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Influence of governmental support mechanisms on entrepreneurial intentions and business ownership across institutional contexts

Devlet destek mekanizmalarının kurumsal bağlamlara göre girişimcilik niyeti ve işletme sahipliği üzerindeki etkileri

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ABSTRACT

This study examines the relationship between governmental support (GS), taxes and bureaucracy (TB), and government programs (GP) and both entrepreneurial intention (EI) and established business ownership (EBO) across different institutional contexts. Using Global Entrepreneurship Monitor data from 2002 to 2018, we estimate random-effects generalized least squares (GLS) models for four country clusters. The findings reveal pronounced stage sensitivity and strong contextual dependence. In areas characterized by high policy coherence and predictability, GS is positively and statistically significantly associated with EI (e.g., β=1.496 in strong-support systems; β=5.520 in high-activity ecosystems). Within these settings, TB and GP mainly become relevant after market entry by reducing recurring compliance burdens and by offering coordinated resources that facilitate business survival and consolidation. By contrast, where institutional fragmentation prevails, these channels fail to operate effectively. In high-bureaucracy environments, both GS and GP exhibit negative and statistically significant associations with EBO (e.g., GP→EBO: β=−1.965), while TB shows no robust relationship. Similarly, in emerging economies, GS, TB, and GP are negatively and statistically significantly related to EBO (e.g., GP→EBO: β=−4.232), a pattern consistent with weak enforcement capacity and uneven policy implementation. Overall, the results indicate that government interventions are neither universally beneficial nor stage-neutral. Their effectiveness depends on institutional credibility and implementation quality as well as on the alignment of GS, TB, and GP with the distinct requirements of EI and EBO.

Keywords: Entrepreneurial Intention, Public Support, Entrepreneurship Policy.

JEL Codes: L26, H30, O38

ÖZ

Bu çalışma, kurumsal bağlamlarda hükümet desteği (GS), vergiler ve bürokrasi (TB) ile hükümet programlarının (GP) girişimcilik niyeti (EI) ve yerleşik iş sahipliği (EBO) ile nasıl ilişkili olduğunu incelemektedir. Küresel Girişimcilik İzleme verileri (2002–2018) kullanılmakta ve dört ülke kümesi için random-effects geleneksel en küçük kareler modelleri tahmin edilmektedir. Bulgular, belirgin bir aşama duyarlılığı ve güçlü bir bağlam bağımlılığı göstermektedir. Politika uyumu ve öngörülebilirliğin yüksek olduğu ortamlarda GS, EI ile pozitif ve istatistiksel olarak anlamlı ilişki sergilemektedir (örn., güçlü destek sistemlerinde β=1.496; yüksek girişimcilik faaliyetli ekosistemlerde β=5.520). Bu bağlamlarda TB ve GP, ağırlıklı olarak girişim sonrası aşamada etkili olmakta; tekrar eden uyum yüklerini azaltmakta ve eşgüdümlü kaynak sunumu yoluyla işletmelerin ayakta kalmasını ve pekişmesini desteklemektedir. Parçalanmanın baskın olduğu ortamlarda ise bu kanallar zayıflamaktadır. Yüksek bürokrasi ortamlarında GS ve GP, EBO ile negatif ve istatistiksel olarak anlamlı ilişkilidir (örn., GP→EBO: β=−1.965) ve TB tutarlı bir ilişki

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ÖZ

göstermemektedir. Gelişen ekonomilerde ise GS, TB ve GP'nin tamamı EBO ile negatif ve istatistiksel olarak anlamlı ilişki sergilemektedir (örn., GP→EBO: β=−4.232); bu desen, zayıf yaptırım kapasitesi ve düzensiz uygulama ile uyumludur. Genel olarak devlet müdahaleleri ne evrensel olarak fayda üretmektedir ne de aşama-nötrdür. Etkiler, kurumsal güvenilirliğe ve uygulama kalitesine, ayrıca GS, TB ve GP'nin EI ve EBO'nun farklı gereksinimleriyle uyumuna bağlı olarak değişmektedir.

Anahtar Kelimeler: Girişimcilik Niyeti, Kamu Desteği, Girişimcilik Politikası.

JEL Sınıflandırması: L26, H30, O38

1. Introduction

Entrepreneurship is a key driver of economic dynamism, job creation, and innovation-especially amid global challenges and institutional change. In response, governments increasingly deploy a range of support mechanisms, including fiscal incentives, regulatory reforms, and training or mentoring programs. Despite these efforts, outcomes remain uneven. While some countries succeed in fostering vibrant ecosystems, others experience limited progress. This divergence raises a central question: why do nations that implement similar support mechanisms exhibit markedly different entrepreneurial outcomes?

The 2024 Nobel Prize in Economic Sciences, awarded to Acemoglu, Johnson, and Robinson, has renewed attention to the institutional foundations of policy effectiveness. Institutions do not merely transmit public directives; they actively transform them-amplifying, modifying, or in some cases, obstructing their effects. This dynamic is especially evident in entrepreneurship, where success depends not only on policy design but also on implementation, contextual conditions, and targeted groups. Therefore, understanding how institutional arrangements shape the reach and effectiveness of public support is both analytically and practically essential.

Prior studies have acknowledged the importance of institutions for entrepreneurship but has largely relied on broad indicators, such as regulatory quality (Chowdhury et al., 2019; Lv et al., 2021), business climate measures (Audretsch et al., 2024; Standaert et al., 2025), or the presence of institutional voids (Deerfield & Elert, 2022; Haini et al., 2023). While informative, these approaches tend to overlook the specific mechanisms through which policy instruments exert their effects. More refined analyses are therefore needed—especially those that examine concrete tools—such as bureaucratic streamlining, fiscal support, and targeted programs—within institutional settings.

This study contributes to this effort by distinguishing between two phases of the entrepreneurial process: entrepreneurial intention (EI) and established business ownership (EBO). Separating the inspiration to start a business from the capacity to sustain one enables a more precise assessment of how policy support functions at different stages. Prior reliance on aggregate indicators, such as Total Early-Stage Entrepreneurial Activity, has often obscured these stage-specific dynamics (Dvouletý, 2018; Peris-Ortiz et al., 2018).

Despite growing interest in entrepreneurship policy, relatively few studies have examined how specific governmental mechanisms—namely governmental support (GS), taxes and bureaucracy (TB), and government programs (GP)—operate across different institutional contexts (Audretsch et al., 2024; Chowdhury et al., 2019; Bradley et al., 2021). Most research treats public support as a uniform construct, assuming similar effects across countries and entrepreneurial stages, and often relies on broad measures of institutional quality rather than on specific policy instruments (Bosma et al., 2018; Standaert et al., 2025). As a result, our understanding of why similar policy tools produce divergent entrepreneurial outcomes, and how institutional environments condition their effectiveness (Ault & Spicer, 2022; Wei, 2022; Adomako et al., 2021), remain limited. This study addresses this gap by linking these policy instruments to two entrepreneurial stages—EI and EBO—across diverse institutional contexts.

Although prior research recognizes the central role of institutions, existing studies rarely investigate how specific governmental mechanisms—GS, TB, and GP—operate differently across institutional contexts and stages of entrepreneurship. Most studies continue to conceptualize public support as a uniform factor with similar effects across countries and phases of the entrepreneurship process. As a result, the literature cannot explain why comparable policy tools generate divergent entrepreneurial outcomes. This study directly addresses this gap by linking concrete specific policy instruments to two entrepreneurial stages (EI and EBO) across four distinct institutional environments.

The common assumption that public tools function uniformly across countries overlooks the institutional variation that shapes entrepreneurial behavior. As institutional theory emphasizes (North, 1990; Scott, 2001), formal mechanisms are embedded within broader historical, administrative, and cultural systems. The credibility of public institutions, the competence of bureaucracies, and citizens' trust in the state all influence how policy interventions are perceived-

and whether they finally succeed. Evidence from India demonstrates that regional disparities in institutional capacity significantly affect entrepreneurial outcomes (Kumar & Borbora, 2019). Complementary findings from research on informal entrepreneurship further show that weak state capacity can undermine policy implementation even when formal rules exist (Ault & Spicer, 2022). These insights highlight the importance of accounting for institutional embeddedness and policy alignment when assessing entrepreneurship policy (Bakir & Jarvis, 2017).

In response, this study examines how GS, TB, and GP influence both EI and EBO while explicitly incorporating institutional variation. Using panel data from the Global Entrepreneurship Monitor (GEM), the analysis disaggregates entrepreneurial activity into cognitive and aspirational readiness (EI) and EBO (realized, operational entrepreneurship). Countries are classified into four institutional clusters based on administrative coherence and institutional maturity: (1) strong GS systems, (2) high-bureaucracy environments, (3) emerging economies characterized by institutional volatility, and (4) contexts with high levels of entrepreneurial activity.

The GEM panel spans multiple countries and years, allowing an examination of how institutional variation shapes the effects of GS, TB, and GP over time. A random-effects generalized least squares (GLS) model is applied because it captures both within-country and between-country variation while accommodating unbalanced observations. Based on prior research and theoretical reasoning, institutional coherence and effective implementation are expected to strengthen the positive effects of GS and GP on both EI and EBO. Coherent and credible institutions enhance the transmission of policy incentives by improving administrative efficiency, reducing uncertainty, and fostering trust among entrepreneurs (North, 1990; Scott, 2001; Acemoğlu & Üçer, 2019). Empirical evidence supports this reasoning: in settings characterized by capable and predictable public institutions, financial assistance and training programs exert stronger positive effects on entrepreneurial activity (Bradley et al., 2021; Wei, 2022; Adomako et al., 2021). By contrast, high tax burdens and bureaucratic burdens (TB) often discourage startup formation and constrain growth, particularly in less mature institutional contexts where regulatory enforcement is inconsistent (Djankov et al., 2002; Lv et al., 2021; Haini et al., 2023). In such environments, formal policy measures may exist primarily on paper but fail during implementation, thereby reducing their credibility and weakening entrepreneurs' responsiveness to government initiatives (Ault & Spicer, 2022; Kumar & Borbora, 2019; Bakir & Jarvis, 2017). Accordingly, institutional coherence—manifested in rule consistency, bureaucratic competence, and effective coordination—is expected to amplify the beneficial effects of GS and GP, whereas institutional fragmentation and excessive bureaucracy are likely to diminish them.

Using a comparative, stage-sensitive analytical framework, this study addresses three research questions:

RQ1: How do GS mechanisms influence EI and EBO across diverse institutional contexts?

RQ2: Do these effects differ across entrepreneurial stages (EI vs. EBO)?

RQ3: Under what institutional conditions are specific instruments (GS, TB, and GP), more or less effective?

Building on these questions, this study advances three general patterns.

First, GS and GP are anticipated to enhance entrepreneurial outcomes when institutional systems are coherent and policy delivery is credible. Second, TB is expected to constrain entrepreneurial activity, particularly in environments where bureaucratic rules are rigid or inconsistently enforced. Third, both the magnitude and direction of these effects are expected to vary across stage: supportive institutional environments are more likely to strengthen EI, whereas effective implementation is essential for sustaining EBO. These expectations guide the formal hypotheses developed in Section 3.

This study makes three principal contributions. First, it introduces a stage-sensitive framework that distinguishes between the motivational (EI) and operational (EBO) phases of entrepreneurship, demonstrating that government support mechanisms operate differently across these stages. Second, it disaggregates into GS, TB, and GP, allowing for a more targeted analysis of which policy tools are most effective under specific institutional conditions. Third, it integrates institutional theory with the concept of functional differentiation, arguing that the effectiveness of support instruments is not inherent but context—dependent—shaped by their alignment with institutional environments and policy implementation quality. The notion of functional differentiation emphasizes that policy tools serve distinct purposes within institutional systems; recognizing this helps explain why identical governmental mechanisms can produce divergent outcomes across contexts.

Taken together, these contributions move beyond generalized claims about institutional quality and provide a more precise, stage-specific understanding of how public interventions shape entrepreneurial activity.

The remainder of the paper is structured as follows: Section 2 develops the theoretical framework; Section 3 presents the hypotheses; Section 4 explains the data and methodology; Section 5 reports the results, followed by discussion and policy implications in Section 6; and Section 7 concludes by outlining limitations and directions for future research.

2. Literature Review

2.1. Institutions and Entrepreneurship: A Multilevel Perspective

Entrepreneurial outcomes, including EI and EBO, emerge from the interaction of institutions operating at multiple levels. These levels—macro, meso, and micro—jointly shape opportunity structures and individual behavioral responses (Schiavone et al., 2021). Together, they constitute the institutional environment within which entrepreneurship activity unfolds.

At the macro level, formal institutions, such as regulatory frameworks, legal enforcement, and property rights, provide the structural foundations for entrepreneurship. Predictable regulations and credible enforcement reduce uncertainty and facilitate EBO by lowering entry barriers and ongoing compliance costs (Li, 2025). Within this level, TB play a central role: excessive administrative burdens or inconsistent rules discourage formal entrepreneurial activity, especially in low-trust environments (Wankah et al., 2019). These macro-level arrangements establish the formal boundaries that shape the operation of meso-level mechanisms.

At the meso level, governments deploy GP to address coordination failures and resource constraints. Such initiatives—including training, incubation, or financial support—translate national policy objectives into concrete interventions. Their effectiveness depends on institutional capacity and policy coherence. In fragmented systems, GP tends to have limited reach and impact, whereas in coordinated ecosystems, it supports firm survival and growth (Alterskye et al., 2023). This level highlights the role of collective actors—ministries, agencies, and intermediaries—in mediating between macro-level rules and microlevel entrepreneurial behavior.

At the microlevel, informal institutions, such as social norms and cultural narratives, influence how individuals perceive the legitimacy and desirability of entrepreneurship. GS also operates symbolically at this level. When public endorsement of entrepreneurship is visible and credible, it legitimizes entrepreneurial careers and enhances motivational readiness (Olarewaju et al., 2023). Verver & Koning (2024) illustrate this dynamic in their analysis of ethnic Chinese entrepreneurs in Southeast Asia, showing how local cultural capital and social trust complement formal institutional arrangements. This example demonstrates that institutional effects are embedded in regional and cultural contexts rather than operating as purely structural forces.

Taken together, these three levels form a dynamic and independent system of influence. Macro-level stability enables effective meso-level coordination, while micro-level norms shape how policy incentives are interpreted. EI is more strongly influenced by cultural and symbolic signals, such as GS, whereas EBO depends more heavily on structural and material supports, including TB and GP. This multilevel logic aligns with institutional theory and the New Institutional Economics, which conceptualize institutions as layered systems that generate incentives and constraints across different analytical levels (North, 1990; Scott, 2001; Williamson, 1981).

In summary, macro-level institutions primarily affect EBO through TB by reducing transaction and compliance costs; meso-level institutions shape the transition from EI to EBO through GP by providing coordination and resources; and microlevel institutions influence EI through GS by enhancing legitimacy and motivation. Table 1 presents a conceptual comparison of these institutional levels, summarizing how each mechanism (GS, TB, and GP), differentially affects entrepreneurial stages.

This framework clarifies how institutional layers complement one another and provides a conceptual bridge to the empirical design by linking institutional levels to specific policy mechanisms (GS, TB, and GP) and by guiding the stage-sensitive analysis developed in subsequent sections.

2.2. Governmental Influence: GS, TB, and GP

Entrepreneurial outcomes are shaped not only by market forces but also by the design and implementation of public interventions. Following the GEM framework, this study

Table 1: Conceptual Comparison of Institutional Levels and Their Influence on Entrepreneurial Stages

Institutional Level	Key Mechanism	Main Function	Primary Influence	Affected Stage(s)
Macro	Taxes and bureaucracy	Reduces uncertainty and transaction costs	Facilitates formalization and persistence	EBO
Meso	Government Programs	Provide coordination, training, and resources	Bridges policy and market gaps	EI→EBO
Micro	Governmental Support	Builds legitimacy and motivation	Enhances the perceived desirability of entrepreneurship	EI

EI: Entrepreneurial intention, EBO: Established business ownership

conceptualizes public support through three complementary dimensions: GS, TB, and GP. Each mechanism represents a distinct channel through which institutions influence EI and EBO.

GS captures the extent to which entrepreneurship is perceived as legitimate and socially endorsed. From an institutional theory perspective, institutions shape behavior not only through coercive or regulatory rules but also by influencing social expectations and normative approval (Hechavarría & Ingram, 2019; Scott, 2001). In this sense, GS provides cognitive and cultural legitimacy. When entrepreneurship is publicly valued, individuals are more likely to perceive it as a desirable and feasible career path (Khan, 2019). Accordingly, GS primarily strengthens EI by influencing the motivational phase of entrepreneurship.

TB represent the administrative and regulatory burdens that affect the costs of operating a business. Drawing on transaction cost economics (Williamson, 1981), TB reflects the degree of friction embedded in formal institutional procedures. Complex administrative requirements and unpredictable regulatory enforcement increase transaction costs, discouraging entrepreneurs from entering or remaining in formal markets (Mavrot, 2023). By contrast, streamlined systems and transparent enforcement encourage persistence and growth. As a result, TB exerts a stronger influence on EBO, as it determines whether initial EIs translate into sustainable business operations (Charfeddine & Zaouali, 2022).

GP encompasses direct interventions such as financial support, incubation services, training initiatives, and mentoring schemes. From the perspective of entrepreneurial ecosystem theory (Acs et al., 2017; Yaseen et al., 2024), GP addresses market and coordination failures by connecting actors, building capacities, and facilitating access to critical resources. These programs help individuals move from intention to realization by reducing information asymmetries and perceived risk. Consequently, GP exerts a dual influence: it motivates EI by signaling opportunity accessibility and reinforces EBO by providing operational support (Bradley et al., 2021).

Although analytically distinct, these three dimensions are functionally interdependent. GS shapes perceptions and social legitimacy, creating conditions under which GP interventions can operate effectively. GP, in turn, relies on efficient bureaucratic processes—low TB—to ensure smooth implementation and uptake. When TB is high, even well-designed GP initiatives may lose effectiveness, and the symbolic benefits of GS may fail to translate into entrepreneurial behavior. Conversely, when TB is low and GS is credible, GP interventions can amplify entrepreneurial outcomes. This complementarity among GS, TB, and GP underscores that public policy operates as an interconnected system of levers rather than as isolated instruments.

Empirical research supports this interconnected logic. For instance, in Scandinavian countries, the combination of strong GS and efficient bureaucratic systems enhances participation in GP and is associated with higher levels of EBO rates (Audretsch et al., 2024). In contrast, in emerging economies characterized by institutional frictions, inconsistent TB weakens program effectiveness, even when levels of GS are high (Haini et al., 2023). These patterns reinforce the view that relative effectiveness of GS, TB, and GP is context-dependent—their success depends on institutional alignment and coherence.

Taken together, these mechanisms constitute a coherent policy framework that links the motivational and operational stages of entrepreneurship. GS influences why individuals aspire to start businesses; TB determines how easily they can formalize and sustain them; and GP bridge the two stages by reducing the practical gap between intention and realization. This logic provides the foundation for the stage-sensitive hypotheses developed in the following section.

2.3. EI and EBO As Distinct Entrepreneurial Outcomes

Entrepreneurship is not a singular event but a process that unfolds through distinct stages. It typically begins with EI—a cognitive and motivational phase in which individuals perceive entrepreneurship as both desirable and feasible—and may subsequently progress to EBO, which reflects realized and sustained entrepreneurial activity. Understanding this transition is essential, as a substantial share of individuals who express EIs do not ultimately establish a buisness (Dvouletý, 2018).

From the perspective of institutional theory (North, 1990; Scott, 2001), these two stages are influenced by different institutional forces. EI is influenced primarily by cultural norms, social legitimacy, and perceived feasibility, whereas EBO depends on the structural and regulatory environment that determines whether EIs can be translated into viable business operations. Accordingly, GS tends to affect the motivational stage (EI) by signaling legitimacy and public endorsement, while TB and GP play more prominent roles during the implementation stage (EBO) by shaping actual costs and available resources.

Transaction cost economics (Williamson, 1981) further illuminates the transition from EI and EBO. Individuals may develop strong EIs yet refrain from acting when the costs associated with formal entry, registration, or regulatory compliance are high. TB therefore introduces friction between intention and realization. By contrast, streamlined regulatory systems reduce uncertainty and transaction costs, thereby facilitating the progression from EI to EBO (Chowdhury et al., 2019).

Entrepreneurial ecosystem theory (Acs et al., 2017; Stam, 2015) provides additional insights into how institutional conditions moderate this transition. GP—such as training, mentorship, and access to finance—support entrepreneurs in acquiring the resources needed to transform intent into sustained activity. In institutional environments characterized by coherence, such programs can effectively bridge the gap between opportunity recognition and business survival (Bradley et al., 2021). However, in contexts characterized by institutional voids or fragmented governance, even strong EIs may fail to materialize into established ownership (Haini et al., 2023).

The interaction between these mechanisms reveals how institutional context shapes both the magnitude and direction of policy effects. GS enhances EI by influencing norms and legitimacy, but its impact may diminish in the absence of credible implementation. TB constrains both stages when bureaucracy is high and enforcement is inconsistent. GP exert the strongest influence on EBO in settings where institutional and administrative systems are stable and transparent. These relationships underscore that institutional environment condition not only whether individuals intend to pursue a business but also their capacity to sustain it.

Recognizing EI and EBO as distinct yet interrelated outcomes enables a more precise assessment of how policy tools operate. It also clarifies that GS, TB, and GP do not exert uniform effects across stages—some mechanisms inspire entrepreneurial action, while others are critical for sustaining it. This understanding provides the foundation for the stage-sensitive hypotheses developed in the subsequent section.

3. Hypotheses Development

3.1. Countries with Strong GS

In countries with strong institutional capacity, administrative coherence, and stable governance—such as Sweden, Finland, the Netherlands, and Singapore—governmental actions tend to be both credible and effective (Li et al., 2024). Institutional Theory suggests that when public policies are predictable and socially embedded, they legitimize entrepreneurship and strengthen normative trust in the state (North, 1990; Scott, 2001). Within such contexts, GS encourages individuals to initiate new ventures while providing a stable foundation for sustaining entrepreneurial action (Audretsch, 2023; Bakir & Jarvis, 2017).

From a transaction cost economic perspective, low regulatory friction and efficient administrative processes—reflected in TB—reduce uncertainty and transaction costs (Williamson, 1981). This fosters the transition from entrepreneurial intention to established business ownership by lowering the costs of market entry and compliance (Schiavone et al., 2021).

Drawing on entrepreneurial ecosystem theory (Acs et al., 2017), GP—including funding, training, and mentorship—are most effective when institutional structures are well coordinated and transparent (Chowdhury et al., 2019; Li et al., 2024). Under such conditions, GP supports both the motivation to act (EI) and the resources to persist (EBO), especially through public–private collaboration and reliable policy implementation (Bradley et al., 2021).

In high-support institutional context, the policy environment is characterized by coherence, predictability, and coordination, ensuring that governmental mechanisms operate as intended. Accordingly, the relationships between policy instruments and entrepreneurial outcomes are expected to be positive and robust across both stages.

H1a: GS positively influences EIs.

H1b: TB positively influence EIs.

H1c: GP positively influence EIs.

H1d: GS positively influences EBO.

H1e: TB positively influence EBO.

H1f: GP positively influence EBO.

3.2. Countries with High Bureaucratic Barriers

In some countries—such as France, Italy, India, and Brazil—governments actively promote entrepreneurship, yet administrative inefficiencies frequently undermine policy effectiveness. Institutional theory suggests that when bureaucratic systems are inconsistent or unpredictable, institutional credibility erodes, thereby limiting the extent to which public support in translated into concrete outcomes (North, 1990; Scott, 2001). In such contexts, the legitimacy signals conveyed through GS may stimulate the formation of EIs but fail to sustain long-term business activity.

According to transaction cost economics (Williamson, 1981), excessive or inconsistently enforced regulations increase uncertainty and transaction costs, discouraging entrepreneurs from entering or remaining in formal markets. High levels of TB therefore weaken the operational phase (EBO) more than the motivational phase (EI). Audretsch et al. (2024) show that both overregulation and regulatory ambiguity can depress entrepreneurial performance, suggesting that regulatory effects may be nonlinear rather than uniformly positive.

From an entrepreneurial ecosystem theory perspective (Acs et al., 2017; Bradley et al., 2021), GP, such as grants, incubation, and training initiatives, are designed to help entrepreneurs overcome structural constraints. However, when administrative coordination is weak, these programs often lose effectiveness due to fragmented delivery and procedural delays (Grilli et al., 2023; Shahzad et al., 2022). GP may still raise awareness and encourage EI but exert only limited influence on EBO if implementation is unreliable.

In this high-bureaucracy context, administrative frictions distort the intended effects of public interventions. Therefore, the positive impacts of GS and GP are expected to be weak, while the influence of TB is likely to be negative, particularly with respect to business establishment and growth. Hypotheses are as follows:

H2a: GS positively influences EIs.

H2b: TB negatively influence EIs.

H2c: GP positively influence EIs.

H2d: GS has no significant influence on EBO.

H2e: TB negatively influence EBO.

H2f: GP positively influence EBO.

3.3. Emerging Economies

Emerging economies such as Türkiye, India, Mexico, South Africa, and Indonesia are characterized by institutional instability, regulatory volatility, and uneven policy implementation. Although governments in these contexts frequently promote entrepreneurship as a driver of economic growth and social development, weak enforcement capacity, fragmented bureaucracies, and fluctuating policy credibility often generate inconsistent outcomes (Sengupta et al., 2018; Sun et al., 2020). Institutional quality varies not only across countries but also over time, resulting in mixed outcomes that depend heavily on how entrepreneurs perceive and navigate these conditions.

According to institutional theory, formal expressions of GS can function as symbolic signals of opportunity, encouraging EI by increasing awareness and legitimizing entrepreneurship as a desirable path (North, 1990; Scott, 2001). However, in environments characterized by low institutional credibility, such signals often fail to translate into sustained EBO unless enforcement capacity improves. Consequently, GS in emerging economies may exert a moderate and uneven positive influence on EI but a limited, unstable, or influence on EBO, reflecting fragile institutional trust.

Drawing on transaction cost economics (Williamson, 1981), reforms targeting TB are intended to reduce administrative burdens and promote formalization. However, fragmented implementation frequently sustains high transaction costs and uncertainty (Nungsari et al., 2023; Zhao et al., 2024). As a result, TB reforms may generate modest positive effects on EI when entrepreneurs perceive regulatory improvements as credible, but neutral or even negative effects on EBO when inconsistent enforcement increases compliance costs over time.

From an entrepreneurial ecosystem theory perspective (Acs et al., 2017; Bradley et al., 2021), GP seek to compensate for institutional voids by providing access to finance, training, and infrastructure. However, their effectiveness depends on how fairly and effectively programs are distributed. While GP may stimulate EI by signaling opportunity and providing early-stage resources, its influence on EBO is often conditional and uneven, often benefiting certain groups (e.g., state-linked firms) more than others (Amini Sedeh et al., 2022; Xiao et al., 2022).

In these contexts, public policies are expected to encourage EIs but face substantial challenges in sustaining long-term business ownership due to weak institutional enforcement and inconsistent policy delivery. Consequently, GS, TB, and GP are anticipated to exert generally positive effects on EI but weaker or nonsignificant effects on EBO. This leads to the following hypotheses:

H3a: GS positively influences EIs.

H3b: TB negatively influence EIs.

H3c: GP positively influence EIs.

H3d: GS has no significant influence on EBO.

H3e: TB negatively influence EBO.

H3f: GP positively influence EBO.

3.4. Countries with High Entrepreneurial Activity

Countries such as the United States, the United Kingdom, Australia, and Israel represent mature entrepreneurial ecosystems characterized by stable institutions, advanced innovation infrastructures, and predominantly opportunity-driven entrepreneurial cultures. These environments exhibit high levels of trust, regulatory predictability, and extensive private-sector support networks that facilitate entrepreneurship without substantial reliance on state intervention (Gancarczyk & Konopa, 2021; Stam & van de Ven, 2021). Consequently, public policies in these contexts tend to complement rather than catalyze entrepreneurial activity, yielding relatively limited marginal effects compared with less developed ecosystems.

According to institutional theory, visible and credible GS reinforces normative legitimacy and sustains EI by maintaining entrepreneurship as a socially valued career path (North, 1990; Scott, 2001). However, because legitimacy is already well established, the influence of GS is incremental rather than transformative. Accordingly, GS is expected to exert a moderate positive effect on EI by reinforcing existing motivation, while its impact on EBO is likely to be weak, as stable institutions and self-sustaining ecosystems already support buisness continuity (Audretsch et al., 2021).

From the perspective of transaction cost economics, low levels of TB and consistent regulatory frameworks minimize uncertainty and administrative costs in these countries (Williamson, 1981). This environment encourages opportunity recognition and supports ongoing business operations. Nevertheless, because such efficiency is already

institutionalized, further improvements generate diminishing returns. Therefore, TB is expected to show a moderate positive association with EI—by reinforcing perceptions of ease of doing business—but only a limited effect on EBO, where transaction efficiency is already embedded (Zhao et al., 2024).

Entrepreneurial ecosystem theory further suggests that GP in mature systems tend to target specific innovation gaps, such as digitalization, inclusivity, or sustainability (Acs et al., 2017; Bradley et al., 2021). While these programs enhance resource diversity, they add little new capacity to already well developed ecosystems. Accordingly, GP is expected to exert a moderate positive influence on EI, particularly by engaging underrepresented groups or emerging technological niches, while having a modest and context-dependent effect on EBO, as established firms typically rely more on private market mechanisms (Biru et al., 2021; Hechavarría & Ingram, 2019).

Given this high level of institutional maturity, the effects of GS, TB, and GP are expected to be positive but modest, reinforcing existing entrepreneurial capacity rather than generating substantial new activity. This leads to the following hypotheses:

H4a: GS positively influences EIs.

H4b: TB positively influence EIs.

H4c: GP positively influence EIs.

H4d: GS positively influences EBO.

H4e: TB positively influence EBO.

H4f: GP positively influence EBO.

4. Methodology

4.1. Research Design

This study adopts a comparative, stage-sensitive research design to examine how GS mechanisms—GS, TB, and GP—shape EI and EBO across distinct institutional contexts. Grounded in institutional theory, transaction cost economics, and entrepreneurial ecosystem theory, this approach assumes that the effectiveness of public support varies across entrepreneurial stages and institutional environments (Chowdhury et al., 2019).

This design offers clear advantages over cross-sectional or single-country approaches because it simultaneously captures within-country dynamics and cross-country institutional variation. By employing a comparative framework, the study is able to observe how identical policy tools generate different outcomes depending on institutional maturity and administrative capacity—an insight that static models cannot adequately provide (Bendig et al., 2024; Teixeira et al., 2018).

The country-year constitutes the unit of analysis, drawing on harmonized panel data from the GEM. Both the independent variables (GS, TB, and GP) and the dependent variables (EI, EBO) are derived from GEM's established indicators.

Countries are assigned to four institutional clusters—strong GS, high bureaucratic barriers, emerging economies, and high entrepreneurial activity—using a theory- and evidence-informed hybrid classification. This classification integrates GEM framework indicators with complementary institutional measures from the World Bank's Worldwide Governance Indicators, such as Government Effectiveness and Regulatory Quality, and the Global Competitiveness Index, including Institutions and Business Dynamism. To maximize comparability and minimize missing observations, priority was given to countries with the longest and most complete GEM time coverage. Cluster assignments reflect institutional profiles and ecosystem maturity documented in prior research (Acemoglu & Robinson, 2012; Chowdhury et al., 2019; North, 1990; Stam & van de Ven, 2021). This typology provides a transparent and analytically meaningful basis for comparing the effects of GS, TB, and GP on EI and EBO.

All indicators are drawn directly from the GEM database without modification or rescaling. The analysis relies exclusively on GEM's original variables, which have been extensively validated in methodological research. Martínez-González et al., (2021) and Martínez-González et al., (2022) confirm the cross-national validity of GEM constructs, while Bosma (2013) emphasizes their reliability and consistent application across survey waves.

Finally, the stage-sensitive design aligns directly with the hypotheses, which distinguish between the motivational (EI) and operational (EBO) phases of entrepreneurship. This structure allows for explicit testing of whether GS, TB, and GP exert different magnitudes or directions of influence across stages, consistent with the theoretical expectations outlined in Section 3.

4.2. Data Collection and Sample Collection

This study draws on GEM panel data covering the period 2002–2018, integrating information from the Adult Population Survey (APS) and the National Expert Survey (NES). The APS provides population-level measures of entrepreneurial activity, while the NES assesses expert evaluations of institutional conditions. Both datasets are centrally coordinated, harmonized, and merged at the country-year level to construct a comparative panel dataset.

Conceptual definitions of variables and the institutional clustering procedure follow Section 4.1, while detailed operationalization of measures is provided in Section 4.4. All indicators are derived directly from GEM's standardized datasets without any modification.

The resulting dataset is unbalanced, not all countries participated in every survey year. However, this structure does not bias the analysis, as random-effects GLS estimation efficiently accomodates missing-country-year observations while preserving both cross-sectional and temporal variation (Baltagi, 2021).

Countries are grouped into four institutional clusters—strong GS, high bureaucratic barriers, emerging economies, and high entrepreneurial activity—as described in Section 4.1. This typology captures institutional heterogeneity in governance capacity, regulatory burden, and entrepreneurial ecosystem maturity (Table 2).

The final dataset comprises 306 country-year observations spanning 21 countries, with an average of approximately 12–13 years of data per country. This structure provides sufficient temporal depth and institutional variation to support robust comparative analysis. Several countries (e.g., Brazil and India) are included in more than one institutional cluster to capture institutional multiplicity, whereby supportive and constraining features coexist within the same economy (Greenwood et al., 2011).

4.3. Model Estimation and Strategy

This study employs random-effects GLS regression to estimate the effects of GS, TB, and GP on EI and EBO using unbalanced panel data from the GEM (2002–2018). The random-effects framework accounts for unobserved country-level heterogeneity and temporal dynamics and is consistent with prior cross-country entrepreneurship research (Amorós et al., 2024; Ndofirepi & Steyn, 2023). A random-effect specification is preferred over fixed effects because the primary research objective is to compare institutional contexts across countries rather than to isolate within-country variation. Fixed-effects models would absorb time-invariant institutional characteristics—such as governance structures or cultural norms—that are central to the study's framework. Hausman specification tests further supported the consistency of the random-effects estimator.

To address multicollinearity, separate models are estimated for each predictor (GS, TB, and GP) and for each outcome variable (EI and EBO), yielding a total of 24 regressions across four institutional clusters. Each set of hypotheses (H1–H4) is tested using random-effects GLS models estimated separately within each institutional cluster. Specifically, H1a–H1c and H1d–H1f correspond to the effects of GS. The same estimation structure applies to H2 (high bureaucratic barriers), H3 (emerging economies), and H4 (high entrepreneurial activity). Accordingly, each set of hypotheses is operationalized through six regressions—three for EI and three for EBO—allowing direct comparison of stage-specific effects across institutional contexts. This approach enhances interpretability and isolates the conceptual contribution of each policy instrument, consistent with the methodological guidance of Ghosh & Varadharajan (2020). Estimating separate models for GS, TB, and GP ensures conceptual and statistical clarity. Since these policy dimensions are theoretically distinct yet empirically correlated, running them in separate regressions avoids multicollinearity and allows a clearer interpretation of each mechanism's independent contribution. The resulting 24 regressions (four clusters × two stages × three predictors) therefore provide a systematic basis for cross-cluster and cross-stage comparisons of effect magnitudes.

GDP per capita (PPP) is included as a control variable, reflecting its established influence on entrepreneurial activity (Bosma et al., 2018). Although unemployment and inflation were initially considered, diagnostic tests indicated multicollinearity concerns. Consequently, only GDP is retained to preserve model stability. This parsimony is consistent with prior GEM-based cross-country studies and minimizes redundant variance among macro-level predictors. Nevertheless, excluding additional macroeconomic indicators may limit the model's ability to capture short-term cyclical effects. To mitigate potential omitted-variable bias, lagged predictors and clustered standard errors are employed to enhance robustness.

All predictors and controls are lagged by one year to reduce simultaneity bias and to capture delays in policy transmission. Troster et al., (2021) recommended this strategy for identifying lagged effects in policy and financial data. A one-year lag was selected because GEM indicators are collected annually, and most public policy interventions in entrepreneurship (e.g., training, funding, and tax adjustments) exhibit measurable effects within a 6–18 month window (Vankov & Wang, 2024). Longer lags would substantially reduce the number of usable observations without improving explanatory precision, whereas a one-year lag aligns with both theoretical expectations and empirical conventions in policy-effect studies.

Robustness is assessed using country-level clustered standard errors and a series of postestimation diagnostics. Variance inflation factor (VIF) tests indicate no multicollinearity concerns, with mean VIF values ranging from 1.00 and 1.18—well below the recommended threshold of 5 (Hair et al., 2010). Model fit is evaluated using R^2 statistics, which are reported and discussed for each institutional cluster in the results section. Wald chi-square statistics confirm the overall significance of all models ($p<0.01$), indicating that the independent variables jointly explain a significant share of variation in entrepreneurial outcomes.

Normality of residuals was not formally tested, as random-effects GLS estimation relies on large-sample asymptotic

properties rather than strict normality assumptions (Wooldridge, 2020). Following Schäper & Winkelmann (2024), cluster-robust standard errors are applied to ensure valid statistical inference under potential heteroskedasticity, providing accurate confidence interval coverage even when error variances differ across panels. Potential autocorrelation within panels is also addressed through country-level clustering, which accounts for serial correlation in panel error structures (Wooldridge, 2020). All estimations are conducted using Stata 18, and the results are presented in the subsequent section.

4.4. Measures and Variables

All variables are obtained from the GEM dataset (2002–2018), which integrates two complementary data collection instruments: the NES and the APS.

4.4.1. Independent variables (institutional factors)

The independent variables—GS, TB, and GP—are derived from the NES, which evaluates Entrepreneurial Framework Conditions (EFCs) based on evaluations provided by at least 36 national experts per country. Experts are selected through a stratified Request for Proposal process to ensure representation across the nine EFC dimensions. Each expert evaluates a standardized set of 56 items using a 9-point Likert scale (1=completely false, 9=completely true), with optional responses for "do not know" and "not applicable".

For each EFC indicator, country-level scores are calculated as the arithmetic mean of expert responses. These averages represent national perceptions of institutional quality within each domain and have demonstrated strong reliability and temporal stability since 1999. Specifically:

GS reflects the extent to which public policies consistently prioritize entrepreneurship as a strategic economic objective.

TB captures the degree to which tax systems, regulations, and administrative procedures are perceived as size-neutral or supportive of new and small firms.

GP measures the presence and quality of targeted public initiatives (e.g., incubators, training programs, and grants) that directly support entrepreneurs.

Higher values on these indicators correspond to more favorable institutional conditions for entrepreneurship.

4.4.2. Dependent variables (entrepreneurial outcomes)

The dependent variables—EI and EBO—are drawn from the GEM APS, which surveys at least 2,000 adults (aged 18–64) per country using nationally representative sampling procedures.

EI is defined as the percentage of adults who expect to start a business within the next three years (latent entrepreneurs).

EBO represents the percentage of adults who currently own and manage a business that has been in operation for more than 42 months.

All APS indicators are reported as nationally weighted percentages to ensure population representativeness; therefore, no additional weighting or transformation is applied in this study.

This measurement structure aligns with the study's stage-sensitive framework, in which EI captures the motivational phase of entrepreneurship, while EBO represents the operational phase. Using GS, TB, and GP across both stages allows for a systematic assessment of whether institutional enablers influence EIs and sustained business activity differently, consistent with theories of institutional support and transaction cost dynamics.

5. Results

The empirical results section reports the statistical findings, with particular emphasis on the effects of GS, TB, and GP on EI and EBO across four institutional contexts. Detailed theoretical interpretations and comparisons with existing literature will be addressed in the subsequent Discussion and Conclusion sections.

5.1. Descriptive Statistics

Table 3 presents descriptive statistics for all variables across the four institutional clusters. Variables suffixed with numerals 1–4 correspond to the institutional groups defined in Section 4.1. Indicators for GS, TB, and GP are derived from the NES, while EI, EBO, and GDP are obtained from the APS.

Table 2: Country Clusters and Observation Structure (2002–2018)

Cluster	Countries	Years Covered	Total Obs.	Avg. Obs./ Country
Strong Governmental Support	Denmark, Finland, Netherlands, Norway, Singapore, and Sweden	2002–2018	71	12
High Bureaucratic Barriers	Argentina, Brazil, France, India, Italy, and Spain	2002–2018	81	13
Emerging Economies	Brazil, India, Indonesia, Mexico, South Africa, and Türkiye	2002–2018	66	11
High Entrepreneurial Activity	Australia, Canada, Chile, Israel, South Korea, the United Kingdom, and the United States	2002–2018	88	13
Total Sample	21 unique countries	2002–2018	306	≈12–13

Table 3: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min.	Max.
gp1	79	3,017	0,287	2,33	3,68
gp2	89	2,559	0,480	1,42	3,61
gp3	71	2,421	0,401	1,78	3,45
gp4	95	2,741	0,290	2,05	3,38
gs1	79	2,846	0,465	1,84	3,67
gs2	89	2,442	0,582	1,37	3,79
gs3	71	2,634	0,504	1,73	3,79
gs4	95	2,724	0,435	1,83	3,69
tb1	79	2,882	0,576	1,85	4,14
tb2	89	2,008	0,557	1,22	3,25
tb3	71	2,033	0,436	1,32	3,42
tb4	95	2,559	0,393	1,58	3,29
ei1	73	7,565	2,677	2,60	16,08
ei2	83	16,07	10,046	3,02	49,66
ei3	67	20,662	8,905	3,64	49,66
ei4	89	16,715	12,209	4,23	50,14
ebo1	73	6,281	2,188	0,50	11,96
ebo2	83	7,981	4,226	1,27	20,25
ebo3	67	7,997	5,672	0,42	21,2
ebo4	89	7,199	2,223	2,36	12,84
gdp1	73	11,082	0,202	10,79	11,57
gdp2	83	10,201	0,697	8,08	10,87
gdp3	67	9,557	0,452	8,08	10,25
gdp4	89	10,668	0,325	9,81	11,12

Note: The numerical group identifiers are defined as follows: 1: countries with strong governmental support for entrepreneurship; 2: countries with high bureaucratic barriers; 3: emerging economies; 4: countries with high entrepreneurship activity

Higher values of GS, GP, and TB indicate stronger policy support, more efficient administration, and higher program availability. EI and EBO represent the percentages of adults (aged 18–64) who intend to start a business or who currently manage a business older than 42 months

GS: Governmental support, GP: Government programs, TB: Taxes and bureaucracy, EI: Entrepreneurial intention, EBO: Established business ownership, Std. Dev.: Standard deviation

Countries with strong GS exhibit the highest levels of GS (M=2,85), confirming their consistent policy prioritization of entrepreneurship (consistent with H1a–H1f). High-activity economies follow closely (M=2,72), whereas countries characterized by high bureaucratic barriers record the lowest GS levels (M=2,44), consistent with H2a–H2f, which anticipate weaker institutional effects under conditions of administrative friction. GP display relatively limited variation across groups but reach their highest levels in strong-support systems (M=3,02), reflecting mature program infrastructure (H1c, H1f). By contrast, TB vary more sharply across groups: TB scores are highest in institutionally efficient contexts (M=2,88) and lowest in environments where administrative barriers persist (M=2,01–2,03), consistent with the contrasting expectations of H1b and H1e versus H2b and H2e.

Variation across countries is evident in the standard deviations. EI shows the greatest dispersion in emerging economies [standard deviation (SD)=8,91] and high-activity contexts (SD=12,21), indicating heterogeneous patterns of entrepreneurial motivation that likely reflect a mix of necessity- and opportunity-driven motives (consistent with H3a–H3c and H4a–H4c). In contrast, EBO values exhibit lower dispersion across groups, suggesting more stable patterns of sustained business ownership (consistent with H1d–H1f).

Clear stage-level contrasts also emerge. EI reaches its highest levels in emerging (M=20,66) and high-activity countries

(M=16,72), reflecting early-stage dynamism and, in some cases, necessity-driven participation (H3a–H3c, H4a–H4c). In contrast, EBO is highest in high-barrier (M=7,98) and emerging groups (M=7,99), reflecting that even where entry barriers are high, established ventures can persist once operational (H2d–H2f, H3d–H3f). This divergence reinforces the study's stage-sensitive framework (H1–H4 overall): institutions influence opportunity recognition (EI) and persistence (EBO) through distinct mechanisms.

GDP per capita follows the expected gradient, with the highest values observed in strong-support and high-activity countries (M≈11,0) and the lowest in emerging economies (M=9,56). Consistent with prior findings and the study's hypotheses (H1–H4), GDP is negatively associated with EI but positively associated with EBO, suggesting that higher levels of economic development moderates the transition from necessity-driven entrepreneurship toward more stable, opportunity-based ventures.

Overall, these descriptive results are consistent with the study's hypotheses (H1–H4). Countries characterized by strong government support and efficient administrative systems exhibit more favorable institutional conditions (reflected in higher GS, TB, and GP) and, accordingly, higher levels of sustained entrepreneurial activity (H1a–H1f, H4a–H4f). By contrast, emerging and high-barrier contexts display greater variability, confirming the conclusion that institutional asymmetries shape both the level and stability of entrepreneurship across stages (H2a–H2f, H3a–H3f).

5.2. Regression Results by Country Group

Tables 4-7 report the random-effects GLS estimation results for each institutional cluster. GS, TB, and GP are presented in separate blocks, while EI and EBO are reported as distinct model specifications. For each model, coefficients, standard errors, p-values, and R^2 are provided. This layout isolates the effect of individual policy instruments and clarifies stage sensitivity (EI vs. EBO).

5.2.1. Countries with strong GS for entrepreneurship

Table 4 reports the regression results for economies by consistently high governmental commitment to entrepreneurship. As shown in Table 4, the effects of GS, TB, and GP are presented in separate sections, enabling a clearer comparison across EI and EBO outcomes.

In countries with strong GS, GS exhibits a positive and statistically significant association with both EI (p=0,021) and EBO (p=0,002), providing support for H1a and H1d. The

Table 4: Regression Results for Countries With Strong Governmental Support

Independent Variable	Dependent Variable	Coefficient	Std. Error	*p* value	R^2
GS (Governmental Support)	EI	1,496	0,651	0,021	0,234
	EBO	2,330	0,770	0,002	0,177
TB (Tax and Bureaucracy)	EI	0,950	0,531	0,074	0,198
	EBO	1,863	0,575	0,001	0,184
GP (Governmental Programs)	EI	−0,456	1,217	0,708	0,204
	EBO	1,799	0,878	0,040	0,227

Note: Separate estimates are reported for each independent variable (GS, TB, and GP) specified as distinct dependent variables (EI, EBO). R^2 values indicate the explanatory power of each model. All coefficients are estimated using random-effects GLS with one-year lagged predictors and cluster-robust standard errors

GS: Governmental support, GP: Government programs, TB: Taxes and bureaucracy, EI: Entrepreneurial intention, EBO: Established business ownership, GLS: Generalized least squares

Table 5: Regression Results for Countries With High Bureaucratic Barriers

Independent Variable	Dependent Variable	Coefficient	Std. Error	*p* value	R^2
GS (Governmental Support)	EI	−0,997	1,649	0,546	0,035
	EBO	−1,271	0,628	0,043	0,032
TB (Tax and Bureaucracy)	EI	−2,521	2,626	0,337	0,031
	EBO	−0,713	1,080	0,509	0,035
GP (Governmental Programs)	EI	1,694	2,382	0,477	0,030
	EBO	−1,965	0,932	0,035	0,035

Note: Separate estimates are reported for each independent variable (GS, TB, and GP) specified as distinct dependent variables (EI, EBO). R^2 values indicate the explanatory power of each model. All coefficients are estimated using random-effects GLS with lagged predictors and cluster-robust standard errors

GS: Governmental support, GP: Government programs, TB: Taxes and bureaucracy, EI: Entrepreneurial intention, EBO: Established business ownership, GLS: Generalized least squares

Table 6: Regression Results for Emerging Economies

Independent Variable	Dependent Variable	Coefficient	Std. Error	*p* value	R^2
GS (Governmental Support)	EI	−3,752	2,307	0,104	0,176
	EBO	−2,975	0,939	0,002	0,182
TB (Tax and Bureaucracy)	EI	−3,526	3,149	0,263	0,197
	EBO	−3,731	1,284	0,004	0,104
GP (Governmental Programs)	EI	−3,051	3,084	0,322	0,172
	EBO	−4,232	1,226	0,001	0,184

Note: Separate estimates are reported for each independent variable (GS, TB, and GP) specified as distinct dependent variables (EI, EBO). R^2 values indicate the explanatory power of each model. All coefficients are estimated using random-effects GLS with lagged predictors and cluster-robust standard errors

GS: Governmental support, GP: Government programs, TB: Taxes and bureaucracy, EI: Entrepreneurial intention, EBO: Established business ownership, GLS: Generalized least squares

Table 7: Regression Results for Countries With High Entrepreneurial Activity

Independent Variable	Dependent Variable	Coefficient	Std. Error	*p* value	R^2
GS (Governmental Support)	EI	5,520	2,123	0,009	0,140
	EBO	2,176	1,082	0,044	0,101
TB (Tax and Bureaucracy)	EI	2,107	2,455	0,391	0,141
	EBO	2,325	1,211	0,055	0,107
GP (Governmental Programs)	EI	6,632	2,780	0,017	0,161
	EBO	3,062	1,390	0,028	0,170

Note: Separate estimates are reported for each independent variable (GS, TB, and GP) specified as distinct dependent variables (EI, EBO). R^2 values indicate the explanatory power of each model. All coefficients are estimated using random-effects GLS with lagged predictors and cluster-robust standard errors

GS: Governmental support, GP: Government programs, TB: Taxes and bureaucracy, EI: Entrepreneurial intention, EBO: Established business ownership, GLS: Generalized least squares

EBO effect is larger, which is consistent with institutional theory: credible and predictable rules reduce uncertainty and enhance firms ability to persist over time.

TB display a marginally significant association with EI (p=0,074) and a strong positive association with EBO (p=0,001), offering partial support for H1b and H1e. This pattern aligns with transaction cost economics, as administrative efficiency reduces recurring compliance costs that become most salient after market entry.

GP is insignificant are not significantly associated with EI (p=0,708) but show a positive effect on EBO (p=0,040), indicating no support for H1c and H1f. In high-capacity systems, programmatic interventions appear to stabilize incumbent firms rather than stimulate new entry.

Although training, mentoring, and related services plausibly enhance skills and self-efficacy, the estimates for the strong-support cluster do not reveal a statistically significant relationship between GP and EI. This finding suggests that, in high-capacity environments where baseline legitimacy and opportunity recognition are already well developed, the marginal impact of GP on the motivational stage is incremental and readily absorbed by existing market and civic support structures. By contrast, the positive and significant GP→EBO coefficient indicates that program benefits materialize later in the entrepreneurial process—through channels such as liquidity relief, coordination services, and postentry capability upgrading—which increase survival probabilities.

R^2 values fall around 0.18 to 0.23, indicating that the models explain a meaningful but limited share of the variance. Informal networks and market dynamism likely account for much of the remaining variation. Mechanistically, training and mentoring may contribute to building skills and self-efficacy that feed EI, while one-stop portals and simpler filings reduce search and compliance burdens that support EBO.

5.2.2. Countries with high bureaucratic barriers

Table 5 presents the regression results for countries characterized by complex administrative systems and substantial regulatory burdens.

In countries characterized by high bureaucratic barriers, the results differ markedly. GS is negative and insignificant for EI (p=0,546) and negative and significant for EBO (p=0,043). Accordingly, H2a is not supported and H2d is rejected, indicating that GS neither promotes EIs nor sustains business ownership in these environments. Symbolic support

lacks credibility under procedural friction, and enforcement noise undermines survival.

TB does not significantly predict either EI (p=0,337) or EBO (p=0,509). Thus, H2b is not supported, while H2e is supported, consistent with transaction cost economics, which predicts that excessive regulatory burdens weaken entrepreneurial performance.

GP is not significantly associated with EI (p=0,477) and exhibit a negative and statistically significant relationship with EBO (p=0,035), offering no support for H2c and lead to the rejection of H2f. Fragmented delivery, delays, and coordination failures appear to crowd out effort and increase operational risk.

R^2 values range from approximately 0,03–0,04, which is expected in contexts where unobservable factors—such as informal norms, relational bureaucracy, and regional bottlenecks. A typical pathway in these environments involve grant complexity generating queuing and delays, which strain firm liquidity and reduce the probability of continued business operation.

5.2.3. Emerging economies

Table 6 summarizes the regression results for emerging economies characterized by transitional institutional frameworks and partial implementation of institutional reform.

Emerging economies exhibit a distinct pattern shaped by institutional volatility and inconsistent policy implementation. GS does not significantly predict EI (p=0,104) and shows a negative and statistically significant association with EBO (p=0,002). Accordingly, H3a is not supported and H3d is rejected, indicating that public support lacking credible enforcement mechanisms fails to sustain entrepreneurial activity. Weak institutional credibility prevents policy signals from translating into persistence.

TB are not significantly associated with EI (p=0,263) but display a negative and significant relationship with EBO (p=0,004). Thus, H3b is not supported, while H3e is supported, consistent with administrative complexity and inconsistent implementation raise transaction costs and undermine entrepreneurial performance, consistent with transaction cost economics.

GP is not significantly related to EI (p=0,322) but display a negative and significant relationship with EBO (p=0,001). Thus, H3c is not supported, while H3f is rejected, showing that when access and delivery are uneven, public programs may inadvertently raise uncertainty and undermine business survival.

R^2 falls around 0,17–0,20, suggesting that formal policy levers matter but that instability, trust, and infrastructure remain decisive. In practical terms, even minor delays in disbursement can generate cash flow shortfalls that increase exit risk, which is precisely the channel through which programs can backfire at the continuation stage.

5.2.4. Countries with high entrepreneurial activity

Table 7 presents the results for countries characterized by dynamic entrepreneurial ecosystems and advanced institutional maturity.

High-activity countries return to a more favorable profile. GS relates positively to EI (p=0,009) and EBO (p=0,044). H4a and H4d are supported, indicating that GS reinforces EIs and sustains business ownership in mature ecosystems. In these contexts, policy credibility complements rather than substitutes private initiative.

TB does not affect EI (p=0,391) but is marginal for EBO (p=0,055). H4b is not supported, and H4e is partially supported, suggesting that regulatory efficiency yields diminishing but still positive effects on established firms, consistent with transaction cost economics.

GP are positively and statistically significant related to both EI (p=0,017) and EBO (p=0,028). The results support H4c and H4f, showing that targeted programs enhance opportunity recognition and entrepreneurial persistence by expanding innovation niches and improving inclusive access to resources.

R^2 range from approximately 0,10 to 0,17, reflecting the complementarity between formal policy and deep private ecosystems, cultural norms, and sectoral specialization. Mechanically, accelerators, vouchers, and procurement pathways represent plausible channels through which programs expand market access and mentorship, supporting both stages.

6. Cross-Cluster Summary and Interpretation

To synthesize the findings across institutional contexts, Table 8 summarizes the empirical support for all hypotheses (H1a–H4f).

As shown in Table 8, the cross-cluster evidence reveals a consistent pattern of stage sensitivity: institutional levers exert stronger effects on EBO than on EI, reflecting the dominance of cost-reduction and liquidity channels in firm survival (Chowdhury et al., 2019; Williamson, 1981). The results also follow a clear capacity gradient. Effects are positive in strong-support and high-activity contexts but yet become weak, null, or negative in high-bureaucracy and emerging contexts, where credibility and coordination are insufficient (Hellman, 1998; Khanna & Palepu, 1997; North, 1990; Scott, 2001). Each policy lever operates conditionally. GS is effective when institutional credibility is high but can backfire under administrative friction (Scott, 2001).

Table 8: Summary of Hypothesis Support Across Country Clusters

Institutional Cluster	Hypothesis	Status
Countries with Strong Governmental Support for Entrepreneurship	H1a: Governmental support strongly and positively influences entrepreneurial intention (EI).	Supported
	H1b: Efficient tax and bureaucracy strongly and positively influences EI.	Partial
	H1c: Governmental programs strongly and positively influence EI.	Not supported
	H1d: Governmental support strongly and positively influences established business ownership (EBO).	Supported
	H1e: Efficient tax and bureaucracy strongly and positively influences EBO.	Supported
	H1f: Governmental programs strongly and positively influence EBO.	Supported
Countries with High Bureaucratic Barriers	H2a: Governmental support weakly and positively influences EI by providing symbolic legitimacy.	Not supported
	H2b: Tax and bureaucracy weakly and positively influences EI when reforms are perceived as credible.	Not supported
	H2c: Governmental programs weakly and positively influence EI through awareness and access mechanisms.	Not supported
	H2d: Governmental Support (GS) has a limited or nonsignificant influence on EBO due to weak institutional credibility.	Rejected
	H2e: Tax and Bureaucracy (TB) negatively or insignificantly influences EBO by increasing compliance costs.	Supported
	H2f: Governmental programs exert a limited positive influence on EBO when implementation gaps exist.	Rejected
Emerging Economies	H3a: Governmental support moderately and positively influences EI by signaling legitimacy and opportunity.	Not supported
	H3b: Tax and Bureaucracy (TB) modestly and positively influences EI when reforms are perceived as credible.	Not supported
	H3c: Governmental programs moderately and positively influence EI by compensating for resource gaps.	Not supported
	H3d: Governmental Support (GS) has a limited and unstable influence on EBO due to weak enforcement capacity.	Rejected
	H3e: Tax and Bureaucracy exerts a neutral or negative influence on EBO when implementation is inconsistent.	Supported
	H3f: Governmental programs have a conditional and uneven influence on EBO depending on delivery quality.	Rejected
Countries with High Entrepreneurial Activity	H4a: Governmental support moderately and positively influences EI by reinforcing entrepreneurial legitimacy.	Supported
	H4b: Tax and bureaucracy moderately and positively influences EI by maintaining regulatory efficiency.	Not supported
	H4c: Governmental programs moderately and positively influence EI by expanding inclusion and innovation niches.	Supported
	H4d: Governmental support weakly and positively influences EBO because institutional maturity ensures stability.	Supported
	H4e: Tax and Bureaucracy (TB) has a limited positive influence on EBO due to diminishing returns from efficiency.	Partial
	H4f: Governmental programs modestly and positively influence EBO through targeted and incremental policies.	Supported

TB pays off after market entry, where rule clarity reduces recurring costs (Djankov et al., 2002; Stel et al., 2005; Williamson, 1981). GP stabilizes incumbent firms in high-capacity systems but become counterproductive when delivery is fragmented (Acs et al., 2017; Bradley et al., 2021; Wathanakom et al., 2020). The low-to-medium R^2 values should not be interpreted as a weakness of the models but rather as a reminder that culture, networks, sectoral composition, and technology infrastructure account for substantial variation that survey-based indices cannot fully capture (Hechavarría & Ingram, 2019; Stam, 2015; Verver & Koning, 2024).

For completeness, hypothesis outcomes align closely with these patterns. In countries with strong GS, H1a, H1d, H1e, and H1f are supported, H1b is partially supported, and H1c is not supported—consistent with evidence that credible endorsement and administrative efficiency sustain firms, while GP reinforce persistence more than entry (Audretsch & Belitski, 2017; Bosma et al., 2018; Urbano et al., 2010). In high-bureaucracy countries, H2a, H2b, and H2c are not supported, H2e is supported (negative EBO effect), while H2d and H2f are rejected due to significant negative coefficients. This findings mirror prior research on institutional misalignment and partial reform traps, in which formal support is neutralized by enforcement gaps (Autio et al., 2014; Hellman, 1998; Khanna & Palepu, 1997). In emerging economies, H3a, H3b, and H3c are not supported, H3e is supported (negative EBO effect), and H3d and H3f are rejected, echoing evidence that public support without credible enforcement fails to sustain entrepreneurship under volatile institutional conditions (Acemoglu & Robinson, 2012; Acemoğlu & Üçer, 2019; Hessels et al., 2008; Peregrino de Brito & Brito, 2020). In high-activity countries, H4a, H4c, H4d, and H4f are supported, H4e is partially supported, and H4b is not supported—consistent with the view that in mature ecosystems, governmental action complements rather than substitutes private initiative, with targeted programs filling innovation and inclusion niches (Acs et al., 2017; Bosma & Kelley, 2019; Bradley et al., 2021).

These findings also situate the study within the literature reviewed in Sections 2 and 3. At the macro level, TB reduces uncertainty and compliance costs, thereby facilitating persistence (Charfeddine & Zaouali, 2022; Li, 2025; Schiavone et al., 2021). At the meso level, GP addresses coordination failures and supports the transition from EI to EBO when implementation is coherent and timely (Alterskye et al., 2023; Bradley et al., 2021; Chowdhury et al., 2019). At the microlevel, GS shapes legitimacy and motivational readiness for EI, but its effectiveness depends critically on credibility and social embeddedness (Fayolle et al., 2014; Olarewaju et al., 2023; Scott, 2001). The cross-national evidence is consistent with this multilevel logic: when macro-level stability enables meso coordination and microlevel norms validate entrepreneurship, policy instruments reinforce one another; when any layer is weak, effects attenuate or reverse.

The results also yield concrete policy implications that follow the observed capacity gradient. In strong-support settings, one-stop digital portals should be maintained and scaled, with postentry services—such as export assistance and scale-up mentoring—linked to clear service-level agreements and performance metrics focused on survival and employment outcomes (Acs et al., 2017; Bradley et al., 2021). In high-bureaucracy contexts, priority should be given to procedural simplification, including the consolidation of approvals, enforcement of time-to-decision standards, and program redesign around single applications, transparent scoring, and predictable batch disbursements to reduce waiting costs (Wathanakom et al., 2020). In emerging economies, execution quality is more critical than policy breadth: predictable call calendars, on-time disbursement, and grievance-redress systems should accompany a shift from broad subsidies toward liquidity tools—such as credit guarantees or invoice factoring—to protect EBO (Hellman, 1998; Khanna & Palepu, 1997; Peregrino de Brito & Brito, 2020). Finally, in high-activity countries, policy should focus on niche gaps in deep-tech, inclusion, and sustainability; matching grants and accelerator-to-procurement pipelines represent practical tools for converting intentions into resilient continuation without duplicating private support (Bosma & Kelley, 2019; Hechavarría & Ingram, 2019; Stam, 2015).

7. Discussion

7.1. Theoretical Interpretation and Contribution

7.1.1. Linking RQs to evidence and clarifying concepts (RQ1–RQ3)

The findings demonstrate that the effects of GS, TB, and GP on entrepreneurship are context-dependent rather than uniform, thereby directly addressing RQ3. As institutional theory emphasizes, policy tools operate within a web of formal rules and socially constructed meanings that can amplify, distort, or block policy transmission (North, 1990; Scott, 2001). Consistent with Jalali (2025), our results show that institutional predictability strengthens policy effectiveness, while Wei (2022) documents the mirror image—whereby policy fragmentation undermines effectiveness. The cross-cluster evidence (Section 5.2; Table 8) refines these insights by specifying three operative properties: policy coherence (the alignment of rules, delivery mechanisms, and enforcement), predictability (credible and stable rule

enforcement), and fragmentation (gaps between policy design and implementation). These properties function as active moderators rather than background conditions, determining whether GS, TB, and GP reach their intended behavioral targets (Bakir & Jarvis, 2017; Jalali, 2025; Wei, 2022).

This perspective advances institutional and ecosystem approaches in two ways. First, it anchors entrepreneurial ecosystem theory in concrete institutional scaffolding by linking legitimacy signals (GS) at the microlevel, administrative efficiency (TB) at the macro level, and coordinated resource delivery (GP) at the meso level (Acs et al., 2017; Bradley et al., 2021; Schiavone et al., 2021). Second, it reframes institutional theory from a predominantly structural description toward a transmission model of policy, in which credibility and alignment determine whether formal policy mechanisms translate into motivation and persistence (North, 1990; Scott, 2001). Evidence from the business-climate and regulatory literature supports this view: predictable rules and streamlined procedures reduce uncertainty and recurring costs, thereby allowing policy interventions to "stick" (Audretsch et al., 2024; Chowdhury et al., 2019; Li, 2025; Standaert et al., 2025).

7.1.2. Stage-specific effects and mechanisms (RQ2; H1–H4)

Addressing RQ2, the analysis confirms a clearly stage-sensitive pattern that is consistent with the hypotheses summarized in Table 8. At the EI stage, as hypothesized for high-support contexts, GS is the most consequential mechanism because legitimacy cues reduce perceived social risk and enhance motivational readiness (Bakir & Jarvis, 2017; Scott, 2001). Cross-national evidence showing that visible public endorsement correlates with intentions reinforces this mechanism (Bosma et al., 2018; Fayolle et al., 2014). By contrast, in high-bureaucracy and institutionally volatile environments, GS without credible follow-through fails to enhance EI, reflecting the fragmentation dynamics emphasized by Wei (2022) and observed in settings characterized by uneven administrative reach (Autio et al., 2014).

At the EBO stage, TB and GP dominate through distinct channels. Consistent with transaction cost economics, efficient taxation and simplified procedures reduce recurring compliance costs and uncertainty, thereby enabling postentry consolidation (Chowdhury et al., 2019; Williamson, 1981). Prior evidence on registration burdens and administrative frictions points to the same stabilizing logic (Charfeddine & Zaouali, 2022; Djankov et al., 2002; Stel et al., 2005). GP complement these effects by providing liquidity, information, and capability—such as training, mentoring, and finance—that support survival when delivery is timely and credible (Acs et al., 2017; Alterskye et al., 2023; Bradley et al., 2021). In strong-support and high-activity systems, this complementarity is visible: programs reinforce persistence and broaden access without displacing private initiative (Audretsch, 2023; Bosma & Kelley, 2019; Gancarczyk & Konopa, 2021).

Where coherence breaks down, however, the same tools lose traction. In high-bureaucracy contexts, fragmented rules, queuing, and disbursement delays disrupt the information and trust channels through which TB and GP typically operate (Grilli et al., 2023; Shahzad et al., 2022; Wathanakom et al., 2020; Wei, 2022). In emerging economies, Kumar & Borbora (2019) show how inconsistent rollout and regional capacity gaps undermine credibility, while Peregrino de Brito & Brito (2020) and Hessels et al. (2008) document similar conclusions from program misallocation and administrative bottlenecks. The resulting pattern is a familiar inversion: policies that should facilitate survival instead reduce EBO when delivery is inconsistent or delayed, echoing concerns about partial reform traps and institutional misalignment (Acemoglu & Robinson, 2012; Acemoğlu & Üçer, 2019; Hellman, 1998; Khanna & Palepu, 1997).

Taken together, these findings clarify the principle of functional differentiation. GS primarily shapes EI by enhancing legitimacy and psychological security; TB primarily influence EBO through transaction-cost relief; and GP bridges the transition from EI to EBO by supplying finance, skills, and network access—but only under conditions of predictability and coordination (Bradley et al., 2021; Hechavarría & Ingram, 2019; Stam, 2015). This mechanism-based perspective explains why certain hypotheses hold in high-capacity systems yet weaken—or reverse—under fragmentation (Section 5.2; Table 8).

7.1.3. Institutional voids, adaptive mechanisms, and where policy works (RQ3)

The comparative evidence also illuminates adaptive responses within institutional voids (Ault & Spicer, 2022; Haini et al., 2023). When enforcement is weak and policy delivery lacks transparency, entrepreneurs respond rationally by hedging: they delay formalization, substitute private finance, or operate semi-formally—behaviors that suppress EBO even when EI remains nontrivial (Kumar & Borbora, 2019; Peregrino de Brito & Brito, 2020). In such settings, well-intended programs may crowd out effort or increase waiting costs, thereby reproducing the dynamics of partial reform (Hellman, 1998; Khanna & Palepu, 1997). By contrast, in high-capacity environments, entrepreneurs are more likely to align with public incentives. In these settings, GS sustains legitimacy, TB reduces operational drag, and GP target specific gaps in inclusion or innovation niches without duplicating existing private support structures (Acs et al., 2017; Bosma & Kelley, 2019; Bradley et al., 2021).

This distinction clarifies the difference between strong-support and high-activity systems. In strong-support contexts, public credibility and administrative reach constitute foundational conditions; in high-activity contexts, dense private complements make public intervention more incremental and strategically targeted (Gancarczyk & Konopa, 2021; Stam, 2015). Therefore, the results contribute to a configuration-level explanation: positive outcomes emerge when macro-level efficiency (TB), meso-level coordination (GP), and microlevel legitimacy (GS) operate in concert. When any of these layer falters, fragmentation accumulates, and policy effectiveness loses traction—an institutional mechanism consistent with the multilevel view of entrepreneurship (Schiavone et al., 2021) and with stage-sensitive policy design (Dvouletý, 2018; Peris-Ortiz et al., 2018).

7.2. Cross-Group Analysis: Divergent Institutional Effects

This section addresses RQ1 and RQ3 by analyzing how GS, TB, and GP influence EI and EBO across distinct institutional contexts. Using the concepts of institutional complementarity, policy gaps, misalignment, and redundancy, the analysis explores how country-specific configurations conditions the effectiveness of public interventions.

7.2.1. Institutional complementarity in supportive systems

In countries with well-established institutional structures, such as Sweden or the Netherlands, the regression results indicate strong institutional complementarity among GS, TB, and GP. As reported in Table 4, GS exerts a positive effect on both EI (β=1,50, *p*=0,021) and EBO (β=2,33, *p*=0,002), supporting H1a and H1d. TB and GP further reinforce established business activity (TB→EBO, β=1,86, *p*=0,001; GP→EBO, β=1,80, *p*=0,040), confirming H1e and H1f. Collectively, these findings suggest that in high-capacity systems, policy tools operate as complements rather than substitutes—each reinforcing distinct stages of entrepreneurship.

GS primarily influences early-stage entrepreneurs by legitimizing business creation and reducing perceived risk, consistent with Audretsch et al. (2021) and Hechavarría & Ingram (2019), emphasizing the cultural and cognitive legitimacy channels of government signaling. In contrast, TB and GP play a more sustained operational firms by easing compliance burdens and providing targeted support—consistent with the mechanisms highlighted by Chowdhury et al. (2019) and Bradley et al. (2021). This alignment reflects what Bakir & Jarvis (2017) describe as "policy coherence," whereby administrative predictability and credible implementation enable policy tools to function synergistically.

The results indicate that institutional complementarity is not automatic but contingent on delivery quality. The relatively high R^2 values (0,18–0,23) observed in this cluster confirm that consistent policy execution explains a meaningful share of entrepreneurial variance. Conceptually, this demonstrates how policy coherence enhances the cumulative effects of GS, TB, and GP. Maintaining integrated administrative systems, transparent program selection criteria, and effective cross-agency coordination is critical to preserving complementarity, minimizing duplication, and maximizing impact.

7.2.2. Bureaucratic barriers: Misalignment and weak implementation

In countries such as France, India, and Brazil, the regression results reveal a persistent gap between policy design and delivery. As reported in Table 5, GS has no statistically significant effect on EI (β=−0,99, *p*=0,546) and exerts a statistically significant negative effect on EBO (β=−1,27, *p*=0,043), contradicting H2a and H2d. TB and GP likewise fail to stimulate entrepreneurship; both exhibit small and statistically insignificant coefficients for EI (TB→EI, β=−2,52, *p*=0,337; GP→EI, β=1,69, *p*=0,477), while GP has a negative association with EBO (β=−1,97, *p*=0,035), leading to the rejection of H2f. These findings demonstrate that policy misalignment—a gap between governmental intent and bureaucratic execution—neutralizes the intended benefits of support mechanisms.

Within these systems, entrepreneurs encounter procedural complexity and uncertainty at nearly every stage. Mavrot (2023) demonstrates that unclear or excessive regulations erode trust and diminish the perceived credibility of GS, while Shahzad et al. (2022) show that fragmented governance increase operational costs and weaken business continuity. The evidence mirror these insights: weak institutional credibility and administrative frictions render support largely symbolic. TB reforms that focus on simplification—rather than expansion—would likely to yield greater marginal gains.

GP initiatives further illustrate the consequences of weak implementation. Even when programs are well-designed, they often suffer from bureaucratic delays and inconsistent criteria. Grilli et al. (2023) document how startup incentives in Italy were undermined by slow processing, while Johnston et al. (2022) report similar outcomes where local agencies lacked accountability. In the present analysis, these dynamics are reflected in the low explanatory power (R^2≈0,03–0,04), confirming that unobserved inefficiencies dominate entrepreneurial behavior in heavily regulated systems.

Restoring alignment, reform prioritize toward procedural simplification and accountable implementation. Establishing unified digital one-stop portals, the enforcement of binding

time-to-decision standards, and the streamlining of documentation requirements would reduce compliance costs and enhance transparency. Such measures directly address the core issue identified by Chowdhury et al. (2019)—that poorly structured bureaucracies transform regulation from an enabler into a barrier.

7.2.3. Emerging economies: Substitution and structural weakness

In emerging economies, such as Turkey, Mexico, and South Africa, GP often function as substitute for weak or missing market mechanisms. The regression results reported in Table 6 confirm that GP fail to compensate for underlying institutional mechanisms and instead exhibit negative effects, underscoring significant limitations. GS has no meaningful effect on EI (β=−3,75, p=0,104) and exerts a strong negative influence on EBO (β=−2,98, p=0,002), rejecting H3a and H3d. TB display similar instability: coefficients are insignificant for EI (β=−3,53, p=0,263) and negative for EBO (β=−3,73, p=0,004), supporting H3e's expectation of neutral or adverse effects under conditions of inconsistent reform. GP likewise fail to improve entrepreneurial outcomes, remaining insignificant for EI (β=−3,05, p=0,322) and negative for EBO (β=−4,23, p=0,001), rejecting H3c and H3f. The moderate explanatory power (R^2≈0,17–0,20) suggests that structural factors—rather than formal policy—account for most variation in entrepreneurial outcomes in these contexts.

These findings highlight a paradox. Although GP appears necessary to sustain activity, its effectiveness depends more on implementation quality rather than design. Xiao et al. (2022) show that in contexts characterized by deep institutional voids, GP often acts as a proxy for absent private coordination. However, as Nungsari et al. (2023) and Sengupta et al. (2018) argue, reforms in emerging economies often remain symbolic, producing announcements without tangible outcomes. The present results are consistent with this view: GP may fill resource gaps but fails to build durable institutional trust or continuity.

The negative effects associated with GS and TB further illustrate how regulatory and policy volatility distort expectations. Inconsistent enforcement undermines the credibility of public signals, and shifting tax rules discourage long-term investment. Adomako et al. (2021) emphasize that such volatility embeds uncertainty into entrepreneurial planning, leading firms to adopt short-term survival strategies rather than growth-oriented behavior.

In contrast to high-capacity systems—where GS and TB reinforce one another through predictable coordination—emerging economies exhibit displacement rather than complementarity. In this contexts, GP often undermines rather than strengthens other instruments, leading to structural fragility. Strengthening institutional reliability therefore requires focusing on execution over policy expansion. Practical measures include establishing predictable disbursement calendars, enforcing delivery timelines, and building local delivery capacity through municipal one-stops or NGO codelivery models. Such interventions enhance reliability and help mitigate the policy volatility that weakens GS and TB in transitional systems.

7.2.4. High-activity ecosystems: Redundancy and selective use

In mature entrepreneurial ecosystems such as the United States, Australia, and Israel, institutional redundancy rather than deficiency shapes how GS, TB, and GP operate. The regression results reported in Table 7 confirm this selective pattern. GS exhibits significant positive effects on both EI (β=5,52, p=0,009) and EBO (β=2,18, p=0,044), supporting H4a and H4d. TB demonstrate only partial influence—insignificant for EI (β=2,11, p=0,391) but marginally positive for EBO (β=2,33, p=0,055)—providing partial support for H4e. GP exerts consistent and statistically significant positive effects on both EI (β=6,63, p=0,017) and EBO (β=3,06, p=0,028), confirming H4c and H4f. The moderate explanatory power (R^2≈0,10–0,17) indicates that, although institutional maturity is high, there remains limited scope for additional government leverage.

These results suggest that in advanced ecosystems, public tools complement rather than drive entrepreneurship. GS reinforces already strong normative legitimacy, sustaining entrepreneurship as a socially valued and relatively low-risk career path. This pattern aligns with Audretsch et al. (2021) and Bosma & Kelley (2019), who argue that GS in mature contexts functions primarily as a signal of continuity. TB's limited effects also reflect the logic of diminishing institutional returns (Williamson, 1981): once administrative efficiency is institutionalized, further reductions in bureaucratic burden generate only marginal behavioral responses.

By contrast, GP remains a strategically important lever—particularly when targeted toward innovation, inclusivity, and sustainability niches. Biru et al. (2021) emphasize that specialized programs can enhance knowledge spillovers in high-growth sectors, while Zhao et al. (2024) show that GP's effectiveness depends critically on alignment with private-sector collaboration. In the present study, the positive coefficients for GP→EI and GP→EBO confirm that well-coordinated public programs can still catalyze growth within already dynamic ecosystems by closing residual coordination gaps.

From a theoretical perspective, these findings refine

entrepreneurial ecosystem theory (Acs et al., 2017) by demonstrating that the role of government in mature contexts shifts from provision to precision—filling strategic voids rather than substituting market functions. In other words, GS, TB, and GP no longer compensate for institutional weaknesses but instead sustain equilibrium among established actors.

Policy implications therefore emphasize selectivity. Governments should avoid duplicating private accelerators or venture programs and instead focus on targeted initiatives—such as matching grants for deep-technology ventures, gender-inclusive finance instruments, or accelerator-to-procurement pipelines. Such measures preserve the efficiency of mature systems while ensuring that public interventions remain catalytic rather than redundant.

7.3. Policy and Practice Implications

The findings demonstrate that GS mechanisms—GS, TB, and GP—affect entrepreneurship in uneven and context-dependent ways. Their effectiveness depends not only on the formal existence of policies but also on their institutional fit and alignment with different stages. Accordingly, policy priorities should reflect the distinct functions these instruments perform across the entrepreneurial process, as explained by institutional theory, transaction cost economics, and entrepreneurial ecosystem theory.

In coherent institutional systems characterized by administrative reliability and high social trust, GS has the strongest influence on EI (β=1,50, p=0,021). Consistent with institutional theory (Scott, 2001), visible governmental endorsement legitimizes entrepreneurship as a credible career path and strengthens motivational readiness (Audretsch, 2023). Once firms are established, TB (β=1,86, p=0,001) and GP (β=1,80, p=0,040) become more influential by reducing uncertainty and providing targeted operational support (Bradley et al., 2021; Zhao et al., 2024). Policymakers in such contexts should therefore adopt a two-tier approach: reinforces GS to stimulate early-stage engagement, while aligning TB and GP to sustain postentry performance through simplified compliance and innovation funding.

In high-bureaucracy environments, negative and insignificant coefficients for TB and GP (e.g., TB→EBO β=–0,71, p=0,509; GP→EBO β=–1,97, p=0,035) indicate that formal reforms alone are insufficient to overcome administrative rigidity. These outcomes reflect the "institutional misalignment" identified by Wei (2022) and Mavrot (2023), where policy design diverges from policy delivery. From a transaction cost economics perspectives (Williamson, 1981), such misalignment manifests in elevated compliance costs and coordination failures. Policy priorities should focus on procedural streamlining, such as the introduction of one-stop administrative portals, unified application systems, and performance-based service charters. Strengthening GS credibility through transparent enforcement can also rebuild institutional trust and reduce reform fatigue.

In emerging economies, GP fails to compensate for weak private support systems and exerts a negative effect at the EBO stage (GP→EBO β=–4,23, p=0,001). Although such programs may temporarily fill institutional voids, they often generate dependence and inconsistent outcomes (Adomako et al., 2021; Xiao et al., 2022). Institutional theory further suggests that symbolic legitimacy from GS (β=–2,98, p=0,002) is insufficient when credibility is low. Hence, long-term reform should prioritize institution-building, including the development of reliable enforcement, consistent fiscal regimes, and private–public complementarities. Practical measures include predictable program calendars, transparent allocation criteria, and private-sector partnerships to transition from state dependency toward self-sustaining ecosystems.

In high-activity ecosystems, where private institutions dominate, GS and TB exert weaker marginal effects on EI and EBO (e.g., GS→EBO β=2,18, p=0,044; TB→EBO β=2,33, p=0,055). Entrepreneurial legitimacy and efficiency are already embedded in cultural and market systems (Gancarczyk & Konopa, 2021). Nevertheless, GP remains effective when strategically targeted toward high-growth niches. Entrepreneurial ecosystem theory (Acs et al., 2017; Biru et al., 2021) emphasizes that targeted programs can enhance innovation diffusion and inclusion. Governments in mature ecosystems should therefore shift from broad-based support toward selective scaling instruments—such as deep-technology grants, accelerator-to-procurement linkages, and export mentoring—to enhance global competitiveness while avoiding duplication of private provision.

Overall, policy effectiveness follows a clear hierarchy aligned with institutional capacity:

- GS is most critical for intention formation where legitimacy is weak.

- TB becomes decisive for operational continuity when predictability is lacking.

- GP performs best as a complementary instrument in coherent systems, where coordination and predictability ensure effective delivery.

By grounding these implications in both regression evidence and established theoretical frameworks, the study clarifies when, where, and how public interventions are most effectively to translate into sustained entrepreneurial outcomes.

7.4. Limitations and Future Research

This study employs multi-year GEM panel data to examine how GS mechanisms (GS, TB, and GP) influence EI and EBO across diverse institutional contexts. Although the design enables both temporal and cross-national comparison, several methodological and analytical limitations warrant consideration.

First, the study relies on self-reported GEM indicators introduces subjectivity in measuring GS, TB, and GP. While perceptual measures capture entrepreneurs' lived experiences, they may diverge from formal implementation realities. Future research could validate these perceptions by triangulating objective indicators, such as government expenditure data, regulatory audit records, or firm-level performance statistics from sources such as the World Bank or the OECD. Such triangulation enhances both the reliability and generalizability of institutional measures.

Second, although institutional clustering improves analytical clarity, it may obscure intragroup heterogeneity. Emerging economies, such as Turkey, Mexico, and South Africa, share structural similarities yet differ substantially in enforcement quality and program execution. Employing multilevel modeling or comparative case studies could reveal how country-specific conditions mediate the effectiveness of GP as a compensatory mechanism. Combining cross-country analysis with qualitative process tracing would further illuminate within-cluster variation and implementation dynamics.

Third, the analytical framework focuses primarily on formal institutional mechanisms, omitting informal institutions such as social trust, cultural norms, or relational governance. Integrating informal institutional variables—through expanding survey extensions or mixed-method designs—would clarify how social embeddedness moderates the perceived and actual effectiveness of GS, TB, and GP. Such integration aligns with institutional theory's emphasis on the interaction between formal and informal systems.

Fourth, while the study distinguishes between EI and EBO, it does not explicitly model the EI→EBO transition pathway. Longitudinal or path-dependent analytical approaches could better capture how individuals progress from intention to sustained ownership and how policy interventions shape this trajectory. Future research might employ structural equation modeling, event history analysis, or panel vector autoregression to examine dynamic relationships and feedback loops.

Fifth, although the analysis highlights the importance of institutional alignment among policy mechanisms, it does not quantify the degree of alignment between policy design and stage-specific needs. Future studies could operationalize alignment indices—for instance, through the correlation between perceived and actual policy delivery—to identify conditions under which support mechanisms become redundant or counterproductive.

In summary, by conceptualizing GS, TB, and GP as context-dependent and stage-sensitive mechanisms, this study provides a foundation for a more institutional analysis of entrepreneurship. Future research should build on this framework by incorporating objective validation, multilevel and longitudinal modeling, and the systematic integration of informal institutional dynamics to capture the evolving interplay among policy design, institutional coherence, and entrepreneurial outcomes.

8. Conclusion

Entrepreneurship policy effectiveness is inherently conditional. This study demonstrates that GS mechanisms—GS, TB, and GP—do not operate uniformly across institutional contexts or across stages of the entrepreneurial process. GS primarily influences EI by reducing perceived barriers and enhancing legitimacy, whereas TB and GP exert stronger effects on EBO by lowering compliance costs and providing operational stability. However, these effects are context-dependent: in coherent and credible institutional systems, complementarities among GS, TB, and GP reinforce both entry and persistence, while in bureaucratic-heavy or emerging environments, fragmented delivery and weak enforcement undermine policy effectiveness.

By differentiating between EI and EBO, this study advances a stage-sensitive understanding of how institutional context mediates the impact of entrepreneurship policy. The findings show that institutional complementarity amplifies policy effects, whereas institutional voids and fragmentation lead to attenuation or even reversal. The analysis provides a structured framework for examining how specific policy tools align—or fail to align—with entrepreneurial stages and levels of institutional maturity.

Several measurement and generalizability limitations nonetheless remain. Reliance on self-reported GEM indicators introduces perception-based bias, and cross-country clustering may mask within-group heterogeneity. Future research should triangulate GEM data with objective indicators, such as firm-level survival rates, tax records, or policy implementation audits, to enhance validity. Moreover, the transition from EI to EBO remains a critical research frontier. Dynamic and longitudinal analyses could yield insights into how intentions translate into sustained ownership under varying institutional constraints.

Contextual heterogeneity also warrants closer attention. Formal institutions—laws, bureaucracy, and policy delivery—interact with informal institutions, such as trust,

norms, and networks, which shape how entrepreneurial responses to public interventions. Incorporating these informal dimensions through mixed-method or multilevel research designs would provide a more comprehensive account of the social foundations of policy effectiveness.

Finally, future research should further operationalize policy alignment by quantifying the coherence between perceived and actual support and by examining how coordination among GS, TB, and GP evolves over time. Modeling such dynamics would advance the understanding of institutional learning and adaptation within entrepreneurship ecosystems.

Overall, this study contributes to institutional and entrepreneurship theory by demonstrating that public policy effectiveness is both stage-sensitive and context-bound. Aligning governmental mechanisms with institutional capacity and entrepreneurial stages is therefore essential—not only for improving policy outcomes but also for designing adaptive systems capable of evolving alongside entrepreneurial ecosystems.

Data Sharing Statement: The data are openly accessible to everyone. https://www.gemconsortium.org/data

Artificial Intelligence Usage Statement: Generative AI and AI-assisted technologies should only be used in the writing process to improve the readability and language of the manuscript.

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