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EKOLOŠKA NEODRŽIVOST KONVENCIONALNE AGROTEHNIKE: NARUŠAVANJE ZEMLJIŠNOG RESURSA I AGROEKOSISTEMA - FINANSIJSKI I EKONOMSKI EFEKTI²

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Rezime

Rad analizira ekološku neodrživost konvencionalne agrotehnike, sa posebnim naglaskom na degradaciju zemljišta, eroziju, gubitak biodiverziteta i pad agroproduktivnosti, kao i na prateće finansijsko-ekonomske posledice po poljoprivredna gazdinstva. Polazi se od pretpostavke da modeli poljoprivredne proizvodnje zasnovani na dubokoj obradi zemljišta, monokulturama i intenzivnoj upotrebi mineralnih đubriva i pesticida obezbeđuju kratkoročne proizvodne efekte, ali dugoročno dovode do slabljenja funkcionalnosti agroekosistema i rasta rashoda. U radu se razmatraju ključni mehanizmi degradacije zemljišta, uključujući narušavanje strukture, smanjenje sadržaja organske materije, pojačanu podložnost vodnoj i eolskoj eroziji, kao i smanjenje kapaciteta zemljišta za zadržavanje vode. Poseban deo rada posvećen je ekonomskim posledicama degradacije, koje se ogledaju u rastu troškova proizvodnje (gorivo, mehanizacija, repromaterijal), povećanoj zavisnosti od eksternih inputa i smanjenju profitabilnosti poljoprivrednih gazdinstava. Takođe se analizira lokalni kontekst AP Vojvodine, gde su černozemi, uprkos visokoj prirodnoj plodnosti, izloženi intenzivnoj eksploataciji, klimatskim stresovima i degradacionim procesima. U

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² Rad je rezultat istraživanja po projektu: br. 00[28]63941 2025 09418 003 000 000 001 04 004 „Adaptacija poljoprivredne proizvodnje klimatskim promenama kroz primenu održivih i regenerativnih poljoprivrednih sistema“, koji finansira Pokrajinski sekretarijat za visoko obrazovanje i naučna istraživanja APV

završnom delu rada upoređuju se konvencionalne i održive prakse, pri čemu se ističu prednosti no-till sistema, redukovane obrade, pokrovnih useva i plodoređa u očuvanju zemljišnih resursa, stabilizaciji agroekosistema i optimizaciji finansijskih rashoda. Rezultati analize ukazuju da prelazak ka konzervacijskim i regenerativnim pristupima predstavlja nužan preduslov dugoročne ekološke i ekonomske održivosti poljoprivrede.

Glavne reči: konvencionalna agrotehnika, degradacija zemljišta, erozija, biodiverzitet, agroproduktivnost, održiva poljoprivreda, troškovi obrade, finansijski efekti

Uvod

Intenziviranje poljoprivredne proizvodnje tokom prethodnih decenija doprinelo je povećanju prinosa i kratkoročne proizvodne efikasnosti. Ipak, istovremeno su izazvane značajne negativne posledice po zemljišni resurs i funkcionalnost agroekosistema. Konvencionalni model poljoprivredne proizvodnje, baziran na dubokoj obradi zemljišta, monokulturnim sistemima i intenzivnoj upotrebi mineralnih đubriva i pesticida, postaje uzrok dugoročne degradacije zemljišta, smanjenja biodiverziteta i narušavanja prirodnih procesa. Kako Tsiafouli et al. (2015) ističu, intenzivna poljoprivredna proizvodnja ugrožava biodiverzitet zemljišta i čini ga manje raznovrsnim i funkcionalno siromašnijim.

Struktura zemljišta se narušava dubokom i učestalom mehaničkom obradom, čime se ubrzava mineralizacija organske materije, smanjuje kapacitet za zadržavanje vode i povećava podložnost erozionim procesima. Udruženim delovanjem dolazi do smanjenja plodnosti zemljišta, slabljenja biološke aktivnosti i povećanja zavisnosti proizvodnje od spoljašnjih inputa. Istraživanja pojedinih autora ukazuju da konvencionalna obrada zemljišta povećava rizik od erozije i menja fizička svojstva zemljišta (Baker et al., 2007; Hussain et al., 2021).

U širem ekološkom kontekstu, degradacija zemljišta ima i klimatsku dimenziju, zbog činjenice da smanjenje sadržaja organskog ugljenika umanjuje potencijal zemljišta da deluje kao njegov rezervoar. Prelazak sa konvencionalne na konzervacijsku obradu, uključujući sisteme bez oranja, povezuje se sa većim potencijalom sekvestracije ugljenika, poboljšanjem zemljišne strukture i smanjenjem erozije (Hussain et al., 2021; Zhang et al., 2024).

Cilj ovog rada jeste da analizira ključne mehanizme putem kojih konvencionalna agrotehnika doprinosi ekološkoj i finansijskoj neodrživosti poljoprivredne proizvodnje, sa posebnim naglaskom na degradaciju zemljišta, eroziju, smanjenje biodiverziteta, pad agroproduktivnosti i rast troškova obrade. Predmet rada obuhvata sagledavanje negativnih posledica dugotrajne primene duboke obrade zemljišta, monokulturnih sistema i intenzivne upotrebe agrohemikalija, kao i razmatranje njihovih ekoloških i ekonomskih implikacija. Struktura rada organizovana je kroz nekoliko povezanih celina koje najpre razmatraju krizu konvencionalne agrotehnike, zatim dugoročne posledice degradacije zemljišta, lokalni kontekst sa posebnim osvrtom na Vojvodinu, kao i komparaciju sa održivim i regenerativnim poljoprivrednim praksama.

1. Kriza konvencionalne agrotehnike

Duboko oranje je decenijama predstavljalo osnovnu praksu u konvencionalnoj poljoprivredi, primenjivanu sa ciljem lakše setve, kontrole biljnih ostataka i kratkoročnog povećanja prinosa. Iako se tradicionalno smatralo merom za poboljšanje aeracije i razvoja korena, savremena istraživanja ukazuju na suprotno. Dugotrajna i intenzivna primena dubokog oranja doprinosi degradaciji zemljišne strukture, ubrzanom gubitku organske materije, smanjenju kapaciteta za zadržavanje vode i postepenom opadanju dugoročne plodnosti zemljišta (Baker et al., 2007; Blanco-Canqui & Ruis, 2018; Lal, 2020).

Mehaničko narušavanje zemljišta na dubinama od 30–40 cm, a neretko i više, razbija prirodnu agregatnu strukturu, prekida kontinuitet pora i oštećuje biogeničke kanale koje formiraju koreni biljaka, mikroorganizmi i zemljišna fauna. Kao posledica toga, smanjuje se infiltracija vode, raste površinsko oticanje i povećava se podložnost zemljišta vodnoj i eolskoj eroziji (Blanco-Canqui & Ruis, 2018; Kool et al., 2019; Paustian et al., 2016).

Pored fizičkih posledica, duboko oranje ima i izražene biološke i hemijske efekte. Intenzivna obrada povećava kontakt organske materije sa kiseonikom i aerobnim mikroorganizmima, što ubrzava mineralizaciju i smanjuje sadržaj organskog ugljenika u zemljištu. Time se slabi strukturna stabilnost zemljišta, njegova sposobnost vezivanja hraniva i opšta otpornost na degradacione procese (Gattinger et al., 2012; Lal, 2020; Reganold & Wachter, 2016).

Dodatno, duboko oranje smanjuje kapacitet zemljišta za zadržavanje vode. Promene u zbijenosti, poroznosti i rasporedu agregata utiču na vodni režim zemljišta i dostupnost vlage u zoni korena, što je naročito problematično u uslovima sve izraženijih klimatskih oscilacija i učestalih suša (Abu-Hamdeh, n.d.; Kool et al., 2019; Paustian et al., 2016). Na taj način raste zavisnost proizvodnje od mineralnih đubriva, hemijskih sredstava i dodatnih agrotehničkih zahvata, što povećava ekonomske troškove i ekološki pritisak na agroekosistem (Lal, 2020; Reganold & Wachter, 2016).

U kontekstu klimatskih promena, duboko oranje doprinosi i povećanju emisija gasova sa efektom staklene bašte. Ubrzana razgradnja organske materije oslobađa ugljen-dioksid, dok degradacija zemljišta smanjuje njegovu funkciju kao rezervoara ugljenika. Zbog toga se savremena nauka sve više okreće konzervacijskoj obradi i sistemima sa smanjenim uznemiravanjem zemljišta kao načinima za očuvanje organskog ugljenika i smanjenje erozije (Hussain et al., 2021; Zhang et al., 2024).

Erozija zemljišta predstavlja jedan od najtežih oblika degradacije u konvencionalnoj poljoprivredi. Vodna i eolska erozija ne dovode samo do gubitka najplodnijeg površinskog sloja, već i do smanjenja sadržaja organske materije, hraniva, mikrobiološke aktivnosti i ukupnog proizvodnog potencijala zemljišta (Baker et al., 2007; Blanco-Canqui & Ruis, 2018; Lal, 2020).

Mehanička obrada razbija agregate i smanjuje stabilnost zemljišne strukture, zbog čega zemljište postaje izuzetno podložno odnošenju vodom i vetrom. Površinski ogoljen sloj, bez zaštitnog biljnog ostatka, nema dovoljnu otpornost na udar kišnih kapi, pa se povećava površinsko oticanje i gubitak čestica zemljišta. Istraživanja pokazuju da konzervacijska obrada može značajno smanjiti eroziju i poboljšati zadržavanje vlage, dok konvencionalna obrada povećava rizik od degradacije i gubitka zemljišnog materijala (Seitz et al., 2019; Tillage and soil carbon sequestration, 2007).

Erozija ima i dugoročne hemijske i biološke posledice. Odnosnjem površinskog sloja gube se organske materije i hraniva, što smanjuje sposobnost zemljišta da održava stabilnu proizvodnju bez dodatnih inputa. Istovremeno, gubitak organskog ugljenika smanjuje kapacitet tla za skladištenje ugljenika i povećava emisije

CO₂, čime erozija prerasta iz lokalnog pedološkog problema u šire pitanje klimatske i ekološke održivosti (Hussain et al., 2021;

Paustian et al., 2016).

Gubitak biodiverziteta predstavlja jednu od ključnih ekoloških posledica intenzivne poljoprivrede, naročito u uslovima monokultura, pojednostavljenih plodosmena i visoke upotrebe pesticida. Smanjenje raznovrsnosti biljnih, zemljišnih i entomoloških grupa slabi prirodnu regulaciju štetočina, narušava funkcionisanje zemljišnih hranidbenih mreža i smanjuje otpornost agroekosistema na spoljašnje stresove (Tsiafouli et al., 2015; de Graaff et al., 2019).

Monokulture smanjuju raznolikost staništa i ograničavaju dostupnost resursa za korisne organizme, dok primena pesticida i sintetičkih agrohemikalija utiče ne samo na ciljne štetočine, već i na korisne mikroorganizme, oprašivače i zemljišnu faunu. Degradacija podzemnog biodiverziteta direktno ugrožava procese formiranja strukture zemljišta, cikluse hraniva i biološku stabilnost sistema. Posledično, ekosistem gubi sposobnost samoregulacije, pa proizvođači postaju sve zavisniji od spoljašnjih inputa, što povećava finansijski teret proizvodnje i dodatno produbljuje ekološku neodrživost takvog modela (Gomiero et al., 2011; Mäder et al., 2002; Reganold & Wachter, 2016).

2.Dugoročni pad agroproduktivnosti i ekonomske posledice

Degradacija zemljišta izazvana dugotrajnom primenom konvencionalne agrotehnike vodi ka postepenom padu agroproduktivnosti i značajnom narušavanju finansijske stabilnosti poljoprivrednih gazdinstava. Iako takav proizvodni model u kratkom roku može obezbediti relativno visoke prinose, njegovi dugoročni efekti su izrazito negativni, budući da narušavanje strukture zemljišta, gubitak organske materije, erozija i smanjenje biodiverziteta direktno slabe proizvodni potencijal agroekosistema (Baker et al., 2007; Lal, 2020; Reganold & Wachter, 2016). Smanjenje prirodne plodnosti i poremećaj ciklusa hraniva čine proizvodnju sve zavisnijom od skupih spoljašnjih inputa, dok degradirano zemljište gubi sposobnost da amortizuje sušu i ekstremne padavine, što dovodi do velike varijabilnosti u prinosima i stvara visoku nestabilnost godišnjih prihoda (Gattinger et al., 2012; Paustian et al., 2016; Kool et al., 2019).

Sa ekonomsko-finansijskog stanovišta, degradacija zemljišta kontinuirano podiže tačku rentabilnosti (break-even point),

povećava troškove po jedinici proizvoda i direktno vrši pritisak na pad neto marže profitabilnosti. Kako bi nadoknadili prirodni gubitak plodnosti i strukturiranosti tla, poljoprivredni proizvođači su prinuđeni da uvećavaju ulaganja u sintetička mineralna đubriva, korektivne hemijske tretmane, navodnjavanje i dopunske prohode teškom mehanizacijom. Ovakav pristup uslovljava konstantan rast varijabilnih rashoda (naročito za pogonsko gorivo i repromaterijal) i ubrzava amortizaciju i troškove održavanja opreme visoke snage. Posledično, dolazi do narušavanja tekuće likvidnosti, povećanja potrebe za kratkoročnim obrtnim kapitalom i zaduživanjem, čime se drastično uvećava finansijski rizik gazdinstava i smanjuje njihova otpornost na tržišne cenovne šokove i negativne efekte klimatskih promena (Lal, 2020; Reganold & Wachter, 2016; Schreefel et al., 2020).

3. Lokalni kontekst i komparacija sa dobrim praksama

U lokalnom kontekstu, problem degradacije zemljišta posebno je izražen u AP Vojvodini, gde dominiraju intenzivna poljoprivredna proizvodnja, dugotrajna primena konvencionalne obrade i visoka izloženost klimatskim stresovima, što sve direktno utiče na ekonomsku održivost gazdinstava. Vojvodina raspolaže vrlo plodnim černozemima, ali upravo ti zemljišni tipovi, zbog intenzivne eksploatacije i klimatskih promena, pokazuju povećanu osetljivost na degradacione procese, naročito na gubitak organske materije, zbijanje i eroziju (Ličina, 2011; Vasin, 2024; Ćirić et al., 2017). Sa stanovišta upravljanja finansijskim kapitalom, sistematski pad sadržaja humusa ispod kritičnih granica predstavlja direktnu amortizaciju prirodne imovine gazdinstva, jer zahteva stalni rast izdataka za skupu dopunsku hemijsku i mineralnu ishranu useva.

Posebno je značajno da je u Vojvodini oko 85% poljoprivrednog zemljišta izloženo eolskoj eroziji, pri čemu se godišnji gubici zemljišta procenjuju na oko 0,9 t po hektaru (Ličina, 2011). Dodatno, istraživanja ukazuju da se u ovom regionu povećava učestalost toplih dana, dok su sušni periodi i nestabilni režimi padavina tokom vegetacije sve izraženiji, što smanjuje vlažnost zemljišta i povećava rizik od drastičnog pada prinosa (Dragović, 2005; Ćirić et al., 2017; Bezdan et al., 2019). U takvim uslovima, duboka obrada zemljišta ubrzava gubitak vlage i pojačava eroziju, dok istovremeno zahteva visoku potrošnju dizel goriva (prosečno 50–60 l/ha) i angažovanje mehanizacije visoke snage

(preko 150 KS), generišući visoke operativne i amortizacione rashode. Černozemi postaju znatno ranjiviji bez adekvatnog povrata organske materije i zaštitnog biljnog pokrova, pa se degradacija zemljišta u Vojvodini ne može posmatrati samo ako pedološki problem, već i kao pitanje dugoročne bezbednosti proizvodnje hrane, finansijskog rizika gazdinstava i adaptacije na klimatske promene (Ličina, 2011; Vasin, 2024; Soil Degradation and Climate Change in Serbia, 2021).

Nasuprot konvencionalnom oranju, održive i regenerativne prakse kao što su no-till, reduced tillage, pokrovni usevi i plodored nude efikasnije rešenje za očuvanje zemljišta, stabilizaciju agroekosistema i značajnu optimizaciju finansijskih bilansa.

Smanjena i nulta obrada (No-till i reduced tillage): Smanjuju mehaničko uznemiravanje zemljišta, čuvaju agregatnu strukturu i doprinose boljem zadržavanju vlage. Sa finansijskog aspekta, eliminišu se do tri zahtevna prohoda teškom mehanizacijom, čime se utrošak dizel goriva redukuje na 15–20 l/ha (ušteđeno do 65%), dok se utrošak radnih sati po hektaru smanjuje za oko 70%, što ratarskim gazdinstvima donosi direktnu operativnu uštedu od 80 do 130 EUR/ha godišnje.

Pokrovni usevi: Štite površinu od vetra i udara kišnih kapi, smanjuju površinsko oticanje, povećavaju biološku aktivnost i doprinose očuvanju organske materije i hraniva (Blanco-Canqui & Ruis, 2018; Kaspar et al., 2011; Langdale et al., n.d.). Kombinacija no-till sistema i pokrovnih useva značajno smanjuje eroziju i troškove proizvodnje, poboljšavajući ukupnu zemljišnu funkcionalnost i smanjujući zavisnost od kupovnih azotnih đubriva (Jacobs et al., 2022; Seitz et al., 2019; Mitchell et al., n.d.; Use of Cover Crops and Crop Rotation for Soil Fertility, 2026).

Plodored: Prekida cikluse štetočina i bolesti, poboljšava raspodelu hraniva i povećava raznovrsnost organskih ostataka unetih u zemljište. Kada se kombinuje sa pokrovnim usevima i smanjenom obradom, plodored doprinosi većoj otpornosti agroekosistema na sušu, eroziju i degradaciju, direktno ublažavajući finansijske šokove i pad prihoda u sušnim godinama, za razliku od monokulturnih sistema koji ubrzavaju iscrpljivanje zemljišta i povećavaju zavisnost od skupih eksternih inputa (Basch & Andrade, 2022; Lazzaro & Ferrari, 2022; Rose et al., 2022).

Zaključak

Sprovedena analiza pokazuje da konvencionalna agrotehnika, naročito u obliku intenzivne duboke mehaničke obrade zemljišta, proizvodi dugoročne ekološke i ekonomske posledice koje prevazilaze njene kratkoročne proizvodne efekte. Degradacija strukture zemljišta, gubitak organske materije, erozija i pad biodiverziteta direktno slabe agroproduktivnost, povećavaju varijabilne troškove proizvodnje i smanjuju otpornost poljoprivrednih gazdinstava na klimatske stresove i tržišne cenovne šokove.

Posebno je značajno što se ovi procesi odvijaju u specifičnom lokalnom kontekstu AP Vojvodine, gde su izuzetno plodni černozemi izloženi eolskoj eroziji, ubrzanom gubitku humusa i učestalim sušnim periodima. Sa finansijskog stanovišta, konvencionalni model zahteva rastuća ulaganja u pogonsko gorivo, mehanizaciju i minerale ishrane kako bi se kompenzovao pad prirodne plodnosti tla, što pomera tačku rentabilnosti i ugrožava neto profitabilnost i tekuću likvidnost gazdinstava. To potvrđuje da očuvanje zemljišta u savremenom agrobiznisu više nije samo pedološko i agronomsko pitanje, već primarni razvojni, finansijski i klimatski imperativ.

U tom smislu, prelazak ka konzervacijskim i regenerativnim praksama – kao što su *no-till*, redukovana obrada, upotreba pokrovnih useva i pravilan plodored – predstavlja ekonomski i ekološki racionalan odgovor na izazove degradacije. Pozitivne prakse omogućavaju značajne operativne uštede u pogonskom gorivu i radnoj snazi (i do 60–70%), smanjuju troškove amortizacije opreme i stabilizuju prinose u kriznim godinama. Dugoročno posmatrano, tranzicija ka regenerativnim sistemima obezbeđuje ne samo očuvanje zemljišnog resursa kao prirodnog kapitala, već i stabilizaciju novčanih tokova, bolji ESG bonitet i održivu ekonomsku egzistenciju poljoprivrednih proizvođača.

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ENVIRONMENTAL UNSUSTAINABILITY OF CONVENTIONAL AGRICULTURAL PRACTICES: DEGRADATION OF SOIL RESOURCES AND AGROECOSYSTEMS – FINANCIAL AND ECONOMIC EFFECTS²

Original scientific paper

Abstract

The paper analyzes the environmental unsustainability of conventional agricultural practices, with particular emphasis on soil degradation, erosion, biodiversity loss, and declining agricultural productivity, as well as the related financial and economic consequences for agricultural holdings. The starting assumption is that agricultural production models based on deep soil tillage, monocultures, and intensive use of mineral fertilizers and pesticides provide short-term production effects, but in the long term lead to weakening of agroecosystem functionality and increasing expenditures. The paper discusses the key mechanisms of soil degradation, including disruption of soil structure, reduced organic matter content, increased susceptibility to water and wind erosion, as well as reduced soil capacity to retain water. A special part of the paper is devoted to the economic consequences of degradation, which are reflected in increased production costs (fuel, machinery, production inputs), greater dependence on external inputs, and reduced profitability of agricultural holdings. The local context of the Autonomous Province of Vojvodina is also analyzed, where

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chernozems, despite their high natural fertility, are exposed to intensive exploitation, climate stresses, and degradation processes. In the final part of the paper, conventional and sustainable practices are compared, with emphasis on the advantages of no-till systems, reduced tillage, cover crops, and crop rotation in preserving soil resources, stabilizing agroecosystems, and optimizing financial expenditures. The results of the analysis indicate that the transition towards conservation and regenerative approaches is a necessary prerequisite for the long-term environmental and economic sustainability of agriculture.

Keywords: conventional agricultural practices, soil degradation, erosion, biodiversity, agricultural productivity, sustainable agriculture, tillage costs, financial effects.

Introduction

The intensification of agricultural production over the previous decades has contributed to increased yields and short-term production efficiency. However, at the same time, it has caused significant negative consequences for soil resources and the functioning of agroecosystems. The conventional model of agricultural production, based on deep soil tillage, monoculture systems, and intensive use of mineral fertilizers and pesticides, has become a cause of long-term soil degradation, biodiversity loss, and disruption of natural processes. As Tsiafouli et al. (2015) point out, intensive agricultural production threatens soil biodiversity and makes it less diverse and functionally poorer.

Soil structure is disrupted by deep and frequent mechanical tillage, which accelerates the mineralization of organic matter, reduces the soil's water-holding capacity, and increases its susceptibility to erosion processes. These combined effects lead to a decline in soil fertility, reduced biological activity, and increased dependence of production on external inputs. Research by some authors indicates that conventional tillage increases the risk of erosion and changes the physical properties of the soil (Baker et al., 2007; Hussain et al., 2021).

In the broader environmental context, soil degradation also has a climate dimension, due to the fact that a decrease in organic carbon content reduces the potential of the soil to act as a carbon reservoir. The transition from conventional to conservation tillage, including no-till systems, is associated with greater potential for

carbon sequestration, improvement of soil structure, and reduction of erosion (Hussain et al., 2021; Zhang et al., 2024).

The aim of this paper is to analyze the key mechanisms through which conventional agricultural practices contribute to the environmental and financial unsustainability of agricultural production, with particular emphasis on soil degradation, erosion, biodiversity loss, declining agricultural productivity, and increasing tillage costs. The subject of the paper includes an overview of the negative consequences of long-term use of deep soil tillage, monoculture systems, and intensive use of agrochemicals, as well as consideration of their environmental and economic implications. The structure of the paper is organized into several interconnected sections that first discuss the crisis of conventional agricultural practices, followed by the long-term consequences of soil degradation, the local context with particular focus on Vojvodina, and a comparison with sustainable and regenerative agricultural practices.

1. The crisis of conventional agricultural practices

Deep plowing has for decades been a basic practice in conventional agriculture, used with the aim of making sowing easier, controlling crop residues, and achieving a short-term increase in yields. Although it has traditionally been considered a measure for improving aeration and root development, recent research indicates otherwise. Long-term and intensive use of deep plowing contributes to the degradation of soil structure, accelerated loss of organic matter, reduced water-holding capacity, and a gradual decline in long-term soil fertility (Baker et al., 2007; Blanco-Canqui & Ruis, 2018; Lal, 2020).

Mechanical disturbance of the soil at depths of 30–40 cm, and often even deeper, breaks down the natural aggregate structure, interrupts the continuity of pores, and damages biogenic channels formed by plant roots, microorganisms, and soil fauna. As a result, water infiltration is reduced, surface runoff increases, and the soil becomes more susceptible to water and wind erosion (Blanco-Canqui & Ruis, 2018; Kool et al., 2019; Paustian et al., 2016).

In addition to its physical effects, deep plowing also has significant biological and chemical effects. Intensive tillage increases the contact of organic matter with oxygen and aerobic microorganisms, which accelerates mineralization and reduces the

content of organic carbon in the soil. This weakens soil structural stability, its ability to retain nutrients, as well as its overall resistance to degradation processes (Gattinger et al., 2012; Lal, 2020; Reganold & Wachter, 2016).

Additionally, deep plowing reduces the soil's capacity to retain water. Changes in soil compaction, porosity, and aggregate distribution affect the soil water regime and the availability of moisture in the root zone, which is particularly problematic under increasingly pronounced climate fluctuations and frequent droughts (Abu-Hamdeh, n.d.; Kool et al., 2019; Paustian et al., 2016). In this way, production becomes more dependent on mineral fertilizers, chemical agents, and additional agrotechnical practices, which increases economic costs and environmental pressure on the agroecosystem (Lal, 2020; Reganold & Wachter, 2016).

In the context of climate change, deep plowing also contributes to increased greenhouse gas emissions. The accelerated decomposition of organic matter releases carbon dioxide, while soil degradation reduces its function as a carbon reservoir. For this reason, modern science is increasingly turning to conservation tillage and systems with reduced soil disturbance as ways to preserve organic carbon and reduce erosion (Hussain et al., 2021; Zhang et al., 2024).

Soil erosion is one of the most severe forms of degradation in conventional agriculture. Water and wind erosion not only lead to the loss of the most fertile topsoil layer, but also to a reduction in the content of organic matter, nutrients, microbiological activity, and the overall production potential of the soil (Baker et al., 2007; Blanco-Canqui & Ruis, 2018; Lal, 2020).

Mechanical tillage breaks down soil aggregates and reduces the stability of soil structure, making the soil highly susceptible to removal by water and wind. The exposed surface layer, without protective plant residues, does not have sufficient resistance to the impact of raindrops, which increases surface runoff and the loss of soil particles. Research shows that conservation tillage can significantly reduce erosion and improve moisture retention, while conventional tillage increases the risk of degradation and soil material loss (Seitz et al., 2019; Tillage and Soil Carbon Sequestration, 2007).

Erosion also has long-term chemical and biological consequences. The removal of the topsoil layer results in the loss of organic matter and nutrients, reducing the soil's ability to maintain

stable production without additional inputs. At the same time, the loss of organic carbon reduces the soil's capacity to store carbon and increases emissions, causing erosion to develop from a local pedological problem into a broader issue of climate and environmental sustainability (Hussain et al., 2021; Paustian et al., 2016).

Loss of biodiversity is one of the key environmental consequences of intensive agriculture, especially under monocultures, simplified crop rotations, and high pesticide use. A reduction in the diversity of plant, soil, and entomological groups weakens the natural regulation of pests, disrupts the functioning of soil food webs, and reduces the resilience of agroecosystems to external stresses (Tsiafouli et al., 2015; de Graaff et al., 2019).

Monocultures reduce habitat diversity and limit the availability of resources for beneficial organisms, while the use of pesticides and synthetic agrochemicals affects not only target pests, but also beneficial microorganisms, pollinators, and soil fauna. The degradation of below-ground biodiversity directly threatens the processes of soil structure formation, nutrient cycles, and the biological stability of the system. As a result, the ecosystem loses its capacity for self-regulation, making producers increasingly dependent on external inputs, which increases the financial burden of production and further deepens the environmental unsustainability of such a model (Gomiero et al., 2011; Mäder et al., 2002; Reganold & Wachter, 2016).

2. Long-term decline in agricultural productivity and economic consequences

Soil degradation caused by the long-term use of conventional agricultural practices leads to a gradual decline in agricultural productivity and a significant weakening of the financial stability of agricultural holdings. Although such a production model can provide relatively high yields in the short term, its long-term effects are strongly negative, since disruption of soil structure, loss of organic matter, erosion, and reduced biodiversity directly weaken the production potential of agroecosystems (Baker et al., 2007; Lal, 2020; Reganold & Wachter, 2016). The decline in natural fertility and disruption of nutrient cycles make production increasingly dependent on expensive external inputs, while degraded soil loses its ability to buffer drought and extreme rainfall, leading to high

variability in yields and creating significant instability in annual incomes (Gattinger et al., 2012; Paustian et al., 2016; Kool et al., 2019).

From an economic and financial point of view, soil degradation continuously raises the break-even point, increases costs per unit of product, and directly puts pressure on the decline in net profit margins. In order to compensate for the natural loss of soil fertility and structure, agricultural producers are forced to increase investments in synthetic mineral fertilizers, corrective chemical treatments, irrigation, and additional passes with heavy machinery. This approach leads to a constant increase in variable costs (especially fuel and production inputs) and accelerates depreciation and maintenance costs of high-powered equipment. As a result, current liquidity is weakened, the need for short-term working capital and borrowing increases, which significantly increases the financial risk of agricultural holdings and reduces their resilience to market price shocks and the negative effects of climate change (Lal, 2020; Reganold & Wachter, 2016; Schreefel et al., 2020).

3. Local context and comparison with good practices

In the local context, the problem of soil degradation is particularly pronounced in the Autonomous Province of Vojvodina, where intensive agricultural production, long-term use of conventional tillage, and high exposure to climate stresses are common, all of which directly affect the economic sustainability of agricultural holdings. Vojvodina has very fertile chernozem soils, but precisely these soil types, due to intensive exploitation and climate change, show increased susceptibility to degradation processes, especially the loss of organic matter, compaction, and erosion (Ličina, 2011; Vasin, 2024; Ćirić et al., 2017). From the perspective of financial capital management, a systematic decline in humus content below critical levels represents a direct depreciation of the farm's natural assets, as it requires a constant increase in expenditures for costly supplementary chemical and mineral crop nutrition.

It is particularly important that around 85% of agricultural land in Vojvodina is exposed to wind erosion, with annual soil losses estimated at around 0.9 t per hectare (Ličina, 2011). In addition, research indicates that the frequency of hot days is increasing in this region, while dry periods and unstable

precipitation patterns during the growing season are becoming more pronounced, which reduces soil moisture and increases the risk of a drastic decline in yields (Dragović, 2005; Ćirić et al., 2017; Bezdan et al., 2019). Under such conditions, deep soil tillage accelerates moisture loss and increases erosion, while at the same time requiring high diesel fuel consumption (an average of 50–60 l/ha) and the use of high-powered machinery (over 150 HP), generating high operating and depreciation costs. Chernozem soils become considerably more vulnerable without adequate return of organic matter and protective plant cover, so soil degradation in Vojvodina cannot be viewed only as a pedological problem, but also as an issue of long-term food production security, financial risk for agricultural holdings, and adaptation to climate change (Ličina, 2011; Vasin, 2024; Soil Degradation and Climate Change in Serbia, 2021).

In contrast to conventional plowing, sustainable and regenerative practices such as no-till, reduced tillage, cover crops, and crop rotation offer a more effective solution for soil conservation, agroecosystem stabilization, and significant optimization of financial balances.

Reduced and zero tillage (No-till and reduced tillage): These practices reduce mechanical soil disturbance, preserve aggregate structure, and contribute to better moisture retention. From a financial perspective, up to three demanding passes with heavy machinery can be eliminated, reducing diesel fuel consumption to 15–20 l/ha (savings of up to 65%), while the number of working hours per hectare is reduced by around 70%, providing arable farms with direct operational savings of EUR 80 to 130/ha annually.

Cover crops: They protect the soil surface from wind and the impact of raindrops, reduce surface runoff, increase biological activity, and contribute to the preservation of organic matter and nutrients (Blanco-Canqui & Ruis, 2018; Kaspar et al., 2011; Langdale et al., n.d.). The combination of no-till systems and cover crops significantly reduces erosion and production costs, improving overall soil functionality and reducing dependence on purchased nitrogen fertilizers (Jacobs et al., 2022; Seitz et al., 2019; Mitchell et al., n.d.; Use of Cover Crops and Crop Rotation for Soil Fertility, 2026).

Crop rotation: It breaks pest and disease cycles, improves nutrient distribution, and increases the diversity of organic residues added to the soil. When combined with cover crops and reduced tillage, crop rotation contributes to greater resilience of

agroecosystems to drought, erosion, and degradation, directly reducing financial shocks and income losses in dry years, unlike monoculture systems, which accelerate soil depletion and increase dependence on expensive external inputs (Basch & Andrade, 2022; Lazzaro & Ferrari, 2022; Rose et al., 2022).

Conclusion

The analysis shows that conventional agricultural practices, particularly in the form of intensive deep mechanical tillage, produce long-term environmental and economic consequences that go beyond their short-term production effects. Soil structure degradation, loss of organic matter, erosion, and biodiversity loss directly weaken agricultural productivity, increase variable production costs, and reduce the resilience of agricultural holdings to climate stresses and market price shocks.

It is particularly important that these processes take place in the specific local context of the Autonomous Province of Vojvodina, where highly fertile chernozem soils are exposed to wind erosion, accelerated loss of humus, and frequent dry periods. From a financial point of view, the conventional model requires increasing investments in fuel, machinery, and mineral fertilizers to compensate for the decline in natural soil fertility, which raises the break-even point and threatens the net profitability and current liquidity of agricultural holdings. This confirms that soil conservation in modern agribusiness is no longer only a pedological and agronomic issue, but a primary development, financial, and climate imperative.

In this regard, the transition towards conservation and regenerative practices – such as no-till, reduced tillage, the use of cover crops, and proper crop rotation – represents an economically and environmentally rational response to the challenges of degradation. These practices enable significant operational savings in fuel and labor (up to 60–70%), reduce equipment depreciation costs, and stabilize yields in crisis years. In the long term, the transition towards regenerative systems provides not only the preservation of soil resources as natural capital, but also stabilization of cash flows, better ESG standing, and sustainable economic viability for agricultural producers.

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Pregledni rad

Rezime

Rad analizira odnos između monetarne i fiskalne politike u Evropskoj uniji sa posebnim osvrtom na krizu javnog duga zemalja članica u kontekstu globalne ekonomske krize 2008. godine. Uvođenje zajedničke valute evra doprinelo je produbljivanju ekonomske integracije, smanjenju transakcionih troškova i olakšanom pristupu kapitalu, ali je istovremeno dovelo do strukturne asimetrije između centralizovane monetarne politike i decentralizovanih fiskalnih politika država članica. Ova neusklađenost omogućila je rast javnog duga u pojedinim zemljama, posebno u Grčkoj, Portugalu, Španiji, Irskoj i Italiji.

Globalna finansijska kriza 2008. godine razotkrila je slabosti ovakvog institucionalnog okvira, dovodeći do prekida kreditnih tokova, problema u refinansiranju duga i potrebe za intervencijama Evropske unije i međunarodnih finansijskih institucija. Mere fiskalne konsolidacije i finansijske pomoći privremeno su stabilizovale situaciju, ali su istovremeno ukazale na dugoročni problem nedostatka fiskalne koordinacije unutar Evrozona.

Rad zaključuje da je za dugoročnu stabilnost zajedničke valute neophodno usklađivanje monetarne i fiskalne politike, pri čemu se kao potencijalno rešenje ističe formiranje fiskalne unije na nivou Evropske unije.

Ključne reči: Evropska unija, javni dug, monetarna politika, fiskalna politika, Evrozona.

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Uvod

Evropa je kroz svoju istoriju bila obeležena dugotrajnim periodima ratnih sukoba koji su zahvatali različite delove kontinenta i dovodili do značajnih ljudskih gubitaka, razaranja gradova, kao i raspada država i imperija. U takvim okolnostima, ekonomska saradnja između zemalja bila je ograničena, dok su trgovinske barijere, carine i postojanje različitih nacionalnih valuta dodatno usporavale ekonomski razvoj i integraciju evropskih privreda (Baldwin & Wyplosz, 2022).

U takvom fragmentisanom sistemu, međunarodne transakcije bile su opterećene visokim troškovima konverzije valuta i dodatnim naknadama prilikom prekograničnih plaćanja, što je smanjivalo efikasnost trgovine i povećavalo transakcione troškove. Ovakva struktura evropske ekonomije imala je za posledicu nisku međuzavisnost tržišta i ograničen ekonomski rast (De Grauwe, 2018).

Nakon Drugog svetskog rata, Evropa se suočila sa razornim posledicama uništenja industrijske baze, infrastrukture i ekonomskih kapaciteta. U cilju ubrzanog ekonomskog oporavka, evropske zemlje započele su proces institucionalne i ekonomske integracije, zasnovan na uklanjanju trgovinskih barijera, liberalizaciji kretanja kapitala i jačanju međusobne ekonomske saradnje (European Commission, 2015).

Ovaj proces je postepeno vodio ka stvaranju koncepta jedinstvene Evrope, čiji je osnovni cilj bio obezbeđivanje dugoročnog mira kroz ekonomsku međuzavisnost država članica (Moravcsik, 1998). Kao rezultat toga, trgovinske i carinske barijere su značajno redukovane, što je doprinelo smanjenju troškova poslovanja i intenziviranju ekonomske razmene.

Ključni političko-ekonomski korak u ovom procesu predstavljao je pad Berlinskog zida, koji je označio kraj podela Evrope i otvorio prostor za dalje institucionalno ujedinjenje. Nakon toga, potpisivanjem Mاستrihtskog ugovora 1992. godine formalno je uspostavljena Evropska unija, koja je stupila na snagu 1993. godine (European Union, 1992).

U narednoj fazi integracije, jedan od najvećih izazova predstavljalo je postojanje različitih nacionalnih valuta, koje su otežavale efikasno funkcionisanje jedinstvenog tržišta. Kao odgovor na ovaj problem, 1999. godine uveden je evro kao zajednička valuta

u okviru Evrozone, čime je značajan deo monetarnog suvereniteta država članica prenet na Evropsku centralnu banku (ECB) (De Grauwe, 2018).

Ovim procesom uspostavljena je jedinstvena monetarna politika na nivou Evrozone, dok je fiskalna politika ostala u nadležnosti pojedinačnih država članica. Takva institucionalna asimetrija između centralizovane monetarne politike i decentralizovane fiskalne politike predstavljala je jedan od ključnih strukturnih uzroka kasnije krize javnog duga u Evropskoj uniji (Lane, 2012).

Naime, dok Evropska centralna banka kontroliše novčanu masu i kamatne stope na nivou Evrozone, države članice samostalno odlučuju o budžetskoj potrošnji, oporezivanju i zaduživanju. Ova neusklađenost omogućila je pojedinim državama da koriste povoljne uslove zaduživanja bez adekvatne fiskalne discipline, što je dugoročno dovelo do akumulacije visokog javnog duga i povećanja makroekonomskih neravnoteža (Lane, 2012; Baldwin & Giavazzi, 2015).

U tom smislu, institucionalni dizajn Evrozone, iako je doprineo monetarnoj stabilnosti i integraciji tržišta, istovremeno je stvorio sistemsku ranjivost koja se posebno manifestovala tokom globalne finansijske krize 2008. godine. Kriza je pokazala da neusklađenost između zajedničke monetarne politike i nacionalnih fiskalnih politika može dovesti do ozbiljnih fiskalnih disbalansa i ugroziti stabilnost celokupnog evropskog finansijskog sistema (Baldwin & Giavazzi, 2015; European Commission, 2012).

1. Monetarna politika naspram fiskalne politike

Razumevanje odnosa između monetarne i fiskalne politike predstavlja osnovu za analizu nastanka i razvoja krize javnog duga u Evropskoj uniji. Monetarna politika podrazumeva upravljanje količinom novca u opticaju i određivanje referentnih kamatnih stopa, pri čemu centralna banka utiče na cenu zaduživanja, inflaciju i ukupnu likvidnost u ekonomiji (De Grauwe, 2018). Nasuprot tome, fiskalna politika obuhvata odluke države o javnim prihodima i rashodima, uključujući poresku politiku, budžetsku potrošnju i nivo javnog zaduživanja.

Na nivou Evrozone, monetarna politika je centralizovana u okviru Evropske centralne banke, dok su fiskalne politike ostale u nadležnosti nacionalnih država. Ova institucionalna asimetrija

predstavlja jedan od ključnih strukturnih problema monetarne unije, jer omogućava divergenciju u fiskalnom ponašanju država članica (Lane, 2012; Buti & Carnot, 2018).

Savremeni makroekonomski podaci pokazuju da je javni dug Evrozone nakon pandemijskog perioda ostao na povišenom, ali relativno stabilizovanom nivou. U 2024. godini, javni dug Evrozone iznosio je oko 87% BDP-a, dok je u Evropskoj uniji iznosio oko 81% BDP-a, što ukazuje na i dalje ograničen fiskalni prostor država članica (Eurostat, 2025; European Commission, 2024).

Pre uvođenja evra, države poput Grčke bile su izložene znatno višim troškovima zaduživanja, uz kamatne stope koje su u pojedinim periodima prelazile 15%, dok je pristup međunarodnom kapitalu bio strogo ograničen i zavisao od percepcije fiskalnog rizika (European Commission, 2015). Ulaskom u Evrozonu došlo je do konvergencije kamatnih stopa, pri čemu su se troškovi zaduživanja perifernih zemalja približili nivoima razvijenih ekonomija poput Nemačke, što je dovelo do smanjenja tržišne percepcije rizika (De Grauwe, 2018).

Ova promena omogućila je ekspanzivniju fiskalnu politiku u više država članica. Jeftin kapital je doveo do povećanja javne potrošnje, širenja socijalnih transfera i rasta budžetskih deficita koji su sve češće finansirani zaduživanjem (Buti & Carnot, 2018). U takvim uslovima, fiskalna disciplina je oslabila, naročito u zemljama sa strukturnim slabostima javnih finansija.

U periodu pre globalne finansijske krize 2008. godine, ovaj model je omogućio rast, ali i akumulaciju makroekonomskih neravnoteža. Grčka, Portugal i Italija su povećavale nivo javnog duga, dok su Španija i Irska usmerile značajan deo zaduživanja u sektor nekretnina, što je doprinelo formiranju imovinskih balona (Lane, 2012; European Commission, 2015).

Istovremeno, finansijske institucije iz razvijenih ekonomija, posebno Nemačke i Francuske, intenzivno su kreditirale periferne članice Evrozone, čime je dodatno produbljena finansijska međuzavisnost unutar monetarne unije (Baldwin & Giavazzi, 2015). Ova visoka integrisanost finansijskog sistema povećala je sistemski rizik u slučaju poremećaja likvidnosti.

Globalna finansijska kriza 2008. godine izazvala je nagli prekid međunarodnih kreditnih tokova i povlačenje kapitala sa rizičnih tržišta. Time je otežano refinansiranje javnog duga u visoko zaduženim državama, što je dovelo do dužničke krize u pojedinim članicama Evrozone (Lane, 2012).

Grčka je u tom periodu izgubila pristup finansijskim tržištima, jer je javni dug premašio 150% BDP-a, dok je fiskalni deficit postao strukturno neodrživ (European Commission, 2015; Eurostat, 2025). Slični problemi pojavili su se i u drugim zemljama periferije Evrozona.

Savremeni podaci ukazuju da je nakon kriznog perioda javni dug Evrozona stabilizovan, ali na relativno visokom nivou. U 2024. godini, Evrozona je imala javni dug od oko 87% BDP-a, dok je EU u celini imala oko 81% BDP-a (Eurostat, 2025). Ipak, i dalje postoje značajne razlike u fiskalnoj poziciji između država članica, što ukazuje na trajne strukturne neravnoteže (Prača, Krstić, Božić, 2024).

Kriza javnog duga u Evrozoni potvrđuje da monetarna unija bez adekvatno razvijene fiskalne unije stvara institucionalnu asimetriju i makroekonomsku nestabilnost. Dok centralizovana monetarna politika obezbeđuje stabilnost cena i likvidnosti, decentralizovana fiskalna politika omogućava divergentno zaduživanje i različite nivoe fiskalne discipline među državama članicama (De Grauwe, 2018; Buti & Carnot, 2018).

2. Mere evropske unije za smanjenje javnog duga

Tokom dužničke krize u Evrozoni, posebno nakon 2010. godine, ključnu ulogu u stabilizaciji finansijskog sistema imala je Nemačka kao ekonomski najjača članica Evropske unije. Njena fiskalna i politička težina omogućila je koordinisanu finansijsku podršku državama koje su se suočile sa krizom javnog duga, pre svega Grčkoj, Portugalu, Irskoj i delimično Italiji (Baldwin & Giavazzi, 2015). Ova podrška bila je uslovljena sprovođenjem mera fiskalne konsolidacije, poznatih kao „austerity measures“, koje su podrazumevale smanjenje javne potrošnje, ograničavanje budžetskih deficita i jačanje fiskalne discipline. Iako su ove mere bile usmerene ka dugoročnoj stabilizaciji javnih finansija, u kratkom roku su izazvale značajne negativne makroekonomske i socijalne efekte (Buti & Carnot, 2018).

U maju 2010. godine, Evropska komisija je odobrila prvi paket pomoći poznat kao Greek Loan Facility (GLF) (European Commission, 2010). U okviru ovog programa Grčkoj je odobrena finansijska pomoć u iznosu od 110 milijardi evra, pri čemu je 80 milijardi obezbedila Evrozona, a 30 milijardi Međunarodni monetarni fond (IMF, 2011). Kamatne stope u okviru ovog

aranžmana kretale su se oko 5–5,5%, što je predstavljalo kombinaciju fiskalne podrške i tržišne discipline. Već 2011. godine postalo je jasno da inicijalne mere nisu dovoljne za stabilizaciju javnih finansija, što je dovelo do novih intervencija. Grčkoj je odobreno produženje roka otplate i smanjenje efektivnog kamatnog opterećenja na oko 3,5%, čime je pokušano ublažavanje kratkoročnog fiskalnog pritiska (European Commission, 2011). U narednoj fazi krize sprovedeno je i značajno restrukturiranje duga kroz Private Sector Involvement (PSI), kojim je privatnim poveriocima nametnut otpis oko 50% nominalne vrednosti potraživanja (European Commission, 2012).

Iako su mere fiskalne konsolidacije bile usmerene na stabilizaciju javnog duga, one su imale izražen kontrakcioni efekat na ekonomsku aktivnost. Smanjenje javne potrošnje, u uslovima kada država predstavlja ključnog agregatnog potrošača, dovodi do pada ukupne tražnje, zaposlenosti i dohotka stanovništva (Miljković, 2022). Posebno su pogođeni zaposleni u javnom sektoru kroz smanjenje plata, racionalizaciju radnih mesta i reforme penzionih sistema, što je doprinelo porastu socijalnih tenzija i političke nestabilnosti u pojedinim državama članicama.

Jedan od ključnih problema mera štednje jeste njihova prociklična priroda. Smanjenje javne potrošnje u periodu recesije dodatno produbljuje pad ekonomske aktivnosti, što direktno utiče na smanjenje poreske osnovice i budžetskih prihoda (Lane, 2012). Kako većina javnih prihoda potiče iz poreza na dohodak, potrošnju i dobit, pad ekonomske aktivnosti automatski smanjuje fiskalne prihode države. Na taj način nastaje paradoks fiskalne konsolidacije: nominalno smanjenje rashoda ne mora dovesti do poboljšanja fiskalnog salda, već može čak povećati deficit kroz pad prihoda (Buti & Carnot, 2018).

Za razliku od kriznih ekonomija, Nemačka je u istom periodu zadržala stabilan fiskalni okvir. Odnos javnog duga i BDP-a pokazao je tendenciju postepenog smanjenja nakon 2010. godine, sa približno 81% na oko 71% do 2015. godine, što ukazuje na visoku fiskalnu disciplinu i otpornost na eksterne šokove (Eurostat, 2025). Ovaj kontrast između fiskalno stabilnih i nestabilnih ekonomija dodatno je naglasio strukturne razlike unutar Evrozone i različite kapacitete država članica za sprovođenje fiskalne politike.

Mere Evropske unije za upravljanje krizom javnog duga bile su zasnovane na kombinaciji finansijske pomoći i fiskalne konsolidacije. Iako su kratkoročno stabilizovale finansijske sisteme

pogođenih država, one su istovremeno razotkrile duboke strukturne slabosti u institucionalnoj arhitekturi Evrozone (Milojević, Milanović, 2025). Ključni problem ostaje neusklađenost između centralizovane monetarne politike i decentralizovane fiskalne politike, što ograničava efikasnost kriznog menadžmenta i povećava rizik od ponavljanja dužničkih kriza u budućnosti (De Grauwe, 2018; Baldwin & Giavazzi, 2015).

3. Kulturne razlike unutar Evropske unije

Analiza mera za smanjenje javnog duga u Evropskoj uniji zahteva razumevanje kulturnih i institucionalnih razlika između država članica, jer one značajno oblikuju fiskalno ponašanje, poresku disciplinu i makroekonomsku stabilnost Evrozone. Empirijska istraživanja pokazuju da institucionalni kvalitet i nivo fiskalne odgovornosti imaju direktan uticaj na održivost javnog duga i otpornost na eksterne šokove (Alesina & Ardagna, 2010; Blanchard, Leandro, & Zettelmeyer, 2021).

Nemačka se u ekonomskoj literaturi često navodi kao primer fiskalno disciplinovane ekonomije, sa dugoročno uravnoteženim javnim finansijama. Ovakav institucionalni okvir rezultat je istorijskog iskustva hiperinflacije, što je dovelo do snažne orijentacije ka monetarnoj stabilnosti, kontroli inflacije i ograničenju javne potrošnje (European Commission, 2015; Eichengreen & Temin, 2010). Dodatno, visoka poreska disciplina i produžen radni vek doprinose fiskalnoj održivosti i stabilnosti penzionog sistema, što potvrđuju i komparativne analize fiskalnih sistema u EU (Heinemann, 2026).

Nasuprot tome, Grčka i druge južnoevropske zemlje suočavaju se sa dugoročnim strukturnim slabostima u poreskoj administraciji i fiskalnoj disciplini. Posebno se ističe visoka poreska evazija i siva ekonomija, koje značajno umanjuju fiskalne prihode i ograničavaju sposobnost države da finansira javne usluge (OECD, 2019; Schneider & Enste, 2013). Ovi problemi su postojali i pre krize, ali su postali izraženiji nakon uvođenja evra, kada je pristup jeftinom kapitalu smanjio pritisak na fiskalnu odgovornost (Afonso, Arghyrou, & Kontonikas, 2015).

U okviru Evrozone, institucionalna asimetrija između centralizovane monetarne politike i decentralizovanih fiskalnih politika predstavlja ključni strukturni problem. Evropska centralna banka upravlja monetarnim instrumentima, dok države članice

samostalno određuju budžetsku potrošnju i zaduživanje, što dovodi do divergentnih fiskalnih ishoda (De Grauwe, 2013; Lane, 2012). Empirijska istraživanja potvrđuju da ovakva struktura povećava ranjivost monetarne unije u uslovima asimetričnih šokova (Baldwin & Giavazzi, 2015).

Tokom krize javnog duga, Nemačka je zagovarala politiku fiskalne konsolidacije i strukturnih reformi kao uslov za finansijsku pomoć. Ovaj pristup je bio zasnovan na teoriji da fiskalna disciplina povećava poverenje tržišta i smanjuje rizik od dužničke krize (Alesina & Perotti, 1996; Kuester, et al., 2012). Međutim, brojna istraživanja ukazuju da mere štednje u kratkom roku mogu imati kontrakcione efekte na ekonomski rast i zaposlenost, posebno u visoko zaduženim ekonomijama (Blanchard & Leigh, 2013).

Iako su ekonomije periferije Evrozone relativno male u odnosu na ukupni BDP EU, visok stepen finansijske integracije doveo je do snažnog prenosa rizika između država. Bankarski sistem Evrozone pokazao je visok nivo međuzavisnosti, što je omogućilo brzo širenje finansijskih šokova (Battistini, Pagano, & Simonelli, 2014). Ovaj fenomen potvrđuje da problemi jedne države mogu imati sistemske posledice po celu monetarnu uniju.

Zbog toga se kulturne i institucionalne razlike između severnih i južnih članica Evrozone ne mogu posmatrati samo kao sociološka pojava, već kao ključni determinanti fiskalne stabilnosti i održivosti javnog duga (Rudić, 2025). Savremena literatura naglašava da bez fiskalne koordinacije i jačanja zajedničkih fiskalnih mehanizama, monetarna unija ostaje strukturno ranjiva na buduće dužničke krize (Bénassy-Quéré et al., 2018; Wyplosz, 2011).

4.Potreba za stvaranjem fiskalne unije

Mere fiskalne konsolidacije koje su primenjene u zemljama pogođenim krizom javnog duga, kao što su Grčka, Portugal, Španija i Italija, mogu u određenoj meri doprineti kratkoročnoj stabilizaciji javnih finansija kroz smanjenje budžetskih deficita i ograničavanje zaduživanja na međunarodnim tržištima kapitala. Ipak, iako ovakve mere mogu poboljšati fiskalne pokazatelje u kratkom roku, one ne otklanjaju strukturne uzroke fiskalne nestabilnosti unutar Evrozone, koji su povezani sa institucionalnim dizajnom monetarne unije i razlikama u fiskalnoj disciplini između država članica (Blanchard & Leigh, 2013; Miljković, 2022).

Financijska pomoć ekonomski najjačih država, pre svega Nemačke, imala je ključnu ulogu u sprečavanju produbljivanja dužničke krize i potencijalnog kolapsa finansijskog sistema Evropske unije. Međutim, ovakav pristup ostaje pretežno reaktivan, jer ne obezbeđuje trajno institucionalno rešenje za prevenciju budućih fiskalnih neravnoteža i kriza javnog duga (European Commission, 2015; Baldwin & Giavazzi, 2015).

Osnovni strukturni problem Evrozone ogleda se u neusklađenosti između centralizovane monetarne politike i decentralizovanih fiskalnih politika (Mirković, 2025). Dok Evropska centralna banka vodi zajedničku monetarnu politiku, fiskalne odluke ostaju u nadležnosti nacionalnih vlada, što omogućava divergenciju u budžetskim politikama, nivou javne potrošnje i zaduživanja (De Grauwe, 2013; Lane, 2012). Empirijska istraživanja ukazuju da ovakav institucionalni aranžman povećava ranjivost monetarne unije na asimetrične šokove i fiskalne krize (Afonso, Arghyrou, & Kontonikas, 2015).

U takvom okviru postoji rizik da države članice ponovo usvoje ekspanzivne fiskalne politike, oslanjajući se na povoljne uslove finansiranja koje obezbeđuje zajednička valuta. Time se stvara strukturna mogućnost ponavljanja problema prekomernog zaduživanja, posebno u odsustvu centralizovanih mehanizama fiskalne kontrole i koordinacije.

Zbog toga se u savremenoj ekonomskoj literaturi sve češće ističe potreba za uspostavljanjem fiskalne unije kao logičnog nastavka monetarne integracije. Fiskalna unija bi podrazumevala postojanje nadnacionalne institucije sa ovlašćenjima da definiše fiskalna pravila, kontroliše budžetske deficite, ograničava nivo javnog duga i primenjuje sankcije u slučaju nepoštovanja zajedničkih fiskalnih okvira (Bénassy-Quéré et al., 2018; Wyplosz, 2011).

Takav institucionalni okvir mogao bi značajno da smanji prostor za fiskalnu neodgovornost pojedinačnih država i doprinese većoj stabilnosti monetarne unije. Međutim, uspostavljanje fiskalne unije predstavlja politički i ekonomski kompleksan proces, jer zahteva prenos dela fiskalnog suvereniteta sa nacionalnog na nadnacionalni nivo (European Commission, 2015).

U teorijskom smislu, dublja fiskalna integracija mogla bi voditi ka višem stepenu političko-ekonomske unije, često označenom kao koncept „Sjedinjenih Evropskih Država“. Iako ovaj model ostaje politički kontroverzan, u ekonomskoj literaturi se razmatra kao potencijalno rešenje za dugoročnu stabilnost zajedničke valute i

smanjenje sistemskih rizika (Kuester, et al., 2012).

Evropska unija je kroz proces ekonomske integracije ostvarila značajne rezultate, posebno kroz uspostavljanje jedinstvenog tržišta i zajedničke valute. Međutim, kriza javnog duga je pokazala da bez fiskalne koordinacije postoji strukturna neravnoteža između monetarne i fiskalne dimenzije sistema.

Zbog toga savremene analize naglašavaju da bi jačanje zajedničkih fiskalnih mehanizama moglo doprineti efikasnijem upravljanju javnim finansijama i smanjenju rizika od budućih dužničkih kriza. U suprotnom, asimetrična fiskalna struktura može nastaviti da generiše budžetske deficite i rast javnog duga u pojedinim državama članicama (Blanchard et al., 2021; Miljković, 2022).

Zaključak

Evropa je kroz svoju istoriju bila obeležena čestim ratnim sukobima i političkom fragmentacijom, što je dugoročno negativno uticalo na ekonomski razvoj kontinenta. U takvim okolnostima, ekonomska saradnja između država bila je ograničena, dok su trgovinske barijere i postojanje različitih nacionalnih valuta dodatno usporavale razvoj međusobne trgovine i investicija.

Proces evropske integracije, koji je rezultirao stvaranjem Evropske unije, postepeno je otklanjao ove prepreke i omogućio intenziviranje ekonomskih odnosa između država članica. Uvođenje zajedničkog tržišta i kasnije zajedničke valute – evra – predstavljao je značajan institucionalni iskorak ka dubljoj ekonomskoj integraciji.

Uspostavljanje evra kao zajedničke valute doprinelo je smanjenju transakcionih troškova, olakšanom kretanju kapitala, investicija i roba, kao i većoj finansijskoj integraciji. Istovremeno, različiti nivoi ekonomske razvijenosti država članica, u kombinaciji sa zajedničkom monetarnom politikom, doveli su do pada kamatnih stopa i lakšeg pristupa finansijskim tržištima. Ovi faktori su u početnoj fazi doprineli rastu ekonomije, ali i značajnoj akumulaciji javnog duga u pojedinim državama članicama.

Kriza javnog duga, koja je najizraženije pogodila Grčku, ali i druge zemlje poput Portugala, Italije, Španije i Irske, pokazala je posledice prekomernog zaduživanja bez adekvatne fiskalne discipline. Iako su ove zemlje imale različite ekonomske strukture, zajednički imenitelj bio je rast javnog duga i nemogućnost njegovog

održivog servisiranja.

U odgovoru na krizu, institucije Evropske unije, zajedno sa međunarodnim finansijskim organizacijama, preduzele su niz mera finansijske pomoći i fiskalne konsolidacije. Ove mere uključivale su kreditne aranžmane, programe restrukturiranja duga, reforme poreskih sistema i mere za smanjenje javne potrošnje. Iako su bile ekonomski nužne, ove politike su često imale negativne socijalne i političke posledice.

Ključni strukturni problem koji je kriza razotkrila jeste neusklađenost između centralizovane monetarne politike i decentralizovanih fiskalnih politika država članica. Dok Evropska centralna banka vodi jedinstvenu monetarnu politiku, fiskalna politika ostaje u nadležnosti nacionalnih vlada, što stvara prostor za makroekonomske neravnoteže i divergentno zaduživanje.

Zbog toga se sve češće ističe potreba za dubljom fiskalnom integracijom, odnosno stvaranjem fiskalne unije na nivou Evropske unije. Takva institucija bi omogućila koordinaciju budžetskih politika, ograničavanje prekomernog zaduživanja, veću fiskalnu disciplinu i efikasnije upravljanje zajedničkim ekonomskim rizicima.

U konačnici, iskustvo krize javnog duga pokazuje da dugoročna stabilnost Evrozone zavisi od boljeg usklađivanja monetarne i fiskalne politike. Bez institucionalnog unapređenja u pravcu fiskalne integracije, ostaje prisutan rizik od ponavljanja sličnih kriza koje mogu ugroziti stabilnost zajedničke valute i celokupnog evropskog ekonomskog sistema.

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MONETARY–FISCAL INTERACTION AND PUBLIC DEBT IN THE EUROPEAN UNION UNDER CONDITIONS OF THE GLOBAL ECONOMIC CRISIS

Review paper

Summary

The paper analyzes the relationship between monetary and fiscal policy in the European Union, with particular focus on the public debt crisis in member states in the context of the global economic crisis of 2008. The introduction of the common euro currency contributed to deeper economic integration, lower transaction costs, and easier access to capital, but at the same time created a structural asymmetry between centralized monetary policy and decentralized fiscal policies of the member states. This mismatch allowed public debt to grow in some countries, particularly Greece, Portugal, Spain, Ireland, and Italy.

The global financial crisis of 2008 exposed the weaknesses of this institutional framework, leading to disruptions in credit flows, problems with debt refinancing, and the need for interventions by the European Union and international financial institutions. Fiscal consolidation measures and financial assistance temporarily stabilized the situation, but at the same time pointed to the long-term problem of insufficient fiscal coordination within the Eurozone.

The paper concludes that the long-term stability of the common currency requires better coordination between monetary and fiscal policy, with the establishment of a fiscal union at the European Union level highlighted as a potential solution.

Keywords: European Union, public debt, monetary policy, fiscal policy, Eurozone.

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Introduction

Throughout its history, Europe has been marked by long periods of armed conflicts that affected different parts of the continent and led to significant loss of life, destruction of cities, as well as the collapse of states and empires. Under such circumstances, economic cooperation between countries was limited, while trade barriers, tariffs, and the existence of different national currencies further slowed down economic development and the integration of European economies (Baldwin & Wyplosz, 2022).

In such a fragmented system, international transactions were burdened by high currency conversion costs and additional fees for cross-border payments, which reduced trade efficiency and increased transaction costs. This structure of the European economy resulted in low interdependence between markets and limited economic growth (De Grauwe, 2018).

After the Second World War, Europe faced the devastating consequences of the destruction of its industrial base, infrastructure, and economic capacities. In order to achieve rapid economic recovery, European countries began a process of institutional and economic integration based on the removal of trade barriers, liberalization of capital movements, and strengthening of mutual economic cooperation (European Commission, 2015).

This process gradually led to the creation of the concept of a united Europe, whose main goal was to ensure long-term peace through the economic interdependence of member states (Moravcsik, 1998). As a result, trade and customs barriers were significantly reduced, which contributed to lower business costs and intensified economic exchange.

A key political and economic step in this process was the fall of the Berlin Wall, which marked the end of the division of Europe and opened the way for further institutional unification. This was followed by the signing of the Maastricht Treaty in 1992, which formally established the European Union and entered into force in 1993 (European Union, 1992).

In the next phase of integration, one of the major challenges was the existence of different national currencies, which made the efficient functioning of the single market more difficult. In response to this problem, the euro was introduced in 1999 as the common currency within the Eurozone, transferring a significant part of the

monetary sovereignty of the member states to the European Central Bank (ECB) (De Grauwe, 2018).

This process established a single monetary policy at the Eurozone level, while fiscal policy remained under the responsibility of individual member states. Such institutional asymmetry between centralized monetary policy and decentralized fiscal policy represented one of the key structural causes of the later public debt crisis in the European Union (Lane, 2012).

Namely, while the European Central Bank controls the money supply and interest rates at the Eurozone level, member states independently decide on budget spending, taxation, and borrowing. This mismatch allowed some countries to take advantage of favorable borrowing conditions without adequate fiscal discipline, which in the long term led to the accumulation of high public debt and an increase in macroeconomic imbalances (Lane, 2012; Baldwin & Giavazzi, 2015).

In this sense, the institutional design of the Eurozone, although it contributed to monetary stability and market integration, also created systemic vulnerability, which became particularly evident during the global financial crisis of 2008. The crisis showed that the mismatch between a common monetary policy and national fiscal policies can lead to serious fiscal imbalances and threaten the stability of the entire European financial system (Baldwin & Giavazzi, 2015; European Commission, 2012).

1. Monetary policy versus Fiscal policy

Understanding the relationship between monetary and fiscal policy is essential for analyzing the emergence and development of the public debt crisis in the European Union. Monetary policy involves managing the amount of money in circulation and setting key interest rates, whereby the central bank influences the cost of borrowing, inflation, and overall liquidity in the economy (De Grauwe, 2018). In contrast, fiscal policy covers government decisions on public revenues and expenditures, including tax policy, government spending, and the level of public borrowing.

At the Eurozone level, monetary policy is centralized within the European Central Bank, while fiscal policies remain under the responsibility of national governments. This institutional asymmetry represents one of the key structural problems of the monetary union,

as it allows differences in the fiscal behavior of member states (Lane, 2012; Buti & Carnot, 2018).

Recent macroeconomic data show that public debt in the Eurozone remained at a high but relatively stable level after the pandemic period. In 2024, public debt in the Eurozone amounted to around 87% of GDP, while in the European Union it was around 81% of GDP, indicating that member states still have limited fiscal space (Eurostat, 2025; European Commission, 2024).

Before the introduction of the euro, countries such as Greece faced significantly higher borrowing costs, with interest rates exceeding 15% in some periods, while access to international capital was strictly limited and dependent on the perception of fiscal risk (European Commission, 2015). With entry into the Eurozone, interest rates converged, and borrowing costs in peripheral countries came closer to those of developed economies such as Germany, which led to a reduction in the market perception of risk (De Grauwe, 2018).

This change enabled more expansionary fiscal policy in several member states. Cheap capital led to increased public spending, expansion of social transfers, and growing budget deficits, which were increasingly financed through borrowing (Buti & Carnot, 2018). Under such conditions, fiscal discipline weakened, especially in countries with structural weaknesses in public finances.

In the period before the global financial crisis of 2008, this model enabled economic growth, but also the accumulation of macroeconomic imbalances. Greece, Portugal, and Italy increased their levels of public debt, while Spain and Ireland directed a significant part of their borrowing into the real estate sector, which contributed to the formation of asset bubbles (Lane, 2012; European Commission, 2015).

At the same time, financial institutions from developed economies, especially Germany and France, were heavily lending to the peripheral members of the Eurozone, which further deepened financial interdependence within the monetary union (Baldwin & Giavazzi, 2015). This high level of financial integration increased systemic risk in the event of liquidity disruptions.

The global financial crisis of 2008 caused a sudden interruption of international credit flows and a withdrawal of capital from riskier markets. This made refinancing public debt more difficult in highly indebted countries, leading to a debt crisis in some Eurozone member states (Lane, 2012).

During this period, Greece lost access to financial markets because public debt exceeded 150% of GDP, while the fiscal deficit became structurally unsustainable (European Commission, 2015; Eurostat, 2025). Similar problems emerged in other peripheral Eurozone countries as well.

Recent data indicate that after the crisis period, public debt in the Eurozone stabilized, but remained at a relatively high level. In 2024, the Eurozone had public debt of around 87% of GDP, while the EU as a whole had around 81% of GDP (Eurostat, 2025). However, significant differences in the fiscal position of member states still remain, indicating persistent structural imbalances (Praća, Krstić, Božić, 2024).

The public debt crisis in the Eurozone confirms that a monetary union without a sufficiently developed fiscal union creates institutional asymmetry and macroeconomic instability. While centralized monetary policy provides price and liquidity stability, decentralized fiscal policy enables divergent borrowing and different levels of fiscal discipline among member states (De Grauwe, 2018; Buti & Carnot, 2018).

2. European Union measures to reduce public debt

During the Eurozone debt crisis, particularly after 2010, Germany, as the economically strongest member of the European Union, played a key role in stabilizing the financial system. Its fiscal and political weight enabled coordinated financial support for countries facing public debt crises, primarily Greece, Portugal, Ireland, and, to some extent, Italy (Baldwin & Giavazzi, 2015). This support was conditional on the implementation of fiscal consolidation measures, known as “austerity measures”, which included reducing public spending, limiting budget deficits, and strengthening fiscal discipline. Although these measures were aimed at the long-term stabilization of public finances, in the short term they caused significant negative macroeconomic and social effects (Buti & Carnot, 2018).

In May 2010, the European Commission approved the first assistance package, known as the Greek Loan Facility (GLF) (European Commission, 2010). Under this program, Greece was granted financial assistance of EUR 110 billion, of which EUR 80 billion was provided by the Eurozone and EUR 30 billion by the International Monetary Fund (IMF, 2011). Interest rates under this

arrangement were around 5–5.5%, representing a combination of fiscal support and market discipline. By 2011, it became clear that the initial measures were not sufficient to stabilize public finances and that led to further interventions. Greece was granted an extension of the repayment period and a reduction in the effective interest burden to around 3.5%, in an attempt to ease short-term fiscal pressure (European Commission, 2011). In the next phase of the crisis, significant debt restructuring was also carried out through Private Sector Involvement (PSI), under which private creditors were required to write off around 50% of the nominal value of their claims (European Commission, 2012).

Although fiscal consolidation measures were aimed at stabilizing public debt, they had a pronounced contractionary effect on economic activity. A reduction in public spending, under conditions where the government represents a key aggregate consumer, leads to a decline in aggregate demand, employment, and household income (Miljković, 2022). Public sector employees were particularly affected through wage reductions, job rationalization, and pension system reforms, which contributed to increased social tensions and political instability in some member states.

One of the key problems with austerity measures is their procyclical nature. Reducing public spending during a recession further deepens the decline in economic activity, which directly affects the reduction of the tax base and government revenues (Lane, 2012). Since most public revenues come from taxes on income, consumption, and profits, a decline in economic activity automatically reduces government fiscal revenues. This creates a paradox of fiscal consolidation: a nominal reduction in expenditures does not necessarily lead to an improvement in the fiscal balance, but may even increase the deficit through a decline in revenues (Buti & Carnot, 2018).

Unlike the crisis-hit economies, Germany maintained a stable fiscal framework during the same period. The public debt-to-GDP ratio showed a gradual downward trend after 2010, falling from approximately 81% to around 71% by 2015, which indicates a high level of fiscal discipline and resilience to external shocks (Eurostat, 2025). This contrast between fiscally stable and unstable economies further highlighted the structural differences within the Eurozone and the different capacities of member states to implement fiscal policy.

The European Union's measures to manage the public debt crisis were based on a combination of financial assistance and fiscal consolidation. Although they stabilized the financial systems of the affected countries in the short term, they also exposed deep structural weaknesses in the institutional architecture of the Eurozone (Milojević, Milanović, 2025). The key problem remains the mismatch between centralized monetary policy and decentralized fiscal policy, which limits the effectiveness of crisis management and increases the risk of future debt crises (De Grauwe, 2018; Baldwin & Giavazzi, 2015).

3. Cultural differences within the European Union

An analysis of measures to reduce public debt in the European Union requires an understanding of the cultural and institutional differences between member states, as these significantly shape fiscal behavior, tax discipline, and the macroeconomic stability of the Eurozone. Empirical research shows that institutional quality and the level of fiscal responsibility have a direct impact on the sustainability of public debt and resilience to external shocks (Alesina & Ardagna, 2010; Blanchard, Leandro, & Zettelmeyer, 2021).

Germany is often cited in the economic literature as an example of a fiscally disciplined economy, with balanced public finances over the long term. This kind of institutional framework is the result of the historical experience of hyperinflation, which led to a strong orientation towards monetary stability, inflation control and limitation of public spending. (European Commission, 2015; Eichengreen & Temin, 2010). In addition, high tax discipline and longer working lives contribute to fiscal sustainability and the stability of the pension system, as confirmed by comparative analyses of fiscal systems in the EU (Heinemann, 2026).

In contrast, Greece and other Southern European countries face long-term structural weaknesses in tax administration and fiscal discipline. High tax evasion and the shadow economy are particularly notable, as they significantly reduce fiscal revenues and limit the state's ability to finance public services (OECD, 2019; Schneider & Enste, 2013). These problems existed even before the crisis, but they became more pronounced after the introduction of the euro, when access to cheap capital reduced the pressure for fiscal responsibility (Afonso, Arghyrou, & Kontonikas, 2015).

Within the Eurozone, the institutional asymmetry between centralized monetary policy and decentralized fiscal policies represents a key structural problem. The European Central Bank manages monetary instruments, while member states independently determine public spending and borrowing, which leads to divergent fiscal outcomes (De Grauwe, 2013; Lane, 2012). Empirical research confirms that such a structure increases the vulnerability of the monetary union under conditions of asymmetric shocks (Baldwin & Giavazzi, 2015).

During the public debt crisis, Germany advocated fiscal consolidation and structural reforms as a condition for financial assistance. This approach was based on the theory that fiscal discipline increases market confidence and reduces the risk of a debt crisis (Alesina & Perotti, 1996; Kuester et al., 2012). However, numerous studies indicate that austerity measures can have contractionary effects on economic growth and employment in the short term, especially in highly indebted economies (Blanchard & Leigh, 2013).

Although the economies of the Eurozone periphery are relatively small compared to the total EU GDP, the high level of financial integration led to strong risk transmission between countries. The Eurozone banking system showed a high level of interdependence, which enabled financial shocks to spread rapidly (Battistini, Pagano, & Simonelli, 2014). This phenomenon confirms that problems in one country can have systemic consequences for the entire monetary union.

Therefore, cultural and institutional differences between the northern and southern members of the Eurozone cannot be viewed only as a sociological phenomenon, but as key determinants of fiscal stability and public debt sustainability (Rudić, 2025). Contemporary literature emphasizes that without fiscal coordination and the strengthening of common fiscal mechanisms, the monetary union remains structurally vulnerable to future debt crises (Bénassy-Quéré et al., 2018; Wyplosz, 2011).

4. The need for the creation of a fiscal union

Fiscal consolidation measures applied in countries affected by the public debt crisis, such as Greece, Portugal, Spain, and Italy, can to some extent contribute to the short-term stabilization of public finances by reducing budget deficits and limiting borrowing

in international capital markets. However, although such measures can improve fiscal indicators in the short term, they do not eliminate the structural causes of fiscal instability within the Eurozone, which are related to the institutional design of the monetary union and differences in fiscal discipline among member states (Blanchard & Leigh, 2013; Miljković, 2022).

Financial assistance from the economically strongest countries, primarily Germany, played a key role in preventing the deepening of the debt crisis and the potential collapse of the financial system of the European Union. However, this approach remains largely reactive, as it does not provide a permanent institutional solution for preventing future fiscal imbalances and public debt crises (European Commission, 2015; Baldwin & Giavazzi, 2015).

The basic structural problem of the Eurozone lies in the mismatch between centralized monetary policy and decentralized fiscal policies (Mirković, 2025). While the European Central Bank conducts a common monetary policy, fiscal decisions remain under the responsibility of national governments, which allows differences in budgetary policies, the level of public spending, and borrowing (De Grauwe, 2013; Lane, 2012). Empirical research indicates that such an institutional arrangement increases the vulnerability of the monetary union to asymmetric shocks and fiscal crises (Afonso, Arghyrou, & Kantonikas, 2015).

Within such a framework, there is a risk that member states may again adopt expansionary fiscal policies, relying on the favorable financing conditions provided by the common currency. This creates a structural possibility of recurring excessive borrowing problems, particularly in the absence of centralized mechanisms for fiscal control and coordination.

For this reason, modern economic literature increasingly emphasizes the need to establish a fiscal union as a logical continuation of monetary integration. A fiscal union would imply the existence of a supranational institution with the authority to define fiscal rules, control budget deficits, limit the level of public debt, and impose sanctions in cases of non-compliance with common fiscal frameworks (Bénassy-Quéré et al., 2018; Wyplosz, 2011).

Such an institutional framework could significantly reduce the room for fiscal irresponsibility by individual countries and contribute to greater stability of the monetary union. However,

establishing a fiscal union would be a politically and economically complex process, as it would require the transfer of part of fiscal sovereignty from the national to the supranational level (European Commission, 2015).

In theoretical terms, deeper fiscal integration could lead to a higher level of political and economic union, often referred to as the concept of a “United States of Europe”. Although this model remains politically controversial, it is considered in the economic literature as a potential solution for the long-term stability of the common currency and the reduction of systemic risks (Kuester et al., 2012).

The European Union has achieved significant results through the process of economic integration, particularly through the establishment of the single market and the common currency. However, the public debt crisis showed that without fiscal coordination, there is a structural imbalance between the monetary and fiscal dimensions of the system.

For this reason, recent analyses emphasize that strengthening common fiscal mechanisms could contribute to more effective management of public finances and reduce the risk of future debt crises. Otherwise, the asymmetric fiscal structure may continue to generate budget deficits and an increase in public debt in some member states (Blanchard et al., 2021; Miljković, 2022).

Conclusion

Europe has throughout its history been marked by frequent armed conflicts and political fragmentation, which had a long-term negative impact on the continent’s economic development. Under such circumstances, economic cooperation between countries was limited, while trade barriers and the existence of different national currencies further slowed the development of trade and investment between countries.

The process of European integration, which resulted in the creation of the European Union, gradually removed these obstacles and enabled the intensification of economic relations between member states. The introduction of the single market and later the common currency – the euro – represented a significant institutional step towards deeper economic integration.

The establishment of the euro as a common currency contributed to lower transaction costs, easier movement of capital,

investment, and goods, as well as greater financial integration. At the same time, different levels of economic development among member states, combined with a common monetary policy, led to lower interest rates and easier access to financial markets. These factors initially contributed to economic growth, but also to significant accumulation of public debt in some member states.

The public debt crisis, which most severely affected Greece, but also other countries such as Portugal, Italy, Spain, and Ireland, showed the consequences of excessive borrowing without adequate fiscal discipline. Although these countries had different economic structures, their common feature was the growth of public debt and the inability to service it in a sustainable manner.

In response to the crisis, the institutions of the European Union, together with international financial organizations, implemented a series of financial assistance and fiscal consolidation measures. These measures included loan arrangements, debt restructuring programs, tax system reforms, and measures to reduce public spending. Although economically necessary, these policies often had negative social and political consequences.

The key structural problem revealed by the crisis is the mismatch between centralized monetary policy and decentralized fiscal policies of the member states. While the European Central Bank conducts a single monetary policy, fiscal policy remains under the responsibility of national governments, creating room for macroeconomic imbalances and divergent borrowing.

For this reason, the need for deeper fiscal integration, that is, the creation of a fiscal union at the European Union level, is increasingly emphasized. Such an institution would enable coordination of budgetary policies, limit excessive borrowing, strengthen fiscal discipline, and allow for more effective management of common economic risks.

Ultimately, the experience of the public debt crisis shows that the long-term stability of the Eurozone depends on better coordination between monetary and fiscal policy. Without institutional improvements towards greater fiscal integration, there remains a risk of similar crises occurring again, which could threaten the stability of the common currency and the European economic system as a whole.

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SAVREMENI MODELI POZICIONIRANJA FNANSIJSKIH MENADŽERA

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Pregledni rad

Rezime

Savremeno poslovanje odvija se u uslovima brzih promena koje su posledica globalizacije, digitalne transformacije, razvoja informacionih tehnologija i sve izraženije neizvesnosti na tržištu. U takvom okruženju uloga finansijskih menadžera značajno je proširena. Pored tradicionalnih zadataka, kao što su finansijsko izveštavanje, kontrola troškova i upravljanje novčanim tokovima, oni danas aktivno učestvuju u kreiranju poslovne strategije, upravljanju rizicima i donošenju važnih investicionih odluka.

Položaj finansijskih menadžera u organizaciji zavisi od različitih faktora, među kojima se izdvajaju veličina preduzeća, organizaciona struktura, vlasnički model i delatnost kojom se kompanija bavi. Predmet ovog rada jeste analiza modela njihovog pozicioniranja, nadležnosti koje obavljaju i doprinosa koji ostvaruju u unapređenju poslovnih rezultata organizacije.

Posebna pažnja posvećena je promenama finansijske funkcije u uslovima digitalizacije, primeni analitike podataka i razvoju strateške uloge finansijskih menadžera u savremenim kompanijama. Brojna istraživanja ukazuju na to da finansijski menadžeri sve češće imaju ulogu strateških partnera izvršnog menadžmenta, zbog čega njihov uticaj na konkurentnost, održivi razvoj i dugoročni uspeh organizacije postaje znatno izraženiji nego što je bio u tradicionalnim modelima upravljanja.

Ključne reči: upravljanje finansijama, finansijski direktor, organizacioni modeli, strateško upravljanje, digitalizacija poslovanja.

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Uvod

Poslovno okruženje u XXI veku karakterišu dinamične promene, intenzivna konkurencija, ubrzan tehnološki razvoj i sve veća očekivanja vlasnika kapitala, investitora i drugih zainteresovanih strana. U takvim okolnostima finansijska funkcija doživela je značajnu transformaciju. Nekada je njen primarni zadatak bio vođenje računovodstvene evidencije, kontrola troškova i priprema finansijskih izveštaja, dok danas predstavlja jednu od ključnih funkcija strateškog upravljanja organizacijom (Daft, 2022; Brigham & Ehrhardt, 2022).

Razvoj savremenog finansijskog menadžmenta doveo je do značajnih promena u pozicioniranju finansijskih menadžera u okviru organizacione strukture preduzeća (Halima, 2025). Njihova uloga proširena je na upravljanje investicijama, analizu poslovnih performansi, procenu finansijskih i nefinansijskih rizika, planiranje kapitalne strukture, upravljanje likvidnošću i kreiranje dugoročnih razvojnih strategija. Zbog toga finansijski menadžeri danas aktivno učestvuju u donošenju ključnih poslovnih odluka zajedno sa izvršnim direktorima i članovima upravnih odbora (Gitman et al., 2022; Ross et al., 2022).

Poseban doprinos promeni njihovog položaja dali su digitalna transformacija i razvoj naprednih informacionih sistema. Automatizacijom rutinskih finansijskih poslova finansijskim menadžerima omogućeno je da više vremena posvete analizi podataka, strateškom planiranju i podršci poslovnim odlučivanju. Primena poslovne analitike, veštačke inteligencije i sistema za prediktivno modelovanje doprinosi preciznijim procenama finansijskih tokova i efikasnijem upravljanju organizacionim resursima. Na taj način finansijska funkcija prerasta iz administrativne u stratešku poslovnu funkciju (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025).

Ipak, pozicioniranje finansijskih menadžera nije jednako u svim organizacijama. Ono zavisi od veličine kompanije, vlasničke strukture, organizacionog modela, stepena decentralizacije odlučivanja, industrijske grane i nivoa međunarodnog poslovanja. U manjim preduzećima finansijski menadžeri često obavljaju više različitih funkcija, dok u velikim multinacionalnim kompanijama predstavljaju članove najvišeg menadžmenta odgovorne za upravljanje značajnim finansijskim resursima i kreiranje dugoročne finansijske strategije (Brigham & Ehrhardt, 2022; Ross et al., 2022;

Hiebl et al., 2013).

Predmet ovog rada jeste analiza različitih modela pozicioniranja finansijskih menadžera u savremenim organizacijama. Cilj rada je da se identifikuju osnovni modeli njihovog organizacionog položaja, analiziraju faktori koji utiču na njihove nadležnosti i ukaže na značaj finansijskog menadžmenta u ostvarivanju konkurentске prednosti i održivog razvoja organizacija (Barney & Hesterly, 2021; Engel et al., 2019).

1. Teorijske osnove finansijskog menadžmenta

Finansijski menadžment predstavlja proces planiranja, organizovanja, usmeravanja i kontrole finansijskih resursa organizacije sa ciljem povećanja vrednosti za vlasnike kapitala, uz očuvanje finansijske stabilnosti i održivog razvoja (Ivanović, Čosić, 2025). Njegova osnovna svrha jeste donošenje finansijskih odluka koje omogućavaju optimalno korišćenje raspoloživih sredstava, efikasno upravljanje investicijama i rizicima, kao i ostvarivanje dugoročne profitabilnosti poslovanja (Brigham & Ehrhardt, 2022; Ross et al., 2022; Hiebl et al., 2013).

Prema savremenim teorijama korporativnih finansija, najvažnije odluke finansijskog menadžmenta mogu se svrstati u tri osnovne grupe: investicione odluke, odluke o finansiranju i odluke koje se odnose na raspodelu ostvarene dobiti. Način donošenja ovih odluka direktno utiče na tržišnu vrednost kompanije, njenu konkurentnost i mogućnost dugoročnog razvoja (Gitman et al., 2022; Andreassen, 2020). (Getman, 2025)

U poslednjim godinama finansijski menadžment prerastao je okvire tradicionalne administrativne funkcije i postao važan deo strateškog upravljanja organizacijom. Finansijski menadžeri danas nisu samo odgovorni za kontrolu poslovanja, već aktivno učestvuju u oblikovanju poslovne strategije, razvoju novih poslovnih modela i proceni investicionih mogućnosti (Rothaermel, 2023). Savremena literatura ukazuje da uspešne organizacije povezuju finansijsku funkciju sa strateškim planiranjem, marketingom, operativnim procesima i upravljanjem ljudskim resursima kako bi unapredile ukupne organizacione performanse (Daft, 2022; Barney & Hesterly, 2021).

Položaj finansijskog menadžera zavisi od razvijenosti finansijske funkcije i organizacione strukture preduzeća. U tradicionalnim organizacijama finansijski sektor imao je pre svega kontrolnu ulogu,

dok savremene kompanije finansijskog direktora (Chief Financial Officer – CFO) smatraju jednim od najznačajnijih članova vrhovnog menadžmenta. Pored odgovornosti za finansijsko poslovanje, CFO danas učestvuje u definisanju strategije rasta, sprovođenju organizacionih promena, digitalizaciji poslovnih procesa, unapređenju održivosti i realizaciji razvojnih projekata (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025). (Getman, 2025)

2. Različiti modeli pozicioniranja finansijskih menadžera u organizacijama

Pozicija finansijskog menadžera u organizaciji nije jedinstveno definisana, već zavisi od više faktora, među kojima su veličina kompanije, organizaciona struktura, delatnost, stepen internacionalizacije i faza razvoja preduzeća. U savremenim organizacijama finansijska funkcija evoluirala je od tradicionalne kontrolne uloge do strateškog partnerstva sa najvišim nivoima upravljanja (Hiebl et al., 2013). Zahvaljujući toj transformaciji, finansijski menadžeri danas imaju važnu ulogu u kreiranju poslovne vrednosti i ostvarivanju konkurentске prednosti (Brigham & Ehrhardt, 2022; Daft, 2022).

2.1. Pozicioniranje finansijskih menadžera u malim i srednjim preduzećima

U malim i srednjim preduzećima (MSP) finansijski menadžer najčešće obavlja više međusobno povezanih poslova. Zbog ograničenih resursa jedna osoba može biti zadužena za finansijsko planiranje, računovodstvo, kontrolu troškova, upravljanje likvidnošću, saradnju sa bankama i poresko planiranje (Gitman et al., 2022; Andreassen, 2020).

Kako preduzeće raste, finansijski menadžer postepeno prelazi iz operativne u stratešku ulogu, pružajući podršku vlasnicima i menadžmentu prilikom donošenja odluka o investicijama, razvoju poslovanja i širenju na nova tržišta (Ross et al., 2022; Hiebl et al., 2013).

2.2. Pozicioniranje finansijskih menadžera u velikim kompanijama

U velikim organizacijama finansijski direktor (CFO) predstavlja jednog od ključnih članova izvršnog menadžmenta. Njegove odgovornosti obuhvataju upravljanje kapitalom, finansijsko planiranje, upravljanje rizicima, odnose sa investitorima i podršku strateškom razvoju kompanije (Brigham & Ehrhardt, 2022; Uhde et al., 2017).

Savremeni CFO učestvuje u definisanju poslovnog modela, proceni tržišnih prilika i razvoju dugoročne strategije, dok digitalizacija finansijske funkcije omogućava efikasnije donošenje odluka zasnovanih na podacima (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025).

2.3. Pozicioniranje finansijskih menadžera u multinacionalnim kompanijama

Finansijski menadžeri u multinacionalnim kompanijama odgovorni su za međunarodno finansijsko planiranje, upravljanje deviznim rizicima, koordinaciju finansijskih aktivnosti između država i optimizaciju globalne strukture kapitala. Poseban izazov predstavlja usklađivanje lokalnih potreba sa globalnim ciljevima kompanije (Ross et al., 2022; Hiebl et al., 2013).

2.4. Pozicioniranje finansijskih menadžera u javnom sektoru

U javnom sektoru finansijski menadžeri odgovorni su za planiranje budžeta, kontrolu javne potrošnje, transparentnost finansijskih procesa i usklađenost sa zakonskim propisima. Njihove odluke imaju značajan uticaj na funkcionisanje institucija i širu društvenu zajednicu (Daft, 2022; Andreassen, 2020).

3. Transformacija uloge finansijskog menadžera: od kontrolora do strateškog partnera

Savremeni uslovi poslovanja značajno su promenili ulogu finansijskih menadžera u organizacijama (Krunić, Stojmenović, Kukolj, 2023). Njihove aktivnosti više nisu ograničene na kontrolu troškova, izradu finansijskih izveštaja i praćenje poslovnih rezultata,

već obuhvataju aktivno učešće u definisanju poslovne strategije i donošenju najvažnijih odluka koje utiču na budući razvoj organizacije (Brigham & Ehrhardt, 2022; Deloitte, 2023; Engel et al., 2019).

U tradicionalnom modelu poslovanja finansijski menadžeri bili su prvenstveno odgovorni za evidentiranje poslovnih promena, kontrolu finansijskih tokova i izradu izveštaja za potrebe rukovodstva (Gojkov, Milojević, 2025). Razvojem savremenog finansijskog menadžmenta njihova uloga postala je znatno šira i obuhvata planiranje investicija, procenu rizika, upravljanje kapitalom i pružanje podrške prilikom donošenja strateških odluka (Gitman et al., 2022; Andreassen, 2020).

Pored finansijskih znanja, savremeni finansijski menadžeri moraju posedovati razvijene analitičke sposobnosti, veštine komunikacije, liderstva i upravljanja promenama. Zahvaljujući ovim kompetencijama mogu uspešno povezati finansijske pokazatelje sa dugoročnim poslovnim ciljevima organizacije i doprineti ostvarivanju konkurentске prednosti (Daft, 2022; Andreassen, 2020).

Razvoj digitalnih tehnologija dodatno je promenio način rada finansijskih sektora. Automatizacija rutinskih poslova omogućila je finansijskim menadžerima da više pažnje posvete strateškoj analizi, proceni investicija i planiranju budućih poslovnih aktivnosti (Dašić, (2026). Na taj način finansijska funkcija postaje jedan od najvažnijih izvora podrške vrhovnom menadžmentu (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025).

4. Digitalna transformacija i veštačka inteligencija u radu finansijskih menadžera

Digitalna transformacija predstavlja jedan od ključnih pokretača promena u savremenom finansijskom menadžmentu. Primena informacionih sistema, poslovne analitike, automatizacije i veštačke inteligencije omogućava finansijskim menadžerima efikasnije upravljanje podacima i donošenje kvalitetnijih poslovnih odluka zasnovanih na pouzdanim informacijama (Deloitte, 2023; Bedford et al., 2025).

Za razliku od tradicionalnih sistema, koji su bili usmereni na obradu istorijskih podataka, savremena digitalna rešenja omogućavaju praćenje finansijskih pokazatelja u realnom vremenu. To doprinosi preciznijem planiranju novčanih tokova, proceni rizika i

pravovremenom reagovanju na promene u poslovnom okruženju (Bedford et al., 2025; Mancebo & Mucci, 2025).

Veštačka inteligencija omogućava automatizaciju brojnih finansijskih aktivnosti, uključujući obradu dokumentacije, analizu troškova, predviđanje novčanih tokova, procenu kreditnih rizika i otkrivanje potencijalnih finansijskih nepravilnosti. Time se povećava efikasnost finansijske funkcije i smanjuje mogućnost nastanka grešaka u poslovanju (Deloitte, 2023; Bedford et al., 2025).

Iako digitalne tehnologije preuzimaju veliki broj rutinskih zadataka, uloga finansijskih menadžera postaje još značajnija. Njihov zadatak nije samo analiza podataka, već i tumačenje rezultata, procena mogućih posledica i predlaganje poslovnih rešenja koja doprinose ostvarivanju strateških ciljeva organizacije (Brigham & Ehrhardt, 2022).

5. Izazovi i budućnost profesije finansijskog menadžera

Savremeni finansijski menadžeri suočavaju se sa brojnim izazovima koji proizlaze iz brzih promena u globalnom poslovnom okruženju. Razvoj tehnologije, promenljivi uslovi na finansijskim tržištima, geopolitička dešavanja i sve veći regulatorni zahtevi zahtevaju kontinuirano usavršavanje i prilagođavanje novih znanja i veština (World Economic Forum, 2023; Engel et al., 2019).

Jedan od najvažnijih izazova predstavlja upravljanje finansijskim i poslovnim rizicima. Finansijski menadžeri koriste savremene metode planiranja i scenarijske analize kako bi organizacije bile spremne da odgovore na neizvesne tržišne uslove i očuvaju finansijsku stabilnost (Ross et al., 2022; Hiebl et al., 2013).

Poseban značaj u savremenom poslovanju dobija održivi razvoj. Kompanije sve češće uključuju ESG principe (Environmental, Social and Governance) u svoje poslovne strategije, zbog čega finansijski menadžeri imaju važnu ulogu u proceni održivih investicija, merenju njihovih efekata i usklađivanju poslovanja sa regulatornim zahtevima (Deloitte, 2023; Bedford et al., 2025).

U budućnosti će se od finansijskih menadžera očekivati još veći nivo stručnosti u oblastima poslovne analitike, digitalnih tehnologija, upravljanja promenama i strateškog liderstva. Njihova uloga će biti usmerena na stvaranje dugoročne vrednosti za organizaciju i pružanje podrške menadžmentu u donošenju ključnih

poslovnih odluka (Barney & Hesterly, 2021; Engel et al., 2019).

Zaključak

Analiza različitih modela pozicioniranja finansijskih menadžera pokazuje da njihova uloga u savremenim organizacijama ima sve veći strateški značaj. Način njihovog pozicioniranja zavisi od veličine organizacije, delatnosti, organizacione strukture i složenosti poslovanja, ali je zajednička karakteristika svih modela sve veće uključivanje finansijskih menadžera u proces donošenja poslovnih odluka.

U malim i srednjim preduzećima finansijski menadžeri najčešće obavljaju operativne i kontrolne funkcije, dok u velikim i multinacionalnim kompanijama predstavljaju članove vrhovnog menadžmenta odgovorne za finansijsku strategiju, upravljanje rizicima i razvoj organizacije.

Digitalna transformacija i primena savremenih informacionih tehnologija dodatno su unapredile značaj finansijske funkcije. Automatizacija rutinskih procesa omogućila je finansijskim menadžerima da se usmere na analizu podataka, strateško planiranje i podršku poslovnom odlučivanju. Zbog toga se očekuje da će njihov značaj u budućnosti nastaviti da raste, zajedno sa potrebom za razvojem novih stručnih i liderskih kompetencija.

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MODERN MODELS OF POSITIONING FINANCIAL MANAGERS

Review paper

Summary

Modern business operates in conditions of rapid change resulting from globalization, digital transformation, the development of information technologies, and increasing market uncertainty. In such an environment, the role of financial managers has expanded significantly. In addition to traditional tasks, such as financial reporting, cost control, and cash flow management, they are now actively involved in creating business strategy, risk management, and making important investment decisions.

The position of financial managers within an organization depends on various factors, including the size of the company, organizational structure, ownership model, and the business activity of the company. The subject of this paper is the analysis of models of their positioning, the responsibilities they perform, and their contribution to improving the organization's business performance.

Special attention is paid to changes in the financial function under conditions of digitalization, the use of data analytics, and the development of the strategic role of financial managers in modern companies. Numerous studies indicate that financial managers increasingly act as strategic partners to executive management, which makes their influence on competitiveness, sustainable development, and the long-term success of the organization much more pronounced than it was in traditional management models.

Keywords: financial management, chief financial officer, organizational models, strategic management, business digitalization.

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Introduction

The business environment in the 21st century is characterized by dynamic changes, intense competition, rapid technological development, and increasing expectations of capital owners, investors, and other stakeholders. Under such conditions, the financial function has undergone significant transformation. In the past, its primary tasks were keeping accounting records, controlling costs, and preparing financial statements, while today it represents one of the key functions of strategic management within an organization (Daft, 2022; Brigham & Ehrhardt, 2022).

The development of modern financial management has led to significant changes in the positioning of financial managers within the organizational structure of companies (Halima, 2025). Their role has expanded to include investment management, business performance analysis, assessment of financial and non-financial risks, capital structure planning, liquidity management, and the creation of long-term development strategies. As a result, financial managers today actively participate in making key business decisions together with executive directors and members of boards of directors (Gitman et al., 2022; Ross et al., 2022).

Digital transformation and the development of advanced information systems have made a particular contribution to changing their position. By automating routine financial tasks, financial managers are able to devote more time to data analysis, strategic planning, and supporting business decision-making. The use of business analytics, artificial intelligence, and predictive modeling systems contributes to more accurate assessments of financial flows and more efficient management of organizational resources. In this way, the financial function is moving from an administrative to a strategic business function (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025).

However, the positioning of financial managers is not the same in all organizations. It depends on the size of the company, ownership structure, organizational model, degree of decentralization in decision-making, industry, and level of international business activity. In smaller companies, financial managers often perform several different functions, while in large multinational companies they are members of top management, responsible for managing significant financial resources and developing long-term financial

strategies (Brigham & Ehrhardt, 2022; Ross et al., 2022; Hiebl et al., 2013).

The subject of this paper is the analysis of different models of positioning financial managers in modern organizations. The aim of the paper is to identify the main models of their organizational position, analyze the factors that influence their responsibilities, and highlight the importance of financial management in achieving competitive advantage and sustainable development of organizations (Barney & Hesterly, 2021; Engel et al., 2019).

1. Theoretical foundations of financial management

Financial management represents the process of planning, organizing, directing, and controlling an organization's financial resources with the aim of increasing value for capital owners, while maintaining financial stability and sustainable development (Ivanović, Čosić, 2025). Its main purpose is to make financial decisions that enable the optimal use of available resources, effective management of investments and risks, as well as the achievement of long-term business profitability (Brigham & Ehrhardt, 2022; Ross et al., 2022; Hiebl et al., 2013).

According to modern theories of corporate finance, the most important financial management decisions can be divided into three main groups: investment decisions, financing decisions, and decisions related to the distribution of realized profit. The way these decisions are made directly affects the market value of the company, its competitiveness, as well as its ability to develop in the long term (Gitman et al., 2022; Andreassen, 2020; Getman, 2025).

In recent years, financial management has moved beyond the framework of a traditional administrative function and has become an important part of strategic management within an organization. Financial managers today are not only responsible for controlling business operations, but also actively participate in shaping business strategy, developing new business models, and assessing investment opportunities (Rothaermel, 2023). Modern literature indicates that successful organizations connect the financial function with strategic planning, marketing, operational processes, and human resource management in order to improve overall organizational performance (Daft, 2022; Barney & Hesterly, 2021).

The position of the financial manager depends on the development of the financial function and the organizational structure of the

company. In traditional organizations, the finance sector primarily had a control role, while modern companies consider the Chief Financial Officer (CFO) to be one of the most important members of top management. In addition to being responsible for financial operations, the CFO today participates in defining growth strategies, implementing organizational changes, digitalizing business processes, improving sustainability, and implementing development projects (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025; Getman, 2025).

2. Different models of positioning financial managers in organizations

The position of the financial manager within an organization is not defined in a single way, but depends on several factors, including the size of the company, organizational structure, business activity, degree of internationalization, and stage of company development. In modern organizations, the financial function has evolved from a traditional control role to a strategic partnership with top levels of management (Hiebl et al., 2013). As a result of this transformation, financial managers today play an important role in creating business value and achieving competitive advantage (Brigham & Ehrhardt, 2022; Daft, 2022).

2.1. Positioning of financial managers in small and medium-sized enterprises

In small and medium-sized enterprises (SMEs), the financial manager most often performs several interconnected tasks. Due to limited resources, one person may be responsible for financial planning, accounting, cost control, liquidity management, cooperation with banks, and tax planning (Gitman et al., 2022; Andreassen, 2020).

As the company grows, the financial manager gradually moves from an operational to a more strategic role, providing support to owners and management when making decisions about investments, business development, and expansion into new markets (Ross et al., 2022; Hiebl et al., 2013).

2.2. Positioning of financial managers in large companies

In large organizations, the Chief Financial Officer (CFO) is one of the key members of executive management. Their responsibilities include capital management, financial planning, risk management, investor relations, and support for the company's strategic development (Brigham & Ehrhardt, 2022; Uhde et al., 2017).

The modern CFO participates in defining the business model, assessing market opportunities, and developing long-term strategy, while the digitalization of the financial function enables more efficient data-driven decision-making (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025).

2.3. Positioning of financial managers in multinational companies

Financial managers in multinational companies are responsible for international financial planning, foreign exchange risk management, coordination of financial activities across countries, and optimization of the global capital structure. A particular challenge is balancing local needs with the company's global objectives (Ross et al., 2022; Hiebl et al., 2013).

2.4. Positioning of financial managers in the public sector

In the public sector, financial managers are responsible for budget planning, control of public spending, transparency of financial processes, and compliance with legal regulations. Their decisions have a significant impact on the functioning of institutions and the wider community (Daft, 2022; Andreassen, 2020).

3. Transformation of the financial manager's role: from controller to strategic partner

Modern business conditions have significantly changed the role of financial managers in organizations (Krunić, Stojmenović, Kukolj, 2023). Their activities are no longer limited to cost control, preparation of financial reports, and monitoring business results, but also include active participation in defining business strategy and making the most important decisions that affect the future

development of the organization (Brigham & Ehrhardt, 2022; Deloitte, 2023; Engel et al., 2019).

In the traditional business model, financial managers were primarily responsible for recording business transactions, controlling financial flows, and preparing reports for management (Gojkov, Milojević, 2025). With the development of modern financial management, their role has become much broader and now includes investment planning, risk assessment, capital management, and providing support in making strategic decisions (Gitman et al., 2022; Andreassen, 2020).

In addition to financial knowledge, modern financial managers need to have well-developed analytical skills, as well as communication, leadership, and change management skills. These competencies enable them to successfully connect financial indicators with the organization's long-term business goals and contribute to achieving competitive advantage (Daft, 2022; Andreassen, 2020).

The development of digital technologies has further changed the way finance departments operate. The automation of routine tasks has enabled financial managers to devote more attention to strategic analysis, investment assessment, and planning future business activities (Dašić, (2026). In this way, the financial function is becoming one of the most important sources of support for top management (Deloitte, 2023; Bedford et al., 2025; Mancebo & Mucci, 2025).

4. Digital transformation and artificial intelligence in the work of financial managers

Digital transformation is one of the key drivers of change in modern financial management. The use of information systems, business analytics, automation, and artificial intelligence enables financial managers to manage data more efficiently and make better business decisions based on reliable information (Deloitte, 2023; Bedford et al., 2025).

Unlike traditional systems, which were focused on processing historical data, modern digital solutions enable real-time monitoring of financial indicators. This contributes to more accurate cash flow planning, risk assessment, and timely response to changes in the business environment (Bedford et al., 2025; Mancebo & Mucci, 2025).

Artificial intelligence enables the automation of numerous financial activities, including document processing, cost analysis, cash flow forecasting, credit risk assessment, and the detection of potential financial irregularities. This increases the efficiency of the financial function and reduces the possibility of errors in business operations (Deloitte, 2023; Bedford et al., 2025).

Although digital technologies are taking over many routine tasks, the role of financial managers is becoming even more important. Their task is not only to analyze data, but also to interpret the results, assess possible consequences, and propose business solutions that contribute to achieving the organization's strategic goals (Brigham & Ehrhardt, 2022).

5. Challenges and the future of the financial management profession

Modern financial managers face numerous challenges arising from rapid changes in the global business environment. Technological development, changing conditions in financial markets, geopolitical developments, and increasing regulatory requirements require continuous professional development and adaptation to new knowledge and skills (World Economic Forum, 2023; Engel et al., 2019).

One of the most important challenges is the management of financial and business risks. Financial managers use modern planning methods and scenario analysis to ensure that organizations are prepared to respond to uncertain market conditions and maintain financial stability (Ross et al., 2022; Hiebl et al., 2013).

Sustainable development is becoming particularly important in modern business. Companies are increasingly incorporating ESG principles (Environmental, Social and Governance) into their business strategies, which gives financial managers an important role in assessing sustainable investments, measuring their effects, and ensuring that business operations comply with regulatory requirements (Deloitte, 2023; Bedford et al., 2025).

In the future, financial managers will be expected to have an even higher level of expertise in business analytics, digital technologies, change management, and strategic leadership. Their role will be focused on creating long-term value for the organization and supporting management in making key business decisions (Barney & Hesterly, 2021; Engel et al., 2019).

Conclusion

The analysis of different models of positioning financial managers shows that their role in modern organizations has become increasingly strategic. The way they are positioned depends on the size of the organization, its business activity, organizational structure, and the complexity of its operations, but a common characteristic of all models is the growing involvement of financial managers in the business decision-making process.

In small and medium-sized enterprises, financial managers most often perform operational and control functions, while in large and multinational companies they are members of top management responsible for financial strategy, risk management, and organizational development.

Digital transformation and the use of modern information technologies have further increased the importance of the financial function. The automation of routine processes has enabled financial managers to focus more on data analysis, strategic planning, and supporting business decision-making. Therefore, their importance is expected to continue to grow in the future, along with the need to develop new professional and leadership skills.

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GLOBALNI POSLOVNI INFORMACIONI SISTEM VLASNIČKIH PRAVA NAD FAKTORIMA PROIZVODNJE

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Rezime

Savremeni razvoj društva karakterišu intenzivne tehnološke, ekonomske i društvene promene koje, pored brojnih koristi, izazivaju sve izraženije pritiske na životnu sredinu i prirodne resurse. Ubrzana industrijalizacija, globalizacija i rast potrošnje doveli su do povećanja emisije štetnih gasova, degradacije ekosistema i klimatskih promena, zbog čega očuvanje prirodnog kapitala postaje jedno od ključnih pitanja održivog razvoja.

U radu se razmatraju mogućnosti unapređenja postojećeg sistema upravljanja prirodnim resursima kroz razvoj savremenog računovodstveno-informacionog sistema i redefinisane uloge države, privrednih subjekata i drugih učesnika u ekonomskom sistemu. Posebna pažnja posvećena je konceptu uključivanja prirodnog kapitala, odnosno kiseonika kao egzistencijalno važnog resursa, u proces ekonomskog vrednovanja i reprodukcije, sa ciljem unapređenja zaštite životne sredine i racionalnijeg korišćenja ograničenih resursa.

Zaključuje se da integracija računovodstva održivosti, transparentnijeg upravljanja javnim finansijama i savremenih institucionalnih rešenja može doprineti efikasnijem upravljanju prirodnim kapitalom, očuvanju životne sredine i ostvarivanju dugoročno održivog ekonomskog razvoja.

Ključne reči: održivi razvoj, prirodni kapital, računovodstveno-informacioni sistem, zaštita životne sredine, globalizacija.

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Uvod

Problematika zaštite životne sredine tokom poslednjih nekoliko decenija postala je jedno od najznačajnijih pitanja savremenog društva. Iako su prvi ozbiljniji naučni i stručni razgovori o negativnim posledicama industrijskog razvoja započeli još šezdesetih godina prošlog veka, intenzivna urbanizacija, tehnološki napredak i rast proizvodnje dodatno su povećali pritisak na prirodne resurse i ekosisteme. Danas se životna sredina posmatra kao sastavni deo ekonomskog razvoja, pri čemu održivost predstavlja osnovni preduslov dugoročnog društvenog i privrednog napretka (Rockström et al., 2023; United Nations, 2023).

Razvoj nauke i tehnologije omogućio je značajan rast životnog standarda i unapredio proizvodne procese, ali je istovremeno doveo do intenzivnijeg korišćenja prirodnih resursa, povećanja emisije gasova sa efektom staklene bašte i degradacije životne sredine. Zanemarivanje međusobne povezanosti tehnološkog razvoja, ekonomskih odnosa i društvene odgovornosti doprinosi nastanku brojnih ekoloških izazova koji direktno utiču na kvalitet života sadašnjih i budućih generacija (IPCC, 2023; Dasgupta, 2021).

U savremenim uslovima fiskalna politika predstavlja jedan od najvažnijih instrumenata za ostvarivanje ciljeva održivog razvoja. Poreski sistemi, ekološke naknade i drugi oblici javnih prihoda mogu doprineti racionalnijem korišćenju prirodnih resursa, smanjenju zagađenja i finansiranju mera zaštite životne sredine. Zbog toga savremene države sve više uvode ekonomske instrumente kojima se podstiče održiva proizvodnja i odgovorno korišćenje prirodnog kapitala (OECD, 2023; World Bank, 2022).

Međunarodna zajednica je tokom prethodnih decenija usvojila brojne deklaracije, sporazume i razvojne strategije kojima se naglašava potreba za očuvanjem prirodnih resursa i odgovornim upravljanjem životnom sredinom. Poseban značaj imaju Ciljevi održivog razvoja Ujedinjenih nacija (Sustainable Development Goals – SDGs), koji predstavljaju globalni okvir za usklađivanje ekonomskog razvoja, socijalnog napretka i zaštite životne sredine (United Nations, 2023).

Predmet ovog rada jeste razmatranje odnosa između

ekonomskog razvoja, fiskalnog sistema i očuvanja prirodnih resursa, sa posebnim osvrtom na mogućnosti unapređenja postojećeg sistema upravljanja kroz primenu savremenih ekonomskih i računovodstvenih rešenja. Cilj rada je da ukaže na značaj sistemskog pristupa u zaštiti životne sredine i da prikaže kako integracija ekonomskih, pravnih i institucionalnih mehanizama može doprineti dugoročnoj održivosti i očuvanju uslova za egzistenciju ljudskog društva (Dasgupta, 2021; Rockström et al., 2023; United Nations, 2023).

1. Problemi očuvanja životne sredine

Problemi očuvanja životne sredine predstavljaju jedno od najznačajnijih pitanja savremenog društva. Dok su se u prošlosti negativni uticaji čoveka na prirodu često zanemarivali ili smatrali ograničenim, danas postoji širok naučni konsenzus da su klimatske promene, degradacija ekosistema i prekomerno iskorišćavanje prirodnih resursa među najvećim izazovima održivog razvoja. Posledice zagađenja vazduha, voda i zemljišta, kao i intenzivna seča šuma i dezertifikacija, direktno ugrožavaju kvalitet života stanovništva i stabilnost prirodnih sistema (IPCC, 2023; United Nations Environment Programme [UNEP], 2024).

Sve učestalije ekstremne vremenske pojave, poput dugotrajnih suša, velikih šumskih požara, razornih poplava i toplotnih talasa, potvrđuju da klimatske promene više nisu samo buduća pretnja već realnost sa kojom se suočava čitava međunarodna zajednica. Naučni izveštaji ukazuju da se intenzitet i učestalost ovih pojava povećavaju usled porasta globalne temperature izazvanog ljudskim aktivnostima. Iako su informacije o klimatskim promenama danas dostupnije nego ikada, reakcije društva i donosilaca odluka često nisu proporcionalne ozbiljnosti problema, pa interesovanje javnosti uglavnom raste tek nakon velikih prirodnih katastrofa (IPCC, 2023; World Meteorological Organization [WMO], 2024).

Klimatski sistem Zemlje predstavlja izuzetno složen i međusobno povezan skup procesa u atmosferi, hidrosferi, biosferi i litosferi. Zbog njegove osetljivosti, čak i relativno male promene prosečne globalne temperature mogu izazvati značajne promene u režimu padavina, intenzitetu oluja, raspodeli klimatskih zona i funkcionisanju ekosistema. Upravo zbog toga klimatske promene imaju globalni karakter i njihove posledice prevazilaze granice pojedinačnih država, zahtevajući koordinisano međunarodno

delovanje (IPCC, 2023; Rockström et al., 2023).

Napredak nauke i razvoj savremenih klimatskih modela omogućili su preciznije praćenje promena temperature, atmosferskog pritiska i drugih meteoroloških parametara, kao i pouzdanije projekcije budućih klimatskih kretanja. Ovi modeli potvrđuju da nastavak povećanja koncentracije gasova sa efektom staklene bašte može dovesti do dodatnog zagrevanja planete, što će imati dugoročne posledice po prirodne resurse, poljoprivredu, zdravlje stanovništva i ukupni društveno-ekonomski razvoj (IPCC, 2023).

Najznačajniji gasovi koji doprinose efektu staklene bašte jesu ugljen-dioksid (CO_2), metan (CH_4), azot-suboksid (N_2O) i fluorovani gasovi. Njihova koncentracija u atmosferi značajno je porasla od početka industrijske revolucije usled sagorevanja fosilnih goriva, industrijske proizvodnje, saobraćaja i promena u korišćenju zemljišta. Brojna istraživanja potvrđuju da upravo povećanje koncentracije ovih gasova predstavlja glavni uzrok savremenog globalnog zagrevanja i promena klimatskog sistema (IPCC, 2023; UNEP, 2024; World Meteorological Organization, 2024).

2. Sistemski pristup rešenja planetarne krize

Proces globalizacije predstavlja jednu od najznačajnijih karakteristika savremenog društva i utiče na ekonomske, političke i društvene odnose na globalnom nivou. Povezivanje nacionalnih ekonomija, razvoj međunarodne trgovine i ubrzan tehnološki napredak omogućili su efikasnije korišćenje resursa, brži protok kapitala i znanja, ali su istovremeno povećali pritisak na prirodne resurse i životnu sredinu. Zbog toga se održivi razvoj danas posmatra kao osnovni preduslov uspešnog funkcionisanja globalne ekonomije (United Nations, 2023; OECD, 2023; Rockström et al., 2023).

Savremeni društveno-ekonomski sistemi zasnivaju se na međusobnom delovanju realnog, finansijskog, javnog i međunarodnog sektora. Njihovo efikasno funkcionisanje zavisi od usklađenosti interesa države, privrednih subjekata i stanovništva. Privredni subjekti nastoje da raspoložive resurse koriste što racionalnije radi ostvarivanja konkurentske prednosti i dugoročne profitabilnosti, dok država kroz fiskalne, regulatorne i razvojne politike nastoji da obezbedi ravnotežu između ekonomskog razvoja, socijalne sigurnosti i zaštite životne sredine (World Bank, 2022;

OECD, 2023; Dasgupta, 2021).

Tradicionalna ekonomska teorija kao osnovne faktore proizvodnje prepoznaje rad, kapital, zemljište i preduzetništvo, odnosno znanje (Gojkov, 2025). Međutim, savremena istraživanja sve više ukazuju na značaj prirodnog kapitala kao posebnog izvora stvaranja vrednosti. Koncept prirodnog kapitala podrazumeva da prirodni resursi i ekosistemi imaju ekonomsku vrednost jer obezbeđuju ekosistemske usluge neophodne za funkcionisanje privrede i društva, uključujući proizvodnju kiseonika, regulaciju klime, prečišćavanje vode i očuvanje biodiverziteta (Dasgupta, 2021; United Nations et al., 2021).

U tom kontekstu, ideja predstavljena u ovom radu da se kiseonik posmatra kao faktor proizvodnje može se razumeti kao autorski koncept koji ukazuje na potrebu ekonomskog vrednovanja prirodnih resursa. Iako savremena ekonomska teorija kiseonik ne tretira kao klasičan proizvodni faktor, brojna istraživanja potvrđuju da očuvanje prirodnog kapitala i ekosistemskih usluga predstavlja jedan od ključnih uslova dugoročnog ekonomskog razvoja i održivosti društva (Dasgupta, 2021; Rockström et al., 2023).

Zbog toga savremeni modeli upravljanja sve češće integrišu ekološke pokazatelje u procese donošenja odluka. Razvoj zelenog računovodstva, obračuna prirodnog kapitala i sistema održivog finansijskog izveštavanja omogućava da se troškovi degradacije životne sredine uključe u procenu poslovnih performansi i vrednosti organizacija. Na taj način stvaraju se uslovi za odgovornije upravljanje resursima i efikasnije ostvarivanje ciljeva održivog razvoja (United Nations et al., 2021; IFRS Foundation, 2023; EFRAG, 2023).

2.1. Računovodstveno-informacioni sistem u funkciji rešavanja planetarne krize

Računovodstveno-informacioni sistem predstavlja jedan od osnovnih instrumenata za prikupljanje, obradu i prezentovanje ekonomskih informacija neophodnih za donošenje poslovnih i javnih odluka. U savremenim uslovima njegova uloga više nije ograničena isključivo na evidentiranje poslovnih promena i izradu finansijskih izveštaja, već obuhvata i praćenje uticaja ekonomskih aktivnosti na životnu sredinu i društvo. Zbog toga računovodstvo održivosti postaje značajan deo savremenog sistema upravljanja organizacijama (IFRS Foundation, 2023a, 2023b; EFRAG, 2023;

United Nations et al., 2021)).

Polazeći od osnovne ideje ovog rada, može se zaključiti da efikasno upravljanje prirodnim resursima nije moguće ukoliko njihova vrednost nije na odgovarajući način evidentirana u informacionom sistemu. Ono što se ne meri i ne iskazuje u poslovnim evidencijama teško može biti predmet ekonomskog odlučivanja ili sistemske zaštite. Iz tog razloga autor predlaže razvoj računovodstvenog modela kojim bi se prirodni resursi i negativni uticaji na životnu sredinu uključili u proces ekonomskog vrednovanja (United Nations et al., 2021; Dasgupta, 2021).

Država ima značajnu ulogu u ovom procesu kroz kreiranje fiskalne politike, raspodelu javnih prihoda i uspostavljanje regulatornog okvira koji omogućava transparentno finansiranje aktivnosti od javnog interesa, uključujući zaštitu životne sredine. Savremeni sistemi javnih finansija sve više se zasnivaju na namenskom korišćenju pojedinih javnih prihoda, čime se povećava transparentnost, odgovornost i efikasnost upravljanja javnim sredstvima (OECD, 2023; World Bank, 2022).

Autor rada posebno ističe značaj destiniranja javnih prihoda, odnosno njihovog usmeravanja prema unapred definisanim namenama. Takav pristup mogao bi omogućiti efikasnije finansiranje zaštite životne sredine i veću kontrolu trošenja javnih sredstava. Savremena istraživanja potvrđuju da transparentno upravljanje javnim finansijama doprinosi većem poverenju građana i efikasnijem ostvarivanju ciljeva održivog razvoja (OECD, 2023; United Nations, 2023).

Jedan od ključnih doprinosa rada jeste predlog da se kiseonik, kao osnovni uslov života i proizvod funkcionisanja prirodnih ekosistema, posmatra kao poseban faktor u procesu reprodukcije. Iako ovakav koncept nije deo klasične ekonomske teorije, može se dovesti u vezu sa savremenim konceptom prirodnog kapitala, prema kojem ekosistemi stvaraju usluge od presudnog značaja za društvo i privredu, uključujući proizvodnju kiseonika, regulaciju klime, očuvanje biodiverziteta i prečišćavanje vazduha i vode (Dasgupta, 2021; United Nations et al., 2021).

U skladu sa tim, računovodstveno-informacioni sistem trebalo bi proširiti tako da, pored finansijskih pokazatelja, obuhvati i podatke o korišćenju prirodnih resursa, emisiji štetnih materija i drugim eksternalijama koje utiču na životnu sredinu. Takav sistem omogućio bi objektivnije vrednovanje poslovnih subjekata,

kvalitetnije upravljanje prirodnim kapitalom i donošenje odluka koje doprinose dugoročnoj održivosti ekonomskog razvoja (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021)).



Slika 1. Model globalno održivog sistema

U okviru ovako koncipiranog modela bilo bi moguće razviti posebne računovodstvene evidencije i konta namenjena praćenju prirodnog kapitala i ekoloških eksternalija (Milojevic, et. al 2012). Evidentiranje troškova korišćenja prirodnih resursa, kao i koristi koje proizlaze iz njihovog očuvanja, predstavljalo bi osnovu za objektivnije iskazivanje vrednosti poslovnih subjekata i efikasnije upravljanje održivim razvojem. Na taj način računovodstveno-informacioni sistem prerasta tradicionalnu funkciju finansijskog izveštavanja i postaje važan instrument očuvanja životne sredine i racionalnog upravljanja ograničenim resursima (United Nations et al., 2021; IFRS Foundation, 2023; Dasgupta, 2021).

3. Promena vlasničke strukture ekonomskih faktora

Savremeni ekonomski sistemi zasnivaju se na različitim oblicima svojine, među kojima dominiraju privatna i javna svojina. Njihova uloga ogleda se u obezbeđivanju pravne sigurnosti, efikasnoj alokaciji resursa i stvaranju uslova za održiv privredni razvoj. Bez jasno definisanih vlasničkih prava nije moguće ostvariti efikasno funkcionisanje tržišta niti dugoročno planiranje investicionih aktivnosti (North, 1990; Acemoglu & Johnson, 2005; World Bank, 2022).

U uslovima globalizacije pitanje vlasništva dobija novu dimenziju, jer se ekonomski odnosi sve više odvijaju u međunarodnom okruženju. Globalni finansijski tokovi, razvoj digitalne ekonomije i rast međunarodnih investicija zahtevaju harmonizaciju pravnih i institucionalnih okvira koji će omogućiti zaštitu vlasničkih prava i efikasnije upravljanje ekonomskim resursima (OECD, 2023; United Nations, 2023).

U ovom radu polazi se od pretpostavke da bi budući sistem održivog razvoja trebalo da obuhvati i prirodni kapital kao važan element ekonomskog vrednovanja. U tom kontekstu, razmatra se mogućnost da se određeni prirodni resursi, pre svega kiseonik kao rezultat funkcionisanja ekosistema, posmatraju kao resurs od posebnog značaja za opstanak čovečanstva. Ovakav pristup predstavlja autorski koncept i može se dovesti u vezu sa savremenim teorijama prirodnog kapitala i vrednovanja ekosistemskih usluga, koje ukazuju da prirodni resursi imaju značajnu ekonomsku i društvenu vrednost, iako se ona često ne iskazuje u tržišnim transakcijama (Dasgupta, 2021; United Nations et al., 2021).

Razvoj vlasničkih odnosa kroz istoriju pokazuje da promene ekonomskog sistema zahtevaju i odgovarajuće prilagođavanje pravnog i institucionalnog okvira. Proces privatizacije u brojnim tranzicionim zemljama predstavlja primer transformacije društvene svojine u privatnu, pri čemu je država imala ulogu regulatora i posrednika u prenosu vlasničkih prava. Cilj ovih procesa bio je stvaranje efikasnijeg sistema upravljanja kapitalom i jačanje tržišnih mehanizama (Estrin et al., 2009; World Bank, 2022).

Sa aspekta održivog razvoja, budući modeli upravljanja prirodnim resursima trebalo bi da obezbede jasnije definisanje odgovornosti za njihovo korišćenje i očuvanje. Savremeni koncepti prirodnog kapitala ukazuju da precizno definisana vlasnička prava,

odgovarajući institucionalni mehanizmi i transparentno računovodstveno evidentiranje doprinose racionalnijem korišćenju resursa i smanjenju negativnih eksternalija po životnu sredinu (Dasgupta, 2021; Ostrom, 1990; United Nations et al., 2021). Računovodstveno iskazivanje vrednosti prirodnih resursa i uključivanje ekoloških troškova u finansijsko izveštavanje predstavlja jedan od osnovnih preduslova za razvoj održive ekonomije. Integracijom prirodnog kapitala u sisteme poslovnog odlučivanja stvaraju se uslovi za objektivnije vrednovanje poslovnih subjekata, efikasnije upravljanje resursima i dugoročno očuvanje životne sredine. Takav pristup u skladu je sa savremenim razvojem računovodstva održivosti i međunarodnim okvirima za ekonomsko vrednovanje prirodnog kapitala (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021)).

Zaključak

Savremeni razvoj društva i intenzivna globalizacija doneli su brojne ekonomske, tehnološke i društvene koristi, ali su istovremeno značajno povećali pritisak na prirodne resurse i životnu sredinu. Klimatske promene, zagađenje i iscrpljivanje prirodnog kapitala ukazuju na potrebu uspostavljanja novih modela upravljanja koji će omogućiti ravnotežu između ekonomskog razvoja i očuvanja uslova za život budućih generacija.

Analiza sprovedena u ovom radu pokazuje da postojeći sistemi upravljanja prirodnim resursima i finansijskog odlučivanja nisu u dovoljnoj meri prilagođeni savremenim izazovima održivog razvoja. Zbog toga je neophodno razvijati modele koji će povezati ekonomsku efikasnost, odgovorno korišćenje resursa i zaštitu životne sredine kroz savremene institucionalne i računovodstvene mehanizme.

Poseban doprinos rada ogleda se u razmatranju mogućnosti proširenja reprodukcionog sistema uključivanjem prirodnog kapitala kao značajnog elementa ekonomskog razvoja. U tom kontekstu, koncept uvođenja kiseonika kao posebnog faktora proizvodnje predstavlja autorski model kojim se naglašava značaj očuvanja prirodnih resursa i njihove ekonomske valorizacije u procesu održivog razvoja. Takav pristup ukazuje na potrebu da se vrednost prirodnih dobara posmatra ne samo sa ekološkog već i sa ekonomskog aspekta.

Posebno mesto u ostvarivanju ovih ciljeva ima računovodstveno-informacioni sistem, čija uloga prevazilazi tradicionalno evidentiranje poslovnih događaja. Njegov dalji razvoj trebalo bi da omogući evidentiranje prirodnog kapitala, praćenje troškova nastalih usled negativnih uticaja na životnu sredinu i objektivnije iskazivanje poslovnih performansi organizacija. Integracijom finansijskih i nefinansijskih informacija stvaraju se uslovi za kvalitetnije upravljanje resursima i donošenje odgovornih poslovnih i javnih odluka.

Uspostavljanje savremenog globalnog sistema zasnovanog na održivom korišćenju prirodnih resursa, većoj transparentnosti javnih finansija i unapređenju računovodstvenih modela moglo bi doprineti efikasnijoj raspodeli resursa, jačanju odgovornosti svih učesnika ekonomskog sistema i dugoročnom očuvanju životne sredine. Takav pristup predstavlja važan korak ka ostvarivanju održivog ekonomskog razvoja i stvaranju kvalitetnijih uslova života za sadašnje i buduće generacije..

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GLOBAL BUSINESS INFORMATION SYSTEM OF OWNERSHIP RIGHTS OVER FACTORS OF PRODUCTION

Original scientific paper

Summary

Modern social development is characterized by intensive technological, economic, and social changes which, in addition to numerous benefits, are creating increasingly strong pressures on the environment and natural resources. Accelerated industrialization, globalization, and growing consumption have led to increased emissions of harmful gases, ecosystem degradation, and climate change, making the preservation of natural capital one of the key issues of sustainable development.

The paper examines possibilities for improving the existing natural resource management system through the development of a modern accounting and information system and the redefinition of the role of the state, businesses, and other participants in the economic system. Particular attention is given to the concept of including natural capital, specifically oxygen as an existentially important resource, in the process of economic valuation and reproduction, with the aim of improving environmental protection and ensuring more rational use of limited resources.

It is concluded that the integration of sustainability accounting, more transparent public financial management, and modern institutional solutions can contribute to more efficient management of natural capital, environmental protection, and the achievement of long-term sustainable economic development.

Keywords: sustainable development, natural capital, accounting and information system, environmental protection, globalization.

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Introduction

The issue of environmental protection has become one of the most important issues in modern society over the past several decades. Although the first serious scientific and professional discussions about the negative consequences of industrial development began as early as the 1960s, intensive urbanization, technological progress, and the growth of production have further increased pressure on natural resources and ecosystems. Today, the environment is viewed as an integral part of economic development, with sustainability representing a basic prerequisite for long-term social and economic progress (Rockström et al., 2023; United Nations, 2023).

The development of science and technology has enabled a significant increase in living standards and improved production processes, but it has also led to more intensive use of natural resources, increased greenhouse gas emissions, and environmental degradation. Ignoring the interconnection between technological development, economic relations, and social responsibility contributes to the emergence of numerous environmental challenges that directly affect the quality of life of present and future generations (IPCC, 2023; Dasgupta, 2021).

Under modern conditions, fiscal policy represents one of the most important instruments for achieving sustainable development goals. Tax systems, environmental charges, and other forms of public revenue can contribute to more rational use of natural resources, reducing pollution, and financing environmental protection measures. For this reason, modern states are increasingly introducing economic instruments that encourage sustainable production and responsible use of natural capital (OECD, 2023; World Bank, 2022).

Over the past decades, the international community has adopted numerous declarations, agreements, and development strategies emphasizing the need to preserve natural resources and ensure responsible environmental management. The United Nations Sustainable Development Goals (SDGs) are of particular importance, as they provide a global framework for aligning economic development, social progress, and environmental protection (United Nations, 2023).

The subject of this paper is the relationship between economic development, the fiscal system, and the preservation of

natural resources, with particular focus on the possibilities of improving the existing management system through the application of modern economic and accounting solutions. The aim of the paper is to point out the importance of a systemic approach to environmental protection and to show how the integration of economic, legal, and institutional mechanisms can contribute to long-term sustainability and the preservation of the conditions necessary for the existence of human society (Dasgupta, 2021; Rockström et al., 2023; United Nations, 2023).

1. Problems of environmental protection

Problems related to environmental protection represent one of the most important issues facing modern society. While in the past the negative impacts of human activities on nature were often neglected or considered limited, there is now broad scientific consensus that climate change, ecosystem degradation, as well as the overexploitation of natural resources are among the greatest challenges to sustainable development. The consequences of air, water, and soil pollution, along with intensive deforestation and desertification, directly threaten the quality of life of the population and the stability of natural systems (IPCC, 2023; United Nations Environment Programme [UNEP], 2024).

The increasing frequency of extreme weather events, such as prolonged droughts, large-scale wildfires, devastating floods, and heatwaves, confirms that climate change is no longer merely a future threat but a reality faced by the international community as a whole. Scientific reports indicate that the intensity and frequency of these events are increasing as a result of the rise in global temperatures caused by human activities. Although information about climate change is now more accessible than ever, the responses of society and policymakers are often not proportional to the seriousness of the problem, with public interest generally increasing only after major natural disasters (IPCC, 2023; World Meteorological Organization [WMO], 2024).

The Earth's climate system represents an extremely complex and interconnected set of processes in the atmosphere, hydrosphere, biosphere, and lithosphere. Due to its sensitivity, even relatively small changes in the average global temperature can cause significant changes in precipitation patterns, storm intensity, the distribution of climate zones, and the functioning of ecosystems. For

this reason, climate change has a global character, and its consequences go beyond the borders of individual countries, requiring coordinated international action (IPCC, 2023; Rockström et al., 2023).

Advances in science and the development of modern climate models have enabled more precise monitoring of changes in temperature, atmospheric pressure, and other meteorological parameters, as well as more reliable projections of future climate trends. These models confirm that continued increases in greenhouse gas concentrations can lead to further warming of the planet, which will have long-term consequences for natural resources, agriculture, public health, and overall socio-economic development (IPCC, 2023).

The most significant greenhouse gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. Their concentrations in the atmosphere have increased significantly since the beginning of the Industrial Revolution due to the burning of fossil fuels, industrial production, transport, and changes in land use. Numerous studies confirm that the increase in the concentration of these gases is the main cause of current global warming and changes in the climate system (IPCC, 2023; UNEP, 2024; World Meteorological Organization, 2024).

2. A systemic approach to solving the planetary crisis

The process of globalization represents one of the most important characteristics of modern society and affects economic, political, and social relations at the global level. The integration of national economies, the development of international trade, and rapid technological progress have enabled more efficient use of resources and faster flows of capital and knowledge, but they have also increased pressure on natural resources and the environment. For this reason, sustainable development is now viewed as a basic prerequisite for the successful functioning of the global economy (United Nations, 2023; OECD, 2023; Rockström et al., 2023).

Modern socio-economic systems are based on the interaction of the real, financial, public, and international sectors. Their effective functioning depends on the coordination of the interests of the state, businesses, and the population. Businesses seek to use available resources as efficiently as possible in order to achieve competitive advantage and long-term profitability, while the state,

through fiscal, regulatory, and development policies, seeks to ensure a balance between economic development, social security, and environmental protection (World Bank, 2022; OECD, 2023; Dasgupta, 2021).

Traditional economic theory recognizes labor, capital, land, and entrepreneurship, or knowledge, as the basic factors of production (Gojkov, 2025). However, contemporary research increasingly emphasizes the importance of natural capital as a distinct source of value creation. The concept of natural capital implies that natural resources and ecosystems have economic value because they provide ecosystem services essential to the functioning of the economy and society, including oxygen production, climate regulation, water purification, and biodiversity conservation (Dasgupta, 2021; United Nations et al., 2021).

In this context, the idea presented in this paper of treating oxygen as a factor of production can be understood as an author's concept highlighting the need for the economic valuation of natural resources. Although contemporary economic theory does not treat oxygen as a conventional factor of production, numerous studies confirm that the preservation of natural capital and ecosystem services represents one of the key conditions for long-term economic development and the sustainability of society (Dasgupta, 2021; Rockström et al., 2023).

For this reason, modern management models increasingly integrate environmental indicators into decision-making processes. The development of green accounting, natural capital accounting, and sustainable financial reporting systems makes it possible to incorporate the costs of environmental degradation into the assessment of the business performance and value of organizations. In this way, conditions are created for more responsible resource management and more effective achievement of sustainable development goals (United Nations et al., 2021; IFRS Foundation, 2023; EFRAG, 2023).

2.1. Accounting information system as a tool for addressing the planetary crisis

An accounting information system represents one of the fundamental instruments for collecting, processing, and presenting economic information necessary for business and public decision-making. Under contemporary conditions, its role is no longer limited

exclusively to recording business transactions and preparing financial statements, but also includes monitoring the impact of economic activities on the environment and society. Consequently, sustainability accounting is becoming an increasingly important component of modern organizational management systems (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021).

Starting from the fundamental idea of this paper, it can be concluded that effective management of natural resources is not possible unless their value is appropriately recorded within the information system. What is not measured and reported in business records can hardly become the subject of economic decision-making or systematic protection. For this reason, the author proposes the development of an accounting model that would incorporate natural resources and negative environmental impacts into the process of economic valuation (United Nations et al., 2021; Dasgupta, 2021).

The state plays a significant role in this process through the formulation of fiscal policy, the allocation of public revenues, and the establishment of a regulatory framework that enables transparent financing of activities of public interest, including environmental protection. Modern systems of public finance are increasingly based on the purposeful use of certain public revenues, which increases the transparency, accountability and efficiency of the management of public funds (OECD, 2023; World Bank, 2022).

The author particularly emphasizes the importance of earmarking public revenues, that is, directing them toward predefined purposes. Such an approach could enable more effective financing of environmental protection and greater control over the use of public funds. Contemporary research confirms that transparent public financial management contributes to greater public trust and more effective achievement of sustainable development objectives (OECD, 2023; United Nations, 2023).

One of the key contributions of this paper is the proposal to regard oxygen, as a fundamental condition for life and a product of the functioning of natural ecosystems, as a distinct factor in the reproduction process. Although this concept is not part of classical economic theory, it can be related to the contemporary concept of natural capital, according to which ecosystems generate services of critical importance to society and the economy, including oxygen production, climate regulation, biodiversity conservation, and air

and water purification (Dasgupta, 2021; United Nations et al., 2021).

Accordingly, the accounting information system should be expanded so that, in addition to financial indicators, it also incorporates data on the use of natural resources, emissions of harmful substances, and other externalities affecting the environment. Such a system would enable more objective assessment of business entities, more effective management of natural capital, and decision-making that contributes to the long-term sustainability of economic development (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021).



Figure 1. Model of a globally sustainable system

Within such a model, it would be possible to develop specialized accounting records and accounts designed to monitor natural capital and environmental externalities (Milojević et al., 2012). Recording the costs associated with the use of natural resources, as well as the benefits arising from their preservation, would provide a basis for more objective reporting of the value of business entities and more effective management of sustainable development. In this way, the accounting information system would

extend beyond its traditional function of financial reporting and become an important instrument for environmental protection and the rational management of limited resources (United Nations et al., 2021; IFRS Foundation, 2023; Dasgupta, 2021).

3. Changes in the ownership structure of economic factors

Modern economic systems are based on various forms of ownership, among which private and public ownership predominate. Their role lies in ensuring legal certainty, efficient allocation of resources, and the creation of conditions for sustainable economic development. Without clearly defined property rights, it is not possible to achieve the efficient functioning of markets or long-term planning of investment activities (North, 1990; Acemoglu & Johnson, 2005; World Bank, 2022).

Under conditions of globalization, the issue of ownership has acquired a new dimension, as economic relations increasingly take place within an international environment. Global financial flows, the development of the digital economy, as well as the growth of international investment require the harmonization of legal and institutional frameworks that will ensure the protection of property rights and more efficient management of economic resources (OECD, 2023; United Nations, 2023).

This paper starts from the assumption that a future sustainable development system should also incorporate natural capital as an important element of economic valuation. In this context, the possibility is considered of treating certain natural resources, particularly oxygen as a product of ecosystem functioning, as resources of exceptional importance for the survival of humanity. This approach represents an original concept proposed by the author and can be related to contemporary theories of natural capital and ecosystem services valuation, which emphasize that natural resources possess significant economic and social value, even though such value is often not reflected in market transactions (Dasgupta, 2021; United Nations et al., 2021).

The historical development of ownership relations demonstrates that changes in economic systems also require corresponding adjustments to the legal and institutional framework. Privatization processes in numerous transition economies provide an example of the transformation of socially owned property into private ownership, with the state acting as a regulator and

intermediary in the transfer of property rights. The objective of these processes was to establish a more efficient system of capital management and strengthen market mechanisms (Estrin et al., 2009; World Bank, 2022).

From the perspective of sustainable development, future models for managing natural resources should provide clearer definitions of responsibility for their use and preservation. Contemporary concepts of natural capital indicate that clearly defined property rights, appropriate institutional mechanisms, and transparent accounting records contribute to more rational resource use and the reduction of negative environmental externalities (Dasgupta, 2021; Ostrom, 1990; United Nations et al., 2021).

Accounting for the value of natural resources and incorporating environmental costs into financial reporting represent fundamental prerequisites for the development of a sustainable economy. By integrating natural capital into business decision-making systems, conditions are created for more objective valuation of business entities, more efficient resource management, and the long-term preservation of the environment. Such an approach is consistent with contemporary developments in sustainability accounting and international frameworks for the economic valuation of natural capital (IFRS Foundation, 2023a, 2023b; EFRAG, 2023; United Nations et al., 2021).

Conclusion

Modern social development and intensive globalization have generated numerous economic, technological, and social benefits, while simultaneously increasing pressure on natural resources and the environment. Climate change, pollution, and the depletion of natural capital highlight the need to establish new management models capable of balancing economic development with the preservation of living conditions for future generations.

The analysis conducted in this paper demonstrates that existing systems of natural resource management and financial decision-making are not sufficiently adapted to contemporary sustainable development challenges. Therefore, it is necessary to develop models that integrate economic efficiency, responsible resource use, and environmental protection through modern institutional and accounting mechanisms.

A particular contribution of this paper lies in examining the possibility of expanding the reproduction system by incorporating natural capital as an important element of economic development. In this context, the concept of introducing oxygen as a distinct factor of production represents an original model proposed by the author, emphasizing the importance of preserving natural resources and their economic valuation within the sustainable development process. Such an approach highlights the need to consider the value of natural assets not only from an environmental perspective but also from an economic one.

The accounting information system has a particularly important role in achieving these objectives, as its function extends beyond the traditional recording of business transactions. Its further development should enable the recording of natural capital, monitoring of costs arising from negative environmental impacts, and more objective reporting of organizational performance. By integrating financial and non-financial information, conditions are created for more effective resource management and more responsible business and public decision-making.

The establishment of a modern global system based on the sustainable use of natural resources, greater transparency in public finances, and the improvement of accounting models could contribute to more efficient resource allocation, stronger accountability among all participants in the economic system, and the long-term preservation of the environment. Such an approach represents an important step toward achieving sustainable economic development and creating better living conditions for present and future generations.

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ZNAČAJ MONETARNE POLITIKE ZA OBEZBEĐIVANJE MAKROEKONOMSKE ODRŽIVOSTI

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Rezime

Monetarna politika je ključna za obezbeđivanje makroekonomske održivosti, jer utiče na inflaciju, kamatne stope i zapošljavanje. U EU, zajednička monetarna politika Evropske centralne banke (ECB) ima značajan uticaj na stabilnost, dok fiskalne politike zemalja članica ostaju samostalne. Ovo često dovodi do nesklada između monetarne i fiskalne discipline, što je postalo očigledno tokom kriza javnog duga u zemljama kao što su Grčka i Italija.

Iako ECB kontroliše kamatne stope i emisiju novca, fiskalne politike pojedinih država mogu dovesti do prekomernog zaduživanja, što ugrožava stabilnost evra. Da bi se obezbedila dugoročna održivost, potrebna je bolja koordinacija monetarne i fiskalne politike, uz mogućnost stvaranja fiskalne unije unutar EU, koja bi omogućila bolju kontrolu prekomernog zaduživanja i usklađivanje ekonomskih politika.

Ključne reči: monetarna politika, makroekonomska stabilnost, inflacija, kamatne stope, ekonomski rast.

Uvod

Monetarna politika igra ključnu ulogu u održavanju makroekonomske stabilnosti, jer utiče na osnovne ekonomske parametre poput inflacije, kamatnih stopa, zapošljavanja i rasta bruto domaćeg proizvoda (BDP). Na globalnom nivou, centralne banke koriste monetarnu politiku kao glavni alat za upravljanje ekonomskim ciklusima i očuvanje stabilnosti finansijskog sistema.

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U Evropskoj uniji, ovaj proces je dodatno kompleksan zbog zajedničke valute, evra, koja obuhvata 19 zemalja članica. Evropska centralna banka (ECB), kao glavni regulator monetarne politike, odgovorna je za postizanje stabilnosti cena, ali nije ovlašćena za upravljanje fiskalnim politikama članica. Ovo dovodi do izazova, jer različite fiskalne strategije zemalja članica mogu biti neskladne sa zajedničkom monetarnom politikom (Kloosterman et al., 2024). (Afonso & Gomes-Pereira, 2025; Kloosterman et al., 2024)

Istorija Evropske unije pokazuje da je ekonomska integracija započela kao odgovor na razaranja koja je Evropa doživela tokom Drugog svetskog rata. Nakon rata, mnoge evropske zemlje su se suočavale sa ekonomskom stagnacijom, visokom inflacijom i velikim trgovinskim barijerama (Ficek, 2024). Prvi koraci ka integraciji uključivali su smanjenje trgovinskih barijera, ali pravi ekonomski napredak bio je moguć tek stvaranjem zajedničke valute. Uvođenje evra 1999. godine omogućilo je lakšu trgovinu i mobilnost kapitala među državama članicama, međutim, izostanak usklađene fiskalne politike postavio je temelje za kasnije ekonomske probleme (Schelkle, 2021). (Ficek, 2024; Schelkle, 2021)

Jedan od najjasnijih primera problema koje nesklad monetarne i fiskalne politike može izazvati predstavlja finansijska kriza koja je pogodila zemlje poput Grčke, Španije, Italije i Portugala tokom 2008. godine. Ulazak u eurozonu omogućio je tim zemljama lakši pristup jeftinim izvorima kapitala, što je dovelo do prekomernog zaduživanja i povećanja javnog duga. Uslovi za zaduživanje bili su povoljniji nego ikad pre, ali zemljama nije bilo omogućeno da sprovedu fiskalne politike koje bi odgovarale specifičnostima njihovih ekonomija, jer je ta odgovornost prebačena na njihove vlade, dok je monetarna politika bila centralizovana u ECB-u (Eminidou et al., 2023). (Bhimjee, 2023; Corradin & Schwaab, 2023)

Monetarna politika Evropske centralne banke, usmerena na stabilnost cena, imala je pozitivan uticaj na smanjenje inflacije u eurozoni, ali je nesklad između fiskalnih politika zemalja članica doveo do toga da su se u pojedinim slučajevima javni dugovi drastično povećavali (Rajkovic, 2025). Na primer, Grčka je nakon uvođenja eura uživala u niskim kamatnim stopama, što je omogućilo veće zaduživanje, dok fiskalna politika zemlje nije bila usklađena sa tim novim okolnostima, što je ubrzo dovelo do ozbiljne dužničke

krize (Afonso & Gomes-Pereira, 2025). (Jurkšas, 2024; Afonso & Gomes-Pereira, 2025)

Zbog ovih izazova, postavlja se pitanje kako dalja integracija Evropske unije može biti održiva ako se ne stvori fiskalna unija koja bi omogućila usklađivanje fiskalnih politika članica sa monetarnim okvirima koje nameće ECB. Potrebna su nova rešenja kako bi se sprečile buduće ekonomske krize i osigurala stabilnost evropskog finansijskog sistema (Figueira & Espinoza, 2023). U ovom kontekstu, razumevanje uloge monetarne politike u obezbeđivanju makroekonomske stabilnosti postaje ključno za budući uspeh Evropske unije kao jedinstvenog ekonomskog prostora. (Figueira & Espinoza, 2023; Blueschke et al., 2023)

1.Monetarna vs Fiskalna politika

Monetarna i fiskalna politika su dva ključna instrumenta ekonomske politike, koji se koriste kako bi se obezbedila ekonomska stabilnost i rast. Iako imaju zajednički cilj – makroekonomsku stabilnost – one se značajno razlikuju u svojoj prirodi, metodama sprovođenja i uticajima na ekonomiju.

Monetarna politika se uglavnom sprovodi kroz centralne banke i odnosi se na kontrolu količine novca u opticaju i kamatnih stopa (Afonso & Gomes-Pereira, 2025; Kloosterman et al., 2024). Glavni cilj monetarne politike je obezbeđivanje stabilnosti cena, odnosno kontrola inflacije, kao i stabilizacija kamatnih stopa koje utiču na troškove zaduživanja i štednje. Na primer, smanjenje kamatnih stopa može podstaći ekonomsku aktivnost smanjenjem troškova zaduživanja, dok povećanje kamatnih stopa može pomoći u kontroli inflacije (Gomes & Seoane, 2024). Centralne banke koriste različite instrumente, kao što su promene kamatnih stopa, operacije na otvorenom tržištu i obavezne rezerve kako bi postigle ove ciljeve. U teoriji, monetarna politika je posebno efikasna u kontroli inflacije i može brzo reagovati na promene u ekonomiji. (Kloosterman et al., 2024; Gomes & Seoane, 2024)

S druge strane, fiskalna politika obuhvata strategije koje se odnose na vladine prihode i izdatke, uključujući poreze i javnu potrošnju. Glavni cilj fiskalne politike je podsticanje ekonomskog rasta i smanjenje nezaposlenosti, kao i balansiranje javnog duga (Vukša, Milojević, 2024). Kroz fiskalnu politiku, vlade mogu povećavati javnu potrošnju i smanjivati poreze kako bi stimulisale ekonomiju u vremenima recesije, ili smanjivati izdatke i povećavati poreze kako

bi kontrolisale inflaciju i smanjile deficit (Ciaffi et al., 2024). Fiskalna politika može imati dugoročnije efekte jer se sprovođenje budžetskih promena često suočava sa političkim i administrativnim izazovima, što može usporiti reakciju u odnosu na monetarnu politiku. (Hülsewig & Rottmann, 2022; Jurkšas, 2024)

Iako su ove politike različite, one se međusobno nadopunjuju u postizanju ciljeva makroekonomske stabilnosti (Schelkle, 2021; Figueira & Espinoza, 2023). Na primer, tokom ekonomske krize, centralne banke mogu smanjivati kamatne stope (ekspanzivna monetarna politika), dok vlada može povećavati javnu potrošnju i smanjivati poreze (ekspanzivna fiskalna politika) kako bi podstakla potrošnju i investicije (Kloosterman et al., 2024). Međutim, u nekim slučajevima može doći do konflikta između monetarne i fiskalne politike. Na primer, ako vlada poveća potrošnju, a centralna banka poveća kamatne stope kako bi kontrolisala inflaciju, ove politike mogu biti u suprotnosti, smanjujući ukupnu efikasnost ekonomskih strategija. (Gomes & Seoane, 2024; Kloosterman et al., 2024)

U savremenim ekonomijama, posebno u eurozoni, gde je monetarna politika zajednička za sve članice, ali fiskalna politika ostaje nacionalna, izazovi koordinacije postaju još izraženiji. Evropska centralna banka sprovodi zajedničku monetarnu politiku, dok fiskalne politike zemalja članica mogu značajno varirati, što stvara potencijalne tenzije u postizanju zajedničke makroekonomske stabilnosti (Afonso & Gomes-Pereira, 2025). (Jurkšas, 2024; Hülsewig & Rottmann, 2022)

Zaključno, iako monetarna i fiskalna politika imaju različite instrumente i odgovornosti, oba su ključna za postizanje stabilnosti i održivog ekonomskog rasta (Milojević, Milanović, 2025). Usmeravanje ovih politika ka ciljevima kao što su niska inflacija, visoka zaposlenost i održiv javni dug osnova su za makroekonomsku stabilnost i prosperitet u dugoročnom periodu.

2.Kriza javnog duga

Kriza javnog duga predstavlja ozbiljan ekonomski problem koji se javlja kada država ne može da servisira svoje dugove, tj. kada se suoči s teškoćama u plaćanju kamata na dug ili u otplati glavnice duga. Ovo može dovesti do ozbiljnih posledica po nacionalnu ekonomiju, finansijske institucije, kao i međunarodne odnose. Krize javnog duga obično nastaju usled neodgovorne fiskalne politike, loše upravljanja budžetom, neodrživog nivoa zaduživanja ili

eksternih ekonomskih šokova, kao što su recesije ili promene na globalnim tržištima. (Mutai et al., 2026; Navarro-Ortiz & Sapena, 2025)

Jedan od osnovnih uzroka krize javnog duga je prekomerno zaduživanje države, koje može nastati kroz dugoročno zaduživanje na domaćim ili stranim tržištima. Kada država troši više nego što može da zaradi kroz poreze i druge prihode, mora da se zaduži da bi pokrila svoj deficit. Ukoliko ovaj dug postane prekomeran u odnosu na BDP, ili ako raste brže od ekonomskog rasta, dug postaje neodrživ. To može izazvati smanjenje poverenja u sposobnost države da servisira svoje obaveze, što dovodi do povećanja kamatnih stopa na nove dugove i smanjenja investicija u ekonomiju. (Dascher & Greiner, 2023; Eminidou et al., 2023)

Kratkoročne i dugoročne posledice krize javnog duga mogu biti dramatične. U kratkom roku, država može biti primorana da smanji javnu potrošnju, povećava poreze ili sprovodi druge mere štednje kako bi smanjila budžetski deficit. Ove mere mogu smanjiti ekonomski rast, povećati nezaposlenost i smanjiti životni standard građana. Dugoročne posledice uključuju smanjenje kreditnog rejtinga države, smanjenje poverenja investitora, pa čak i mogućnost da zemlja bude primorana da traži pomoć od međunarodnih finansijskih institucija poput Međunarodnog monetarnog fonda (MMF) ili Evropske unije. (Bhimjee, 2023; Eminidou et al., 2023)

Jedan od najpoznatijih primera krize javnog duga je dužnička kriza evrozone koja je počela 2009. godine, kada je Grčka, zajedno sa nekoliko drugih zemalja (poput Portugala, Španije i Irske), ušla u dužničku krizu zbog prekomernog zaduživanja i lošeg upravljanja javnim finansijama. Ova kriza je izazvala recesiju u mnogim evropskim zemljama, duboku fiskalnu konsolidaciju i oštre mere štednje koje su izazvale masovne proteste i socijalnu nestabilnost (Ionta et al., 2025; Gomes & Seoane, 2024). Kroz ovu krizu, mnoge evropske zemlje su morale da se obavežu na drastične fiskalne reforme, uključujući smanjenje javne potrošnje i povećanje poreza, kako bi postigle budžetsku konsolidaciju i smanjile javni dug. (Corradin & Schwaab, 2023; Gnewuch, 2022)

Rešenja za prevenciju i rešavanje krize javnog duga obuhvataju nekoliko ključnih strategija. Prva i osnovna strategija je sprovođenje odgovorne fiskalne politike koja uključuje održiv nivo zaduživanja, uz paralelnu stimulaciju ekonomskog rasta i podsticanje izvoza i investicija. Druga strategija uključuje reforme u javnim sektorima, kao što su smanjenje javne potrošnje, racionalizacija javnih usluga i

smanjenje administrativnih troškova. Takođe, važno je i poboljšanje poreskih sistema kako bi država mogla efikasnije da prikuplja prihode i smanji zavisnost od zaduživanja. (Ciaffi et al., 2024; Eminidou et al., 2023)

U nekim slučajevima, kada javni dug postane neodrživ, država može biti primorana da pregovara o restrukturiranju duga sa poveriocima, što može uključivati otpis dela duga, produžavanje roka otplate ili smanjenje kamatnih stopa. Međutim, restrukturiranje duga može biti politički teško, jer zahteva saglasnost svih strana, a često izaziva i gubitak poverenja u finansijskim tržištima. (Navarro-Ortiz & Sapena, 2025; Mutai et al., 2026)

Kao zaključak, kriza javnog duga nije samo ekonomski problem, već i politički izazov, koji zahteva koordinisane napore na nacionalnom i međunarodnom nivou. Održiva fiskalna politika, odgovorno upravljanje budžetom i strateške reforme ključni su za prevenciju dugoročnih problema sa zaduživanjem i obezbeđivanje ekonomske stabilnosti. (Afonso & Gomes-Pereira, 2025; Ionta et al., 2025)

3. Mogućnosti za smanjenje javnog duga

Smanjenje javnog duga je složen proces koji zahteva pažljiv i dugoročan pristup, usmeren na fiskalnu disciplinu, ekonomski rast i socijalnu stabilnost. Jedan od najefikasnijih načina smanjenja javnog duga je smanjenje budžetskog deficita, koji nastaje kada javni rashodi premašuju javne prihode. Ovo može biti ostvareno kroz smanjenje javne potrošnje, što može uključivati smanjenje subvencija, administrativnih troškova, kao i racionalizaciju socijalnih usluga (Dascher & Greiner, 2023). Povećanje poreza, s ciljem povećanja javnih prihoda, može biti drugo rešenje, ali treba biti pažljivo primenjeno kako ne bi negativno uticalo na ekonomski rast (Ciaffi et al., 2024). (Ciaffi et al., 2024; Mutai et al., 2026)

Povećanje stranih direktnih investicija predstavlja još jedan način smanjenja javnog duga, jer strane investicije mogu podstaći ekonomski rast, stvoriti radna mesta i povećati izvoz, što direktno doprinosi povećanju javnih prihoda (Ciaffi et al., 2024). Pored toga, država može pregovarati sa poveriocima o restrukturiranju duga, što uključuje smanjenje kamatnih stopa, produženi period otplate ili čak otpis duga. Ove mere mogu olakšati teret duga u kratkom roku, dok se dugoročno stvara stabilniji fiskalni okvir (Navarro-Ortiz & Sapena, 2025). (Ciaffi et al., 2024; Eminidou et al., 2023)

Brži ekonomski rast je ključan za smanjenje javnog duga u odnosu na BDP, jer povećava poreske prihode, smanjuje potrebu za socijalnim izdacima i stvara veći prostor za servisiranje duga (Ciaffi et al., 2024). Investicije u infrastrukturu i podsticanje inovacija mogu doprineti tom rastu. Takođe, strukturne reforme u obrazovnom sistemu, tržištu rada i javnim uslugama mogu učiniti ekonomiju efikasnijom i produktivnijom, što doprinosi dugoročnoj stabilnosti (Ciaffi et al., 2024). (Ciaffi et al., 2024; Mutai et al., 2026)

Povećanje efikasnosti u javnom sektoru, kroz racionalizaciju usluga, digitalizaciju administracije i uvođenje mera protiv korupcije, može smanjiti nepotrebne troškove i optimizovati potrošnju resursa (Dascher & Greiner, 2023). Privatizacija državnih preduzeća može biti još jedan koristan alat, jer omogućava bolje upravljanje resursima i generiše sredstva koja se mogu iskoristiti za smanjenje duga (Dascher & Greiner, 2023). (Dascher & Greiner, 2023; Gomes & Seoane, 2024)

Za zemlje sa visokim spoljnim dugom, povećanje deviznih rezervi može smanjiti pritisak na valutu i obezbediti stabilniji makroekonomski okvir (Corradin & Schwaab, 2023). Ove politike mogu poboljšati trgovinsku bilancu, smanjiti uvoz i povećati izvoz, čime se dalje smanjuje potreba za zaduživanjem (Ciaffi et al., 2024). (Corradin & Schwaab, 2023; Eminidou et al., 2023)

U konačnici, smanjenje javnog duga je proces koji zahteva uravnotežen pristup, koji uključuje fiskalne reforme, podsticanje ekonomskog rasta, efikasno upravljanje resursima i odgovorno zaduživanje. Kombinacija ovih mera može omogućiti održivo smanjenje javnog duga i obezbediti dugoročnu ekonomsku stabilnost (Navarro-Ortiz & Sapena, 2025). (Navarro-Ortiz & Sapena, 2025; Mutai et al., 2026)

4.Potreba za fiskalnom unijom

Potreba za fiskalnom unijom postaje sve očiglednija u kontekstu globalnih ekonomskih izazova, posebno u okviru Evropske unije, gde su se tokom poslednjih decenija pojavili problemi sa fiskalnom koordinacijom između zemalja članica. Fiskalna unija podrazumeva usklađivanje fiskalnih politika država članica, što uključuje zajedničke fiskalne ciljeve, regulacije u vezi sa javnim dugom i deficitima, kao i mogućnost zajedničkog finansiranja u kriznim situacijama. Ovaj model omogućava veći stepen koordinacije u

ekonomskim politikama i smanjuje rizik od fiskalnih nesreća koje mogu destabilizovati ekonomiju regije ili šire. (Blueschke et al., 2023; Figueira & Espinoza, 2023)

Jedan od glavnih razloga za usmeravanje ka fiskalnoj uniji je eliminacija fiskalnih disbalansa među državama članicama. Različiti fiskalni kapaciteti i politike zemalja mogu stvoriti nejednakosti u ekonomskim rezultatima (Mutai et al., 2026; Ionta et al., 2025). Na primer, tokom duže ekonomske recesije ili globalnih kriza, zemlje sa slabijim fiskalnim kapacitetima mogu postati ozbiljno ugrožene, što dodatno stvara destabilizujuće pritiske na čitav ekonomski sistem (Figueira & Espinoza, 2023). Fiskalna unija bi omogućila jedinstveni okvir za rešavanje tih problema, omogućavajući brže i efikasnije odgovore na fiskalne šokove. (Figueira & Espinoza, 2023; Schelkle, 2021)

Takođe, fiskalna unija može doprineti jačanju fiskalne discipline. Kada zemlje članice imaju zajedničke fiskalne ciljeve i norme, to stvara veći stepen odgovornosti i transparentnosti u njihovim fiskalnim politikama. Kao što se vidi iz iskustava Evropske unije, država koja previše troši ili stvara velike deficite može negativno uticati na stabilnost celokupne zajednice, izazivajući porast kamatnih stopa, smanjenje poverenja investitora i smanjenje makroekonomske stabilnosti (Figueira & Espinoza, 2023). (Bušš et al., 2024; Ficek, 2024)

Jedan od ključnih aspekata fiskalne unije je i mogućnost zajedničkog finansiranja kriznih situacija, kao što su finansijske ili ekonomske krize, pandemije ili prirodne nepogode. Ako bi zemlja sa slabijim ekonomskim stanjem mogla računati na pomoć od strane drugih članica unije, to bi smanjilo rizik od ekonomskih kolapsa i omogućilo brži oporavak (Afonso & Gomes-Pereira, 2025; Blueschke et al., 2023). Ovo je naročito značajno u kontekstu javnog duga, jer je u mnogim slučajevima zaduživanje na međunarodnim tržištima izuzetno skupo za zemlje sa višim nivoima duga (Eminidou et al., 2023). (Schelkle, 2021; Blueschke et al., 2023)

Međutim, postoji i niz izazova u vezi sa implementacijom fiskalne unije. Postavljanje zajedničkih fiskalnih normi može biti politički izazovno, jer zemljama članicama može biti teško da prihvate gubitak deo svoje fiskalne autonomije. Takođe, postoji zabrinutost da bi zajedničko finansiranje moglo dovesti do moralnog hazardnog ponašanja, gde bi zemlje koje previše troše očekivale da će druge finansirati njihove dugove (Figueira & Espinoza, 2023). Da bi

fiskalna unija bila uspešna, mora postojati odgovarajući mehanizam za nadzor i kontrolu fiskalne discipline, kao i strategije za rešavanje nesuglasica među članicama. (Figueira & Espinoza, 2023; Blueschke et al., 2023)

U svakom slučaju, potreba za fiskalnom unijom postaje ključna kako bi se obezbedila dugoročna stabilnost i održivost ekonomskih politika na regionalnom ili globalnom nivou. Zajedničko fiskalno usmeravanje ne samo da pomaže u stabilizaciji ekonomija, već takođe omogućava efikasniji odgovor na globalne izazove i neizvesnosti, kao što su klimatske promene, tehnološke promene i demografske promene (Corradin & Schwaab, 2023). (Figueira & Espinoza, 2023; Ionta et al., 2025).

Zaključak

Evropska unija je prošla kroz mnoge promene koje su omogućile lakšu trgovinu, investicije i ekonomski oporavak. Ipak, neusklađenost monetarne i fiskalne politike dovela je do ozbiljnih problema, uključujući rastući javni dug i finansijske krize. Da bi projekat zajedničke valute bio održiv, potrebno je stvoriti fiskalnu uniju koja će koordinirati fiskalne politike zemalja članica. Ovaj korak bi omogućio stabilniji ekonomski rast i smanjio šanse za ponovnu finansijsku krizu u budućnosti. Fiskalna unija pruža osnovu za usklađivanje fiskalnih politika među državama članicama, smanjujući rizik od destabilizacije izazvane fiskalnim disbalansima i nejednakostima u fiskalnim kapacitetima. Kroz zajedničke fiskalne ciljeve i pravila, fiskalna unija može doprineti jačanju fiskalne discipline i transparentnosti, čime se poboljšava makroekonomska stabilnost.

Takođe, u periodima ekonomskih ili finansijskih kriza, fiskalna unija omogućava brzo i efikasno zajedničko rešavanje problema, pružajući potrebnu podršku slabijim ekonomijama i smanjujući rizik od potpunog ekonomskog kolapsa. Međutim, implementacija fiskalne unije suočava se s političkim i ekonomskim izazovima, kao što su gubitak fiskalne autonomije i opasnost od moralnog hazarda. Zbog toga je ključna uspostava jasnih mehanizama nadzora i odgovornosti unutar unije.

U svetlu ovih izazova i prednosti, fiskalna unija predstavlja ne samo ekonomski, već i politički imperativ za budućnost stabilnih i održivih ekonomskih politika. Njena implementacija bi omogućila

da zemlje članice bolje odgovore na globalne ekonomske i političke promene, čime bi doprinosila dugoročnoj stabilnosti i prosperitetu.

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THE IMPORTANCE OF MONETARY POLICY FOR ENSURING MACROECONOMIC SUSTAINABILITY

Original scientific paper

Summary

Monetary policy is crucial for ensuring macroeconomic sustainability, because it affects inflation, interest rates, and employment. In the EU, the common monetary policy of the European Central Bank (ECB) has a significant impact on stability, while the fiscal policies of member states remain independent. This often leads to a mismatch between monetary and fiscal discipline, which became particularly evident during the public debt crises in countries such as Greece and Italy.

Although the ECB controls interest rates and the money supply, the fiscal policies of individual states can lead to excessive borrowing, which threatens the stability of the euro. To ensure long-term sustainability, better coordination between monetary and fiscal policy is needed, along with the possibility of creating a fiscal union within the EU, which would enable better control of excessive borrowing and greater coordination of economic policies.

Keywords: monetary policy, macroeconomic stability, inflation, interest rates, economic growth.

Introduction

Monetary policy plays a key role in maintaining macroeconomic stability, as it affects basic economic parameters such as inflation, interest rates, employment, and gross domestic product (GDP) growth. At the global level, central banks use monetary policy as the main tool for managing economic cycles and maintaining the stability of the financial system. In the European Union, this process

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is further complicated by the common currency, the euro, which covers 19 member states. The European Central Bank (ECB), as the main regulator of monetary policy, is responsible for achieving price stability, but it is not authorized to manage the fiscal policies of member states. This creates challenges, as different fiscal strategies of member states may not be consistent with the common monetary policy (Kloosterman et al., 2024; Afonso & Gomes-Pereira, 2025; Kloosterman et al., 2024).

The history of the European Union shows that economic integration began as a response to the destruction Europe experienced during the Second World War. After the war, many European countries faced economic stagnation, high inflation, and significant trade barriers (Ficek, 2024). The first steps toward integration included reducing trade barriers, but real economic progress became possible only with the creation of a common currency. The introduction of the euro in 1999 enabled easier trade and greater capital mobility among member states; however, the absence of coordinated fiscal policy laid the foundations for later economic problems (Schelkle, 2021; Ficek, 2024; Schelkle, 2021)

One of the clearest examples of the problems that a mismatch between monetary and fiscal policy can cause is the financial crisis that affected countries such as Greece, Spain, Italy, and Portugal in 2008. Joining the euro area enabled these countries to gain easier access to cheaper sources of capital, which led to excessive borrowing and an increase in public debt. Borrowing conditions were more favorable than ever before, but countries were not able to implement fiscal policies that would correspond to the specific characteristics of their economies, as this responsibility remained with their governments, while monetary policy was centralized within the ECB (Eminidou et al., 2023; Bhimjee, 2023; Corradin & Schwaab, 2023).

The monetary policy of the European Central Bank, aimed at price stability, had a positive impact on the reduction of inflation in the Eurozone, but the discrepancy between the fiscal policies of the member countries led to the fact that, in some cases, public debts increased drastically (Rajkovic, 2025). For example, after the introduction of the euro, Greece benefited from low interest rates, which enabled greater borrowing, while the country's fiscal policy was not adapted to these new circumstances, which soon led to a serious debt crisis (Afonso & Gomes-Pereira, 2025; Jurkšas, 2024; Afonso & Gomes-Pereira, 2025).

Because of these challenges, the question arises as to how further integration of the European Union can be sustainable if a fiscal union is not established to enable the coordination of member states' fiscal policies with the monetary framework established by the ECB. New solutions are needed to prevent future economic crises and ensure the stability of the European financial system (Figueira & Espinoza, 2023). In this context, understanding the role of monetary policy in ensuring macroeconomic stability becomes crucial for the future success of the European Union as a single economic area (Figueira & Espinoza, 2023; Blueschke et al., 2023).

1. Monetary policy vs. Fiscal policy

Monetary and fiscal policy are two key instruments of economic policy used to ensure economic stability and growth. Although they share a common goal – macroeconomic stability – they differ significantly in their nature, methods of implementation, and effects on the economy.

Monetary policy is mainly conducted through central banks and refers to controlling the money supply and interest rates (Afonso & Gomes-Pereira, 2025; Kloosterman et al., 2024). The main objective of monetary policy is to ensure price stability, that is, to control inflation, as well as to stabilize interest rates that affect the costs of borrowing and saving. For example, a reduction in interest rates can stimulate economic activity by lowering borrowing costs, while an increase in interest rates can help control inflation (Gomes & Seoane, 2024). Central banks use various instruments, such as changes in interest rates, open market operations, and reserve requirements, to achieve these objectives. In theory, monetary policy is particularly effective in controlling inflation and can respond quickly to changes in the economy (Kloosterman et al., 2024; Gomes & Seoane, 2024).

On the other hand, fiscal policy includes strategies related to government revenues and expenditures, including taxation and public spending. The main objectives of fiscal policy are to promote economic growth, reduce unemployment, and maintain a sustainable level of public debt (Vukša, Milojević, 2024). Through fiscal policy, governments can increase public spending and reduce taxes to stimulate the economy during periods of recession, or reduce expenditures and increase taxes to control inflation and reduce the deficit (Ciaffi et al., 2024). Fiscal policy can have longer-term

effects because the implementation of budgetary changes often faces political and administrative challenges, which can slow the response compared to monetary policy (Hülsewig & Rottmann, 2022; Jurkšas, 2024).

Although these policies are different, they complement each other in achieving macroeconomic stability objectives (Schelkle, 2021; Figueira & Espinoza, 2023). For example, during an economic crisis, central banks may reduce interest rates (expansionary monetary policy), while the government may increase public spending and reduce taxes (expansionary fiscal policy) to stimulate consumption and investment (Kloosterman et al., 2024). However, in some cases, conflicts may arise between monetary and fiscal policy. For example, if the government increases spending while the central bank raises interest rates to control inflation, these policies may work against each other, reducing the overall effectiveness of economic policies (Gomes & Seoane, 2024; Kloosterman et al., 2024).

In modern economies, particularly in the euro area, where monetary policy is common to all member states while fiscal policy remains national, the challenges of coordination become even more evident. The European Central Bank conducts a common monetary policy, while the fiscal policies of member states may vary significantly, creating potential tensions in achieving common macroeconomic stability (Afonso & Gomes-Pereira, 2025; Jurkšas, 2024; Hülsewig & Rottmann, 2022).

In conclusion, although monetary and fiscal policy have different instruments and responsibilities, both are essential for achieving stability and sustainable economic growth (Milojević, Milanović, 2025). Aligning these policies with objectives such as low inflation, high employment, and sustainable public debt provides the basis for macroeconomic stability and long-term prosperity.

2. Public debt crisis

A public debt crisis represents a serious economic problem that occurs when a government is unable to service its debts, that is, when it faces difficulties in paying interest on its debt or repaying the principal. This can have serious consequences for the national economy, financial institutions, and international relations. Public debt crises usually arise as a result of irresponsible fiscal policy, poor budget management, unsustainable levels of borrowing, or

external economic shocks, such as recessions or changes in global markets (Mutai et al., 2026; Navarro-Ortiz & Sapena, 2025).

One of the main causes of a public debt crisis is excessive government borrowing, which can result from long-term borrowing in domestic or foreign markets. When a government spends more than it can generate through taxes and other revenues, it has to borrow in order to cover its deficit. If this debt becomes excessive in relation to GDP, or if it grows faster than the economy, the debt becomes unsustainable. This can lead to a loss of confidence in the government's ability to meet its obligations, resulting in higher interest rates on new debt and reduced investment in the economy (Dascher & Greiner, 2023; Eminidou et al., 2023).

The short-term and long-term consequences of a public debt crisis can be dramatic. In the short term, the government may be forced to reduce public spending, increase taxes, or implement other austerity measures in order to reduce the budget deficit. These measures can slow economic growth, increase unemployment, and reduce citizens' living standards. Long-term consequences include a decline in the country's credit rating, reduced investor confidence, and even the possibility that the country may be forced to seek assistance from international financial institutions such as the International Monetary Fund (IMF) or the European Union (Bhimjee, 2023; Eminidou et al., 2023).

One of the best-known examples of a public debt crisis is the eurozone debt crisis, which began in 2009, when Greece, together with several other countries such as Portugal, Spain, and Ireland, entered a debt crisis due to excessive borrowing and poor management of public finances. This crisis caused a recession in many European countries, deep fiscal consolidation, and severe austerity measures that led to mass protests and social instability (Ionta et al., 2025; Gomes & Seoane, 2024). During the crisis, many European countries had to commit to drastic fiscal reforms, including reductions in public spending and tax increases, in order to achieve budget consolidation and reduce public debt (Corradin & Schwaab, 2023; Gnewuch, 2022).

Solutions for preventing and addressing public debt crises include several key strategies. The first and most important strategy is the implementation of responsible fiscal policy that maintains sustainable levels of borrowing, while simultaneously stimulating economic growth and promoting exports and investment. The second strategy involves reforms in the public sector, such as

reducing public spending, rationalizing public services, and lowering administrative costs. Improving tax systems is also important so that the government can collect revenues more efficiently and reduce its dependence on borrowing (Ciaffi et al., 2024; Eminidou et al., 2023).

In some cases, when public debt becomes unsustainable, the government may be forced to negotiate debt restructuring with creditors, which may involve writing off part of the debt, extending the repayment period, or reducing interest rates. However, debt restructuring can be politically difficult, as it requires the agreement of all parties and often leads to a loss of confidence in financial markets (Navarro-Ortiz & Sapena, 2025; Mutai et al., 2026).

In conclusion, a public debt crisis is not only an economic problem but also a political challenge that requires coordinated efforts at both the national and international levels. Sustainable fiscal policy, responsible budget management, and strategic reforms are essential for preventing long-term debt-related problems and ensuring economic stability (Afonso & Gomes-Pereira, 2025; Ionta et al., 2025).

3. Possibilities for reducing public debt

Reducing public debt is a complex process that requires a careful and long-term approach focused on fiscal discipline, economic growth, and social stability. One of the most effective ways to reduce public debt is to reduce the budget deficit, which occurs when public expenditures exceed public revenues. This can be achieved by reducing public spending, which may include cutting subsidies and administrative costs, as well as rationalizing social services (Dascher & Greiner, 2023). Increasing taxes in order to raise public revenues can be another solution, but it should be applied carefully so as not to have a negative impact on economic growth (Ciaffi et al., 2024; Mutai et al., 2026).

Increasing foreign direct investment represents another way to reduce public debt, as foreign investment can stimulate economic growth, create jobs, and increase exports, which directly contributes to higher public revenues (Ciaffi et al., 2024). In addition, the government can negotiate with creditors on debt restructuring, which may include reducing interest rates, extending the repayment period, or even debt write-offs. These measures can ease the debt burden in the short term, while creating a more stable fiscal

framework in the long term (Navarro-Ortiz & Sapena, 2025; Ciaffi et al., 2024; Eminidou et al., 2023).

Faster economic growth is essential for reducing public debt relative to GDP, as it increases tax revenues, reduces the need for social spending, and creates greater room for debt servicing (Ciaffi et al., 2024). Investments in infrastructure and the promotion of innovation can contribute to such growth. In addition, structural reforms in the education system, labor market, and public services can make the economy more efficient and productive, contributing to long-term stability (Ciaffi et al., 2024; Mutai et al., 2026).

Increasing efficiency in the public sector through the rationalization of services, digitalization of administration, and the introduction of anti-corruption measures can reduce unnecessary costs and optimize the use of resources (Dascher & Greiner, 2023). Privatization of state-owned enterprises can be another useful tool, as it can enable better resource management and generate funds that can be used to reduce debt (Dascher & Greiner, 2023; Gomes & Seoane, 2024).

For countries with high levels of external debt, increasing foreign exchange reserves can reduce pressure on the currency and provide a more stable macroeconomic framework (Corradin & Schwaab, 2023). These policies can improve the trade balance, reduce imports, and increase exports, thereby further reducing the need for borrowing (Ciaffi et al., 2024; Corradin & Schwaab, 2023; Eminidou et al., 2023).

Ultimately, reducing public debt is a process that requires a balanced approach, including fiscal reforms, promoting economic growth, efficient resource management, and responsible borrowing. A combination of these measures can enable a sustainable reduction in public debt and ensure long-term economic stability (Navarro-Ortiz & Sapena, 2025; Mutai et al., 2026).

4. The need for a fiscal union

The need for a fiscal union is becoming increasingly evident in the context of global economic challenges, particularly within the European Union, where problems with fiscal coordination among member states have emerged over the past decades. A fiscal union involves the coordination of the fiscal policies of member states, including common fiscal objectives, regulations concerning public debt and deficits, as well as the possibility of joint financing in times of crisis. This model enables a greater degree of coordination in

economic policies and reduces the risk of fiscal problems that could destabilize the economy of a region or beyond (Blueschke et al., 2023; Figueira & Espinoza, 2023).

One of the main reasons for moving towards a fiscal union is the elimination of fiscal imbalances among member states. Differences in the fiscal capacities and policies of individual countries can create inequalities in economic outcomes (Mutai et al., 2026; Ionta et al., 2025). For example, during a prolonged economic recession or global crises, countries with weaker fiscal capacities may become seriously vulnerable, which further creates destabilizing pressures on the entire economic system (Figueira & Espinoza, 2023). A fiscal union would provide a common framework for addressing these problems, enabling faster and more effective responses to fiscal shocks (Figueira & Espinoza, 2023; Schelkle, 2021).

Fiscal union can also contribute to strengthening fiscal discipline. When member states have common fiscal objectives and rules, this creates a greater degree of accountability and transparency in their fiscal policies. As seen from the experience of the European Union, a state that spends excessively or runs large deficits can negatively affect the stability of the entire community, leading to higher interest rates, reduced investor confidence, and lower macroeconomic stability (Figueira & Espinoza, 2023; Bušš et al., 2024; Ficek, 2024).

One of the key aspects of a fiscal union is also the possibility of joint financing in crisis situations, such as financial or economic crises, pandemics, or natural disasters. If a country with weaker economic conditions could rely on assistance from other members of the union, this would reduce the risk of economic collapse and enable a faster recovery (Afonso & Gomes-Pereira, 2025; Blueschke et al., 2023). This is particularly important in the context of public debt, as borrowing on international markets can, in many cases, be extremely costly for countries with higher levels of debt (Eminidou et al., 2023; Schelkle, 2021; Blueschke et al., 2023).

However, there are also a number of challenges associated with the implementation of a fiscal union. Establishing common fiscal rules can be politically challenging, as member states may find it difficult to accept the loss of part of their fiscal autonomy. There is also concern that joint financing could lead to moral hazard, where countries that spend excessively would expect other members to finance their debts (Figueira & Espinoza, 2023). For a fiscal union to be successful, there must be an appropriate mechanism for

monitoring and controlling fiscal discipline, as well as strategies for resolving disagreements among member states (Figueira & Espinoza, 2023; Blueschke et al., 2023).

In any case, the need for a fiscal union is becoming crucial for ensuring the long-term stability and sustainability of economic policies at the regional or global level. Common fiscal coordination not only helps stabilize economies but also enables a more effective response to global challenges and uncertainties, such as climate change, technological change, and demographic changes (Corradin & Schwaab, 2023; Figueira & Espinoza, 2023; Ionta et al., 2025).

Conclusion

The European Union has gone through many changes that have enabled easier trade, investment, and economic recovery. However, misalignment between monetary and fiscal policy has led to serious problems, including rising public debt and financial crises. For the common currency project to be sustainable, it is necessary to establish a fiscal union that will coordinate the fiscal policies of member states. This step would enable more stable economic growth and reduce the likelihood of another financial crisis in the future. A fiscal union provides a basis for coordinating fiscal policies among member states, reducing the risk of destabilization caused by fiscal imbalances and differences in fiscal capacities. Through common fiscal objectives and rules, a fiscal union can contribute to strengthening fiscal discipline and transparency, thereby improving macroeconomic stability.

Furthermore, during periods of economic or financial crises, a fiscal union enables a rapid and effective joint response to problems, providing the necessary support to weaker economies and reducing the risk of complete economic collapse. However, the implementation of a fiscal union faces political and economic challenges, such as the loss of fiscal autonomy and the risk of moral hazard. Therefore, establishing clear mechanisms of oversight and accountability within the union is essential.

In light of these challenges and advantages, a fiscal union represents not only an economic but also a political imperative for the future of stable and sustainable economic policies. Its implementation would enable member states to respond more effectively to global economic and political changes, thereby contributing to long-term stability and prosperity.

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