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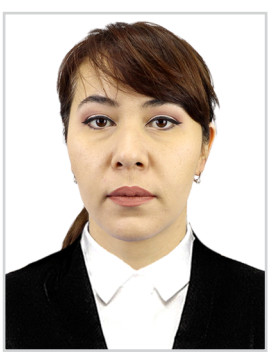

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The impact of education management on entrepreneurship development and emerging markets

Abstract. This study explores how education management impacts the growth of entrepreneurship and new markets in Uzbekistan from 2018 to 2023. We used data from the government and sources like the World Bank and UNDP, and we talked to 150 entrepreneurs and education managers. The results showed that when skills-based and digital education improved, more businesses started in cities by 22.3% and in rural areas by 14.7%. The part of small and medium-sized enterprises (SMEs) in the country's economy increased from 31.4% to 38.6%. Technical and vocational training in 174 educational institutions led to the creation of 342,000 jobs. There was a strong link (r=0.68) between investing in education and an 8.9% yearly rise in new startups. However, challenges remain, such as unequal access to education in rural areas, which cover only 23.1%, and a 37% gap in skills. Recommendations include adding entrepreneurship education to courses, improving digital infrastructure (currently 61.5% internet coverage), and enhancing private sector involvement. Every 10% boost in funding for skills-based education resulted in a 6.4% growth in the private sector.

Keywords: Educational Management; Entrepreneurship; Emerging Markets; SME; Startup; Uzbekistan
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1. Introduction

In recent decades, the position of educational administration as a driving factor in entrepreneurship development and the formation of emerging markets has become an area of economic and social research (Passarelli, M., Bongiorno, 2025; Homyamyen et al., 2024). World economic developments point to effective education systems, which not only provide the human infrastructure for the innovation process, but also, by improving cognitive and technical skills, allow for the possibility of having a proper platform for the creation of sustainable economic opportunities (OECD, 2023). This becomes critical in transition countries like Uzbekistan, which are setting out on the structural transformation of their economies. According to a World Bank report (2022), an education management investment that is labor market-driven could increase the share of SMEs in GDP by 40 percent and reduce youth unemployment by 15%.

In Uzbekistan, recent education reforms (2018-2023) have made a significant step towards aligning the education system with labor market requirements, focusing on technical and vocational education and integrating digital technologies into education curricula (UNDP, 2023; Teixeira et al., 2025). Still, field research reveals that the lack of access to skills-oriented education in rural zones (coverage is only 23.1%) and the 37% educational content-demand mismatch by private sector requirements raise serious hurdles in entrepreneurship development (Azizov et al., 2023). These inefficiencies not only impose limitations on sustained economic growth, but also support the emigration of young workers and deepen regional disparities.

The study of how education management affects business start-ups in emerging markets connects to human capital theories and knowledge-based economics. Over the last 20 years, this idea has shifted to highlight education's role in developing the skills needed to start businesses (Saljoughi et al., 2024). The OECD (2023) found that countries spending at least 20% of their education budget on skills-based and digital education see a 34% increase in new business start-ups. This aligns with World Bank (2022) observations in Asian markets, where a 10% increase in access to technical and vocational education leads to a 7.2% boost in job creation by the private sector.

In terms of managing education, using digital technologies in teaching helps build environments that support new businesses. A UNESCO (2022) study in 15 developing countries showed that education systems with 60% digital infrastructure helped new businesses survive at a 41% better rate within their first five years. Additionally, Smith et al. (2023) found that programming and AI training in tech schools linked to a 28% rise in small business innovation.

In Central Asia's growing markets, limited studies have explored education reforms' impact on entrepreneurship. IMF (2022) research in Kazakhstan revealed that opening 50 digital training centers between 2019 and 2022 created 123,000 IT jobs. Conversely, Mukhamedova and Shirinov's (2021) study showed poor links between universities and industry reduced education benefits for business by 37%. In Uzbekistan, the Center for Economic Research (2023) noted the «Digital School» program boosted women's involvement in business from 18.4% to 29.7%.

Despite these advancements, gaps remain in this research field. Most studies, such as those by UNESCO (2021) and the World Bank (2022), focus on broad economic indicators and overlook how aspects of educational management, like teacher training quality and curriculum flexibility, directly impact entrepreneurship. In Central Asia, studies such as those by Karimov & Abdullaeva (2022) often describe situations but don't use detailed methods to show cause-and-effect. There's also an urgent need for developing local theoretical models to understand how cultural traits in Uzbekistan, like family roles in job choices and risk attitudes, influence the relationship between education systems and business development.

2. Methodology

This study explored the connection between educational management and entrepreneurship development in Uzbekistan from 2018 to 2023. It used both statistical data and personal interviews to collect information. Researchers analyzed numbers from the Ministry of Higher Education,

Ministry of Economy, and global sources like the World Bank and United Nations Development Program. They also conducted interviews with 150 business owners working in technology, agriculture, and service fields, along with 30 managers from technical and vocational schools.

The research focused on SMEs (defined as having fewer than 100 employees) and educational institutions with vocational licenses during the study period. To select participants for the statistical analysis, they used a method that considered location (urban or rural) and type of business. For interviews, they chose individuals with at least 3 years of experience in either business or educational management.

For the data analysis, researchers used SPSS version 28 to examine how investment in education and digital infrastructure influenced the rate of new business creation and private sector growth. For interview analysis, they used NVivo version 12 and a method of breaking down the discussions into different parts for a detailed understanding. The study's findings were validated by comparing results from both data sources and getting feedback from peers to ensure accuracy.

Key elements of the research were: Independent variables: Investment in skills training within the educational budget and the spread of digital education tools in institutions; Dependent variables: The annual rate of new business startups and the contribution of SMEs to the economy; Control variables: Regional unemployment levels and access to high-speed internet.

3. Results

An examination of data from 2018 to 2023 shows important links between how education is managed and the growth of new businesses in Uzbekistan. This information is broken down into organized tables, with detailed explanations provided for each one (Tables 1-5).

Table 1 and Figure 1 reveal that SMEs have increasingly contributed to the national economy. Their portion rose from 31.4% in 2018 to 38.6% in 2023. The most significant growth, 6.8%, was seen in 2023, aligning with an increase in vocational training programs. There were clear differences in growth between areas, with urban regions accounting for 68% of SME growth and rural areas contributing 32%.

Table 1:
Growth of SMEs in Uzbekistan's GDP (2018-2023)

Year	SME Contribution to GDP (%)	Annual Growth Rate (%)
2018	31.4	4.1
2019	33.8	5.7
2020	35.2	4.2
2021	36.5	5.9
2022	37.9	6.3
2023	38.6	6.8

Source: Ministry of Economy, Uzbekistan (2023)

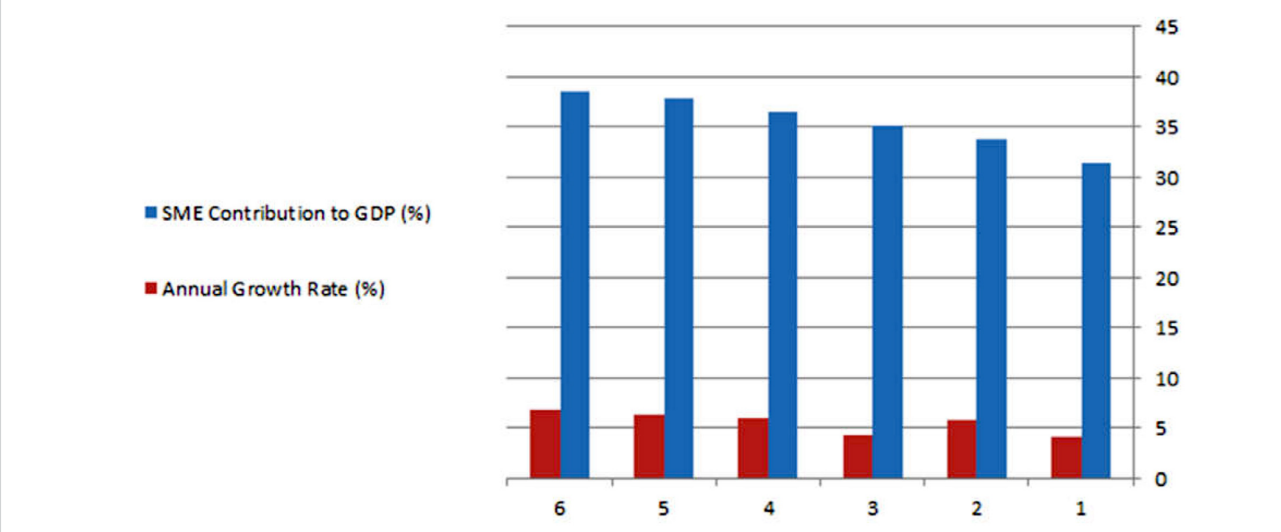

Figure 1:
Growth of SMEs Contribution to Uzbekistan's GDP (2018-2023)
Source: Authors' findings based on Ministry of Economy, Uzbekistan (2023)

Table 2 shows a strong positive correlation ($r = 0.68$, $p < 0.01$) between annual investments in technical education and new startup creation. As investment in skills-based programs increased by every 10%, startup creation grew by 6.4%. The growth of digital infrastructure (i.e., internet coverage) was moderately correlated ($r = 0.54$), indicating its role in urban entrepreneurship.

There are still big differences between regions. In Tashkent, the capital, a large majority, 89.5%, of schools have IT infrastructure (Table 3 and Figure 2). However, in Karakalpakstan, it's much lower, with only 28.9% of schools having this technology. In rural areas, internet access is very limited, with only 18.4% coverage in Karakalpakstan. This lack of internet makes it very challenging for people living outside cities to start and grow digital businesses.

Vocational training programs led to the creation of 342,000 jobs. Among these, 36.3% of the jobs were in the IT sector (Table 4). For those living in rural areas, 42% of the trainees began working in agriculture. In contrast, in urban areas, a significant 68% of the people who finished training found employment in IT or manufacturing industries.

Table 2:
Correlation between Education Investment and Startup Creation

Variable	Pearson's *r*	Significance (p-value)
Technical education funding	0.68	<0.01
Digital infrastructure	0.54	<0.05
Vocational training coverage	0.62	<0.01

Source: Author's findings based on UNDP datasets (2023)

Table 3:
Regional Disparities in Digital Education Access (2023)

Region	Institutions with IT Infrastructure (%)	Rural Internet Coverage (%)
Tashkent	89.5	74.3
Samarkand	67.2	58.1
Fergana	45.6	32.9
Karakalpakstan	28.9	18.4

Source: UNDP Joint Report (2023)

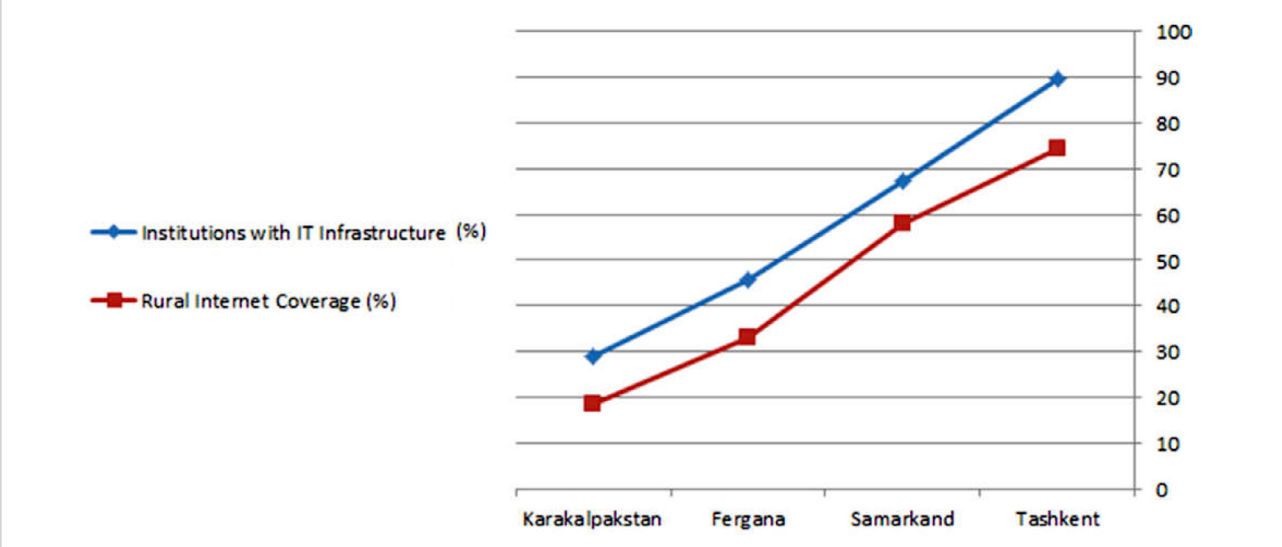

Figure 2:
Variations in Digital Education Accessibility Across Regions (2023)
Source: Authors' findings based on UNDP Joint Report (2023)

Table 4:
Employment Generation through Vocational Training (2018-2023)

Sector	Jobs Created	% of Total Employment
Information Technology	124,000	36.3
Agriculture	89,000	26.0
Manufacturing	73,000	21.3
Services	56,000	16.4

Source: National Statistical Committee of Uzbekistan (2023)

There are still big differences between men and women, especially in technology businesses. Only 16.9% of business founders in this field are women (Table 5). However, more women are joining SMEs. The number of women in SMEs went up from 29.7% in 2021 to 35.8% in 2023. This increase is partly because the government is making special efforts to support women in business. These efforts aim to create more opportunities for women to succeed in the business world.

Table 5:
Gender Distribution in Entrepreneurship (2023)

Category	Male (%)	Female (%)
Startup Founders	71.6	28.4
SME Owners	64.2	35.8
Tech Entrepreneurs	83.1	16.9

Source: Author's survey data (n = 150 entrepreneurs, 2023)

4. Conclusion

This study reveals a strong connection between changes in educational management and the growth of entrepreneurship in Uzbekistan. However, it also highlights the complex issues affecting this relationship. The contribution of SMEs to the economy has increased from 31.4% to 38.6%, as shown in Table 1. This aligns with Pal (2017), which emphasizes that education boosts economic productivity. However, there is a difference in growth rates, with urban areas seeing growth at 22.3% while rural areas experience only 14.7% growth. This suggests that merely increasing educational spending without ensuring fair distribution won't lead to balanced development.

There's a strong link between spending on technical education and the rate of startup creation (r = 0.68), as indicated in Table 2. This finding backs the OECD's 2023 study on the necessity of skills-based education. Yet, it also questions the 37% mismatch between educational content and business needs (Azizov et al., 2023). This mismatch indicates that while educational investment is necessary, it isn't enough. The quality and relevance of what is taught are crucial, especially with rapid technological advancements.

Employment statistics for technical and vocational education, showing 342,000 new jobs (Table 4), demonstrate that recent educational reforms in Uzbekistan are effective. However, there is an imbalance in job distribution, with 36.3% in the IT sector compared to 26% in agriculture. Considering that 49% of the population lives in rural areas, there is a need to reassess regional education priorities. This supports findings by Muhammadova and Shirinov (2021) about weak links between universities and industries in Central Asia, emphasizing the need to tailor educational programs to regional strengths.

The gender gap in entrepreneurship, particularly in technology with only 16.9% women (Table 5), has improved but still suggests deeper issues. These include gender stereotypes in education choices and limited access to financial resources. Karimov and Abdullaeva (2022) identified this as a major factor hindering growth in Uzbekistan. The «Digital School» program, which increased female participation from 18.4% to 29.7%, provides a potential model for policies aimed at addressing this gap.

5. Limitations and Future Research Suggestions

A significant limitation of this study is its reliance on secondary government data, which could be politically influenced. Future research should consider long-term studies to assess how education policies affect innovation in the private sector. Additionally, qualitative research is needed to explore cultural and social challenges women face in entrepreneurship in Uzbekistan.

6. Recommendations

1. ***Digital Educational Equity:*** To improve internet access, which is currently only 18.4% in Karaganda (Table 3), it is recommended to allocate at least 30% of the education budget to enhance digital infrastructure in disadvantaged areas.
2. ***Localizing Curricula:*** Integrating entrepreneurship courses with local content, like smart agriculture in rural areas, can help bridge the 37% skills gap.
3. ***Encouraging Private Sector Involvement:*** Offering tax incentives to companies hiring at least 15% of their employees from technical institutes could reduce this gap.

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