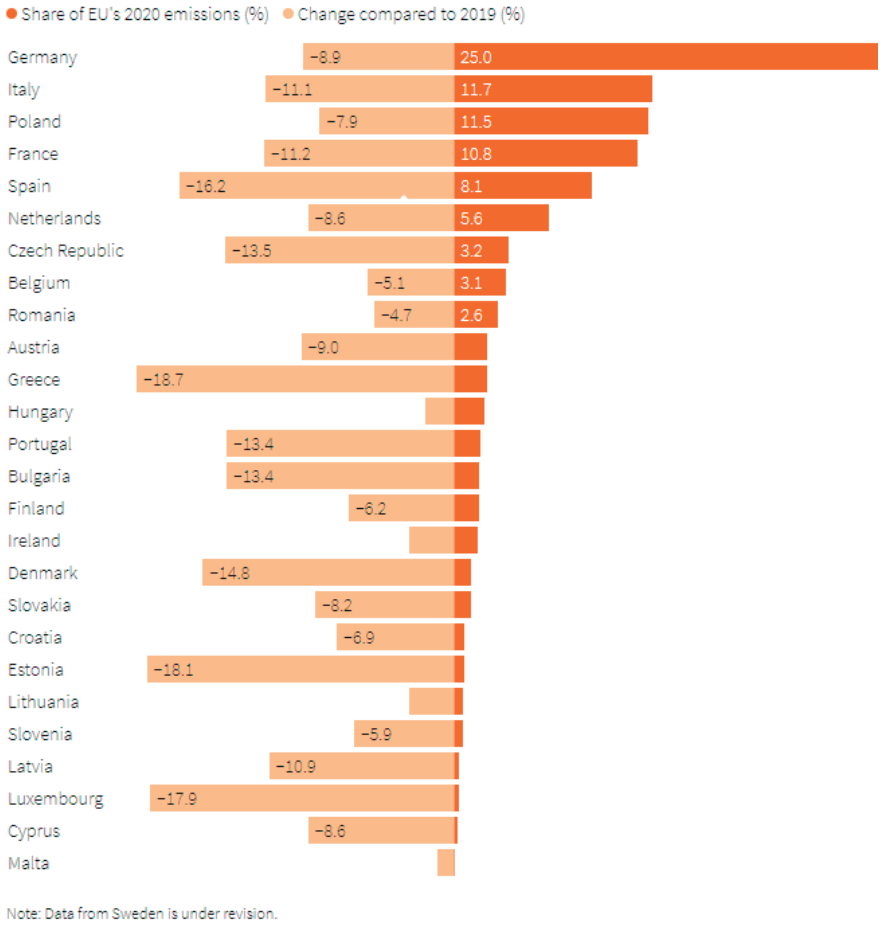
Figure 4 Total Annual CO_2 Emissions, by World Region in the Period 1750–2019



Source: Our World in Data (2020)

At the beginning of 2020, the coronavirus outbreak suddenly halted all economic and social activity. The unknown virus has spread all over the world and caused health problems. Many people have lost their jobs due to mandatory quarantines, while the economy has spent huge amounts of money on subsidies in the most affected sectors. All economic activities have been reduced and people have mostly stayed at home and worked remotely. As the world stood still, nature woke up. Carbon emissions were reduced, and smog was reduced in the most polluted cities. How the coronavirus pandemic affected the carbon footprint of the EU Member States is shown in Figure 5. The highest carbon footprint in the EU is in Germany, as it is the country with the most developed industrial sector in the EU. The reduction in carbon emissions was recorded in all EU Member States; the biggest change was in Greece with -18.7% and Estonia with -18.1%. Although Croatia has a small carbon footprint compared to other EU Member States, the change was -6.9%.

Figure 5. Drop in CO_2 Emissions Across the EU in 2020



Source: Reuters (2021)

The European Union is at a crossroads at this moment. The appropriate measures should be developed at national levels that will support the European Green Deal and fulfil the set goals. Policies and measures will be presented and discussed in the following section.

6. DISCUSSION

According to the data presented, the European Union is on a positive path to becoming a carbon-neutral continent and achieving its goals. The European Green Deal is the main strategy that will determine future sustainable development and create a new, green, and improved society. There is still time. The EU Member

States and their governments have 29 years to achieve climate neutrality. Since the adoption of the European Green Deal, numerous policies and guidelines have been developed targeting specific segments of the economy. Some of them include the European Climate Pact, the European Industrial Strategy, the EU Biodiversity Strategy, the Farm-to-Fork Strategy, the EU Hydrogen Strategy, the Organic Action Plan and many more. Each of these strategies describes the exact activities to be carried out within the sector to achieve the main objective. Evidently, the European Union cannot do it alone, as its impact on total carbon emissions at the global level is not as strong as that of other regions. A cooperative partnership between all influential global regions is needed. Large polluters such as China and the United States need to coordinate their climate policies and actions with the Paris Agreement and the Kyoto Protocol. As shown in the previous section, the European Union has increased the use of renewable energy sources over the past twenty years. Although fossil fuels still account for a significant share of final energy consumption, hydropower, wind power, and solar energy have a bright future. However, energy efficiency should be increased to increase the use of these sources. Fossil fuels use infrastructure and practices that have been used for decades, and people generally do not have many options.

In the Hydrogen Strategy, the European Commission (2020) defines hydrogen as the energy source of the future. Today, its share in the global and EU energy mix is modest, while it is still produced from fossil fuels. However, for the process of decarbonisation, it needs to be produced from green sources. Hydrogen has the potential to replace fossil fuels in industries such as steel and chemicals and to become a transport solution. Together with renewable sources, hydrogen will become the pillar of the energy system in the European Union.

Nevertheless, the production of low-carbon hydrogen is not competitive with production from fossil fuels. This transition requires serious investment, innovation, and research. In addition, energy efficiency will be improved as part of the Energy Efficiency Directive proposed in July 2021. It is important to reduce primary and final energy consumption in order to keep total EU energy consumption below 1023 Mtoe of primary energy and 787 Mtoe of final energy by 2030. The energy sector, as well as food production and agriculture, are strategic and important sectors with significant economic as well as social impacts. It is crucial to keep them sustainable and sufficient for the needs of the EU Member States. Agriculture and food production are aligned with the EU Green Deal which aims to ensure a stable supply and nutritious food for EU residents. In this context, the Farm-to-Fork Strategy was developed to reduce the negative impact on the EU's carbon footprint, mitigate climate change, promote biodiversity, and ensure that people have access to safe and healthy food. The EU Biodiversity Strategy for 2030 aims to protect nature and stop ecosystem degradation and species extinction. On the other hand, the Organic Action Plan supports organic farming, without GMOs and inorganic fertilisers that have negative impacts on ecosystems and human health.

7. CONCLUSION

The European Union is at a crossroads to achieve climate neutrality by 2050. All sectors and stakeholders should contribute to achieving this goal. It is important to identify the sectors that have the greatest impact on the overall carbon footprint and then guide policies and actions to make the transition to a low-carbon economy as smoothly as possible. As part of the European Green Deal, the EU has developed several policies and measures to reduce negative impacts on climate and society. However, it is not enough that only Europe becomes carbon-neutral. All industrial and developed regions must do the same to reach the Paris Agreement goal. This is not an easy task given that all emissions are to be reduced by 25–50% by 2050. Fossil fuels still play an important role in the European Union energy mix, but the trend is starting to change slightly. Over the past 20 years, more renewable energy sources have been used and greenhouse gas emissions have dropped by 24 percentage points since 1990. The data show that the European Union is on a positive path, but a lot of effort is needed to reach the set targets. The energy strategy plays a crucial role as this is the sector that has the biggest impact on carbon emissions. The fuel of the future is definitely hydrogen, which will replace fossil fuels in strategic areas such as energy and transport. However, clean hydrogen is not cost-competitive yet and it is necessary to make investments in this area. To achieve sustainable and efficient economic growth, investment in research and development should be increased, especially in the private sector. This would generate new ideas and motivate innovation and technological improvements that would create new jobs. Furthermore, all Member States must align their national legislation and policies with the objectives of the European Union. Ultimately, change starts with everyone, now and without delay. To achieve carbon neutrality, individuals should also contribute by changing their habits and practices.

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SMJER DEKARBONIZACIJE U EUROPSKOJ UNIJI – TRENUTNO STANJE, MJERE I POLITIKE

Sažetak

Klimatske promjene su postale aktualna tema modernog svijeta. U posljednjih dvadeset godina dogodile su se mnoge promjene u ekonomskoj i društvenoj sferi. Dekarbonizacija je proces koji potiče čelnike Europske unije na razvijanje ambicioznih mjera i politika sa svrhom smanjenja stakleničkih plinova. Cilj ovoga istraživanja je prikazati što je proces dekarbonizacije, kakav napredak je učinjen na tom području te koje politike i mjere podupiru proces dekarbonizacije. Istraživanje pruža pregled podataka o trenutnoj potrošnji energije te emisijama stakleničkih plinova iz kojih se može zaključiti da je Europska unija na dobrom putu prema dekarbonizaciji. Premda fosilna goriva i dalje imaju najveći udio u potrošnji energije, Europska unija razvija strategije koje uvode vodik kao gorivo budućnosti. Međutim, proces dekarbonizacije u Europi je počeo, ali još uvijek preostaje mnogo posla, posebno u području inovacija i razvoja.

Ključne riječi: GHG emisije, ugljikov otisak, Europska unija, klimatske politike

JEL klasifikacija: Q40, Q54, Q56

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EU DIGITAL TAX REGULATION AND ITS IMPACT ON MEMBER STATES WITH REFERENCE TO THE REPUBLIC OF CROATIA

Abstract

Although digitalisation has brought positive effects for economies through standardised technologies, it has at the same time created new challenges for the tax system arising from digital deals. Since some European countries have already regulated digital taxes in the national legislative framework (different both in structure and rate of digital taxation), the question arises whether the EU regulation announced for October this year will have a significant impact on current national solutions and countries without any regulation. It also raises the question of whether a unified way of collecting digital taxes is a better option than a uniform EU-level solution that could result in economic restrictions due to US attitudes. Research shows that European countries, despite the lack of a uniform solution for the collection of digital taxes from the level of the European Union, have recognised the importance of collecting digital taxes (regardless of structure) even in the context of the benefits to cover the costs of the COVID-19 pandemic.

***Keywords**:* digital tax, European union, Croatia

JEL classification: G38, H20

1. INTRODUCTION

The idea of digital taxing is not a new one – since 2013, „there has been talk at G20 level over the Base Erosion and Profit Shifting (BEPS) rules for the tax challenges arising from digital deals." (Schwab, 2021) However, due to the lack of consensus between countries worldwide, no progress has been made until now and consensus has been made only when it comes to the so-called „two-pillar-approach". However, the US administration has recently changed its approach which is now closer to the

European approach and makes a global agreement a real possibility. Washington opposes European digital tax, arguing it would jeopardise a global tax deal. The targets of the European digital levy are different from those of the global tax and its scope will be much broader: the European levy, unlike the OECD, that targets the 100 largest companies, will cover far more of them. This tax would be paid mainly by European companies, but also by those from other countries. The European Commission will reconsider the digital levy plan this autumn.

2. LITERATURE REVIEW

In 2012, the gravity of offshoring by digital multinationals has been exposed by transatlantic corporate scandals with Google, Starbucks, and Amazon and pointed to a new problem with the digital economy and taxes. The Organization for Economic Co-operation and Development estimates that corporate profit shifting erodes up to 240 billion dollars from the global tax base every year (Motala, 2019). To address these difficulties, in May 2019, the OECD has launched a new work program to replace the Permanent Establishment rules with a new nexus that is better adapted to the digital economy and to define new accounting rules for profit sharing. At the same time, to put pressure on the platforms, some countries have decided to unilaterally implement a digital service tax. Some major digital platforms have finally entered voluntary agreements to let the source countries tax part of their business income. According to Bloch et al. (2021), the rules for taxation of digital platforms are evolving rapidly, with source countries, where the value of the platforms is created, increasingly gaining the right to tax some of the corporate profits.

A digital levy, likely to hit American firms hardest, was initially pushed by the EU in the absence of a global deal. Such a deal looks set to progress after 130 countries and jurisdictions backed a plan on how multinationals' profits should be taxed. Some countries are resisting the proposals (White et al., 2021).

Multinational enterprises (MNEs) use different methods and structures for base erosion and profit shifting (BEPS) to optimise the tax liability of the group. It is of great interest to the relevant countries to be able to identify such practices and react with appropriate measures (Friedrich et al., 2021). In other words, states should also receive a fair share of the exploitation of what can be considered as the "new oil". Namely, data and the success of joint action at the EU level on this symbolic issue are highly questionable and therefore, action at the level of individual Member States may be needed (Rigó, Toth, 2021). In December 2017, the Council adopted Conclusions on Responding to the Challenges of Taxing the Profits of the Digital Economy. They emphasise the need to ensure that international tax rules are appropriate for the digital sectors, but also more traditional sectors of the economy. With the digital tax included in the Next Generation EU recovery fund presented by the European Commission, the

EU is expected to further consolidate its global leadership in tech regulations (Bilotta, 2020). Some authors (Sanchez, 2001) think that Digital Service Tax (DST) proposed by the European Commission may have an important impact on platform openness and digital innovation in Europe. In this regard, the established international tax system needs an overhaul in order to be up to the new digital challenges. The ultimate objective is to arrive at a fair and effective international tax system covering also the specific features of a globalised digital economy.

3. CRITICAL ANALYSIS OF (NATIONAL) DIGITAL TAXES IN EUROPE

By using methods of incomplete induction and deduction, analysis and synthesis, authors analyse digital tax policies in European countries with reference to the situation in the Republic of Croatia.

The application of existing corporate tax rules to digital activities has led to a mismatch between the place of profit taxation and the place where value is created, especially for business models that increasingly rely on user participation, which, from a tax point of view, creates certain shortcomings. For this purpose, two legislative acts were adopted, i.e., proposals for EU Council Directives: Proposal for a Council Directive 2018/0073 and Proposal for a Council Directive 2018/0072.

Due to the coronavirus crisis, the European Union has already made some efforts to implement the „European Digital Tax“ and to define the tax residency of digital companies. The European Union strives to support negotiations in the OECD and to achieve global consensus for reforming the international tax system by mid-2021. The European Commission confirmed that it will prioritise finalising a global tax accord, before reassessing its digital levy in the autumn of 2021 (Hanke Vela, 2021). What does the European Union have to do in order to implement digital taxation?

The European Commission has to publish its proposal for digital levy:

- Enabling the Member States to tax the profits made in their territory (even without the physical presence in the country),
- Making sure that digital businesses contribute to national finances at the same level as traditional companies,
- Amending double taxation treaties with third countries ensuring that the same rules apply to the EU and non-EU companies,
- Adopting new interim tax for digital services (for the loopholes in taxation of digital activities),
- Ensuring future international tax framework so that no Member State should look for individual digital taxing solutions.

In doing so, legislators have to shape a „clear and comprehensive digital policy by including a fair, clear and equal digital tax system for everyone and between all economic sectors“. The European Parliament is now fighting for no market distortions and tax uncertainty.

According to Knezović (2021), Spain's new taxes on digital and financial services were approved last year and came into force on 16 January 2021. Along with Austria, France, Belgium, and the UK, Spain has adopted similar measures to tax the digital giants and the financial services industry and expects to raise EUR 968 million this year from the so-called "digital tax", i.e., from 3% taxation for large technology companies with a turnover of EUR 750 million or more globally, and revenues in Spain of more than EUR 3 million for online advertising and brokerage services such as the sale of users' data.

European OECD countries that have announced, proposed, or implemented a digital service tax (DST)

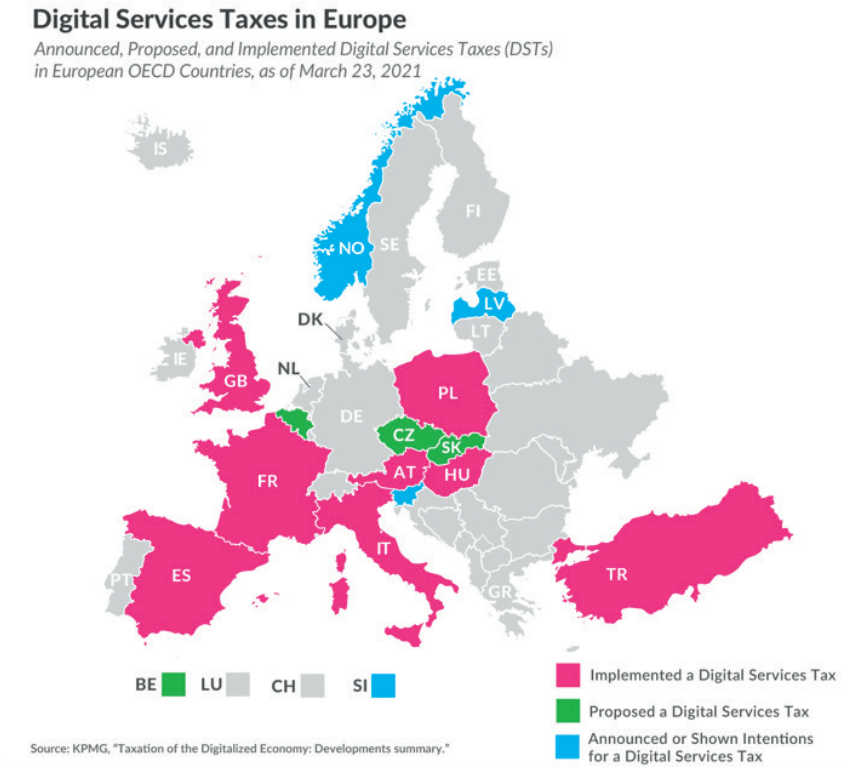
As shown in the picture below, about half of all European OECD countries have implemented or are thinking about implementing DST on selected gross revenue streams of large, mostly US companies. Considering that these companies are mainly US companies, the United States has responded with retaliatory threats perceiving DST on US companies as discriminatory.

Last year, representatives of Ireland, Finland and Sweden opposed the digital services tax in the EU, while some other countries abstained. Upon disagreements within the EU, France, Spain, Italy, and Austria have expressed their determination to introduce a tax on digital services.

The Commission will seek to present the proposal for the new levy in October as a sign of a détente with the US. Washington has urged the EU to delay its proposal, warning that it "threatens the work undertaken via the OECD/G20 process" in which global leaders have agreed on minimum taxation. Washington has threatened to impose unilateral tariffs against EU exports if the EU countries went ahead with a digital levy, which it saw as unfairly discriminating against US companies. Europeans have complained that tech giants rack up big profits on their turf but pay little into government coffers.

In an attempt to make its levy non-discriminatory, the European Commission is now eyeing a 0.3 per cent tax on the goods and services sold online by all companies operating in the EU with an annual turnover of €50 million or more.

Picture 1. Digital Services Taxes in Europe, March 2021



Source: www.taxfoundation.org/digital-tax-europe-2020/

Austria, France, Hungary, Italy, Poland, Spain, Turkey, and the United Kingdom have implemented a DST; Belgium, the Czech Republic, and Slovakia have published proposals to enact a DST, and Latvia, Norway, and Slovenia have either officially announced or shown intentions to implement such a tax.

It is very interesting to see that implemented DSTs differ significantly by their structure (Picture 2). For example, Austria and Hungary only tax revenues from online advertising, while France includes taxes from the provision of a digital interface, targeted advertising, and the transmission of data collected about users for advertising purposes.

Table 1. Announced, Proposed, and Implemented Digital Services Taxes in European OECD Countries, by structure and rates

Country	Tax rate	Scope	Global revenue threshold	Domestic revenue threshold	Status
Austria (AT)	5%	Online advertising	€750 million ($840 million)	€25 million ($28 million)	**Implemented** Effective January 2020
Belgium (BE)	3%	Selling of users' data	€750 million ($840 million)	€5 million ($5,6 million)	**Announced** Introduced in 2019, then rejected in 2019 Waiting for a global solution
Czech Republic (CZ)	5%	Targeted advertising Use of multilateral digital interfaces	€750 million ($840 million)	CZK 100 million ($4 million)	**Announced** Delayed due to COVID-19 Proposed amendment (tax rate reduction from 7% to 5%)
France (FR)	3%	Provision of digital interface Advertising based on users' data	HUF 100 million ($344,000)	N/A	**Implemented** Temporary measure: advertisement tax rate has been reduced to 0% effective 2019–2022
Italy (IT)	3%	Advertising on a digital interface Multilateral digital interface to buy/sell goods Transmission of users' data using a digital interface	€750 million ($840 million)	€5,5 million ($6 million)	**Implemented** Effective from January 2020
Latvia (LV)	3%	/	/	/	**Announced** A study commissioned
Slovenia (SI)	/	/	/	/	**Announced** Proposal to submit a draft bill to the National Assembly
Spain	3%	Online advertising and sale Sale of users' data	€750 million ($840 million)	€3 million ($3 million)	**Implemented** Effective January 2021
Turkey (TR)	7,5%	Online service (advertisements, sales of content and paid services on websites)	€750 million ($840 million)	TRY 20 million ($4 million)	**Implemented** Effective March 2020 The president can reduce/ increase DST 1%–15%
United Kingdom (UK)	2%	Social media platforms, Internet search engines, online marketplace	£500 million ($638 million)	£500 million ($638 million)	**Implemented** Retroactively as of April 2020
Norway (NO)	/	/	/	/	**Announced** Waits for OECD consensus solution
Poland (PL)	1,5%	Audiovisual media service and commercial communication	/	/	**Implemented** Effective July 2020
Slovakia (SK)	/	/	/	/	**Proposed** Open consultation, no further steps

Source: KPMG (2021); Bloomberg Tax (2021)

4. CRITICAL ANALYSIS OF PROPOSED (NOT YET IMPLEMENTED) NATIONAL DIGITAL TAXES IN CROATIA

When it comes to Croatia, before the introduction of new tax levies, one should know that, according to Eurostat data, Croatia is among the countries with the highest tax pressure, which the introduction of new levies would further aggravate. The introduction of the new levy is also contrary to the Government's initiatives on relieving the economy of costs and administrative costs and creating better conditions for business and private sector investments.

The public debate on the introduction of the digital tax in Croatia has been going on for some time, pointing to the danger of increasing the current tax burden on business entities that already pay taxes in the country of residence, and that the introduction of digital tax must not have a negative 'cascading' financial effect on intermediaries. Between competent authorities and business entities/potential obligors and that, in this sense, it is necessary to change the definitions at the OECD level related to the rules for a permanent establishment and the attribution of profits for the acceptance of digital activities.

According to the available information, the EU prefers taxation within the OECD but also announces that, in the event of failure to reach an agreement at the OECD level, it will introduce its own tax. However, each Member State has autonomous tax regulations that are not and cannot be harmonised at the EU level. In Croatia, but not only in Croatia, large digital companies (Apple, Facebook, Google…) use outdated legal norms to avoid paying taxes by operating in all EU Member States but reporting profits only in countries with low tax rates (Luxembourg/Ireland) and thus avoid paying taxes in the countries where they earn income and profit.

The Croatian Law on Profit Tax (Official Gazette, No.177/04, 90/05, 57/06, 146/08, 80/10, 22/12, 148/13, 143/14, 50/16, 115/16, 106/18, 121/19, and 32/20) in the second paragraph of Article 2 prescribes that the income of a non-resident earned in a business unit of this non-resident or through a business unit of this non-resident has its source in Croatia if the business unit is located in Croatia. Therefore, the current corporate tax regime in Croatia is inappropriate for the taxation of companies offering digital services, especially from the point of view of determining the source of taxable income.

Digital corporations in Croatia pay only the amount of value-added tax (hereinafter: VAT). According to the Value Added Tax Act (Official Gazette, 73/2013), certain digital services are also included in the subject of taxation (Article 26) – electronically performed services (website delivery, website hosting, remote maintenance of programs and equipment, delivery of computer programmes and their updating, delivery of images, texts, and information, and access to databases, delivery of music, films and games, including games of chance and gambling, and broadcasting of

political, cultural, artistic, sports, scientific and entertainment programs and events, distance learning), whose place is generally related to the place (permanent business unit or residence) of the recipient.

Due to the need for fairer taxation of digital corporations in the EU, the European Commission (hereinafter: the EC) in 2018 prepared a Proposal for a Council Directive on a common system of taxes on digital services which taxes revenues from the provision of certain digital services; {SWD (2018) 81} – (hereinafter: the Proposal for a Directive, 2018), which introduces a tax on digital services at the EU level, but in March 2019 the proposal was blocked due to opposition from Denmark, Finland, Ireland, and Sweden. Following the rejection of the proposal, many EU Member States decided to introduce a tax on digital services (hereinafter: DST) at the national level. DSTs have been introduced in France, Italy, Austria, the United Kingdom, Poland, and Hungary, and the introduction of DSTs is planned in Belgium, Latvia, Spain, Norway, Slovakia, and the Czech Republic.

The Republic of Croatia was mostly positive about the initial Proposal for a Directive (Position of the Republic of Croatia on the Proposal for a Council Directive on a common system of taxes on digital services which taxes revenues from the provision of certain digital services (COM (2018) 148). Despite the general support of the Government of the Republic of Croatia for the introduction of the DST, it has not been prepared to date, except by a single parliamentary party (The Workers' Front) that submitted a bill to the parliamentary procedure. It is predicted that state budget revenues could increase by around HRK 150 million due to the introduction of this tax.

The Workers' Front party has devised taxation of three types of services:

- Advertising services targeted at interface users,
- Mediation services – making the interface available to users either to connect users and their interaction or to exchange goods or services between users,
- The services of selling data about the users of the interface.

The aim of this tax could be, for example:

- To provide additional budget funds for strengthening public telecommunications infrastructure, as Croatia is known for having one of the slowest Internet networks in the EU,
- To ensure more even taxation of small and large digital companies by taxing large digital companies that have historically enjoyed disproportionate tax breaks,
- To introduce more even taxation of traditional companies that produce physically tangible products and services, as well as digital companies that provide intangible digital services.

5. CONCLUSION

The law on the digital service tax would provide additional funds from the budget that can be earmarked for a specific purpose. Due to outdated taxation principles, based on early 20th-century business models, digital giants such as Facebook, Google, Apple, Amazon, and others have been avoiding taxation of digital services in countries where they have no headquarters or branches, but in which they make profits from digital services such as advertising, intermediation between users or the sale of user data.

The law proposes a rate of 7% gross tax on companies that generate annual revenues of over 750 million euros globally, and with annual revenues from taxable digital services originating in Croatia of over HRK 1.1 million. The law does not aim to tax the income of small and digital development companies.

Huge revenues for countries from the digital service tax have prompted the European Commission to consider reversing European digital service tax plans to fund the European Union's grand economic recovery plan because of the coronavirus pandemic. It is estimated that around 750 billion euros would be generated from the taxation of digital services. The European Commission's proposal to activate digital tax plans has received widespread approval from members of the European Parliament, including the leader of the largest political group in the EU, EPP, Manfred Weber, which is not unusual if it is estimated that the digital tax applied to transport companies greater than €750 million a year could generate up to €1.3 billion a year for the EU budget. Bearing in mind the importance of revenues from digital activities, the establishment of a new legal standard and a temporary tax on digital activities seeks to reap all the benefits provided by the digital economy, while ensuring sustainability of public finances at the EU level and preserving national tax bases. The integrity of the EU single market prevents aggressive tax planning and companies ultimately make a fair contribution to their tax shares. Therefore, the successful implementation of the proposed solutions will require the agreement of all the key actors in order to achieve a harmonised approach at the EU level, so that this model could contribute to international discussions and address this issue at the global level.

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REGULACIJA DIGITALNOG POREZA U EU-u I UTJECAJ NA DRŽAVE ČLANICE S OSVRTOM NA REPUBLIKU HRVATSKU

Sažetak

Iako je digitalizacija donijela pozitivne učinke gospodarstvima kroz standardizirane tehnologije, istodobno je stvorila nove izazove za porezni sustav koji proizlazi iz digitalnog poslovanja. Budući da je određeni dio europskih država već regulirao digitalne poreze u nacionalnom zakonodavnom okviru (različiti i po strukturi i po stopi digitalnog oporezivanja), postavlja se pitanje hoće li uredba EU-a, najavljena za listopad ove godine, imati značajan utjecaj na aktualna nacionalna rješenja, kao i na države koje ta rješenja nemaju. Također se postavlja pitanje je li jedinstveni način prikupljanja digitalnih poreza bolja opcija od jedinstvenog rješenja na razini EU-a koje bi moglo dovesti do ekonomskih ograničenja zbog stavova SAD-a. Istraživanja pokazuju da su europske države, unatoč nedostatku jedinstvenog rješenja, za naplatu digitalnih poreza na razini Europske unije prepoznale važnost naplate digitalnih poreza (bez obzira na strukturu) čak i u kontekstu pogodnosti za pokrivanje troškova pandemije COVID-19.

Ključne riječi: digitalni porez, Europska unija, Hrvatska

JEL klasifikacija: G38, H20