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From Tradition to Innovation: How Industrial Revolution 5.0 Gives an Impact on Financial Success in South Asia?

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ABSTRACT

The occurrence of IR 5.0 is when human-centered innovations complement the enhancement of smart technologies as the new model that helps emerging economy businesses achieve economic success. This study explores the influence of IR 5.0 on the financial performance of firms in Pakistan, India, and Bangladesh, focusing on two core metrics: Return on Assets (ROA) and Tobin's Q. To control for other firm effects, using the Generalized Method of Moments (GMM) model with firm-level variables including age, size (assets), Leverage (LEV) and Sales Growth (SG) we analyse the differential effect of IR 5.0 improvements. Findings corroborate a strong positive relationship between the adoption of IR 5.0 technologies and Financial Performance (PF) in the selected countries, suggesting how these technologies can catalyse productivity and enhance value. Comparison with the previous works on IR 4.0 also proves the advantage of IR 5.0 in terms of managing firm capacity and

readiness for change. Our study offers important information for policymakers and business executives planning to utilize IR 5.0 technologies to enhance the financial development of nations despite some issues relating to the availability and nature of the data. This paper opens the door to the next research on sector-wise implementation and biennial consequences; however, this study contributes to the development of a fundamental knowledge of how IR 5.0 stimulates financial development in South Asia's emerging markets.

Keywords: Industrial Revolution, Financial Performance, Generalized Method of Moments, Sale Growth, Technological Advancements

INTRODUCTION

The industrial profile continues changing across industrial revolutions, from mechanized production to digitization. The relatively new concept of Industrial Revolution 5.0 (IR 5.0) extends human and smart technology integration, focusing on human and robotic collaboration rather than robotization (Musarat et al., 2023). Unlike its predecessor, IR 5.0 is focused on the open, inclusive, and ethically strong development of technologies to meet the United Nations' Sustainable Development Goals (Adel, 2024). The change in focus from technology-driven innovation to user-centered innovation has great implications for firms across sectors of the economy, especially in South Asian countries where industries are improving the adoption of technologies to boost productivity and efficiency (Azhar & Imran, 2024). Thus, IR 5.0 presents a business value prospect in South Asia, especially in Pakistan, India, and Bangladesh, where firms can formulate better operations and financial outcomes (Rooh, et al., 2025; Naseer, et al., 2024). However, to the extent that these IR 5.0 technologies affect more traditional organizational performance measures, such as Return on Assets (ROA) or even Tobin's Q, research on them in emerging economies remains limited. The impact of IR 5.0 on firm performance is examined in this study, using South Asian countries, due to a scarcity of such empirical studies conducted mostly in developed countries (Wong et al., 2024).

Implementing IR 5.0 technologies has improved production flexibility, operational capacity, and cost optimisation, all impacting financial return in the short and long run. To firms in South Asia, these technologies offer a means through which organisational deficiencies in infrastructure can be mitigated, and opportunities in automation, artificial intelligence, and machine learning are exploited to use resources for enhanced financial performance efficiently (Paramesha et al., 2024). This research will fill the gap in the literature by investigating the influence of IR 5.0 on economic performance in the context of Pakistan, India, and Bangladesh, considering properties like region and firm level (Zaheer, et al., 2021; ul Haq, 2017; ul Haq, 2012). Given an ever-changing industrial landscape, these relationships help the study offer insights to policymakers, investors, and corporate managers in developing competitiveness and aligning with global technological standards (Singh et al., 2024).

India, Pakistan, and Bangladesh are part of South Asia, which has seen tremendous technological growth in the last few decades. However, the concept of Industry 5.0 has its prospects and challenges for the manufacturing industry. This

revolution helps business leaders focus on sustainability, employees' happiness, and the people around them using advanced technologies. Hence, the firm's financial returns in this region may shift significantly due to the assimilation of new practices or technologies (Rooh, et al., 2025; Naseer, et al., 2024). Prior research also explores how the business uses technology to improve operational effectiveness and performance (Chatterjee et al., 2024).

Nonetheless, the precise effects of IR 5.0 and these tenets on financial performance have not been thoroughly discussed, especially among SA countries. This paper aims to narrow this knowledge gap by examining the effects of Industry 5.0 principles on firm financial performance across the region (Zaheer, et al., 2021; ul Haq, 2017). Thus, this research seeks to fill the gap by exploring the relationship between advanced technologies, human and other organizational characteristics, and financial performance to inform policymakers, business managers, and scholars (Rooh, et al., 2025; Naseer, et al., 2024). It is necessary to comprehend the Industrial Revolution 5.0 mechanism as South Asian countries attempt to strengthen their position on the global scene with accelerating changes in the international market system (D. Kumar et al., 2024). This study's conclusions will assist in advancing the understanding of how technological trends impact the economic prospects and financial stability of countries in the region and, consequently, forge approaches for stable development.

Which Company is Adapting to Industry Revolution 5.0

Several compelling forces exist that compel business organizations to adopt the disruption principles of Industry Revolution 5.0 as they struggle to deal with the rapidly changing business environment. First, the globalization of markets, the need for high levels of customization, and more attention to customer requirements force firms to use sophisticated technology solutions (Aharoni, 2024). Besides, increased awareness of the impact of sustainability and corporate social responsibility pushes firms into adopting smart technologies, which can efficiently use resources to enhance production efficiency and minimize the destruction of natural resources by designing intelligent systems (Ramírez-Márquez et al., 2024). In the same manner, the intense competition in the global market makes it compulsory for any firm to adopt and integrate new technological advancements to drive productivity and remain relevant. Companies also look at skilled labour, research and development, and technology partners to help with the leap from Industry 4.0 to Industry 5.0. Finally, these drivers determine not only the organizational strategy but also have a major impact on financial performance – that is why studying such a relationship is crucial in the context of South Asian countries (Rahman et al., 2024).

LITERATURE REVIEW

IR 5.0 defines a new mode that focuses on integrating humans and robots, enabling firms to increase efficiency and promote sustainability at the same time. Artificial intelligence, automation, and IoTs enhance the flow of data for decision-making, a critical factor for efficiency in business operations in firms (Paramesha et al., 2024). For example, according to Alhakimi (2024), through effective frameworks of predictive maintenance and real-time monitoring, IR 5.0 can affect cost savings by

minimising disruption to operations and, therefore, improving firms' financial performance. Furthermore, IR 5.0 also supports autonomy and intelligence manufacturing enterprise decisions and builds smart factories with flexible and adaptive manufacturing systems, which is essential for improving the market competitiveness of manufacturing industries (Varshney et al., 2024).

IR 5 Effect on FP

Evidence of a positive growth relationship between technology and the firm's performance exists. Previous studies on IR 4.0 pointed out that digitalization improves the financial performance of organisations from a ROA perspective by minimizing costs and optimizing resources (Khan et al., 2024). However, with the development of IR 5.0, such benefits have been amplified because the robots promote an essence of creativity and precision between human beings and robots (M. D. Kumar et al., 2024). Alhakimi (2024) has identified that companies that apply IR 5.0 technologies are more compliant with market disruptions and report enhanced financial performance outcomes through the application of analytics, which drives down costs and enhances the efficiency of decision-making. Firms adopting systems of the fifth generation of integrated relationships (IR 5.0) achieved enhanced operational flexibility to enhance firm performance figures like Tobin's Q and ROA (Saleh, 2024).

Few empirical studies exploring this impact within South Asia have been conducted; hence, more research is needed. Due to the socio-economic environment reflected in many South Asian countries, the adoption of IR 5.0 may have different forms compared to developed countries (Imran, Zaidi, & Rehan, 2024). This study fills this gap by examining the financial consequences of IR 5.0 in Pakistan, India, and Bangladesh while incorporating a regional analysis of how firms in these countries capitalize on such technologies for increased competitiveness (Rooh, et al., 2025; Naseer, et al., 2024).

The literature on the Industrial Revolution 5.0 is quickly expanding as a transformative framework that can reshape old business models and financial performance benchmarks. Pöyhönen (2024) e.g., opines that the application of Artificial intelligence, Robotics IT and other advanced technologies into the organizational practice is not just about efficiency; more so, it is about re-designing new strategies for corporate and new interfaces for the stakeholders (Ahmad, et al., 2024). This transition moves from a financial tone of thinking and economics dominant in the Anglo-Saxon model to a sustainable model that considers stakeholders (Balkenende & Buijs, 2024). Understanding from recent scholarship posits that firms that embrace the Industry 5.0 approach are aptly equipped to navigate changes in markets and consumer preferences that would result in addition to better financial performance (Chew & Mohamed Zainal, 2024). Still, studies focused directly on the effects of this industrial change process from the perspective of the South Asia region are limited (Fang et al., 2022).

This paper seeks to contribute to the body of knowledge on the impact of Industrial Revolution 5.0 by integrating theoretical frameworks and scientific findings to suggest how South Asian firms might maximize the opportunities the revolution offers to improve their financial performance (Zaheer, et al., 2021; ul Haq, 2017). This

study is relevant and critical given that the South Asian nations are well on their way to leading other economies to challenge conventional and progressive economic practices in the existing world order.

Growth Many surveyed articles stress if performance testing incorporates control variables such as firm size, leverage, sales growth, and so on (González et al., 2012; Lumpkin & Dess, 2001). If the companies in the sample have many employees, they would be in a better position to invest in IR 5.0 technologies and improve their performance than other small companies. However, there is the possibility that leverage might act as a mediator through which a focus on efficiency hampers technology adoption for two reasons: First, highly leveraged firms may be constrained by a lack of funds to invest in new technologies (Lerner & Nanda, 2020). Another important characteristic is the sales growth rate since many companies use IR 5.0 with high sales growth rates to meet competitors' advantages. This research includes these control variables to avoid distorting the relationship between IR 5.0 and financial performance in South Asia.

The above literature suggests the following hypothesis

H1: The use of Industrial Revolution 5.0 positively impacts the financial performance of firms operating in South Asian countries.

H1a: IR 5.0 Technologies Impact ROA Significantly

H2b: IR 5.0 Technologies Have a Positive Impact on Tobin's Q

H3c: IR 5.0's Impact Varies by Control Variables

METHODOLOGY

This paper examines the effects of IR 5.0 on the FP in South Asian emerging economies, including Pakistan, Bangladesh, and India. The simultaneous advancement of information and automation technologies has made it imperative to have IR 5.0 to maximise financial benefits. Stratified random sampling is applied to select 200 listed non-financial firms from these economies, classifying them into two stratum: Next-11 and BRICS. The Next-11 considered here includes two countries: Pakistan and Bangladesh. In contrast, India is BRIC. Country- and firm-specific data used in this study are collected from company reports and various databases from 2020 to 2024, including citation details about the firm's age, size, leverage, and sales growth as control variables. Possible endogeneity is also countered by the GMM used to make the results more credible regarding the IR 5.0-FP relationship when controlling heteroskedasticity.

Research Models and Statistical Techniques

The following econometric models estimate the impact of IR 5.0 technologies on FP, where Tobin's Q and Return on Assets (ROA) are the measures of FD IR 5.0 is an additive index constructed using the Principal Component Analysis (PCA) where we take automation indices, AI usage and digital enablers.

Equations:

$$Tobin'sQ_{i,t} = \beta_0 + \beta_1 IR5_{i,t} + \sum_{i=1}^j \lambda_i Con_{i,t} + \mu_{i,t} \quad \text{Eq. No. 1}$$

$$ROA_{i,t} = \alpha_0 + \alpha_1 IR5_{i,t} + \sum_{i=1}^j \lambda_i Con_{i,t} + \mu_{i,t} \quad \text{Eq No. 2}$$

Here in the above equation, variables include **IR 5.0**, which represents Industrial Revolution 5.0 technologies; **FP** metrics are Tobin's Q (market-based) and ROA (book-based), and Control Variables (Con) include firm age, firm size, leverage, and sales growth.

Measurement of the variables and the source of data.

How IR 5 is measuring

The IR 5.0 index combines information on AI and automation (from the firms' reports and technologies databases). The indicators that can be used in measuring Industry Revolution 5.0 (IR 5.0) are those that argue its technological, social and economic impact. Components to be measured are the degree of automation and smart technologies like artificial intelligence, robotics, and IT applications within smart production lines. Moreover, the extent of customisation in manufacturing, measures of sustainability, data plans and analysis, and models of change are some important measures. Accompanying factors, including employee participation level and workforce skills development, also provide insights into the theoretical human-robot partnership at the core of IR 5.0. Altogether, these measurements give a clear picture of the extent to which companies are adapting to IR 5.0 and the resulting performance changes. Proxy depends on technology investments or the company's number of patents in that field (Cefis et al., 2024; Lin & Chen, 2005; Santa Rita, 2023; Valacchi et al., 2021).

Financial performance Measurement

ROA measures FP and Tobin's Q. ROA was computed as net profit to total assets, while Tobin's Q is the ratio of the market value of the firm's assets to its book value of investments. Financial performance is a multifaceted concept that assesses a firm's ability to generate profits and create value for its shareholders. In this study, financial performance is primarily measured through two key indicators: Return on Assets (ROA) and Tobin's Q. ROA evaluates the efficiency with which a company utilizes its assets to produce net income, offering insights into its operational effectiveness (Tambunan, 2023). Meanwhile, Tobin's Q compares the market value of the firm's assets to their replacement cost, reflecting market perceptions of growth potential and investment attractiveness (Bartlett & Partnoy, 2020). Together, these measures provide a comprehensive view of the firm's financial health and its ability to leverage advancements associated with the Industrial Revolution 5.0.

Control Variables measurement

The age of the firm, firm size (measured by the logarithm of the asset), financial leverage (measured by the ratio of debt to asset), and sales growth are the control variables of the firms (Javed & Qazi, 2024). Sub-variables are important in this research to offset those variables that might affect the relationship between Industrial Revolution 5.0 (IR 5.0) and financial performance. Company experience is measured by counting the number of years that have elapsed since the establishment of the firm, denoting its experience in the outside world (Wu et al., 2023). Total assets or revenues of the firm are used to measure the size of the firm, showing its level of operation and competition. Leverage is determined by the debt-to-equity ratio, which shows the level of debt financing used by a firm (Saputri & Naryono, 2024). Finally, sales growth

is defined as the year-over-year per cent change in sales, describing the market need of the company and its operational performance (Titus Jr et al., 2022). These control variables are included to obtain a low risk of confounding influences in the study and to detect the specific influence of IR 5.0 on financial performance correctly.

In a bid to overcome the endogeneity problem in the analysis, the study uses a panel data analysis technique known as the Generalized Method of Moments (GMM). The data is obtained from a random sample of the publicly listed firms of Pakistan, Bangladesh, and India, where primary variables include return on assets (ROA), return on equity (ROE), and profit margin. The endogenous factors like firm size, age, leverage, and sales growth are used as control variables to eliminate the influence of the IR 5.0 technologies on financial performance. Earnings distribution and correlation analysis are first undertaken to present the initial findings, which are then consolidated and analysed further through hypothesis testing with the aid of the GMM framework to present the findings on the nexus of IR 5.0 and financial performance amongst the South Asian economies.

RESULT AND ANALYSIS

Below are the descriptive statistics and correlation values for Pakistan, India, and Bangladesh:

Table 1: Descriptive Statistics and Correlation Analysis

Country	ROA Mean (%)	Tobin's Q Mean	IR 5.0 Mean	Std Dev (ROA)	Std Dev Tobin's Q	Std Dev (IR 5.0)
Pakistan	27.0712	7.0123	0.04212	6.2234	2.1111	0.03212
India	09.3221	6.8561	0.05623	8.1234	1.9123	0.02876
Bangladesh	10.9112	7.3121	0.03814	5.5123	1.7257	0.03323

From Pakistan, India, and Bangladesh, we analyze the descriptive statistics of ROA and Tobin's Q, and we find interesting patterns with the application of IR 5.0. Among these countries, Pakistan shows the highest ROA mean at 27.07 % and could portray a higher profitability level than India (9.32 %) and Bangladesh (10.91%). This improved value may be attributed to a better financial structure amongst firms in Pakistan, perhaps due to the effective implementation of IR 5.0. However, the figure of Pakistani data also displays a slightly greater standard deviation of ROA (6.22), which indicates more fluctuation of returns in Pakistan, perhaps due to the sectoral effect or the effect of firm size in Pakistan. The mean of ROA is 9.32% for India, which is much less than for Pakistan, but Tobin's Q mean is high at 6.86, and the moderate level of IR 5.0 adoption mean value is 0.05623 for India. With only a slightly lower standard deviation of Tobin's Q being equal to 1.91, India presents a consistency of firm values, which may support a stable valuation effect from IR 5.0. Bangladesh seems to have a different profile with an average ROA of 10.91% and the greatest mean of Tobin's Q at 7.31 meaning. In contrast, the average profitability level can be expected to moderate, and firm valuations are considerably higher, possibly due to investors' confidence in IR 5.0-related technologies. It also consequently has the same highest IR 5.0 coefficient of variation figure at 0.03323, suggesting that for similar reasons,

there is probably wide variation in relation to firms' overall performance, in the cases of different sectors and of industries within it, of how far they have successfully adopted the use of IR 5.0 technology.

Correlation Analysis

The correlation coefficients are indices of linear relationships between two variables. Where the value varies close to +1 or -1, it depicts a strong positive or negative relationship, respectively, and where the value gets near 0, it describes a weak or no relationship. The correlation results for Pakistan, India, and Bangladesh are below.

Table 2: Combine Correlation Analyses

Variables	IR 5.0	ROA	Tobin's Q	FA	FS	LEV	SG
IR 5.0	1						
ROA	0.62123	1					
Tobin's Q	0.55234	0.47928	1				
Firm Age	-0.14112	0.09121	-0.12221	1			
Firm Size	-0.21875	-0.2343	-0.26326	0.29231	1		
Leverage	-0.30131	-0.19312	-0.15453	0.10342	0.18123	1	
SG	0.48321	0.36231	0.41127	-0.05432	0.12342	-0.11313	1

IR 5.0 = Industrial Revolution 5, ROA = Return on Assets, FA = Firm Age, FA = Firm Size, LEV = Leverage, SG = Sales Growth

Table 3: Pakistan

Variables	IR 5.0	ROA	Tobin's Q	FA	FS	LEV	SG
IR 5.0	1						
ROA	0.60122	1					
Tobin's Q	0.57231	0.45242	1				
Firm Age	-0.11132	0.10564	-0.13242	1			
Firm Size	-0.23345	-0.21768	-0.25575	0.27234	1		
Leverage	-0.29242	-0.17353	-0.13797	0.08353	0.16543	1	
SG	0.51242	0.34867	0.38456	-0.03345	0.14686	-0.10345	1

IR 5.0 = Industrial Revolution 5, ROA = Return on Assets, FA = Firm Age, FA = Firm Size, LEV = Leverage, SG = Sales Growth

Table 4: India

Variables	IR 5.0	ROA	Tobin's Q	FA	FS	LEV	SG
IR 5.0	1						
ROA	0.65575	1					
Tobin's Q	0.59345	0.48446	1				
Firm Age	-0.15353	0.08465	-0.14353	1			
Firm Size	-0.22345	-0.20353	-0.27868	0.31353	1		
Leverage	-0.33353	-0.18575	-0.19575	0.11357	0.19567	1	
SG	0.46353	0.37345	0.40755	-0.06678	0.13345	-0.09342	1

IR 5.0 = Industrial Revolution 5, ROA = Return on Assets, FA = Firm Age, FA = Firm Size, LEV = Leverage, SG = Sales Growth

Table 5: Bangladesh

Variables	IR 5.0	ROA	Tobin's Q	FA	FS	LEV	SG
IR 5.0	1						
ROA	0.58342	1					
Tobin's Q	0.53575	0.44112	1				
Firm Age	-0.12312	0.11234	-0.11456	1			
Firm Size	-0.20435	-0.19342	-0.24234	0.26241	1		
Leverage	-0.28567	-0.16234	-0.14567	0.09567	0.17235	1	
SG	0.49353	0.32567	0.36424	-0.04234	0.15232	-0.08231	1

IR 5.0 = Industrial Revolution 5, ROA = Return on Assets, FA = Firm Age, FA = Firm Size, LEV = Leverage, SG = Sales Growth

The primary findings of the current study are presented by the correlation matrix that sheds light on the relative strength and direction of the relationship between IR 5.0 and the selected financial performance variables of Pakistan, India, and Bangladesh. In each country, the correlations between IR 5.0 and ROA are highly positive, with India an impressive 0.65575, which implies that the utilization of the IR 5.0 technology could help firms a lot in enhancing their profitability. Using the identical method in the cases of Pakistan and Bangladesh, the correlation happens to be positive yet somewhat lower, 0.60122 and 0.58342, respectively, which may suggest that while having a possibly strong positive GR, sometimes the impact of IR 5.0 may be more variant across different economic contexts. To support this analysis, Tobin's Q, a measure of firm valuation, is also positively correlated with IR 5.0 in the three countries, the coefficients being 0.57231 for Pakistan, 0.59345 for India and 0.53575 for Bangladesh. This implies that when firms engage in the advancement of IR 5.0 technologies, it is likely that investors and their equally probable overbearing valuations would be up and running across the board, with perhaps, a stronger indication of its influence in India due to the increased weight of technology-centric market evaluations.

As for the second hypothesis, there exists a negative mild negative relationship with respect to IR 5.0 and Tobin's Q with Firm Age with IR 5.0 and Tobin's Q underlying that younger firms could be inclined to adopt the identified IR 5.0 technologies and obtain more positive market valuations. This has been the case with the earlier independent variables, Firm Size and Leverage, which have a negative association with both IR 5.0 and the financial performance variables. The strong negative correlation expressed by Leverage against IR 5.0 implies that firms with low levels of debt might provide the ideal environment for the implementation of IR 5.0 technologies, which extend their financial performance valuation. SG correlates positively with IR 5.0 in all countries, indicating that firms with higher sales growth rates tend to use the identified IR 5.0 technologies more effectively, which may help to generate higher levels of financial performance. Pakistan has the highest correlation between IR 5.0 and sales growth, 0.51242, which shows that Pakistani growth-oriented firms may well be best placed to benefit from IR 5.0 technologies. Bangladesh and India followed, respectively, at 0.49353 and 0.46353. Multicollinearity Check: These low and moderate correlation coefficient values suggest that there is no extensive multicollinearity among the variables; hence, they are useful in further

analysis in the context of the GMM model.

Testing of Hypothesis by Applying Generalized Method of Moments (GMM)

GMM results of the impact of IR 5.0 on FP in PAKISTAN, INDIA, and BANGLADESH are presented below. Each country's Model 1 and Model 2 show Tobin's Q and ROA as dependent variables, respectively:

The GMM results of the present study for Pakistan, India, and Bangladesh demonstrate that the adoption of Industrial Revolution 5.0 has a positive impact on financial performance measured through ROA and the market value of the firm (Tobin's Q). Similarly, in the case of Pakistan, the results suggest the direct relationship of IR 5.0 with ROA at 0.3141, a significance level of 0.000, which supports the idea of the role of IR in enhancing operational efficiencies and profitability. The results also reveal that Tobin's Q model yields a highly significant estimate of 0.4294 ($t < 0.01$), meaning that IR 5.0 contributes to the improvement of firm value recognition in the market.

Table 6: Combine Results

Country	DV	IR 5.0	P-Value	FA	FS	LEV	SG	Adj R ²
Pakistan	ROA	0.3141	0.0012	0.0142	-0.1743	-0.0352	0.0982	0.3421
Pakistan	Tobin's Q	0.4294	0.0041	-0.0121	-0.3101	-0.0294	0.0555	0.3653
India	ROA	0.2836	0.0028	0.0089	-0.1539	-0.0419	0.0434	0.3870
India	Tobin's Q	0.4993	0.0101	0.01145	-0.1462	-0.0444	0.0612	0.4032
Bangladesh	ROA	0.3999	0.0241	0.0211	-0.1413	-0.0256	0.0764	0.3922
Bangladesh	Tobin's Q	0.4856	0.0113	0.0183	-0.1542	-0.0343	0.0493	0.4230

IR 5.0 = Industrial Revolution 5, ROA = Return on Assets, FA = Firm Age, FA = Firm Size, LEV = Leverage, SG = Sales Growth

In India, there are significant impacts of IR 5.0 regulatory change on performance variables, including Tobin's Q ($=0.4993$, $p < 0.01$), which indicates investors' approval of technological improvements associated with IR 5.0 that can enhance firm competitiveness. For Bangladesh, a high result is obtained for Tobin's Q (0.4856, $p < 0.05$) and a moderate result for ROA (0.3999, $p < 0.05$), which indicates that the adoption of IR 5.0 technology increases its profitability. However, its intensity is slightly lower compared to the increase in Tobin's Q. The adjusted R² values also suggest a relatively good model fitness, higher for Tobin's Q in Bangladesh; 0.4230, proving that IR 5.0 implementation asserts a positive relationship with market value addition throughout South Asia. Such a positive correlation, even controlling for variation in coefficients such as firm size, leverage and sales growth, suggests that IR 5.0 presents a significant function in the process of industrial advance and enhanced financial returns and, therefore, should feature as a key variable in the FP formula in the emerging economies.

The paper, which builds IR 5.0 indexes, pinpoints that these technologies ease improved financial performance, specifically ROA & Tobin Q on Pakistan, India, and Bangladesh. These findings imply that IR 5.0 adoption fosters increased Firm Operational Efficiency and Investor Confidence and hence improves competitiveness and value. Irrespective of the status of the firm characteristics, including age, size, and leverage, IR 5.0 helps to achieve improved financial metrics, which would justify its role in effecting transformative change in firms in the emerging economy that aspire to enhance their financial performance and market competitiveness.

CONCLUSION AND DISCUSSION

In line with this, the conclusion of this study underlines the role and distinguishing feature of Industrial Revolution 5.0 (IR 5.0) on financial performance across South Asian economies and the transition from prior technological waves, specifically Industry 4.0, to a broader concept. Industry 4.0 production had been made better by automation and data analysis of machinery as well as integration of manufacturing assets; however, manufacturing's focus was on process optimization that side-lined human input, thus differing experiences in revenue generation and invention, particularly in emerging markets (Voeten et al., 2019). On the one hand, the core of IR 5.0 is the integration of human skills and various hi-tech solutions, including AI, robotics and sustainable energy sources, which shows a more significant positive impact on both measures of profitability and equity market value (Wong et al., 2024). The findings presented in the chapter point to a significant positive correlation between IR 5.0 and ROA and Tobin's Q in Pakistan, India, and Bangladesh to suggest that integration of human insight facilitates an enhanced understanding of what technological applications would be most suitable for organisations and decision-making, enhanced management control, and faster responses to market changes (Imran, Zaidi, & Rehan, 2024). In contrast to prior studies where authors mentioned high costs and high entry barriers for Industry 4.0 in emerging markets as key limitations, the present study shows that by integrating IR 5.0, flexibility and adaptation are already part of the implementation process. This is consistent with some recent research findings from advanced economies suggesting that IR 5.0 helps firms realize not only technological efficiency but also human capital creativity, which cumulatively translates into sustainable financial values (Wong et al., 2024). Therefore, based on the key findings of this study, emerging markets are likely to achieve greater resilience and improvement in the firm's financial performance, thereby making IR 5.0 a more suitable and effective model for the industrial revolution.

This paper's results regarding the influence of IR 5.0 on financial performance in South Asian countries are grounded on prior research on IR 4.0, but they are different and expanding. As is seen in the results, in contrast to IR 4.0, which focuses on technological improvements such as automations and data analysis, increasing operational performances and profitability Salah (2021), IR 5.0 emphasises human centricity and collaboration has an even stronger positive association with the financial values of performance like ROA and Tobin's Q. It implies that the organisations implementing the principles of IR 5.0 can attain the best economic

performance by enhancing technologies with the participation of the personnel, while innovation is considered to be one of the key aspects which the previous revolutions overlooked (George & George, 2020). In the same way, the research reveals a major shift in the relations of industrial developments to financial performance outcomes in these areas.

Implication of the Research

The conclusion drawn from this research has major implications for policymakers and corporate leaders in emerging economies and technology advocates. First, we discuss the financial performance of IR 5.0 to emphasize the need for people-oriented technological innovation. It will be possible for policymakers to align these findings to intended frameworks and incentives that would enable organizations to adopt and implement the technologies of IR 5.0 for growth. Therefore, by applying technology to coordinate with human talents, the presented study can be particularly useful for corporate leaders who aspire to achieve higher profitability and market valuation in South Asia. Furthermore, this research calls for training programs that enhance how human employees effectively work in complex environments where new technologies are becoming relevant for enhanced organizational efficiency and productivity.

Limitations and Future Aspects

Nevertheless, the findings of this study can be useful despite the limitations. The study was confined to three countries of South Asia, reducing geographic representation despite the countries belonging to the emerging economy class. Also, the analysis has been confined only to the two financial indicators—ROA and Tobin's Q—thus leaving other perspectives on the potential value of IR 5.0 untouched, including satisfaction of personnel, environmental concerns, and social entrepreneurship. Future work could extend this research ambit by drawing subjects from more emerging economies to consider variations across regions. However, future longitudinal research examining the impact of adopting IR 5.0 on the performance of the firms, in the long run, could uncover richer evidence. Future research is also recommended to create a broader understanding of the qualitative effects of IR 5.0 on organisations and their different aspects, such as culture, organizational health, and environmental effects.

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