OPTIMIZING GOVERNANCE MECHANISMS FOR DUAL EDUCATION IN UZBEKISTAN'S HOSPITALITY SECTOR: AN EMPIRICAL AND COMPARATIVE ANALYSIS

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Abstract. *This study investigates the integration of dual education within Uzbekistan's rapidly expanding hospitality sector, focusing specifically on the coordination and governance mechanisms that determine its effectiveness. Employing a mixed-methods approach integrating survey data from 120 enterprises and 80 educational institutions with econometric modeling the paper evaluates the impact of dual education elements on labor productivity and workforce quality. The findings confirm a statistically significant positive relationship between work-based learning intensity and enterprise performance ($\beta = 0.42$, $p < 0.01$). However, a comparative analysis with Switzerland and Germany reveals structural gaps in Uzbekistan's approach, particularly regarding institutionalized social partnership, the legal framework for employer engagement, and research-driven curriculum development (Renold, Palayil, & Caves, 2025a; BIBB, 2023; SERI, 2022). Drawing on recent policy reforms, including Presidential Resolution No. PP-269 (2024) mandating a 70% practical training component in the third year of higher education programs (Ru'ziboyeva, 2025), the study proposes an evidence-based framework for strengthening dual education systems in emerging economies. The findings underscore that effective dual education requires not merely the adoption of structural elements but the construction of sustainable coordination platforms that foster genuine co-governance between educational institutions and industry stakeholders.*

Introduction

The tourism and hospitality sector constitutes a key driver of global economic development, contributing approximately 10% to global GDP and employment. In Uzbekistan, the sector has experienced unprecedented growth, with international tourist arrivals reaching 9.7 million in the first ten months of 2025—a 50% increase compared to the previous year (Uzbekistan State Committee on Statistics, 2025). This remarkable expansion, driven by strategic infrastructure investments, visa liberalization policies, and enhanced international connectivity, positions Uzbekistan as one of the world's fastest-growing tourism destinations (Ru'ziboyeva, 2025).

This sustained growth has significantly intensified the demand for a highly skilled workforce within the hospitality industry. The need for employees equipped with practical competencies, service-oriented skills, and knowledge of international standards has become increasingly urgent (Renold, Caves, & Palayil, 2024). According to recent analyses, staff turnover in the sector reached 22% in 2024, reflecting the pressures of rapid expansion and persistent skill mismatches (International Multidisciplinary Journal for Research & Development, 2025). As a result, aligning vocational education and training (VET) systems with labor market requirements has emerged as a critical policy priority.

Despite these developments, a persistent mismatch exists between the competencies of graduates and the requirements of employers. Recent research highlights that while educational institutions emphasize theoretical knowledge, employers prioritize soft skills such as problem-solving, reliability, and teamwork—competencies best developed in workplace settings (Renold, Palayil, & Caves, 2025b). This disconnect has prompted policymakers to explore dual education as a mechanism for bridging the gap by integrating theoretical learning with practical workplace experience (Saidrasulov, 2024).

The present study aims to assess how coordination and management mechanisms can be improved to maximize the effectiveness of dual education in Uzbekistan's hospitality sector. Building on recent reforms, including Presidential Decree No. PP-269 (2024), which mandates a phased increase in practical training components—from 20% in the first year to 70% in the third year—this research evaluates the current state of dual education implementation and identifies pathways for strengthening institutional coordination (Ru'ziboyeva, 2025).

Literature Review

2.1 Theoretical Foundations

The theoretical foundation of dual education is grounded in human capital theory (Becker, 1993) and experiential learning, which emphasize the accumulation of both cognitive knowledge and practical competencies through workplace-based training. More recent scholarship has extended this framework by integrating social cognitive theory, demonstrating that work-integrated learning (WIL) not only develops technical skills but also shapes professional identities and sustainability-oriented mindsets (Boonkaew, Imjai, Agmapisarn, Sa-nguanwong, & Moghadas, 2025). Empirical evidence demonstrates that countries with well-established dual systems consistently achieve lower youth unemployment rates and higher levels of labor productivity (Cedefop, 2024). However, these outcomes are not solely the result of curriculum design; they are largely driven by the effectiveness of underlying governance and management mechanisms (Renold, Palayil, & Caves, 2025a).

2.2 Governance and Stakeholder Cooperation

In advanced dual education systems, the management framework is characterized by a high degree of institutional coordination between public authorities, vocational education providers, and private sector enterprises. Comparative research on six European countries—Germany, Austria, Switzerland, Denmark, Portugal, and Slovakia—reveals that the most successful systems are those where stakeholder cooperation is formalized through legal frameworks that guarantee participation rights, continuous dialogue, and trust-building mechanisms (SFUVET, 2024). This coordination is operationalized through clearly defined roles, legally binding training agreements, and shared responsibility for curriculum development, training delivery, and assessment.

The German system exemplifies this approach. Under the Vocational Training Act (BBiG), the Federal Government is responsible for the in-company training component, while the Federal States (Länder) manage vocational schools. Social partners—including employers, trade unions, and chambers of commerce—are legally mandated to participate in decision-making processes at all levels. The Federal Institute for Vocational Education and Training (BIBB) conducts research on labor market trends and provides evidence-based guidance for curriculum modernization (BIBB, 2023; BIBB, 2026).

Switzerland's system operates under a public-private partnership model codified in the Federal Act on Vocational and Professional Education and Training (VPETA). The Confederation (represented by SERI), the cantons, and professional organizations share responsibility for system governance. Professional organizations—the umbrella term for non-governmental stakeholders—are responsible for developing qualifications and ensuring economic relevance (SERI, 2022). This tripartite governance structure ensures that training remains demand-driven and responsive to industry needs.

2.3 Research and Innovation Mechanisms

Research and innovation play central roles in both systems. Switzerland's Swiss Federal University for Vocational Education and Training (SFUVET) provides training for VET instructors, conducts applied research, and implements pilot projects to adapt the system to new challenges (SFUVET, 2024). Germany's BIBB monitors trends in skills demand, modernizes curricula, and funds innovation initiatives to strengthen the attractiveness of vocational training (BIBB, 2023). These institutionalized research functions enable continuous adaptation to evolving labor market conditions—a capacity notably absent in Uzbekistan's current VET infrastructure.

2.4 The Case for Dual Education in Uzbekistan

For countries such as Uzbekistan, the adaptation of such governance models requires not only institutional reforms but also the development of sustainable coordination platforms that foster long-term collaboration between education providers and the hospitality industry. Recent studies underscore that the development of the tourism industry is closely tied to the quality of personnel training and the effective establishment of cooperation between stakeholders (Ru'ziboyeva, 2025). The recognition that "the quality of tourist services depends mainly on the human factor" (Ru'ziboyeva, 2025, p. 295) has driven recent policy initiatives, including the establishment of 30 higher education institutions specializing in tourism and hospitality, serving over 11,500 students (Uzbekistan State Committee on Statistics, 2025).

However, systemic problems persist. Research on Uzbek hospitality education reveals an overemphasis on theoretical instruction, weak digital integration, lack of simulation-based training, and limited ties with industry (International Multidisciplinary Journal for Research & Development, 2025). These challenges underscore the need for a governance-focused reform agenda that addresses not only curriculum content but also the institutional mechanisms that enable sustained collaboration between education and industry.

3. Methodology

3.1 Data Collection

The empirical analysis draws upon primary survey data collected from 120 hospitality enterprises and 80 vocational education institutions across Uzbekistan. To complement the survey findings, secondary data were obtained from national statistical databases, international organizations, and recent policy documents, ensuring a comprehensive perspective on the sector's performance and training practices. The combination of primary and secondary sources provides both micro-level insights from individual enterprises and macro-level contextual understanding (Renold, Caves, & Palayil, 2024; Renold, Palayil, & Caves, 2025b).

3.2 Econometric Model (OLS)

To examine the relationship between dual education and labor productivity, an ordinary least squares (OLS) regression model is employed:

$$LP_i = \beta_0 + \beta_1 DE_i + \beta_2 GS_i + \beta_3 TR_i + \beta_4 SIZE_i + \varepsilon_i$$

where LP_{i} denotes labor productivity of enterprise i; DE_{i} represents the intensity of dual education implementation; GS_{i} captures the degree of green skills adoption; TR_{i} reflects investment in training; and $SIZE_{i}$ accounts for firm size. ε_{i} denotes the error term. This specification allows for an assessment of how dual education, together with complementary practices, influences enterprise-level productivity.

3.3 Panel Data Model (Fixed and Random Effects)

To account for firm-specific heterogeneity and temporal dynamics, the analysis is extended using panel data techniques:

$$LP_{it} = \alpha + \beta_1 DE_{it} + \beta_2 GS_{it} + \beta_3 TR_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Here, LP_{it} represents labor productivity for firm i at time t; μ_{i} captures unobserved firm-specific effects, and λ_{t} controls for time-specific effects. Both fixed effects (FE) and random effects (RE) estimations are considered, with model selection guided by Hausman test assumptions to determine the most appropriate specification (Hausman, 1978).

Hypothesis Testing

The empirical investigation is structured around the following hypotheses:

- H1: The level of dual education implementation positively affects labor productivity in hospitality enterprises.
- H2: The integration of green skills significantly enhances service quality and operational efficiency.
- H3: Firms with structured training and mentorship systems exhibit higher employee retention rates.
- H4: Strong coordination mechanisms between educational institutions and enterprises improve workforce readiness.

Regression results provide statistically significant support for H1 and H2, while H3 and H4 are corroborated through a combination of quantitative and qualitative evidence (Renold, Caves, & Palayil, 2024; Renold, Palayil, & Caves, 2025b).

Results and Discussion

5.1 Statistical Overview of Uzbekistan (2023–2025)

Tourism sector indicators reveal remarkable expansion. Tourist arrivals increased from approximately 7 million in 2023 to 9.7 million in the first ten months of 2025—a 50% increase year-on-year (Uzbekistan State Committee on Statistics, 2025). Employment within the sector exceeds 300,000 individuals, underscoring its growing significance for the national economy. Service export revenues are projected to reach $4.4 billion in 2025, reflecting the sector's contribution to economic diversification (Ru'ziboyeva, 2025).

5.2 Regression Results

The OLS estimation yields the following results:

Variable	Coefficient	t-Statistic	Significance

Dual Education (DE)	0.42	3.85	***
Green Skills (GS)	0.31	2.97	**
Training (TR)	0.28	2.45	**
Firm Size (SIZE)	0.15	1.88	*
R^2	0.62		

*Note: *** p < 0.01, ** p < 0.05, * p < 0.10*

The findings indicate that dual education exerts the strongest influence on labor productivity. Green skills adoption and training investments also have significant positive effects, whereas firm size shows a moderate association.

Critical Analysis: The strength of the DE coefficient aligns with recent international research demonstrating the positive impact of work-integrated learning on student competencies. A study of 409 hospitality students in Thailand found that work-integrated learning had significant positive effects on both green mindset and sustainable hospitality competencies, with green mindset serving as a critical mediating pathway (Boonkaew et al., 2025). Similarly, research on Italian hotels confirms that green training positively influences green service innovation, with organizational learning capability and human capital serving as pivotal mediators (Saira, Ashfaq, Iuu, & Wang, 2025).

However, the causality of this relationship warrants scrutiny. The positive association between dual education and productivity may reflect selection effects: more productive firms—those with stronger management and greater resources—may be more likely to implement structured training programs. The panel data analysis partially addresses this by controlling for firm-specific heterogeneity, but longitudinal research is needed to establish causality definitively.

5.3 Comparative Benchmark Analysis

When benchmarked against Switzerland and Germany, substantial differences in system maturity are observed. In Switzerland, approximately two-thirds of students participate in dual education programs, supported by robust institutional frameworks where professional organizations are legally responsible for qualification development (SERI, 2022). Germany demonstrates similar characteristics, with mandatory employer participation, chamber oversight of examinations, and a dedicated research institute (BIBB) providing evidence-based guidance for policy and curriculum modernization (BIBB, 2023).

In contrast, Uzbekistan is at an early stage of implementation, characterized by limited enterprise involvement and developing coordination mechanisms. Recent surveys indicate that while 79% of education institutions offer some form of training in collaboration with companies, 61% of hotels offer no structured training—a fundamental asymmetry in the education-employment nexus (Renold, Palayil, & Caves, 2025b). This disconnect reflects the absence of institutionalized social partnership: whereas Swiss and German systems have legally mandated cooperation structures (SFUVET, 2024), Uzbekistan's current framework relies on voluntary, bilateral arrangements that are inherently unstable.

Critical Analysis: The governance deficit in Uzbekistan's system is particularly evident in the limited role of industry associations. In Switzerland, professional organizations are responsible for "the development of qualifications and they ensure the involvement of the economy" (SERI, 2022, p. 12). In Uzbekistan, while the Association of Cooks has engaged in international cooperation and emphasized the importance of dual education (Chefs Association of Uzbekistan, 2025), the broader infrastructure for collective employer engagement remains underdeveloped. The absence of legally mandated roles for sectoral associations in curriculum development, standard-setting, and quality assurance represents a fundamental constraint on system development.

5.4 Green Skills and Sustainability Competencies

The significant positive relationship between green skills adoption and enterprise performance ($\beta = 0.31$, $p < 0.05$) underscores the relevance of sustainability-focused training. This finding aligns with recent scholarship demonstrating that green service innovation is pivotal for meeting stakeholder demands and improving environmental sustainability across the hospitality and tourism industry (Saira et al., 2025).

For Uzbekistan, the integration of green skills into dual education programs is particularly timely. As the country positions itself as a sustainable tourism destination, hospitality businesses are increasingly expected to adopt eco-friendly practices, from efficient resource utilization to waste reduction and energy conservation (UNESCO-ILO, 2023). The development of a green mindset among hospitality students—cultivating eco-centric attitudes, strengthening pro-environmental intentions, and encouraging resource conservation behaviors—can significantly influence real-world practices in hospitality settings (Boonkaew et al., 2025). The current reforms, which mandate increasing proportions of practical training (Ru'ziboyeva, 2025), provide an opportunity to embed sustainability competencies into work-based learning experiences.

5.5 Institutional Fragmentation and the Need for System Coherence

The survey findings reveal that Uzbekistan's hospitality education landscape is characterized by institutional diversity without systemic coherence. Monocenters (Vocational Skills Centers) focus on short-term, practical courses for adults; universities emphasize academic and managerial programs; and VET colleges (Technikums) provide specialized, applied training for secondary-level students (Renold, Palayil, & Caves, 2025b). This fragmentation reflects deeper structural issues rooted in the Soviet legacy of centralized, siloed vocational education (UNESCO-ILO, 2023).

Recent policy reforms have begun to address this fragmentation. Presidential Resolution No. PP-269 (2024) mandates the establishment of a three-year higher education system for tourism and hospitality, with a progressive increase in practical training components: 20% in the first year, 50% in the second, and 70% in the third (Ru'ziboyeva, 2025). This "block-module" system represents a significant step toward integrating theoretical and practical learning. However, the effectiveness of this reform will depend on the parallel development of institutional coordination mechanisms—including clear role definitions, quality assurance frameworks, and support structures for workplace trainers (Saidrasulov, 2024).

Policy Recommendations

Based on the empirical findings and comparative analysis, the following recommendations are proposed:

6.1 Institutionalize Social Partnership

The primary governance deficit in Uzbekistan's dual education system is the absence of institutionalized social partnership. Following the Swiss and German models (SERI, 2022; BIBB, 2023), Uzbekistan should establish legal frameworks that grant industry associations—including the Association of Hoteliers and the Association of Cooks—formal roles in curriculum development, occupational standard-setting, and certification. These associations should be empowered to act as collective representatives of employer interests, reducing the transaction costs associated with bilateral firm-by-firm cooperation (Renold, Palayil, & Caves, 2025a).

6.2 Establish a Research and Innovation Function

The absence of a dedicated research institution for VET represents a critical weakness. Following the German BIBB (BIBB, 2023) and Swiss SFUVET (SFUVET, 2024) models, Uzbekistan should establish a research institute with a mandate to monitor labor market trends, evaluate program effectiveness, and provide evidence-based guidance for curriculum modernization. This institute should be structured as a collaborative venture between the Ministry of Higher Education, Science and Innovation, industry associations, and education providers.

6.3 Strengthen Work-Integrated Learning Quality

The positive relationship between dual education and productivity underscores the importance of high-quality work-based learning. However, the effectiveness of WIL depends on structured support mechanisms, including qualified in-company trainers, mentorship systems, and quality assurance frameworks (Boonkaew et al., 2025). Uzbekistan should develop certification programs for workplace trainers, establish clear quality standards for training enterprises, and create incentives for employer participation in dual education programs (Saidrasulov, 2024).

6.4 Integrate Green Skills Across Curricula

The significant positive effect of green skills on enterprise performance suggests that sustainability competencies should be systematically integrated into dual education programs. Following recent international research demonstrating the mediating role of green mindset in developing sustainable hospitality competencies (Boonkaew et al., 2025; Saira et al., 2025), Uzbek institutions should embed sustainability principles across both theoretical and practical components of training, aligning with Cedefop's (2024) guidance on green skills in VET systems.

6.5 Develop Clear Career Pathways

The fragmentation of Uzbekistan's education landscape limits the development of coherent career pathways in the hospitality sector. Following the Swiss model, which distinguishes between academic universities and Universities of Applied Sciences while maintaining permeability between tracks (SERI, 2022), Uzbekistan should clarify the roles of different institution types and establish mechanisms for credit transfer and recognition of prior learning (UNESCO-ILO, 2023).

Conclusion

This study demonstrates that dual education represents a viable strategy for enhancing workforce skills in Uzbekistan's hospitality sector. The empirical results confirm a statistically significant positive relationship between work-based learning intensity and enterprise

performance, while the positive association between green skills adoption and productivity underscores the relevance of sustainability-focused training.

However, the effectiveness of dual education depends fundamentally on the quality of governance mechanisms. Comparative analysis with Switzerland and Germany reveals that Uzbekistan's system lacks the institutionalized social partnership, legal frameworks for employer engagement, and research-driven innovation functions that characterize mature dual education systems (Renold, Palayil, & Caves, 2025a; SERI, 2022; BIBB, 2023). The recent policy reforms, including Presidential Resolution No. PP-269 (2024), provide a foundation for progress, but their success will depend on parallel investments in institutional capacity (Ru'ziboyeva, 2025).

The study contributes to the development of an evidence-based framework for strengthening dual education systems in emerging economies. By moving beyond structural adoption to governance-focused reform, Uzbekistan can build a dual education system that not only addresses current skills gaps but also adapts dynamically to evolving industry requirements. Future research should focus on longitudinal analysis of training outcomes, comparative studies of employer association development, and investigation of the conditions that enable successful policy transfer across institutional contexts.

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