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Middle Income Trap Push and Pull Factor for Thai Engineer Relocating

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Abstract

Thailand has lingered in the ranks of middle-income countries for close to half a century, having once enjoyed vigorous growth. This research found that the lingering status reflects more than macroeconomic performance; it is entrenched within social, institutional, and educational dimensions. Centered on the engineering profession, the research employs a mixed-methods approach to scrutinize how hierarchical work norms, neoliberal governance choices, and incentivized emigration collectively inhibit productivity gains. An online survey of engineers is triangulated with field observations to reveal enduring structural impediments, namely the SOTUS (Seniority, Order, Tradition, Unity, Spirit) legacy, the absence of merit-based advancement, a weak capacity to retain skilled labor, and the circumscribed scope for technology absorption in Chinese-backed infrastructure. The article ends by recommending systemic reforms to educational frameworks, workplace practices, and the management of foreign capital, all aimed at bolstering human capital retention and fostering resilient, innovation-led growth.

Keywords: Middle-income Trap; Skilled Labor Migration; SOTUS System; Merit Base Advancement; Human Capital Retention.

1. Introduction

Thailand achieved middle-income designation in the mid-1980s, a pivotal junction on its economic ascent. Analysts at the time anticipated that the nation would mirror the success of the Four Asian Tigers—South Korea, Taiwan, Hong Kong, and Singapore—by graduating to high-income status in a matter of decades. Such projections were buoyed by vigorous industrialization, a surge in foreign direct investment, and the country's embedding in global production networks, notably in the electronics and automotive sectors. The trajectory, however, encountered turbulence following the 1997 Asian Financial Crisis. Since that rupture, Thailand has encountered persistent difficulty in maintaining elevated growth, lifting productivity, and upgrading its production profile.

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As of the present, it endures what development economists characterize as the "middle-income trap".The middle-income trap describes a development impasse in which a nation escapes low-income rank through industrial and export-led expansion but then stagnates short of high-income classification. The phenomenon typically arises when advantages of low-wage labor erode and corresponding gains in innovation, skill formation, and productivity lag. In Thailand's situation, the trap has tightened around a composite of structural impediments. Persistent socioeconomic legacies—entrenched class stratifications, fragile political-administrative apparatuses, and pedagogical frameworks that privilege memorization over critical reasoning and inventiveness—have collectively inhibited Thailand from cultivating the human capital requisite for sustained competitiveness in a knowledge-driven global economy.

This study examines the mutually reinforcing interplay of neoliberal policy orientations, rigidly hierarchical occupational cultures, patterns of labor mobility, and pedagogical deficits that collectively perpetuate Thailand's development impasse. In lieu of treating quantitative performance metrics in artificial isolation, the analysis mobilizes a political economy perspective that foregrounds the situatedness of economic activity within enduring social fields. The engineering sector emerges as the focal empirical site, being pivotal to both the broader industrial modernization project and the generative capacity for technological upgrading. Engineering functions as the backbone of critical infrastructure, energy networks, and digital advancement, such that dysfunctions within the discipline may be read as a concentrated index of the nation's systemic economic dysfunctions.

Despite extensive research on Thailand's middle-income trap, limited attention has been paid to the role of Thai engineers, who constitute the intellectual foundation of the Thailand 4.0 policy. This study aims to investigate the critical importance of engineers within the STEM framework, and to examine why Thailand produces relatively few engineers, many of whom actively seek opportunities to relocate abroad. The research will analyze the underlying push and pull factors contributing to this trend.

2. Literature Review

In the wake of the 1997 economic downturn, Thailand adopted an extensive array of neoliberal policies advised by the International Monetary Fund and the World Bank. Privatization, capital account liberalization, and deregulation of key sectors were swiftly pursued [1]. These measures restored macroeconomic stability and balanced public accounts, yet they failed to generate broad-based growth or to strengthen public institutions. Rather, they tethered the Thai economy to the whims of global capital flows while leaving the workforce and the apparatus of governance ill-prepared for the accelerating external shifts [2]. Foreign investors were invited to expand, yet domestic enterprises were left without coherent, proactive guidance. Consequently, the country has witnessed sluggish rates of technological upgrading and anemic domestic innovation.

Neoliberal doctrine—embodying deregulation, the commodification of public goods, and the phased removal of protective barriers—secured paramountcy in Thailand throughout the disinvestment and stabilization packages of the late twentieth century. The 1997 currency collapse subsequently redoubled these mandates, pressed forward by conditionalities articulated by the IMF and the World Bank. Although foreign direct investment (FDI) reached exceptional flow, the domestic regime of innovation and the distribution of prosperity did not keep pace [3]. The

organism of the state proved ill-equipped to shepherd these inflows in a manner congruent with durable national aspirations.

Thailand therefore circulates in the literature as a "weak developmental state"—a polity whose autonomy, institutional coherence, and technocratic arsenal fall short of orchestrating a convergent and broad-based expansion of productive capabilities [4]. In marked contrast to the trajectory of East Asian exemplars such as South Korea and Taiwan, which calibrated liberalization to a robust, anticipatory apparatus, Thailand recorded a policy repertoire that has been episodic and, at best, defensive.

In parallel, the sociocultural fabric of many Thai engineering organizations, especially, has remained characterized by pronounced hierarchy and formal rigidity. The so-called SOTUS culture—Seniority, Order, Tradition, Unity, Spirit—traces its genealogy to university initiation rites and continues to delineate the internal order of firms. As a consequence, deference to seniority and strict adherence to established protocols often eclipse meritocratic evaluation and the cultivation of inventive thought. Engineers recount experiences in which challenging a superior or advancing a non-conforming technical proposition is tacitly discouraged [5]. Advance through the ranks is frequently determined by chronological age or social capital rather than demonstrable technical achievement. The cumulative effect is a climate that impedes creative problem-solving, diminishes workforce commitment, and channels capable engineers toward employment in other jurisdictions.

This outflow is exacerbated by the configuration of foreign investment, particularly the trajectory of China's Belt and Road Initiative. While Chinese-led infrastructure schemes inject capital and temporary jobs, they fail to elevate Thai engineers in terms of skill acquisition or managerial responsibility. Chinese enterprises typically deploy expatriate technical cadres and assign local personnel to auxiliary, non-decision-making tasks [6]. As a result, knowledge transfer is minimal, and dependence on external expertise hardens. For a nation that aspires to become a high-income economy, such dependencies jeopardise both domestic innovation and strategic autonomy.

Compounding these migration and investment dynamics is an education system that, in theory, undergirds national development but in practice falls short. The curriculum remains overly theoretical, under-invested in industry-relevant practical training, and slow to integrate emerging technologies.

Thai universities consistently graduate a substantial cohort of engineers annually; however, these graduates frequently exhibit deficiencies in practical competencies, analytical reasoning, and collaborative problem-solving — competencies that contemporary industries increasingly demand [7]. This misalignment between curricular offerings and employer expectations has precipitated elevated rates of graduate underemployment and persistent employer dissatisfaction [8]. Additionally, national expenditure on research and development continues to lag behind that of regional counterparts, constraining the capacity for transformative innovation.

Yet to frame the phenomenon solely in quantitative indices masks the underlying governance and sociocultural dimensions that the present study foregrounds. Guided by an analytical lens that foregrounds the interplay of neoliberal rationalities within a state apparatus of uneven capacity, the present investigation foregrounds three processes that compound stagnation: the reproduction of hierarchical mindsets in technical education, the

marginalization of critical reflexivity in workplace cultures, and the disarticulation of policy instruments across regulatory silos [9]. Each of these processes, the study argues, operates not merely as an impediment to productivity but as a subtle calibrator of labor agency, curtailing the collective dynamism required for higher-technology trajectories.

By situating professional migration as a symptomatic yet clarifying variable, the research sheds light on how aspirations for autonomy and variable reward structures reinforce structural push factors while simultaneously exporting tacit knowledge that the domestic system fails to retain [10]. Attention to these circulatory displacements reveals that the migration phenomenon itself is not a failure to be curbed but an emergent rational choice made within a constrained field of domestic opportunities [11]. Thus, the analytical pivot to labor migration allows the study to interrogate how neoliberal templates of competitiveness are destabilized by the very actors they are intended to discipline.

The dialectic of neoliberal orthodoxy and institutional fragility discloses itself through three interlocking signals: the superior weighting of short-term portfolio inflows relative to sustained human capital investment, the structural dependence on low-wage and low-skill labor markets, and the circumscribed shields afforded to nascent domestic sectors.

These dynamics manifest with particular clarity in the engineering sector, in which the inability to nurture robust innovation ecosystems sustains reliance on external technology and overseas human capital.

3. Methodology

This investigation employs a mixed-methods design that integrates quantitative and qualitative data to yield an exhaustive appraisal. An electronic survey instrument was disseminated through social media channels and interview Thai workers presently working outside Thailand or intending to emigrate. The instrument extracted demographic data, employment history, subjective job satisfaction, motivating factors for emigration, and perceptions of the Thai professional milieu.

Responses were received from 202 engineers, who represented disciplines including civil, mechanical, electrical, and software industrials. The sample was predominately under 40 years of age and possessed a minimum high school degree. Of the respondents, 68 per cent reported dissatisfaction with the organizational culture, while 72 per cent articulated a preference to socialization.

Discourse Analysis, the study evaluated public postings and commentary in prominent Thai Facebook groups, including “โยกย้าย สายสะโพกโยกย้าย” (“Move and Shake Your Hips”) These groups function as informal professional networks and recurrently address themes of detrimental workplace practices, inequitable remuneration, and aspirations for socialization.

Field Observations and Informal Interviews, between 2022 and 2024, the researcher carried out field observations in Thai engineers, complementing these visits with informal conversations with current and past employees.

The research concentrated on the arrangements under which work is performed, the prevailing styles of supervision, and the perceptions held regarding labor from abroad. By integrating these distinct strands of observation, the investigation is able to reveal, simultaneously, the large-scale institutional arrangements and the intimate, everyday realities that shape and are shaped by them.

4. Research Result

4.1 Toxic Hierarchies and the SOTUS Legacy

Thailand's pursuit of high-income status is hindered by workplace cultures that continue to be shaped by systemic features of the SOTUS framework—Seniority, Order, Tradition, Unity, and Spirit. Emerging from mid-twentieth-century university life, SOTUS was originally a mechanism of social discipline that prized seniority and collectivist loyalty. Ritual hazing and enforced deference to older students were thought to foster respect and cohesive identity. However, the systemic logic of SOTUS migrated almost seamlessly from campus to office, where its norms are especially entrenched in technical sectors, particularly engineering. Hierarchical deference, formal communication channels stratified by seniority, and promotion criteria that favor tenure over merit are now core features of the milieu.

Live SOTUS is not a fading ornament of tradition; it is a continually reproducing force that organizes daily managerial practice. Fresh graduates, regardless of the technical competence they may possess, are expected to submit unquestioningly to the judgments and preferences of middle-aged supervisors. Even suggestions that could enhance safety, efficiency, or cost control are routinely withheld, not because the data is unconvincing, but because the act of questioning carries a stigma of disloyalty. Interviews conducted for the present study reveal pervasive exasperation among engineers, many of whom have memorized decades of workplace enhancement protocols but suppress them, fearing that any deviation from the hierarchy will be interpreted as insubordination. As one government engineer candidly observed, "When a superior issues a directive, I comply—no matter the apparent illogic. The cost of dissent outweighs the reward" *(*Interview with an anonymous Thai engineer, June 24, 2024).

Such a climate of unquestioned obedience chokes fresh ideas and erodes the merit-based rigor that nurtures vigorous economic evolution. Nations that have attained durable high-income standing, notably South Korea and Taiwan, have anchored their labor professionalization in results, accountability, and collective inquiry. Thai work cultures, by contrast, magnify seniority-linked protocols that safeguard custom at the expense of trial. Advancement is often governed by tenure, social ties, or hidden protocols, eclipsing measurable output, technical excellence, or future leadership aptitude. This pattern has fostered palpable disaffection among younger engineers, who increasingly perceive their advancement as hostage to extraneous variables.

The pervasive pressure to uphold "face"—to preserve social equilibrium and evade public discredit—intensifies the inertia. Subordinates hesitate to flag miscalculations, voice reservations, or challenge the work of senior colleagues [12]. The result is a toleration of latent flaws, the perpetuation of clumsy practices, and, in high-stakes ventures, and the specter of unresolved safety risks.

The absence of transparent feedback channels fundamentally undermines trust, inhibits collaborative synergy among teams, and, consequently, weakens the collective efficacy of the organization. Recently graduated professionals, especially those who have studied abroad or participated in global academic programs, frequently express disquiet over the tacit expectations governing workplace conduct. Many report a sense of being overlooked or unappreciated in settings that privilege allegiance and compliance at the expense of innovation and proactive engagement.

The detrimental effects of entrenched hierarchical structures radiate well beyond the realm of individual dissatisfaction; they permeate organizational efficacy and, by extension, the competitive standing of the nation. Within engineering firms, the gradual extension of project timelines and budget overruns often originate from junior personnel reluctance to highlight design anomalies or to propose more efficient engineering solutions [13]. Rather than channeling effort into creative breakthroughs or heightened productivity, teams may become mired in rituals and bureaucratic codifications that reaffirm seniority. In multinational corporations operating in Thailand, the divergence between global performance appraisal standards and prevailing local practices of seniority may generate an unsustainable dialectic, evidenced by elevated turnover rates, diminished employee engagement, and persistent challenges in retaining high-caliber talent.

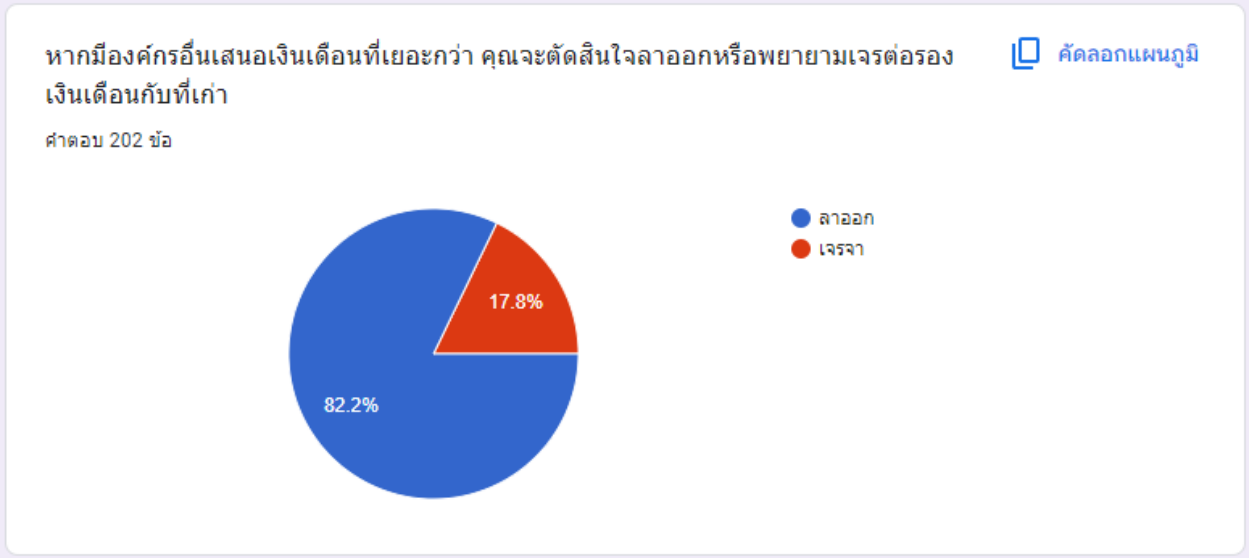

Figure 1: A Focus Group Online Survey by Author, if another organization offers you a higher salary, would you decide to resign or try to negotiate a higher salary with your old employer?

Source: Anthika, Manowong. *Author's own survey.* 2024.

When asked if they would resign or attempt to negotiate a higher salary with their current employer upon receiving a higher salary offer from another organization, 82.2% indicated a preference for resignation, while 17.8% would consider negotiating for a higher salary with their current employer.

Importantly, the sway of the SOTUS system not only constrains advancement within the domestic setting but

functions as an outward push factor in the migration of skilled labor. Engineers who perceive their growth as circumscribed by rigid seniority frames frequently seek employment in jurisdictions where meritocratic appraisal, professional discretion, and collaborative governance are entrenched cultural norms. Qualitative online interviews conducted for the present study with Thai engineers in Germany, Australia, and Singapore consistently underscored the systemic value of contributing ideas without inhibition, receiving feedback calibrated to performance, and engaging in settings that actively prize cognitive and experiential diversity. These opportunities for intellectual advancement and career progression are frequently absent within their home country.

Efforts to shift this culture have consistently met with inertia. Management curricula designed to promote inclusive decision-making or hierarchical flattening are frequently inherited without genuine commitment, and their precepts are often dismissed as academic abstraction. In public enterprises, where tenure and seniority-based progression are institutionalized, change is incremental at best. A small cadre of forward-looking firms—predominantly venture-backed startups and international joint ventures—has implemented formal policies that curtail overt hierarchy and promote meritocratic assignment of responsibility. Yet such initiatives remain isolated, insufficient to alter the prevailing structural incentivization of gendered exclusion.

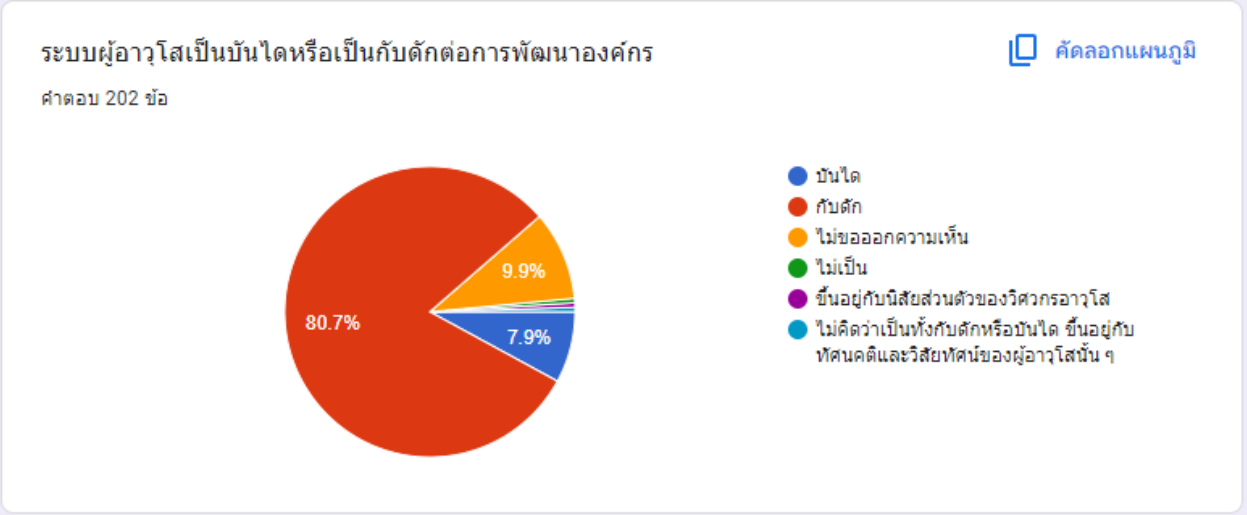

Figure 2: A Focus Group Online Survey by Author, Is the seniority system a stepping stone or a trap for organizational development?

Source: Anthika, Manowong. *Author's own survey.* 2024.

When asked if the seniority system is a stepping stone or a trap for organizational development, 80.7% considered it a trap, while 7.9% viewed it as a stepping stone. Additionally, 9.9% chose not to provide an opinion, and the remaining believed that it depends on the vision of the senior members within the organization.

In the absence of a wider cultural transformation, piecemeal interventions will not suffice to alter the entrenched structural nature of workplace hierarchies in Thailand. Education reform, though necessary, is insufficient in isolation [14]. Initiatives such as integrating critical inquiry, project-based learning, and collaborative tasks into

curricula must be accompanied by parallel transformations in workplace culture and leadership development. Policymakers can advance this agenda by offering incentives to firms that implement transparent, meritocratic promotion practices and document tangible gains in equity. Industry federations and learned societies should likewise champion professional norms that privilege technical mastery and ethical judgment over seniority and custom.

Effectively dismantling imperious hierarchies requires a thorough reconceptualization of leadership and professionalism within the Thai milieu. The traditional virtues of respect and social harmony can be preserved, but must be re-framed to encourage innovation, open dialogue, and reciprocal accountability. Respect can be expressed through informed mentoring rather than unilateral direction; a sense of collective purpose can be fostered through inclusive collaboration rather than rote allegiance to a prescribed hierarchy.

In summation, the SOTUS legacy, while historically entrenched in Thai professional life, now constitutes a critical barrier to an agile and inventive engineering sector. By entrenching inflexible hierarchies, stifling critical inquiry, and sustaining exclusionary practices, it constrains both individual flourishing and broader national advancement.

Tackling this issue demands more than revising statutes; it calls for a profound shift in social norms that redefines legitimacy in leadership, fosters continuous skill development, and prioritizes meaningful input instead of mere obedience. Only through this dual strategy can Thailand convert its latent capabilities into sustained innovation and decisively surpass the constraints of the middle-income tier.

4.2 Higher and More Stable Income Abroad Accompany by a Flat Organizational Hierarchy

The ascent of neoliberal policies in Thailand gained vigorous momentum in the late 1980s and culminated in a recalibrated regime of structural adjustment following the 1997 Asian Financial Crisis. At the behest of the International Monetary Fund and the World Bank, successive Thai governments enacted a menu of reforms that dismantled regulatory barriers, divested state enterprises, and relaxed both trade and capital-account restrictions Reference [15]. Proponents of the model assured policy-makers that these measures would yield allocative efficiency, draw sustained inflows of foreign direct investment, and embed Thailand firmly as a competitive node in the global economy. In the wake of the reforms, the country did witness accelerated capital inflows and deepening participation in worldwide value chains, lending a provisional gloss of empirical validation to the neoliberal consensus.

Yet for a large cohort of mid-career engineers, the lived experience of these policy shifts has been decidedly more ambivalent. Although the arrival of multinational corporations and foreign-sponsored mega-projects has expanded the technical demand for engineering services, the rewards of this expansion have accrued in a highly concentrated manner [16]. Senior managerial positions and lucrative consultancy contracts have been increasingly reserved for a narrow circle of local elites and expatriate specialists, whereas the mid-level technical cadre confronts flattening wage trajectories and heightened job insecurity [17]. Rather than a generalized ascent in occupational status, the neoliberal project has thus solidified a segmented labor hierarchy, whereby global value chains have animated firm-level prosperity while sidelining the distributive foundations of broad-based professional mobility.

Engineers occupying frontline technical positions across Thailand's industrial and construction sectors routinely observe a widening gap between their skill set and their access to organizational leadership, leaving career ladders that stagnate and stretch toward far-off rungs.

Among the most recurrent grievances expressed in both formal and informal forums is the disconnection between nominal pay increases and the unrelenting rise in the cost of living. Despite overall economic expansion, the inflation-adjusted compensation of engineers—especially those occupying middle-management strata—has drifted sideways. This phenomenon is most vividly concentrated in Bangkok and the major provincial capitals, where residential rents, commuter fees, and the price of necessities have charted a two-decade upward slope [18]. New entrants to the profession frequently discover that initial wages fall short of sustaining a household, much less the attendant aspirations of property ownership or family formation [19]. After several years of service, upward moves arrive with measured frequency and, when they do, seldom translate into appreciable increases in pay. The safety net once woven by the societal promise of an engineering credential now resembles a filmy shadow.

The incorporation of multinational enterprises into the Thai economic landscape has introduced a second layer of complexity. Multinationals generally extend more attractive compensation packages and clearly delineated progression tracks when compared to their domestic counterparts, yet they also re-import management architectures that assign greater currency to non-local credentials and overseas experience.

Multinational corporations based in Thailand routinely assign foreign executives—predominantly expatriates dispatched from Europe, North America, or China—to senior leadership and critical managerial roles [20]. Meanwhile, Thai engineers, notwithstanding their credentials and tenure, are routinely channeled into subordinate positions or limited to mid-level management, thereby perpetuating a bifurcated organizational structure. Policy formulation and strategic oversight reside almost exclusively with expatriate personnel, whereas their Thai counterparts are constrained to routine implementation and operational oversight.

4.3 Dissatisfaction Regarding the Insufficient Enforcement of Thailand Labor Protection Framework

The structural exclusion at play creates a pervasive feeling of frustration and resignation among Thai engineers. During interviews conducted for this research, multiple respondents characterized their situation using terms such as "stuck" or "invisible" within their firms. One engineer at a leading Japanese construction company described how, after successfully managing a series of critical projects, he was consistently overlooked for promotion in favor of less seasoned expatriate peers. Another engineer at an international oil and gas company pointed out that Thai personnel routinely found themselves absent from senior strategic meetings, even when the agenda concerned projects physically located in Thailand. Together, such incidents cultivate a widespread sense of disenchantment with the original promises of globalization and the liberalized market environment.

The competitive dynamics unleashed by neoliberal reforms have fostered a regime of labor intensification that progressively undermines both work-life balance and professional well-being among engineers. Practitioners routinely face expectations of extended schedules, often encroaching upon weekends, dictated by client and stakeholder pressures. Within numerous firms, unpaid overtime has solidified into a tacit norm; hesitance to

comply is met not only with the threat of adverse performance ratings but also with the prospect of stunted career advancement [21]. Weak labor safeguards and the near absence of union organization within the discipline compound the vulnerability of the workforce to exploitative practices [22]. Although the rhetoric of neoliberalism celebrates individual initiative and personal accountability, the structural realities confronting engineers in Thailand curtail the latitude for authentic agency.

Another revealing facet of the neoliberal illusion in Thailand is the persistent mismatch between higher education and meaningful employment. Over the past twenty years, the number of newly minted engineering graduates has swelled, driven both by policy imperatives and by responsive, performativity nods to market demand [23]. Yet the resultant educational output is marred by striking heterogeneity: curricula are frequently decoupled from industrial practice, pedagogical resources are uneven, and internationalization is sporadic. Consequently, a significant proportion of graduates enters the labor market lacking the applied competencies, intercultural capital, and professional English proficiency that leading multinational enterprises stipulate. This asymmetry culminates in an oversaturated candidate pool vying for a finite number of lucrative positions, thereby exerting downward pressure on remuneration and amplifying perceptions of precarious employment. Employers frequently articulate dissatisfaction with the absence of so-called “industry-ready” individuals, while newly minted engineers confront a set of exaggerated performance benchmarks that remain unattainable in the absence of structured apprenticeships and sustained mentorship.

In response to persistent constraints at home, some Thai engineers seek to transfer their skills to international labor markets. Rules governing certification, language, and labor mobility have eased in Singapore, Germany, Australia, and the United Arab Emirates, alongside better remuneration and more transparent promotion criteria. Emigration is rarely a matter of choice between options: it is a calibrated decision made in recognition of barriers that have become structural. The wave of departures deprives the Thai economy of tacit know-how and of the networks that translate technical expertise into concerted national development. The irony is that the liberalized markets and labor disciplines which were intended to cultivate competitive human capital now dissipate it at the point of highest value. Current public-sector programs—most prominently Thailand 4.0 and the Eastern Economic Corridor—project a future of advanced technology, smart manufacturing, and digital integration. These scenarios, however, hover above the day-to-day environments in which engineers must operate. Complaints about flat pay, limited upward mobility, and the persistence of informal barriers receive rhetorical recognition but not concerted policy response [24]. The mismatch between grand programs and the conditions of the workforce risks turning them into headlines rather than measurable change. Closing the divide requires a coordinated recalibration of corporate governance, labor regulation, and vocational curricula, all animated by a single principle: the empirical and subjective experience of the engineers whose ingenuity the plans hope to mobilize.

In summary, Thailand’s engagement with neoliberal policies has yielded uneven outcomes. The country has indeed embedded itself in global value networks and secured substantial foreign investment, yet the benefits have not translated into broad-based prosperity or significant socioeconomic ascension for the engineering cohort. The professional environment remains characterized by persistent wage plateaus, constricted upward pathways, and a durable marginalization from managerial and executive positions, an exclusion that is especially pronounced within multinational enterprises.

4.4 Career Development Opportunities Based on Patronage: Consequences for Organizational Commitment among Thai Engineers

Thailand is currently confronting a middle-income trap that is informed not only by slow domestic growth and recurrent structural distortions but also by a pronounced flight of human capital from pivotal sectors such as engineering. The loss of younger, highly trained engineers is symptomatic of a broader malaise, comprising both discontent with the existing milieu and the magnetic appeal of overseas environments that seem more conducive to professional flourishing. This analysis disentangles the twin drivers of the phenomenon, examining the domestic forces that expel skilled workers and the foreign conditions that invite their migration.

Quantitative and qualitative surveys conducted in engineering faculties and professional associations expose a striking consistency in reported motivations. Nearly three-quarters of respondents identify an overlapping set of push factors: chronic deficiencies in organizational governance, a constricted horizon for skill enhancement, remuneration that fails to reflect competence, and workplaces that tolerate, if not celebrate, hostility. Together, these conditions generate a collective perception of professional inertia, prompting many to regard relocation as the least objectionable route to growth and life satisfaction.

Organizational and structural determinants of emigration dominate the explanations. Engineers cite undemocratic management styles as their principal complaint, articulating frustration with rigidly tiered hierarchies, opaque information flows, and promotion pathways that privilege seniority or personal networks over merit. A broad consensus holds that the culture of advancement rewards conformity and endurance more than creativity and impact, cultivating disillusionment among younger professionals who feel their technical acumen is not only peripheral but punitive.

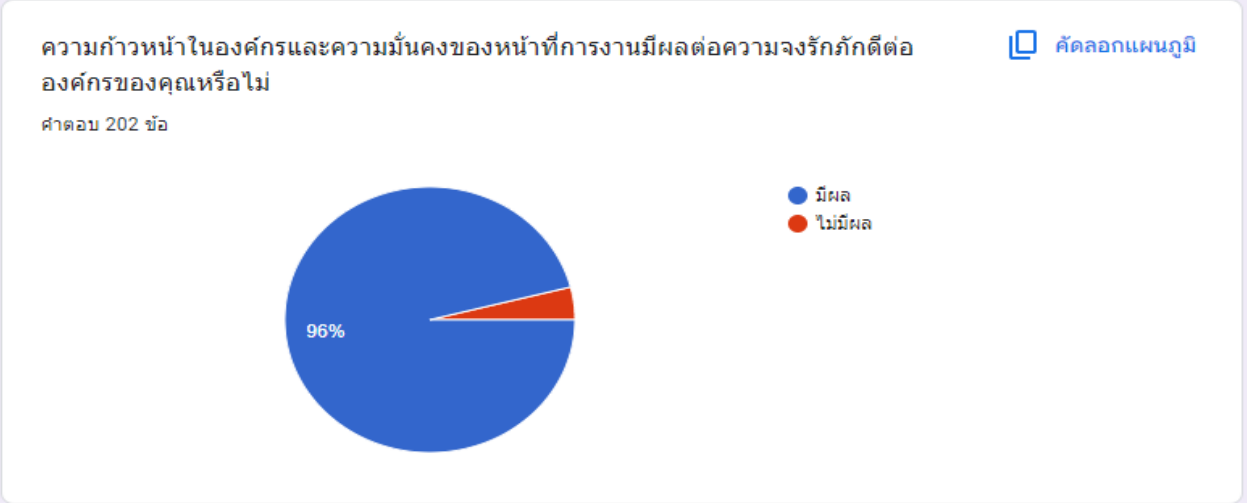

Figure 3: A Focus Group Online Survey by Author, Do organizational advancement and job security affect your loyalty to your organization?

Source: Anthika, Manowong. *Author's own survey.* 2024.

When asked whether organiz11ational advancement and job security affect their loyalty to the organization, 96% agreed that it does, while 4% believed that their loyalty is not affected by these factors. For instance, the lifetime employment system functions as employment insurance, supporting the long-term accumulation of skills and expertise within companies. It fosters loyalty and forms the basis for strong labor relations crucial for fostering technological innovation through incremental advancements. Employment stability is thus a critical factor in retaining skilled workers, technicians, and engineers and promoting effective teamwork.

The cumulative impact of these factors fosters a potent sense of helplessness and inequity, particularly among early-career professionals, who perceive that their efforts remain invisible to both management and the broader industry.

The absence of robust career development tracks aggravates these sentiments. Available training offerings are sporadic, poorly aligned with the fast-paced evolution of global markets, and rarely integrated with organizational objectives. Engineers recounted being cycled into narrowly defined roles that permit neither specialized up skilling nor lateral exposure to emerging technologies and disciplines. The systematic neglect of human capital investment contrasts sharply with the delineated technological complexity that characterizes the sector, creating a human bottleneck that undermines long-term competitiveness.

Salient, too, is the lagging compensation structure. While engineering retains a comparative income advantage in Thailand, nominal wage growth has lagged behind both inflation and the escalating cost of living in metropolitan hubs such as Bangkok and Chiang Mai [25]. Professionals reported that monthly take-home pay rarely covers the combined expenses of independent housing, retirement savings, and family formation [26]. When this stagnation is considered alongside the burdens of extended hours and occasional uncompensated overtime, the incentives to remain in the local labor pool diminish markedly.

Perhaps the gravest emotional hazard, however, is the office culture described by Participants reported a pervasive climate of fear and rivalry, in which blame is routinely weaponized and resilience is prized over mentorship. The cumulative effect of repeated exposure to such a milieu is a rapid depletion of psychological resources, prompting many to seek employment in markets where the talents they have already developed will be recognized and cultivated.

Survey participants highlighted the continuing influence of the SOTUS legacy—Seniority, Order, Tradition, Unity, and Spirit—as a dominant cultural framework that enforces strict organizational hierarchies and effectively suppresses both dissent and novel thinking. Early-career engineers expressed a sense of obligation to yield to the judgment of senior personnel, even when they have acquired more current technical insights, a dynamic that fosters an environment of disengagement. This culture, they indicated, privileges adherence to established paths and unwavering loyalty at the expense of both ongoing education and the organizational capacity to innovate.

Thailand’s talent exodus cannot be understood merely as migration; it signals systemic dysfunction at multiple levels. Engineers do not leave solely because of relative pay; they depart from contexts that systematically devalue their skills, constrain their advancement, and marginalize their ambitions. Hierarchical management, stagnant

salary structures, and corrosive workplace cultures generate the push; the corresponding pull resides in meritocratic, respectful, and empowering settings elsewhere. Absent a concerted overhaul of educational pathways, corporate governance, and institutional norms, the outward flow will persist, further solidifying the middle-income trap and undermining the country's long-term developmental trajectory.

4.5 Chinese direct investment as a push factor: Dearth of opportunities resulting from favoritism extended to Chinese engineering professionals

The rising profile of Chinese capital in Thailand, channeled through the Belt and Road Initiative and megaprojects, evokes both enthusiasm and caution. These inflows supply scarce financial and technological resources, yet they also recalibrate power relations in the labor market, with particularly stark effects in the engineering profession. Rather than cultivating local capabilities or promoting sustainable growth, the Chinese-backed schemes tend to bolster pre-existing hierarchies and import dependencies that stifle both innovation and the maturation of domestic expertise.China's Belt and Road Initiative, inaugurated in 2013, seeks to broaden regional integration via extensive outlays on transport, energy, and digital networks. Thailand occupies a strategic waypoint, especially with the planned high-speed rail corridor linking Bangkok to Nong Khai, a vital segment of the broader Pan-Asian rail conception [27]. Concurrently, the Eastern Economic Corridor, the government's flagship development precinct, has garnered substantial Chinese funding and corporate engagement [28]. At first glance, such outflows appear to catalyze economic upgrading, translation of foreign technologies, and occupational expansion. Yet interviews and site observations conducted with Thai engineers reveal a substantially more ambivalent picture.

A recurrent apprehension articulated by local professional's centers on the relegation of Thai engineers to peripheral roles within these Chinese-operated ventures. Despite demonstrable academic credentials and relevant experience, Thai practitioners frequently find themselves barred from strategic deliberation and assigned, instead, to supportive capacities. Respondents described positioning as resident engineers, document translators, or quality assistants, even on undertakings situated entirely on Thai soil [29]. This chronic under-deployment of indigenous talent inhibits the acquisition of advanced competencies and conveys a troubling signal to emerging practitioners regarding the worth of domestic scientific capital.Central to the observed stagnation in technological upgrading at Chinese-affiliated firms in Thailand is the labor practice of deploying wholly foreign project cadres. Rather than drawing on the local engineering workforce, Chinese operators routinely transport specialized teams of engineers, technicians, and mid-level project supervisors from China. Although firms frame this practice in terms of language barriers and project uniformity, the net effect is the marginalization of Thai engineering talent from critical design and decision-making circuits [30]. Consequently, the capacity of foreign direct investment to catalyze meaningful technology dissemination is substantially diluted. In the absence of structured, on-the-ground exposure to design software, project lifecycle management, and data-driven engineering tools, local engineers are deprived of the experiential learning required to deepen skillsets and to join the innovation ecosystems that FDI is expected to nurture.

Compounding this skill-binding effect is the transplantation of governance schemas that privilege centralized decision-making and seniority-driven career paths. Interviews with local engineers reveal workplaces characterized by rigid reporting lines, limited transparency in project logic, and a cautious aversion to dissenting

input. Advancement hinges more on demonstrated loyalty and time served than on measurable innovation or technical acumen, mirroring weaknesses already present in Thai institutional settings. The resulting cultural contrast alienates Thailand's younger workforce, which is increasingly attuned to global best practices in meritocratic and inclusive engineering management. The cumulative experience of local engineers is one of chronic disengagement and an escalating conviction that career progression within Chinese-led projects are, in practical terms, an inaccessible horizon.

Concurrently, procurement and subcontracting norms in Chinese-funded projects tend to favor Chinese suppliers and subcontractors, attenuating the capacity of Thai firms to capture the secondary economic benefits typically associated with large-scale infrastructure spending [31]. Though joint ventures are formed to satisfy local content regulations, these arrangements seldom alter the locus of decision-making authority, which remains firmly with the Chinese principal [32]. Thai partners are frequently relegated to roles in administrative coordination or routine construction, while design and strategic oversight are retained by the foreign entity. The recurrent invocation of "win-win cooperation" therefore fails to materialize in substantive terms [33].

Together, these patterns raise a more profound issue: the gradual attenuation of Thailand's strategic autonomy in the domain of infrastructure development. As reliance on Chinese financing and technical expertise grows, the Thai state may confront greater obstacles to defining conditions or enforcing local-content and capability-development stipulations. Practitioners consulted for this study reported recurring disappointment that regulatory agencies seldom verify compliance with labor quotas or actively pursue the full execution of technology-transfer provisions. Regulatory inaction, coupled with the vested interests of influential political and commercial elites, permits external capital to evade obligations that would otherwise enhance the skills and productivity of the domestic workforce.

The consequences for Thailand's sustained development trajectory are serious. Transport and energy corridors ought to represent more than discrete physical investments; they are, in principle, platforms for cultivating human capability, catalyzing indigenous innovation, and strengthening overall competitiveness [34]. When such platforms are exclusively operated by foreign consortia, the economy's ability to generate autonomous, value-added growth diminishes. The most troubling prospect is that Thailand may devolve into merely a transit node for greater regional powers, forfeiting the capacity to author its own long-term economic strategy [35].

The inequalities produced by this architecture are not only economic but also social and political. Among the engineering cohort, and especially its younger strata, attitudes toward Chinese participation have hardened into wary suspicion. This shift is accentuated by resurgent geopolitical anxieties and a nationalist rhetoric that depicts external capital as a contemporary variant of colonial domination.

Although the Thai state routinely characterizes these initiatives as indicators of national advancement and collective well-being, the engineers, planners, and civil servants charged with realizing them frequently experience a sense of estrangement and diminished agency [36]. Such a perception, left unaddressed, can amplify popular dissatisfaction not only with specific agreements but with the underlying architecture of policy, the framework of diplomatic engagement, and the uneven allocation of economic gains.

The central issue, therefore, is not the arrival of Chinese capital as such, but the absence of sufficiently sturdy institutional scaffolding to govern its deployment. Neighboring nations such as Vietnam and Malaysia have enacted more rigorous stipulations for foreign contractors, mandating, for example, the phased transfer of critical technologies, stipulated ratios of domestic labor, and delineated trainee cohorts. By contrast, Thailand has not yet embraced policies of comparable fortitude [37]. Absent such measures, the hoped-for benefits of an infrastructure-driven trajectory will continue to be jeopardized by persistent cycles of exclusion and dependency.

5. Suggestions

To counter these persistent vulnerabilities, several calibrated reforms are indispensable. First, the Thai state must recalibrate its regulatory architecture to mandate the active participation of domestic professionals throughout the project life cycle. This recalibration could take the form of binding quotas for Thai engineers, complemented by obligatory mentorship arrangements and structured, enforceable knowledge-transfer schedules. Second, the procedures governing procurement must be reengineered to guarantee that Thai enterprises and ancillary service providers occupy substantial, value-adding positions within the design, construction, and operational phases of large-scale infrastructure undertakings. Third, academic institutions and relevant professional organizations ought to cultivate formal alliances with overseas contractors to enhance training initiatives, foster research collaboration, and provide structured language assistance.

Ultimately, public transparency coupled with vigilant civil society oversight is indispensable. Enhanced scrutiny of investment contracts, labor modalities, and developmental outcomes would furnish civil society and local stakeholders the leverage needed to hold both overseas investors and domestic authorities accountable. Absent such measures, the risk of solidifying a bifurcated system grows, one in which expatriate expertise is elevated while indigenous talent is systematically devalued.

This study concludes that, although Chinese capital is pivotal to Thailand's infrastructural growth, the prevailing modalities amplify skewed power relations and inhibit local engineers' advancement. In the absence of fortified institutional safeguards and anticipatory policy interventions, such undertakings are liable to intensify Thailand's dependency and obstruct its trajectory toward a high-income, innovation-oriented economy.

6. Conclusion

Thailand's ongoing entrapment within the middle-income bracket constitutes not solely an economic quandary but a pervasive structural crisis, whose origins lie in durable sociocultural and institutional dysfunctions. A pervasive hierarchically ordered workplace ethos, chronic underinvestment in human capital, and the absence of robust pathways for empirical and industrial innovation combine to impede the nation's developmental trajectory. These afflictions manifest with particular acuity within the engineering domain, a discipline whose dynamism is essential for the country's industrial and technological deepening. Practitioners in the field report career stagnation, constrained avenues for creative problem-solving, and organizational environments that privilege conformity over inventive dissent.

Ideologically charged neoliberal reforms, once celebrated as the gateway to affluence, have exacerbated

socioeconomic stratification and fortified a dual labor market in which expatriate expertise and capital are favored at the expense of locally cultivated competencies. Although such measures have inflated macroeconomic aggregates and lured foreign direct investment, they have singularly failed to interrogate the nation's entrenched labor hierarchies or to confer genuine upward mobility upon domestic practitioners.

Labor migration has increasingly surfaced as the preferred exit strategy for disenchanted engineering professionals who perceive foreign markets as sources of enhanced remuneration, dignified treatment, and robust career trajectories. When prompted, the majority of survey participants pinpoint dissatisfaction with the prevailing Thai work milieu—characterized by inadequate management, stagnating wages, and non-transparent pathways to advancement—as the dominant push factor. In contrast, prospective host nations such as Germany, Australia, and the United States promise more open and accountable environments in which competency is duly acknowledged and continuous personal growth is formally supported. Although numerous expatriates initially plan to return and reinvest their acquired competencies in the domestic economy, the protracted tempo of institutional reform and the persistence of obstructive regulatory frameworks frequently dissuade such intentions. Consequently, Thailand forfeits a substantial segment of its technical cadre to overseas markets, a trend that erodes the country's capacity for self-regenerative innovation and for sustainable long-term development. Even though remittances furnish short-term fiscal gains, they fail to offset the depletion of specialized knowledge, the rupture of mentorship networks, and the erosion of institutional memory.

The current exodus of highly educated professionals starkly underscores the contradictions embedded in Thailand's growth agenda. Official commitments to elevate industrial sophistication under the Thailand 4.0 framework remain largely rhetorical when the enabling ecosystem remains underdeveloped. Megaprojects in transportation and supplier parks attract immediate financial inflows and publicity, yet their isolated expansion of steel and concrete will not sustain competitiveness without concurrent upgrading of education, enforcement of labor rights, and deep institutional reform. The imbalance signals that expansion of physical assets is insufficient; equal urgency must attach to what is often termed human infrastructure—sustained investment in knowledge, in people, and in institutional durability. Graduate engineers frequently find themselves channeled into stagnant bureaucratic tiers or into roles that do not leverage their training, resulting in wasted human capital and stagnant career trajectories. Such misalignment is symptomatic of labor markets that have not sufficiently matured to meet the requirements of a knowledge-intensive, high-value-add economy. A credible departure from the middle-income stalemate thus requires that Thailand calibrate its ambitions to a more inclusive, transformative, and domestically-rooted economic architecture.

A fundamental reassessment of the nation's longer-term development path is thus non-negotiable. Rather than continuing to depend on inbound capital and a narrow export base, Thailand is obliged to shift toward an inclusive, innovation-led model of economic advancement. Achieving this vision will require a sequence of concrete, interrelated reforms. First, the education sector must transcend rote memorization and cultivate interdisciplinary inquiry, analytical reasoning, and technical acumen, especially in the STEM disciplines. Engineering curricula ought to be collaboratively re-engineered with the private sector to align with authentic market needs, thereby producing graduates able to translate conceptual work into commercial innovation. Second, labor-market reconfiguration is essential: meritocratic advancement, transparent recruitment protocols, and gender-equitable

policies must be codified to cultivate a culture of motivation and institutional trust. Third, a sustained rise in public expenditure on research and development is essential to generate domestically-led technological advances, diminish reliance on imported expertise, and strengthen a self-reinforcing innovation ecosystem. By synchronizing developmental policies with the practical, lived experiences of an expanding professional class, Thailand can systematically dismantle the structural impediments that have hitherto barred its accession to the club of high-income economies.

Redesigning Thailand's education systems is imperative for equipping forthcoming cohorts with competencies sought by an economy marked by rapid technological and social evolution. An entrenched reliance on rote learning and uniform assessment regimes constrains learners' capacities for critical reasoning, creative synthesis, and self-directed inquiry—attributes indispensable for sustained innovation and resilience during disruptive change. Responsive policy instruments ought, therefore, to foreground the systematic embedding of critical reasoning and inquiry-driven project learning across all sub-cycles, from early childhood through to graduate study. By situating learners in sustained, collaborative endeavors that address authentic, open-ended challenges, the system can promote conceptual depth and the incremental mastery of sophisticated decision-making. Concurrently, initial and continuing professional development for instructors requires comprehensive revitalization, ensuring that pedagogues acquire both the epistemic and interpersonal competencies to orchestrate participatory, inquiry-oriented classrooms that transcend lecture-centered didactics. Collectively, these interdependent reforms would strengthen cognitive trajectories for individuals while also aligning Thai educational output with internationally recognized benchmarks, thereby preparing graduates to excel in engineering, information technology, and other high-value, knowledge-intensive domains.

In tandem with reforms in educational curricula, attention to workplace conditions within engineering firms is essential for nurturing innovation and retaining skilled professionals. Thailand's engineering sector has for decades exhibited rigid hierarchical structures and prevailing norms that constrain creative problem-solving and limit advancement pathways for junior employees. To mitigate these impediments, the state should enhance labor protections while firms adopt anti-hierarchy measures that encourage collaborative, flatter organizational forms. Specific measures could encompass transparent, merit-based promotion criteria, uniform protocols for addressing discrimination and harassment, and publicly reported incentives for enterprises that achieve balanced representation in senior roles. Complementing these organizational efforts, systematic policy reforms are essential to fortify Thailand's global economic positioning by harnessing foreign capital and maximizing the impact of internationally trained Thai professionals. Existing foreign direct investment treaties typically emphasize capital influx while neglecting binding commitments to technology transfer and workforce development. To rectify this imbalance, future negotiations should mandate that investors establish structured training schemes, pursue joint research activities, and foster domestic innovation ecosystems, thereby translating inward capital into sustainable national competitiveness. Concurrently, the Thai government must incentivize returning professionals—through competitive research funding, tenure-track academic roles, and efficient reintegration pathways—so that skills acquired abroad are effectively redeployed at home. The resulting ecosystem, wherein foreign investment synergizes with local talent cultivation and knowledge circulation, will not only reverse brain drain but also elevate Thailand to a more knowledge-intensive development trajectory by leveraging the global networks and insights of its repatriated experts.

This dual strategy highlights the engineering sector as a microcosm of Thailand's broader economic conundrum, revealing the structural weaknesses that continue to thwart the transition from middle-income stagnation to sustained, high-value growth. While policymakers frequently prioritize GDP fluctuations and per capita thresholds, the quintessential barrier remains institutional inertia and persistent cultural norms that stymie transformative change. Engineering, the linchpin of technological enterprise and industrial evolution, continues to suffer from legacy governance models, rigidly stratified organizational cultures, and a paucity of advancement pathways for younger workers. Such structural maladies mirror the national socio-economic landscape, wherein aversion to risk, entrenched resistance to reform, and feeble enforcement of inclusionary statutes collectively inhibit the sector from attaining its latent capacity. As a result, Thailand's engineering domain epitomizes the country's stagnated advancement—possessing the latent for expansion while fettered by the very institutions and social logics that ought to catalyze renewal.

The middle-income trap, therefore, transcends a mere technical or fiscal quandary and crystallizes as a socio-political impasse, grounded in governance quality, policy architecture, and cultural predispositions. Enduring governance paradigms that privilege immediate output and capital inflow neglect the enduring imperatives of innovative capacity, human capital formation, and equitable opportunity distribution. Numerous policy interventions, enacted in isolation, have been unable to reform the underlying architectures that reproduce inequality and constrain performance.

Such a dynamic generates a reinforcing spiral in which realized economic advances accrue to a small elite while the bulk of the workforce remains trapped in low-productivity roles that offer meager pathways to advancement. Consequently, escaping the middle-income trap necessitates a strategy that transcends periodic fiscal injection; it requires a thorough reengineering of legal, educational, and occupational frameworks, accompanied by the intentional reformation of prevailing social norms, in order to cultivate an environment that rewards innovation, broad participation, and inclusive wealth distribution.

In this context, migration presents itself concurrently as a symptom of deeper structural troubles and as a partial coping mechanism, rather than as a durable remedy for Thailand's developmental impasses. For a segment of the skilled workforce, the option of relocating abroad functions as a release valve, yielding higher pay, superior working conditions, and broader avenues for advancement. Yet the resulting outflow, frequently described as brain drain, ultimately erodes the nation's reservoir of human capital and constrains its potential for innovation and for ascendance to higher value-added production. More critically, migration leaves the underlying systemic impediments—including uneven access to quality education, secure employment, and pathways of upward mobility—untouched. The mechanism remains the privilege of a select minority, consigning the majority to the stagnation of low-wage, precarious livelihoods and circumscribed futures. This selective mobility deepens inequality and social fissure while reinforcing the middle-income trap. Consequently, the phenomenon of migration must be reinterpreted not as a resolution, but as a revealing indicator of the pressing necessity for comprehensive domestic reforms capable of generating meaningful opportunity within Thai territory.

In light of these findings, this work urges a decisive reconfiguration of Thailand's developmental course—one that reorients policy and practice to privilege human flourishing over market metrics or aggregate economic

aggregates. Sustainable growth must be broadly inclusive, enabling every stratum of society to engage fully in and reap rewards from economic modernization. Achieving this goal hinges on reinforcing educational systems that cultivate critical reasoning and inventive capacity, renovating labor markets to embed fair, inclusive workplace cultures, and crafting policies that reward knowledge diffusion and skill development. By prioritizing human development, Thailand can establish resilient institutions that absorb global economic shifts while narrowing domestic inequalities. The journey ahead will be difficult, confronting entrenched interests and demanding steady, long-term commitment. Yet genuine upward mobility for Thailand will arise only through the overhaul of institutional architectures and the gradual evolution of collective cultural attitudes. Such transformation is the only means to escape the middle-income trap and secure a fairer, more prosperous future for every citizen.

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