

# Internationalization Motives in Chinese Higher Vocational Education: A Second-Order Measurement Model and Institutional Variations

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## ABSTRACT

Higher Vocational Education in China has expanded rapidly, with internationalization becoming a key strategy to align institutions with national goals and enhance students' global skills. However, the underlying motives for internationalization in this sector remain poorly understood. This quantitative study investigates the structure and variation of institutional internationalization motives in Chinese higher vocational institutions. Data were collected through a structured questionnaire from 376 administrators in international affairs offices across four regions: East, Central, South, and Southwest China. The survey evaluated four motive dimensions: social/cultural, political, economic, and academic, each represented by four items. Confirmatory Factor Analysis supported a second-order construct, with all four dimensions contributing significantly to the overarching institutional motive. Reliability was high for all dimensions, with Cronbach's  $\alpha$  values ranging from 0.844 to 0.912, and convergent validity was established. Descriptive analysis indicated that political and academic motives were most prominent. Regional comparisons showed that institutions in East and South China demonstrated relatively stronger political and economic motives. Institutional-level comparisons revealed that designated institutions under the High-level Higher Vocational Institutions and Majors with Chinese Characteristics Initiative exhibited higher social/cultural, economic, and academic motives than non-designated institutions. These findings provide empirical evidence that internationalization motives in Chinese higher vocational institutions form a cohesive, multidimensional structure shaped by institutional, regional, and organizational factors. The study offers quantitative insights into how motives are measured and organized, thereby guiding strategies for developing balanced, sustainable, and contextually appropriate internationalization practices in Technical and Vocational Education and Training (TVET).

**Keywords:** Higher Vocational Education, Internationalization Motives, Second-Order Measurement Model, Institutional Level Differences, Regional Variations

## INTRODUCTION

The global development of Technical and Vocational Education and Training (TVET) has grown from small collaborations to more integrated, strategic practices within institutions (UNESCO, 2022). In response to digital transformation, green economic transitions, and shifting global skill demands, TVET systems are increasingly expected to support industrial upgrading and workforce adaptability through international cooperation (McGrath & Yamada, 2023; OECD, 2023; Yang & Wu, 2024). As a result, international engagement at Higher Vocational

Institutions (HVIs) now goes beyond student mobility and academic partnerships to include recognition of qualifications, joint development of occupational standards, cross-border industry cooperation, and participation in governance platforms. Unlike research universities, which often focus on prestige and research competitiveness, HVIs typically operate within coordinated frameworks aligned with national industrial strategies (Li & Pilz, 2023; OECD, 2023). This structural difference suggests that the motives driving Higher Vocational Education (HVE) internationalization may differ from those in comprehensive higher education, although whether this represents a fundamental change in institutional motives remains empirically unclear.

In higher education research, Knight's (2004, 2008) four-dimensional framework, which includes political, economic, academic, and socio-cultural motives, has been a key analytical tool. It views these motives as forces that influence strategy, resource allocation, and institutional behavior. However, recent HVE studies suggest that HVIs operate under different institutional logics characterized by increased government involvement, stronger ties to industry, and more coordinated policy frameworks (Mende et al., 2025; Zoellner, 2025). These features suggest that the structural relevance of the four-dimensional framework may vary in highly coordinated institutional settings, where stronger governance arrangements can shape the relative importance and interactions of its dimensions.

While recent scholarship has examined TVET internationalization through comparative and governance lenses (Mende et al., 2025; Okoye et al., 2025), there is still limited systematic empirical testing of motive structures at the organizational level. Most studies focus on policy developments, transfer models, or cross-national trends, with few examining whether the four motives constitute a stable latent construct within vocational systems (Zehao et al., 2025). Additionally, the idea that institutional environments might create hierarchical or patterned motive configurations has rarely been tested with structural modeling.

China provides a particularly relevant setting for studying this issue. Over the past decade, the growth of China's HVE sector has been closely linked to the country's industrial upgrades and regional development initiatives (Zong, 2024). Efforts toward internationalization are embedded within government-led frameworks that connect HVIs with regional industry networks and cross-border platforms. In these governance contexts, motive structures are likely influenced by institutional factors, regional openness, and organizational capacity, making China an ideal environment to assess the relevance of existing internationalization theories. Although earlier research has outlined the pathways and operational models of Chinese HVE internationalization (Lei et al., 2023; Lou & Zhu, 2025), there is limited systematic empirical evidence regarding how institutional motives are organized.

This study investigates senior administrators in international affairs offices at public HVIs across Southern China, gathering 376 valid responses from 286 institutions. As key decision-makers, respondents offer organization-level insights into the motives behind institutional internationalization. Using confirmatory factor analysis (CFA) and group comparison methods, the study assesses the measurement structure of the four-dimensional motive framework and examines differences across various institutional levels and regions. By confirming the configuration of internationalization motives within a policy-coordinated TVET system, it reevaluates the relevance of a commonly used internationalization framework in governance-focused TVET systems.

## LITERATURE REVIEW

### Strategic Reconfiguration of Motives in the Internationalization of TVET

Recent research shows that the global approach to TVET internationalization is undergoing significant change (UNESCO-UNEVOC, 2024; Zong, 2024). Originally, the emphasis was on higher education activities like academic exchanges, student mobility, and cultural programs. However, evidence now points to a shift away

from these traditional areas. Instead, internationalization is increasingly seen as a way to strengthen systems, align industries, and modernize governance by increasing the supply of skills, standardizing qualifications, coordinating supply chains, and enhancing institutional management (Rajamanickam et al., 2024; Usher, 2025). This shift reflects a broader view that considers TVET a key tool for economic restructuring rather than just an academic activity (Wang & Xia, 2025).

A key aspect of this transformation involves integrating economic, governance, and capability-building goals within international cooperation. Unlike earlier mobility-focused approaches, modern strategies typically include developing occupational standards, co-certification systems, transnational training programs, and engaging in cross-border regulatory platforms (Bohlinger et al., 2024; Li & Pilz, 2023; Olivier et al., 2024). These efforts simultaneously generate revenue, ensure quality, and promote knowledge sharing, merging academic and economic motives. Additionally, regulatory coordination and intergovernmental agreements increasingly support these initiatives, embedding internationalization into formal governance structures rather than treating it as a voluntary institutional activity.

While university internationalization often emphasizes reputation and research competitiveness, HVIs go abroad to strengthen industry ties, attract external resources, make curricula more relevant, and increase adaptive capacity in changing labor markets (Y. Chen et al., 2025; Li & Huang, 2024). In this dynamic setting, motives are less like isolated categories and more like interconnected parts of strategic repositioning. Political coordination, economic integration, and institutional capacity-building become increasingly linked to broader reform efforts.

Cross-national evidence demonstrates that the balance between political and economic motives varies among countries (Kapfudzaruwa, 2025). However, this variation occurs within a larger global trend in TVET internationalization. Rather than viewing motives as fixed preferences shaped solely by context, recent developments show that the internationalization of TVET systems is a dynamic process characterized by ongoing structural changes (Lou & Zhu, 2025). These adjustments influence the significance and interplay of various motives in response to economic reforms and governance updates.

Overall, these global changes suggest that describing internationalization in TVET solely as the addition of political, economic, academic, and socio-cultural aspects is no longer adequate. It now involves a process of reordering where motives are strategically reassembled and aligned with national development goals. Although Knight's (2004, 2008) four-dimensional framework remains influential, the evolving strategic role of TVET raises the possibility that the balance among these dimensions may change under current transformations. Addressing this requires moving beyond simple descriptions of change to empirically analyzing their structural stability.

### **Institutional and Regional Differences in the Internationalization of TVET**

Building on the earlier discussion of global strategic reconfiguration, the internationalization of TVET must be viewed as varying across different institutional settings. While global skills agendas set broad normative directions, the specific ways and priorities of international engagement are shaped by national governance, regulatory traditions, and industrial structures. As a result, differences in motive patterns are not random but are shaped by underlying structures. These variations appear not only between countries but also across different institutional levels and regions within the same country (Li & Pilz, 2023). Rather than being fixed categories, motives in TVET are shaped by particular institutional frameworks that determine organizational incentives, constraints, and strategic choices.

In advanced industrial economies, the internationalization of TVET often occurs through the export of established standards, the spread of quality assurance systems, and the commercialization of vocational

education services (Kassberg & Dornberger, 2022; Peters, 2021). These systems usually have mature regulatory frameworks and well-known training models, allowing them to exert institutional influence outward. Research on the German dual system shows how cooperation in vocational qualifications can simultaneously support economic goals and strengthen institutional legitimacy abroad (Kassberg & Dornberger, 2024). In these contexts, economic motives are closely linked with political and regulatory aims. Internationalization promotes market growth, regulatory alignment, and systemic credibility. Here, abundant resources and institutional maturity facilitate closer integration of motives, often leading to cohesive rather than scattered arrangements.

In contrast, developing and transitional economies often pursue internationalization mainly to upgrade institutions and build capacity (Niwamanya et al., 2025; The World Bank et al., 2023). Instead of exporting stabilized systems, these institutions seek partnerships to improve governance, update curricula, and align training with global standards. They utilize participation in international networks, adoption of qualification frameworks, and regional cooperation as means for internal reform. Evidence from Southeast Asia shows that international collaboration primarily promotes organizational learning and system restructuring rather than immediate market profit (Thi et al., 2023). In these cases, goals related to capacity development and institutional strengthening tend to be more influential than revenue-oriented aims.

Regional governance structures further distinguish differences. In Europe, supranational qualification frameworks and coordinated mobility regimes formalize cross-border cooperation, integrating internationalization into rule-based, standardized systems (Kassberg & Dornberger, 2024). In contrast, in parts of Asia and other regions, international engagement often occurs within industrial supply chains, bilateral agreements, and strategic economic corridors (Schröder et al., 2024; Zong, 2024). These governance models create unique incentive systems that influence how motives are prioritized and combined. When regulatory harmonization is strong, political and academic motives tend to align; when industrial integration dominates, economic factors become more prominent.

Across various institutional settings, three main structural patterns emerge. First, internationalization motives are now incorporated into broader governance frameworks instead of functioning as independent initiatives. Second, capability development remains a key organizing principle, though its importance varies with resource availability and regulatory development. Third, the prominence and interconnectedness of political, economic, academic, and socio-cultural motives differ systematically across different contexts. These patterns suggest that institutional structures shape motive priorities and may form layered configurations rather than uniform ones.

Compared to other systems, China's TVET system provides a particularly instructive example. It features strong government coordination alongside notable regional disparities, creating conditions where institutional embeddedness and resource stratification coexist. This environment allows for the examination of how governance levels and regional differences influence motive organization within institutions. Although previous research has described China's policy frameworks and operational strategies in HVE, few studies have empirically investigated whether structural differences lead to observable variations in underlying motive patterns (P. Chen et al., 2024; Li & Pilz, 2023; Zong, 2024). Understanding this is essential to determine whether motive shifts are merely descriptive or fundamentally embedded in institutional hierarchies.

### **The Internationalization of Chinese HVE within a Policy-Embedded System**

In the context of internationalizing HVE, China presents a unique example characterized by strong policy integration and centralized oversight. Unlike market-driven approaches, in which institutions independently seek international partnerships to boost competitiveness or secure funding, China's HVE internationalization is deeply connected to national development strategies and industrial transformation efforts (Gan, 2021; Hu & Xie, 2019; Ma et al., 2025). Over the past decade, HVE reforms have been intentionally aligned with broader

initiatives focused on industrial upgrading, regional economic integration, and outward-facing collaboration. In this framework, internationalization functions less as an independent institutional choice and more as a governance tool embedded in government-led modernization efforts.

This policy-embedded framework influences both the reasoning behind motives and their setup. On a macro scale, national strategies focus on coordinating industrial chains, developing technical standards collaboratively, providing cross-border training services, and aligning with global qualification systems (Lemon & Jardine, 2025). Engaging in these initiatives offers institutions not just economic benefits but also boosts their formal legitimacy and strategic position within the national education landscape. In environments driven by policy, institutions often secure funding, obtain project approval, and receive symbolic recognition by adhering to national and internationalization policies. As a result, political and economic motives are often closely linked and intertwined, rather than entirely separate. Internationalization thus serves both as a response to government expectations and as a means of acquiring resources.

At the meso-organizational level, differentiation is based on institutional status and capacity. Institutions involved in major national development projects, such as the High-level Higher Vocational Education Institutions and Majors with Chinese Characteristics Initiative, generally receive greater financial support, stronger industry connections, and enhanced reputational capital (P. Chen et al., 2024; Si, 2023). These advantages expand their strategic options and make it easier to pursue various internationalization goals, including academic partnerships, curriculum development, and brand building. Conversely, institutions with fewer resources may view internationalization primarily as a means of meeting policy requirements or participating selectively in externally funded projects. Research in HVE shows that organizational resources and capabilities play a key role in shaping both the scope and nature of international engagement (Kassberg & Dornberger, 2022; Li & Pilz, 2023). In China's policy-embedded environment, this institutional stratification likely leads to distinct motives, especially regarding the relative importance of economic versus academic factors.

Regional disparities further complicate this setup (Han et al., 2023; Wang & Xia, 2025). China's coastal areas, known for their greater economic openness and industrial internationalization, provide HVIs with better access to cross-border business networks and international cooperation platforms. Conversely, HVIs in central and western regions often face more limited resources and unique capacity-building challenges. These regional differences imply that socio-cultural and academic motives are influenced by local openness, while economic motives may be linked to regional industrial integration. Meanwhile, political motives tend to be more stable across regions, as they are rooted in national governance structures.

Overall, the Chinese case suggests that the traditional four-motive framework might not function uniformly in policy-embedded systems. Instead of being separate, stable categories, political, economic, academic, and socio-cultural motives could be hierarchically arranged and interconnected within institutions. Political motives might serve as a foundational, system-wide element driven by state coordination, while economic and academic motives fluctuate with institutional rankings and resource availability. Socio-cultural motives may be influenced by regional exposure and the level of external engagement. This setup positions China as a key context for testing whether motive structures remain stable under strong institutional influence or undergo systematic reordering. A large-scale empirical study of HVIs provides an opportunity to validate the classical motives framework and examine how institutional hierarchy and regional differences shape motive priorities within a policy-embedded governance system.

### **Reconfiguration of Motives from an Organizational Theory Perspective**

As TVET becomes more institutionalized and internationally more strategically differentiated, simply describing motives is insufficient to explain differences among institutions. Although the traditional four-dimensional

framework offers a useful typology, it does not clarify why certain motives become more prominent in specific structural conditions. To address this limitation, recent TVET research increasingly applies organizational theory to understand internationalization as a result of interactions among institutional environments, resource structures, and organizational capabilities (Kassberg & Dornberger, 2022; Li & Pilz, 2023). From this perspective, motives are viewed not as fixed preferences but as orientations shaped by external pressures and internal capacities, both of which are influenced by structural factors.

Institutional theory provides the initial explanatory layer by emphasizing legitimacy-seeking behavior within rule-based environments (Hsu et al., 2018). Organizations embedded in governance-oriented systems operate under normative and regulatory expectations that influence strategic choices. In areas with strong policy coordination, participation in national strategies, international cooperation frameworks, and state-led initiatives becomes a means of gaining recognition and stability. In such contexts, political motives go beyond simple symbolic alignment and are structurally integrated into organizational actions. They serve as mechanisms through which institutions attain legitimacy and maintain systemic positions, reflecting a relatively stable presence of political motives at the macro level.

Resource dependence theory offers a second analytical perspective by emphasizing an organization's reliance on external resource networks (Kholmuminov et al., 2019). HVIs depend on government funding, industry partnerships, and collaborative platforms to maintain financial stability and foster strategic growth. In this context, internationalization seeks to access resources, build networks, and strengthen institutional resilience. Kassberg & Dornberger (2022) indicate that institutions with stronger industry ties and larger resource endowments are better equipped to engage in a diverse range of international activities. In such environments, economic and academic motives are often supported by material capacity and partnership opportunities. Conversely, institutions with fewer resources may adopt more compliance-focused or project-based approaches to international involvement. Therefore, resource structures influence not only participation levels but also the importance of different motives.

A third aspect of the explanation concerns organizational dynamic capabilities. Aside from institutional pressures and resource conditions, the ability of institutions to adapt, coordinate, and innovate internally influences how they pursue internationalization (Rajamanickam et al., 2024). Skills such as curriculum renewal, standards alignment, cross-border project management, and intercultural coordination determine whether internationalization is integrated as a strategic goal or implemented reactively. Institutions with stronger dynamic capabilities are more likely to view international engagement as a proactive strategy for competitive advantage and growth. Conversely, those with weaker capabilities may respond selectively or defensively. These differences influence how academic and economic motives are balanced and how multiple motives are internally coordinated.

Taken together, these three perspectives create a layered explanatory model. Institutional environments establish the legitimacy that supports political motives. Resource configurations influence the feasibility and scope of economic and academic engagement. Organizational capabilities mediate the translation of these motives into coherent strategies. Instead of functioning independently, motive dimensions interact within a structured system of constraints and opportunities. Political motives provide overall direction, economic motives guide resource mobilization, and academic motives reflect developmental goals. Meanwhile, socio-cultural motives may vary depending on institutional openness and exposure.

Notably, this framework does not assume motives are inherently hierarchical or consistently ordered across various contexts. Instead, it indicates that legitimacy pressures, resource availability, and differences in capability influence the importance and interdependence of motive dimensions. In governance-heavy systems, some motives may carry more weight structurally, while others rely on institutional capacity. Therefore,

analyzing TVET internationalization requires more than simple classification; it calls for empirically examining how these proposed layers actually appear in latent motive patterns. Quantitative structural testing is needed to determine whether these interacting mechanisms produce consistent patterns or differ across various institutional levels.

### **Research Gaps and an Integrated Analytical Framework**

The earlier review shows that scholarship on TVET internationalization has shifted from activity-focused descriptions to more structural and governance-related interpretations (Gessler et al., 2021). Scholars now more often recognize that factors like institutional embeddedness, regulatory logics, and organizational capacity influence international involvement (Li & Pilz, 2023). However, systematic empirical research into the underlying motive structures remains limited (Scheuch et al., 2021). While policy analyses and comparative case studies provide insights into institutional pathways, they rarely assess whether the assumed motive dimensions serve as coherent, structurally stable constructs within organizations.

The first issue concerns validation through methodological strength. Knight's four-dimensional framework has long been a key model for internationalization in higher education, but its structural validity within governance-heavy vocational systems has not been empirically tested. In policy-driven environments where internationalization aligns with state strategies and industrial growth, motive dimensions may not operate independently or equally; some may be dominant, while others serve as secondary motives. Without structural modeling, it is unclear whether the classical typology remains stable or shifts under strong institutional coordination.

The second gap involves how institutional levels differ structurally. Factors like resource endowments, industry integration, and governance influence the scope and nature of international involvement (Kassberg & Dornberger, 2022). However, few studies explore whether these factors modify the internal organization of motives. Regional openness and embeddedness can affect participation and alter the significance and interplay of motives. Therefore, comparing empirical data across different institutional groups is essential to understand if observed differences are due to fundamental structural variations.

The third gap is especially prominent in the Chinese context. Research on the internationalization of Chinese HVE mostly remains descriptive, emphasizing policy shifts and governance reforms. Few studies investigate whether internal motive structures display consistent patterns across different institutions. China's governance-centered system, characterized by strong state coordination and regional differences, offers a crucial test case. Without concrete structural evidence, it is uncertain whether policy alignment consolidates political motives, strengthens links among various dimensions, or generates hierarchies among institutional levels.

Addressing these gaps requires an integrated framework that views internationalization motives as a multidimensional latent structure. This study extends the traditional four-dimensional model by integrating motives within institutional, resource-based, and capability-driven mechanisms, linking motive aspects to organizational behavior influenced by structural factors. Using confirmatory factor analysis (CFA) and group comparisons, it evaluates the model's structural validity and robustness across various institutional tiers and regional differences in Chinese HVIs.

By doing so, the study goes beyond simple typological descriptions by using a questionnaire to test whether the classical model remains consistent, undergoes hierarchical reorganization, or varies across institutional levels, thereby advancing internationalization theory by evaluating its structural resilience and contextual flexibility.

## METHODOLOGY

This study applies Knight's four-dimensional framework of internationalization motives within the institutional context of China's HVE system. A quantitative research design was used to examine the structure of institutional internationalization motives. Data were collected through a structured questionnaire, and CFA in AMOS 26.0 was employed to evaluate construct validity, internal reliability, and the coherence of the proposed motive framework.

The questionnaire consisted of two sections. The first section gathered background information about institutions and respondents, including geographic region, institutional level, institution type, position, and years of experience. The second section included 16 items measuring institutional internationalization motives, with four items per first-order dimension: political, economic, academic, and socio-cultural. Respondents rated each item on a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree), with higher scores indicating greater perceived importance of the respective motive.

Prior to the main survey, a pilot test was conducted to assess the instrument's reliability. Results indicated strong internal consistency, with Cronbach's  $\alpha$  for the overall 16-item scale at 0.882, and subscale coefficients ranging from 0.789 to 0.906, exceeding the recommended threshold of 0.70. These results confirmed the scale's suitability for the main survey and subsequent CFA.

The formal survey focused on public HVIs across four regions in mainland China: East, Central, South, and Southwest. Purposive sampling selected institutions actively engaged in international cooperation, ensuring respondents possessed sufficient knowledge of organizational practices and strategic priorities related to internationalization. The final dataset included 376 valid responses from 286 institutions, distributed regionally as follows: East China ( $n = 154$ , 40.96%), Southwest China ( $n = 83$ , 22.07%), Central China ( $n = 73$ , 19.41%), and South China ( $n = 66$ , 17.55%), enabling cross-regional comparisons. At the institutional level, 155 respondents (41.2%) represented institutions designated under the High-level Higher Vocational Institutions and Majors with Chinese Characteristics Initiative (Level A), while 221 respondents (58.8%) came from non-designated institutions (Level B), allowing examination of differences related to institutional stratification.

Respondents included directors, deputy directors, or senior administrators responsible for international affairs, providing organization-level insights into institutional motives. By explicitly linking each first-order dimension to four survey items, the methodology ensures that subsequent analyses, including descriptive statistics, ANOVA, t-tests, and CFA, are grounded in measurable survey data, enabling transparent interpretation of results and adherence to quantitative research standards.

## FINDINGS

### Descriptive Statistics of Motive Items

Table 1 presents the descriptive statistics for the 16 motive items and the four main motive dimensions. Overall, item means range from 5.141 to 6.356 on a seven-point scale, indicating generally strong institutional support for internationalization motives. According to Kline (2005), absolute skewness values below 2 and kurtosis values below 7 indicate acceptable normality.

As shown in Table 1, within the social/cultural motive dimension (MOSO), item means range from 5.891 to 6.285, with MOSO04 recording the highest value. For political motives (MOPO), the means range from 6.255 to 6.356, showing consistently high endorsement across items. In the economic motive dimension (MOEC), the

means range from 5.141 to 6.189, indicating greater variation than in other dimensions. For academic motives (MOAC), the means range from 5.976 to 6.287, also reflecting strong agreement among respondents.

At the construct level, the overall motive construct (MOTI) reports a high average score ( $M = 6.071$ ). Among the four dimensions, political motives show the highest mean ( $M = 6.293$ ), followed by academic motives ( $M = 6.109$ ) and social/cultural motives ( $M = 6.098$ ). Economic motives have the lowest mean ( $M = 5.783$ ), though it remains above the midpoint of the scale.

Standard deviations across items remain below 0.08, indicating limited dispersion in responses. Skewness values are negative across all items, and kurtosis values fall within acceptable thresholds, supporting the assumption of univariate normality.

Table 1: Descriptive Statistics of Motive Items

Items	Mean	SD	Skewness	Kurtosis
MOSO01	6.130	0.045	-1.813	6.738
MOSO02	6.085	0.054	-1.660	3.999
MOSO03	5.891	0.058	-1.287	2.159
MOSO04	6.285	0.045	-1.839	5.556
MOPO05	6.258	0.051	-1.848	4.875
MOPO06	6.255	0.045	-1.866	6.775
MOPO07	6.356	0.042	-1.850	6.009
MOPO08	6.301	0.043	-1.227	1.527
MOEC09	6.077	0.050	-1.367	3.163
MOEC10	6.189	0.047	-1.746	5.225
MOEC11	5.726	0.064	-0.932	0.327
MOEC12	5.141	0.074	-0.350	-0.768
MOAC13	5.976	0.059	-1.472	2.656
MOAC14	6.154	0.053	-1.842	4.870
MOAC15	6.019	0.053	-1.522	3.499
MOAC16	6.287	0.047	-1.870	5.540
MOSO	6.098	0.044	-1.301	3.539
MOPO	6.293	0.040	-1.536	3.615

MOEC	5.783	0.049	-1.008	2.021
MOAC	6.109	0.047	-1.517	3.701
MOTI	6.071	0.038	-1.130	1.930

Note: MOTI = Overall Motive Construct; MOSO = Social/cultural Motive; MOPO = Political Motive; MOEC = Economic Motive; MOAC = Academic Motive; SD=Standard Deviation.

Overall, the descriptive statistics indicate strong institutional support for internationalization across all four motive dimensions, with political motives showing the highest endorsement and economic motives displaying relatively greater variation.

### Regional Variations in Internationalization Motives

A one-way ANOVA was conducted to test whether internationalization motives differ across four regions of China: East, Central, South, and Southwest. Table 2 presents the ANOVA results for regional variations in the four motive dimensions: social/cultural (MOSO), political (MOPO), economic (MOEC), and academic (MOAC), and the overall motive construct (MOTI).

As shown in Table 2, statistically significant regional differences were identified for political motives (MOPO) ( $F = 3.47, p = .016$ ) and economic motives (MOEC) ( $F = 3.37, p = .019$ ). In contrast, no significant regional differences were found for social/cultural motives (MOSO), academic motives (MOAC), or the overall motive construct (MOTI) ( $p > .05$ ).

Post hoc comparisons using Scheffé’s test indicate that institutions in South China report significantly higher political motive scores than those in Southwest China. For economic motives, institutions in East China show significantly higher mean scores than those in Central China. No other pairwise differences are statistically significant.

Table 2: ANOVA Results for Regional Variations in Motive Dimensions

Dimensions	Region	Mean	SD	F	p	Scheffe
MOSO	East China	6.18	.79	.94	.420	
	Central China	6.00	.84			
	South China	6.08	.75			
	Southwest China	6.04	1.03			
MOPO	East China	6.25	.81	3.47	.016	South China > Southwest China
	Central China	6.35	.77			
	South China	6.53	.59			
	Southwest China	6.14	.84			
MOEC	East China	5.93	.86	3.37	.019	East China > Central China

	Central China	5.51	1.09			
	South China	5.75	.86			
	Southwest China	5.78	1.03			
MOAC	East China	6.20	.87	1.54	.204	
	Central China	5.96	.96			
	South China	6.01	.83			
	Southwest China	6.14	.98			
MOTI	East China	6.14	.73	1.20	.311	
	Central China	5.96	.75			
	South China	6.09	.61			
	Southwest China	6.02	.85			

Note: MOTI = Overall Motive Construct; MOSO = Social/cultural Motive; MOPO = Political Motive; MOEC = Economic Motive; MOAC = Academic Motive; SD=Standard Deviation.

Although the mean values of social/cultural and academic motives vary slightly across regions, these differences are not statistically significant. Overall, the results suggest that regional differences in internationalization motives are limited, with only the political and economic dimensions showing variation. In contrast, the other motive dimensions remain relatively consistent across regions.

### Institutional Level Differences in Internationalization Motives

To examine whether internationalization motives differ across institutional levels, independent-samples t-tests were conducted to compare institutions designated under the High-level Higher Vocational Institutions and Majors with Chinese Characteristics Initiative (Level A) with non-designated institutions (Level B). The results are presented in Table 3.

As shown in Table 3, for the social/cultural motive (MOSO), Level A institutions reported a higher average score ( $M = 6.24$ ,  $SD = 0.87$ ) than Level B institutions ( $M = 6.00$ ,  $SD = 0.84$ ), and the difference was statistically significant ( $t = 2.70$ ,  $p = .007$ ).

Similarly, for the economic motive (MOEC), Level A institutions had a higher mean ( $M = 5.91$ ,  $SD = 0.88$ ) than Level B institutions ( $M = 5.69$ ,  $SD = 1.00$ ), with the difference statistically significant ( $t = 2.19$ ,  $p = .029$ ). A comparable pattern was observed for the academic motive (MOAC), where Level A institutions reported a mean score of 6.25 ( $SD = 0.91$ ), while Level B institutions reported a mean of 6.01 ( $SD = 0.89$ ); this difference was also statistically significant ( $t = 2.61$ ,  $p = .010$ ).

In contrast, no statistically significant difference was found for the political motive (MOPO) ( $p > .05$ ), although Level A institutions reported a slightly higher mean score ( $M = 6.33$ ) than Level B institutions ( $M = 6.26$ ).

For the overall motive construct (MOTI), Level A institutions again scored higher ( $M = 6.18$ ,  $SD = 0.72$ ) than

Level B institutions ( $M = 5.99$ ,  $SD = 0.74$ ), with the difference being significant ( $t = 2.50$ ,  $p = .013$ ).

Table 3: t-test Results for Institutional Level Differences in Motive Dimensions

Dimensions	Level	Mean	SD	<i>t</i>	<i>p</i>
MOSO	Level A	6.24	.87	2.70	.007
	Level B	6.00	.84		
MOPO	Level A	6.33	.75	.82	.410
	Level B	6.26	.80		
MOEC	Level A	5.91	.88	2.19	.029
	Level B	5.69	1.00		
MOAC	Level A	6.25	.91	2.61	.010
	Level B	6.01	.89		
MOTI	Level A	6.18	.72	2.50	.013
	Level B	5.99	.74		

Note: Level A = Institutions designated under the High-level Higher Vocational Institutions and Majors with Chinese Characteristics Initiative; Level B = Non-designated Institutions under the Initiative; MOSO=Social/Cultural Motive; MOPO=Political Motive; MOEC=Economic Motive; MOAC= Academic Motive; MOTI=Overall Motive; SD=Standard Deviations.

Overall, the results indicate that institutions designated under the High-level Higher Vocational Institutions and Majors with Chinese Characteristics Initiative (Level A) tend to report higher levels of internationalization motives in social/cultural, economic, and academic dimensions, as well as in the overall motive construct. In contrast, political motives remain relatively consistent across institutional levels.

### Convergent Validity of First-Order Motive Dimensions

This section evaluates the first-order measurement model of the internationalization motive construct. The four dimensions of motives were assessed individually to examine their reliability and convergent validity prior to testing the second-order model. Table 4 shows the results of first-order confirmatory factor analysis.

Table 4: First-Order Confirmatory Factor Analysis Results

Dimensions	Item Number	Cronbach's $\alpha$	CR	AVE	Range of Standardized Loadings
MOSO	4	0.890	0.897	0.687	0.758-0.923
MOPO	4	0.912	0.916	0.734	0.758-0.951
MOEC	4	0.844	0.858	0.615	0.559-0.947

MOAC	4	0.901	0.904	0.701	0.833-0.846
MOTI	16	0.941	0.909	0.716	0.713-0.913

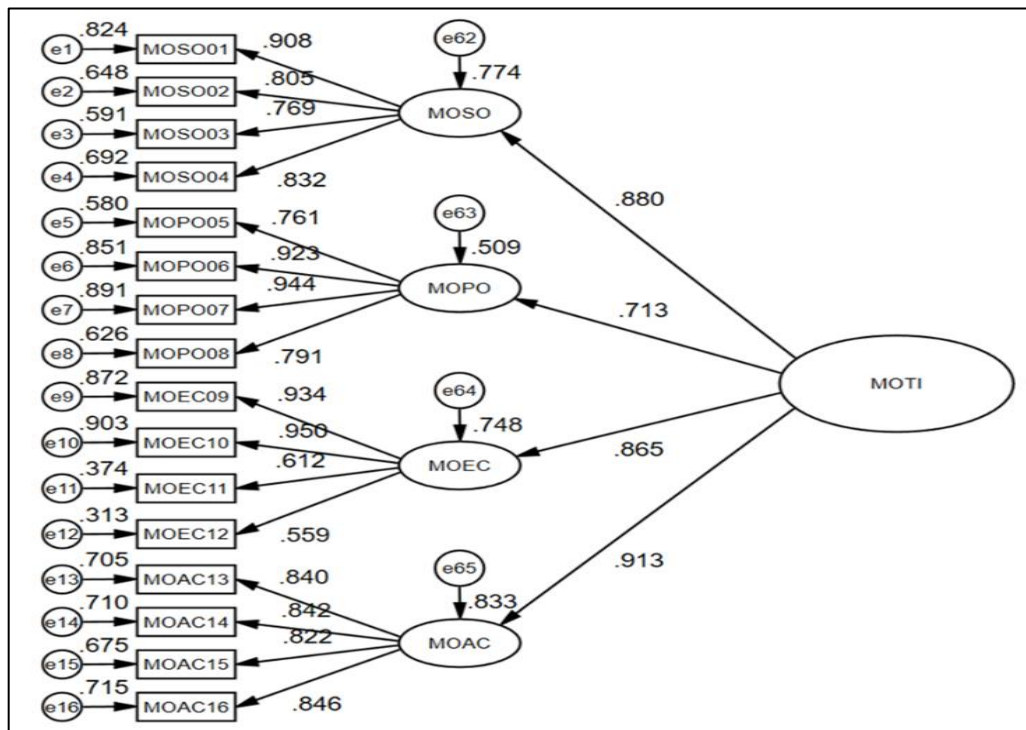
Note: CR = Composite Reliability; AVE = Average Variance Extracted; MOSO=Social/Cultural Motive; MOPO=Political Motive; MOEC=Economic Motive; MOAC= Academic Motive; MOTI=Overall Motive;

As shown in Table 4, all constructs exhibited satisfactory internal reliability. The Cronbach’s  $\alpha$  coefficients ranged from 0.844 to 0.912, surpassing the recommended threshold of 0.70, while the composite reliability (CR) values ranged from 0.858 to 0.916, indicating strong internal consistency across all four dimensions. The Average Variance Extracted (AVE) values ranged from 0.615 to 0.734, all above the recommended minimum of 0.50, demonstrating adequate convergent validity (Hair et al., 2017) . In addition, the standardized factor loadings of all measurement items ranged from 0.559 to 0.951, surpassing the recommended threshold of 0.50, indicating that each observed indicator contributes significantly to its respective latent construct.

Overall, these results confirm that the first-order measurement model of internationalization motives shows satisfactory reliability and convergent validity. This provides a solid foundation for the subsequent assessment of the second-order motive construct within the structural model.

### Second-Order Confirmatory Factor Analysis of the Motive Construct

To further investigate the hierarchical structure of the motive construct, a second-order CFA was performed, in which the four first-order dimensions served as indicators of the higher-order latent variable of the institutional internationalization motive (MOTI). The corresponding measurement model is shown in Figure 1.



**Figure 1: Second-Order Confirmatory Factor Analysis Model of Internationalization Motives**

As shown in Figure 1, all standardized path coefficients from the four first-order dimensions to the higher-order construct were positive and statistically significant ( $p < .001$ ). The standardized loadings were 0.880 for MOSO, 0.713 for MOPO, 0.865 for MOEC, and 0.913 for MOAC, all surpassing the recommended minimum threshold

of 0.70. These results suggest that the four dimensions contribute significantly to the higher-order construct and collectively reflect the overall institutional motive for internationalization.

Among the four dimensions, academic motive (MOAC) showed the strongest loading, indicating that academic considerations are especially influential in shaping the overall internationalization motive of Chinese higher vocational institutions. In contrast, political motive (MOPO) had the lowest loading, though it still meets the acceptable threshold, suggesting that it remains an important but somewhat weaker part of the overall motive construct.

Overall, the results support the hierarchical structure of the motive construct and confirm that the four dimensions together form a valid second-order representation of institutional internationalization motives.

## DISCUSSION

This study investigated whether Knight's four-dimensional framework for internationalization motives still applies within a policy-coordinated TVET system. Using survey data from Chinese HVIs, the results indicate that institutional motives exhibit a multidimensional structure, encompassing political, economic, academic, and socio-cultural factors. These four dimensions were measured using 16 questionnaire items, four per motive dimension. Confirmatory factor analysis confirms the structural validity of the four-dimensional model. These findings provide empirical support for the ongoing relevance of Knight's framework in vocational education (Knight, 2004; Knight, 2008). They also address earlier research suggesting that TVET systems may operate under different institutional logics compared to research universities (Gessler, 2021; Li & Pilz, 2023).

The descriptive analysis indicates that political motives have the highest average score. This aligns with Institutional Theory, which highlights that organizations face normative and coercive pressures to sustain legitimacy (Hsu et al., 2018). In the Chinese context, national initiatives like the Belt and Road Initiative and the Education Modernization Plan have created more opportunities for cross-border cooperation and skills development (Zong, 2024). Therefore, high political-motive scores reflect a policy-driven environment in which institutions align internationalization with national priorities.

Meanwhile, the second-order CFA reveals that academic motives are the strongest contributors to the overall institutional motive. This pattern suggests that developing internal capabilities is crucial for institutional strategies. Activities such as curriculum internationalization, faculty exchange, and international teaching collaboration directly enhance institutional capacity. These findings align with Dynamic Capabilities Theory, which stresses the importance of sensing, seizing, and reconfiguring organizational resources to respond to global opportunities (Leih & Teece, 2016). Similar trends have been observed in TVET studies, where curriculum reform and teacher collaboration are essential for sustainable internationalization (McGrath & Yamada, 2023).

Economic motives also play a statistically significant role. Regional comparison results show that institutions in East and South China report stronger economic motives than those in Central and Southwest China. This finding supports Resource Dependence Theory, which highlights organizational reliance on external actors, such as industry partners and funding agencies, for resources and strategic support (Kholmuminov et al., 2019). Comparative studies in Germany and Australia indicate that vocational institutions are often market-oriented and focus on exporting technical standards and education services (Kassberg & Dornberger, 2022). In ASEAN countries, internationalization primarily focuses on capacity building and workforce mobility (Thi, 2023). Compared to these cases, Chinese HVIs demonstrate a hybrid model in which political coordination coexists with economic and academic initiatives.

Socio-cultural motives show fairly consistent average scores across different regions, with no significant differences found in the ANOVA results. This suggests that institutions generally recognize the importance of intercultural competence. The finding aligns with global TVET literature, which highlights that cross-cultural learning and international exposure increasingly shape vocational curricula and workforce preparation (McGrath & Yamada, 2023).

The comparison between descriptive statistics and the second-order model provides further insight into the organization of institutional motives. While political motives are widely recognized across institutions, academic motives are the strongest driver of structural variation in the model. Policy motives serve as a common contextual factor, whereas academic motives have a more significant influence on shaping institutional strategies. Economic motives vary with regional industrial conditions, while socio-cultural motives remain relatively consistent.

Overall, the results show that the four classical motives remain structurally sound in Chinese HVIs. At the same time, their relative salience is shaped by institutional context, regional economic conditions, and organizational capability. These findings suggest that the classical framework remains applicable in TVET, but its internal configuration is conditioned by the governance and developmental context in which institutions operate.

## CONCLUSION AND RECOMMENDATIONS

This study examined the motives underlying the internationalization of Chinese HVIs and assessed whether Knight's four-dimensional framework remains applicable in a policy-focused vocational education system. Using survey data from administrators responsible for international affairs, together with confirmatory factor analysis and group comparison techniques, the research analyzed the structure of institutional internationalization motives and their variation across institutional levels and regions.

The findings confirm that internationalization motives among Chinese HVIs form a multidimensional construct comprising political, economic, academic, and socio-cultural dimensions. The confirmatory factor analysis supports the structural validity of this four-dimensional framework in the TVET sector. At the same time, the second-order model indicates that these dimensions jointly represent an overarching institutional motive structure. In this respect, the study provides quantitative evidence that the classical framework remains applicable beyond traditional university contexts.

The findings also show that these motives do not carry equal weight across institutional contexts. Political motives receive the highest mean score, reflecting the strong policy orientation of TVET internationalization in China, while academic motives make the strongest contribution to the overall motivational structure. Economic motives show clearer regional variation, with higher scores in more economically open regions, such as East and South China. Together, these results indicate that the configuration of internationalization motives is influenced by both institutional and regional conditions.

From a theoretical perspective, this study contributes to the literature by empirically validating Knight's framework within the HVIs. The results confirm the existence of a second-order motives structure and demonstrate that the relative strength of different motives varies according to institutional and regional conditions. These findings provide quantitative evidence on how internationalization motives are organized within HVIs.

The findings also have implications for policymakers and institutional leaders. At the policy level, evaluation systems for TVET internationalization should move beyond simple quantitative indicators such as the number of international projects or partnerships. Policy frameworks should place greater emphasis on institutional capacity development, long-term cooperation mechanisms, and sustainable international partnerships. Providing

additional support to institutions located in less economically developed regions may help reduce regional disparities in international engagement.

At the institutional level, vocational education leaders should strengthen academic capacity as a core component of internationalization strategies. Investments in curriculum internationalization, faculty mobility, and international teaching collaboration can enhance institutional capability. In addition, stronger partnerships with international industries and training providers may support economic forms of international engagement.

Several limitations should be recognized. The study relies on administrator self-reports, which may not fully capture the complexity of institutional motivations. The sample is limited to public HVIs in Southern China, which constrains the national generalizability of the findings. In addition, the study focuses on a single stakeholder group and therefore does not capture potential differences among administrative, academic, student, and industry perspectives.

Future research could address these limitations in several ways. First, mixed-methods designs combining large-scale surveys with interviews or case studies could provide deeper insight into how motives are interpreted and enacted in institutional practice. Second, a broader sampling that includes northern and western regions of China would improve representativeness and allow stronger national comparison. Third, future studies could incorporate multiple stakeholders, including faculty members, students, and industry partners, in order to capture the complexity of internationalization practices from different organizational perspectives.

Overall, this study provides quantitative evidence that internationalization motives in Chinese HVIs are structured, multidimensional, and shaped by institutional and regional conditions. At the same time, the findings should be interpreted within the scope of the sampled context and viewed as a foundation for broader comparative and multi-perspective research on TVET internationalization.

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## Conflict of Interest

The authors state that there are no conflicts of interest concerning the publication of the paper.

## Author Contribution

The authors confirm contribution to the paper as follows: study conception and design: Author Ke Airu, Author Halizah Binti Awang; data collection: Author Ke Airu; analysis and interpretation of results: Author Ke Airu, Author Halizah Binti Awang; draft manuscript preparation: Author Ke Airu. All authors reviewed the results and approved the final version of the manuscript.

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