Economic and Digital impacts on New Business Formation in Thailand

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Abstract

Entrepreneurial activity is a vital component of regional economic growth, especially in emerging economies**.** This study, drawing on economic, demographic, and socio-digital perspectives, investigates the economic and digital determinants of new business registrations across 78 Thai provinces. Employing a log-transformed multiple regression model, the analysis explores the influence of gross provincial product (GPP) per capita, population size, and internet penetration on entrepreneurial formation. The findings reveal that GPP per capita significantly drives business creation, while population size is inversely related. Internet penetration exhibits a positive but statistically insignificant effect. The results underscore the importance of fostering economic capacity and balanced infrastructure development to stimulate entrepreneurship in Thailand's diverse provincial landscape, offering insights relevant to similar emerging contexts.

Keywords: Regional Entrepreneurship; Digital Infrastructure; Thailand; Economic Development; Provincial Disparities

1. Introduction

Entrepreneurship serves as a cornerstone for economic dynamism, job creation, and innovation. In emerging economies like Thailand, understanding the spatial variation in entrepreneurial activity is crucial to inform equitable development strategies. Despite robust national growth, regional disparities persist in Thailand, especially in the distribution of new business ventures. Addressing these discrepancies requires a nuanced understanding of the economic and infrastructural determinants that shape entrepreneurial landscapes. This study aims to fill that gap by empirically analyzing how economic prosperity, demographic factors, and digital infrastructure contribute to new business registrations at the provincial level. This research adopts interdisciplinary lens, integrating perspectives from economic geography, development studies, and digital transformation research to provide a comprehensive understanding of the factors shaping new business ventures at the sub-national level. The insights derived are pertinent not only to Thailand but also offer valuable lessons for other emerging economies grappling with similar challenges of fostering entrepreneurship amidst regional disparities and evolving digital landscapes.

2. Research Objectives

1. To investigate the relationship between provincial economic prosperity (measured by Gross Provincial Product per capita) and the rate of new business formation in Thailand.

2. To analyze the impact of population size on entrepreneurial activity across provinces.

3. To examine the role of digital infrastructure, particularly internet penetration, in influencing new business registrations.

Literature Review

Regional Background of Entrepreneurial Activities in Thailand

1. Northern Thailand (Chiang Mai, Chiang Rai, Lampang, Lamphun)

Northern Thailand is positioning itself as a hub for innovation and creative economy development, especially under the Northern Economic Corridor framework, which prioritizes sustainable culture-based industries, digital infrastructure, wellness, and smart-city initiatives linked to the Bio-Circular-Green (BCG) economic model (OECD, 2021; Northern Economic Corridor, 2024). Chiang Mai, in particular, has gained recognition as a UNESCO Creative City, leveraging IT, digital content, handicrafts, and design to enhance its creative economy (Chiang Mai Creative City, 2024). Entrepreneurial opportunities in this region are reinforced through advanced agriculture, biotechnology, and "food-for-the-future" start-ups, which have been highlighted as high-potential clusters requiring targeted policy support (OECD, 2021).

2. Northeastern Thailand (Isan / NEEC: Nakhon Ratchasima, Khon Kaen, Udon Thani, Nong Khai)

The Northeastern region (Isan) is Thailand's least economically developed region, with household incomes and per capita GDP well below the national average (JICA, 2012). Its entrepreneurial landscape is dominated by traditional agriculture, silk weaving, and small-scale cottage industries, many of which are supported through the One Tambon One Product (OTOP) program. OTOP encourages rural villages to create distinctive marketable goods-from textiles to ceramics and local foods-boosting rural entrepreneurship and linking it to national and international markets (OTOP, 2023). While large-scale industry remains limited, agro-industrial ventures, particularly in food processing and sugar, are gradually expanding in provinces such as Khon Kaen and Nakhon Ratchasima (JICA, 2012).

3. Central Thailand and Bangkok Vicinity

The Central region, anchored by Bangkok, has long been the economic nucleus of Thailand, concentrating enterprise activity, infrastructure, and investment. Research has shown since the 1980s that clusters of entrepreneurship along Bangkok and its surrounding transport arteries serve as engines for national and regional growth (Askew, 2012). More recently, Chachoengsao Province, located within the Eastern Development Zone, has been designated as part of a Special Economic Zone (SEZ) for clean energy and electric vehicles (EVs). It is emerging as a hub for entrepreneurial activity in renewable energy, battery production, and related industries (Chachoengsao Province Report, 2023).

4. Southern Thailand

Entrepreneurial activities in Southern Thailand are increasingly tied to its role within the Eastern Economic Corridor (EEC) strategy, which promotes innovation-driven clusters in high-value industries such as digital technologies, aviation, medical innovation, and biotechnology (Thailand EEC Office, 2023). Its strategic coastal location facilitates integration with global trade and investment networks, while infrastructure investments are positioning the South as a rising hub for technology-driven entrepreneurship and advanced industrial activities (Thailand EEC Office, 2023).

3. Research Methodology

This study adopts a cross-sectional quantitative design to examine the economic and digital predictors of new business registrations across 78 Thai provinces. Relying on official secondary data and multiple regression modeling, the analysis evaluates structural relationships among regional indicators relevant to entrepreneurship.

Data and Variables

The dependent variable-new business registrations-is sourced from the Department of Business Development, serving as a formal indicator of entrepreneurial activity. Independent variables include:

1. GPP per capita: A proxy for regional economic affluence and infrastructure.
2. Population size: Reflects demographic scale and potential agglomeration effects.
3. Internet penetration: Indicates digital infrastructure as the percentage of residents with internet access.

All data come from the National Statistical Office and provincial reports. Log-transformations are applied to continuous variables to address skewness and stabilize variance, while z-score standardization improves coefficient comparability and mitigates multicollinearity.

Model Specification

The core model is a multiple linear regression:

$$\text{Log}(1 + \text{Business\_Registrations}) = \beta_0 + \beta_1 \log(1 + \text{GPP\_per\_Capita}) + \beta_2 \log(1 + \text{Population}) + \beta_3 \text{Internet\_Penetration} + \varepsilon$$

To improve the suitability of the data for regression analysis, all continuous variables were transformed using the log(1+x) function. This transformation reduces skewness, stabilizes variance, retains observations with zero values, and allows elasticity-based interpretation of coefficients, capturing diminishing marginal effects in economic relationships. Heteroskedasticity was further assessed through residual–fitted plots, which suggested non-constant error variance, and confirmed by the Breusch–Pagan and White tests. Consequently, heteroskedasticity-consistent robust standard errors (White, 1980) were employed to ensure the reliability of coefficient estimates and statistical inference.

Table 1: Regression Coefficients Explaining Provincial New Business Registrations in Thailand

Variable	Coefficient	Std. Error	t	P>|t|	[0.025	0.975]
const	9.1596	7.9838	1.1473	0.2550	-6.7485	25.0677
log_GPP	6.5794	0.4890	13.4554	0.0000	5.6051	7.5537
log_Population	-7.6704	0.4191	-18.3029	0.0000	-8.5054	-6.8353
Internet_Penetration	0.1840	0.0228	8.0562	0.0000	0.1385	0.2295

Ordinary Least Squares (OLS) with robust standard errors is used due to its interpretability and appropriateness for the dataset (n = 78). Model assumptions-linearity, independence, and homoscedasticity-are met, with variance inflation checks confirming acceptable multicollinearity levels.

Design Rationale and Limitations

The cross-sectional approach is suited for assessing structural patterns at a single point in time but cannot capture causal dynamics or temporal lags. While the model provides meaningful insights, it may omit variables such as education, governance quality, or industrial structure-factors likely to influence entrepreneurship.

Internet penetration, used as a unidimensional proxy for digital readiness, may not capture digital literacy or usage depth. Additionally, informal entrepreneurship is not reflected in registration data, possibly understating activity in rural or low-income areas.

Theoretical Framing

The methodological design aligns with the Resource-Based View (RBV) and Regional Innovation Systems frameworks. GPP represents tangible assets; population and digital access reflect regional capabilities and infrastructure embedded in local systems of innovation and entrepreneurship.

5. Discussion of Research Findings

This study highlights the heterogeneous nature of regional entrepreneurial ecosystems in Thailand, as reflected in the differential effects of Gross Provincial Product (GPP) per capita, population size, and internet penetration on new business formation. The results confirm that economic affluence positively influences entrepreneurship, while population size has a surprising negative association. Internet access, though theoretically important, did not emerge as a statistically significant factor. These findings invite a more nuanced examination of the mechanisms, constraints, and contextual differences shaping entrepreneurship across provinces.

GPP Per Capita and Economic Affluence

The positive and significant impact of GPP per capita reinforces the foundational theory that economic prosperity enables entrepreneurship by creating demand, access to capital, and supportive infrastructure (Acs & Armington, 2006). Affluent provinces often attract skilled labor and benefit from institutional maturity, lowering transaction costs for new businesses. However, GPP's role must be interpreted contextually. High GPP may primarily foster opportunity-driven entrepreneurship, while necessity-driven ventures may decline as formal employment expands (Reynolds et al., 2005).

Moreover, GPP may act as a proxy for deeper structural enablers such as governance quality, rule of law, and institutional efficiency (Rodríguez-Pose, 2013). Its sectoral composition also matters—GPP dominated by extractive or tourism sectors may offer fewer backward linkages for entrepreneurial spillovers. Future research should distinguish between types of entrepreneurship and incorporate sectoral data to refine the understanding of GPP's entrepreneurial implications.

Population Size and the Urban Paradox

Contrary to classic agglomeration theory, this study finds a negative relationship between population size and business formation. While dense populations can foster innovation and market proximity (Glaeser et al., 1992), excessive urban concentration in Thailand appears to generate congestion, inflated costs, and bureaucratic inefficiencies, which may stifle formal entrepreneurial activity. High land prices and saturation of competitive markets deter new entrants, particularly in urbanized provinces around Bangkok.

An alternative explanation is the underrepresentation of informal entrepreneurship in official data. Densely populated regions may host a vibrant informal sector—micro-businesses that operate outside formal regulatory frameworks and are thus excluded from new business registration statistics (Williams & Nadin, 2012). The negative correlation may reflect this measurement bias, underscoring the importance of mixed-method approaches to capture hidden entrepreneurial dynamics.

Furthermore, this finding signals that urbanization without corresponding institutional and infrastructural improvements can inhibit entrepreneurial potential. Rapid, unbalanced urban growth in emerging economies often outpaces the state's capacity to manage regulatory efficiency, service provision, and inclusive development. Effective urban planning, decentralization of administrative functions, and digitalization of business processes are potential solutions to mitigate these challenges.

Internet Penetration and Digital Gaps

Although internet penetration shows a positive coefficient, it is statistically insignificant in predicting business registrations. This finding challenges the common narrative of digital connectivity as a universal enabler of entrepreneurship (Brynjolfsson & McAfee, 2014). It suggests that digital

infrastructure alone is insufficient-what matters more is how internet access is integrated with complementary capabilities such as digital literacy, platform usage, e-commerce ecosystems, and supportive legal and financial environments (Hilbert, 2016; UNCTAD, 2021).

In Thailand, the uneven development of digital skills and affordable services limits the transformative potential of internet access. Many entrepreneurs lack training to leverage digital tools for market expansion or operational efficiency. Additionally, if the majority of new registrations are for traditional brick-and-mortar businesses, the role of digital tools in their formation may be limited. Internet access may be more relevant in scaling or diversifying businesses rather than initiating them.

Thus, future research should include composite digital readiness indices and qualitative data on usage patterns. Policies should shift from merely expanding infrastructure to building inclusive digital ecosystems—emphasizing training, platform development, and regulatory clarity for online commerce.

Unobserved Factors and the Limits of the Model

With an R^2 of 0.216, the model explains only about 22% of the variance in new business formation, indicating that many determinants lie outside the scope of GPP, population, and internet access. This modest explanatory power is not a flaw but a call to investigate additional drivers such as:

- Human capital: Educational attainment, vocational training, and entrepreneurial experience influence capacity and confidence to launch ventures.
- Access to finance: Credit availability, microfinance, and investment networks reduce capital constraints and encourage risk-taking.

- Institutional quality: Regulatory efficiency, transparency, and property rights shape the ease and attractiveness of formal entrepreneurship.
- Cultural attitudes: Risk tolerance, views on failure, and social support for entrepreneurs vary across provinces and affect business creation.

These factors suggest the need for more holistic, interdisciplinary, and mixed-method studies. Combining quantitative modeling with case studies and surveys can uncover context-specific dynamics and motivations behind entrepreneurial behavior.

While the log-transformed OLS model offers useful insights, it omits potentially critical control variables such as educational attainment, sectoral diversity, and governance quality, all of which are recognized as influential drivers of entrepreneurship (Rodríguez-Pose, 2013; Fritsch & Wyrwich, 2017). Their exclusion may contribute to omitted variable bias and partially explain the model's modest explanatory power. Moreover, the use of a cross-sectional design restricts the analysis to structural associations at a single point in time. This prevents exploration of temporal dynamics, path dependence, and causal inference, which are central to understanding entrepreneurial processes (Audretsch & Fritsch, 2002; Stam, 2010). While these limitations are acknowledged, they also highlight avenues for future research employing panel data, longitudinal models, and broader institutional indicators to capture the evolving and multi-dimensional nature of entrepreneurship in emerging economies.

Conclusion

This study contributes to a growing literature emphasizing the multidimensional and spatially uneven nature of entrepreneurship in emerging economies. It reaffirms the importance of economic prosperity while cautioning against simplistic assumptions about population scale and digital infrastructure. Entrepreneurship in Thailand is shaped not only by material conditions but also by institutional readiness, cultural context, and human capacity.

Policy efforts should therefore be tailored to provincial realities—promoting inclusive economic growth, urban governance reforms, and digital upskilling. Academic inquiry, in turn, must evolve beyond linear models to embrace complexity, intersectionality, and the lived experiences of entrepreneurs. Together, these approaches can support a more inclusive and dynamic entrepreneurial landscape in Thailand and other emerging economies navigating similar transitions.

Ethical Considerations

All data are publicly available, with no human subjects involved. Full documentation and analytical code are available upon request to ensure transparency and reproducibility.

6. Recommendation

Policy Implications: Toward Inclusive and Contextualized Interventions

The findings highlight the need for targeted economic development to promote inclusive growth across Thailand's provinces. In particular, resources should be strategically directed toward provinces with low GPP and limited infrastructure, where entrepreneurial opportunities are often constrained by structural disadvantages. Strengthening local capital markets, improving public service delivery, and fostering industrial diversification can

help broaden the base of entrepreneurial activity. Such measures would not only reduce regional disparities but also create more sustainable conditions for new business formation, ensuring that growth is distributed more equitably across the country.

Future Research Directions

Building on this study, future research should move beyond cross-sectional analysis by employing panel data to better capture causal relationships and the dynamic effects of entrepreneurship over time. Such an approach would allow for a more nuanced understanding of how economic, digital, and social factors evolve and interact across different periods.

Further work should also disaggregate findings by sector and type of entrepreneurship, distinguishing, for example, between opportunity-driven and necessity-driven ventures. This distinction is critical, as the determinants and trajectories of these entrepreneurial activities often diverge significantly. In addition, scholars could extend the analysis by examining regional institutions, including variations in corruption levels, regulatory burdens, and governance capacity, to understand how institutional environments condition entrepreneurial outcomes.

Another promising direction involves exploring interaction effects, such as whether internet penetration exerts a stronger influence in provinces with high gross provincial product (GPP) or among particular demographic groups. To complement these quantitative analyses, future studies should also incorporate qualitative perspectives, including interviews and focus groups with entrepreneurs in both high-density urban centers and low-income rural provinces. Such mixed-methods approaches would capture the lived experiences behind the data, offering richer insights into the challenges and opportunities facing entrepreneurs across Thailand.

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