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Advantages, Disadvantages, and Policy Needs in the Circular Economy Transition: Evidence from Turkish Manufacturing Firms

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Abstract

The circular economy (CE) has gained increasing prominence as a sustainability-oriented strategy aimed at decoupling economic growth from resource depletion, waste generation, and environmental degradation. As a systemic and long-term socio-technical transformation, the CE transition requires fundamental changes in production systems, business models, institutional frameworks, and stakeholder interactions. These dynamics are particularly relevant for Turkiye, a major manufacturing and exporting economy closely integrated into European Union (EU) markets and increasingly exposed to evolving regulatory and market pressures related to circularity. This study aims to explore how large-scale Turkish manufacturing firms perceive as advantages and disadvantages of CE adoption and the policy measures considered necessary to support the CE transition. The study addresses three research questions: (i) what advantages firms associate with the CE transition, (ii) what disadvantages they encounter, and (iii) what policy needs they consider as critical for enabling effective CE implementation.

An exploratory and descriptive qualitative research design was employed, based on semi-structured, in-depth interviews with sustainability managers and experts from 11 large-scale manufacturing exporters operating across 9 industrial sectors in Turkiye. The data was analyzed using qualitative content analysis to identify key themes and categories. The findings indicate that regulatory compliance, corporate reputation, investor interest, competitive advantage, and access to finance are perceived as the main advantages of the CE transition. In contrast, firms highlight the lack of a clear and strong regulatory framework, high implementation costs, limited access to affordable financial instruments, weak supply-chain coordination, insufficient consumer demand, and information gaps as major disadvantages. Environmental and social benefits are perceived as secondary, suggesting that CE adoption is primarily driven by compliance and competitiveness

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considerations. The study underscores the importance of coherent and enforceable regulatory frameworks, tailored financial instruments, demand-side policies such as circular public procurement, increased societal awareness, and sector-specific transition plans. By providing firm-level insights from an emerging economy context, the study offers policy-relevant contributions to the design of effective circular economy governance frameworks.

Key words: Sustainable Development, Circular Economy, Economic Policy, Policy Expectations, Turkish Industry

JEL Codes: E02, G18, O25

1. Introduction

The accelerating depletion of natural resources, intensifying environmental degradation, and widening socio-economic inequalities have heightened concerns about the sustainability of the dominant economic model (Rockström et al., 2009; United Nations, 2015; IPCC, 2021). The prevailing linear production and consumption based on the "take–make–use–dispose", has been identified as a major driver of environmental problems such as climate change, pollution, and biodiversity loss, while also exacerbating social and economic challenges including inequality, unemployment, and resource insecurity (WCED, 1987; Geng & Doberstein, 2008; Geissdoerfer et al., 2017). These interconnected crises have intensified the search for alternative development models capable of reconciling economic activity with ecological limits. Within this context, sustainable development (SD) has emerged as a guiding framework that seeks to balance economic, social, and environmental objectives while respecting the regenerative capacity of natural systems (WCED, 1987; Daly, 1996; Ghisellini et al., 2016). Among the approaches supporting SD, the CE has gained particular prominence due to its emphasis on resource efficiency, waste reduction, and value retention through closed material and energy loops (Andersen, 2007; Sauve et al., 2016; Korhonen et al., 2018). CE represents a systemic transformation of production and consumption systems, aiming to decouple economic growth from virgin resource extraction and environmental degradation (Haas et al., 2015; Geissdoerfer et al., 2017).

The CE transition is widely recognized as a long-term, large-scale, and multifaceted socio-technical transformation that requires changes across technologies, business models, institutional arrangements, and stakeholder interactions (Opschoor & Van der Straaten, 1993; de Jesus et al., 2021). From an institutional economics perspective, such transitions cannot be achieved through market forces alone, as unpriced externalities and short-term cost considerations hinder sustainability-oriented investments (Daly, 1996). Instead, institutional frameworks such as comprising regulations, policies, norms, and incentive

structures, play a decisive role in shaping economic behavior and guiding structural changes (North, 1990).

Hence, in recent years, CE has become a central pillar of industrial and macroeconomic policy agendas. Policy initiatives such as the European Green Deal and the Circular Economy Action Plan emphasize CE as a strategic tool for achieving environmental objectives while strengthening competitiveness and resilience (European Commission, 2020; Hartley et al., 2023). These developments have significant implications for countries closely integrated into EU markets. Turkiye, where approximately half of exports are directed toward the EU, is increasingly exposed to evolving regulatory requirements, sustainability standards, and market expectations related to circularity.

As a result, Turkish manufacturing firms face growing pressure to adapt their production processes, supply chains, and business models in line with CE principles. In this context, CE is not only an environmental concern but also a strategic issue linked to regulatory compliance, international competitiveness, reputation, and access to finance (Lieder & Rashid, 2016; Tura et al., 2019; Försterling et al., 2023). Neo-institutional theory suggests that such pressures operate through coercive, mimetic, and normative mechanisms, shaping organizational responses to regulatory and societal expectations (DiMaggio & Powell, 1983; Scott, 2014).

Although the academic literature has extensively examined the advantages, disadvantages, and potential benefits of CE adoption (Ghisellini et al., 2016; Kirchherr et al., 2017; Govindan & Hasanagic, 2018; Tan et al., 2022), empirical evidence from emerging economies such as Turkiye remains limited. There is a lack of qualitative, firm-level research that systematically explores how large-scale industrial producers perceive the advantages and disadvantages of the CE transition and how these perceptions translate into policy needs. Moreover, while CE policies are frequently discussed as external enablers or constraints, fewer studies examine how firms actively interpret institutional environments and articulate policy needs in the context of systemic transitions. From a stakeholder theory perspective, CE transitions involve multiple actors including firms, governments, consumers, and civil society, whose interactions and expectations shape transition outcomes (Freeman & McVea, 2001; Esposito et al., 2017; Salvioni & Almici, 2020). Therefore, understanding firms' policy expectations is critical for designing effective, legitimate, and context-sensitive CE governance frameworks.

In this context, this study aims to explore the perceptions and expectations of large-scale Turkish manufacturing firms regarding the circular economy transition. Specifically, this study seeks to identify (i) the perceived advantages of CE adoption, (ii) the perceived disadvantages, and (iii) the policy measures considered necessary to facilitate an effective CE transition. To this end, the study employs a qualitative research design based on in-depth interviews with sustainability managers and experts from major industrial exporters committed to

sustainability efforts across different industrial sectors in Turkiye. By doing so, the study contributes to literature in three main ways. First, it provides empirical insights from an emerging economic context that is highly integrated into EU markets. Second, it interprets firm perceptions through institutional and stakeholder-oriented theoretical lenses. Third, it offers policy-relevant findings that can inform the design and implementation of CE strategies in Turkiye and similar economies facing comparable structural and institutional conditions.

The remainder of this study is structured as follows. The next section presents the conceptual framework, theoretical foundations and literature review. This is followed by the methodology section describing the research design and data collection process. The findings section presents empirical results. The discussion and conclusion section examines the link between the empirical findings and the theoretical background and provides an interpretation of the identified policy needs, along with policy implications, contributions to theoretical understanding, study limitations, and directions for future research.

2. Conceptual Framework, Theoretical Foundations, and Literature Review

2.1. Conceptual Framework

SD is the "development that enables present generations to meet their needs without preventing future generations from meeting their own" (WCED, 1987: 41). This approach is replacing the economic norm of quantitative expansion (growth) with that of qualitative improvement (development) and foresees comprehensive and structural changes in societies (Daly, 1996; Kemp & Martens, 2007; Grin et al., 2010). Linear production and consumption structure (take-make-use-dispose) of the current economic system is one of the main determinants of the environmental problems (Geng & Doberstein, 2008; Geissdoerfer et al., 2017; de Jesus et al., 2018). As Daly (1996) argues, SD requires fundamental changes in the conduct of governments, private organizations, and individuals. Discovering and correcting errors in economic thinking, as well as in the set of formal and informal relationships among individuals, behavioral patterns, political organizations, and economic systems, is vital for achieving SD (Opschoor & Van der Straaten, 1993).

The CE is both a strategy and a business model that supports sustainable development (Geng and Doberstein, 2008; Mathews & Tan, 2011, Schroeder et al., 2018; Millar et al., 2019; Chizaryfard et al., 2021). Although it is considered as a new concept, its roots date back to the 1960s (Kumar et al., 2019: 1068). Many authors have attributed the concept of CE to Kenneth Boulding (Ghisellini et al., 2016; Geissdoerfer et al., 2017; Kumar et al., 2019). According to Boulding (1966), "… man must find his place in a cyclical ecological system that ensures the

continuous reproduction of material form, even if he cannot escape the use of energy". However, the concept was first explicitly introduced by Pearce and Turner (Ghisellini et al., 2016; Kumar et al., 2019; Moreau et al., 2017). Pearce and Turner (1990) argued that "A circular economic system will operate just like a natural system, although it will continue to use non-renewable resources.".

The CE approach has aim of mimicing natural ecosystems in the production and consumption chains (Geng & Doberstein, 2008). Therefore, CE can be interpreted as an industrial system that is restorative or regenerative by intent and design and replaces the concept of *end of life* (EMF, 2013). It aims to decouple well-being from resource consumption and to create well-being while minimizing the extraction of virgin resources and disposals of materials by providing closed loops in the economic activities (Haas et al., 2015; Sauve et al., 2016; de Jesus et al., 2018; Korhonen et al., 2018; World Bank, 2022). It not only aims to close the loops but also slow down and narrow the material and energy loops leading to minimization of resource input and waste, emissions and energy leakages (Geissdoerfer et al., 2017). It is an economic model and a viable socio-technical system in which planning, resourcing, procurement, production and reprocessing are designed and managed for well-functioning ecosystems and human well-being (Murray et al., 2017; de Jesus et al., 2018). This requires changes in production processes, starting from the design phase, as well as improvements across the entire supply chain and business practices (Opschoor & Van der Straaten, 1993).

The CE has emerged as a key approach in the transition to a more sustainable economic paradigm (de Jesus & Mendonça, 2018) by using different strategies such as refusing, reducing, rethinking, remanufacturing, recycling, repairing, reusing, refurbishing, repurposing, recovering (The R Framework) at the micro level (organizations), meso level (supply chains, networks, communities) and macroeconomic level (national and global scale) (Greyson, 2007: 1383; Ma et al., 2014: 506; Murray et al., 2017; Kirchherr et al., 2017; Potting et al., 2017; De Melo et al., 2022). The R framework describes 10 strategies arranged in a hierarchy, ranging from high-circularity strategies to low-circularity strategies (Potting et al., 2017; Munoz et al., 2024). High-circularity strategies (refuse, reduce, rethink, resuse) help keep materials in the product system for longer periods whereas low circularity strategies (repurpose, recycle, recover) keep materials within the economic system for a short period and lead to substantial loss of value. Overall, companies combine high- and low-circularity strategies to manage the CE transition (Potting et al., 2017; Munoz et al., 2024).

Because of the necessity of large-scale, long-term and multifaceted changes for achieving SD and CE, the concepts of *transition* and *transformation* have become significant topics in academic studies, policy agendas and gray literature. While some scholars use these concepts interchangeably, some scholars focus on the distinction of these concepts (Hölscher, 2018). Basically, both concepts refer to

changes in complex systems (Child & Breyer, 2017: 11; Altenburg and Rodrik, 2017). This study is based on the concept of transition, which has recently gained prominence in academic and grey literature.

The CE transition is a complex and challenging matter (Al-Sinan & Bubshait, 2022; Minoja & Romano, 2024). It is not economically viable when input costs are relatively low, social costs are not internalised in product prices, or there is little incentive to minimise waste and close material cycles (Minoja & Romano, 2024). Currently, the allocation of production factors is largely determined by their market prices, while unpriced production factors tend to be economically overlooked (Opschoor & Van der Straaten, 1993). Yet the current pricing mechanisms mainly concern the time value of acquiring but not the time value of the formation of natural resources (Chizaryfard et al, 2021). These problems are sources of market failures, implying that ecological sustainability is not guaranteed by market forces (Daly, 1996). Since markets do not automatically adjust, the CE transition requires moving beyond market correction to the co-creation and shaping of new markets (Mazzucato & Penna, 2016).

Transformations in multiple technologies and sectors (Opschoor & Van der Straaten, 1993; de Jesus & Mendonça, 2018; Chizaryfard et al, 2021), new regulatory frameworks, new standards and rules required to provide the incentives that will mobilize markets towards the CE transition (Giddens, 2008; Winans et al. 2017; Chizaryfard et al, 2021). Therefore, the transition brings important roles for both the private and public sectors, as well as civil society (Kattel et al., 2018) and requires the active participation of all stakeholders including policy bodies (Chizaryfard et al, 2021).

2.2. Theoretical Foundations

Several well-established theoretical approaches explain the dynamics and features of transitions (Markard et al., 2012). According to Institutional Economics representing one of the most important theoretical approaches for understanding socio-technical transitions, individuals and organizations are the players, while institutions constitute the rules that define how the game is played (Mokyr, 2003; North, 2005). Societies create institutions to reduce the uncertainty caused by continuous change, and the institutional framework determines the incentive structure and the types of skills and knowledge set needed (North, 1993; North, 2005). This approach criticizes the utilitarian outlook and the assumption that economic processes constitute self-contained and self-sustaining systems isolated from their social and physical environments (Kapp, 1976). According to North (1990), political rules lead to economic rules, though the causality runs both ways. As a result, the economy will evolve policies that reinforce the existing incentives and organizations and in the long-run, economic change is the cumulative consequence of numerous short-run decisions by political and economic

entrepreneurs (North, 1990). Actors' behaviors are shaped by institutions that are effective at multiple levels, including state policies, international regulations, and societal expectations (Scott, 2014).

Neo-institutional theory is focused on how organizations are shaped by external societal and cultural pressures including institutional isomorphism which represents a useful approach for understanding the impacts influencing modern organizations (DiMaggio & Powell, 1983). It has three analytical mechanisms: Coercive isomorphism concerns formal (policies, laws and regulations etc.) and informal along with financial pressures; mimetic isomorphism adresses the influence of successful peers in the field and finally normative isomorphism focuses on professional, cultural and moral standards (DiMaggio & Powell, 1983; Scott, 2014). Taking together, these theories shed light on the adaptive mechanisms and institutional pressures that shaped the CE transition for economic actors (stakeholders).

Companies are key actors in this domain and bear responsibilities not only towards their shareholders but also toward a broad range of stakeholders within the wider economic and social ecosystem. Freeman & McVea (2001) defined stakeholder as "any group or individual who is affected by or can affect the achievement of an organization's objectives". Individuals, groups, neighborhoods, organizations, institutions, societies, and even the natural environment are the actual or potential stakeholders (Mitchell et al., 1997; Martínez-Peláez et al., 2023; Addison et al., 2024). Stakeholder approach is about the active management of the business environment, the promotion of shared interests and values-based-management particularly for ensuring long-term success through balancing and integrating multiple relationships and multiple objectives integrating economic, political, and moral analysis (Freeman & McVea, 2001). The concerns of shareholders, employees, customers, suppliers, lenders, and society should be taken into account to develop objectives that are supported by stakeholders (Donaldson & Preston, 1995; Freeman & McVea, 2001). Stakeholder theory provides a comprehensive framework for understanding how both internal (owners, employees etc.) and external stakeholders (suppliers, society, government, creditors, shareholders, customers etc.) influence outcomes (Sahu & Choudhary, 2025).

As transition requires close cooperation and interaction between all stakeholders (Avelino & Wittmayer, 2016; Esposito et al., 2017; Oghazi & Mostaghel, 2018; Markard et al., 2020), stakeholder engagement is becoming necessary to promote organizational change, implement SD and CE principles (Salvioni & Almici, 2020). It is crucial to facilitate stakeholder interactions to soften different perspectives, to find compromises, to provide knowledge and technology sharing and to build consensus (Altenburg & Rodrik, 2017; Tan et al., 2022). The process of structural change will shake existing power relations, create

losers as well as winners, and may result in social resistance (Grin et al., 2010). All actors at different levels, as well as governments, try to steer the process in line with their own objectives (Loorbach, 2010). Hence, social acceptance depends on convincing the parties to the transition and spreading the perception of fair distribution of benefits and costs (Loorbach, 2010; Muench et al., 2022).

Besides, government failures such as weak institutional frameworks and fragmented governance (Kirchherr et al., 2017) should be prevented through stakeholder engagement and feedback loops (Roy, 1995; Wallis & Dollery, 2000). Thus, stakeholder engagement, which is beneficial for mitigating lock-ins, bound rationality and information gaps by incorporating diverse expertise into policy design (Heikkinen et al., 2023). It enhances legitimacy and trust while reducing the risk of regulatory capture (Ostrom, 1990; Oberholzer & Sachs, 2023). Iterative policy-feedback mechanisms support learning and institutional evolution toward sustainability (Velenturf et al., 2021).

2.3. Literature Review

This section reviews the existing literature on the CE transition, with a particular focus on firm-level dynamics, institutional factors, and policy expectations and provides a useful background for deriving the perceptions of the Turkish industrial companies regarding the research questions of this study.

2.3.1. Advantages of The CE Transition

There is a significant gap in the academic literature focused on the industrial companies' preceptions regarding the advantages, disadvantages of and the policy needs for the CE transition in T urkiye. There is only limited number of academic studies investigating this topic. Many studies examined the advantages (drivers) and disadvantages (barriers) faced by the Turkish companies on the sectoral basis (Kazancoglu et al., 2020; Kayikci et al., 2021; Delibalta, 2022; Can-Sağlam, 2023; Biber ve Denktaş-Şakar, 2024; Bakkal ve Kabadayı, 2025; Maden, 2025). The policy perceptions of large-scale Turkish industrial producers and exporters representing a sectoral diversity and including prominent examples of companies which are committed to circularity efforts were not examined using primary data obtained from managers and experts employed by these companies. Hence, this section reviewed the academic literature, with particular emphasis on studies examining the advantages, disadvantages, and policy requirements of the circular economy transition in emerging economies.

In academic literature, one of the most salient advantages of the CE transition is cost saving (Andersen, 2007; Murray et al., 2015; Ghisellini et al., 2016; Esposito et al., 2017; Rizos et al., 2016; Schulz et al., 2019; Agyemang et al., 2019; Salminen et al., 2022). Numerous studies argue that circularity enhances cost

savings by reducing the use of virgin resources. In addition, waste reduction and improved resource efficiency are widely recognized as key benefits of circular economy practices (Rizos et al., 2015; Agyemang et al., 2019; Salminen et al., 2022; Farrukh & Sajjad, 2024; Ekdahl et al., 2024; Gallego-Schmid et al., 2025). Another important advantage of the CE transition is the oppotunity to access new financial sources (Salminen et al., 2022; Försterling et al., 2023; Kekkonen et al., 2023). Furthermore, the literature highlights opportunities for new value creation, technological and organizational innovations, and the development of novel business models as central benefits of circular economy adoption (Bey et al., 2013; Hobson, 2016; Winans et al., 2017; Schulz et al., 2019; Govindan & Hasanagic, 2018; Tura et al., 2019; Kumar et al., 2019; Salminen et al., 2022; Försterling et al., 2023; Ho et al., 2023; Farrukh & Sajjad, 2024; Ekdahl et al., 2024).

Plus, the existence of available technologies is considered as an advantage (Mathews & Tan, 2011; de Jesus & Mendonça, 2018; Jabbour et al., 2020). Compliance to the new regulations and legislations (Lieder & Rashid, 2016; Pinheiro et al., 2018; de Jesus & Mendonça, 2018; de Mattos & de Albuquerque, 2018; Govindan & Hasanagic, 2018; Agyemang et al., 2019; Kumar et al., 2019; Tura et al., 2019; Försterling et al., 2023; Ho et al., 2023; Farrukh & Sajjad, 2024; Schultz et al., 2024, Ekdahl et al., 2024; Konstari & Valkokari, 2024; Supanut et al., 2024), providing government support (de Mattos & de Albuquerque, 2018; Tura et al., 2019; Ho et al., 2023) were also highlighted as advantages in many studies. Gaining competitive advantage in addition with market/product differentiation (Bey, et al., 2013; Agyemang et al., 2019; Försterling et al., 2023; Kekkonen et al., 2023; Farrukh & Sajjad, 2024; Supanut et al., 2024), responding to the shifting consumer demands (Bey, et al., 2013; de Jesus & Mendonça, 2018; Jabbour et al., 2020; Salminen et al., 2022; Försterling et al., 2023; Supanut et al., 2024; Gallego-Schmid et al., 2025), ethical and reputational advantages for improving firm image (Rizos et al., 2016; Ormazabal & Puga-Leal, 2016; Salminen et al., 2022; Kekkonen et al., 2023; Farrukh & Sajjad, 2024) are advantages ensured according to the academic literature. Sustaining economic growth (Andersen, 2007; Winans et al., 2017; Govindan & Hasanagic, 2018; Schulz et al., 2019; Kumar et al., 2019; Kekkonen et al., 2023; Ho et al., 2023; Ekdahl et al., 2024) and decoupling economic growth from environmental degradation (Ormazabal & Puga-Leal, 2016; Lieder & Rashid, 2016; Tura et al., 2019; Agyemang et al., 2019; Försterling et al., 2023; Ekdahl et al., 2024; Supanut et al., 2024) are also appeared as one of most significant advantages of CE.

2.3.2. Disadvantages of The CE Transition

In the academic literature, financial constraints and high implementation costs are consistently identified as major disadvantages of the CE transition (Ormazabal et al., 2016; de Jesus & Mendonça, 2018; Govindan & Hasanagic, 2018; Agyemang et al., 2019; Kumar et al., 2019; Jaeger & Upadhyay, 2020;

Sharma et al., 2021; Wang et al., 2022; Kazancoglu et al., 2020; Försterling et al., 2023; Kekkonen et al., 2023; Ho et al., 2023; Gallego-Schmid et al., 2025).

Weak enforcement capacity resulting from fragmented institutional systems and the complexity of legislation and regulatory frameworks is widely reported as a significant disadvantage to the CE transition (Geng & Doberstein, 2008; de Jesus & Mendonça, 2018; Govindan & Hasanagic, 2018; Hart et al., 2019; Tura et al., 2019; Kumar et al., 2019; Kazancoglu et al., 2020; Försterling et al., 2023; Kekkonen et al., 2023; Ho et al., 2023; Ekdahl et al., 2024; Supanut et al., 2024; Konstari & Valkokari, 2024; Gallego-Schmid et al., 2025).

Lack of adequate policy support is also frequently cited as a key disadvantage hindering the CE transition (Ormazabal et al., 2016; Oghazi & Mostaghel, 2018; Agyemang et al., 2019; Kumar et al., 2019; Wang et al., 2022; Försterling et al., 2023; Kekkonen et al., 2023; Ekdahl et al., 2024).

Limited availability of financial and material resources (Agyemang et al., 2019; Kazancoglu et al., 2020; Jaeger & Upadhyay, 2020), lacking skilled employees (Rizos et al., 2016; Govindan & Hasanagic, 2018; Tura et al., 2019; Kumar et al., 2019; Supanut et al., 2024), insufficient access to appropriate technologies (Ormazabal et al., 2016; Oghazi & Mostaghel, 2018; de Jesus & Mendonça, 2018; Govindan & Hasanagic, 2018; Agyemang et al., 2019; Tura et al., 2019; Jaeger & Upadhyay, 2020; Morseletto, 2020; Sharma et al., 2021; Försterling et al., 2023; Ekdahl et al., 2024; Supanut et al., 2024), weak network collaboration and insufficient waste-related information flows (Geng & Doberstein, 2008; Rizos et al., 2016; Oghazi & Mostaghel, 2018; Agyemang et al., 2019; Tura et al., 2019; Kazancoglu et al., 2020; Jaeger & Upadhyay, 2020; Försterling et al., 2023; Ekdahl et al., 2024; Supanut et al., 2024; Gallego-Schmid et al., 2025) were also highlighted as disadvantages.

Management-related challenges and organizational culture constraints are frequently highlighted as significant disadvantage to CE adoption (Geng & Doberstein, 2008; Govindan & Hasanagic, 2018; Oghazi & Mostaghel, 2018; Tura et al., 2019; Kazancoglu et al., 2020; Försterling et al., 2023; Ekdahl et al., 2024).

On the demand side, the literature points to low consumer awareness and insufficient demand for circular products (Oghazi & Mostaghel, 2018; Kumar et al., 2019; Kekkonen et al., 2023; Ho et al., 2023), as well as the rigidity of consumer behavior and continuity of the business routines, as key disadvantages for the CE transition (Ormazabal et al., 2016; de Jesus & Mendonça, 2018; Tura et al., 2019; Jaeger & Upadhyay, 2020; Försterling et al., 2023; Kekkonen et al., 2023; Supanut et al., 2024; Ekdahl et al., 2024; Gallego-Schmid et al., 2025).

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2.3.3. The Policies Towards the CE Transition

Although the contribution of industrial activity to economic development is undeniable, a substantial share of environmental degradation has resulted from industrial production processes (Faria et al., 2023). Therefore, transforming industrial production systems and value chains is essential for the CE transition. Such transformation largely depends on government policies and regulatory frameworks at the macroeconomic level, which play a critical role in enabling and shaping CE practices at the meso and micro levels (Min et al., 2021; Tan et al., 2022; Hartley et al., 2023; Ekdahl et al., 2024). In this context, policy refers to the laws, regulations, procedures, administrative actions, incentives, and voluntary practices implemented by governments and other institutional actors (Tan et al., 2022).

At the macroeconomic level, Ghisellini et al. (2016) show that a wide range of policies and economic instruments such as taxes, environmental permits, and financial subsidies are employed across different countries. Countries and regions including China, Japan, the European Union, and EU member states have developed policy programs grounded in the principles of the CE (Faria et al., 2023). Policy instruments can be broadly grouped into four categories: administrative and regulatory measures (circular public procurement, extended producer responsibility, product standards, and waste legislation); economic and financial instruments (tax shifting, taxes on virgin raw materials, subsidies for recycled materials, tax reductions for circular practices, incineration taxes, product taxes on hard-to-recycle goods, and funding for investment and R&D); informational instruments (information on product content, certification schemes for secondary raw materials, and the promotion of education and skills); and support mechanisms and capacity-building measures (take-back infrastructure for secondary raw materials, value chain interventions, industrial symbiosis, collaboration platforms, and policies supporting R&D, innovation, and secondary markets) (Ekdahl et al., 2024). Despite the recent increase in CE-related policies and regulations, the literature suggests that existing policy frameworks remain weak to fully support the CE transition (Su et al., 2013; Ekdahl et al., 2024; Gallego-Schmid et al., 2025).

In the European Union, the CE transition is based on a framework that combines framework strategies, product-oriented market rules, and waste law obligations. The 2020 Circular Economy Action Plan (CEAP) frames product policy, circular business models, and value chains (European Commission, 2020). In parallel, the Waste Framework Directive (2008/98/EC), amended in 2018, strengthens the waste hierarchy and establishes the infrastructure and governance conditions for circularity by requiring member states to develop waste prevention programmes, expand separate collections, and meet recycling targets (Directive (EU) 2018/851). In parallel, the Waste Framework Directive (2008/98/EC), as amended in 2018, strengthens the waste hierarchy and establishes the infrastructure

and management conditions for circularity by requiring Member States to develop waste prevention programmes, expand separate collection and meet recycling targets (European Commission, 2018).

The Eco-design for Sustainable Products Regulation (ESPR; Regulation (EU) 2024/1781) establishes a framework for defining product-specific eco-design requirements (European Commission, 2024). The Directive on common rules promoting the repair of goods (Directive (EU) 2024/1799) (European Commission, 2025), complementing the European Right to Goods and Services, implements the principles of the right to repair (European Commission, 2024). The Batteries Directive (European Commission, 2023) combines collection and recycling objectives with design and information requirements (including a battery passport), sustainability criteria, and due diligence obligations for supply chains (European Commission, 2023).

The EU's national policies illustrate how member states translate these frameworks into their domestic policy mix. The Netherlands has set a target of full circularity covering the entire economy by 2050; this includes implementation through tools such as circular public procurement, innovation support and value chain agreements (Government of the Netherlands, 2023). The National Circular Economy Programme 2023–2030 sets out measures for registered sectors (consumable goods, plastics, construction) and introduces different tools, including differentiation (eco-modulation) to support more recyclable packaging and create market demand for circular design (Government of the Netherlands, 2023; EU Economic Platform, 2023). France has upgraded a reparability scheme (mandatory for decommissioned products from 2021) to demonstrate reparability with a standardized score, and the disposal of unsold non-food spoilage is prohibited (EMF, 2022; EEA, 2022a). Germany's The Circular Economy Act (Kreislaufwirtschaftsgesetz, KrWG) establishes the waste hierarchy and provides the legal basis for waste prevention and recovery; specific laws enforce producer responsibility in key flows. The Packaging Act (VerpackG) is a key tool in implementing EPR and supporting high collection rates through deposit return systems for beverage packaging, thus linking consumer participation, collection performance and recycling results (EEA, 2022b).

Outside of Europe, China's Circular Economy Promotion Act (2008) establishes a national legal framework for resource management, cleaner production, and circular practices in the distribution of production and consumption and strengthens these legal rights through planning tools and pilot programs that translate into sectoral practice (China CEP Act, 2008; EU Circular Economy Platform, 2023). This approach emphasizes the role of state-led industrial and regional experiments in scaling up circular economy practices, particularly in production-intensive contexts. Japan's CE policies are based on the Basic Law of

Establishing a Healthy Materials Circular Society. Japan offers product-specific products (container and packaging return screening, household appliance return) by combining take-back systems, defined collection information, and recycling standards to ensure high-volume flows (MOE Japan, 2017).

In these cases, some policy-tools stand out operating at micro, meso and macro level. For instance, product policy instruments such as eco-design requirements, labelling and repair rights, consumer participation and obligations for supply chains were most significant examples of micro- and meso-level policy measures. Macro-level governance and planning tools such as national programmes, transition agendas, public procurement and infrastructure investments put in force for coordinating stakeholders and reduce implementation gaps. All of these diverse, interacting and complementary policy measures put in force in leading countries have the potential to create a suitable environment for the CE transition.

3. Methodology and Data Collection

An exploratory and descriptive study was conducted to examine the advantages and disadvantages of CE transition, as well as the related policy expectations of Turkish industrial companies. Purposeful sampling was employed in this study. The sample selection based on industrial producers included in the Borsa İstanbul Sustainability Index (BIST Sustainability Index), indicating a demonstrated commitment to sustainability practices relevant to the CE transition. A total of 27 companies were invited to participate in the interview phase; however, only 11 companies agreed to take part in semi-structured, in-depth interviews. The interviews were conducted using open-ended questions to elicit expert insights and perspectives. Interviewees included senior sustainability, innovation managers and sustainability experts from the participating firms which operate across nine different industrial sectors.

All companies participating in the interviews are large-scale corporations operating in key industrial sectors and serving as major exporters in the Turkish economy. At the request of the participants, the identities of both the companies and the individuals interviewed were kept confidential. Primary data were collected through semi-structured interviews conducted with senior managers and specialists. Semi-structured interviews are a widely used qualitative data collection method (Kallio et al., 2016).

Participants were initially contacted via LinkedIn and email. In total, 11 interviews were conducted with 12 sustainability managers and specialists between September 10 and October 27, 2025, each of the interviews lasted approximately 50 to 80 minutes. All interviews were conducted online, recorded with the participants' consent, and transcribed verbatim for analysis.

Table 1. Information About the Sample

Industry	Number of Total Employess	Number of Interviewees	Positions of the Interviewees
Electrical and electronics	8.774	1	Sustainability Manager, Sustainability Specialists
Beverage	15.198	1	Sustainability Specialist
Cement	2.026	1	Sustainability Director
Chemicals and textile fibers	1.405	1	Sustainability Manager
Consumer durables	50.000 (approx.)	2	Sustainability Director, Senior Sustainability Lead
Renewable Energy	550	1	Sustainability Director
Beverage	15.198	1	Sustainability Specialist
Energy	2.048	1	Sustainability Manager
Automotive	23.000 (approx.)	1	Head of Corporate Communications and Sustainability
Textile	1.357	1	Sustainability Manager
Automotive	7.665	1	Mobility Solutions Director

Source: Author's own work.

The qualitative content analysis process was carried out systematically. Qualitative data analysis is inductive and comparative in nature because of the effort of developing common themes or patterns or categories from the data (Merriam, 2009). The primary data obtained from the interviews were reviewed multiple times by the author to identify prominent (high frequency) elements. Through constant comparison, themes and categories inductively emerge from the data. Literature review was a fundamental basis in formulating research questions and identifying prominent themes and categories. The formulation of research questions, sample selection, interview design and implementation, recording and transcription, development and refinement of the coding framework, trial coding, and the final analysis, interpretation, and presentation of findings conducted according to the qualitative content analysis protocols (Creswell, 2009; Flick, 2014).

3.1. Validity and Reliability

The study sought to achieve homogeneity by selecting companies from different industrial sectors included in the BIST Sustainability Index that had already integrated CE practices into their operations. Data triangulation was supported through interviews with managers representing diverse age groups, genders, and levels of professional experience. The use of open-ended questions

was beneficial for enhancing internal validity by allowing participants to articulate their knowledge, insights, and viewpoints in their own terms. Interview recordings and transcripts were securely stored to meet the study's validity and reliability requirements.

Due to the participants' request and the need to ensure the reliability of the study, participants were given the opportunity to review and confirm the accuracy of the elements obtained from their responses by the author. Moreover, the author maintained a research journal to promote transparency during data collection and analysis and to reduce the potential influence of subjectivity.

4. Findings and Analysis

Advantages refer to the aspects of the CE transition that firms perceive as beneficial and desirable, as they contribute positively to their operations, competitiveness, and strategic objectives. Conversely, disadvantages refer to the aspects of the CE transition that firms perceive as unfavorable or challenging, as they are considered to impose constraints, increase costs, or hinder operations, competitiveness, and the achievement of strategic objectives. Finally, policy needs refer to the regulatory, financial, and institutional support measures that firms identify as necessary to facilitate the CE transition.

4.1. Advantages

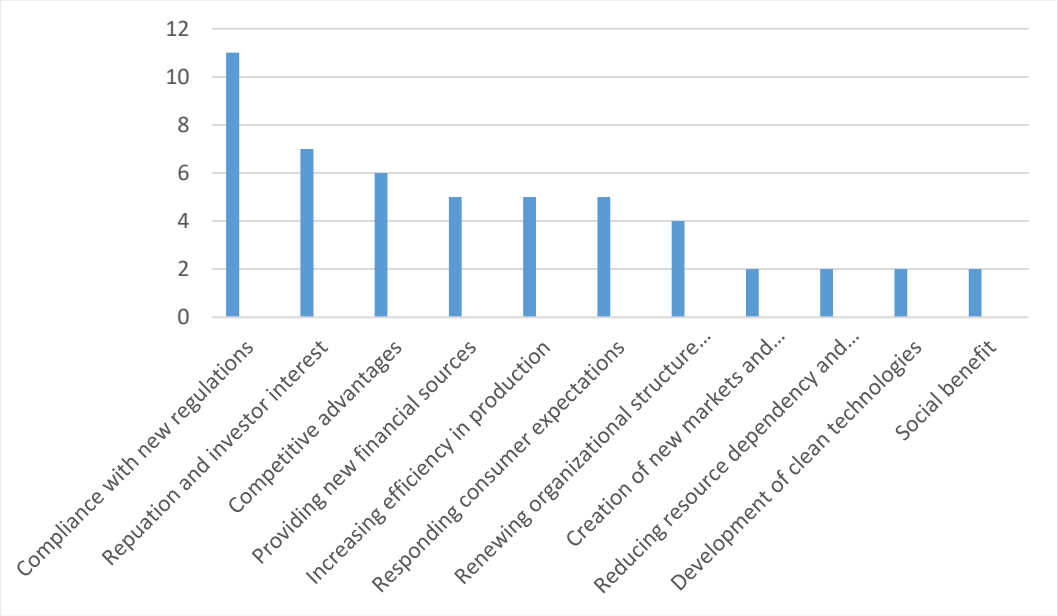
According to the results displayed in Graph 1 below, the most significant advantage of the CE transition mentioned by the participants in all interviews is compliance with the new regulations. Participants see CE strategies and R Framework as a useful tool for responding to the changing regulations and legislations. According to the participants, compliance was more than just an issue regarding domestic performance; it essentially provides a crucial agility, particularly in export activities and competitiveness foreign markets. As one participant put "*being a pioneer in the industry*" depending on the compliance. Another participant put that *"Today, companies that comply to new regulations, will both eliminate the related risks and bring their brand to the forefront"*. On the societal side, one participant argued that "*compliance with regulations ensures societal acceptance*".

The second most mentioned advantage was company reputation and investors' interests. Seven participants stated that companies' circularity performance earned them prestige and created an image of a responsible company. This image and reputation helping companies earn them various awards and attract investors interests.

Competitive advantage was another advantage stated by six as one of the most important advantages of the CE transition. As a participant denoted "*CE is a*

beneficial strategy for differentiating the firms from their competitors". Another participant put that *"As a publicly traded company, we need to explain all our actions to our investors and shareholders why we are doing these. When we say we did it for prestige, they support us"*. Another participant mentioned that *"In the new world, companies are looking at the ESG scores and circular performance of the companies when choosing their partners"*.

Graph 1. The Advantages of The Circular Economy Transition



Source: Author's own elaborations.

Providing new financial sources was the fourth most mentioned advantage in the interviews. One participant stated that *"The EU and the EBRD have suitable funds for companies for circular economy initiatives and actions"*. Another participant denoted that they already *"benefited from green funds" and* they could be able to *"decrease the cost of circularity efforts"*.

Fifth most stated advantage of the CE transition was *increasing production efficiency*. Participants from cement, textile and consumer durables emphasized that *"reducing and recycling wastes are precisely cost saving"*. *Responding to consumer* expectations was the sixth highest-minded advantage by the participants. All participants mentioned this advantage emphasized that consumer expectations regarding CE are more *"obvious and cause a huge pressure particularly in Europe"*. Although tranditional buying behaviours are wide in Turkiye, *"there is rising demand for circular products coming from relatively young, well-educated urban consumer resided in the western regions of Turkiye"*.

Renewing organizational structure and culture was highlighted as an advantage of CE by four participants. One participant mentioned that *"Companies are creating sustainability positions, appointing managers to deal with the issue, and sustainability is becoming an agenda in all departments."*. Another advantage mentioned in the interviews was the creation of new markets and adapting new business models. As one participant put *"linear economy has no way to go"* and there should be *"new strategies forcing private production"*. The least mentioned advantages were *reducing resource dependency and increasing company resilience*, *development of clean technologies* and *social benefit* which are stated only two interviews.

4.2. Disadvantages

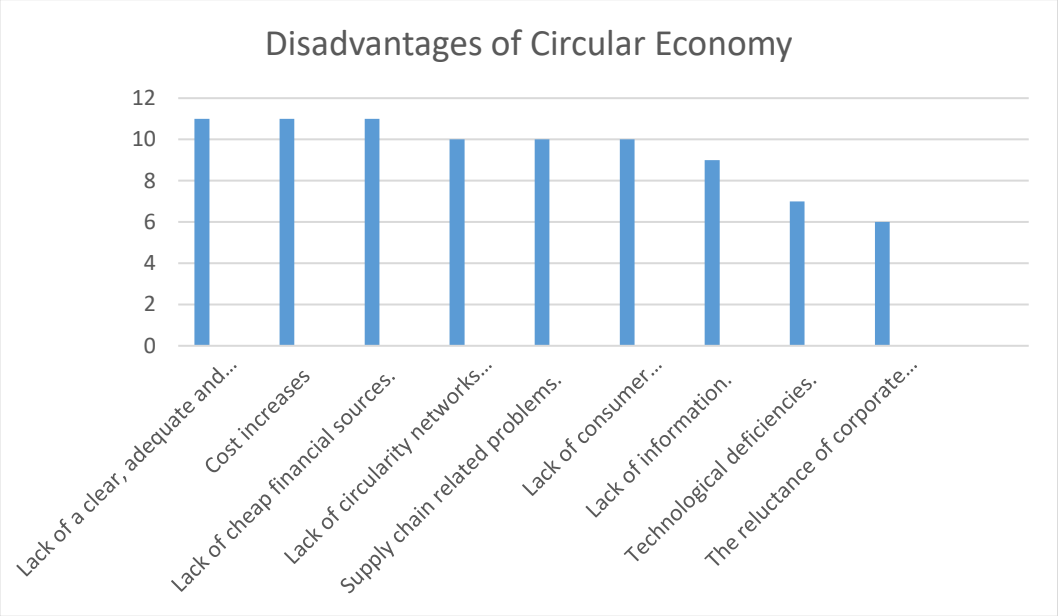
According to the findings, the most asserted disadvantage of the CE transition was *lack of a clear, adequate and strong regulatory framework*. In all interviews, this is the most emphasized argument by the participants. Some participants argued that "*the inadequacy and ambiguity of the regulatory framework is perhaps the most binding problem in Turkiye*". One respondent stated that "*While the European Union's regulatory framework for circularity is guiding companies more strongly, these processes are lagging behind in Turkiye*".

Although participants stressed the significant difference between the structure and the development process of regulatory frameworks between EU and Turkiye, some participants argued that "*Turkiye is making significant efforts regarding transition*". "*If companies are not pressured to adopt circularity and believe that no such pressure will arise, they are unlikely to consider the circular economy at all. This is because most companies operate with a strong focus on short-term interests, profit, and operational efficiency*" statement pointed out the fundamental problem of market economy. Another participant approached the topic from a different angle and stated that "*Besides the transition being a challenging process, the fact that the new regulations require a lot of paperwork also discourages companies*". Furthermore, the link between regulatory framework and market creation express in a very simple way by one participant who said "*Strong and adequate regulatory framework will create a domestic market for circular goods. Once the market created then the competition will increase and products will become cheaper, but we just can't seem to get to that point*".

Cost increase resulted from the circularity efforts was another disadvantage stated by all participants. Some participants complained that "*Even a tiny change in production can result in a very large cost*" and added that "*our R&D department complains that the relatively high prices of energy-efficient products we develop due to their higher costs, unavails our circularity efforts*". Another participant mentioned that "*We compete with Chinese companies*" emphasizing the need for decreasing production costs.

One of the disadvantages of the CE transition asserted by all particpants was the *lack of cheap financial sources*. They particularly stressed the shortage of available funds provided in domestic economy for the use of circularity efforts.

Graph 2. Distadvantages of Circular Economy Transition



Source: Author's own elaborations.

Lack of circularity networks and collaboration were another disadvantage which were stressed by almost all participants. "*When it comes to the circularity, we are experiencing problems in the supply chain*" one participant mentioned. Another participant stressed that "*we cannot find available inputs from suppliers*". Lack of consumer demand/awareness (consumers' traditional buying behaviours) was another disadvantage which stressed out by almost all participants. They particularly emphasized the cultural distinctions between Turkiye and Europe by stating that "*using refurbished products is not well regarded in Turkiye, whereas it is preferred in Europe*". Another participant stated that "*when customers are asked to choose between sustainability and price, sustainability is generally not a priority*".

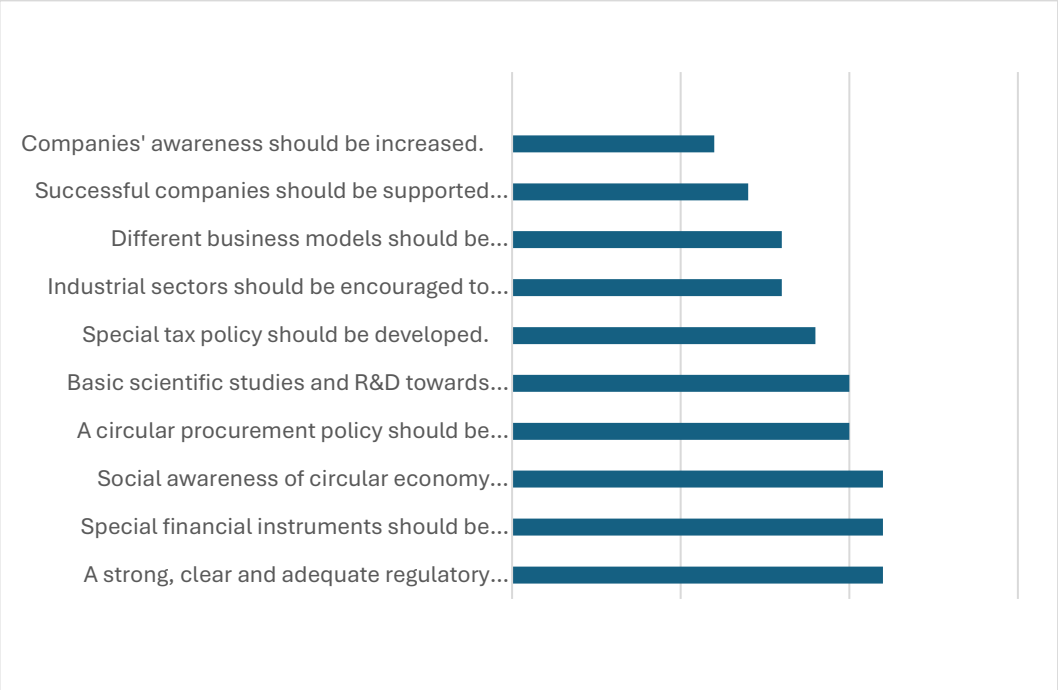
Lack of information was regarded as one of the significant disadvantages of CE transition by nine participants. One participant stressed out this by saying "*we have difficulty accessing information on many issues. An information platform that can track companies' efforts towards circularity is a great need*" highlighting the strong need for network collaboration. *Technological deficiencies* were identified as disadvantages by seven participants. Participants stressed issues such as "*high initial investment*", "*weak regulatory framework*", "*insufficient consumer demand*", and "*inadequate supply chains*" in relation to this topic. *The reluctance of corporate*

senior management is the least frequently mentioned disadvantage. However, six participants explicitly emphasized this issue, while others interpreted this organizational disadvantage as being directly linked to the regulatory framework. From this perspective, the attitude and the commitment of senior management are largely shaped by regulatory developments and frameworks.

4.3. Policy Expectations

A strong, clear and adequate regulatory framework that should be established was mentioned by all participants as the most significant policy need. A clear consensus has emerged on the regulatory framework related to all advantages and disadvantages of the CE transition mentioned above. *Special financial instruments that should be developed* was also mentioned by all participants as one most significant policy needs. Due to the radical changes required by the CE transition, new specialized financial instruments have become increasingly necessary for companies in response to rising costs.

Graph 3. Policy Needs of Turkish Industrialist Towards the CE Transition



Source: Author's own elaborations.

Another policy needs identified by all participants was the necessity to increase *social awareness of circular economic principles*. According to the participants, in relation to the creation and expansion of markets for circular products, policy bodies should enhance societal awareness through "*national strategies*", "*public broadcasting*", "*national campaigns*", and "*educational initiatives*", alongside a clear and robust regulatory framework. One participant

emphasized this by saying "*series of campaigns should be launched, similar to the mobilization against COVID-19*". *A circular procurement policy should be developed* was also stated by almost all participants which was stressed out because of the "*need for market creation*". *Basic scientific studies and R&D towards circularity should be supported* were also mentioned by almost all participants. This policy needs to be related to *technological deficiencies* that affect supply chains negatively. Another policy needs which was identified by nine participants was *special tax policy should be developed* aimed "*reducing the costs*" of companies practicing circularity.

Industrial sectors should be encouraged to develop their own transition plans and were put by eight participants as a significant policy need to encourage the engagement of the industrial stakeholders. Participants stated that through this policy measure, the CE transition would be enriched by the knowledge and experience of companies with many years of operation in the field, which would also facilitate the organization of a realistic transition process. *Different business models that should be encouraged* were revealed as a significant policy need by eight participants. Participants argued that "*organization innovation such as new business models are not favourable for companies but also for the consumers*".

Seven participants identified the need to *support and reward successful companies* as a key policy measure. Since companies seek *"legitimacy, reputation, and prestige in society",* implementing such a policy would not only benefit high-performing companies but also create good practices that could serve as benchmarks for others in the CE transition. Six participants stated that *increasing companies' awareness* is a key policy need. This need refers to *the reluctance of corporate senior management toward the transition to the circular economy.* Participants stressed that *"a shift in top management attitudes would provide significant leverage to address many challenges, particularly internal ones"*.

5. Discussion and Conclusion

This study contributes to the circular economy (CE) literature by interpreting firm-level perceptions of the CE transition in Turkish industry through the lenses of institutional economics, neo-institutional theory, and stakeholder engagement. The empirical findings on both the advantages and disadvantages of the CE transition, along with the articulated policy expectations, are largely consistent with and supportive of the existing literature examined in this study. The findings demonstrate that the CE transition is not driven solely by technological feasibility or environmental concern, but is fundamentally shaped by institutional incentives, regulatory changes, legitimacy pressures, and multi-actor coordination mechanisms. The policy expectations of the companies embodied clear regulatory frameworks, government support for successful peers, targeted financial instruments, and demand-side measures. Although there is a significant policy

effort in Turkiye regarding CE transition, this study has revealed that it lags the policy experiences of the partner countries such as the EU. This is one of the most significant inferences of this study linking the advantages, disadvantages of and the policy needs for the CE transition in Turkiye.

From the perspective of institutional economics, the prominence of regulatory compliance as the most frequently cited advantage of the CE transition reflects the central role of formal institutions in shaping firms' incentive structures. As emphasized by North (1990, 1993, 2005), institutions reduce uncertainty and determine the relative costs and benefits of alternative courses of action. Participants' strong emphasis on regulatory clarity confirms that, in the absence of clear rules and enforcement mechanisms, firms remain locked into linear production models that prioritize short-term efficiency and cost minimization. This finding aligns with Opschoor and Van der Straaten's (1993) argument that markets alone cannot internalize environmental externalities and that sustainability-oriented transitions require institutional reconfiguration at the macro level.

The study's results further resonate with neo-institutional theory, particularly the concept of coercive isomorphism (DiMaggio & Powell, 1983). Firms' focus on compliance with internal and external regulations is the dominant advantage of the CE transition. The finding that senior management reluctance is closely linked to the absence of regulatory pressure suggests that organizational resistance is not merely cultural but institutionally conditioned. In line with Scott (2014), organizations respond rationally to the institutional environment they face; where coercive pressures are weak, circular practices remain peripheral rather than strategic. At the same time, the importance attributed to corporate reputation, prestige, and investor interest highlights the role of normative and mimetic isomorphism. The participants' emphasis on awards, ESG scores, and reputational gains reflects how CE practices are embedded within broader legitimacy-seeking behaviors, consistent with DiMaggio and Powell's (1983) framework.

The disadvantages identified in the study such as financial constraints, lack of affordable funding, and weak supply-chain coordination underscore the absence of strong supportive institutional arrangements. From an institutional economics standpoint, these disadvantages reflect persistent market failures, where socially desirable investments in circularity are underprovided due to high upfront costs and uncertain returns (Daly, 1996; Mazzucato & Penna, 2016). The findings support the argument that CE transitions require market-shaping policies rather than reliance on voluntary corporate action alone.

The policy expectations articulated by participants strongly align with the principles of stakeholder theory and stakeholder engagement. Calls for circular public procurement, sector-specific transition plans, awareness-raising campaigns, and participatory policy design reflect recognition that CE transitions are collective action problems involving multiple actors. As emphasized by Freeman & McVea

(2001) and Salvioni & Almici (2020), long-term organizational change depends on balancing and integrating the interests of diverse stakeholders. Participants' emphasis on collaboration platforms, information sharing, and feedback mechanisms echoes recent literature highlighting the importance of stakeholder engagement in reducing lock-ins, enhancing legitimacy, and fostering learning in sustainability transitions (Altenburg & Rodrik, 2017; Velenturf et al., 2021).

Moreover, the demand for recognizing and rewarding successful companies illustrates how mimetic dynamics can be deliberately leveraged by policymakers to accelerate diffusion of circular practices. By publicly acknowledging pioneers, policy frameworks can transform individual firm successes into sector-wide reference points, reinforcing institutional isomorphism in a positive and transition-oriented direction.

Overall, the findings indicate that the CE transition in Turkiye is shaped by a complex interplay of institutional pressures, legitimacy concerns, and stakeholder interactions. Firms do not perceive circularity as an autonomous business choice, but as a response to evolving regulatory, market, and societal expectations. Without a coherent institutional framework that aligns incentives, mobilizes finance, and coordinates stakeholders, the CE transition risks remaining fragmented, compliance-driven, and externally oriented rather than systemic and transformative.

Theoretical Contributions

This study makes several contributions to the theoretical understanding of CE transitions. First, by integrating institutional economics with neo-institutional theory, it demonstrates that CE adoption at the firm level is primarily shaped by institutional incentive structures rather than by technological readiness or environmental awareness alone. The findings empirically support North's (1990, 1993, 2005) argument that organizations respond to the rules and incentives embedded in the institutional framework, highlighting how regulatory clarity and enforcement function as preconditions for strategic engagement with circularity.

Second, the study extends neo-institutional isomorphism to the context of CE transitions in an emerging economy. The dominance of coercive pressures such as internal and external regulations and export-market requirements shows that CE practices diffuse mainly through compliance-driven mechanisms. At the same time, the importance attributed to reputation, awards, and investor interest illustrates the complementary role of mimetic and normative isomorphism. By empirically linking these three isomorphic mechanisms to specific advantages and disadvantages perceived by firms, the study provides a more nuanced understanding of how institutional pressures jointly shape CE trajectories.

Third, the findings contribute to stakeholder theory by demonstrating that CE transitions constitute collective action problems that exceed firm-level

capabilities. The strong emphasis on collaboration, awareness-raising, and participatory policy design highlights that stakeholder engagement is not merely supportive but constitutive of successful CE transitions. In this sense, the study reinforces recent arguments that sustainability transitions require interactive governance structures where learning, legitimacy, and coordination are continuously co-produced among firms, policymakers, and society.

Policy Implications

The findings of this study offer several policy-relevant insights for accelerating the CE transition in Turkiye and comparable emerging economies. First and foremost, policymakers should prioritize the establishment of a clear, consistent, and enforceable regulatory framework for circularity. Regulatory certainty is essential for reducing investment risk, shaping managerial incentives, and transforming circular practices from voluntary initiatives into strategic imperatives.

Second, the results underline the necessity of tailored financial instruments to support the CE transition. Given the high upfront costs and risks, public policy should move beyond generic incentives toward specialized funding mechanisms.

Third, demand-side policies such as circular public procurement and consumer awareness campaigns emerge as critical tools for market creation. By stimulating demand for circular products and services, governments can address one of the most persistent disadvantages identified by firms: insufficient and uncertain market demand.

Fourth, the study highlights the value of sector-specific transition plans developed in close collaboration with industry stakeholders. Such plans can leverage firms' accumulated knowledge and experience, enhanced policy realism, and reduce resistance by increasing ownership of the transition process. In parallel, publicly recognizing and rewarding successful companies can activate mimetic dynamics and accelerate the diffusion of best practices across sectors.

Finally, effective CE governance requires stakeholder engagement mechanisms, including information platforms, feedback loops and network collaborations. These mechanisms can mitigate governance failures, enhance legitimacy, and support adaptive policy learning, thereby increasing the likelihood that the CE transition evolves into a coherent and systemic transformation rather than a fragmented and compliance-driven process.

6. Limitations

This study has several limitations that should be acknowledged. First, the analysis is based on data from Turkish manufacturing firms, which may limit the

generalizability of the findings to other countries or sectors with different institutional and regulatory contexts. Second, the sample is limited to large-scale corporate firms actively engaged in CE practices, which may limit the applicability of the findings to Turkish industrial SMEs. Finally, the study relies on self-reported firm-level data, which may be subject to response bias and elaboration errors.

Future studies could focus on sectoral policy expectations regarding the CE transition, examining in detail how different sectors perceive this process and what policy tools they need. Furthermore, the advantages and disadvantages of CE practices could be comparatively analyzed across different sectors. Such a sectoral comparison would contribute to the development of sector-specific and targeted policy frameworks, rather than uniform approaches in policy design.

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