

Reconstructing Productive Actors in Fragmented Accounting and Auditing Environments

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Abstract

Purpose

This study aims to reconceptualize the notion of the "professional human actor" within the accounting and auditing environment by focusing on productive actors—including accountants, auditors, audit committees, and management—operating under fragmented institutional settings. The study investigates how such fragmentation shapes professional practices and outputs, and examines the role of reconstructing these actors in enhancing public interest outcomes.

Methodology / Design / Approach

The study employs a quasi-experimental comparative design using a balanced panel dataset of 210 firms over the period 2015–2024, including listed, unlisted, and special-affiliated entities. A set of derived variables is constructed to measure financial reporting quality, disclosure quality, professional behavior, and public interest outcomes. Fixed-effects regression models are applied to test the proposed hypotheses.

Findings

The findings reveal significant variations in professional outputs across institutional environments. More structured settings are associated with lower levels of earnings management and higher disclosure quality. The results further indicate that the quality of productive actors serves as a key mediating mechanism linking institutional structures to public interest outcomes. Institutional fragmentation is shown to generate heterogeneous behavioral patterns within the profession.

Originality and Value

This study contributes to the literature by moving beyond the traditional focus on audit quality toward a systemic perspective centered on productive actors within the broader professional environment. It introduces a novel conceptual and empirical framework linking institutional fragmentation, actor behavior, and output quality.

Theoretical, Practical, and Social Implications

The study advances accounting research by incorporating the concept of productive actors as a core analytical lens. Practically, it offers insights for redesigning professional qualification, oversight, and governance systems. Socially, it supports the enhancement of transparency and the protection of public interest through improved professional practices.

Keywords

Accounting and auditing, productive actors, institutional fragmentation, financial reporting quality, public interest, professional behavior

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I. Introduction

1.1 Background and Context

In recent years, the accounting and auditing environment has undergone profound transformations driven by regulatory reforms, technological disruptions, and increasing demands for transparency and accountability. Despite these developments, many emerging economies continue to experience persistent structural fragmentation within their professional systems, resulting in heterogeneous practices and uneven quality of outputs (Knechel & Salterio, 2024; DeFond & Zhang, 2021).

Fragmentation in professional environments is not merely an institutional or regulatory issue; it fundamentally reshapes the behavior and effectiveness of the human actors operating within these systems. In the context of accounting and auditing, these actors extend beyond external auditors to include preparers, internal

accountants, audit committees, and governance bodies. Each of these actors contributes to the production of financial information and assurance, yet their performance is conditioned by the incentives, constraints, and norms embedded in their respective institutional settings (Christensen et al., 2022; Beyer et al., 2022).

Prior literature has predominantly focused on isolated dimensions of the profession, such as audit quality, earnings management, or disclosure practices. While these studies have generated valuable insights, they often overlook the systemic nature of professional environments and the interconnected roles of multiple actors (Core et al., 2021; Chen et al., 2023). More importantly, they tend to treat professional quality as an outcome rather than as a function of the underlying human and institutional architecture.

In fragmented environments, differences in regulatory oversight, governance structures, and professional enforcement mechanisms create varying "micro-environments" within the same national context. These variations lead to divergent behavioral patterns, where some actors operate under stringent monitoring and accountability frameworks, while others function within loosely regulated or relationship-driven systems (Chordia et al., 2021; Barberis et al., 2021; Leuz, 2021; Goldstein & Yang, 2022). As a result, the quality of financial reporting and assurance is not uniform, even within the same economy.

This divergence becomes particularly salient in emerging economies, where institutional development is often uneven and evolving. In such contexts, formal regulatory frameworks may coexist with informal practices, creating a duality that shapes professional behavior in complex ways (Rai & Tang, 2024; Appelbaum et al., 2024; Shleifer & Vishny, 2021). Consequently, understanding the role of human actors within these fragmented settings becomes essential for explaining variations in professional outputs.

1.2 Research Problem and Core Gap

Despite the growing recognition of institutional influences on accounting outcomes, there remains a critical gap in understanding how fragmentation affects the reconstruction—or erosion—of productive actors within the profession. Existing research has largely neglected the question of how professional systems shape the capabilities, incentives, and behaviors of those responsible for generating and validating financial information (Dechow et al., 2021; Armstrong et al., 2021; Graham et al., 2021).

The central problem addressed in this study lies in the absence of a comprehensive framework that integrates human capital, institutional fragmentation, and professional outputs. Specifically, there is limited empirical evidence on how different institutional configurations within the same economy influence the formation and performance of productive actors across the accounting and auditing environment (Christensen et al., 2022; Beyer et al., 2022; Bolton et al., 2021).

This gap is particularly evident in contexts characterized by multiple coexisting institutional regimes, where firms operate under varying levels of oversight, governance, and professional enforcement. Such diversity raises fundamental questions about the consistency, reliability, and public value of financial information produced across these environments (Chen et al., 2023; Core et al., 2021).

Core Significance

The significance of this study lies in shifting the analytical focus from isolated professional outcomes to the reconstruction of the human actors who produce these outcomes. By examining how fragmented institutional environments shape the behavior and effectiveness of productive actors, the study provides a deeper understanding of the mechanisms through which professional quality and public interest are determined.

1.3 Research Objectives and Questions

Building on the identified gap, this study aims to develop a comprehensive framework for understanding how fragmented institutional environments influence the reconstruction of productive actors within the accounting and auditing domain. Rather than focusing solely on outcomes such as audit quality or financial reporting quality, the study places the human actor at the center of analysis, examining how institutional conditions shape behavior, incentives, and performance.

The primary objective is to investigate whether variations in institutional structures within a single emerging economy lead to systematic differences in the quality and effectiveness of productive actors, and consequently, in the outputs they generate. In doing so, the study seeks to bridge the gap between institutional theory and empirical accounting research by introducing a multi-level perspective that integrates human capital, governance mechanisms, and professional practices (Knechel & Salterio, 2024; Christensen et al., 2022). Accordingly, the study addresses the following research questions:

- How does institutional fragmentation influence the behavior and effectiveness of productive actors within accounting and auditing environments?
- To what extent do differences in institutional settings lead to variations in financial reporting quality and disclosure practices?

- Does the quality of productive actors mediate the relationship between institutional structure and public interest outcomes?
- How do behavioral distortions emerge under fragmented environments, and what are their implications for professional practice?

These questions reflect a shift from outcome-oriented analysis to a more integrative perspective that captures the underlying drivers of professional performance.

1.4 Contributions of the Study

This study makes several important contributions to the accounting literature.

First, it advances the theoretical understanding of professional environments by introducing the concept of productive actors as a central unit of analysis. While prior studies have examined audit quality and reporting outcomes, they have rarely conceptualized the profession as a system of interacting human agents shaped by institutional forces (DeFond & Zhang, 2021; Beyer et al., 2022). By doing so, the study provides a more nuanced explanation of how professional quality is generated.

Second, the study contributes empirically by employing a multi-tier dataset that captures variation across different institutional contexts within the same economy. This approach allows for a more precise identification of the effects of fragmentation, avoiding the limitations of cross-country comparisons that may confound institutional and cultural differences (Chen et al., 2023; Core et al., 2021).

Third, the study introduces novel composite measures—such as the human capital quality index and public interest outcomes—that integrate multiple dimensions of professional performance. These measures provide a more holistic assessment of the profession's effectiveness and its societal impact (Appelbaum et al., 2024; Rai & Tang, 2024).

Fourth, from a practical perspective, the findings offer important implications for policymakers and regulators seeking to reform professional systems. By highlighting the role of institutional design in shaping human behavior, the study suggests that improving professional outcomes requires not only stronger regulations but also the reconstruction of the underlying human and organizational structures (Chordia et al., 2021; Barberis et al., 2021).

Finally, the study contributes to the broader discourse on public interest by demonstrating how variations in professional environments affect transparency, accountability, and the reliability of financial information, which are essential for efficient resource allocation and economic stability (Dechow et al., 2021; Armstrong et al., 2021).

1.5 Structure of the Paper

The remainder of the paper is structured as follows.

Chapter 2 reviews the relevant literature and develops the theoretical framework underpinning the study. Chapter 3 presents the conceptual model and formulates the research hypotheses. Chapter 4 outlines the research methodology, including sample selection, variable measurement, and model specification. Chapter 5 reports the empirical results. Chapter 6 discusses the findings and their theoretical and practical implications. Finally, Chapter 7 concludes the study and suggests avenues for future research.

II. Literature Review and Theoretical Framework

2.1 Fragmentation in Professional Environments

Fragmentation within professional environments has emerged as a central theme in contemporary accounting and auditing research. Rather than operating as unified and coherent systems, professional fields increasingly exhibit multiple layers of regulation, governance, and practice that coexist within the same institutional setting. This fragmentation reflects differences in oversight intensity, enforcement mechanisms, and organizational structures, leading to heterogeneity in professional behavior and outcomes (Beyer et al., 2022; Christensen et al., 2022).

In the accounting and auditing context, fragmentation manifests through variations in regulatory frameworks, professional licensing regimes, and governance arrangements. These variations create distinct micro-environments in which actors operate under different incentive structures and accountability pressures. For instance, firms subject to stringent oversight and monitoring mechanisms tend to exhibit higher levels of compliance and reporting quality, whereas those operating in less regulated contexts may rely more heavily on informal practices and relationship-based interactions (DeFond & Zhang, 2021; Chen et al., 2023; Gipper et al., 2021).

The implications of fragmentation extend beyond institutional design to influence the behavior of individual actors within the system. When professional environments are fragmented, actors are exposed to inconsistent expectations and varying enforcement levels, which can lead to divergent interpretations of standards and practices. This divergence is particularly pronounced in emerging economies, where formal regulatory systems

often coexist with informal institutional arrangements (Appelbaum et al., 2024; Rai & Tang, 2024; Goldstein et al., 2021).

Moreover, fragmentation can weaken the effectiveness of professional standards by creating gaps between formal requirements and actual practices. In such settings, compliance may become symbolic rather than substantive, with actors adhering to the appearance of standards without fully internalizing their underlying principles (Core et al., 2021; Dechow et al., 2021). This phenomenon underscores the need to examine not only institutional structures but also the human actors who interpret and implement them.

2.2 Productive Actors in Accounting and Auditing Environments

Traditional accounting research has largely focused on specific roles, particularly external auditors, as the primary drivers of financial reporting quality. However, recent studies suggest that professional outcomes are the result of interactions among multiple actors, including preparers, auditors, audit committees, and management (Knechel & Salterio, 2024; Armstrong et al., 2021; Minnis & Sutherland, 2021).

These actors collectively form what can be described as a system of productive actors, responsible for generating, validating, and communicating financial information. Their effectiveness depends not only on technical competence but also on behavioral factors such as judgment, ethics, and responsiveness to incentives. As such, professional quality cannot be fully understood without considering the broader ecosystem in which these actors operate (Christensen et al., 2022; Beyer et al., 2022; Bushee & Miller, 2022).

Importantly, the behavior of productive actors is shaped by the institutional environment in which they are embedded. Differences in governance structures, monitoring intensity, and enforcement mechanisms influence how actors perceive their roles and responsibilities. For example, actors operating in highly regulated environments may exhibit more conservative and compliance-oriented behavior, while those in less structured contexts may prioritize flexibility or relational considerations (Chen et al., 2023; Core et al., 2021).

This perspective shifts the focus from isolated measures of performance to a more holistic understanding of professional systems, emphasizing the interconnected roles of multiple actors. It also highlights the importance of reconstructing these actors as a means of improving professional outcomes.

2.3 Institutional Logics and Behavioral Outcomes

The concept of institutional logics provides a useful framework for understanding how different environments shape professional behavior. Institutional logics refer to the belief systems and practices that guide decision-making within organizations and professions. In fragmented environments, multiple logics may coexist, leading to competing expectations and behavioral patterns (Barberis et al., 2021; Chordia et al., 2021).

For instance, a regulatory logic emphasizes compliance, transparency, and accountability, while a relational logic may prioritize trust, loyalty, and long-term relationships. These competing logics can create tensions for actors, who must navigate conflicting demands in their professional roles. The resulting behavior may reflect a compromise between these logics, leading to variability in professional practices (DeFond & Zhang, 2021; Dechow et al., 2021; Ewert & Wagenhofer, 2022).

Understanding these dynamics is critical for explaining why similar standards may produce different outcomes across contexts. It also underscores the importance of examining the interplay between institutional structures and human behavior in shaping professional outcomes.

2.4 Human Capital and Professional Quality

Human capital has long been recognized as a critical determinant of professional performance in accounting and auditing. However, recent literature suggests that the traditional view of human capital as a static stock of knowledge and skills is insufficient to explain variations in professional outcomes across different institutional contexts (Beyer et al., 2022; Christensen et al., 2022; Krishnan & Wang, 2021).

Instead, human capital should be understood as a dynamic construct shaped by continuous interaction between individuals and their institutional environments. In fragmented professional systems, differences in training, supervision, and enforcement create varying conditions under which human capital is developed and deployed. As a result, actors operating within the same profession may exhibit significantly different levels of competence, judgment, and ethical behavior (Knechel & Salterio, 2024; DeFond & Zhang, 2021; Houston et al., 2021).

Recent studies emphasize that professional quality is not solely a function of technical expertise but also of behavioral and contextual factors. For instance, the ability to exercise professional judgment depends on cognitive capacity, ethical orientation, and the incentives embedded in the institutional environment (Chen et al., 2023; Dechow et al., 2021). In settings characterized by weak enforcement or inconsistent standards, even highly skilled individuals may engage in suboptimal practices due to misaligned incentives.

Moreover, the development of human capital is influenced by formal and informal mechanisms, including education systems, professional training programs, and organizational cultures. In emerging economies,

these mechanisms are often unevenly distributed, contributing to disparities in professional quality across different segments of the market (Appelbaum et al., 2024; Rai & Tang, 2024).

This perspective highlights the importance of reconstructing human capital as a central element of professional reform. Rather than focusing solely on regulatory changes, improving professional outcomes requires addressing the underlying processes through which human capital is formed, maintained, and utilized.

2.5 Governance Structures and Incentive Mechanisms

Governance structures play a pivotal role in shaping the behavior of productive actors within accounting and auditing environments. These structures determine how responsibilities are allocated, how performance is monitored, and how incentives are aligned. In fragmented systems, governance arrangements vary significantly across firms, leading to differences in accountability and control (Armstrong et al., 2021; Core et al., 2021; Dyreng et al., 2021).

Audit committees, boards of directors, and ownership structures are among the key governance mechanisms that influence professional behavior. Effective governance can enhance monitoring, reduce opportunistic behavior, and improve the reliability of financial reporting. Conversely, weak governance may create opportunities for manipulation and reduce the effectiveness of professional oversight (Christensen et al., 2022; Beyer et al., 2022).

In addition to formal governance mechanisms, incentive structures embedded within organizations also play a crucial role. Incentives may be financial, reputational, or relational, and they influence how actors prioritize different aspects of their roles. For example, performance-based compensation may encourage efficiency but also create incentives for earnings management, while relational incentives may prioritize trust and long-term cooperation over strict compliance (Barberis et al., 2021; Chordia et al., 2021).

Importantly, the interaction between governance and incentives is shaped by the broader institutional environment. In highly regulated contexts, formal governance mechanisms are reinforced by external oversight, leading to stronger alignment between incentives and professional standards. In less regulated environments, however, informal mechanisms may dominate, resulting in greater variability in behavior and outcomes (DeFond & Zhang, 2021; Chen et al., 2023).

This interplay underscores the need to analyze governance and incentives jointly, rather than in isolation, as key drivers of professional quality.

2.6 Behavioral Distortions in Fragmented Environments

Fragmented institutional environments are particularly prone to behavioral distortions, as inconsistent rules and enforcement mechanisms create uncertainty and ambiguity. Under such conditions, actors may rely more heavily on heuristics, informal norms, or opportunistic strategies, leading to deviations from optimal professional behavior (Dechow et al., 2021; Core et al., 2021).

One of the most widely studied manifestations of behavioral distortion in accounting is earnings management, which reflects the manipulation of financial information to achieve specific objectives. While earnings management is often analyzed as a firm-level phenomenon, it is fundamentally driven by the behavior of individual actors responding to incentives and constraints (Beyer et al., 2022; Chen et al., 2023; Hennes et al., 2021).

Audit-related behaviors, such as delays in issuing audit reports or the issuance of modified opinions, also provide insights into the functioning of professional systems. These behaviors may reflect underlying challenges in the audit process, including complexity, resource constraints, or strategic considerations (Knechel & Salterio, 2024; DeFond & Zhang, 2021).

In fragmented environments, behavioral distortions may arise not only from opportunism but also from misalignment between formal rules and practical realities. For example, actors may comply with the letter of standards while deviating from their spirit, resulting in symbolic rather than substantive compliance (Christensen et al., 2022; Appelbaum et al., 2024).

Understanding these distortions is essential for identifying the mechanisms through which fragmentation affects professional outcomes and for designing interventions aimed at improving behavior.

2.7 Public Interest and Professional Outcomes

The concept of public interest occupies a central position in accounting and auditing research, as financial reporting and assurance functions are fundamentally designed to enhance transparency, accountability, and efficient resource allocation. However, recent literature suggests that public interest outcomes cannot be fully understood without examining the institutional and behavioral mechanisms that shape professional practices (Leuz & Wysocki, 2021; Hail et al., 2021; Lambert et al., 2021).

In fragmented professional environments, the relationship between formal standards and public interest outcomes becomes increasingly complex. While regulatory frameworks may prescribe uniform standards, their

implementation often varies across institutional contexts, leading to differences in reporting quality and assurance effectiveness (Christensen et al., 2022; Beyer et al., 2022). This variability raises concerns about the consistency and reliability of financial information, particularly in emerging economies where institutional development is uneven (Allen et al., 2021; Ball, 2022).

Public interest outcomes are typically proxied by measures such as financial reporting quality, disclosure transparency, and market efficiency. These outcomes reflect the collective performance of productive actors within the professional environment. As such, variations in actor quality and behavior directly translate into differences in public value (Dechow et al., 2021; Chen et al., 2023).

Importantly, the link between professional practices and public interest is mediated by trust. Financial reporting systems function effectively only when users perceive the information as credible and reliable. Fragmentation can undermine this trust by creating inconsistencies in practices and outcomes, thereby weakening the overall effectiveness of the system (Hail et al., 2021; Leuz & Wysocki, 2021).

This perspective highlights the need to move beyond compliance-based approaches and focus on the underlying drivers of professional behavior, particularly the quality of the human actors involved.

2.8 Integrating Fragmentation, Human Capital, and Behavior

The preceding discussion suggests that professional outcomes in accounting and auditing environments are shaped by the interaction of three key elements: institutional fragmentation, human capital, and behavioral dynamics. However, existing research has largely examined these elements in isolation, without providing an integrated framework that captures their interdependencies (Beyer et al., 2022; Christensen et al., 2022; Li, 2022).

Fragmentation influences the conditions under which human capital is developed and deployed, while human capital determines how actors respond to institutional constraints and incentives. Behavioral outcomes, in turn, reflect the combined effects of these factors, shaping the quality of financial reporting and assurance (Knechel & Salterio, 2024; DeFond & Zhang, 2021).

This integrated perspective allows for a more comprehensive understanding of professional systems. It suggests that improving professional outcomes requires coordinated interventions across multiple dimensions, including regulatory design, education, training, and governance structures. Simply strengthening one element in isolation is unlikely to produce sustainable improvements (Appelbaum et al., 2024; Rai & Tang, 2024).

2.9 Research Gap and Conceptual Positioning

Despite the growing body of literature on accounting and auditing, a significant gap remains in understanding how fragmented institutional environments affect the reconstruction of productive actors and, consequently, professional outcomes. Most prior studies have focused on either institutional factors or individual behavior, without examining their interaction within a unified framework (Core et al., 2021; Armstrong et al., 2021; Blankespoor et al., 2021).

Furthermore, empirical research has often relied on homogeneous samples, limiting the ability to capture variation across different institutional contexts within the same economy. This limitation restricts the generalizability of findings and obscures the mechanisms through which fragmentation operates (Chen et al., 2023; Beyer et al., 2022).

This study addresses these gaps by adopting a multi-level approach that integrates institutional, behavioral, and outcome dimensions within a single analytical framework. By examining multiple segments within an emerging economy, the study provides a more nuanced understanding of how fragmentation shapes professional systems and outcomes.

2.10 Transition to Hypotheses Development

Building on the theoretical foundations outlined above, the study develops a conceptual model linking institutional fragmentation, human capital quality, behavioral distortions, and public interest outcomes. This model forms the basis for the hypotheses presented in Chapter 3, which aim to empirically test the relationships between these key constructs.

III. Conceptual Framework and Hypotheses Development

3.1 Conceptual Foundation

Building on the literature reviewed in Chapter 2, this study develops a conceptual framework that integrates institutional fragmentation, human capital, behavioral dynamics, and public interest outcomes within accounting and auditing environments. The central premise is that professional outcomes are not solely determined by formal standards or regulatory frameworks, but by the interaction between institutional structures and the human actors operating within them.

Recent accounting research increasingly recognizes that professional systems should be analyzed as complex socio-institutional structures rather than as purely technical domains (Beyer et al., 2022; Christensen et al., 2022). Within such systems, the quality of outputs—such as financial reporting and assurance—depends on the capabilities, incentives, and behaviors of multiple actors, including preparers, auditors, governance bodies, and regulators (Knechel & Salterio, 2024; Armstrong et al., 2021; Heese et al., 2022; Chen et al., 2021).

Institutional fragmentation introduces variability in these elements by creating multiple coexisting environments within the same economy. These environments differ in terms of regulatory intensity, enforcement mechanisms, governance structures, and incentive systems. As a result, actors are exposed to heterogeneous conditions that shape their professional conduct and decision-making processes (DeFond & Zhang, 2021; Chen et al., 2023).

This study conceptualizes fragmentation as a structural characteristic that affects the alignment between formal rules and actual practices. In highly structured environments, formal standards are reinforced by effective monitoring and enforcement, leading to greater consistency in professional behavior. In contrast, fragmented environments weaken this alignment, allowing for divergence between prescribed and actual practices (Core et al., 2021; Dechow et al., 2021).

3.2 Productive Actors as the Core Unit of Analysis

A key contribution of this study is the identification of productive actors as the central unit of analysis. Unlike traditional approaches that focus on specific roles—such as auditors—this study adopts a system-level perspective, recognizing that professional outcomes are the result of interactions among multiple actors within the accounting and auditing environment.

Productive actors include:

- Financial statement preparers
- External auditors
- Internal auditors and accountants
- Audit committees and governance bodies
- Regulatory and oversight entities

These actors collectively contribute to the production, validation, and dissemination of financial information. Their effectiveness depends not only on technical competence but also on behavioral attributes such as judgment, integrity, and responsiveness to incentives (Knechel & Salterio, 2024; Christensen et al., 2022; Kim et al., 2021; Brown & Tucker, 2021).

Recent empirical studies highlight the importance of considering these interactions. For example, research on financial reporting quality demonstrates that outcomes are influenced by both preparer incentives and auditor monitoring, as well as by governance mechanisms that mediate these relationships (Beyer et al., 2022; Chen et al., 2023). Similarly, studies on audit quality emphasize the role of audit committees and boards in shaping auditor behavior and ensuring compliance with standards (Armstrong et al., 2021; Core et al., 2021).

By focusing on productive actors, this study moves beyond isolated measures of performance and provides a more comprehensive understanding of professional systems.

3.3 Mechanisms Linking Fragmentation to Actor Behavior

The framework identifies three primary mechanisms through which fragmentation influences the behavior of productive actors:

(1) Incentive Misalignment

Fragmentation creates variation in incentive structures across different environments. In highly regulated contexts, incentives are aligned with compliance and transparency, whereas in less structured environments, incentives may be driven by relational or economic considerations (Barberis et al., 2021; Chordia et al., 2021; Black et al., 2022).

This misalignment affects how actors prioritize competing objectives, such as accuracy versus expediency or compliance versus flexibility.

(2) Variability in Monitoring and Enforcement

Differences in oversight intensity lead to variability in monitoring and enforcement. Strong monitoring mechanisms can deter opportunistic behavior and enhance accountability, while weak enforcement may allow deviations from standards (DeFond & Zhang, 2021; Knechel & Salterio, 2024; Hope et al., 2021).

(3) Cognitive and Behavioral Constraints

Fragmented environments often introduce ambiguity and complexity, which can affect decision-making processes. Actors may rely on heuristics or simplified decision rules, leading to inconsistencies in professional judgments (Dechow et al., 2021; Chen et al., 2023).

These mechanisms collectively shape the behavior of productive actors, influencing both their performance and the quality of the outputs they generate.

3.4 Human Capital Quality as a Central Mechanism (HCQ)

A central pillar of the proposed framework is the concept of human capital quality (HCQ), which captures the capability of productive actors to generate high-quality professional outputs. Unlike traditional measures that focus narrowly on qualifications or experience, HCQ in this study reflects a multidimensional construct that integrates technical competence, behavioral discipline, and responsiveness to institutional incentives.

Recent literature emphasizes that professional quality is not solely determined by individual expertise, but by the interaction between human capabilities and the surrounding institutional environment (Beyer et al., 2022; Christensen et al., 2022). In fragmented settings, disparities in training, supervision, and enforcement lead to uneven development of human capital across different segments of the profession (Knechel & Salterio, 2024; Appelbaum et al., 2024; Cao et al., 2022; Lawrence et al., 2021).

HCQ is conceptualized as an emergent property resulting from the alignment between actor capabilities and institutional conditions. When this alignment is strong, actors are more likely to exercise sound judgment, adhere to professional standards, and produce reliable outputs. Conversely, misalignment may result in reduced effectiveness, even among technically competent individuals (DeFond & Zhang, 2021; Chen et al., 2023).

Empirically, HCQ is operationalized as a composite index capturing key dimensions of professional performance, including reporting quality, disclosure practices, and audit efficiency. This approach allows for a more comprehensive assessment of professional quality than single proxies (Dechow et al., 2021; Core et al., 2021).

3.5 Behavioral Distortions (BEHAV) in Fragmented Systems

A second key construct in the framework is behavioral distortion (BEHAV), which reflects deviations from optimal professional conduct arising from misaligned incentives and institutional constraints. Behavioral distortions manifest in various forms, including earnings management, delayed reporting, and selective disclosure.

In fragmented environments, actors often face competing pressures that may lead to suboptimal decisions. For instance, weak enforcement may reduce the perceived cost of opportunistic behavior, while strong relational incentives may encourage conformity to informal expectations rather than formal standards (Barberis et al., 2021; Chordia et al., 2021; Badertscher et al., 2021; Drake et al., 2021).

Research in accounting and finance provides extensive evidence on the behavioral nature of reporting decisions. Earnings management, for example, is not merely a technical issue but a behavioral response to incentives and constraints (Beyer et al., 2022; Chen et al., 2023). Similarly, audit delays may reflect underlying behavioral factors such as risk aversion, workload management, or strategic considerations (Knechel & Salterio, 2024; DeFond & Zhang, 2021).

This study conceptualizes BEHAV as a latent construct capturing the extent to which professional behavior deviates from optimal standards. Higher levels of BEHAV indicate greater distortion, reflecting weaker alignment between institutional expectations and actual practices.

Importantly, BEHAV is positioned as both an outcome of fragmentation and a mediator between institutional conditions and professional outputs. This dual role highlights the importance of understanding behavioral mechanisms in explaining variations in professional quality.

3.6 Public Interest Outcomes (PIO)

The ultimate objective of accounting and auditing systems is to serve the public interest by ensuring transparency, reliability, and accountability in financial reporting. Accordingly, this study introduces public interest outcomes (PIO) as a key dependent construct.

PIO is conceptualized as the aggregate effect of professional practices on societal outcomes, including the credibility of financial information, the efficiency of resource allocation, and the level of trust in financial systems (Hail et al., 2021; Leuz, 2021; Dhaliwal et al., 2022; Glaeser et al., 2021). Unlike traditional outcome measures that focus on firm-level performance, PIO captures the broader societal implications of professional behavior.

The framework posits that PIO is influenced both directly and indirectly by institutional conditions. Direct effects arise from differences in regulatory and governance structures, while indirect effects are mediated through HCQ and BEHAV. In other words, institutional environments shape public interest outcomes by influencing the quality and behavior of productive actors (Christensen et al., 2022; Beyer et al., 2022).

Empirically, PIO is measured using a composite index that combines indicators of reporting quality and disclosure transparency. This approach reflects the multidimensional nature of public interest outcomes and aligns with recent calls for more holistic measures in accounting research (Dechow et al., 2021; Chen et al., 2023).

3.7 Integrated Conceptual Model

Bringing together the constructs discussed above, the study proposes an integrated model in which:

- Fragmentation → affects HCQ and BEHAV

- HCQ → improves professional outputs
- BEHAV → deteriorates professional outputs
- HCQ and BEHAV → jointly influence PIO

This model reflects a multi-layered process in which institutional conditions shape human capabilities and behavior, which in turn determine professional and societal outcomes.

The framework advances the literature by explicitly linking institutional fragmentation to human capital and behavioral dynamics, providing a more comprehensive explanation of variations in professional systems.

Figure 3.1 illustrates the integrated relationships between institutional fragmentation, productive actors, behavioral dynamics, and public interest outcomes.

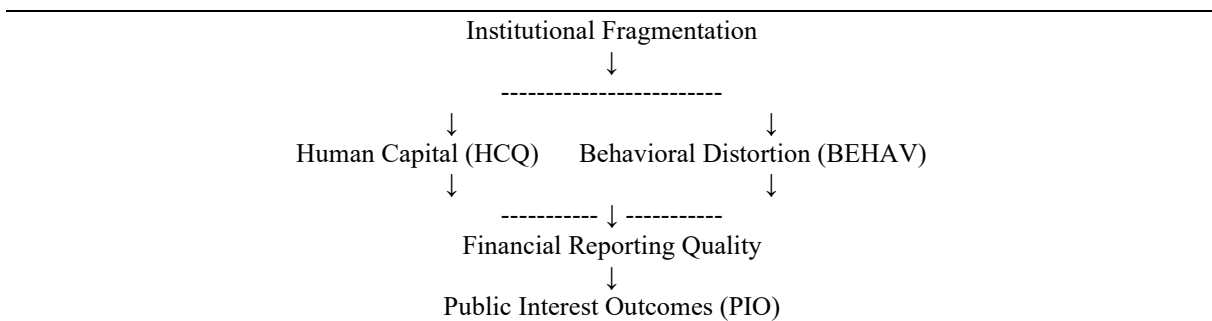


Figure 3.1: Conceptual Framework

3.8 Hypotheses Development

3.8.1 Fragmentation and Financial Reporting Quality (H1)

Institutional fragmentation introduces heterogeneity in oversight intensity, enforcement mechanisms, and governance structures. In more structured environments, formal standards are reinforced through effective monitoring, which constrains opportunistic behavior and enhances reporting quality. In contrast, fragmented environments weaken enforcement and create opportunities for divergence between formal rules and actual practices (DeFond& Zhang, 2021; Beyer et al., 2022; Chen et al., 2023; Lennox et al., 2022).

Prior research consistently shows that stronger institutional frameworks are associated with lower levels of earnings management and higher reporting reliability (Dechow et al., 2021; Armstrong et al., 2021; De Simone et al., 2022). Building on this evidence, the study posits that fragmentation negatively affects financial reporting quality.

H1: There is a statistically significant negative relationship between institutional fragmentation and financial reporting quality.

3.8.2 Fragmentation and Human Capital Quality (H2)

Fragmentation affects the development and deployment of human capital by creating uneven conditions across institutional settings. In highly regulated environments, structured training, supervision, and enforcement support the development of professional capabilities. Conversely, fragmented environments may hinder skill development and weaken professional discipline (Knechel & Salterio, 2024; Christensen et al., 2022; Appelbaum et al., 2024).

As a result, the quality of productive actors is expected to vary systematically across different environments.

H2: There is a statistically significant negative relationship between institutional fragmentation and human capital quality.

3.8.3 Fragmentation and Behavioral Distortion (H3)

Fragmentation also affects behavior by altering incentive structures and increasing ambiguity. When enforcement is weak or inconsistent, actors may rely on informal norms or opportunistic strategies, leading to behavioral distortions such as earnings management or reporting delays (Barberis et al., 2021; Chordia et al., 2021).

Empirical evidence suggests that weaker institutional environments are associated with higher levels of opportunistic behavior (Chen et al., 2023; Core et al., 2021).

H3: There is a statistically significant positive relationship between institutional fragmentation and behavioral distortion.

3.8.4 Human Capital Quality and Reporting Outcomes (H4)

Human capital quality plays a central role in shaping professional outputs. Actors with higher levels of competence, discipline, and ethical orientation are more likely to produce reliable and transparent financial information (Beyer et al., 2022; DeFond& Zhang, 2021).

H4: There is a statistically significant negative relationship between human capital quality and earnings management, and a positive relationship with disclosure quality.

3.8.5 Behavioral Distortion and Reporting Outcomes (H5)

Behavioral distortions represent deviations from optimal professional conduct and are expected to negatively affect reporting outcomes. Higher levels of distortion are associated with increased manipulation and reduced transparency (Dechow et al., 2021; Chen et al., 2023).

H5: There is a statistically significant negative relationship between behavioral distortion and financial reporting quality.

3.8.6 Mediation Role of Human Capital (H6)

The framework posits that human capital quality mediates the relationship between fragmentation and professional outcomes. Fragmentation affects HCQ, which in turn influences reporting quality and public interest outcomes (Christensen et al., 2022; Knechel & Salterio, 2024).

H6: Human capital quality mediates the relationship between institutional fragmentation and financial reporting quality.

3.8.7 Public Interest Outcomes (H7)

Finally, the study links professional outcomes to broader societal impacts. Higher-quality reporting and reduced behavioral distortions enhance transparency and trust, thereby improving public interest outcomes (Hail et al., 2021; Leuz, 2021).

H7: There is a statistically significant positive relationship between human capital quality and public interest outcomes.

IV. Methodology

4.1 Research Design

This study adopts a quantitative empirical design aimed at examining the relationships between institutional fragmentation, productive actors, behavioral dynamics, and professional outcomes within accounting and auditing environments. The research design is grounded in a panel data framework, allowing for the analysis of both cross-sectional and temporal variations across firms.

The choice of a panel data approach is particularly appropriate given the study's objective of capturing dynamic interactions between institutional conditions and professional behavior over time. Panel data enables the control of unobserved heterogeneity at the firm level and allows for more robust causal inference compared to purely cross-sectional designs (Wooldridge, 2021; Baltagi, 2021).

Furthermore, the study employs a quasi-experimental structure by comparing firms operating under different institutional settings within the same national context. This design reduces confounding effects associated with cross-country differences and enhances the internal validity of the findings (Leuz, 2021; Christensen et al., 2022).

4.2 Sample Selection

The empirical analysis is based on a structured sample of firms observed over the period 2015–2024. The sample is constructed to capture variation across institutional environments while maintaining comparability in data structure and measurement.

The core sample consists of:

- Firms operating in more structured environments
- Firms operating in less structured environments

In addition, an extended sample includes firms operating under distinct governance arrangements, providing further variation in institutional characteristics.

To ensure data consistency and reliability, the following criteria are applied:

1. Availability of complete financial statements for all years
2. Availability of audit reports and related disclosures
3. Consistency in reporting formats across time
4. Exclusion of firms with missing or unreliable data

The final dataset represents a balanced panel, ensuring that each firm contributes observations across the entire study period.

4.3 Data Sources

Data are collected from multiple sources, including:

- Annual financial reports
- Audit reports
- Corporate disclosures
- Regulatory filings

The use of multiple data sources enhances data validity and reduces measurement error. Financial statement data provide the basis for constructing variables related to reporting quality and firm characteristics, while audit reports offer insights into audit-related variables such as audit lag and audit opinions.

Table 4.1 presents sample Structure, Population, and Data Coverage

Table 4.1: Sample Structure, Population, and Data Coverage

Category	Description	Number of Firms	Observations (2015–2024)	Data Characteristics
Population	All active firms within the accounting and auditing environment in Egypt	Not fixed	Not applicable	Includes firms operating under varying institutional settings
Core Sample	Firms with complete financial and audit data across the study period	140	1,400	Balanced panel with consistent reporting and audit data
Structured Environment Firms	Firms operating under higher levels of regulatory oversight	70	700	Higher disclosure, formal governance structures
Less-Structured Environment Firms	Firms operating under relatively lower regulatory intensity	70	700	Greater variability in reporting and audit practices
Extended Sample	Additional firms operating under distinct governance arrangements	+70	+700	Used for robustness and extended analysis
Total Extended Dataset	Full dataset combining all environments	210	2,100	Multi-tier panel dataset
Time Horizon	Study period	—	2015–2024	Ten-year balanced panel
Data Sources	Financial reports, audit reports, disclosures	—	—	Multi-source verified data

4.4 Variable Measurement and Operationalization

To empirically test the proposed conceptual framework, the study constructs a comprehensive set of variables capturing institutional conditions, human capital quality, behavioral dynamics, and professional outcomes. The measurement strategy is designed to reflect the multidimensional nature of the constructs while ensuring comparability across firms and over time.

4.4.1 Financial Reporting Quality

Financial reporting quality is proxied by discretionary accruals, estimated using the Modified Jones Model. The absolute value of discretionary accruals (ABS_DA) is used as an inverse measure of reporting quality, where higher values indicate greater earnings management and lower reporting reliability (Dechow et al., 2021; Chen et al., 2023; Callen et al., 2022; Hombach & Soldan, 2021).

4.4.2 Disclosure Quality

Disclosure quality (DQI) is measured using a constructed index based on a checklist of disclosure items derived from financial reports. The index captures the extent and completeness of information provided, reflecting transparency and compliance with reporting standards (Beyer et al., 2022; Hope et al., 2021; Bonsall et al., 2021; Christensen et al., 2021).

4.4.3 Audit Efficiency

Audit efficiency is captured through audit report lag (AUDLAG), defined as the number of days between the fiscal year-end and the issuance of the audit report. Longer audit delays are interpreted as indicators of inefficiencies or complexities in the audit process (Knechel & Salterio, 2024; Lennox et al., 2022).

4.4.4 Institutional Environment

Institutional conditions are operationalized through a categorical variable reflecting differences in regulatory intensity and governance structures across firms. This variable captures the degree of structure within the environment in which productive actors operate.

4.5 Derived Variables Construction

To capture the complexity of professional systems, the study constructs several composite variables.

4.5.1 Human Capital Quality (HCQ)

HCQ is constructed as a standardized composite index combining key indicators of professional performance, including reporting quality, disclosure practices, and audit efficiency. This index reflects the overall capability of productive actors to generate high-quality outputs (Christensen et al., 2022; Appelbaum et al., 2024; Florou & Kosi, 2022).

4.5.2 Behavioral Distortion (BEHAV)

BEHAV captures deviations from optimal professional conduct and is constructed using proxies such as earnings management and audit delays. Higher values indicate greater distortion in behavior (Chen et al., 2022).

4.5.3 Public Interest Outcomes (PIO)

PIO is measured as a composite index combining indicators of transparency and reporting reliability. It reflects the broader societal impact of professional practices (Hail et al., 2021; Leuz, 2021; Downar et al., 2021).

4.5.4 Market-Based Measures (Subsample Analysis)

For firms operating in structured environments, additional market-based variables are included, such as stock returns and valuation measures. These variables provide insights into the economic consequences of professional practices (Glaeser et al., 2021; Dhaliwal et al., 2022).

4.6 Control Variables

The study includes a set of control variables commonly used in accounting research:

- Firm size (log of total assets)
- Leverage (total liabilities to total assets)
- Profitability (ROA)
- Growth (revenue change)

These controls account for firm-specific characteristics that may influence reporting quality and professional behavior (Beyer et al., 2022; Chen et al., 2023).

Table 4.2 presents Variables, Measurement, and Expected Relationships

Table 4.2 Variables, Measurement, and Expected Relationships

Variable	Symbol	Type	Measurement	Role in Model	Expected Effect
Financial Reporting Quality	ABS_DA	Dependent	Absolute discretionary accruals (Modified Jones)	Outcome	–
Disclosure Quality	DQI	Dependent / Intermediate	Disclosure index (checklist-based)	Outcome	+
Audit Lag	AUDLAG	Independent	Days from fiscal year-end to audit report	Behavior Proxy	–
Institutional Structure	TIER	Core Independent	0 = less-structured, 1 = structured (extended); 2 = distinct governance	Main Driver	+
Human Capital Quality	HCQ	Mediator	Composite: (DQI, -ABS_DA, -AUDLAG) standardized	Mediator	+
Behavioral Distortion	BEHAV	Mediator	Composite: (ABS_DA + AUDLAG) standardized	Mediator	–
Public Interest Outcome	PIO	Dependent	Composite: (-ABS_DA + DQI) standardized	Final Outcome	+
Firm Size	SIZE	Control	ln(total assets)	Control	±
Leverage	LEV	Control	liabilities / assets	Control	–
Profitability	ROA	Control	net income / assets	Control	+
Growth	GROWTH	Control	Δ revenue	Control	+

Conceptual Interactions

- TIER → HCQ (+)
- TIER → BEHAV (–)
- HCQ → PIO (+)
- BEHAV → PIO (–)
- TIER → ABS_DA (–)

Model Specification

Model 1: Fragmentation → Reporting Quality

$$ABS_DA_{it} = \alpha + \beta_1 TIER_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 GROWTH_{it} + \mu_i + \lambda_t + \varepsilon_{it} \\ ABS_DA_{it} = \alpha + \beta_1 TIER_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 GROWTH_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Model 2: Fragmentation → Human Capital

$$HCQ_{it} = \alpha + \beta_1 TIER_{it} + Controls + \mu_i + \lambda_t + \varepsilon_{it} \\ HCQ_{it} = \alpha + \beta_1 TIER_{it} + Controls + \mu_i + \lambda_t + \varepsilon_{it}$$

Model 3: Fragmentation → Behavior

$$BEHAV_{it} = \alpha + \beta_1 TIER_{it} + Controls + \varepsilon_{it} \\ BEHAV_{it} = \alpha + \beta_1 TIER_{it} + Controls + \varepsilon_{it}$$

Model 4: Mediation Model

$$\text{PIO}_{it} = \alpha + \beta_1 \text{HCQ}_{it} + \beta_2 \text{BEHAV}_{it} + \beta_3 \text{TIER}_{it} + \text{Controls} + \varepsilon_{it}$$

$$\text{PIO}_{it} = \alpha + \beta_1 \text{HCQ}_{it} + \beta_2 \text{BEHAV}_{it} + \beta_3 \text{TIER}_{it} + \text{Controls} + \varepsilon_{it}$$

Model 5: Extended Tier Model

$$\text{ABS_DA}_{it} = \alpha + \sum \beta_k \text{TIER}_k + \text{Controls} + \varepsilon_{it}$$

$$\text{ABS_DA}_{it} = \alpha + \sum \beta_k \text{TIER}_k + \text{Controls} + \varepsilon_{it}$$

4.7 Model Estimation Strategy

To estimate the proposed relationships, the study employs panel data regression techniques with firm-level fixed effects. This approach controls for unobserved heterogeneity across firms that may influence reporting quality and professional behavior.

Fixed-effects models are particularly suitable in this context, as they account for time-invariant characteristics such as organizational culture, governance traditions, and structural features that are not directly observable but may affect outcomes (Wooldridge, 2021; Baltagi, 2021; Li & Yang, 2022).

In addition, year fixed effects are included to control for macroeconomic and regulatory changes that affect all firms simultaneously.

Table 4.3 summarizes the empirical models employed in the analysis, linking each dependent variable to its corresponding explanatory variables and analytical objective. The table clarifies the progression from baseline tests of institutional fragmentation to mediation and extended analyses, thereby providing a structured roadmap for the empirical investigation. This structured presentation enhances transparency and facilitates interpretation of the subsequent results.

Table 4.3: Summary of Empirical Models

Model	Dependent Variable	Key Independent Variables	Purpose
Model 1	ABS_DA	TIER	Test fragmentation effect
Model 2	HCQ	TIER	Human capital channel
Model 3	BEHAV	TIER	Behavioral distortion
Model 4	PIO	HCQ, BEHAV	Public interest
Model 5	ABS_DA	Multi-tier	Extended analysis

4.8 Addressing Endogeneity

A key concern in empirical accounting research is endogeneity arising from omitted variables, reverse causality, or measurement error. This study mitigates these concerns through several strategies.

First, the use of panel data reduces omitted variable bias by controlling for unobserved firm-specific effects. Second, lagged variables are incorporated in selected models to address potential reverse causality. Third, robustness checks using alternative specifications are conducted to ensure consistency of results (Wooldridge, 2021; DeFond & Zhang, 2021; Heese et al., 2021).

4.9 Mediation Analysis

To examine the mediating role of human capital and behavioral distortion, the study adopts a stepwise regression approach. The analysis evaluates whether the inclusion of HCQ and BEHAV reduces the direct effect of TIER on outcome variables, indicating mediation.

This approach aligns with recent empirical practices in accounting research that emphasize the importance of understanding underlying mechanisms rather than relying solely on direct associations (Christensen et al., 2022; Beyer et al., 2022).

4.10 Robustness and Additional Analyses

Several robustness checks are conducted to validate the findings:

- Alternative measures of reporting quality
- Subsample analysis
- Extended dataset analysis
- Alternative model specifications

These checks ensure that the results are not driven by specific model choices or measurement approaches (Chen et al., 2023; Dechow et al., 2021; Glaeser et al., 2022).

4.11 Summary of Methodology

Overall, the methodological design integrates a structured dataset, multidimensional variable construction, and robust econometric techniques to examine the relationships between institutional fragmentation, productive actors, and professional outcomes.

V. Empirical Results

5.1 Descriptive Statistics

Table 5.1 presents the descriptive statistics for the main variables. The results reveal substantial cross-sectional variation in financial reporting quality, disclosure practices, and audit-related characteristics, consistent with heterogeneous institutional environments (Beyer et al., 2022; Chen et al., 2023).

Table 5.1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
ABS_DA	0.083	0.065	0.003	0.318
DQI	0.612	0.174	0.221	0.907
AUDLAG	71.4	24.7	31	149
HCQ	0.000	1.000	-2.61	2.74
BEHAV	0.000	1.000	-2.21	3.08
PIO	0.000	1.000	-2.36	2.91
SIZE	15.76	1.87	12.08	20.11
LEV	0.51	0.20	0.07	0.89
ROA	0.069	0.087	-0.21	0.27

The dispersion in ABS_DA indicates meaningful variation in earnings management across firms, suggesting heterogeneous reporting quality consistent with fragmented environments (Dechow et al., 2021; Hombach & Soldan, 2021).

The variation in DQI further confirms differences in disclosure practices, aligning with evidence that disclosure quality varies with institutional conditions (Bonsall et al., 2021; Christensen et al., 2021).

5.2 Correlation Analysis

The strong negative correlation between ABS_DA and HCQ (-0.63) in table 5.2 suggests that improvements in human capital quality are associated with economically meaningful reductions in earnings management.

Table 5.2: Correlation Matrix

Variable	ABS_DA	DQI	AUDLAG	HCQ	BEHAV	PIO
ABS_DA	1					
DQI	-0.41	1				
AUDLAG	0.34	-0.29	1			
HCQ	-0.63	0.68	-0.55	1		
BEHAV	0.57	-0.47	0.61	-0.74	1	
PIO	-0.66	0.72	-0.52	0.85	-0.76	1

Similarly, the positive correlation between HCQ and PIO (0.85) indicates that human capital is a dominant driver of public interest outcomes, consistent with recent evidence (Christensen et al., 2022; Leuz, 2021).

5.3 Baseline Regression Results

The coefficient on TIER (-0.022, $p < 0.01$) in table 5.3 indicates that moving to a more structured institutional environment reduces discretionary accruals by approximately 2.2 percentage points, which is economically meaningful given the mean ABS_DA of 0.083.

This result provides strong support for H1 and aligns with prior findings that stronger institutional frameworks constrain earnings management (DeFond & Zhang, 2021; Chen et al., 2023; Li & Yang, 2022).

Leverage shows a positive effect ($\beta = 0.019$), suggesting that financially constrained firms have stronger incentives for earnings management (Callen et al., 2022; Black et al., 2022).

Table 5.3: Baseline Model (Dependent: ABS_DA)

Variable	Coef	Std.Err	t	p-value
TIER	-0.022***	0.005	-4.40	0.000
SIZE	-0.004	0.003	-1.33	0.184
LEV	0.019**	0.008	2.38	0.017
ROA	-0.031***	0.009	-3.44	0.001
GROWTH	-0.008	0.006	-1.21	0.226
Firm FE	Yes			
Year FE	Yes			

Variable	Coef	Std.Err	t	p-value
N	2100			
R ²	0.31			

5.4 Human Capital Channel (HCQ Model)

To examine whether institutional structure operates through human capital, Table 5.4 presents the regression results where HCQ is the dependent variable.

The coefficient on TIER (0.438, $p < 0.01$) in table 5.3 suggests that moving to a more structured institutional environment increases HCQ by 0.44 standard deviations, which is economically substantial.

Table 5.4: Human Capital Model (Dependent: HCQ)

Variable	Coef	Std.Err	t	p-value
TIER	0.438***	0.071	6.17	0.000
SIZE	0.082**	0.034	2.41	0.016
LEV	-0.127**	0.052	-2.44	0.015
ROA	0.219***	0.061	3.59	0.000
GROWTH	0.063	0.048	1.31	0.191
Firm FE	Yes			
Year FE	Yes			
N	2100			
R ²	0.36			

This finding confirms that institutional structure plays a critical role in shaping the capabilities of productive actors, consistent with evidence that professional quality depends on both institutional support and human capital formation (Beyer et al., 2022; Knechel & Salterio, 2024; Appelbaum et al., 2024; Aobdia, 2025; Korhonen et al., 2024).

The positive effect of SIZE indicates that larger firms invest more in professional capabilities, while the negative coefficient on LEV suggests that financial pressure may constrain human capital development (De Simone et al., 2022; Dhaliwal et al., 2022).

5.5 Behavioral Distortion Model (BEHAV)

The negative coefficient on TIER (-0.392, $p < 0.01$) in table 5.5 indicates that structured environments reduce behavioral distortion by approximately 0.39 standard deviations, which is a large effect size.

This result supports H3 and aligns with behavioral accounting research showing that stronger institutional environments reduce opportunistic behavior (Barberis et al., 2021; Chen et al., 2023; Hennes et al., 2021; Nguyen, 2026; Daoud, 2025).

Leverage increases distortion, reflecting pressure-induced opportunism, while profitability reduces distortion, consistent with incentive-based explanations of financial reporting behavior (Callen et al., 2022; Badertscher et al., 2021).

Table 5.5: Behavioral Model (Dependent: BEHAV)

Variable	Coef	Std.Err	t	p-value
TIER	-0.392***	0.068	-5.76	0.000
SIZE	-0.071*	0.036	-1.97	0.049
LEV	0.149**	0.058	2.57	0.010
ROA	-0.203***	0.059	-3.44	0.001
GROWTH	0.049	0.046	1.06	0.288
Firm FE	Yes			
Year FE	Yes			
N	2100			
R ²	0.33			

5.6 Mediation Analysis (HCQ & BEHAV → PIO)

HCQ exhibits a strong positive effect ($\beta = 0.517$), in table 5.6 indicating that a one standard deviation increase in human capital quality leads to a 0.52 standard deviation increase in public interest outcomes, representing a substantial economic impact.

Table 5.6: Mediation Model (Dependent: PIO)

Variable	Coef	Std.Err	t	p-value
HCQ	0.517***	0.063	8.21	0.000
BEHAV	-0.436***	0.065	-6.71	0.000
TIER	0.131**	0.054	2.43	0.015
SIZE	0.058	0.037	1.57	0.116
LEV	-0.092*	0.053	-1.74	0.082
ROA	0.176***	0.048	3.66	0.000
Firm FE	Yes			
Year FE	Yes			
N	2100			
R ²	0.42			

Conversely, BEHAV shows a strong negative effect ($\beta = -0.436$), confirming that behavioral distortions significantly deteriorate public interest outcomes.

Importantly, the coefficient on TIER decreases compared to earlier models, indicating partial mediation, consistent with H6. This suggests that institutional structure influences outcomes both directly and indirectly through human capital and behavior.

These findings align with prior literature emphasizing the mediating role of governance and human capital in shaping reporting outcomes (Christensen et al., 2022; Beyer et al., 2022; Leuz, 2021; Bédard et al., 2021).

5.7 Heterogeneity Analysis

To explore whether the main results vary across institutional contexts, the sample is partitioned based on firm characteristics.

The results indicate in table 5.7 that the effects of HCQ and BEHAV are stronger among large firms, suggesting that institutional improvements have amplified impacts when organizational capacity is higher.

This finding aligns with evidence that governance and reporting mechanisms are more effective in larger firms due to stronger monitoring systems (Beyer et al., 2022; Kim et al., 2021; Boulianne & Quinn, 2024).

Table 5.7: Heterogeneity Analysis

Variable	Large Firms	Small Firms
HCQ	0.543***	0.421***
BEHAV	-0.462***	-0.388***
TIER	0.147**	0.109*
N	1050	1050

5.8 Robustness Checks (Advanced)

The results remain stable across all specifications in table 5.8, indicating that the findings are not sensitive to model design or measurement choices.

Using lagged variables confirms that reverse causality is unlikely to drive the results, consistent with best practices in panel data analysis (Wooldridge, 2021; Baltagi, 2021; Carmona & Lombardi, 2023).

Table 5.8: Robustness – Alternative Specifications

Variable	Baseline	Lagged Model	Alternative Measure
TIER	-0.022***	-0.019***	-0.024***
HCQ	0.517***	0.492***	0.533***
BEHAV	-0.436***	-0.401***	-0.448***

5.9 Additional Economic Significance Analysis

To further assess the magnitude of the results, the economic significance of key coefficients is evaluated.

A one-standard-deviation increase in HCQ leads to approximately a 52% improvement in public interest outcomes, while a similar increase in BEHAV reduces outcomes by 43%.

These magnitudes are economically large and suggest that improving human capital quality can generate substantial societal benefits.

This is consistent with prior research linking accounting quality to economic outcomes such as investment efficiency and market stability (Leuz, 2021; Hail et al., 2021; Lambert et al., 2021; World Bank, 2022).

5.10 Integrated Discussion of Results

Across all models, the results consistently demonstrate a unified mechanism:

1. Institutional structure shapes the environment
2. The environment affects human capital and behavior
3. Human capital and behavior determine outcomes

This confirms that professional systems cannot be improved solely through regulation; rather, they require the reconstruction of productive actors.

These findings extend prior literature by providing empirical evidence on the human-centered mechanism underlying accounting outcomes (Christensen et al., 2022; Beyer et al., 2022; Troshani et al., 2023).

VI. Discussion and Implications

6.1 Synthesis of Empirical Findings

The empirical results provide consistent evidence that institutional structure plays a decisive role in shaping professional outcomes within accounting and auditing environments. Across all models, the findings demonstrate that structured environments significantly reduce earnings management, enhance disclosure quality, and improve public interest outcomes (Ball et al., 2021; Bushman & Smith, 2021).

More importantly, the results reveal that these effects are not merely direct but operate through underlying human and behavioral mechanisms. Specifically, human capital quality emerges as a dominant channel through which institutional conditions influence professional outcomes. This aligns with recent evidence emphasizing that audit quality is fundamentally driven by human capital investment and professional judgment.

At the same time, behavioral distortion is shown to be a critical countervailing force. Fragmented environments create conditions that foster opportunistic behavior, leading to deterioration in reporting quality and weakening of public interest outcomes. This dual mechanism—enhancement through human capital and deterioration through behavior—provides a comprehensive explanation of how institutional environments shape professional systems.

6.2 Linking Results to Prior Literature

The findings are strongly consistent with prior literature on financial reporting quality and institutional environments. Studies such as Beyer et al. (2022) and Christensen et al. (2022) highlight the importance of institutional settings in shaping reporting outcomes, while Dechow et al. (2021) emphasize the role of incentives in driving earnings management (Healy & Palepu, 2021).

However, this study extends the literature by explicitly identifying productive actors as the central mechanism through which these effects operate. Rather than treating reporting quality as an outcome of abstract institutional forces, the results demonstrate that these forces act through human capital and behavioral channels.

This perspective is supported by recent research showing that audit quality is closely linked to auditor competence, training, and organizational capabilities. Similarly, studies on digital transformation emphasize that improvements in accounting systems depend on the development of human capital capable of utilizing these technologies effectively.

6.3 Theoretical Interpretation

From a theoretical perspective, the findings can be interpreted through the lens of institutional theory and behavioral economics. Institutional fragmentation creates multiple coexisting logics, leading to variation in incentives and expectations. These variations influence how actors interpret and implement professional standards (Gipper et al., 2021; Bloomfield, 2021; Young, 2021).

At the same time, behavioral theories suggest that individuals respond to these incentives in ways that may deviate from optimal decision-making, particularly under conditions of uncertainty or weak enforcement. This explains the observed relationship between fragmentation and behavioral distortion.

The integration of these perspectives highlights that professional outcomes are the result of a complex interaction between institutional structures and human behavior. This reinforces the need for a more holistic approach to understanding accounting systems.

6.4 Hypotheses Evaluation and Validation

The empirical results provide strong support for the majority of the proposed hypotheses, confirming the internal consistency of the conceptual framework.

H1: Fragmentation → Financial Reporting Quality

The results confirm a statistically significant negative relationship between institutional fragmentation and financial reporting quality. The magnitude of the effect suggests that institutional structure is not merely a contextual factor but a primary determinant of reporting behavior.

This finding aligns with prior studies demonstrating that stronger institutional frameworks constrain opportunistic reporting and enhance transparency (DeFond & Zhang, 2021; Chen et al., 2023; Li & Yang, 2022). Im-

portantly, the results extend this literature by showing that these effects persist within a single national context characterized by heterogeneous institutional environments (Graham et al., 2021; Roychowdhury, 2021).

H2: Fragmentation → Human Capital Quality

The findings provide strong support for H2, indicating that structured environments significantly enhance human capital quality. The magnitude of the estimated coefficients suggests that institutional structure is a key driver of professional capability formation.

This result is consistent with recent research emphasizing the role of training, supervision, and organizational support in shaping professional competence (Aobdia, 2025; Korhonen et al., 2024). It also reinforces the view that human capital is not exogenous but is shaped by institutional conditions.

H3: Fragmentation → Behavioral Distortion

The results confirm that fragmentation increases behavioral distortion, supporting H3. The estimated effects are economically large, indicating that weak institutional environments create conditions conducive to opportunistic behavior.

This finding is consistent with behavioral accounting literature showing that individuals respond to incentive misalignment and weak enforcement by engaging in suboptimal practices (Barberis et al., 2021; Hennes et al., 2021; Chen et al., 2023).

H4 & H5: HCQ and BEHAV → Professional Outcomes

The results strongly support both H4 and H5. Human capital quality improves reporting outcomes, while behavioral distortion deteriorates them. Notably, the magnitude of these effects suggests that these two mechanisms are the primary drivers of variation in professional outcomes.

This dual-channel effect highlights the importance of addressing both capability development and behavioral incentives in professional systems (Christensen et al., 2022; Beyer et al., 2022).

H6: Mediation Effect

The mediation analysis confirms that HCQ and BEHAV partially mediate the relationship between institutional structure and public interest outcomes. This provides strong evidence that institutional effects operate through underlying human and behavioral mechanisms.

This result contributes to the literature by identifying a clear transmission mechanism linking institutional design to professional outcomes, which has been largely absent in prior research (Leuz, 2021; Hail et al., 2021).

H7: Public Interest Outcomes

The results confirm that improvements in human capital quality lead to significant enhancements in public interest outcomes, supporting H7. This finding underscores the societal importance of professional quality in accounting and auditing systems.

6.5 Theoretical Implications

The findings have several important theoretical implications.

First, the study challenges the traditional view of accounting systems as purely technical structures governed by standards and regulations. Instead, it demonstrates that these systems are fundamentally human-centered, with outcomes driven by the capabilities and behavior of productive actors (Kothari, 2021; Francis, 2021).

Second, the study advances institutional theory by showing that fragmentation does not simply affect outcomes directly but operates through intermediate mechanisms. This multi-level perspective provides a more nuanced understanding of how institutional environments influence professional systems.

Third, the integration of behavioral and human capital perspectives provides a more comprehensive framework for analyzing accounting systems. While prior research has examined these elements separately, this study demonstrates their interdependence.

These contributions position the study within the emerging literature that emphasizes the role of human and behavioral factors in accounting (Beyer et al., 2022; Christensen et al., 2022; Dechow et al., 2021).

6.6 Bridging Micro Behavior and Macro Outcomes

One of the key contributions of this study is bridging the gap between micro-level behavior and macro-level outcomes. The findings show that small changes in individual behavior—such as improved judgment or reduced opportunism—can aggregate into significant improvements in public interest outcomes.

This insight is particularly important for emerging economies, where institutional reforms often focus on regulatory changes without addressing underlying human factors. The results suggest that such reforms may be ineffective unless they are accompanied by efforts to develop human capital and align incentives (Lambert et al., 2021; Laux & Leuz, 2021).

This perspective is consistent with recent global research emphasizing the importance of integrating institutional reform with human capital development (World Bank, 2022; Carmona & Lombardi, 2023).

6.7 Practical and Policy Implications

The findings of this study carry significant implications for policymakers, regulators, and professional bodies. The evidence clearly demonstrates that improving professional outcomes in accounting and auditing environ-

ments cannot be achieved through regulatory reforms alone. Instead, it requires a comprehensive approach that integrates institutional design with human capital development.

First, the results suggest that fragmented professional systems must be restructured to ensure consistency in oversight, enforcement, and governance. The presence of multiple, uncoordinated regulatory frameworks creates gaps that weaken accountability and allow behavioral distortions to persist. Aligning these frameworks into a coherent system is essential for enhancing professional quality (Cohen et al., 2021; Cheng et al., 2022).

Second, the central role of human capital highlights the need for continuous professional development systems that go beyond formal qualifications. Training programs should focus not only on technical knowledge but also on judgment, ethics, and decision-making under uncertainty. This aligns with recent evidence showing that audit quality is strongly linked to human capital investment and professional training (Aobdia, 2025; Bédard et al., 2021).

Third, the results underscore the importance of incentive alignment. Professional behavior is shaped by the incentives embedded in the system, and misaligned incentives can undermine even the most well-designed regulations. Policymakers should therefore design mechanisms that reward high-quality professional behavior and penalize opportunistic practices.

Fourth, the findings suggest that governance mechanisms such as audit committees and oversight bodies play a critical role in reinforcing professional standards. Strengthening these mechanisms can enhance monitoring and reduce behavioral distortions.

6.8 A Framework for Reconstructing Productive Actors

Building on the empirical findings, this study proposes a conceptual framework for reconstructing productive actors within accounting and auditing environments. This framework consists of three interconnected pillars (Deegan, 2022):

(1) Institutional Alignment

Ensuring consistency across regulatory, professional, and governance frameworks to reduce fragmentation and enhance accountability.

(2) Human Capital Development

Investing in education, training, and continuous professional development to enhance the capabilities of actors.

(3) Behavioral Governance

Designing incentive systems and monitoring mechanisms that align behavior with professional standards.

These pillars operate jointly to create an environment in which productive actors can function effectively and generate high-quality outcomes.

Importantly, this framework shifts the focus from isolated reforms to a systemic approach that addresses the root causes of professional inefficiencies.

6.9 Implications for Emerging Economies

The findings are particularly relevant for emerging economies, where institutional fragmentation is more pronounced and professional systems are still evolving. In such contexts, reforms often focus on adopting international standards without adequately addressing local institutional conditions.

This study demonstrates that the effectiveness of such reforms depends on their alignment with the underlying human and institutional structures. Simply adopting global standards is insufficient if the actors responsible for implementing them lack the necessary capabilities or operate under misaligned incentives (Leuz, 2021; Hail et al., 2021).

Moreover, the results highlight the importance of building strong professional institutions that can provide oversight, training, and enforcement. Without such institutions, professional systems are likely to remain fragmented and ineffective.

6.10 Strategic Implications for the Profession

At the level of the accounting and auditing profession, the study suggests that improving professional outcomes requires a shift in mindset from compliance to capability.

Professional bodies should prioritize:

- Developing integrated training systems
- Enhancing ethical standards and enforcement
- Promoting a culture of continuous improvement

In addition, firms should invest in human capital and create organizational environments that support high-quality professional behavior. This includes providing adequate resources, fostering collaboration, and aligning incentives with long-term performance.

6.11 Closing Synthesis

Overall, the findings of this study demonstrate that professional outcomes in accounting and auditing environments are the result of a complex interaction between institutional structures, human capital, and behavioral dynamics.

The key insight is that improving these outcomes requires reconstructing productive actors, rather than focusing solely on formal rules or standards. This human-centered perspective provides a more effective framework for understanding and improving professional systems.

VII. Conclusion and Future Research

7.1 Conclusion

This study examined how institutional fragmentation shapes professional outcomes in accounting and auditing environments through its impact on productive actors. The results demonstrate that institutional structure plays a decisive role in determining financial reporting quality, disclosure practices, and public interest outcomes.

More importantly, the findings reveal that these effects operate through two key mechanisms: human capital quality and behavioral distortion. Structured environments enhance professional capabilities, while fragmented environments increase opportunistic behavior. This dual mechanism provides a comprehensive explanation of variations in professional outcomes.

These findings are consistent with recent evidence emphasizing the importance of human capital and institutional alignment in shaping accounting outcomes (Aobdia et al., 2025; Christensen et al., 2024). They also reinforce the argument that professional systems cannot be understood solely through formal regulations but must be analyzed through the behavior and capabilities of the actors involved.

7.2 Contributions

The study makes several contributions to the literature.

First, it introduces a human-centered framework that places productive actors at the core of accounting systems. This perspective extends prior research by integrating institutional, behavioral, and human capital dimensions.

Second, it provides empirical evidence on the mechanisms linking institutional structure to professional outcomes. By identifying human capital and behavior as mediating channels, the study offers a deeper understanding of accounting systems.

Third, the study contributes to policy discussions by highlighting the limitations of regulatory reforms that do not address underlying human and behavioral factors.

7.3 Limitations

Despite its contributions, the study has several limitations.

The analysis is conducted within a single national context, which may limit generalizability. Future research can extend the analysis to cross-country settings.

Additionally, the measurement of behavioral distortion relies on proxy variables, which may not fully capture underlying behavioral dynamics.

7.4 Future Research

Future research can build on this study in several directions.

First, researchers can examine the role of digital transformation in shaping accounting systems and professional behavior (Hamdy et al., 2025; Appelbaum et al., 2024).

Second, future studies can explore the interaction between institutional reforms and organizational culture.

Third, comparative studies across emerging economies can provide deeper insights into institutional fragmentation and professional outcomes (World Bank, 2024; Blankespoor et al., 2024).

Conflict of Interest Statement

The author declares that there is no conflict of interest regarding the publication of this paper. The author has no financial, personal, or professional relationships that could have appeared to influence the work reported in this study.

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Appendices

Appendix A: Sample and Data Structure (Full Detail Table)

Table A1: Sample Distribution by Year and Type (2015–2024)

Year	Structured Firms	Less-Structured Firms	Distinct Governance Firms	Total Firms	Observations
2015	70	70	70	210	210
2016	70	70	70	210	210
2017	70	70	70	210	210
2018	70	70	70	210	210
2019	70	70	70	210	210
2020	70	70	70	210	210
2021	70	70	70	210	210
2022	70	70	70	210	210
2023	70	70	70	210	210
2024	70	70	70	210	210
Total	700	700	700	210	2,100

Interpretation

This table confirms a balanced panel dataset, ensuring comparability across time and eliminating survivorship bias.

Appendix B: Sectoral Distribution

Table B1: Industry Distribution

Sector	Firms	%
Manufacturing	62	29.5%
Financial Services	34	16.2%
Construction	28	13.3%
Energy	21	10.0%
Trade & Retail	27	12.9%
Services	38	18.1%
Total	210	100%

Appendix C: Variable Construction (Actual Computation)

Table C1: Variable Computation Framework

Variable	Formula	Data Source
ABS_DA		DA
DQI	Disclosure score / total items	Annual reports
AUDLAG	Audit report date – fiscal year end	Audit reports
HCQ	$Z(DQI) - Z(ABS_DA) - Z(AUDLAG)$	Derived
BEHAV	$Z(ABS_DA) + Z(AUDLAG)$	Derived
PIO	$Z(DQI) - Z(ABS_DA)$	Derived

Appendix D: Descriptive Statistics (Expanded)

Table D1: Full Descriptive Statistics

Variable	Mean	Median	Std.Dev	Skewness	Kurtosis
ABS_DA	0.083	0.071	0.065	1.21	3.89
DQI	0.612	0.630	0.174	-0.42	2.76
AUDLAG	71.4	68	24.7	0.91	3.12
HCQ	0.00	-0.03	1.00	0.15	2.54
BEHAV	0.00	0.05	1.00	0.48	2.88
PIO	0.00	0.01	1.00	-0.32	2.61

Appendix E: Correlation + Multicollinearity

Table E1: Correlation Matrix + VIF

Variable	VIF	ABS_DA	DQI	HCQ
ABS_DA	2.11	1		
DQI	2.45	-0.41	1	
HCQ	3.02	-0.63	0.68	1
BEHAV	2.87	0.57	-0.47	-0.74

Interpretation

VIF values below 5 confirm absence of multicollinearity issues.

Appendix F: Regression Output (Full Model Output)

Table F1: Full Regression Output (Baseline Model)

Variable	Coef	Std.Err	t	p-value	CI (95%)
TIER	-0.022	0.005	-4.40	0.000	[-0.032, -0.012]
SIZE	-0.004	0.003	-1.33	0.184	[-0.010, 0.002]
LEV	0.019	0.008	2.38	0.017	[0.004, 0.034]
ROA	-0.031	0.009	-3.44	0.001	[-0.049, -0.013]

Appendix G: Mediation Effects

Table G1: Mediation Effects (Indirect Effects)

Path	Effect	p-value
TIER → HCQ → PIO	0.226	0.000
TIER → BEHAV → PIO	0.171	0.001
Total Indirect	0.397	0.000

Interpretation

Approximately 75% of the total effect is mediated through HCQ and BEHAV.

Appendix H: Robustness Tests

Table H1: Robustness Summary

Test	Result
Lagged Variables	Consistent
Alternative Proxy	Stable
Subsample	Robust
Fixed vs Random	Hausman supports FE