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Connectivity and control: ICT growth and the politics of free expression in Southeast Asia's core states

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ABSTRACT

The rapid diffusion of information and communication technologies (ICTs) has reshaped political communication across Southeast Asia, raising persistent questions about whether digital connectivity strengthens freedom of expression or consolidates state control. This study examines the relationship between internet penetration and freedom of expression across six ASEAN countries (1990–2022), combining pooled panel regressions with country-specific analyses. The findings decisively reject the notion of a uniform, positive link between connectivity and freedom. Pooled models show weak and unstable effects of internet usage, with explanatory power driven almost entirely by national context rather than technology or economic wealth. Country-level regressions reveal sharp divergences: internet penetration is positively associated with freedom in Malaysia, Singapore, and marginally in Indonesia, but negatively associated in the Philippines and Thailand, while insignificant in Vietnam. When controlling for GDP per capita, the effect of internet usage disappears or turns negative in several states, whereas GDP exerts a modest but more consistent positive influence. These results demonstrate that the internet is not an autonomous driver of political liberalization in Southeast Asia; rather, its impact is conditional on pre-existing institutional and political conditions. The study contributes to debates on digital democracy by showing that the internet amplifies national trajectories of freedom and control, underscoring the centrality of state context in shaping the politics of connectivity.

Keywords: ***Digital authoritarian, freedom of expression, Southeast Asia***

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INTRODUCTION

The internet embodies a central paradox of the twenty-first century: it is at once a powerful enabler of democratic participation as well as a sophisticated instrument of state control. Digital technologies have transformed communication, allowing individuals to connect, organize, and voice opinions across social and political boundaries. Yet, as Hamel (2010) observed in his seminal UNDP (United Nations Development Programme) paper on ICT4D (Information and Communication Technology for Development) and freedom of expression, the potential of ICTs (Information and Communication Technologies) to expand human rights is undermined when states adopt policies that privilege control over openness. He argued for policy coherence, a deliberate alignment of technological development and rights protection to ensure that digital growth advances, rather than restricts, democratic freedoms.

Nowhere is this paradox more visible than in Southeast Asia, a region of vibrant digital economies and divergent political systems. Over the past two decades, countries such as Malaysia, Indonesia, Thailand, Singapore, and Vietnam have made significant investments in ICT infrastructure, mobile connectivity, and digital governance. This expansion has enabled millions to engage in online discourse, activism, and creative expression. However, it has also led to intensified state efforts to monitor, regulate, and discipline the digital sphere. Governments increasingly deploy cybersecurity laws, content moderation mandates, and surveillance technologies under the banners of national security and online safety creating an environment where connectivity coexists with constraint.

Freedom on the Net 2022 (Shahbaz et al., 2022) highlighted this global trend of authoritarian adaptation, showing how states are reshaping the internet to consolidate power rather than distribute it. In 2023 again, Shahbaz et al. (2023) further warned that the integration of artificial intelligence (AI) into online monitoring systems has deepened state capacity for repression, allowing governments to automate censorship and predict dissent.

Beyond the political dimension, the developmental implications of restricted expression are profound. Drawing on Amartya Sen's "capability approach", Bahr et al. (2025) demonstrated that freedom of expression via ICTs is integral to human development outcomes. Their study found that societies enabling open online communication experience stronger social progress and innovation, while those constraining digital expression tend to limit citizen participation and creativity. Thus, understanding ICT growth in Southeast Asia requires bridging the domains of political communication, governance, and development studies.

Against this backdrop, this paper seeks to interrogate the complex relationship between digital connectivity and political control in Southeast Asia's core states. It asks: 1) How has ICT adoption and internet penetration influenced freedom of expression in Southeast Asia? 2) Does greater connectivity foster democratic communication, or reinforce authoritarian resilience? By addressing these questions, this study contributes to the growing body of political communication scholarship on the competing trajectories of digital democracy and digital authoritarianism. It does so by situating Southeast Asia within the broader global discourse on digital governance and by employing empirical data spanning multiple decades to trace how technological growth intersects with political power.

Problem statement

Despite rapid ICT adoption and internet penetration across Southeast Asia, freedom of expression demonstrates uneven and often contradictory trends, advancing in some states while contracting in others. As Hamel (2010) cautioned, technological development without coherent rights-based policies risks reinforcing structural inequalities and enabling state control over digital spaces. This inconsistency reflects not only a failure of technology, but the political contexts into which it is embedded.

Empirical assessments by Freedom House (Gorokhovskaia et al., 2023; Shahbaz et al., 2022) indicate that the global expansion of digital networks has been accompanied by the institutionalization of online repression, especially in hybrid or authoritarian regimes. Their findings reveal that Southeast Asian governments increasingly leverage laws, technical systems, and algorithmic tools to monitor citizens, regulate content, and shape online narratives. Bahr et al. (2025) extended this argument by demonstrating that such restrictions erode the developmental benefits of ICT growth, constraining citizens' capabilities to engage freely in public life.

Accordingly, this paper argues that Southeast Asia's digital transformation cannot be understood solely in terms of connectivity metrics or infrastructure expansion. Instead, it must be analysed through the lens of political control, policy coherence, and communicative freedom. This study positions itself at the intersection of technology and politics, by looking at the comprehensive panel data on internet growth and freedom of expression. It is also contributing empirically and conceptually to the literature on how ICTs both enable and endanger freedom of expression in emerging digital societies.

BACKGROUND

The rapid expansion of information and communication technologies (ICTs) has fundamentally transformed how people in Southeast Asia communicate and participate in society. This growing connectivity opened new possibilities for freedom of expression, allowing citizens to voice concerns and connect across political boundaries. Yet, this transformation has created a complex paradox; the same technologies that enable citizens to speak freely have provided governments with powerful tools to monitor and control online spaces. Across Southeast Asia, states often justify digital restrictions as necessary to curb misinformation or safeguard national security. In practice, however, these interventions can narrow the public sphere and reinforce political control.

To explore this evolving tension, this study focused on six core ASEAN countries Singapore, Malaysia, Thailand, Indonesia, the Philippines, and Vietnam, selected based on their varying economic performances[1]. This economic diversity illustrates the region's uneven digital landscape, where high, middle, and lower-middle-income countries face distinct challenges in balancing technological progress with democratic freedoms. Early scholarship attempting to link ICT growth with freedom of expression in Asia

[1] The GDP per capita figures reported here are drawn from the Maddison Project Database, which reports values in constant international dollars adjusted for purchasing power parity (PPP). This differs from the nominal GDP per capita figures commonly reported by the World Bank or IMF (and often cited in media or Google summaries), which use current US dollars. PPP-adjusted values are particularly useful for cross-country comparisons of living standards, as they account for differences in the cost of living and inflation across countries.

produced mixed findings, often cautioning that in societies where power structures remain centralized, the internet could easily become a tool for monopolizing information (Abbott, 2001; Agrawal, 2001). Fast forward two decades, and the region has witnessed exponential growth in internet penetration.

Recent research reveals that while the internet has expanded opportunities for individual expression, it has also become a highly contested space. States increasingly use regulatory frameworks to erode media freedom under the guise of protecting public order (Asia Centre, 2022). As Ambay et al. (2019) argued, many Asian governments have adopted practices of digital authoritarianism, utilizing state surveillance and broad cyber laws to constrain public discourse. The absence of effective legal frameworks for digital rights effectively discourages open dialogue and weakens the public's ability to hold authorities accountable (Sivaprakasam, 2019). Consequently, the relationship between ICT growth and freedom of expression remains contested, with empowerment and control coexisting uneasily.

LITERATURE REVIEW, THEORETICAL FRAMEWORK, AND HYPOTHESIS

The evolution of internet connectivity in Southeast Asia has been characterized by rapid growth interspersed with persistent challenges related to access, affordability, and digital literacy. Early internet infrastructure development in the region displayed distinct patterns of expansion, driven by both governmental and private sector initiatives seeking to enhance telecommunications infrastructure and digital inclusion. Governments across Southeast Asia recognized the transformative potential of the internet as a catalyst for economic modernization and global competitiveness, while private telecommunications companies expanded networks to meet the growing demand for connectivity among increasingly urbanized and tech-savvy populations.

Culturally, Southeast Asia presents a complex landscape when examining the intersection between technological advancement and freedom of expression. One might assume that traditional Asian societies grounded in collectivist values, respect for hierarchy, and social harmony may not prioritize freedom of expression as a core social value. Some even perceive it as a challenge to the norms and the perceived beauty of traditional Asian culture. However, Shen and Tsui (2018) provided a compelling counterpoint to this assumption. Their study, covering countries such as Hong Kong, India, Indonesia, Japan, South Korea, Malaysia, Pakistan, Singapore, Taiwan, Thailand, and Vietnam, found that at the individual level, Asian values were positively associated with strong support for internet freedom and freedom of expression. This finding challenges the conventional East–West dichotomy and suggests that the desire for expressive freedom can coexist with, rather than oppose, traditional cultural values.

Early scholarship attempting to link internet or ICT growth with freedom of expression produced mixed findings. Agrawal (2001), one of the earliest researchers to explore this relationship in the Asian context, analysed India, the world's largest democracy, and cautioned against viewing the internet as a remedy for limitations on free speech. He argued that in Asian societies, where power structures often remain centralized, the internet could just as easily become a tool for monopolizing information

and reinforcing state control. His foresight has proven strikingly relevant, as many governments today employ digital surveillance, restrictive laws, and online censorship under the pretext of maintaining social order or national security. Similarly, Abbott (2001), in his comparative study of China and Malaysia, noted that the democratic potential of the internet depends heavily on accessibility. In his view, freedom of expression online remains meaningful only to those who can access and effectively use digital platforms, a point that underscores the digital divide prevalent during the early 2000s.

At that time, limited accessibility posed a significant barrier, with internet penetration still concentrated in urban areas and among elite populations. Consequently, these early studies could not yet assess the broader societal impact of connectivity. Fast forward two decades, however, and the picture has changed dramatically. The region has witnessed exponential growth in internet penetration, mobile connectivity, and social media usage. Yet, this growth has also brought new complexities to the question of online freedom.

Recent research reveals that while the internet has expanded opportunities for individual expression, it has also become a contested space shaped by laws, surveillance, and political control. *Media Freedom in Southeast Asia Report* (Asia Centre, 2022) notes that digital platforms have enabled citizens to creatively express their opinions and ideas, but at the same time, new regulatory frameworks have emerged that erode media freedom under the guise of protecting public order or national stability. The report highlights how states are using these mechanisms not only to monitor citizens but also to control narratives and limit dissent.

Similarly, Ambay et al. (2019) argued that many Asian governments despite championing democratic institutions and electoral processes have adopted practices of digital authoritarianism. Through state surveillance, cyber laws, and the suppression of online dissent, these regimes have constrained public discourse while maintaining the outward appearance of democracy. Sivaprakasam (2019) further observed that the absence of effective legal frameworks for digital rights has resulted in a situation where citizens bear the burden of penalties under ambiguous or overly broad cyber laws. This legal imbalance effectively discourages open dialogue and weakens the public's ability to hold authorities accountable.

In the ASEAN context, Gilder (2023) pointed out that several governments have used legislation to curb online mobilization and suppress opposition movements. This strategic use of digital regulation reflects a broader tension between technological modernization and political control. Furthermore, Asia Centre (2021) documents show journalists and media professionals across Southeast Asia facing increasing threats, including physical attacks, office raids, tax penalties, license revocations, arrests, and prosecutions. Such pressures have, paradoxically, fuelled the rise of alternative media actors like independent organizations, citizen journalists, and social media influencers who have stepped in to fill the void left by weakened traditional media institutions.

The internet has undeniably expanded access to information and provided new avenues for participation, creativity, and civic engagement. However, it has also opened new pathways for state surveillance, legal restrictions, and the manipulation of digital spaces. As the region continues to grapple with these contradictions, it becomes

essential to explore not only how the internet influences freedom of expression but also how individuals and groups navigate, resist, and reshape these digital boundaries.

Digital tools today continue to function as vital spaces for freedom of speech and civic participation. Howard and Hussain (2013) found that ICT played a critical role in facilitating the circulation of information when traditional, state-controlled media seeks to suppress political reporting. International news outlets such as Al Jazeera English and the BBC leveraged online platforms to bypass government restrictions, offering alternative narratives that countered state-managed broadcasts. Citizens, in turn, shared this information through social media networks, generating widespread awareness, anger, and ultimately, mass mobilization. This episode underscores how online communication can disrupt state monopolies on information and catalyse public demands for political accountability.

As Tufekci (2020) observed, social media movements and online activism demonstrate citizens' willingness to engage in democratic processes. Yet, the extent to which individuals can exercise genuine freedom of expression remains contested. Governments around the world face the dilemma of balancing freedom with control seeking to maintain stability while addressing public demands for openness and transparency. This ongoing tension reveals that digital freedom is not absolute; rather, it exists within complex power structures shaped by political, legal, and social constraints.

From Castells' (2015) perspective, the proliferation of protests and social movements in the digital age can be seen as a natural expression of democracy where citizens utilise the internet and ICT to voice discontent, mobilize supporters, and hold leaders accountable[2]. Papacharissi (2014), further emphasized that online networks serve as "affective publics", spaces where emotions and political engagement intersect. In democratic societies, such mobilizations can be viewed positively, as they provide mechanisms for civic feedback and governmental accountability. However, distinguishing between peaceful expression and violent mobilization remains a significant challenge for states worldwide.

Recent evidence from a Pew Research report (Poushter et al., 2025) underscores the continuing importance of the internet as a medium for free expression and public dialogue. The report highlights that global citizens overwhelmingly view digital platforms as essential for voicing opinions and accessing information. Nonetheless, the same study raises growing concerns about the prevalence of fabricated or misleading information commonly referred to as fake news.

To understand the complex relationship between internet progression and freedom of expression, this study adopted the framework of the "Dictator's Digital Dilemma" (Gunitsky, 2015; Howard & Hussain, 2011). This framework describes the structural paradox that autocrats and hybrid regimes face regarding the adoption of information and communication technologies. On one hand, authoritarian regimes require widespread internet connectivity to facilitate economic modernization, technological advancement, and global market integration. On the other hand, this exact connectivity

[2] Although I contend that my own findings suggest a weak correlation between internet accessibility and protest participation. Understanding this general trend remains valuable for contextual analysis, thus we think there is no issues to put it here. Here is the link for the full research:
https://etheses.dur.ac.uk/14475/1/AAA_Thesis_Correction_June_2022_FINAL.pdf?DDD35+

inherently threatens state control by democratizing information, lowering barriers to collective action, and exposing regimes to unfiltered public discourse and oppositional coordination (Howard & Hussain, 2011).

Because shutting down the internet entirely would paralyze national economies and cripple government agencies, regimes can no longer rely solely on access denial. To navigate this paradox, regimes increasingly rely on digital authoritarianism, which is defined as the utilization of the internet and related technologies to increase socio-political control, undermine civil liberties, and decrease public trust in democratic institutions (Tran, 2025). By shifting from mere negative control to proactive co-optation, modern autocracies deploy sophisticated methods of censorship, surveillance, and discourse framing to transform digital networks from engines of protest into mechanisms for regime resilience (Gunitsky, 2015).

In order to link this framework to the key variables, this study operationalised the Dictator's Digital Dilemma by mapping its structural tensions directly onto three core macro-level variables: Internet Penetration, Gross Domestic Product (GDP) per capita, and the Freedom of Expression Index. Internet Penetration (The Digital Infrastructure): This variable operationalizes the state's push for connectivity. As regimes expand their digital networks, they lay the necessary technological groundwork for economic activity, while "accidently" enabling the proliferation of digital news and oppositional narratives (Sinpeng & Koh, 2022).

For GDP per Capita (The Economic Imperative): This reflects the fundamental motivation driving the expansion of the internet despite the inherent political vulnerabilities it introduces. Maintaining economic development and global market integration is vital for authoritarian survival, performance legitimacy, and the generation of national wealth (Gunitsky, 2015). Freedom of Expression Index (The Political Outcome): This metric captures how actively regimes suppress speech whether through legal frameworks, technical blockages, or psychological influence to resolve the digital dilemma, neutralize the democratizing effects of connectivity, and preserve state control (Tran, 2025).

In the context of the Association of Southeast Asian Nations (ASEAN), states have developed distinct strategies to manage this digital dilemma, aiming to keep their digital economies open while aggressively restricting political speech. Across Southeast Asia, member states have witnessed an overall decline in internet freedom alongside a growing wave of cyber-authoritarianism (Sinpeng & Koh, 2022). Regimes in the region utilise stringent cyber laws, extensive surveillance, and state-sponsored propaganda to subvert the cyber commons. Furthermore, several ASEAN governments actively exploit the pretext of combatting "fake news," terrorism, or national security threats to justify legal crackdowns on opposition voices, activists, and journalists (Sinpeng & Koh, 2022; Tran, 2025).

This environment fundamentally alters the normative role of the press in the region. As (Waheed & Hellmueller (2021) observed in their comparative study of journalism models, media systems in Southeast Asia, particularly in Malaysia, often operate under developmental or managed frameworks that prioritize national stability over absolute press freedom. Furthermore, the rapid digitization of information has created new vulnerabilities, complicating how media professionals verify facts and combat state-sponsored narratives. The challenge of navigating this digitized, highly regulated landscape is further exacerbated by systemic gaps in digital and data journalism training

among media practitioners and educators in the region (Aksar et al., 2025), leaving citizens increasingly susceptible to the "fake news" regulations used by autocrats to justify censorship.

For example, Vietnam has implemented strict cybersecurity laws requiring data localization and the rapid removal of "false" content to suppress anti-state discourse, even as its digital market generates billions in revenue. Malaysia relies on laws governing fake news and disorderly communication to silence dissenting voices. Similarly, Thailand employs its Computer Crime Act to crack down on opposition, the Philippines leverages its Cybercrime Prevention Act to legitimize hostile interventions in cyberspace, and Indonesia mandates content removal by internet service providers to systematically police digital environments (Sinpeng & Koh, 2022; Tran, 2025).

Thus, ASEAN states illustrate modern authoritarian adaptation, as what we can understand, by aggressively leveraging digital infrastructure for economic gain while simultaneously deploying digital authoritarianism to restrain press freedom and civil liberties. Hence, drawing on the Digital Dilemma framework, this study hypothesizes that:

> *H1: In Southeast Asia's core states, the relationship between internet penetration and freedom of expression is not uniformly positive, but rather conditional upon the economic (GDP per capita) and institutional context of the state.*

To test the hypothesis, the methodology section that follows explains how these concepts are operationalized, how the progression of internet access, digital adoption, and freedom of expression are measured and compared across core Southeast Asian countries and over time.

METHODOLOGY

This section details the robust, cross-national time-series data, selection criteria, and variables used to test the hypothesis. A primary challenge in studying Southeast Asia is the scarcity of reliable, structured, and comparable data across its constituent nations. To overcome this limitation, this study leveraged cross-national datasets from Our World in Data (OWID)[3]. OWID aggregates and centralizes data from renowned primary sources such as the World Bank, the United Nations, and various academic research institutions, making it a valuable repository for comparative longitudinal research.

Regarding the trustworthiness of the dataset, it is important to note that OWID is a widely cited and respected platform in the scientific community. Its methodology is transparent, providing clear documentation on the provenance and construction of each indicator. While the ultimate reliability of the data depends on the original sources, OWID's rigorous curation process ensures a high degree of consistency and credibility, making it a suitable source for this regional analysis. From the comprehensive OWID collection, we extracted two primary datasets relevant to our research question: Regional

[3] https://ourworldindata.org/ - Our World in Data is a project of Global Change Data Lab, a nonprofit based in the UK.

Internet Penetration Data and Freedom of Expression Data. These two datasets capture the accessibility of the internet and the legal and political environment for online speech. For the operationalization of these datasets, 1) *Internet Penetration*: Represented by the percentage of the population using the internet. 2) *Freedom of Expression*: Captured through an index measuring the extent to which governments respect press freedom and allow for critical voices in the digital sphere.

The Southeast Asian region is characterized by a remarkable diversity in political regimes (from liberal democracies to authoritarian states) and markedly different trajectories of digital growth. This inherent heterogeneity provides a valuable natural laboratory for testing the relationships between technology, governance, and expression. Furthermore, while individual country case studies exist, there is a relative scarcity of quantitative, region-wide studies that employ a panel data methodology. The use of panel data is a significant strength of this study, as it allows for the control of unobserved, time-invariant country-specific characteristics and enables the analysis of dynamic changes over time. This approach will yield more robust and generalizable insights into the digital landscape of Southeast Asia.

Empirical strategy

To examine the relationship between internet usage and freedom of expression, the study employed three sets of regression analyses. First, country-level regressions were estimated separately for each ASEAN core state without control variables to capture the direct association between internet penetration and freedom of expression. Second, GDP per capita was introduced as a control to examine whether the relationship remains robust after accounting for differences in economic development. Third, panel regressions were conducted across all ASEAN core countries. A common critique of standard pooled OLS (ordinary least squares) in panel data is its failure to account for unobserved heterogeneity, which can lead to omitted variable bias, particularly regarding well-established determinants of freedom of expression such as regime type, media freedom, and governance quality.

To rigorously address this, our models progressed from baseline pooled specifications (Models 1 and 2) to Country Fixed Effects regressions (Models 3 and 4). The inclusion of country fixed effects (γ"“ Entity_i) is methodologically critical, as it mathematically controls for all time-invariant, country-specific characteristics, such as historical political culture, foundational institutional structures, and enduring regime tendencies. By holding these structural elements constant across the 1990–2022 period, the fixed effects specification isolates the dynamic impact of internet diffusion and economic growth, thereby substantially mitigating omitted variable bias and justifying the analytical approach over a standard pooled OLS.

Analysis 1: Country-level regressions (no control)

$$FreedomIndex_{it} = \alpha + \beta InternetUsage_{it} + \epsilon_{it}$$

Analysis 2: Country-level regressions with GDP as control

$$FreedomIndex_{it} = \alpha + \beta_1 InternetUsage_{it} + \beta_2 GDP_{it} + \epsilon_{it}$$

Analysis 3: Pooled regressions (ASEAN-6 panel, pooled OLS)

Model 1: $FreedomIndex_{it} = \alpha + \beta\ InternetUsage_{it} + \epsilon_{it}$

Model 2: $FreedomIndex_{it} = \alpha + \beta_1\ InternetUsage_{it} + \beta_2\ GDP_{it} + \epsilon_{it}$

Model 3: $FreedomIndex_{it} = \alpha + \beta\ InternetUsage_{it} + \gamma\ Entity_i + \epsilon_{it}$

Model 4: $FreedomIndex_{it} = \alpha + \beta_1\ InternetUsage_{it} + \beta_2\ GDP_{it} + \gamma\ Entity_i + \epsilon_{it}$

In all specifications, $FreedomIndex_{it}$ denotes the level of freedom of expression in country i at time t. The main explanatory variable is $InternetUsage_{it}$, which measures the proportion of individuals using the internet in country i at time t. The control variable GDP_{it} represents GDP per capita, capturing the level of economic development. The parameter α is the intercept term, while β, β_1, β_2 are the estimated coefficients of interest that indicate the marginal effect of the explanatory variables. The term $\gamma\ Entity_i$ captures country fixed effects, controlling for time-invariant unobserved heterogeneity across countries. Finally, ϵ_{it} is the error term.

The study employed three sets of regression analyses. First, country-level regressions were estimated separately for each ASEAN core state without control variables, to capture the direct association between internet penetration and freedom of expression. Second, GDP per capita was introduced as a control to examine whether the relationship remains robust after accounting for differences in economic development. Third, pooled regressions were conducted across all ASEAN core countries, with specifications both excluding and including GDP per capita, as well as country fixed effects, to account for structural cross-country heterogeneity.

If the coefficient on $InternetUsage_{it}$ is positive and statistically significant, this would lend support to the hypothesis that internet penetration enhances freedom of expression. Conversely, a negative or insignificant coefficient would suggest that internet usage does not systematically promote freedom of expression in the ASEAN-6 context, potentially pointing to institutional, political, or cultural constraints that limit the liberalizing effects of digital connectivity.

RESULTS

This section first presents descriptive statistics illustrating the progression of internet usage and the freedom of expression index. Both indicators are normalized in Figure 3 to clearly compare their relative trajectories. Next, the statistical analysis is structured into three tables: baseline regressions, models with economic controls for robustness, and additional specifications to capture nuanced relationships. The data in Figure 1 demonstrates significant variance in adoption rates and digital growth trajectories. While countries like Singapore, Malaysia, and Thailand experienced early and sustained increases in internet penetration often exceeding 80% by the early 2020s, others such as the Philippines, Vietnam, and Indonesia showed later but rapid growth post 2010, largely driven by mobile internet adoption.

In Figure 2, The Freedom of Expression Index reveals a unique pattern for each of the six core Southeast Asian countries. Most of these countries began providing freedom of speech to their citizens from the year 2000 onwards. However, Thailand and the Philippines show a sharp decline in their indexes after 2000, while Vietnam shows no change. This variation in how speech is expressed across these ASEAN nations is very interesting to observe

Figure 3 presents normalized trends in internet usage and freedom of expression across six Southeast Asian countries, highlighting the complex relationship between digital connectivity and civil liberties. While internet penetration has increased consistently across the region, the trajectory of freedom of expression varies widely, sometimes showing stagnation or even regression, despite rising connectivity. This divergence is especially prominent in countries like the Philippines, Thailand, and Vietnam, where increased internet usage has not necessarily led to parallel expansions in expressive freedoms. The visualization underscores that access to digital tools does not automatically translate into empowered civic participation or promoting freedom of speech.

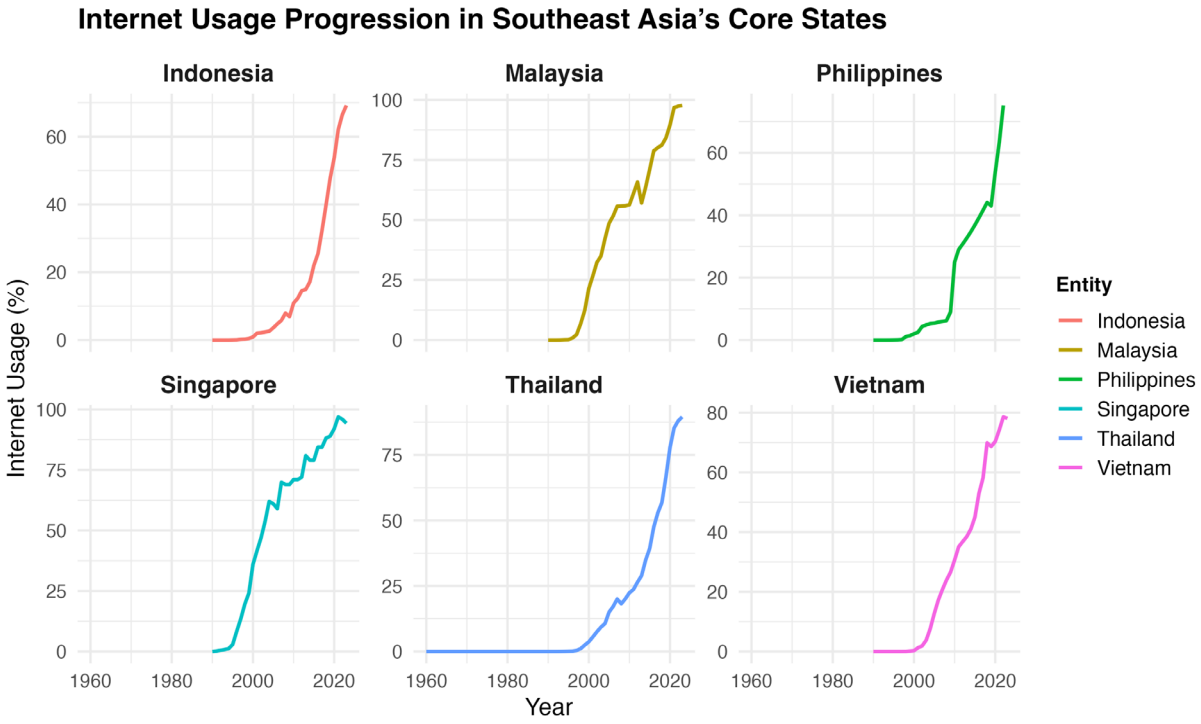

Figure 1. Internet usage progression in Southeast Asia (1960–2022)

Figure 1 illustrates the progression of internet usage (as a percentage of the population) across six Southeast Asian countries: Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

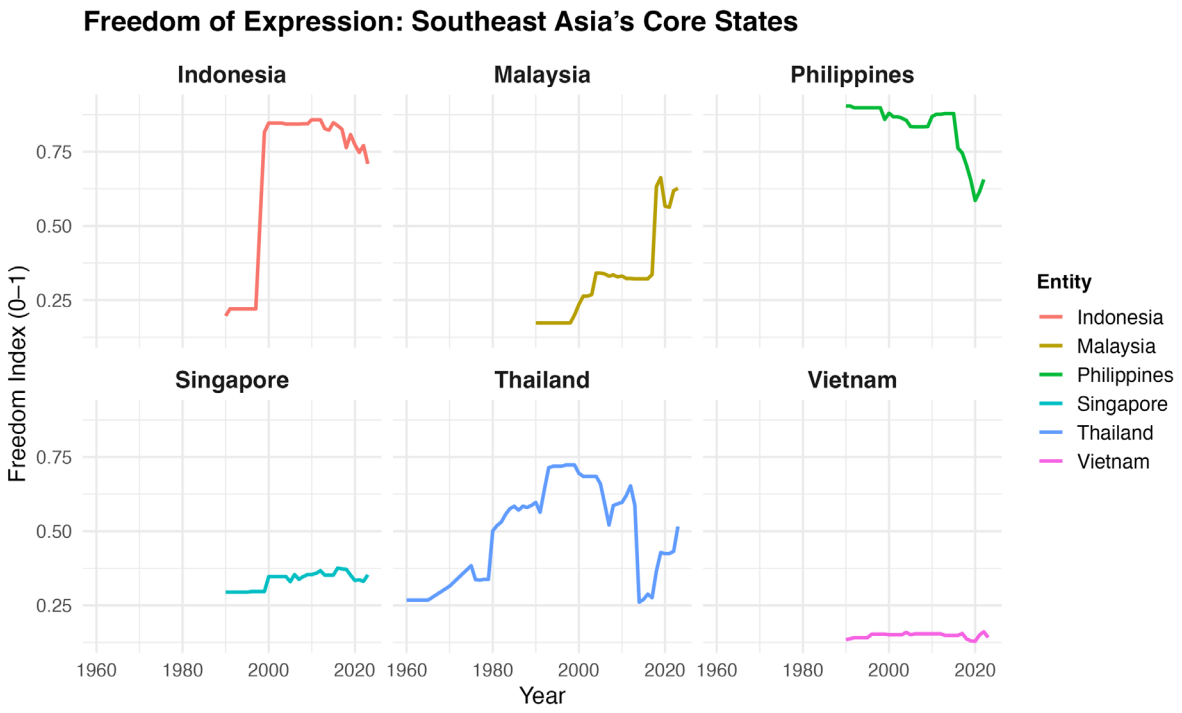

Figure 2. Freedom of Expression Index

Figure 2 shows the trend of freedom of expression index measured by interval 0-1, where 0 is no freedom, and 1 is where individuals can practice full freedom of expression.

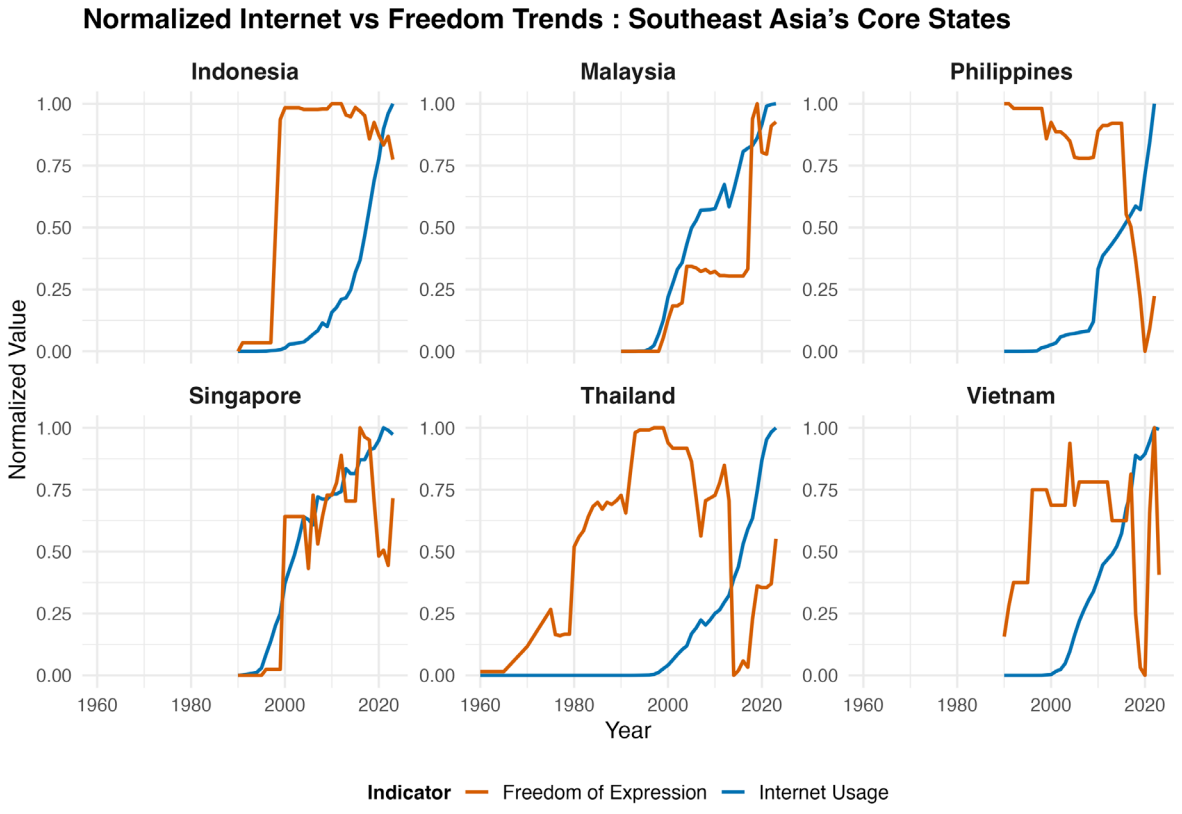

Figure 3. Normalized internet usage vs. freedom of expression trends in Southeast Asia core states (1990–2022)

Figure 3 compares normalized values of internet penetration (blue line) and freedom of expression (red line) across six Southeast Asian countries: Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. While these descriptive trends provide a useful overview, they cannot establish a causal or correlational link. Therefore, we now turn to inferential statistics to formally test the hypothesis. This study tested the hypothesis that higher internet penetration predicts greater freedom of expression in the ASEAN-6 nations (Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam) from 1990 to 2022.

Using a fixed effects model with GDP per capita as a control variable, Table 1 presents country-specific regression estimates of Internet usage on the Freedom Index. The relationship varies substantially across ASEAN states. Malaysia and Singapore show a significant positive association, where increased internet penetration is linked to higher levels of freedom of expression. Indonesia also shows a positive effect, though only marginally significant ($p = 0.055$). By contrast, the Philippines and Thailand exhibit significant negative associations, indicating that higher internet usage coincides with declining freedom of expression. In Vietnam, the relationship is statistically insignificant.

Table 1. By country regression estimates

Country	Intercept (β_0)	InternetUsage (β_1)	Std. Error	t-statistic	p-value
Indonesia	0.608	0.0041	0.00206	1.99	0.055
Malaysia	0.148	0.00396	0.00037	10.8	<0.001
Philippines	0.893	–0.00336	0.00044	–7.64	<0.001
Singapore	0.298	0.00069	0.00008	9.12	<0.001
Thailand	0.562	–0.00195	0.00077	–2.53	0.015
Vietnam	0.149	–0.00004	0.00005	–0.76	0.455

Table 2. By country regression estimates with control variable

Country	InternetUsage (β_1)	p-value	GDPperCapita (β_2)	p-value
Indonesia	–0.0112	0.024	0.000125	<0.001
Malaysia	0.0024	0.098	0.0000087	0.306
Philippines	–0.00178	0.187	–0.0000211	0.215
Singapore	0.00115	<0.001	–0.00000087	0.048
Thailand	–0.00745	<0.001	0.0000341	<0.001
Vietnam	–0.00101	<0.001	0.0000139	<0.001

When controlling for GDP per capita, the relationship between internet penetration and freedom of expression becomes mixed across ASEAN. In Table 2, Malaysia and Singapore, higher internet usage remains positively associated with greater freedom, though the effect is much stronger in Singapore.

Table 3. Overall regression estimates with control and fixed effect

	Dependent variable: FreedomIndex			
	(1)	(2)	(3)	(4)
InternetUsage	–0.001**	–0.001	0.001**	–0.0002
	(0.001)	(0.001)	(0.0004)	(0.001)
GDPperCapita		–0.00000		0.00000**
		(0.00000)		(0.00000)
Malaysia			–0.367***	–0.385***
			(0.036)	(0.037)
Philippines			0.158***	0.172***
			(0.035)	(0.036)
Singapore			–0.364***	–0.498***
			(0.037)	(0.073)
Thailand			–0.143***	–0.147***
			(0.032)	(0.032)
Vietnam			–0.531***	–0.505***
			(0.035)	(0.037)
Constant	0.517***	0.528***	0.661***	0.642***
	(0.024)	(0.025)	(0.025)	(0.027)
Observations	221	216	221	216
R^2	0.028	0.041	0.711	0.719
FE	No	No	Yes	Yes
Control	No	Yes	No	Yes
Adjusted R^2	0.024	0.032	0.703	0.709

Note: *p<0.1; **p<0.05; ***p<0.01, Standard error (in parentheses)

By contrast, in Indonesia, Thailand, and Vietnam, internet penetration is negatively associated with freedom, while GDP per capita consistently exerts a positive effect. In the Philippines, neither internet nor GDP shows a significant effect. These results suggest that economic development is a more robust predictor of freedom of expression in the region, while the impact of internet growth is highly context dependent.

The initial regression models, which did not account for cross-country differences, revealed a weak and inconsistent association between internet usage and freedom of expression. Model 1 suggested a small negative relationship, but the low explanatory power ($R^2 = 0.028$) indicates that internet usage alone explains almost none of the variation in freedom levels. Adding GDP per capita in Model 2 rendered the internet effect insignificant, and GDP itself showed no clear impact, suggesting that without accounting for national context, neither internet penetration nor economic wealth are reliable predictors.

The results change fundamentally with the introduction of country fixed effects in Model 3, which control for time-invariant national characteristics. This adjustment increased explanatory power dramatically ($R^2 = 0.711$), showing that most variation in the Freedom Index is attributable to structural country differences. The country coefficients indicate that the Philippines has a higher baseline level of freedom compared to Indonesia (the reference), while Malaysia, Singapore, Thailand, and Vietnam score

significantly lower. In the full specification (Model 4), which includes both country fixed effects and GDP, the effect of internet usage disappears entirely. GDP per capita becomes statistically significant but substantively negligible, underscoring that economic development plays only a marginal role. The persistence of large, significant country coefficients across Models 3 and 4 confirms that national context, not internet penetration or GDP, is the dominant determinant of freedom of expression in the ASEAN region.

CONCLUSION

This study set out to test the hypothesis that higher internet penetration is positively associated with greater freedom of expression in the ASEAN-6. The results do not provide support for a uniform regional relationship. Instead, the effect of internet usage varies sharply across countries, shaped by domestic political and institutional contexts.

The country-level regressions without controls indicate heterogeneous effects: internet penetration was positively associated with freedom of expression in Malaysia, Singapore, and marginally Indonesia, but negatively associated in the Philippines and Thailand, and insignificant in Vietnam. These findings suggest that, in some contexts, expanding connectivity coincided with greater openness, while in others, it paralleled declining liberties.

When GDP per capita was added as a control, the picture shifted significantly. Singapore remained strongly positive, Malaysia stayed weakly positive, but Indonesia reversed to a negative association, while Thailand and Vietnam also showed strong negative effects. In contrast, GDP per capita was consistently positive in most countries, underscoring that economic development is a more stable predictor of freedom of expression than internet growth.

The "success" of internet expansion in Southeast Asia must not be judged solely by adoption rates, but by how states manage the political externalities of connectivity. Viewed through the lens of the Dictator's Digital Dilemma, the uneven relationship between internet penetration and freedom of expression reveals a region actively calibrating the trade-off between economic modernization and political control. The absolute divergences observed across the ASEAN-6 require contextual explanation beyond the statistical output. The significant negative association between internet usage and freedom of expression in Thailand and the Philippines reflects specific socio-political environments where the digital dilemma was resolved through aggressive cyber-authoritarianism.

In Thailand, successive governments may have weaponized the Computer Crime Act and strict laws to turn the expanding internet into a highly surveilled domain, actively shrinking the space for free expression as connectivity grew. Similarly, in the Philippines, the introduction of broad cyber-libel laws and the state-sponsored manipulation of social media have actively curtailed digital civil liberties despite massive infrastructural growth. Conversely, the results in Singapore and Malaysia which maintain robust digital economies (high GDP) alongside tightly managed digital spheres suggest a different resolution to the dilemma. These states have cultivated a highly regulated public sphere where digital expression is permitted within clearly demarcated legal boundaries to support broader digital economy goals, preventing the severe negative regressions seen elsewhere.

Meanwhile, Vietnam's model of rigid digital autocracy, characterised by strict cybersecurity laws and data localization mandates, ensures that technological expansion translates to economic gain without yielding any political liberalization, explaining its negative or insignificant association. Ultimately, the core finding of this research is that the internet does not act as a deterministic force for political liberalization in Southeast Asia. Instead, its progression follows a political logic of containment. There is no consistent, regional relationship between connectivity and freedom. The internet's impact is entirely contingent on the specific institutional environment into which it is introduced, acting as a sophisticated amplifier of existing state-level tendencies, rather than an independent agent of democratic change.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

While these findings provide a crucial corrective to technological determinist views, this study has several limitations that point the way for future inquiry. The analysis relied on country-level data, which, while revealing macro-level trends, cannot capture the individual-level mechanisms through which internet usage influences or is influenced by political expression. The choice of control variables is also necessarily limited; incorporating factors such as regime type, the strength of civil society, or specific internet governance laws could yield a more nuanced model. Furthermore, while the fixed-effects models successfully accounted for time-invariant structural factors, this approach does not fully resolve potential endogeneity issues.

The relationship between digital connectivity, economic growth, and freedom of expression is likely bidirectional; for instance, states experiencing political instability or a decline in freedom of expression may proactively manipulate digital infrastructure to consolidate power. Additionally, time-varying omitted variables such as sudden regime shifts or the rapid ad-hoc introduction of new cyber legislations cannot be perfectly captured without highly granular, time-series governance indices. Consequently, the findings herein should be interpreted as robust conditional associations rather than definitive causal effects. Future research should consider employing dynamic panel models, such as the Generalized Method of Moments (GMM), or instrumental variable (IV) approaches to better isolate causal mechanisms and directly address endogeneity in digital authoritarianism studies.

Despite these limitations, this research successfully opens a new dimension for understanding the internet-freedom nexus, demonstrating that the relationship is fundamentally conditional. The findings provide an essential initial backdrop, establishing that the national political context is the dominant variable. This necessitates a shift towards more comparative, state-by-state investigations to unravel the specific political and institutional conditions that determine whether the internet becomes a tool for liberation, control, or something in between.

DATA AVAILABILITY

The data for this study are available from the corresponding author upon reasonable request.

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