EUB-2026: 14th International Multidisciplinary Academic Conference "Ecology of XXI Century": Sustainability and New Technologies - Drivers of Economic, Social and Cultural Progress. Bucharest, 2-4 April, 20264

The Circular Economy – A Strategic Model for Sustainable Development and Competitiveness

Section organized by Faculty of Financial Management, Ecological University of Bucharest, and Institute for Economic Forecasting, Romanian Academy

EUB-2026: 14th International Multidisciplinary Academic Conference "Ecology of XXI Century": *Sustainability and New Technologies: Drivers of Economic, Social and Cultural Progress* (Bucharest, April 2-4, 2026)

BOOK OF ABSTRACTS

SECTION: *The Circular Economy – A Strategic Model for Sustainable Development and Competitiveness*

Organized by:

Faculty of Financial Management – Ecological University of Bucharest *and* Institute for Economic Forecasting – Romanian Academy

Bucharest, April 2-3, 2026

Book of Abstracts
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ALBU, Lucian-Liviu:
Kuznets Curve versus Entropy Law in Economic Systems

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Abstract

The Kuznets curve is an inverted U-shaped hypothesis suggesting that as an economy develops, market forces first increase income inequality and then decrease it. Proposed by Simon Kuznets, it posits that early industrialization increases inequality, but later, higher incomes and structural shifts lead to a more equal distribution, peaking at a certain economic threshold. Against many studies trying to demonstrate the existence a such theoretical curve, it continues until today to not be demonstrated. Contrary to this hypothesis, by applying the Entropy Law in an economic system and using a so-called moving target model, we are simulating the long-term convergence process both at the level of the global economy and in EU. The empirical data strongly demonstrated the existence of a such process, similarly as in case of physical systems dynamics.

Keywords: Kuznets curve, industrialization inequality, Entropy Law, long-term convergence process.

JEL Classification: L16, O11, O47

IORGULESCU, Raluca-Ioana;
POLIMENI, John M.:

Modern Biotechnologies and the New EU Bioeconomy Strategy

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Abstract

The implementation of the European Union (EU) Bioeconomy Strategy of 2012 and its update in 2018 have enabled significant progress in the field of research and innovation. The EU estimates that it has the potential to achieve a leading position in a rapidly expanding market, by capitalizing on the sectors of biomaterials, bioproduction, biochemicals, agri-tech and biotechnology. At the end of 2025 (27 November 2025), the New EU Bioeconomy Strategy was made available and in December 2025, the EU Council and the EU Parliament reached a provisional agreement on new genomic techniques (NGT). The new rules which establish the legal framework for NGT plants (two categories) that will be available on the EU market so that they are as safe as conventional varieties are presented and discussed. The agreement covers plants that contain small changes to their genetic material through targeted mutagenesis or insertions of genetic material from the same plant or from cross-bred plants through cisgenesis, including intragenesis.

Keywords: bioeconomy, biotechnology, new genomic techniques

JEL Classification: Q16, Q57

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SIMIONESCU, Mihaela:

The Nonlinear Relationship Between Inflation and Wealth Inequality in the European Union. The Role of Self-Employment and Credit

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Abstract

The Covid-19 crisis intensified the disparities in wealth and inflation, highlighting the need for targeted policy responses. The aim of this study is to explore the non-linear relationship between inflation and wealth inequality in the EU countries in the period 1990-2024 using Continuously-Updated and Bias-Corrected (CUP-BC) estimators and system Generalized Method of Moments (system GMM) to address endogeneity. The results indicated a U-shaped pattern between inflation and the wealth shares of the top 1% and the bottom 50% in the EU. In addition, the study identified self-employment as a mediating channel and shows that domestic credit to the private sector moderates the impact of inflation on the wealth share of the top 1%. The policy proposals should target stable inflation while expanding inclusive credit access to support vulnerable self-employed workers.

Keywords: inflation, wealth inequality, self-employment, credit.

JEL Classification: C33, E31, E64.

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JULA, Dorin;
JULA, Nicoleta:

Modelling the Relationship Between Private Investment and Gross Value Added in Circular Economy Sectors

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Abstract

The transition towards a circular economy has become a strategic priority for the European Union, with private investment playing a central role in supporting sustainable production systems and resource efficiency. In this context, understanding the relationship between private investment and gross value added (GVA) in circular economy sectors is essential for evaluating the effectiveness of development strategies and policy frameworks across EU member states. This paper aims to model the relationship between private investment and gross value added in circular economy sectors across the EU-27 countries, focusing on both long-term equilibrium relationships and short-term dynamics. The empirical analysis is based on panel data covering the EU-27 countries over a multi-year period and employs the Pooled Mean Group (PMG) estimator within an Autoregressive Distributed Lag (ARDL) framework. This methodological approach allows for the identification of long-run homogeneity across countries while capturing short-run heterogeneity in adjustment processes. The results provide evidence of a statistically significant long-run relationship between private investment and gross value added in circular economy sectors, indicating that increases in investment contribute positively to value creation in activities associated with resource efficiency, recycling, and sustainable production. In the short run, the adjustment dynamics differ across countries, reflecting variations in structural conditions, investment capacity, and institutional frameworks. The estimated error correction mechanism confirms the existence of a stable long-term equilibrium relationship. The findings underline the importance of strengthening private investment incentives and enhancing policy coordination at both national and European levels to accelerate the development of circular economy sectors. By providing an econometric assessment of the investment–value added nexus, this study

contributes to the literature on sustainable growth and offers policy-relevant insights for achieving the objectives of the European Green Deal and the circular economy action plans within the European Union.

Keywords: circular economy, private investment, gross value added, panel data, PMG/ARDL model, EU-27 countries, sustainable growth, resource efficiency

JEL Classification: C23, C51, E22, O44, Q56.

JULA, Nicoleta;
JULA, Nicolae-Marius:

Migration Analysis in Regional Structures

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Abstract

Regional migration represents a key mechanism of labour market adjustment and regional convergence, reflecting disparities in economic opportunities and living standards across territories. In Romania, significant differences in regional development levels have generated persistent migration flows, making the analysis of their economic determinants particularly relevant for understanding spatial labour mobility and regional dynamics. This paper investigates the economic determinants of regional migration in Romania, focusing on the role of economic growth and unemployment as key driving forces of migration flows across regions. The empirical analysis is conducted using regional panel data and applies a Nonlinear Autoregressive Distributed Lag (NARDL) model, which allows for the identification of asymmetric effects of economic growth and unemployment on migration dynamics. This methodological approach captures both long-run equilibrium relationships and short-run adjustment processes, while distinguishing between positive and negative changes in the explanatory variables. The results provide evidence of significant long-run relationships between migration flows and regional economic conditions, highlighting the asymmetric impact of economic growth and unemployment on migration decisions. Positive and negative changes in economic growth and unemployment rates exert different magnitudes of influence on migration patterns, reflecting heterogeneous responses of individuals to regional economic opportunities and labour market constraints. The findings emphasize the importance of balanced regional development policies aimed at reducing territorial disparities and strengthening labour market resilience. By incorporating nonlinear dynamics into the analysis of migration determinants, this study contributes to the literature on regional mobility and economic adjustment mechanisms, offering policy-relevant insights for improving regional cohesion and supporting sustainable economic development in Romania.

Keywords: regional migration, economic growth, unemployment, regional disparities, panel data, NARDL model, asymmetric effects, Romania

JEL Classification: C22, C23, J61, O15, R23

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JULA, Nicolae-Marius;
JULA, Nicoleta:
Okun's Law in Sectoral Structures

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Abstract

Okun's Law represents a fundamental empirical relationship linking labour market dynamics to economic activity, traditionally expressed through the association between unemployment and output growth. In the context of structural changes and sectoral reallocation processes, analysing this relationship at the sectoral level provides valuable insights into the mechanisms through which economic activity influences labour market outcomes. This paper investigates the validity of Okun's Law within sectoral structures in Romania, focusing on the relationship between the unemployment rate and gross value added (GVA) across the main economic sectors—agriculture, industry, and services. The empirical analysis explores both the aggregate and sector-specific dynamics between labour market conditions and sectoral economic performance. By employing econometric techniques suitable for time-series analysis, the study examines the existence of long-run equilibrium relationships and short-run adjustment mechanisms between unemployment and sectoral gross value added. The results reveal heterogeneous sectoral responses, indicating that the strength and direction of the Okun-type relationship differ across agriculture, industry, and services due to variations in labour intensity, productivity levels, and structural transformation patterns. Sectors characterized by higher productivity and stronger integration into market dynamics exhibit more pronounced relationships between output changes and unemployment dynamics. The findings highlight the importance of sector-specific labour market policies and targeted development strategies aimed at enhancing employment resilience across economic sectors. By extending the traditional Okun framework to sectoral gross value added, this study contributes to the literature on labour market adjustment mechanisms and structural transformation in emerging European economies, offering policy-relevant implications for employment stabilization and sustainable economic growth in Romania.

Keywords: Okun's Law, unemployment rate, gross value added, sectoral structure, labour market dynamics, structural transformation, Romania.

JEL Classification: C22, E24, J64, L16, O11.

ALEXANDRU-CARAGEA, Ciprian-Antoniade:
Data-Driven Circular Economy: Leveraging Multi-Source Data and Reproducible Analytics for Sustainable Policy Design

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Abstract

The transition towards a circular economy represents a fundamental paradigm shift in how resources are managed, reused, and valorised within modern economies. While the conceptual framework of circularity is well established, its operationalization remains constrained by fragmented data ecosystems, lack of harmonized indicators, and limited reproducibility in analytical workflows. This paper proposes a data-driven framework for supporting circular economy policies through the integration of multi-source data and reproducible analytical pipelines. The approach combines official statistics (e.g., Eurostat, World Bank) with alternative data sources, including web-based data, to enhance timeliness, granularity, and policy relevance. A reproducible analytical pipeline (RAP) is introduced to ensure transparency, traceability, and scalability of circular economy indicators. The framework is illustrated through a practical implementation involving data extraction, validation, transformation, and visualization using modern tools such as R and Power BI. The results demonstrate how integrated data systems and reproducible workflows can significantly improve evidence-based policy design, enabling more effective monitoring of sustainability goals and supporting the transition towards a competitive circular economy. Keywords: circular economy, reproducible research, multi-source data, sustainability indicators, data integration, RAP.

Keywords: circular economy, reproducible research, multi-source data, sustainability indicators, data integration, RAP

JEL Classification: Q01, D83, L86

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TOCAN, Mădălina:
Industrial Reconfiguration and Romania's Competitiveness: Directions, Challenges, and Perspectives

Affiliation:

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Abstract

The process of industrial reconfiguration represents a critical dimension of Romania's economic transformation in the context of globalization, technological advancement, and European integration. This paper explores the main directions, challenges, and future perspectives of Romania's industrial restructuring, with a particular focus on its impact on national competitiveness. The research identifies major challenges, including regional disparities, low levels of technological sophistication in certain industries, labour market constraints, and dependence on external capital. At the same time, it emphasizes emerging opportunities linked to digitalization, green transition policies, and integration into global value chains. The paper argues that enhancing competitiveness requires coherent industrial policies, increased investment in research and development, workforce upskilling, and improved institutional capacity. In conclusion, Romania's ability to successfully navigate industrial reconfiguration will depend on balancing modernization with inclusiveness, fostering innovation ecosystems, and strengthening its strategic positioning within the European and global economy.

Keywords: circular economy, reproducible research, multi-source data, sustainability indicators, data integration, RAP

JEL Classification: Q01, D83, L86

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VASILACHE, Mihaela-Eugenia:
Early Leavers from Education and Training

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Abstract

Early leaving from education and training (ELET) represents one of the most persistent challenges for European education systems and labour markets, with significant implications for economic growth, social inclusion, and long-term employability. This paper investigates the determinants and dynamics of early leaving from education and training, with a focus on the socio-economic and educational factors that influence the likelihood of school dropout. The analysis relies on statistical and econometric methods applied to harmonized data sources, allowing for the identification of structural relationships between educational attainment, labour market conditions, and demographic characteristics. The results highlight the multidimensional nature of early school leaving, emphasizing the role of socio-economic disparities, regional inequalities, labour market opportunities, and institutional characteristics of educational systems. Particular attention is paid to the interaction between education policies and labour market outcomes, as well as to the persistence of early leaving patterns over time. The empirical findings suggest that improvements in educational accessibility, targeted support for vulnerable groups, and enhanced integration between education and labour market policies are essential for reducing early leaving rates. Overall, the study contributes to the existing literature by providing an integrated perspective on the economic and social determinants of early leaving from education and training, offering relevant insights for policymakers aiming to achieve the strategic objectives related to education and employment within the European framework.

Keywords: early leaving from education and training, school dropout, educational attainment, labour market outcomes, socio-economic disparities, education policy, human capital.

JEL Classification: : I21, I24, J24, E24.

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RADU, Brindușa Mihaela:
Artificial Intelligence and Sustainable Development: Global Opportunities and Challenges

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Abstract

Artificial Intelligence (AI) is rapidly reshaping the global development landscape, offering transformative potential for achieving the United Nations Sustainable Development Goals (SDGs). This paper examines the dual role of AI as both an enabler of sustainable development and a source of emerging socio-economic and ethical challenges. On the one hand, AI-driven technologies enhance efficiency in key sectors such as healthcare, agriculture, energy, and urban planning. Applications including predictive analytics, smart resource management, and automated decision-making contribute to improved productivity, reduced waste, and more effective policy implementation. These advancements are particularly relevant for addressing climate change, food security, and public health crises. On the other hand, the widespread adoption of AI raises significant concerns related to inequality, governance, and environmental impact. The digital divide risks exacerbating disparities between developed and developing regions, limiting equitable access to AI benefits. Furthermore, issues such as algorithmic bias, lack of transparency, and data privacy violations challenge ethical standards and public trust. The environmental footprint of AI systems, particularly their high energy consumption, also poses a paradox for sustainability objectives. The paper argues that maximizing AI's contribution to sustainable development requires a balanced and inclusive approach. This includes strengthening global governance frameworks, promoting ethical AI standards, investing in digital infrastructure, and fostering international cooperation. Policymakers, researchers, and industry stakeholders must collaborate to ensure that AI technologies are aligned with sustainability principles and social equity. Ultimately, while AI presents unprecedented opportunities for accelerating sustainable development, its long-term impact will depend on responsible design, regulation, and implementation.

Keywords: Artificial Intelligence, Sustainable Development, SDGs, Digital Transformation, Ethics, Inequality, Climate Change, Governance

JEL Classification: O33, Q01, Q55, D63, C88

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MARINACHE, Odette:
The Impact of the EU Deforestation Regulation (EUDR) on the International Coffee Market

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Abstract

Deforestation and forest degradation are occurring at an alarming rate. The Food and Agriculture Organization of the United Nations estimates that 420 million hectares of forest - around 10% of the world's existing forest area, equivalent to an area larger than the size of the EU - were lost worldwide between 1990 and 2020. Deforestation and forest degradation are themselves important drivers of global warming and biodiversity loss. By promoting the consumption of products that do not come from deforested areas and by reducing the EU's impact on global deforestation and forest degradation, the implementation of the EU Regulation on Deforestation-free Products (EUDR) is expected to contribute to reducing greenhouse gas emissions and biodiversity loss. The purpose of this paper is to explore the impact of the EUDR on the international coffee market.

Keywords: international coffee market, European Union, EUDR, climate change

JEL Classification: K20, Q02, Q11, Q17

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MACULA, Maria-Magdolna;
OPREA, Isabelle-Margareta:

A Regional Perspective on the Technological Paradox: Why Digital Banking Needs Local Education to Drive Growth

Affiliation:

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Abstract

This paper analyses the structural transformation of the Romanian financial-technological system during the period 2008–2023, investigating the transition from conventional banking infrastructure to a model dominated by digital innovation. Using Principal Component Analysis (PCA), the research identifies a critical inflection point in 2015, marked by the intersection between the decline of the banking index (BI) and the rise of the technology index (TI). Validating the hypotheses through the multiple linear regression (OLS) model reveals that Human Capital (Education) is the main determinant of economic growth, with an impact coefficient of 1.71, higher than physical infrastructure. The results indicate a "technological paradox" (TI -0.49), suggesting that digital innovation requires a highly skilled workforce to generate real added value. The study integrates a unique spatial dimension, demonstrating major regional disparities: the urban environment concentrates 90% of ATMs, while in vast rural areas the distance to the nearest access point exceeds 10 km. The conclusions highlight the need for public policies oriented towards digital literacy and educational hubs, as a solution to overcome geographical barriers and maximize the potential for inclusive economic growth in Romania.

Keywords: banking index, technological index, human capital, regional disparities, digital inclusion

JEL Classification: C38, E58, R11.

PECA (OPREA), Ana-Maria;
OPREA, Isabelle-Margareta:

Macroeconomic Effects of Widespread Internet Penetration

Affiliation:

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Abstract

Digital connectivity plays a growing role in the economy, influencing productivity, innovation, and growth. While the positive link between internet penetration and economic performance is widely recognized, it is important to understand how its effects differ across advanced European economies and emerging countries. The study aims to investigate how internet penetration impacts macroeconomic outcomes across Europe, and addresses the gap regarding whether digital expansion contributes equally to economic growth and productivity within countries with different levels of digital maturity. The methodology employs two linear regression models: the first analyses the relationship between internet related indicators and GDP per capita, while the second evaluates how digital adoption influences labour productivity. The findings indicate that higher internet penetration is positively associated with increased GDP per capita and improved productivity, although the extent of these effects varies substantially between the two groups. Because developed countries are already highly digitalized, they show smaller increases in economic benefits, while emerging economies see stronger improvements as digital access expands. These results highlight the importance of enhancing digital infrastructure, particularly in emerging European countries, to support convergence, inclusive growth, and long-term competitiveness across European countries.

Keywords: Internet penetration, Digital connectivity, Economic development, Productivity growth

JEL Classification: O32, O33, O47, O52.

OPREA, Sorin Alin:

Optimizing Renewable Integration and Grid Resilience Through Battery Energy Storage in Energy Communities

Affiliation:

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Abstract

The energy transition based on renewable sources and emerging energy technologies became an important element of contemporary sustainable development strategies in the context of increasing environmental pressures and the need to limit the link between economic growth and resource-intensive consumption. The paper examines how renewable sources and emerging energy technologies can support sustainable economic growth through the contribution of a pilot energy community project in relation to SDG indicator 7.1, SDG indicator 8.1.1 and SDG indicator 9.4.1. The topic is motivated by the difference between the macro level of defining the SDGs and the need to understand the micro mechanisms through which local initiatives can contribute directly or indirectly to their achievement. The research methodology combines qualitative analysis of the specialized literature with the case study method. The results show that the project contributes to the improvement of the access quality to energy through local renewable production; it partially reduces energy costs and also reduces emissions associated with electricity consumption from the grid. The analysis also highlights the limits of using SDG indicators at a micro scale, especially in the case of macroeconomic indicators. The contribution of the paper is to propose a cautious approach in appliance of SDG indicators at the local level and uses them as interpretative tools and not as direct causal measures. The recommendations aim to strengthen the legislative and economic framework for energy communities, stimulate self-consumption and energy sharing, and integrate these initiatives into national energy transition and sustainable development strategies.

Keywords: Energy communities, Renewable energy transition, SDG indicators, Sustainable economic growth

JEL Classification: O13, O33, Q42, Q48.

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BULZ, Ioan:
Tax Evasion as a Form of Economic Criminality: Economic Costs and Development Implications

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Abstract

Tax evasion remains one of the most persistent forms of economic criminality, with profound implications for the capacity of states to finance public goods, for governance quality and for the dynamics of economic development in European Union countries. Even in economies characterised by consolidated institutional frameworks, budgetary revenue losses associated with evasion are amplified by the expansion of the informal economy, aggressive tax optimisation practices, profit shifting to low-tax jurisdictions and the use of opaque financial structures. The paper analyses tax evasion as a dimension of economic criminality in the EU, through a critical synthesis of the specialised literature and empirical results from comparative studies on the relationship between evasion, corruption, the informal economy, cultural factors, and institutional capacity. Both the internal mechanisms of evasion (opportunistic behaviours, deficiencies in law enforcement, social tolerance towards non-compliance) and the transnational dimension of the phenomenon, associated with capital mobility, money laundering and white-collar crime, are highlighted. The synthesised results suggest that tax evasion affects not only the level but also the structure of public revenues, distorting resource allocation, undermining public service delivery and eroding institutional trust. Furthermore, the digitalisation of fiscal administration and the use of advanced data analytics technologies can improve fraud detection within the EU, provided that adequate ethical and institutional frameworks exist. In conclusion, sustainable reduction of tax evasion in EU countries requires an integrated approach combining rule-of-law consolidation, anti-corruption measures, cross-border fiscal cooperation and adaptation of policies to the institutional and cultural specificities of each member state.

Keywords: tax evasion, economic criminality, corruption, informal economy, European Union, tax compliance, institutional governance

JEL Classification: H26, D73, K42, O17, O52.

GEORGESCU, Marius-Robert:
Public – Private Pension Funds Synergy. Study of the Seventh day Adventist Church Pension House Case

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Abstract

The current macroeconomic environment which is marked by demographic aging and accelerated technological costs requires a reassessment of traditional pension fund models. This paper expands the analytical framework of public–private pension integration and incorporates the role of sectorial and confessional pension houses as complementary financial mechanisms for sustaining human capital. Using the Seventh-day Adventist Church Pension House as a case study, the research examines how such institutional structures contribute to long-term social protection through diversified risk pooling, preventive investment strategies and strengthened community-based governance. From the perspective of the circular economy, the study conceptualizes pension funds as renewable assets capable of continuously reinvesting in workforce well-being. It evaluates how hybrid pension models, supplementary, complementary, and institution-based, optimize resource allocation, transfer operational risks, reduce major out-of-pocket expenditures and alleviate pressure on public budgets. Methodologically, the paper employs comparative analysis of financial efficiency indicators relevant to both public systems and sectorial pension funds. Preliminary findings indicate that well-regulated public–private synergies, reinforced by the involvement of confessional pension houses, enhance labour market competitiveness, reduce absenteeism, and improve workforce retention. The conclusions outline policy recommendations focused on fiscal incentives, regulatory coherence, and the strategic integration of confessional pension structures into national social protection frameworks.

Keywords: sectorial pension funds, confessional pension houses, Seventh-day Adventist Church Pension House, human capital sustainability, public–private synergy

JEL Classification: H55, J32, Z12.

BABINCIUC, Chiril:
Some Core Approaches to Macroeconomic Modelling

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Abstract

Macroeconomic models are simplified and abstract representations of economic reality, developed for specific purposes. This paper examines core approaches to macroeconomic modelling by comparing their perspectives, scope, methods, and assumptions. It focuses on three major domains: econometric models, dynamic stochastic general equilibrium (DSGE) models, and agent-based models (ABMs). The analysis is framed through the methodological discussion between instrumentalism and realism. Given the complexity of economic systems, characterized by numerous interacting phenomena, any functional model imposes strict limitations, making a complete representation of reality unattainable. By evaluating the strengths and limitations of each modelling frameworks, the paper highlights how different approaches address this complexity.

Keywords: macroeconomic modelling, economic methodology, instrumentalism, and realism

JEL Classification: B41, E10, E17.

ANDREI, Dalina-Maria:
EU Policies on the Circular Economy and Their Implementation Across Member States

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Abstract

This article focuses on the EU policies on what is currently called "circular economy". All started in 2015 and two steps have been made so far through as many action plans - or two parts of an action plan for the circular economy - in 2015 and five years later, in 2020. A context in which the EU is working on this plan to be integrated into “European Green Deal". The article will here add other developments, notably mentioning a legislative initiative, scheduled for adoption in 2026, informally known as the “Circular Economy Law”. This could be aimed at the EU’s goal of doubling the circularity rate and strengthening Europe’s role as a world leader in this area by 2030. The next strategic line of action addressed in this article examines how these policies at EU level have managed to translate into corresponding national strategies and action plans - i.e., of EU Member States - that is, to what extent the EU's overall vision is actually implemented and aligned with the detailed reality on the ground. The conclusions show that, although the Union (EU) is constantly strengthening its legislative framework, the success of the transition to the circular economy depends, at least for now, success of the harmonization between the Union and its members.

Keywords: circular economy, European Union, European policies

JEL Classification: L51, Q50, Q58

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IORDAN, Marioara;
CHILIAN, Mihaela-Nona:
Circular Economy Developments in the Romanian Business System

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Abstract

Relatively recent, topics pertaining to sustainability such as energy and poverty, energy efficiency in economy and households, green transition of economies and sectors, circular economy, green jobs and green skills have emerged at the forefront of economic and sociological research, as well as of political discourse and action and of all-media coverage. Also, at the EU and national policy levels, what is generally known as “green transition” and, particularly, as “circular economy” are considered as an opportunity to deliver growth, jobs and competitive advantage. However, what makes them even more complex is the difficulty in assessing their extent and impacts properly, together with difficulty in finding relevant data, especially for analyses at sub-national levels. Considering the above-mentioned issues, based on extensive literature review and available statistical indicators, the paper briefly presents recent developments of the circular economy in the Romanian business system, overall and in sectors currently and prospectively found at the forefront of pace towards sustainability. Also, some challenges of circular economy examined together with other critical European and global challenges (demographic ageing, energy crises, arms race, digitalisation, deglobalisation, GVG increased fragmentation versus political/ideological club-agglomeration, etc.) is briefly examined from the point of view of Romanian businesses.

Keywords: circular economy, green transition, Romanian business system, digitalisation

JEL Classification: O14, O33, Q57.

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ZELDEA, Cristina Georgiana;
IORDAN, Marioara;
BĂLAN, Emilia Mary:

Shifting Structures and Rising Competitiveness: The Evolution of Renewable Energy Research in Europe

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Abstract

This paper empirically examines the development of renewable energy research in Europe between 1975 and 2025, highlighting its relevance for sustainable growth, innovation, and regional convergence within the EU. Using bibliometric data from Web of Science, it analyzes publication trends, thematic areas, and international collaboration in relation to key EU policies such as the Renewable Energy Directive, Horizon 2020, the European Green Deal, and the Fit for 55 package.The findings show a significant increase in research output since the early 2000s, alongside a shift toward interdisciplinary and policy-oriented work across four main themes: technology, sustainability, governance, and socio-economic impacts. Collaboration remains concentrated in Western and Northern Europe, while Central and Eastern countries exhibit growing but uneven involvement, raising concerns for convergence. Overall, the study emphasizes the critical role of renewable energy research in advancing sustainable development, strengthening resilience, and supporting inclusive, innovation-driven growth across Europe.

Keywords: Renewable Energy, Innovation and Sustainability, Bibliometric Analysis, Regional Convergence, European Union Policy

JEL Classification: Q5, Q176, Q57.

BILEVSKY, Gabriela:
The Transition of the Romanian Energy System Towards Renewable Energy Sources

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Abstract

Domestic energy resources allow Romania to have a diversified mix of electricity: hydropower, fossil fuel-based energy, nuclear energy, and renewable resources. Romania does not yet have the necessary infrastructure to quickly replace coal-fired power plants with natural gas-fired power plants or with renewable, or less polluting, power plants. The evolution of energy sources, primary energy resources and electricity production by categories of power plants in Romania from 2018-2024 is analysed. Investments have been made in electricity production systems from renewable sources (wind, photovoltaic), but not enough to ensure the necessary resources and dependence on electricity imports has increased, as a share in total sources of origin (production, import, storage) from 34% in 2018, to 40.4% of the total in 2024.

Keywords: Electricity from renewable sources in Romania, electricity consumption, European regulations on energy production

JEL Classification: O11, P48, P51, Q01, Q43.

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CIUCU, Alexandra;
IORDAN, Marioara;
POPESCU Diana-Elena;
IORGULESCU, Raluca-Ioana:

Assessing Productivity, Resilience and Competitiveness in the EU. A Circular Economy Perspective

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Abstract

Waste represents a real problem, especially in the case of consumption-based economies. Consumerism is a concept emphasized during the industrial revolution, by which it was assumed that increased consumption, above basic needs, is associated with higher social status and happiness. Obviously, such consumption ends up, over time, producing an exaggerated waste of resources. The circular economy proposes a sustainable model through which the reuse, repair, recycling of existing products are promoted in order to increase the lifespan of materials, thus reducing the impact on the environment, minimizing waste and garbage. The EU, through Eurostat, provides a series of indicators intended to present the situation of each member state regarding the ability to implement this type of economy; among the variables investigated are private investment, resource productivity or greenhouse gases emissions from production activities. The purpose of the current research is to achieve a ranking of the countries with regard to the indicators selected in the analysis, thus noting the performances of the EU member states considering the practical application of this concept. In this case, the ranking is achieved through a multi-criteria decision-making method, VIKOR, which involves finding compromise solutions in the case of conflicting criteria, thereby maximizing the utility of the group, while minimizing individual regret.

Keywords: sustainability, green economy, multi-criteria decisions-making, VIKOR

JEL Classification: C44, N14, Q53, Q56, R11.

MIRCEA, Valeria-Arina:
Green Marketing in the Context of The Circular Economy: Opportunities for Competitiveness and Sustainability

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Abstract

The transition toward a circular economy represents a fundamental shift in production and consumption models, emphasizing resource efficiency, waste reduction, and sustainable value creation. In this context, green marketing emerges as a strategic instrument that supports the integration of environmental principles into organizational practices while strengthening competitive positioning. This paper explores the role of green marketing within the circular economy framework, highlighting its potential to generate sustainable competitive advantages. The study analyses how environmentally oriented marketing strategies contribute to value creation, brand differentiation, consumer trust, and long-term organizational performance. Furthermore, it examines the strategic alignment between circular business models and green marketing tools, including sustainable product development, eco-labelling, transparent communication, and responsible branding. The paper also addresses key challenges such as greenwashing risks, consumer scepticism, and implementation costs. By providing a conceptual and strategic perspective, the research underlines that green marketing, when authentically integrated into circular economy practices, becomes not only a communication approach but a driver of competitiveness and sustainable development. The findings contribute to the growing literature on sustainability-oriented marketing and offer managerial implications for organizations seeking to adapt to circular economic systems.

Keywords: green marketing; circular economy; competitiveness; sustainability; sustainable competitive advantage; responsible branding

JEL Classification: M31; M14; Q56.

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MIRCEA, Valeria-Arina;
PANĂ, Cristian:

Circular Marketing: A New Paradigm for Competitiveness and Sustainability

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Abstract

Structural changes in the contemporary economic environment require a profound rethinking of the role of marketing within organizations. In the context of the shift toward sustainable business models, circular marketing emerges as an evolving paradigm that goes beyond traditional approaches focused exclusively on promotion and sales, integrating the principles of circularity into the process of value creation and delivery. The paper analyzes the conceptual foundations of circular marketing and highlights how it contributes to redefining the value proposition, strengthening long-term customer relationships, and developing sustainable competitive advantage. The implications for the marketing mix are examined, including durable product design, product-as-a-service models, reverse distribution systems, and responsible and transparent communication. The study also addresses the challenges associated with implementing this paradigm, such as the need to change consumer behavior, adapt organizational culture, and manage transition costs. Through a conceptual approach, the research argues that circular marketing represents a strategic instrument essential for competitiveness and sustainable development in the contemporary economy.

Keywords: circular marketing; circular economy; competitiveness; sustainability; sustainable competitive advantage

JEL Classification: M31; L21; Q56.

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CHINDRIȘ-VĂSIOIU, Oana:
Circular Economy Approaches for a Sustainable Future

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Abstract

In a globalized economy, competitiveness and innovation are essential drivers of sustainable development. In this context, the circular economy provides an efficient and sustainable growth model by promoting waste reduction, the efficient use of resources, and the regeneration of materials. This paper examines the impact of integrating circular economy principles on competitiveness and highlights the role of innovation as a key driver of the transition toward a sustainable economic model. The study emphasizes the importance of innovation within the circular economy framework and analyses the evolution of circular economy indicators related to competitiveness and innovation across the European Union (EU), while also identifying Romania's position within the EU based on these indicators. Using the latest available Eurostat data, the analysis focuses on the following indicators: private investments, gross value added related to circular economic sectors, and persons employed in circular economic sectors. The findings underscore the need for an integrated approach in which innovation and sustainability become fundamental pillars of long-term competitiveness.

Keywords: Competitiveness, innovation, circular economy, sustainable development

JEL Classification: Q01; Q56.

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CHINDRIȘ-VĂSIOIU, Oana;
MANOLE, Emilia:
The Global Commodity Market between Opportunity and Uncertainty

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Emilia MANOLE, *Ph.D., Scientific Researcher, Institute for World Economy, Romanian Academy*

Abstract

The global commodity market plays a central role in the functioning of the world economy, directly influencing production dynamics, international trade, energy security, and macroeconomic stability. In the current context, characterized by geopolitical volatility, supply chain disruptions, inflationary pressures, the energy transition, and the intensification of climate-related risks, the evolution of commodity markets lies at the intersection of opportunity and uncertainty. This paper examines the main transformations affecting the global commodity market, highlighting both its potential to support economic growth and innovation and the vulnerabilities arising from price instability, supply-demand imbalances, and the structural changes taking place in the global economy. The study aims to identify the key determinants shaping market developments, while the conclusions emphasize the need for a strategic and flexible approach to managing the risks associated with global commodity markets to capitalize on economic opportunities and strengthen resilience in an increasingly uncertain international environment.

Keywords: Commodity market, price volatility, economic uncertainty, global trade

JEL Classification: D81, Q02.

ILIE, Georgeta:
The Role of Digital Services in Supporting the Global Value Chains

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Abstract

Over the last decades, global value chains (GVCs) have emerged as a dominant business model in the global economy, holding a central place in companies' business strategies, as well as the investment and trade policies. The international production processes within GVCs, mainly developed by multinational companies, have been integrated through networks of business structures on a global scale, with the capacity to exploit competitive advantages at the worldwide level. The investigation highlights the major contribution of digital services to supporting GVCs in recent years, with a transformative role, due to their capacity to integrate data and facilitate decision-making processes within their systems. This research employs an analytical approach of specialized reports from international organizations, academic works, as well as some empirical evidences, to identify the role of digital services in sustaining the GVCs. The results highlight that digital services enable companies to improve their connectivity, allowing real-time management of geographically dispersed production processes, and optimise the trade costs. The concluding remarks also identify that the use of digital services within GVCs is not without vulnerabilities, these being mainly associated with challenges in the global business environment in the context of intensifying geopolitical tensions, which may represent a new source of risk for GVCs.

Keywords: digital services, global value chains, business strategies, global business environment

JEL Classification: F23, L86, O14.

ILIE, Georgeta;
ONEȚIU, Anda Nicoleta:

The Circular Economy Model Navigating Between the Objectives of Sustainability snd Competitiveness

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Abstract

During the last years, the circular economy model has become a critical approach for achieving long-term sustainability and competitiveness, business decision makers finding that circular practices can act as a driver for resilience, innovation, and cost reduction. The investigation highlights that the core challenge of circular economy model lies in navigating the trade-offs between immediate investment costs for sustainability and the long-term gains in competitiveness. This research employs an analytical approach of the recent specialised studies and reports based on empirical evidences, to reveal the way that the objectives of sustainability and competitiveness can be simultaneous achieved within the circular economy model. The results emphases that even the relationship between sustainability and competitiveness is increasingly viewed as an integrated solution, with beneficial outcomes for all stakeholders, challenges are inherent. In this regard, the concluding remarks attempt to identify some key elements impacting the circular economy model perspectives, mainly related to prioritizing the circular economy within business strategies, the need to improve regulatory frameworks and the double-edged sword of digital technologies.

Keywords: circular economy, sustainability, competitiveness, technological development

JEL Classification: F43, O13, O44, Q01, Q56.

CIUVICĂ-ENUŞI, Mariana:

Economic and Financial Analysis of Provisions in Romanian Knowledge-Based SMEs

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Abstract

This article evaluates the establishment, recognition, maintenance, and accounting of provisions within knowledge-based Small and Medium Enterprises (SMEs) in Romania. Using economic and financial analysis methods, the study examines how provisions are used to support operational stability and financial resilience. The findings provide insights for decision-makers to promote SME sector development and offer predictions on sector growth based on current financial practices.

Keywords: Small and Medium Enterprises (SMEs), financial analysis, methods, provisions

JEL Classification: O41.

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SCARLAT, Valentin:
Credit Risk

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Abstract

It is well known that today's developed market economies have been built with outstanding investment efforts, their high efficiency ensuring a rational use of natural resources and labour force. At the same time, it is equally true that economic processes to happen, its need to take value shape, that is money. All exchanges are mediated by money, through their function of means of payment. A sizable part of investment, "economic engine" is materialized through credit. Nowadays, companies find themselves amid a revolutionary change. The competition, as it was known in the industrial era, it turns into the information era-specific competition. Throughout the industrial era companies have had success by how well they were able to capitalize on the benefits of scale economies and the specifics of the industry. Today, technology exacerbates its importance, because, ultimately, will be successful those companies that will be able to introduce faster and faster new technology in tangible and intangible fixed assets, generating standardized products of the highest quality. In these circumstances, the volume of transactions being huge (both in number and in value, as well), we can easily see the role of banks as one of first importance. From facilitating the foreign trade, continuing with savings' collection in the form of deposits and to issue money, by means of the credit, the credit institutions are a constant and more and more intensified presence in the daily life. The financial market is extremely volatile due to many objective and subjective factors. Due to them, in their struggle to maximize profit, credit institutions are constantly facing with all sorts of risks. Risks can have a considerable influence on the credit institutions, which influence is felt both in direct losses recorded, and influence whose effects are felt on customers, employees, business partners and even the bank's authority, as well. The risk is generated by many transactions and procedures and for this reason, at least in the financial sector, the risk should be considered as complex of risks, in the sense that a risk may cause other risks. Consequently, these operations and procedures, can permanently generate a risk exposure. Therefore, credit risk - so called the risk of counterparty or risk of customer's insolvency - is one of the most important risk the banks cope with. The loss may be total or partial. This risk increases with the number of customers, the amount of the loan granted and the interest rate level. In managing this risk, banks follow the preparing and analysing a file of lending, establish rules for the division of risk and seek to diversify the loans portfolio.

Keywords: Small and Medium Enterprises (SMEs), financial analysis, methods, provisions

JEL Classification: O41.

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PANĂ, Cristian;
CHINDRIȘ-VĂSIOIU, Oana:

Integrating Environmental Objectives into Budgetary Policy: The Case for Green Public Finance

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Abstract

The integration of environmental objectives into budgetary policy has emerged, in the current context, as one of the major directions for reconfiguring public intervention, against the backdrop of intensifying climate risks, the transformations associated with the green transition, and the growing pressures exerted on the sustainability of traditional development models. Within this framework, the issue of green public finance extends beyond the scope of a mere adjustment of budgetary priorities and acquires the significance of a paradigm shift in the way public resources are conceived, allocated, and evaluated. Budgetary policy can no longer be confined exclusively to its traditional functions of macroeconomic stabilization, redistribution, and allocation, but must also be understood as an instrument for strategically steering economic development toward the objectives of environmental sustainability, structural resilience, and long-term efficiency. From this perspective, the integration of environmental objectives into the budgetary architecture entails a profound reconsideration of the relationship between fiscal discipline and the need to finance the ecological transition, as well as between immediate economic efficiency and the cumulative public benefits generated by green investment. The structure of public expenditure, the design of fiscal incentives, the selectivity of budgetary allocations, and the mechanisms used to evaluate public spending performance thus acquire essential importance in shaping a financing framework capable of supporting environmental objectives without undermining the sustainability of public finances. At the same time, this orientation highlights the complexity of the relationship between immediate budgetary constraints and the imperatives of structural transformation, which require institutional coherence, regulatory predictability, and administrative capacity. Consequently, green public finance emerges as the expression of a new logic of budgetary governance, within which fiscal-budgetary policy is called upon to articulate, in an integrated manner, the requirements of financial balance with the objectives of environmental protection and sustainable development.

Keywords: Green public finance, budgetary policy, environmental objectives, fiscal sustainability, green transition, sustainable development

JEL Classification: H50, H61, Q56, Q58.

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PANĂ, Cristian;
MIRCEA, Valeria-Arina:

The Impact of Fiscal Policy on the Budget Deficit: The Case of Romania

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Abstract

In a context marked by persistent fiscal imbalances, deepening budgetary vulnerabilities, and increasing pressure on the sustainability of public finances, the relationship between fiscal policy and the budget deficit in Romania reveals a complex set of interdependencies, with direct implications for the state's ability to mobilize revenues, meet its financial obligations, and preserve macroeconomic stability. Recent changes in the fiscal-budgetary framework, reflected in the adjustment of tax instruments, the reconsideration of tax incentives and exemptions, and interventions affecting the balance between public revenues and expenditures, have gained relevance amid the deterioration of the budgetary position. A budget deficit exceeding 9% of GDP highlights not only the fragility of public financial equilibrium, but also the need to reassess the mechanisms through which fiscal decisions shape macroeconomic stability. Within this framework, the fiscal-budgetary recalibration initiated in the second half of 2025 reflects an effort to correct accumulated imbalances, while also revealing the complexity of adjustment in an economy confronted with both the imperatives of financial discipline and the need to maintain a climate conducive to investment, competitiveness, and sustainable growth. In this sense, reducing the budget deficit requires a broader process of fiscal-budgetary restructuring, integrating improved revenue collection, a broader tax base, and more efficient public spending within a coherent strategic framework.

Keywords: fiscal policy, budget deficit, fiscal consolidation, tax reform, public finances

JEL Classification: E62, H30, H60, H62.