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Navigating Financial Challenges: A Model for the Financial Sustainability of Public Sector Universities in Pakistan

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Financial Challenges, Financial Sustainability, Public Sector, Universities of Pakistan.

ABSTRACT

Public Sector Universities (PSUs) in Pakistan are facing serious challenges in achieving financial sustainability despite their critical role in advancing socio-economic development. These institutions rely heavily on government funding but are facing increasing financial constraints that limit their ability to maintain academic quality and research standards. This study attempts to investigate the determinants of financial sustainability in PSUs, and the strategic change that mediates these determinants, with respect to strategic planning, financial management, structural reforms, and innovations. Data for this study were collected from 365 respondents who were teaching and non-teaching staff members of grade 17 and above from 33 public sector universities in Khyber Pakhtunkhwa, Pakistan. The relationships between the dependent and independent variables were tested by using regression analysis. Results showed that strategic planning, financial management, structural reforms, and innovations significantly impact the financial sustainability of PSUs, with strategic change acting as a crucial mediator in these relationships. This research contributes to the limited literature on financial sustainability in higher education, especially in developing countries. The findings are insightful for policymakers and university administrators of Pakistan and other similar regions, providing workable strategies in enhancing the financial health and long-term viability of public sector universities.

INTRODUCTION

Financial sustainability is that important concept related to organizational resilience that defines the capability of an entity to create and deploy resources effectively over time in order to achieve its strategic and operational objectives. In terms of educational institutions, financial sustainability guarantees the sustainable continuation of academic and research excellence by

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responding appropriately to dynamic trends worldwide (Al-Filai, Abdulaal, Alawi & Makki, 2024). Financial sustainability for a university, and especially for PSUs, is much more than a concern with being solvent or preventing bankruptcy. It is also about developing a financial framework that supports innovation, ensures operational efficiency, and fosters long-term institutional stability (Sazonov & Kharlamova, 2014). Almagtome et al. (2019) define financial sustainability as the financial and economic system that allocates resources in ways that secure the organization's long-term solvency. For PSUs, this means achieving stable income flows, maintaining operational efficiency, and investing in future growth while responding to changing socio-economic conditions.

Globally, Financial sustainability becomes a pressing issue for universities all over the globe. In the developed world, including the United Kingdom and the United States, declining public funding, increasing cost of education, and increasing competition for scarce resources have forced the universities to find alternative revenue sources (Garland, 2020). The universities in the United Kingdom face reduced capital grants and increased limits on tuition fees. All these factors, together with the needs for more updated infrastructure and stricter accountability, have put pressure on their financial models. Similarly, in the United States, increasing cost of education makes it unaffordable for most middle-income families and raises questions over the sustainability of universities financially (Riachi, 2021). In response, universities are adopting innovative measures such as online education, partnerships with global institutions, and operational restructuring to mitigate financial risks (Schulze-Cleven & Olson, 2017).

The situation is more precarious in developing countries such as Pakistan. PSUs that depend mainly on government funding suffer financially due to budgetary constraints, inflation, and political instability. According to Nisar, Nasruddin, and Goh (2022), although a few PSUs in Pakistan have managed to be financially stable, most of them suffer from a lack of sufficient funding, high operating costs, and declining students. The economic pressures are further compounded by external factors, such as the deteriorating relationship with technologically advanced countries and the lingering effect of the COVID-19 pandemic (Habib et al., 2021). Such challenges have placed a sense of urgency on PSUs to pursue strategic financial planning and diversify their revenue streams to ensure sustainability (Ahmad & Hussain, 2020)

Public sector universities in Pakistan: A Challenging Landscape

The PSUs are extremely important in socio-economic development by producing the leadership and skills professionals of tomorrow, but financial viability is still far from its shoulders. Historically, the PSU has had minimum competition with complete government support and flourished very well. There were only two public universities up to the late 1990s in the Khyber Pakhtunkhwa, enabling them to attain a sizeable number of students and sufficient funds from the government. However, with the proliferation of PSUs rising to 31 in KP alone, resources have been stretched out of proportion, leaving behind government funding and resulting in financial problems (Sabir & Sharif, 2020).

Although financial, these challenges go beyond this realm. Increasing education costs, coupled with political instability and inflation, have made higher education prohibitively expensive for many families. The cost of education has emerged as one of the most significant household expenditures, burdening universities further (Saqib et al., 2020). Moreover, many PSUs lack strategic financial planning and rely on traditional revenue models, exposing them to the changing nature of the educational landscape (Ashraf et al., 2018).

Despite these challenges, PSUs are full of growth and innovation opportunities. This, however, will only be achieved through the provision of a wide range of diversification of sources of revenues, efficiency, and international partnerships. Lessons drawn from global practices help Pakistani PSUs overcome such issues (Habib et al., 2021).

Research gap analysis and problem statement

Despite the well-reputed importance of financial sustainability, huge gaps exist within the literature as far as understanding its determinants and strategies especially for Pakistani PSUs. Most work on financial sustainability in higher education is done only in developed nations, leaving much knowledge to bridge the gap over the unique difficulties that universities must face in their developing regions of Pakistan (Fadzil et al., 2022). Moreover, available studies on PSUs in Pakistan have been largely qualitative, and there is less empirical evidence for the proposed strategies. This makes it difficult for policymakers and university administrators to solve financial problems in an effective manner.

This study aims to bridge this gap by developing and testing an empirical model for the financial sustainability of PSUs in Pakistan. It explores factors like financial planning, quality management, structural reforms, and demographic dynamics that are relevant for addressing the financial challenges of Pakistani universities. Strategic change is considered as a mediator for achieving financial sustainability.

Financial sustainability challenges to PSUs are tremendous because of restrictions in resources, operating costs, and dependence on government funding; hence, the ability of PSUs to give quality education and contribute to national development is compromised.

Research Objectives

The main purpose of this study is to determine and analyze factors that affect the financial sustainability of PSUs in Pakistan. This research, which focuses on universities in Khyber Pakhtunkhwa, provides a regional perspective of the challenges and opportunities facing higher education institutions in Pakistan. This study also attempts to develop an integrated framework encompassing strategic change, financial planning, and quality management to strengthen the financial sustainability of PSUs.

The current research does add to existing literature by fulfilling gaps in knowledge both theoretically and empirically along with practical recommendations to policymakers and university administrators concerning improvement in PSU's financial health. The case also emphasizes strategic change and innovation for the proper tackling of challenges associated with financial pressures in the higher education arena and provides vital lessons for the universities in the rest of developing regions.

THEORETICAL FRAMEWORK

Financial Sustainability

Financial sustainability is the dependent and ultimate variable of this study. It is the ability of PSUs to generate and use resources effectively for the satisfaction of present needs but at the same time ensuring the future viability growth (Sazonov & Kharlamova, 2014). The financial sustainability in PSUs has stable revenue generation, efficient use of resources, and strategic investment for long-term stability (Almagtome et al., 2019). Declining public funding, increases in operating costs, and shifts in the global economic landscape mean that only modern innovative management techniques will help them achieve financial resilience (Garland, 2020). There is a tremendous need for PSUs in Pakistan to ensure financial sustainability since they acquire most of their funds from the government and face inflation and political instability as pressures (Saqib et al., 2020).

Strategic Planning and Financial Sustainability

It refers to the methodical process that defines organizational goals and devises long-term plans to achieve those goals (Bryson, 2018). For PSUs, strategic planning is one of the most important measures to address the issue of financial sustainability by balancing the financial goals of the organization with academic priorities and operational capabilities (David & David, 2017). Through effective strategic planning, universities will be able to respond proactively to external challenges such as dwindling public funding and increasing competition. For instance, in Pakistan, PSUs can avail strategies such as diversification of revenue streams, market-oriented programs, and digital education to enhance their reach (Habib et al., 2021).

According to Leon (2010), strategic planning is important since it helps the organization define mission and objectives that are clear but prioritize the necessary actions to realize them. Financial sustainability of not-for-profit organizations is therefore made possible by strategic planning. Other studies have pointed out the source of financial sustainability. For instance, Bassett (2016) submits that financial reporting is an important aspect of financial sustainability because financial reports are required to compare and contrast the organizational financial goals and forecasts with actual results. Income diversification, according to Songtag-Padilla et al. (2012), is an important aspect of sustainability; Khayati et al. (2019) also present the integration of financial resources as an important aspect of sustainability.

However, the impact of strategic planning on growth and financial sustainability varies depending on factors such as environment, industry, region, and the methodologies applied in research. Based on these discussions, the following hypothesis has been formulated:

H1: *Strategic planning positively affects financial sustainability in PSUs.*

Financial Management and Financial Sustainability

Financial management is the heart of financial sustainability, including effective use, distribution, and follow-up on finances (Brigham & Houston, 2021). Budgeting, cost control, revenue generation, and risk management are examples of its functions (Atrill & McLaney, 2020). Effective financial management in the context of PSUs is innovating in terms of generating revenues, ensuring efficient costs for the operations, and maintaining transparency in the process and being answerable to financial matters (Riachi, 2021). Universities with proper financial management can better withstand the economic uncertainty and sustain themselves for a long period.

Several studies have focused on financial management and sustainability, but the effect of financial management on growth and financial sustainability may vary depending on several factors, such as the environment, industry, region, and the research methods used. Following these discussions, the following hypothesis has been developed to study the effect of financial management on financial sustainability in Higher Educational Institutions in Khyber Pakhtunkhwa, Pakistan:

H2: *Financial management positively affects financial sustainability in PSUs.*

Structural Reforms and Financial Sustainability

Structural reforms would help to tackle the inefficiencies of PSUs so that the entities work to their optimal capabilities (Rahim & Hasan, 2021). These can include changes in governance frameworks, making administrative processes simpler, and decision-making decentralized. Many PSUs in Pakistan have bureaucratic inefficiencies and outdated structures of governance, which prevent these organizations from moving in tandem with changes in education and finance environments (Khan & Khan, 2020). This way, structural reforms enhance resource allocation and reduce wastage to create a more responsive organizational culture, leading to better financial sustainability (Sabir & Sharif, 2020).

For example, East Asian countries have leveraged structural transformation to fuel organizational growth, whereas many African and Latin American nations, despite rich natural resources, have gained less from this process (McMillan & Harttgen, 2014). Structural reforms incorporate the philosophy of challenging the status quo and bringing positive changes in structures that can meet and guide the organization to achieve its objectives.

Given all the arguments and literature on financial management and sustainability, it has become evident that the impact of structural reforms is strong on growth as well as on financial sustainability. In consideration of the above discussion, the following hypothesis is made in order to explore how structural reforms can affect the sustainability of financial development in the Higher Educational Institutions of Khyber Pakhtunkhwa, Pakistan:

H3: *Structural reforms positively influence financial sustainability in PSUs.*

Innovations and Financial Sustainability

Innovation is a significant determinant of financial sustainability because it helps universities to pursue new opportunities and improve their operational efficiency (Jenkins & Walker, 2021). Innovations in teaching methods, research activities, and administrative processes can greatly minimize costs and enhance revenue generation (Brennan & Lamming, 2020). For example, online education and short courses have made it possible for universities across the globe to cater to larger markets while minimizing the costs of infrastructure (Panchyshyn et al., 2020). In the case of PSUs in Pakistan, such culture will lead to increased competitiveness and stability in finances.

Studies indicate that innovative organizations have gained higher profits compared to competitors (Vigoda et al., 2005). This means that financially innovative organizations are more stable and sustainable. With increased innovative potential in an organization, it enables them to introduce more products and services and hence profit maximization takes place through successful innovations. Besides, rewarding innovative behaviors, allocating enough resources for innovation, leveraging external experiences and information, forming alliances with other organizations, and allowing for experimentation and evaluation are also critical contributors to successful innovation (Borins, 2006; Vigoda et al., 2005; Koch & Hauknes, 2005).

As innovation and its potentials to drive growth vary from one policy to another, an enormous amount of literature exists about the intersection of innovation, financial management, and sustainability. Keeping in mind these provoking aspects, the following hypothesis has been developed to explore whether innovation is effective in maintaining financial sustainability within the context of Higher Educational Institutions in Khyber Pakhtunkhwa, Pakistan:

H4: *Innovation positively impacts financial sustainability in PSUs.*

Mediating Role of Strategic Change

Strategic change acts as a mediator in the relationship between independent variables such as strategic planning, financial management, structural reforms, and innovations. It refers to the process of adopting and implementing transformative initiatives aimed at overcoming financial challenges to attain organizational goals (Sharma, & Bali, 2021). Strategic change in PSUs might involve restructuring the tuition fee structures, developing new academic programs, international collaborations, and exploiting the use of technology to increase efficiency in the operational functions (Mian et al., 2020).

The role of strategic change as a mediator is imperative in bringing planned strategies, innovative practices, and structural reforms to the ground, thus promoting the finance sustainability of the PSUs. While strategic planning gives a roadmap, through adaptive leadership, effective communication, and stakeholder engagement, it ensures the successful implementation of those plans. That is what happened with Panchyshyn et al. (2020). By creating a culture of adaptability and innovation, PSUs can overcome financial challenges and ensure long-term sustainability.

Scholars have examined how strategic change impacts long-term financial sustainability and growth by looking at patterns of resource allocation, strategic persistence, and the ability to conform to changes over time (Finkelstein & Hambrick, 1990; Geletkanycz & Black, 2001). For instance, Zhang (2006) explored how organizations that can effectively reallocate resources in response to strategic shifts tend to experience more sustainable financial outcomes. Additionally, strategic dynamism—referring to the continuous adjustment of strategies to meet evolving business demands—has been identified as a key factor that can drive both organizational growth and improved financial performance (Chatterjee & Hambrick, 2007).

Based on an extensive literature review, it is concluded that strategic change plays a vital mediating role between strategic planning and both growth and financial sustainability. Strategic planning lays the groundwork by identifying long-term objectives and opportunities, while strategic change ensures that these plans are implemented effectively in response to evolving conditions. This alignment fosters growth and sustainability in a dynamic and competitive environment (Sharma & Bali, 2021). Despite extensive research on strategic change and its relationship with other organizational variables, limited studies have examined its mediating role between strategic planning, financial management, structural reforms, and innovations and financial sustainability within the context of Higher Educational Institutions in Khyber Pakhtunkhwa, Pakistan.

The current study aims to fill this gap by developing research hypotheses 5-9 grounded in the RBV (Resource-Based View) framework, specifically focusing on the mediating role of strategic change in the relationship between strategic planning, financial management, structural reforms, and innovations and financial sustainability in Public Section Universities of Pakistan. The following Hypotheses were developed;

H5: *Strategic change positively affects the financial sustainability in PSUs.*

H6: *Strategic change mediates the relationship between SP and FS in PSUs.*

H7: *strategic change mediates the relationship between FM and FS in PSUs.*

H8: *Strategic change mediates the relationship between SR and FS in PSUs.*

H9: *Strategic change mediates the effects of innovations on FS in PSUs.*

This theoretical framework emphasizes the complex interdependencies between financial sustainability and strategic planning, financial management, structural reforms, and innovations as the four main independent variables and strategic change as a mediator. In developing this comprehensive model that bridges the gaps in the literature, this research offers actionable insights to improve the financial sustainability of PSUs in Pakistan. It underlines the necessity of a multi-faceted approach that focuses on strategic planning, sound financial management, structural reforms, and innovative practices, all built on an effective platform of strategic change. This research work will be of immense use to policymakers, administrators of universities, and other stakeholders in the higher education sector.

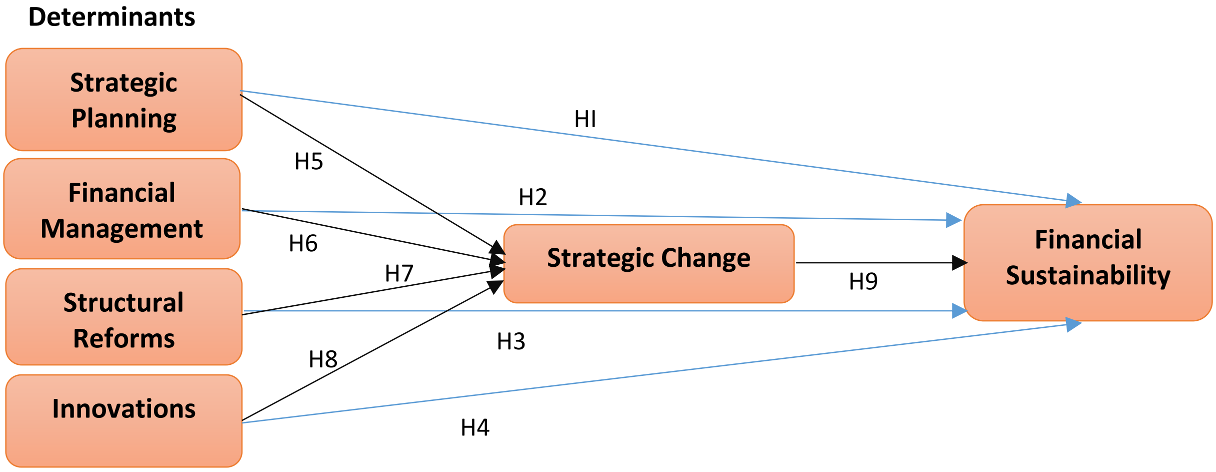

Fig 1*: Hypothesized model of the study*

METHODOLOGY

This study is based on the positivism paradigm, which is suitable for exploring relationships between financial sustainability and its determinants in Public Sector Universities (PSUs). According to Alazzani et al. (2019), positivism focuses on objective reality that can be measured using empirical and scientific methods. The paradigm supports testing hypotheses with observable and quantifiable data to ensure that research findings are based on facts and empirical evidence.

The research design is non-experimental and correlational. The study will focus on establishing relationships between independent variables such as strategic planning, financial management, structural reforms, and innovations with the dependent variable of financial sustainability. A cross-sectional design is used in gathering data at a single point in time to establish how these variables interact to influence financial sustainability in PSUs. A structured questionnaire survey was conducted in 33 PSUs of Khyber Pakhtunkhwa, which targeted employees holding Grade 17 or above, to collect the data. It measures the perception of the respondents toward the role of strategic planning, financial management, structural reforms, and innovations for sustaining financial growth.

The responses from these individuals provide insights into how strategic planning, financial management, structural reforms, and innovations affect financial sustainability. The target population consists of employees from 33 public sector universities in Khyber Pakhtunkhwa. A sample of 365 respondents was selected (including both teaching and non-teaching staff at Grade 17 or above across 33 PSUs) using a stratified random sampling technique, ensuring that both teaching and non-teaching staff were included in the study.

ANALYSIS AND RESULTS

The following result deals in detail the hypothesis testing procedure of the study. Hypotheses are tested with the help of regression analysis wherein we run regression analysis to test each hypothesis separately. The simple hypothesis is tested with the help of simple regression analysis. Similarly, the mediating hypotheses are tested using the Process Macro by Hayes (2013) approach.

Table 1: Direct Relationships Between independent and dependent variables

Hypothesis	Relationship	R^2	F-Value	Sig	Beta	T-Value
H1	SP → FS	0.27	15.21	< .001	0.42	6.97
H2	FM → FS	0.28	18.26	< .01	0.53	9.83
H3	SR → FS	0.22	14.62	< .001	0.31	9.08
H4	IN → FS	0.51	17.16	< .001	0.56	8.03
H5	SP → SC	0.51	17.10	< .05	0.56	8.03
H6	FM → SC	0.16	7.14	< .05	0.12	5.19
H7	SR → SC	0.35	12.26	< .01	0.28	6.94
H8	IN → SC	0.48	21.97	< .001	0.61	14.36
H9	SC → FS	0.58	21.83	< .05	0.47	12.38

The results of the study highlight the critical role of independent variables (SP, FM, SR, and IN) in influencing financial sustainability (FS) directly and indirectly through strategic change (SC). Key findings are summarized as follows:

Direct Relationships with Financial Sustainability (FS):

Strategic Planning (SP) positively impacts FS, explaining 27% of the variance. The results ($\beta = 0.42$, $T = 6.97$, $p < .001$) support the hypothesis that effective strategic planning contributes significantly to financial sustainability.

Financial Management (FM) is also a significant predictor of FS, explaining 28% of the variance ($\beta = 0.53$, $T = 9.83$, $p < .01$). This underscores the importance of sound financial practices in ensuring the stability and growth of public universities.

Structural Reforms (SR) contribute 22% to the variance in FS, with a significant positive relationship ($\beta = 0.31$, $T = 9.08$, $p < .001$). This demonstrates the relevance of institutional changes for achieving financial goals.

Innovation (IN) emerges as the most influential factor, explaining 51% of the variance in FS ($\beta = 0.56$, $T = 8.03$, $p < .001$), showcasing the necessity of embracing innovative practices.

Impact on Strategic Change (SC):

SP ($\beta = 0.56$, $T = 8.03$, $p < .05$), FM ($\beta = 0.12$, $T = 5.19$, $p < .05$), SR ($\beta = 0.28$, $T = 6.94$, $p < .01$), and IN ($\beta = 0.61$, $T = 14.36$, $p < .001$) all positively influence SC, with innovation again standing out as the strongest predictor. This indicates that these factors play a vital role in driving strategic transformation in public sector universities.

Impact of Strategic Change (SC) on FS:

Strategic change (SC) itself significantly contributes to financial sustainability (FS), explaining 58% of the variance ($\beta = 0.47$, $T = 12.38$, $p < .01$). This emphasizes the importance of SC as link to financial outcomes.

These findings provide a comprehensive understanding of how strategic planning, financial management, structural reforms, and innovation directly contribute to SC and FS in public sector universities. The results underline the need for integrated strategies to foster resilience and growth in these institutions.

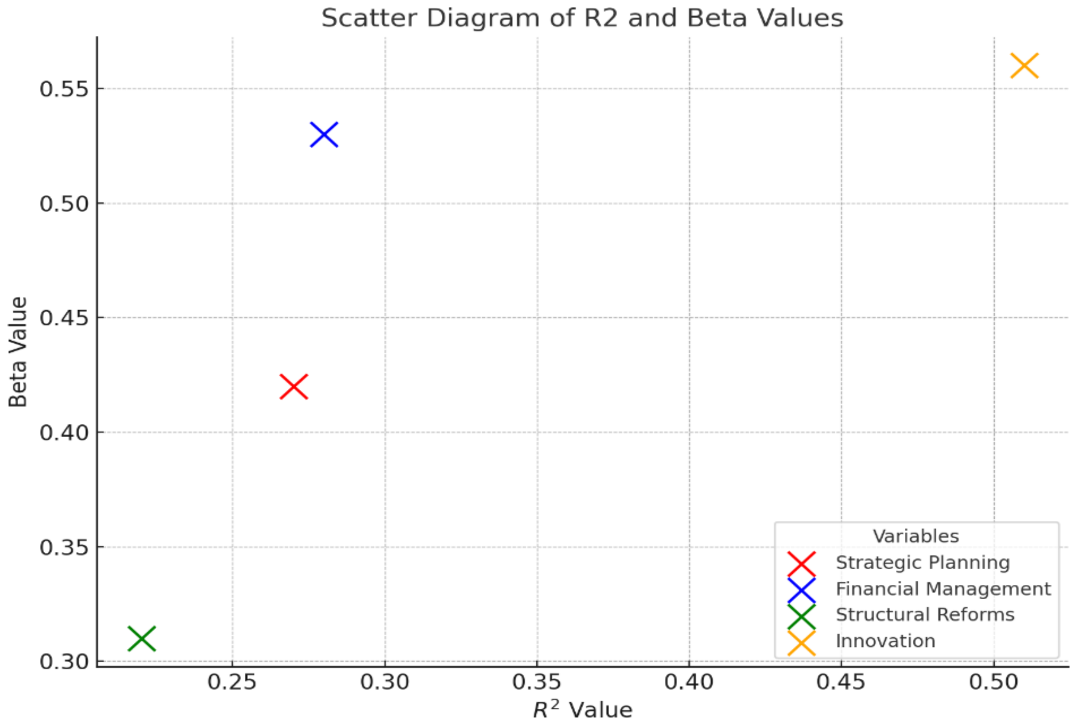

Fig 1: *Scatter diagram of the variables*

Table 2: Mediation Analysis (mediating effect of Strategic Change (SC): Hypothesis 10

Model	Beta	T	Sig	R^2	Delta R^2	Indirect Effects	LLCI	ULCI
SC mediates the relationship between SP and FS								
Model 1 (SC ~ SP)	.15	4.31	< .01	.03	.03			
Model 2 (FS ~ SP)	.21	5.18	< .001	.03	.03			
Model 3 (FS ~ SP + SC)	.15	5.49	< .05	.10	.07	.051	.009	.112
SC mediates the relationship between FM and FS								
Model 1 (SC ~ FM)	.22	8.73	< .001	.02	.02			
Model 2 (FS ~ FM)	.26	6.37	< .01	.03	.03			
Model 3 (FS ~ FM + SC)	.18	7.29	< .05	.17	.14	.1117	.2851	.3294
SC mediates the effect of SR on FS								
Model 1 (SC ~ SR)	.34	16.88	< .001	.08	.08			
Model 2 (FS ~ SR)	.60	23.52	< .01	.24	.16			
Model 3 (FS ~ SR + SC)	.31	11.28	< .01	.41	.17	.1021	.008	.123
SC mediates the effect of IN on FS								
Model 1 (SC ~ IN)	.26	6.39	< .01	.07	.07			
Model 2 (FS ~ IN)	.31	7.06	< .01	.18	.11			
Model 3 (FS ~ IN + SC)	.22	7.29	< .001	.31	.13	.072	.018	.281

The results of the mediation analysis demonstrate that strategic change (SC) consistently mediates the relationships between several predictors—strategic planning (SP), financial management (FM), strategic reforms (SR), and innovation (IN)—and financial sustainability (FS). Below is a summary of the key findings from each model:

SC mediates the relationship between SP and FS: The results support the hypothesis that SC mediates the relationship between SP and FS. In Model 1, SP significantly influences SC, and in Model 2, SP positively affects FS. When SC is included in Model 3, both SP and SC have a positive effect on FS, with SC explaining 7% more variation in FS. The indirect effect of SP on FS through SC is significant, confirming SC's mediating role (Effect size = .051, LLCI = .009, ULCI = .112).

SC mediates the relationship between FM and FS: The analysis shows that SC mediates the relationship between FM and FS. FM significantly influences SC in Model 1, and FM positively affects FS in Model 2. In Model 3, both FM and SC have positive effects on FS, with SC explaining 14% more variation in FS. The indirect effect of FM on FS through SC is also significant (Effect size = .1117, LLCI = .2851, ULCI = .3294), supporting the mediation hypothesis.

SC mediates the effect of SR on FS: SC mediates the effect of SR on FS. The results show that SR significantly influences SC and FS. Including SC in Model 3 significantly increases the explanatory power of the model (Delta R^2 = .17), with SC contributing positively to FS. The indirect effect of SR on FS through SC is significant (Effect size = .1021, LLCI = .008, ULCI = .123), suggesting that SC plays a key role in transmitting the effect of SR on FS.

SC mediates the effect of IN on FS: The findings also support the hypothesis that SC mediates the relationship between IN and FS. IN significantly impacts SC, and both IN and SC contribute positively to FS in Model 3. The inclusion of SC explains 13% more variation in FS, and the indirect effect of IN on FS through SC is significant (Effect size = .072, LLCI = .018, ULCI = .281), further supporting SC as a mediator.

Overall, the results consistently show that SC plays a critical mediating role in the relationships between SP, FM, SR, IN, and FS. These findings suggest that SC not only directly affects FS but also enhances the impact of other key organizational factors (SP, FM, SR, and IN) on financial sustainability. The mediation effects are significant across all models, providing strong evidence for the proposed hypotheses.

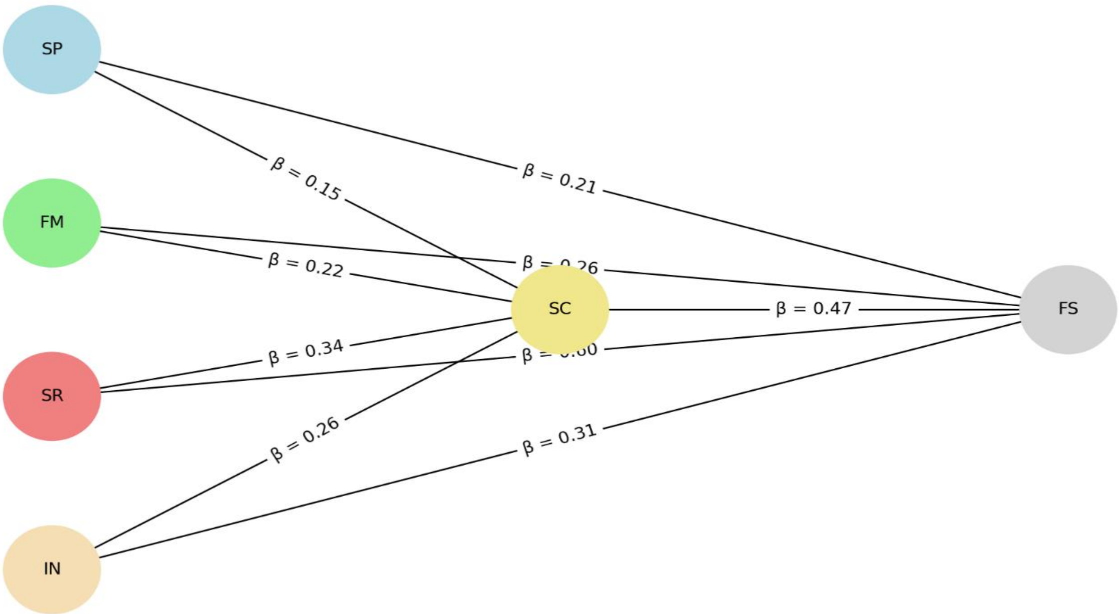

Fig 2: *Direct and indirect effect*

DISCUSSION

Grounded in the Resource-Based View (RBV), this study investigated the factors influencing financial sustainability (FS) in public sector universities (PSUs) of Khyber Pakhtunkhwa, Pakistan, using probability sampling techniques. The findings reveal that strategic planning (SP), financial management (FM), quality management (QM), structural reforms (SR), and innovation positively and significantly influence growth and FS. However, demographic factors showed no direct significant impact. Strategic change (SC) was confirmed as a critical mediator across these relationships.

Hypotheses 1, that is, SP significantly impacts FS, aligns with RBV that focuses on leveraging internal resources to achieve competitive advantage. This finding supports previous studies emphasizing SP's role in ensuring long-term sustainability in higher education (e.g., Crawford & Cifuentes-Faura, 2022; Mian et al., 2020).

As the results of H2 indicate, a robust financial management system significantly enhances FS by optimizing resources, attracting investments, and ensuring informed decision-making. These results align with Gardini & Grossi (2018) and Kasradze et al. (2019). The results of H3 indicate that SR enhances FS by fostering efficiency, innovation, and competitiveness. Findings are consistent with RBV and prior studies (e.g., Tien et al., 2022; Ngwacho, 2020), emphasizing the importance of dynamic capabilities for resilience. Results of H4 indicate that innovation drives FS by promoting research excellence, attracting funding, and fostering entrepreneurial activities. The results of H4 support this align with RBV and prior research (Jayabalan et al., 2021), highlighting its pivotal role in ensuring PSU competitiveness.

Hypotheses 5-9 were formulated to test the relationship of strategic planning, financial management, structural reforms and innovations respectively with mediator, that is, strategic change as dependent variables. The results reveal a significant positive relationship exists between all independent variables and mediating variable. Similarly, a significant positive relationship was hypothesized between strategic change and financial sustainability (*H9*). The results indicate that the relationship between strategic change and financial sustainability of universities in Pakistan is significant and positive. The results are aligned with previous studies (Asa, Nautwima, Khom-Oabes and Obrenovic, 2023)

The mediating role of strategic change between strategic planning and financial sustainability in public sector universities is positive and significant as evident from the results of H10. Strategic change bridges the gap between strategic planning and long-term financial sustainability, aligning internal resources to enhance innovation and competitive advantage. This aligns with previous studies (Al-Filali et al., 2023; Harris et al., 2017; Mian et al., 2020). Similarly strategic change positively mediates the relationship between financial management systems and financial sustainability. Financial management promotes resource allocation and decision-making, and strategic change helps align financial reforms with strategic goals to improve financial sustainability, consistent with RBV and previous research (Kasradze et al., 2019; Kharusi & Murthy, 2017).

Strategic change is also a significant mediator between structural reforms and financial sustainability in public sector universities. It helps universities harness structural reforms to stimulate growth, improve resource allocation, and enhance competitive position, leading to financial sustainability, which aligns with RBV theory and past studies (Okunlaya et al., 2022; Rodríguez-Abitia & Bribiesca-Correa, 2021). Universities are facing financial crises, with cuts in government funding and decreased student intake, especially after COVID-19. In developing countries, inflation is further affecting the sector. Universities need to generate knowledge and manage resources effectively to ensure long-term survival. Talent recruitment and global admissions reforms are key to improving financial outcomes (Johnes & Johnes, 2013; Bika & Kalantaridis, 2019; Gölgeci & Kuivalainen, 2020).

Furthermore, strategic change mediates the relationship between innovation and financial sustainability. Innovation drives strategic change by fostering new ideas and technologies that align with organizational goals, enhancing resilience and financial performance, in line with RBV theory (Arnout & Almoied, 2021; Bak et al., 2020). SC was confirmed as a significant mediator across all hypotheses (H7-H9), reinforcing its importance in aligning internal capabilities with external opportunities. Key findings include:

The study underscores the pressing need for PSUs to diversify funding sources and optimize resource utilization amid declining government support and shifting demographics. Strategic change enables institutions to adapt to challenges and capitalize on opportunities, ensuring long-term FS. These findings are consistent with RBV, emphasizing the importance of leveraging internal resources and dynamic capabilities to sustain competitive advantage in an increasingly constrained and competitive environment.

Conclusion

This study integrates multiple factors to provide a holistic view of how strategic planning, resource alignment, and strategic change contribute to financial sustainability in public sector universities, using the RBV theory. It highlights the role of strategic change in optimizing resource utilization and fostering innovation for long-term viability. Universities can improve financial sustainability through strategic plans aligned with internal resources, structural reforms, financial management practices, and investments in innovation. Recognizing the role of strategic change is a key to adapting strategies to address economic challenges and ensure continuous improvement. The study is limited by its regional scope (Khyber Pakhtunkhwa) and small sample size, suggesting that future research should expand to other regions or sectors. The cross-sectional nature of the study limits causal inference, and future research could benefit from a longitudinal approach. Additionally, exploring other mediating variables like organizational culture or leadership could provide a more comprehensive understanding of financial sustainability pathways.

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