

INFLUENCE OF INSTITUTIONAL ISOMORPHISM ON UNETHICAL PRO-ORGANIZATIONAL BEHAVIOR OF CONSTRUCTION TEAMS BASED ON THE MEDIATING EFFECT OF ORGANIZATIONAL ROUTINES

Bing ZHANG¹, Ting FANG¹✉, Bo XIA², Xueying LIU³

¹College of Civil Science and Engineering, Yangzhou University, Yangzhou, China

²School of Architecture and Built Environment, Queensland University of Technology, Brisbane, Australia

³Department of Infrastructure Management, Yangzhou University, Yangzhou, China

Article History:

- received 13 May 2024
- accepted 16 September 2025

Abstract. Unethical behavior that favors the organization at the expense of unethical conduct is considered an example of unconventional motivation. Unethical pro-organizational behavior (UPB) reduces the project quality and safety in the construction industry and may also lead to increased construction costs and investment losses. By conducting a cross-layer analysis and administering a questionnaire survey with 352 construction team employees, this study examines the influence of institutional isomorphism on UPB and the path between them. Moreover, the study explores the mediating effect of organizational routines. Results indicate that institutional isomorphism has different effects on implicit and explicit routines. Organizational routines play a crucial role in institutional isomorphism and UPB. Several mediating paths exist between institutional isomorphism and UPB. Furthermore, UPB is mainly implemented by strengthening the mediating effect of implicit routines and weakening that of explicit routines.

Keywords: construction team, unethical pro-organizational behavior, institutional isomorphism, organizational routine, mediating effect.

✉Corresponding author. E-mail: mx120230630@stu.yzu.edu.cn

1. Introduction

Unethical behavior is regarded as a “chronic disease” in the construction industry, which often occurs during the construction process, while unethical pro-organizational behavior (UPB) goes beyond individual self-interests (Zhang et al., 2020a). To ensure the successful completion of engineering construction projects, construction team members frequently demonstrate proactive behaviors exceeding their formal job responsibilities, often overlooking ethical considerations while prioritizing the collective interests of the construction team. UPBs within construction teams are primarily categorized into two manifestations: benefit-seeking and risk-averse manifestations. These include collusion with designers and supervisors to maximize gains (benefit-seeking manifestation) and the exploitation of contractual loopholes to evade or transfer construction-related risks (risk-averse manifestation). In other words, UPB is motivated by the interest of the organization, but leads to serious problems of social detachment (Tang et al., 2020). Being a prevalent and intensive social phenomenon but regarded as “standard formula” (Lin

et al., 2023; Glebovskiy, 2019), UPB may have a detrimental impact on the construction industry which can lead to immoral practices, such as purchasing substandard products at low prices, engaging in uncivilized or even barbaric construction practices to meet tight deadlines, and disregarding legal regulations by polluting the environment through “greenwashing” behaviors. Moreover, UPB of construction teams may lead to severe engineering accidents and disasters. The harm caused by UPB in the construction industry far exceeds that in other sectors where such behavior occurs. As a result, whenever these behaviors are reported in the news, it causes social attention and triggers an extensive discussion (Owusu et al., 2019; Tang et al., 2020).

UPB is the unethical behavior of employees to potentially benefit the organization (Umphress et al., 2010), and this individual behavior can also evolve into more general collective behavior due to external circumstances or institutional pressures. Recognizing the situational dependence, as highlighted by Sticco et al. (2021), Chan and Ananthram (2020) argued that current research should de-

volve into the deconstruction of the prevalence of UPB. Some research has concentrated on individual instances (Chan & Ananthram, 2020; Wang et al., 2022), but it is imperative to encompass broader institutional, organizational, and macro-background levels as well as examining the interplay of these influencing factors on UPB (Fehr et al., 2019). Institutional isomorphism mechanism can better reflect the external institutional factors and environmental pressure, and organizational routines can represent the organizational level influence, which all have a direct or indirect impact on UPB. At present, UPB research is mainly conducted based on different perspectives (observer and actor) (Cheng et al., 2022; Tang et al., 2020) and different actors (leadership and employee) (Ahmed & Khan, 2023; Fehr et al., 2019) to separate UPB from specific situations. Construction teams are temporary organizations established for specific projects, and the mutual trust between team members is an important factor affecting the smooth operation of construction teams. Therefore, construction teams require organizational routines grounded in reciprocity and mutual benefit. Within such routines, construction teams achieve improved operational efficiency and amplified benefits (Du et al., 2016), which in turn cultivate a stronger sense of identification among team members. Notably, this heightened sense of identification may trigger the occurrence of UPB. The institutions and specifications in the construction industry, characterized by their dynamic temporal adaptability, exert significant influence on the organizational routines of construction teams, thereby potentially affecting the emergence of UPB. However, there is a limited amount of research that specifically delves into UPB within a particular industry, especially within the construction industry. Most notably, the underlying reason for construction teams' continuous UPB remains unclear.

Jepson et al. (2022) argue that the institutional theory underscores the idea that organizations and individuals are rooted in the institutional system. Institutional isomorphism refers to the process or state where organizations converge in structure, practices, and values due to shared environmental pressures (DiMaggio & Powell, 1983). Influenced by the social and institutional factors, organizations operating within a specific field or environment tend to converge over time, resulting in the occurrence of isomorphism among organizations (Sutheewasinnon et al., 2016). Institutional isomorphism is the core of the entire institutional analysis, and organizational routines are the basic analysis units and memory of organizational behavior (Becker et al., 2005), while behavioral individuals, organizations, and institutions each form a nested system that can be used to explore the cross-hierarchical connection mechanism of unethical behavior based on the "individual-situational interaction model" (Shadnam & Lawrence, 2011). In summary, institutional factors can influence organizational routines, with institutional isomorphism being the central focus of the analysis. Organizational routines serve as the basic units for analyzing organizational behav-

ior, and UPB as a common type of organizational behavior. Analyzing the impact of institutional factors on UPB can be facilitated through the mediating effect of organizational routines, as depicted in Figure 1. The construction industry, as a sector where UPB behavior is prevalent (Lin et al., 2023; Xiong et al., 2023), requires urgent research into its underlying reasons and potential mechanisms. Given that the construction industry is significantly influenced by relevant institutional factors, an analysis of the impact of institutional factors on UPB in construction teams can be conducted based on the aforementioned path.

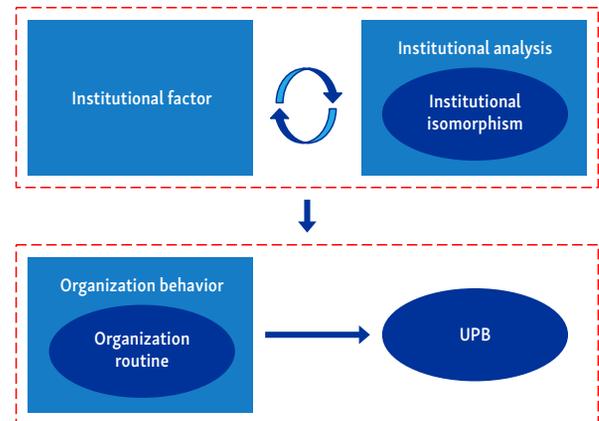


Figure 1. Effect path

Therefore, this research aims to investigate the influence of institutional isomorphism on unethical pro-organizational behavior of construction teams. It identifies institutional factors and the organizational inducements behind the UPB of the construction team and examined their interactions using the structural equation model (SEM) (Lin et al., 2023; Ahmed & Khan, 2023). This would help analyze the multi-level incentive connections of UPB of construction teams and expand the inducement analysis of UPB (Fehr et al., 2019; Xiong et al., 2023), which could systematically describe and solve the theoretical difficulties of the nested relationship between the inducements of UPB.

2. Theoretical basis and research hypothesis

2.1. Institutional isomorphism and unethical pro-organizational behavior

Institutional theory holds that individual actors are embedded in social institutions, emphasizing that institutional forces greatly influence behavioral decision-making (Chan & Ananthram, 2020). Institutional logic is the basic rule to guide organizational field activists (Zhang et al., 2020b). Consequently, behavioral individuals are not context-unembedded but must adapt to their external institutional environment (Chan & Ananthram, 2020). DiMaggio and Powell (1983) named this institutional adaptive reaction as institutional isomorphism. It also determines that institutional isomorphism defines the basic rules (Wu et al.,

2023). That is, in the construction team, once enough actors do things in a certain way, other actors will imitate and institutionalize this action; therefore, project members will become increasingly similar and homogeneous when dealing with unethical behavior (Jepson et al., 2022).

Institutional isomorphism mainly imposes pressure on unethical behavior through three mechanisms: coercive isomorphism, mimetic isomorphism, and normative isomorphism (Chan & Ananthram, 2020; DiMaggio & Powell, 1983). Coercive isomorphism arises from external influences, such as formal and informal pressure, as well as social and cultural traditional constraints, and it induces individuals to internalize these influences and conform to a predetermined behavior through a coercive obedience mechanism (Krause et al., 2019). It was found that a great deal of unethical behavior is caused by coercive isomorphism (Asiri et al., 2020). The Global Infrastructure Anti-Corruption Center (GIACC) and Transparency International (TI) found that numerous unethical behaviors in engineering construction were conducted to crack the competition and business pressure. Particularly in China, the transition between the old and new systems leads to the "institutional hole" (Yang, 2004), where the imperfect legal system and the short-lived market structure making the formal system does not play its due role. Therefore, actors face external market and business pressure from corruption and other unethical behaviors. It can be seen that there is a correlation between coercive isomorphism and the UPB of the construction team, but whether it has a significant effect on the UPB of the construction team is uncertain. Based on the above discussion, the following hypothesis was proposed.

Hypothesis 1: Coercive isomorphism has a significant and positive impact on the UPB of the construction team.

Mimetic isomorphism is a simple and effective response to uncertainty (DiMaggio & Powell, 1983) and is defined as the copying behavior of business partners. Feng (2019) pointed out that individuals exhibiting certain behaviors are susceptible to promoting collective ethical transgressions due to the influence of moral conformity and the presence of negative moral imitation and reference index. Ashforth and Anand (2003) found that numerous project contractors would help themselves maintain industrial competitiveness by imitating their peers, such as price manipulation and colluding behavior in bidding, and evolve from sudden individual behavior to implicit understanding in the construction industry through mimetic isomorphism mechanism. Mimetic isomorphism is peer imitation against uncertainty, whereas normative isomorphism is forced change by external forces (DiMaggio & Powell, 1983). It can be seen that there is a correlation between mimetic isomorphism and the UPB of the construction team, but whether it has a significant effect on the UPB of the construction team is uncertain. Based on the above discussion, the following hypothesis was proposed.

Hypothesis 2: Mimetic isomorphism has a significant and positive impact on the UPB of the construction team.

Normative isomorphism refers to the phenomenon in organizational theory where organizations adopt similar norms and values due to external pressures, regulatory requirements, or shared professional practices, leading to a convergence of organizational behavior and practices (Wu et al., 2023; Álvarez-Etxeberria et al., 2023). Normative isomorphism ultimately results in individuals from similar backgrounds approaching problems in a similar manner, and socialization at work will reinforce and solidify this effect (Amoako et al., 2021). Under such circumstances, the construction process has numerous hidden rules, which will strengthen individuals' unethical behavior through the industry's default rules (Liu et al., 2023). It can be seen that there is a correlation between normative isomorphism and the UPB of the construction team, but whether it has a significant effect on the UPB is uncertain. Based on the above discussion, the following hypothesis was proposed.

Hypothesis 3: Normative isomorphism has a significant and positive impact on the UPB of the construction team.

2.2. Mediating effect of organizational routines

Scott (2005) determined that institutional power shapes the organizational system, and organizational routines are the external inputs into the "black box" of behavior, the sources of external learning and the analysis units to investigate the driving force of micro behavior, that is, organizations need to gain social recognition by showing their "identity" with the institutional environment. Coercive isomorphism pressure affects the organizational behavior of the construction team through mandatory means and uses the corresponding power to strengthen the formation and routine of the organizational behavior (Asiri et al., 2020). Mimetic isomorphism pressure stems from the imitation and learning of other organizations in the construction industry, which establishes organizational operational routines by replicating successful strategies (Feng, 2019; Wu et al., 2023; Moreau, 2021). Normative isomorphism pressure leads the construction team to feel that synchronizing with the external institutional environment, which lead to further social recognition and be internalized into organizational specification routines (Álvarez-Etxeberria et al., 2023). It shows that the three mechanisms of institutional isomorphism, coercive isomorphism, mimetic isomorphism and normative isomorphism, all have different degrees of influence on organizational routines.

As for unethical pro-organizational behavior, organizational routines can subtly turn the informal rules and social values of the parties involved into self-discipline behavior and affect the UPB of each agent in the construction team. Given that the organization is embedded in the external institutional environment, the organization needs to adapt to the external institutional environment, and the

external pressure can stimulate the organization's unethical behavior (Toinpre et al., 2018). The individual behavior in the organization is in the network of behavior conventions woven by organizational routines, which is the basic and individual-level construction block of the individual behavior of the organization (Gao et al., 2015). Organizational routines have the capacity to convert individual behavior into mechanical and highly programmed operations. On the one hand, organizational routines can create external conditions that encourage implementing unethical behavior. On the other hand, these routines can also create conditions that affect the cost of unethical behavior (Fehr et al., 2019; Zhang et al., 2023a). It can be seen that there is a correlation between organizational routines and the UPB of the construction team, but whether it has a significant effect on the UPB of the construction team is uncertain.

The following assumptions were made to this end:

Hypothesis 4: Coercive isomorphism significantly and positively impacts organizational routines.

Hypothesis 5: Mimetic isomorphism significantly and positively impacts organizational routines.

Hypothesis 6: Normative isomorphism significantly and positively impacts organizational routines.

Hypothesis 7: Organizational routines have a significant and positive impact on the UPB of the construction team.

External institutional isomorphism influences unethical behavior through the mediating effect of internal organizational routines. Organizational routines are the tools and intermediaries for the implementation of unethical behavior (Den Nieuwenboer et al., 2017), and the "top-down" institutional logic research also emphasizes that the institutional isomorphism at the macro level will impact the individual micro-behaviors in the organization field through corporate organizational routines (Chan & Ananthram, 2020; Zhang et al., 2020b). Glebovskiy (2019) determined that the homology phenomenon of unethical behavior needs special attention in emerging economies, manifested in the institutional isomorphism of crime through the homogeneous behavior within the organization, especially organizational routines. Moreover, Arellano Gault (2017) emphasized that, in the process of triggering unethical be-

havior, benchmarking external institutional isomorphism is necessary to make unethical behaviors such as corruption appear as normal phenomena under organizational logic. In specific situations, such as organizational routines, it is implemented with seemingly normal activities. During project implementation, many unethical acts, including project corruption, result from the joint action of institutional environment and organizational practices. It shows that institutional isomorphism can affect the UPB of construction teams through the organizational routines, but the mechanism and degree of influence are still uncertain. Thus, the following hypothesis was proposed.

Hypothesis 8: Organizational routines play a partial mediating effect between institutional isomorphism and unethical pro-organizational behavior.

To analyze the "chemical reaction and chemical equation" of the unethical behavior and understand external situations causing the unethical behavior of the construction team, the present study constructed a theoretical framework of "institutional isomorphism-organizational routines-unethical pro-organizational behavior" and its conceptual model is shown in Figure 2.

3. Research methods

In general, the use of questionnaire survey can alleviate the psychological burden of respondents and yield more objective and authentic data. Standardizing the questionnaire for all participants facilitates comparative analysis of individuals under similar circumstances. Employing survey questionnaires for data collection is both efficient and cost-effective. The present study obtained data through a combination of on-site and online surveys, utilizing a five-point Likert scale for measurement, where 1 indicates complete disagreement and 5 indicates complete agreement.

In addition, this study employs the Partial Least Square-Structural Equation Modeling (PLS-SEM) method for analysis, which provides a convenient and efficient means to assess the reliability and validity of measurement models and data. PLS-SEM possesses the flexibility to handle a variety of data types, remains applicable to small sample sizes and data with multicollinearity, and does not require strict assumptions about data distribution. PLS-SEM

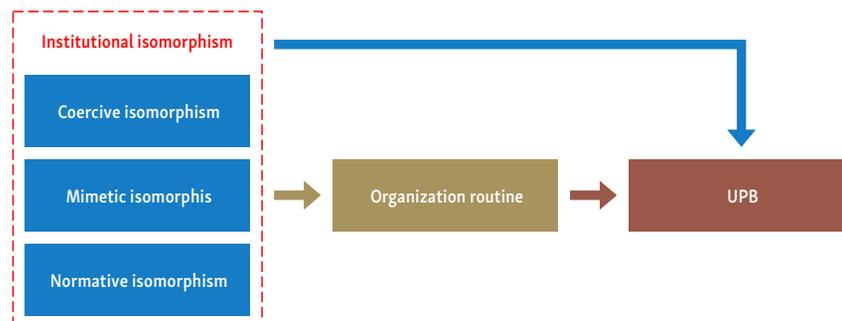


Figure 2. Effect model of unethical pro-organizational behavior of construction team

analysis can be utilized to observe path coefficients and their significance between variables, thereby yielding relevant evaluation indexes. SmartPLS 3.3 software is fully capable of conducting PLS-SEM analysis, and it was utilized in this study.

3.1. Study samples and research process

The survey mainly focused on the construction enterprise project team members and managers. The team firstly carried out research from December 2019 to June 2020. In the early stage, it mainly conducted face-to-face on-site research on construction enterprises in Jiangsu, Zhejiang and Shanghai. In later stages, given the impact of the COVID-19 pandemic, the questionnaire was mainly aimed at some major cities in China, such as Shanghai, Wuhan, Jinan, and Shenzhen. The online research was conducted on managers and essential members of the construction project department. The respondents were all construction industry practitioners, with their working years encompassing a representative range of tenure periods. Factors including job nature, company size, operational qualifications, and regional distribution were incorporated to ensure that respondents were representative.

During the survey process, 400 questionnaires were distributed, and 368 were recovered, with a recovery rate of 92%. Besides, 16 invalid questionnaires were excluded, and 352 valid questionnaires were sent out, with an effective rate of 95.65%. Among them, 80 paper questionnaires were distributed and 80 were recovered, with a recovery rate of 100%. Excluding two invalid questionnaires, the effective rate was 97.5%. The elimination of paper questionnaires mainly considered whether there were vacancies, "multiple unification" and apparent regular arrangement. A total of 320 online questionnaires were distributed, 288 were recovered, with a recovery rate of 90%. 14 invalid questionnaires were removed, and 274 valid questionnaires were obtained, with an effective rate of 95.13%. Among the 352 valid questionnaires collected by this research, the working years and job nature distribution of the corresponding respondents are shown in Table 1 and Table 2, respectively.

3.2. Measurement method

The three core constructs measured in this study, institutional isomorphism, organizational routines, and UPB, were derived from mature scales domestically and internationally and appropriately revised in combination with specific analysis scenarios. Thus, the "context de-embedding" between the analysis scenario of the scale and the scale itself could be avoided. Furthermore, it could also fit the actual situation of the Chinese construction industry. All items in this scale were measured by a five-point Likert scale, of which 1 means completely disagree and 5 means fully agree.

The independent variable is institutional isomorphism, which comprises three dimensions of coercive, mimetic, and normative isomorphism. The scale developed by

Table 1. Distribution of working years of respondents

Working years, Year	Number of people	Percentage, %
1–5	109	30.97
6–10	98	27.84
11–15	84	23.86
> 15	61	17.33

Table 2. Distribution of position nature of respondents

Position nature	Number of people	Percentage, %
Business	13	3.69
Technical	137	38.92
Management	162	46.02
Administrative and support	4	1.99
Other	33	9.38

Henisz and Delios (2001) was adopted, considering the specific situation of the domestic construction industry, including eight coercive isomorphism items, five normative isomorphism items, and six mimetic isomorphism items. The dependent variable is UPB. The scales were developed by Umphress et al. (2010) and Zhang (2019); they include leadership unethical pro-organizational behavior (LUPB) and employee unethical pro-organizational behavior (EUPB). Moreover, the LUPB included six question items, and the EUPB included five question items. The mediation variables are the organizational routines, and the scale developed by Xu and Cai (2016), which involved two parts, implicit routine and explicit routine, was adopted. Implicit routine showed explicit rules and behavioral patterns of the organization, containing five items. Explicit routine showed implicit rules and behavioral patterns of the organization, containing four items. The manifestations of implicit routines include non-concretized rules, shared understandings, and strategies that are difficult to effectively imitate. Explicit routines are embodied in normative documents, internal manuals and instructions that can be concretized and transmitted directly (Matherne III & Litchfield, 2012).

3.3. Data analysis

Partial Least Square-Structural Equation Modeling (PLS-SEM) is a powerful statistical technique widely employed in social sciences and related fields to analyze complex relationships among latent constructs. PLS-SEM offers a robust methodology for investigating both measurement and structural models simultaneously, making it a versatile tool for researchers seeking to understand intricate relationships within their data (Kante & Michel, 2023).

In PLS-SEM, the measurement model assesses the reliability and validity of latent constructs (Zhang et al., 2023b). It allows researchers to understand the relationships between observed indexes and the underlying constructs they represent. PLS-SEM focuses on maximizing the

explained variance of dependent constructs, making it especially useful for models with small sample sizes or non-normal data distributions (Sukhov et al., 2023). PLS-SEM supports both formative and reflective latent constructs, allowing for a comprehensive analysis of complex models. Researchers can assess the strength and significance of paths between constructs, enabling the identification of key drivers in the theoretical framework.

In this study, SmartPLS 3.3 software was used to calculate the structural equation model, obtain the path coefficients, and verify the relationship between the latent variables and the measurement indicators. In addition, before the interpretation and analysis of the results, it is necessary to calculate the reliability and validity of the measurement model and evaluate the rationality of the design of the measurement model, that is, whether the latent variables can be reflected by the measurement indicators.

4. Results and analysis

4.1. Reliability and validity test

The reliability was tested by the Combined Reliability (CR) and Cronbach's α value, and the aggregate validity was measured by the average extracted variance value (AVE). The difference validity was tested by comparing the correlation coefficient between factors with the square root of AVE. The measurement results are shown in Table 3.

The results show that all AVE values exceeded 0.5, and CR values were greater than 0.8. The minimum value of Cronbach's α was 0.855. The KMO values were all above 0.7. The significance values of Bartlett's sphericity test were all less than 0.01. Therefore, the observed questionnaire

structure and data were highly reliable, indicating reliable measurement results.

The differential validity test requires that the square root of the AVE value of the latent variables should be higher than the correlation coefficient of other latent variables, following the Fornell-Larcker quasi-side. Table 4 shows that all results met the requirements, passing the differential validity test.

4.2. Hypothesis test

After evaluating the reliability and validity of the model, calculating the weight and factor load and conducting the T-test becomes necessary. The bootstrapping method was used to analyze the load coefficient, external weight, and path coefficient in this model. The number of samples for each group of resamples was set to be similar to the initial number of samples, and the number of resamples was 300. According to the results of the multicollinearity test of the model (Table 5), all VIF values in the model were less than 10, indicating that the model presented no multicollinearity problem.

The results of PLS-SEM test are presented in Table 6 and Figure 3. When the T values exceed 1.96 and the p values are below 0.05, this indicates statistically significant results. The results show that, in terms of the impact of institutional isomorphism on organizational routines, coercive isomorphism ($\beta = 0.146$, $T = 2.113$, $p = 0.037$), normative isomorphism ($\beta = 0.186$, $T = 3.157$, $p = 0.002$), and mimetic isomorphism ($\beta = 0.496$, $T = 4.524$, $p = 0.000$) significantly impact explicit routine. For implicit routine, excluding mimetic isomorphism ($\beta = 0.049$, $T = 0.545$, $p = 0.583$), coercive isomorphism ($\beta = 0.178$, $T = 2.982$, $p = 0.003$)

Table 3. Results of reliability and validity test

Construct	Variable	AVE	CR	Cronbach's α	KMO		Bartlett's Test
					Variable	Construct	
Institutional isomorphism	Coercive	0.680	0.944	0.932	0.907	0.948	0.000
	Normative	0.735	0.933	0.910	0.874		
	Mimetic	0.685	0.929	0.907	0.900		
Organization routine	Explicit	0.638	0.898	0.858	0.872	0.895	0.000
	Implicit	0.699	0.902	0.855	0.791		
UPB	LUPB	0.870	0.976	0.970	0.921	0.956	0.000
	EUPB	0.816	0.957	0.943	0.888		

Notes: "Coercive" refers to coercive isomorphism, "Explicit" refers to explicit routine, and others are similar. Additionally, the same abbreviated expression exists in other tables in this paper.

Table 4. Results of differential validity test

Correlation coefficient	Coercive	Normative	Mimetic	Explicit	Implicit	LUPB	EUPB
Coercive	0.824						
Normative	0.737	0.857					
Mimetic	0.673	0.803	0.828				
Explicit	0.618	0.692	0.745	0.799			
Implicit	0.350	0.359	0.318	0.410	0.836		
LUPB	0.174	0.158	0.123	0.092	0.496	0.933	
EUPB	0.178	0.153	0.135	0.109	0.552	0.880	0.904

and normative isomorphism ($\beta = 0.192$, $T = 2.638$, $p = 0.018$) had a significant influence on the implicit routine. Hypotheses 4 and 6 were supported, and Hypothesis 5 was partially supported.

Table 5. Results of multicollinearity test

VIF value	Explicit	Implicit	LUPB	EUPB
Coercive	2.284	2.284	2.357	2.357
Normative	3.508	3.508	3.613	3.613
Mimetic	2.937	2.937	3.550	3.550
Explicit			2.558	2.558
Implicit			1.233	1.233

Table 6. Results of PLS-SEM test

Path	β coefficient	T value	p value
Coercive \rightarrow Explicit	0.146	2.113	0.037
Coercive \rightarrow Implicit	0.178	2.982	0.003
Normative \rightarrow Explicit	0.186	3.157	0.002
Normative \rightarrow Implicit	0.192	2.638	0.018
Mimetic \rightarrow Explicit	0.496	4.524	0.000
Mimetic \rightarrow Implicit	0.049	0.545	0.583
Coercive \rightarrow EUPB	0.068	0.789	0.374
Coercive \rightarrow LUPB	0.069	0.823	0.319
Normative \rightarrow EUPB	-0.027	0.229	0.776
Normative \rightarrow LUPB	0.033	0.242	0.707
Mimetic \rightarrow EUPB	0.088	1.018	0.258
Mimetic \rightarrow LUPB	0.069	0.664	0.459
Explicit \rightarrow EUPB	-0.229	3.139	0.000
Explicit \rightarrow LUPB	-0.239	3.256	0.000
Implicit \rightarrow EUPB	0.602	5.010	0.000
Implicit \rightarrow LUPB	0.539	4.961	0.000

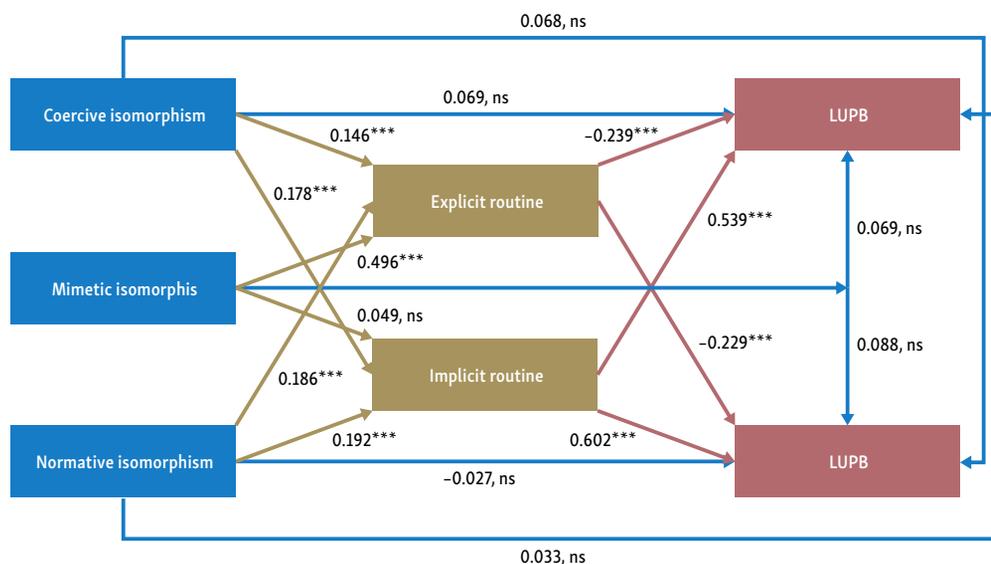
In terms of the impact of institutional isomorphism on unethical pro-organizational behavior, coercive isomorphism ($\beta = 0.069$, $T = 0.823$, $p = 0.319$), normative isomorphism ($\beta = 0.033$, $T = 0.242$, $p = 0.707$) and mimetic isomorphism ($\beta = 0.069$, $T = 0.664$, $p = 0.459$) had no significant impact on LUPB. Besides, coercive isomorphism ($\beta = 0.068$, $T = 0.789$, $p = 0.374$), normative isomorphism ($\beta = -0.027$, $T = 0.229$, $p = 0.776$) and mimetic isomorphism ($\beta = 0.088$, $T = 1.018$, $p = 0.258$) also had no significant impact on EUPB. Hypotheses 1, 2, and 3 were not supported.

Regarding the mediating effect of organizational routines, the explicit routine had a significant negative impact on LUPB ($\beta = -0.239$, $T = 3.256$, $p = 0.000$) and EUPB ($\beta = -0.229$, $T = 3.139$, $p = 0.000$). Meanwhile, the implicit routine significantly positively affected LUPB ($\beta = 0.539$, $T = 4.961$, $p = 0.000$) and EUPB ($\beta = 0.602$, $T = 5.010$, $p = 0.000$). The results indicate that institutional isomorphism impacted UPB through the mediating effect of organizational routines. Thus, Hypothesis 7 was partially supported.

4.3. Indirect effect analysis

The results indicate a significant indirect effect between institutional isomorphism and UPB. The specific indirect effect reflected the relative proportion and strength of the path in the indirect total impact, measuring the level of the mediating effect.

Table 7 shows that, in the construction team, a series of significant paths exist between institutional isomorphism and LUPB. Coercive isomorphism significantly affected LUPB via implicit routine ($\beta = 0.096$, $T = 2.893$, $p = 0.004$). Normative isomorphism significantly affected LUPB via explicit ($\beta = -0.044$, $T = 2.590$, $p = 0.010$) and implicit



Note: *** indicates $p < 0.01$, ** indicates $p < 0.05$, ns indicates not significant

Figure 3. Path coefficient and significance levels

routines ($\beta = 0.102, T = 2.344, p = 0.019$). Mimetic isomorphism significantly affected LUPB via explicit routine ($\beta = -0.117, T = 2.948, p = 0.003$). N-I-L and M-E-L were two important mediating paths in this part.

In terms of the impact of institutional isomorphism toward EUPB, coercive isomorphism significantly affected EUPB through implicit routine ($\beta = 0.107, T = 2.921, p = 0.004$). Normative isomorphism significantly affected EUPB through explicit routine ($\beta = -0.042, T = 2.648, p = 0.008$) and implicit routine ($\beta = 0.114, T = 2.345, p = 0.019$). Mimetic isomorphism significantly affected employee unethical pro-organizational behavior through explicit routine ($\beta = -0.112, T = 2.863, p = 0.004$). Furthermore, N-I-E and M-E-E were two important mediating paths in this part. Thus, Hypothesis 8 was supported.

4.4. Results summary

As can be seen from the aforementioned results, it is evident that hypotheses 4, 6, and 8 were supported, while hypotheses 1, 2, and 3 were not supported. Additionally, hypotheses 5 and 7 received partial support, as indicated in Table 8.

The impact of institutional isomorphism on organizational routines is significant, as evidenced by the influence of three types of institutional isomorphism on explicit organizational routines. However, these three types of institutional isomorphism do not have a direct impact on UPB, as the mediating effect of organizational routines is required. In terms of the influence of organizational routines on UPB, explicit routine has a negative impact, while implicit routine has a positive impact. Overall, the most important influencing pathways are M-E-L and N-I-E.

Table 7. Summary of the indirect effects

Path	Specific indirect path	Path symbol	β coefficient	T value	p value
Institutional isomorphism to LUPB	Coercive → Explicit → LUPB	C-E-L	-0.034	1.919	0.056
	Coercive → Implicit → LUPB	C-I-L	0.096	2.893	0.004
	Normative → Explicit → LUPB	N-E-L	-0.044	2.590	0.010
	Normative → Implicit → LUPB	N-I-L	0.102	2.344	0.019
	Mimetic → Explicit → LUPB	M-E-L	-0.117	2.948	0.003
	Mimetic → Implicit → LUPB	M-I-L	0.026	0.539	0.590
Institutional isomorphism to EUPB	Coercive → Explicit → EUPB	C-E-E	-0.033	1.921	0.055
	Coercive → Implicit → EUPB	C-I-E	0.107	2.921	0.004
	Normative → Explicit → EUPB	N-E-E	-0.042	2.648	0.008
	Normative → Implicit → EUPB	N-I-E	0.114	2.345	0.019
	Mimetic → Explicit → EUPB	M-E-E	-0.112	2.863	0.004
	Mimetic → Implicit → EUPB	M-I-E	0.029	0.542	0.588

Table 8. Hypothesis support state

Hypothesis symbol	Path	β coefficient	p value	Local support state	Support state		
					Support	Partial support	Not support
Hypothesis 1	Coercive → EUPB	0.068	0.374	No			√
	Coercive → LUPB	0.069	0.319	No			
Hypothesis 2	Mimetic → EUPB	0.088	0.258	No			√
	Mimetic → LUPB	0.069	0.459	No			
Hypothesis 3	Normative → EUPB	-0.027	0.776	No			√
	Normative → LUPB	0.033	0.707	No			
Hypothesis 4	Coercive → Explicit	0.146	0.037	Yes	√		
	Coercive → Implicit	0.178	0.003	Yes			
Hypothesis 5	Mimetic → Explicit	0.496	0.000	Yes		√	
	Mimetic → Implicit	0.049	0.583	No			
Hypothesis 6	Normative → Explicit	0.186	0.002	Yes	√		
	Normative → Implicit	0.192	0.018	Yes			
Hypothesis 7	Explicit → EUPB	-0.229	0.000	No		√	
	Explicit → LUPB	-0.239	0.000	No			
	Implicit → EUPB	0.602	0.000	Yes			
	Implicit → LUPB	0.539	0.000	Yes			
Hypothesis 8	Specific indirect path				√		

5. Discussion

5.1. Influence of institutional isomorphism on organizational routines

Based on the above results, the following discussion can be made. First, coercive isomorphism and normative isomorphism have a significant impact on organizational routines, while mimetic isomorphism only has a significant impact on explicit routines. DiMaggio and Powell (1983) found that due to the influence of three institutional isomorphism mechanisms, actors end up making their organizations increasingly similar as they attempt to change them, which in turn affects organizational routines. Researchers have explored the institutional isomorphism patterns behind the procurement policies of construction projects based on new institutional theory. It has been found that coercive isomorphism is the most powerful driver in procurement within construction projects, necessitating institutional change to mitigate risks and maximize opportunities (Loosemore et al., 2021). In terms of UPB regarding land use, enterprises are confronted with institutional and market pressures from the isomorphism perspective (Troisi, 2022). This indicates that the construction team is faced with institutional pressures and challenges such as external competition and imperfect systems. Nigam et al. (2016) pointed out that the change and formation of organizational routines are related to both external institutional change factors and internal individual routines. To survive and develop, the construction team will generate explicit organizational routines through processes, rules and other forms, which are conducive to the accumulation of relevant experience and knowledge, as well as reduce the search cost and uncertainty of this behavior.

However, as UPBs are unacceptable to society, it directly leads to the fact that implicit routines often form organizational secrets and are not known by outsiders, which cannot be learned through direct observation and imitation, especially the resources and channels for implementing the behaviors cannot be obtained through imitation. Chinese construction teams rely on local knowledge networks developed through long-term practices. These typical implicit routines are deeply rooted in the social practices and capital of specific construction teams, making the operational logic difficult to replicate through external observation. The Chinese construction industry is significantly influenced by policies, and the internal implicit routines within construction teams dynamically adapt to local institutional environments. While demonstrating competence in replicating static and explicit organizational routines, mimetic isomorphism fails to capture the dynamic implicit decision-making logic. Moreover, although mimetic isomorphism may prompt construction teams to imitate superficially successful strategies, it cannot access the core resources that sustain these implicit routines. Consequently, mimetic isomorphism has no significant influence on tacit practices.

From an alternative analytical perspective, institutional voids or regulatory ambiguities within the construction

industry may undermine the efficacy of coercive and normative isomorphism, as both mechanisms rely on external institutional pressures and established norms. Under such conditions, mimetic isomorphism emerges as the predominant mechanism, and it proves ineffective in influencing deeply implicit routines.

5.2. Influence of institutional isomorphism on UPB

Second, the direct influence of institutional isomorphism on UPB is not significant. Research has shown that employee psychological empowerment has a significant impact on their own UPB, highlighting the importance of employee psychological processes (Ahmed & Khan, 2023). Although institutional isomorphism provides an institutional environment "outside the wall", UPB often starts from "inside the wall" inside the construction organization, and the external institutional function cannot directly arouse the motivation of the behavioral subjects to maintain or return the organization, and it cannot directly exert the internal driving force on the individual behaviors of the construction team to implement pro-organizational behaviors. Umphress et al. (2010) found that when internal individuals have a strong sense of organizational identity and positive reciprocity belief, they are highly likely to take UPB in order to obtain future rewards from the organization. Organizational factors become the intermediary transmission tool of the whole behavior, which leads to the insignificant relationship between the unethical pro-organizational behavior of the construction team and the external institutional environment, and it helps toward explaining why even in developed countries, there are "ineffective external institutional constraints" on the UPB of the construction team. Despite being regulated by external institutions, UPB can still occur in the procurement of construction projects in developed countries (Loosemore et al., 2021).

5.3. Mediating effect of organizational routines

Third, several mediating paths exist between the institutional isomorphism and the UPB of the construction team. In terms of the mediating effect of implicit routine, the coercive and normative isomorphism influence the UPB of the construction team through implicit routine, which indicates that in the face of strong external institutional pressure, the construction team leaders and their employees will adopt some hidden and proven conventional means at the organizational level. M. Chen and C. Chen (2021) found that performance pressure caused by external institutional environment is positively correlated with UPB, and its mediating effect is collective moral justification, which can be regarded as a kind of implicit routine. Implicit routines of Chinese construction teams encompass tacit understanding and common cognition among members, which enhance the sense of identity and belonging of construction team members, and then lead to the emergence of UPB.

In terms of the mediating effect of explicit routine, both normative and mimetic isomorphism affect UPB through explicit routine, and there is a negative mediating effect, indicating that the two types of institutional isomorphism mainly negatively reduces the UPB by explicit routine, that is, due to the unethical behavior attribute of the behavior, even in the face of normative requirements or mimetic motivation, it is also rare to search for implementation plans in explicit routines. In China's construction industry, a quintessential external manifestation of explicit routines is the relevant normative document of construction teams. The explicit routines, typically subjected to rigorous review processes and requiring strict compliance, constrain the initiative of construction team members and inhibit the emergence of UPB. This further indicates that in the face of the external institutional isomorphism pressure, the behavioral subject of the construction team still mainly implements the UPB of the construction team by strengthening the mediating effect of implicit routine and weakening the effect of the explicit routine. Some scholars have explored the relationship between institutional influencing factors and internal organizational factors from the perspective of institutional isomorphism. It was revealed that mimetic isomorphism can affect the innovation-supportive culture within the context, subsequently influencing organizational behavior, and only affecting individual organizational behavior (Hwang & Choi, 2017).

Existing studies have explored the mechanisms underlying UPB across diverse contexts, yet limited attention has been given to the construction industry. Moreover, research on UPB within construction teams from institutional and organizational perspectives remains underexplored. By fully incorporating industry-specific characteristics, this study reveals that UPB in construction teams is a behavioral outcome collectively constrained and influenced by external institutional pressures, organizational environments, and individual traits. Based on the preceding discussion and analysis, the moderating roles of institutional isomorphism and organizational routines in shaping UPB of construction teams are identified. The findings present a novel insight. In the construction industry, institutional isomorphism exerts a weaker direct influence on UPB of construction teams, and its regulatory effect on UPB operates through the impact on organizational routines.

6. Conclusions

This research analyzed the influence path and degree of institutional isomorphism and organizational routines on UPB of construction teams through the questionnaire survey of construction enterprises and Partial Least Square-Structural Equation Modeling (PLS-SEM). The conclusions are as follows:

Coercive and normative isomorphism significantly impact organizational routines, while mimetic isomorphism only significantly impacts explicit routines. Given that the UPB is socially unacceptable, it directly leads to implicit

routines that often form organizational secrets, which cannot be learned through direct imitation.

The influence of institutional isomorphism on UPB is not significant. Although institutional isomorphism provides an external institutional environment, UPBs often start from within the construction organization. The external institutional function cannot directly arouse the motivation of the behavioral subjects to benefit the organization.

Several mediating paths exist between the institutional isomorphism and UPB of the construction team. Coercive and normative isomorphism influence UPB through implicit routines. Moreover, normative and mimetic isomorphism affect UPB through explicit routines, showing a negative mediating effect.

7. Practical implications

The research conclusions reveal the action path of UPB theoretically and provide obvious practical implications, especially in the governance of UPB.

Institutional isomorphism does not positively impact UPB, which helps to crack the excuse that the deterioration of the external "cabinet" in UPB leads to the increasing prevalence of the behavior. Thus, the cognitive breakthrough of the external determinism of UPB can explain why even in areas with imperfect external institutional environment, there are still some pro-social construction enterprise organizations, especially in the case of high incidence of corruption cases, the level of social responsibility of the entire construction industry is still significantly improved.

Organizational routines play a "key intermediary" role in UPB, mainly embodied in the implicit routine of construction enterprises guiding and strengthening UPB. The organizational team is the intermediary bridge between the external institutional environment and the individual behaviors, and its ethical situation and consistent work style directly affect the development of UPB.

Therefore, in the anti of construction team's UPB activities, the focus should be on the organization of construction enterprises and strengthen the construction of the enterprise integrity system. Furthermore, by improving the governance level of UPB, the cost of such behavior can be raised, reducing individuals' motivation and occurrence probability to conduct UPB and strengthening the construction of the institutional environment.

In the process of operation, construction teams should consciously transform the organizational routines, experiences, and requirements that have been cultivated over time into internal normative documents, with the objective of effectively mitigating UPB. In addition, construction teams should make long-term decisions from a strategic perspective, establish correct ethical guidance, and effectively avoid ethical defects caused by organizational system design problems.

Acknowledgements

The authors want to thank the assistance of the BIM-CIM Engineering Center of Yangzhou University for providing software and computing support.

Funding

This work was supported by the National Natural Science Foundation of China under Grant number 71701179.

Author contributions

BZ, TF and BX conceived the study and were responsible for the design and development of the data analysis. BZ, TF and XL were responsible for data collection and analysis. TF and XL were responsible for data interpretation. TF and BX were responsible for data validation. TF and XL wrote the first draft of the article. BZ and BX were responsible for the review and editing of the article. All authors have read and agreed to the published version of the manuscript.

Disclosure statement

The authors declare no conflict of interest.

References

- Ahmed, M., & Khan, M. I. (2023). Beyond the universal perception: Unveiling the paradoxical impact of ethical leadership on employees' unethical pro-organizational behavior. *Heliyon*, *9*(11), Article e21618. <https://doi.org/10.1016/j.heliyon.2023.e21618>
- Álvarez-Etxeberria, I., Marco-Fondevila, M., & Zamora-Ramírez, C. (2023). Non-financial disclosure: isomorphism effect in the face of new regulation. *Sustainability*, *15*(11), Article 8493. <https://doi.org/10.3390/su15118493>
- Amoako, G. K., Adam, A. M., Tackie, G., & Arthur, C. L. (2021). Environmental accountability practices of environmentally sensitive firms in Ghana: Does institutional isomorphism matter?. *Sustainability*, *13*(17), Article 9489. <https://doi.org/10.3390/su13179489>
- Arellano Gault, D. (2017). Corruption as an organizational process: Understanding the logic of the denormalization of corruption. *Contaduría y administración*, *62*(3), 810–826. <https://doi.org/10.1016/j.cya.2016.01.008>
- Ashforth, B. E., & Anand, V. (2003). The normalization of corruption in organizations. *Research in Organizational Behavior*, *25*, 1–52. [https://doi.org/10.1016/S0191-3085\(03\)25001-2](https://doi.org/10.1016/S0191-3085(03)25001-2)
- Asiri, N., Khan, T., & Kend, M. (2020). Environmental management accounting in the Middle East and North Africa region: Significance of resource slack and coercive isomorphism. *Journal of Cleaner Production*, *267*, Article 121870. <https://doi.org/10.1016/j.jclepro.2020.121870>
- Becker, M. C., Lazaric, N., Nelson, R. R., & Winter, S. G. (2005). Applying organizational routines in understanding organizational change. *Industrial and Corporate Change*, *14*(5), 775–791. <https://doi.org/10.1093/icc/dth071>
- Chan, C., & Ananthram, S. (2020). A neo-institutional perspective on ethical decision-making. *Asia Pacific Journal of Management*, *37*, 227–262. <https://doi.org/10.1007/s10490-018-9576-x>
- Chen, M., & Chen, C. C. (2021). The moral dark side of performance pressure: how and when it affects unethical pro-organizational behavior. *The International Journal of Human Resource Management*, *34*(7), 1359–1389. <https://doi.org/10.1080/09585192.2021.1991434>
- Cheng, K., Wang, Y., Lin, Y., & Wang, J. (2022). Observer reactions to unethical pro-organizational behavior and their feedback effects. *Advances in Psychological Science*, *30*(9), 1944–1954. (in Chinese) <https://doi.org/10.3724/sp.j.1042.2022.01944>
- Den Nieuwenboer, N. A., Cunha, J. V. D., & Treviño, L. K. (2017). Middle managers and corruptive routine translation: The social production of deceptive performance. *Organization Science*, *28*(5), 781–803. <https://doi.org/10.1287/orsc.2017.1153>
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147–160. <https://doi.org/10.1515/9780691229270-005>
- Du, L., Duan, T., & Li, M. (2016). A literature review of unethical pro-organizational behavior. *Human Resources Development of China*, (7), 50–57. (in Chinese)
- Fehr, R., Welsh, D., Yam, K. C., Baer, M., Wei, W., & Vaulont, M. (2019). The role of moral decoupling in the causes and consequences of unethical pro-organizational behavior. *Organizational Behavior and Human Decision Processes*, *153*, 27–40. <https://doi.org/10.1016/j.obhdp.2019.05.007>
- Feng, P. (2019). The phenomenon of moral broken windows and its governance. *Morality and Civilization*, (04), 136–143. (in Chinese) <https://doi.org/10.13904/j.cnki.1007-1539.2019.04.017>
- Gao, D., Deng, X., Zhao, Q., Zhou, H., & Bai, B. (2015). Multi-agent based simulation of organizational routines on complex networks. *Journal of Artificial Societies and Social Simulation*, *18*(3), Article 17. <https://doi.org/10.18564/jasss.2817>
- Glebovskiy, A. (2019). Criminogenic isomorphism and groupthink in the business context. *International Journal of Organization Theory & Behavior*, *22*(1), 22–42. <https://doi.org/10.1108/IJOTB-03-2018-0024>
- Henisz, W. J., & Delios, A. (2001). Uncertainty, imitation, and plant location: Japanese multinational corporations, 1990–1996. *Administrative Science Quarterly*, *46*(3), 443–475. <https://doi.org/10.2307/3094871>
- Hwang, K., & Choi, M. (2017). Effects of innovation-supportive culture and organizational citizenship behavior on e-government information system security stemming from mimetic isomorphism. *Government Information Quarterly*, *34*(2), 183–198. <https://doi.org/10.1016/j.giq.2017.02.001>
- Jepson, J., Kirytopoulos, K., & Chileshe, N. (2022). Isomorphism within risk-management practices of the Australian construction industry. *International Journal of Construction Management*, *22*(8), 1508–1524. <https://doi.org/10.1080/15623599.2020.1728608>
- Kante, M., & Michel, B. (2023). Use of partial least squares structural equation modelling (PLS-SEM) in privacy and disclosure research on social network sites: A systematic review. *Computers in Human Behavior Reports*, *10*, Article 100291. <https://doi.org/10.1016/j.chbr.2023.100291>
- Krause, R., Wu, Z., Bruton, G. D., & Carter, S. M. (2019). The coercive isomorphism ripple effect: An investigation of nonprofit interlocks on corporate boards. *Academy of Management Journal*, *62*(1), 283–308. <https://doi.org/10.5465/amj.2017.0064>
- Lin, S., Chen, S., & Liu, X. (2023). The dark side of empowering leadership: how empowering leadership affects unethical pro-organizational behavior in construction projects. *Buildings*, *13*(10), Article 2640. <https://doi.org/10.3390/buildings13102640>

- Liu, J., Qian, H., Zhang, Q., Lin, Z., & Siano, P. (2023). Corruption induced energy inefficiencies: Evidence from China's energy investment projects. *Energy Policy*, *183*, Article 113825. <https://doi.org/10.1016/j.enpol.2023.113825>
- Loosemore, M., Alkilani, S. Z., & Murphy, R. (2021). The institutional drivers of social procurement implementation in Australian construction projects. *International Journal of Project Management*, *39*(7), 750–761. <https://doi.org/10.1016/j.ijproman.2021.07.002>
- Matherne III, C. F., & Litchfield, S. R. (2012). Investigating the relationship between affective commitment and unethical pro-organizational behaviors: The role of moral identity. *Journal of Leadership, Accountability and Ethics*, *9*(5), 35–46.
- Moreau, D. B. (2021). Mimetic isomorphism in non-profit organisations (NPO): sports associations in the Nord Pas-de-Calais departments. *Societies*, *11*(3), Article 100. <https://doi.org/10.3390/soc11030100>
- Nigam, A., Huising, R., & Golden, B. (2016). Explaining the selection of routines for change during organizational search. *Administrative Science Quarterly*, *61*(4), 551–583. <https://doi.org/10.1177/0001839216653712>
- Owusu, E. K., Chan, A. P., & Ameyaw, E. (2019). Toward a cleaner project procurement: Evaluation of construction projects' vulnerability to corruption in developing countries. *Journal of Cleaner Production*, *216*, 394–407. <https://doi.org/10.1016/j.jclepro.2019.01.124>
- Scott, W. R. (2005). Institutional theory: Contributing to a theoretical research program. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management: The process of theory development* (pp. 460–484). Oxford University Press. <https://doi.org/10.1093/oso/9780199276813.003.0022>
- Shadnam, M., & Lawrence, T. B. (2011). Understanding widespread misconduct in organizations: An institutional theory of moral collapse. *Business Ethics Quarterly*, *21*(3), 379–407. <https://doi.org/10.5840/beq201121324>
- Sticco, I. M., Frank, G. A., & Dorso, C. O. (2021). Social force model parameter testing and optimization using a high stress real-life situation. *Physica A: Statistical Mechanics and its Applications*, *561*, Article 125299. <https://doi.org/10.1016/j.physa.2020.125299>
- Sukhov, A., Friman, M., & Olsson, L. E. (2023). Unlocking potential: An integrated approach using PLS-SEM, NCA, and fsQCA for informed decision making. *Journal of Retailing and Consumer Services*, *74*, Article 103424. <https://doi.org/10.1016/j.jretconser.2023.103424>
- Sutheewasinnon, P., Hoque, Z., & Nyamori, R. O. (2016). Development of a performance management system in the Thailand public sector: Isomorphism and the role and strategies of institutional entrepreneurs. *Critical Perspectives on Accounting*, *40*, 26–44. <https://doi.org/10.1016/j.cpa.2015.06.002>
- Tang, P. M., Yam, K. C., & Koopman, J. (2020). Feeling proud but guilty? Unpacking the paradoxical nature of unethical pro-organizational behavior. *Organizational Behavior and Human Decision Processes*, *160*, 68–86. <https://doi.org/10.1016/j.obhdp.2020.03.004>
- Toinpre, O., Mackee, J., & Gajendran, T. (2018). A framework for understanding the influence of isomorphic pressures on governance of disaster risks. *Procedia Engineering*, *212*, 173–180. <https://doi.org/10.1016/j.proeng.2018.01.023>
- Troisi, R. (2022). Illegal land use by Italian firms: An empirical analysis through the lens of isomorphism. *Land Use Policy*, *121*, Article 106321. <https://doi.org/10.1016/j.landusepol.2022.106321>
- Umphress, E. E., Bingham, J. B., & Mitchell, M. S. (2010). Unethical behavior in the name of the company: the moderating effect of organizational identification and positive reciprocity beliefs on unethical pro-organizational behavior. *Journal of Applied Psychology*, *95*(4), Article 769. <https://doi.org/10.1037/a0019214>
- Wang, D., Weng, Q., Kiani, A., & Ali, A. (2022). Job insecurity and unethical pro-organizational behavior: The joint moderating effects of moral identity and proactive personality. *Personality and Individual Differences*, *195*, Article 111685. <https://doi.org/10.1016/j.paid.2022.111685>
- Wu, S. W., Yan, Y., Pan, J., & Wu, K. S. (2023). Antecedents and consequences of sustainable project management: evidence from the construction industry in China. *Buildings*, *13*(9), Article 2216. <https://doi.org/10.3390/buildings13092216>
- Xiong, Q., Pan, Q., Nie, S., Guan, F., Nie, X., & Sun, Z. (2023). How does collective moral judgment induce unethical pro-organizational behaviors in infrastructure construction projects: The mediating role of machiavellianism. *Behavioral Sciences*, *13*(1), Article 57. <https://doi.org/10.3390/bs13010057>
- Xu, M., & Cai, L. (2016). The impact of organizational learning on routines in new ventures: The regulating effect of organizational structure. *Journal of Management Science*, *29*(6), 93–105. (in Chinese)
- Yang, K. (2004). Institutional holes and entrepreneurship in China. *The Sociological Review*, *52*(3), 371–389. <https://doi.org/10.1111/j.1467-954X.2004.00485.x>
- Zhang, Y. (2019). *The antecedents of employees' unethical pro-organizational behavior in the workplace* [Doctoral dissertation]. Guangdong University of Technology.
- Zhang, B., Zhu, F., Zhang, M., & Zhang, M. (2020a). Key factor measurement of unethical pro-organizational behavior in the construction industry. *Construction Economy*, *41*(S2), 316–319. (in Chinese) <https://doi.org/10.14181/j.cnki.1002-851x.2020S2316>
- Zhang, R., Liu, S., & Bao, L. (2020b). The dilemmas and optimization of social organizations participation in government purchase of public services – an analysis based on system field framework. *Chinese Public Administration*, (2), 94–101. (in Chinese) <https://doi.org/10.19735/j.issn.1006-0863.2020.02.12>
- Zhang, J., Chen, Y., Li, Q., & Li, Y. (2023a). A review of dynamic capabilities evolution-based on organisational routines, entrepreneurship and improvisational capabilities perspectives. *Journal of Business Research*, *168*, Article 114214. <https://doi.org/10.1016/j.jbusres.2023.114214>
- Zhang, J., Quoquab, F., & Mohammad, J. (2023b). The role of pandemic risk communication and perception on pro-environmental travel behavioral intention: Findings from PLS-SEM and fsQCA. *Journal of Cleaner Production*, *429*, Article 139506. <https://doi.org/10.1016/j.jclepro.2023.139506>