TRANSITION TO A GREEN ECONOMY: ECONOMIC BENEFITS AND SOCIAL TENSIONS

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ABSTRACT: *The transition to a green economy represents a complex process of transforming contemporary economic models, driven by the need to reduce environmental pressures and mitigate climate change risks. This article is based on an analysis of documents of the specialized literature and analyzes the green economy as an alternative development model, highlighting both its potential to stimulate economic growth and innovation, as well as the social challenges associated with this process. The analysis results reveal that channeling investments toward clean technologies, energy efficiency, and sustainable infrastructure can contribute to modernizing economies and strengthening long-term competitiveness, and on the other hand, the green transition entails significant economic and social costs, unevenly distributed across sectors, regions, and social groups. The article emphasizes the importance of integrating the social dimension into environmental policies and underscores the role of a just transition as a key instrument for ensuring balanced, inclusive, and sustainable development.*

KEY WORDS: *green economy, sustainable development, just transition, renewable energy, social equity, economic resilience, climate policy*.

JEL CLASSIFICATIONS: *O44, O1, O2, O3, O5*.

1. INTRODUCTION

In the context of accelerating climate change and intensified environmental degradation, traditional economic models are increasingly questioned. Economic growth based on intensive exploitation of natural resources and the use of fossil fuels has generated short-term prosperity but has imposed substantial long-term ecological and social costs. In this framework, the transition to a green economy has become a major priority on global and European public policy agendas.

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The green economy presents an alternative to the conventional economic model, advocating a type of development compatible with environmental protection, resource-use efficiency, and social equity. This transition goes beyond technological change, requiring profound structural transformations in energy, industry, agriculture, and labor markets. Although often promoted as beneficial for both the economy and society, the green transition generates significant controversies and social tensions.

On one hand, the green economy is associated with notable economic benefits, including innovation stimulation, job creation, and enhanced economic competitiveness. On the other hand, the transition process incurs considerable costs, unevenly distributed among social groups and regions. Certain economic sectors are negatively impacted, and communities dependent on polluting industries face heightened risks of economic and social marginalization.

The purpose of this article is to analyze the transition to a green economy from a balanced perspective, highlighting both the economic benefits and social tensions it generates. The study addresses the following research questions:

- To what extent can the green economy contribute to sustainable economic development? and,
- What are the main social challenges associated with this transition?

The analysis is based on the examination of documents from the specialized literature and on the secondary analysis of data.

The analysis combines theoretical insights including the illustration of public policies related with transition to a green economy with particular attention to the concept of a just transition.

2. THE GREEN ECONOMY AS A DEVELOPMENT MODEL: THEORETICAL FOUNDATIONS, ECONOMIC BENEFITS, AND COMPETITIVENESS

The green economy emerged as a response to the structural limits of the traditional economic model, which relies on continuous growth, intensive natural resource consumption, and fossil fuel use. Against the backdrop of accelerated climate change, biodiversity loss, and increasing pressure on ecosystems, this model has become increasingly contested from both ecological and economic perspectives. Academic literature defines the green economy as an economic system aiming to enhance human well-being and reduce social inequalities while simultaneously minimizing environmental risks and ecosystem degradation (UNEP, 2011; Söderholm, 2020).

A central principle of the green economy is decoupling economic growth from excessive resource consumption and environmental degradation. This approach does not reject economic growth but advocates a development model compatible with planetary ecological limits. From this perspective, the green economy sits at the intersection of environmental economics, ecological economics, and sustainable development theory, recognizing that environmental degradation generates real economic costs that must be internalized through appropriate public policies (OECD, 2017).

Policy instruments associated with the green economy include environmental taxes, emissions trading schemes, energy efficiency standards, and subsidies for clean technologies. These mechanisms aim to correct market failures and redirect economic behavior toward more sustainable practices. In this sense, the green economy is not merely a normative concept but an operational framework for reforming economic and industrial policies.

At the institutional level, the green transition is supported by international organizations and national governments, integrated into long-term development strategies. A relevant example is the European Union, which, through the European Green Deal, has committed to achieving climate neutrality and structurally transforming the European economy. This strategy highlights the close connection between climate policy, industrial policy, and economic competitiveness, while emphasizing the need to consider the social impacts of the transition (European Commission, 2021).

These transformations cannot be achieved solely through market mechanisms, making the state's role essential in guiding and accelerating the green transition. The green economy implies a redefinition of the state's role in the economy—from a predominantly regulatory actor to a strategic investor and coordinator of structural transformations. Through green industrial policies, public investment, and support for research and development, the state can reduce uncertainties related to emerging technologies and encourage private-sector participation in sustainable areas (Mazzucato, 2018). Literature shows that major economic transitions have historically involved significant public intervention, and the green transition is no exception (OECD, 2017). Public policies play a crucial role in directing capital toward high value-added sectors and reinforcing long-term economic competitiveness (European Commission, 2020).

Economically, the green transition is increasingly perceived not as a constraint but as an opportunity for modernization and growth. Investments in renewable energy, energy efficiency, sustainable transport, and green infrastructure generate significant multiplier effects, stimulating demand, employment, and technological innovation. Studies indicate that such investments positively impact GDP, particularly in the medium and long term, enhancing economic resilience (OECD, 2017; World Bank, 2022).

Global economic impacts are already significant, reflected in increased investments in low-carbon technologies and their contribution to GDP and employment. In 2023, global renewable energy investments rose by 8.1%, reaching USD 622.5 billion, setting a new record despite challenging economic conditions and high interest rates (REN21, 2024). According to BloombergNEF, total global investments in the energy transition exceeded USD 2.1 trillion in 2024, a record figure, with mature green economy sectors—such as renewable energy, electric transportation, and grid infrastructure—absorbing the majority of capital (BNEF, 2025).

The clean energy sector increasingly contributes to economic growth across regions. In 2023, the clean economy added approximately USD 320 billion to the global economy, influencing up to 20% of China's GDP growth that year (OECD, 2024). In the United Kingdom, the "net zero" sector grew by 10% in 2024, generating

GBP 83 billion in gross value added and supporting nearly one million jobs in renewable energy, green finance, and recycling, with average wages significantly above the national mean (The Guardian, 2025).

Employment in green sectors has also reached record levels. In 2023, the renewable energy sector employed 16.2 million people globally, an 18% increase over the previous year, reflecting expansion in production capacities, supply chains, ancillary services, and associated industrial activities (IRENA & ILO, 2024). Each dollar invested in renewable energy is estimated to create up to three times more jobs than a dollar invested in fossil fuels, highlighting significant local employment benefits (UN, 2025).

The global trend toward increasing installed renewable capacity also has direct economic implications for energy costs and competitiveness. In 2024, global renewable capacity rose by 585 GW, accounting for over 90% of total new generation capacity worldwide, reducing dependence on fossil fuels and achieving substantial savings by eliminating traditional fuel costs (Reddit/OptimistsUnite, 2025). Projections indicate continued growth, with clean energy investments expected to reach USD 3.1 trillion by 2030 under accelerated climate policy scenarios, compared to USD 0.7 trillion directed toward fossil fuels (OECD, 2025).

Beyond direct effects on economic growth and innovation, the green transition strengthens long-term economic security by reducing dependence on imported energy resources and mitigating national economies' vulnerability to external shocks. Recent crises have demonstrated that energy price volatility and geopolitical instability can significantly affect both firm competitiveness and macroeconomic stability. Investments in renewable energy and energy efficiency thus represent not only an environmental option but a strategic economic approach to reducing systemic risks (World Bank, 2022).

The green economy also reduces the economic costs of environmental degradation. Air pollution, climate change, and biodiversity loss impose substantial expenditures on healthcare, infrastructure, and public budgets. By preventing these negative outcomes, the green transition can generate significant societal savings, strengthening fiscal sustainability and reducing vulnerability to external shocks (IPCC, 2022).

Innovation and economic competitiveness are further promoted through low-carbon technologies. The transition encourages companies to invest in research and development, fostering innovative solutions in renewable energy, energy storage, green hydrogen, and the circular economy. Early adopters can gain substantial international market advantages as providers of green technologies and know-how (Söderholm, 2020).

Digitalization acts as a catalyst for the green economy, optimizing resource use and reducing implementation costs. Smart grids, digital emission monitoring, and AI-driven industrial processes enable more efficient resource management and facilitate the adoption of clean technologies (OECD, 2021). The convergence of green transition and digitalization amplifies economic benefits, fostering innovation, productivity growth, and business adaptation to sustainable economy requirements (European Commission, 2020).

The circular economy is increasingly integrated as a pillar of the green economy, reducing dependence on primary resources and enhancing economic efficiency. By promoting reuse, recycling, and extended product life cycles, the circular economy supports green objectives and creates new industrial development opportunities (Geissdoerfer et al., 2017). Thus, the green economy becomes a strategic driver of long-term economic transformation and competitiveness.

3. SOCIAL IMPACT, LABOR MARKET, AND THE NEED FOR A JUST TRANSITION

Although the transition to a green economy is associated with significant economic benefits, its social impact is complex and often controversial. The labor market is one of the most sensitive areas affected, as structural economic transformation generates both opportunities and social risks. On one hand, the green transition creates new jobs in emerging sectors, commonly referred to as "green jobs." On the other hand, the decline of polluting industries entails job losses and heightened risks of economic marginalization for certain communities.

Transitioning to a green economy involves major economic transformations affecting labor markets and the social structure of communities. In this context, the concept of a just transition has become central in climate and social policies, aiming to ensure that the benefits and costs of moving toward a low-emission economy are distributed equitably across social groups and territories (European Commission, 2025; OECD, 2025). A just transition does not merely focus on carbon reduction but also supports workers, protects employment, and mitigates social inequalities resulting from structural transformations.

A key element of a just transition is the creation of jobs in green sectors while simultaneously protecting workers in declining traditional industries. Recent analyses show that the green transition can positively affect employment: an OECD report recommends implementing reskilling strategies in mining and carbon-intensive regions, where just transition agreements have produced educational and retraining projects, social support, and the creation of new jobs offsetting losses in traditional sectors (OECD, 2025). These programs included grants for local businesses and funding to create over 1,200 new jobs, a significant proportion occupied by women, demonstrating the positive social impact of investments in green workforce development (OECD, 2025).

At the European Union level, the Just Transition Mechanism was designed as a strategic tool to provide targeted support to regions and communities most affected by the shift to climate neutrality (European Commission, 2025). This mechanism aims to mobilize approximately EUR 55 billion by 2027 to support social investment, professional retraining, new business development, and economic diversification, particularly in areas dependent on fossil fuels or with high carbon emissions (European Commission, 2025).

Social support includes measures protecting workers, such as retraining programs and continuous learning, which are essential in a period of rapidly growing demand for green and digital skills. The International Labour Organization (ILO)

emphasizes that a just transition could create tens of millions of decent jobs by 2030, while also providing opportunities for sustainable businesses and reinforcing labor rights and social inclusion principles (ILO, 2023).

Active labor market policies, including employment support, vocational training, career counseling, and labor mobility, are key to preventing marginalization of vulnerable population segments. For example, programs in European mining regions ensured social protection or re-employment opportunities for workers affected by coal plant closures, including training in emerging fields such as photovoltaic installations or energy-efficient building renovation (OECD, 2025).

The social damages of a poorly planned or passive net transition are evident: studies show that transitions executed without social policies can destabilize labor markets and communities dependent on traditional industries, generating structural unemployment and exacerbating global socio-economic inequalities (Deloitte, 2023).

Another defining aspect of a just transition is the role of social dialogue and negotiations between governments, employers, and trade unions. The European Economic and Social Committee highlights the need to include all social actors in planning and implementing the transition to ensure that policies do not exacerbate inequalities and that social resilience is strengthened (EESC, 2024).

At the macro level, analyses indicate that investments in active labor policies and social support can generate significant economic benefits, including increased labor force participation, support for low-income families, and reduced poverty risk. European Parliament studies show that combined investments in employment, education, and inclusion policies could create millions of additional jobs and promote economic cohesion across EU regions, reinforcing long-term social stability (European Parliament, 2025).

In conclusion, a just transition and associated social policies are essential to making the green transition inclusive and equitable. By providing social protection, professional retraining, and economic support for vulnerable workers and communities, these policies not only mitigate risks from structural changes but also capitalize on economic opportunities from the green transition, contributing to social cohesion and sustainable development.

The ILO estimates that the green transition could generate a net increase of millions of jobs worldwide in sectors such as renewable energy, energy efficiency, waste management, and sustainable agriculture (ILO, 2018). However, these benefits are unevenly distributed and depend on the presence of active labor market policies focused on training and reskilling.

Alongside the creation of new opportunities, the green transition profoundly transforms existing occupational structures. Many traditional professions must adapt, and demand for green and digital skills grows significantly. Without investment in education and professional training, these transformations can create labor market gaps and exacerbate social inequalities (Zimmermann, 2026).

Beyond vulnerable groups, the green transition directly affects the economic stability of the middle class. Rising energy costs and structural occupational changes can significantly impact this social segment, crucial for social and political stability. Although the middle class may benefit from long-term opportunities in the green

economy, perceptions of an unfair distribution of transition costs can generate dissatisfaction and resistance to climate policies (OECD, 2019). Social acceptance of the green transition thus depends on policymakers' capacity to protect the standard of living of the middle class and implement compensatory mechanisms to mitigate regressive environmental policy effects (Markkanen & Anger-Kraavi, 2019).

The social dimension of the transition is further accentuated by the unequal distribution of economic costs associated with climate policies. Measures such as carbon taxes or the removal of fossil fuel subsidies may increase energy and transport costs disproportionately, affecting low-income households (Markkanen & Anger-Kraavi, 2019). Without adequate compensatory mechanisms, such policies risk public opposition and may undermine the legitimacy of the transition process.

These social effects are amplified by the territorial dimension of the green transition. Economic transformations associated with the green transition can intensify internal migration, particularly from mono-industrial regions to more dynamic urban centers. Without coherent regional development policies, this phenomenon can lead to depopulation, loss of human capital, and increased territorial disparities (Barca et al., 2012). Literature shows that the benefits of the green economy tend to concentrate in regions with well-developed infrastructure and high human capital, whereas regions dependent on polluting industries face significant difficulties in adapting to new economic conditions (European Commission, 2021).

Social tensions are further amplified by regional disparities. Mono-industrial regions dependent on polluting sectors such as mining or fossil fuel energy are at high risk of economic decline. Industrial closures in these areas can lead to structural unemployment, depopulation, and deterioration of social cohesion (Barca et al., 2012). Moreover, as highlighted by Andrioni (2017) in her studies, the green transition must be understood not only as an economic transformation, but also as a complex social process that affects communities differently depending on their level of development and structural resilience. Andrioni and Schmidt (2011, 2012) emphasizes that regions with limited institutional capacity, weak social services, and reduced economic diversification are particularly vulnerable to the disruptive effects of economic restructuring. In such territories, the transition may deepen social vulnerability, intensify social inequalities, and generate long-term risks for social cohesion, unless comprehensive social policies and active support measures are implemented to accompany the economic changes (Andrioni, 2017; Andrioni&Schmidt, 2011; Andrioni&Schmidt, 2012).

Conversely, the benefits of the green economy concentrate in urban and developed regions with infrastructure, human capital, and investment access.

In this context, it becomes evident that not only the outcomes of the transition matter but also the decision-making process. Procedural justice is a core component of a just transition, referring to the transparency of decision-making and the involvement of social actors in policy formulation. Lack of social dialogue and public participation can undermine the legitimacy of environmental measures, generating social conflict and political opposition (Newell & Mulvaney, 2013). Recent reports emphasize that social acceptance of climate policies is closely linked to perceived inclusion and equity in the decision-making process (IPCC, 2022).

In this regard, the concept of a "just transition" has become central to green economy debates. It emphasizes the protection of workers and communities affected by economic transformations, ensuring equitable distribution of transition costs and benefits (Newell & Mulvaney, 2013). The approach highlights that the success of climate policies depends not only on economic efficiency but also on social acceptance and the integration of equity considerations into policymaking.

The European Union has integrated just transition principles into the European Green Deal through instruments such as the Just Transition Fund, aimed at supporting regions most affected by the phase-out of polluting industries (European Commission, 2021). These policies aim to support professional retraining, economic diversification, and investment in social infrastructure, reducing social exclusion risks.

In conclusion, the social dimension of the transition to a green economy represents a major challenge for policymakers. Without coherent public policies targeting social inclusion, education, and regional development, the green transition risks exacerbating existing inequalities and generating social conflicts. Integrating just transition principles is therefore essential for the economic, social, and political sustainability of the green economy.

4. CONCLUSIONS

The transition to a green economy represents one of the most complex and ambitious economic and social transformations of the 21st century. This article highlights that the green economy is not merely a response to the climate crisis and environmental degradation but also a significant opportunity to restructure economic development models. By promoting resource efficiency, renewable energy, and technological innovation, the green transition can stimulate economic growth, strengthen competitiveness, and create new high value-added economic sectors.

At the same time, the analysis demonstrates that the economic benefits of the green transition are not automatically or evenly distributed within society. While investments in green infrastructure and clean technologies generate important opportunities, they may also produce adverse effects, particularly for regions and communities dependent on traditional polluting industries. Job losses, rising energy costs, and social marginalization risks are real challenges that can undermine public acceptance of environmental policies if not properly managed.

In this context, the article emphasizes the importance of integrating the social dimension into the green transition process. The concept of a just transition provides an essential framework to reconcile economic and ecological objectives with the need to maintain social cohesion. Public policies must prioritize protecting affected workers, supporting professional retraining, and reducing regional inequalities. Without such measures, the green transition risks increasing economic and social polarization, generating political and social resistance.

The analysis also highlights the central role of the state and supranational institutions in guiding and coordinating the transition. EU policy examples show that successful transition depends on adequate funding mechanisms, administrative capacity, and effective governance coordination. Simultaneously, the involvement of

social actors—trade unions, businesses, and civil society—is essential to ensure legitimacy and sustainability in economic transformation.

In conclusion, the green economy should not be viewed solely as an environmental project but as a multidimensional process involving profound changes in the economy and society. The green transition can generate significant economic benefits, but only if accompanied by coherent and inclusive social policies. An integrated approach combining economic growth, environmental protection, and social equity is fundamental for the green transition to become a viable and sustainable long-term development model.

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