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State of the art papers on particular topics - e.g. portfolio planning, sales management, pricing.

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Marketing intelligence - The establishment and maintenance of marketinginformation systems and everything associated with them.

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Field Containing-

- Retail Marketing
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Contents

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NEXUS BETWEEN SERVANT LEADERSHIP, GREEN KNOWLEDGE SHARING, GREEN CAPACITIES, GREEN SERVICE INNOVATION, AND GREEN COMPETITIVE ADVANTAGE IN THE HOSPITALITY SECTOR OF PAKISTAN: AN SDG & ESG STAKEHOLDER COMPLIANCE FRAMEWORK

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A B S T R A C T

This paper proposes a sequential mediation framework to examine the impact of Environmentally Specific Servant Leadership (ESSL) on Green Competitive Advantage (GCA) in Pakistan's hospitality industry, in compliance with Environment Social Governance (ESG) and Sustainable Development Goals (SDGs). Proponents have construed that ESSL is theoretically responsible for instigating Green Knowledge Sharing (GKS) and Green Capacities, subsequently influencing Green Service Innovation and ultimately resulting in augmenting Green Competitive Advantage (GCA). The study employs concepts derived from literature on sustainable leadership and knowledge management to formulate theoretical propositions and outline the future research agenda, with in-depth policy recommendations in compliance with EGS and SDGs, formulating the Stakeholder Compliance Framework. This paper aims to provide guidance for future empirical research and offer practical suggestions to enhance sustainability and competitive advantage in the hospitality industry in Pakistan. Exploring the interrelationships among leadership, knowledge sharing, innovation, and competitive edge contributes to the ongoing discourse on organizational sustainability, specifically in compliance with SDG 12 (Responsible Consumption and Production), SDG 8 (decent work and economic growth), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 13 (Climate Action) in the Pakistani hospitality context, while exonerating SDG 16 (Peace, Justice, and Strong Institutions); however, the importance of often neglected SDG 4 (Quality Education) cannot be overemphasized.

Keywords: Toxic Leaders; Leadership; Toxic Leadership Pandemic; Counterproductive Work Behavior (CWB); Organizational Citizenship Behavior. Sustainable Development Goals (SDGs).

INTRODUCTION

In developing countries like Pakistan, the hotel sector (Pakistan Bureau of Statistics, 2022) is facing growing pressure to adopt eco-friendly policies (UNWTO, 2018) that not only enhance corporate performance but also contribute to environmental preservation (Raza & Khan, 2022; Tanveer et al., 2024; Yousaf et al., 2021). The necessity to engage in good governance, and avoiding questionable governance (Mahboob, 2020 & 2022) are of paramount importance. Not only does good governance foster ethical compliance, but also gravitates towards Shariah compliance (Mahboob et al., 2022) and Environment Social Governance (ESG), while facilitating the achievement of Sustainable Development Goals (SDGs) and thus proactively averting a financial crisis. As the corporate landscape evolves, the advancement of ecoconscious initiatives hinges on the presence of articulate and resilient leadership.

Environmentally Specific Servant Leadership (ESSL) has garnered significant attention for its ability to integrate sustainability into the core operations of companies (Gu & Liu, 2022; Yuan & Li, 2022; Zafar et al., 2022). ESSL extends beyond traditional servant leadership by emphasizing environmental stewardship, enabling organizations to align their goals with broader societal and environmental welfare (Brohi et al., 2021a and 2021b). Embracing sustainable leadership in the hotel industry has the potential to drive significant benefits by positively influencing both human behavior and environmental outcomes (Ferdig, 2007; Pham et al., 2019; Suriyankietkaew et al., 2022).

The hospitality sector of Pakistan is growing more conscious of its ability to attract environmentally minded consumers by implementing sustainable policies (Murtaza et al., 2024; Waris & Mohd Suki, 2024). It is unclear, though, exactly how ESSL will help to attain Green Competitive Advantage (GCA) in the Pakistani context. Still lacking is our knowledge of how ESSL influences Green Knowledge Sharing (GKS), Green Capacities, and Green Service Innovation, and how these elements cooperate to support GCA (Hossari & Elfahli, 2022; Muisyo et al., 2021). This gap must be closed in order to do extensive scholarly research and practically apply the results. Closing this knowledge gap will enable companies to increase their competitiveness and sustainability, as Luo et al. (2022) investigated how maritime logistic SMEs lead and gain competitive advantage by applying information technology. Technological innovation and high-performance work systems also contribute to enhancing the competitive advantage, as they potentially augment employee performance dynamics.

Environmentally Specific Servant Leadership (ESSL) and Its Impact on Green Practices

Environmentally Specific Servant Leadership (ESSL) refers to a leadership approach that emphasizes environmental stewardship, prioritizing sustainable practices while supporting and serving the needs of employees and stakeholders. ESSL is increasingly recognized for its role in promoting sustainable organizational behaviors such as Green Knowledge Sharing, Green Capacities, Green Service Innovation, and Green Competitive Advantage. Thus, it the necessary to examine each of these elements in retrospect of global statistics, their tangible and intangible effects, and the influence of ESSL, in compliance with Sustainable Development Goals (SDGs) and Environmental Social Governance (ESG).

Hospitality Sector in Pakistan: Sustainable Development Goals (SDGs) and Environmental Social Governance (ESG) Context

Sustainable Development Goals (SDGs) in the Pakistani Hospitality Sector

The hospitality sector in Pakistan plays a significant role in achieving the SDGs (Pakistan Bureau of Statistics, 2022), particularly in the areas of responsible consumption and production (SDG 12), decent work and economic growth (SDG 8), and climate action (SDG 13).

SDG 12: Responsible Consumption and Production

The hospitality sector in Pakistan has the potential to contribute to sustainable consumption patterns by reducing waste, conserving energy (Ahmed et al., 2022), and sourcing locally produced goods. For instance, hotels and restaurants can implement waste management strategies, reduce plastic usage, and promote the use of eco-friendly products (UNWTO, 2018).

SDG 8: Decent Work and Economic Growth

The sector is a significant employer in Pakistan and can drive economic growth by creating jobs and promoting tourism. By adopting fair labor practices and supporting skill development, the industry can ensure decent work conditions, contributing to the broader goals of SDG 8 (International Labor Organization, 2020).

SDG 13: Climate Action

The hospitality industry can play a crucial role in mitigating climate change through energyefficient

practices such as using renewable energy sources (Ahmed et al., 2022), optimizing water use, and implementing green building standards (UN Environment Programme, 2019).

Environmental Social Governance (ESG) in the Hospitality Sector

ESG considerations are increasingly important in the Pakistani hospitality industry, reflecting the global trend towards sustainable and responsible business practices (Pakistan Bureau of Statistics, 2022). The sector can leverage ESG strategies to enhance its reputation, attract sustainability-minded customers, and reduce operational risks.

Key ESG Focus Areas in the Hospitality Sector

Environmental Stewardship

Hospitality businesses are expected to manage their environmental footprint by reducing carbon emissions, conserving water, managing waste, and promoting biodiversity. This includes implementing energy-efficient technologies, such as LED lighting and low-flow water fixtures, and encouraging guests to participate in sustainability initiatives.

Social Responsibility

This includes ensuring fair labor practices, enhancing employee welfare, engaging with local communities, and supporting diversity and inclusion. In the Pakistani context, this also means addressing gender equality and providing safe work environments for women, who are often underrepresented in the sector (Pakistan Bureau of Statistics, 2022).

Governance

Strong governance frameworks ensure that hospitality businesses operate transparently and ethically, aligning with international standards and regulations (UN Environment Programme, 2019). This includes compliance with anti-corruption laws, financial reporting standards, and stakeholder engagement practices (OECD, 2020).

ESG-Related Legal and Regulatory Framework

a. Laws and Regulations in Pakistan

Environmental Protection Act, 1997

This act provides a legal framework for addressing environmental issues in Pakistan, including pollution control (Ahmed et al., 2022) and conservation of resources, which are critical for the hospitality sector.

National Climate Change Policy, 2012

This policy emphasizes sustainable development and encourages industries, including hospitality, to adopt green technologies and reduce their carbon footprint (Ahmed et al., 2022).

b. International Laws and Regulations

Paris Agreement

As a signatory, Pakistan is committed to reducing greenhouse gas emissions, which impacts sectors like hospitality that contribute to environmental footprints through use and waste.

EU and US Environmental Regulations

Though not directly applicable, these regulations influence global supply chains and can affect hospitality operators in Pakistan that engage with international partners or cater to foreign guests.

c. International Labor Organization (ILO) Provisions

ILO Conventions on Decent Work

These conventions advocate for fair wages, safe working conditions, and the right to organize, which are particularly relevant in Pakistan's hospitality sector, known for its reliance on low-wage labor (ILO, 2020).

ILO Guidelines on Green Jobs

These guidelines encourage the transition to a green economy, promoting practices such as green knowledge sharing and the development of green skills among workers in the hospitality sector (ILO, 2019). Further, the impact of CSR and green environmental initiatives triggers employee green behavior.

Research Focus

This paper aims to construct a robust theoretical framework that elucidates the sequential mediation mechanism through which Environmentally Specific Servant Leadership (ESSL) influences Green Competitive Advantage (GCA). ESSL initiates a cascade of processes, including the development of Green Capacities (Ahmed, Guo, Qureshi, Raza, Khan, & Salam, 2021) and Green Knowledge Sharing (GKS), which collectively drive Green Service Innovation, ultimately culminating in the achievement of GCA.

By integrating perspectives from innovation, knowledge management, and sustainable leadership literature, this framework seeks to enhance our understanding of how ESSL can be leveraged to foster sustainability and competitive advantage in the hotel sector. The proposed model aligns with Sustainable Development Goals (SDGs) such as SDG 9 (Industry, Innovation, and Infrastructure) and SDG 13 (Climate Action), and it supports Environmental, Social, and Governance (ESG) imperatives by promoting sustainable business practices and leadership accountability.

This research not only provides valuable insights for practitioners aiming to elevate their organizations' sustainability strategies but also establishes a structured foundation for future empirical investigations into the intersection of sustainable leadership and competitive advantage in hospitality.

LITERATURE REVIEW

Environmentally Specific Servant Leadership (ESSL)

Sometimes called the Environmentally specific Servant Leadership model, the ESSL model is an improved form of the traditional servant leadership model. It adds excellent weight toenvironmental sustainability in businesses (Tuan, 2021). By including ideas of servant leadership, the ESSL concept aims to encourage a leadership style that satisfies personal needs and gives the surroundings top priority (Hou et al., 2023). This model recognizes the need to include sustainable practices in businesses' central values and operations, facilitating a more ecologically responsible and conscious approach to leadership. Those who adopt the Environmentally Specific Servant Leadership (ESSL) approach give the welfare of the surroundings and society great relevance (Murtaza et al., 2024). Their decisions should appropriately strike a mix between financial benefits and the overall welfare of society (Liden et al., 2014).

The Environmentally specific Servant Leadership (ESSL) paradigm is essential since it will influence business operations and behavior. Encouragement of a culture that gives environmental sustainability top priority helps ESSL influence organizational policies. Studies of Environmentally specific Servant Leadership have revealed that applying this practice has helped businesses. These reflect improved corporate citizenship policies embraced, more staff involvement, and increased production (Luu, 2022). This paper proposes that the acceptance of Environmentally specific Servant Leadership (ESSL) greatly helps Green Knowledge Sharing (GKS) spread and interaction inside businesses to be facilitated (Muisyo et al., 2021). Applying the environmentally specific servant leadership (ESSL) paradigm helps create an environment for spreading green knowledge (Pham et al., 2019). This is essential since it enables a business to acquire the necessary knowledge and skills to maintain its green policies (Ahmed et al., 2021).

Green Knowledge Sharing (GKS)

Green knowledge sharing involves disseminating best practices for sustainability within the organization. This can enhance the sector's ability to innovate and adapt to environmental challenges, contributing to competitive advantage (Sarkis et al., 2019). Green Knowledge Sharing (GKS) is essential to the hotel service industry's attempts to be more environmentally friendly and gain a competitive edge (Abbas & Khan, 2023; Lin & Chen, 2017; Rehan et al., 2024). Businesses are becoming more eco-friendly (UNWTO, 2018), and sharing green information helps people develop new services and use resources more efficiently, which is good for the environment. Lin & Chen (2017) say that sharing green information is crucial for businesses to improve their green dynamic skills and develop new green services. These things are necessary to get a competitive edge in the green industry (Raza & Khan, 2022). This paper gives a conceptual model that says ESSL makes Green Knowledge sharing (GKS) possible. GKS is a crucial part of improving green skills and encouraging service innovation. Leadership and sharing information work to help businesses deal with environmental problems intelligently. This promotes long-lasting innovation and gives them a long-term edge in the hotel business. To make it easier for organizations to change their ways in ways that are better for the environment, it is essential to encourage a culture that values sharing information that is good for the planet.

Green Capacities

Green Capacities are the capacity of a company to successfully implement sustainable practices meant to lower the negative environmental consequences (Khan et al., 2023). Building green capacities involves training staff in sustainable practices, such as energy conservation and waste management. This improves operational efficiency and aligns with global environmental responsibility standards (OECD, 2020; UN Environment Programme, 2019; Chen & Chang, 2013). These capacities are essential for the progress of Green Service Innovation since they define the basic framework upon which new, ecologically sustainable services can be developed or current ones can be improved (Qu et al., 2022). Yousaf (2021) claims that companies with strong green capabilities are more likely to innovate their products and services. This helps them to make sure these developments satisfy environmental criteria and can satisfy the growing needs of consumers who care about the surroundings. This model allows one to understand the significant part Green Capacities perform as a mediator between Green Knowledge Sharing (GKS) and Green Service Innovation. These Green Capacities are necessary for transforming collective knowledge into practical ideas (Aboelmaged & Hashem, 2019; Qu et al., 2022).

Furthermore, it is proposed that Green Capacities directly influence GCA. Companies that invest in the growth of strong Green Capacities have been shown to have better environmental performance. This can result in acquiring a continuous competitive advantage inside the market.

Green Service Innovation

Green service innovation in hospitality includes developing eco-friendly services and products (UNWTO, 2018), such as offering locally sourced meals or eco-certified accommodation. This can attract eco-conscious customers and enhance the brand's market position (Horng et al., 2022). Green service innovation warrants developing or improving two-sided services to reduce the environmental impact and increase consumer satisfaction (Lin & Chen, 2017). This approach recognizes the need to manage environmental problems and meet evolving consumer expectations and needs. By including ecological elements in service design and execution, companies can support sustainability projects and concurrently value their customers (Qu et al., 2022). Applying Green Service Innovation is crucial in the hotel sector if one wants a Green Competitive Advantage (GCA). Wu and Gao (2022) assert that businesses that can effectively change their products to meet environmental criteria have more opportunities to attract customers who prioritize ecological conscience. This helps them differentiate themselves from their competitors in the market. The suggested paradigm holds that Green Service Innovation is the last mediator linking Green Capacities with GCA (Tu & Wu, 2021). Companies have an opportunity to carve out a unique position in the market through Green Service Innovation so they can separate themselves from competitors and guarantee their long-term survival (Lin & Chen, 2017; Luu, 2022; Qu et al., 2022). As mentioned above, the invention satisfies the immediate needs of consumers who prioritize environmental consciousness. It helps the business to be a leader in accepting sustainable practices, thus improving its competitive edge.

Green Competitive Advantage

Achieving a green competitive advantage means leveraging sustainable practices to differentiate between competitors. This could involve certifications like LEED7 (Leadership in Energy and Environmental Design) or partnerships with environmental organizations to signal a commitment to sustainability (Porter & Kramer, 2011).

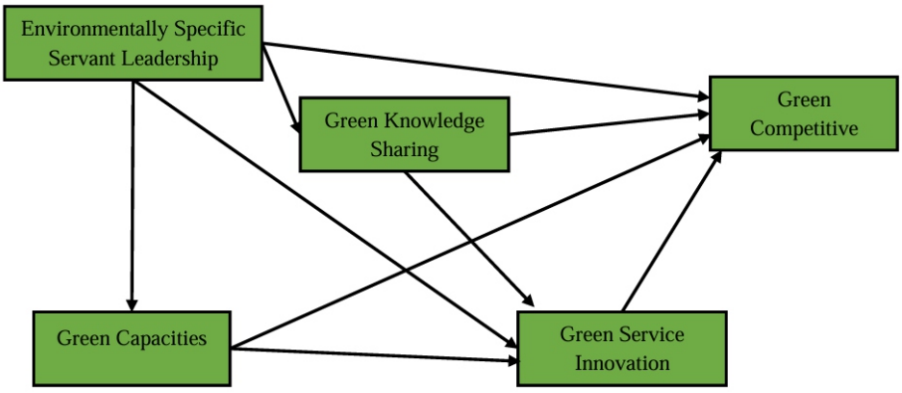

Figure 1. Conceptual Framework: ESSL Instigated Green Competitive Advantage

Proposed Research Framework: ESSL Instigated Green Competitive Advantage

Based on the arguments developed above on the contemporary problem of sustainable leadership and environmentally friendly practices at the workplace particularly in the hotel industry, especially in a developing country like Pakistan where most of the pressing issues still lack discussion (Amjad et al., 2021; Liu et al., 2023; Shahzad et al., 2020). The current study proposes a conceptual framework to address the issue of sustainable leadership to mitigate the effects of climate change.

Proposition 1: Environmentally specific servant leadership (ESSL) positively influences green knowledge sharing (GKS). This proposition posits that incorporating green practices into the core business strategy enhances long-term sustainability and competitive advantage (Hart, 1997). In the

context of SDGs, it aligns with Goal 12 (Responsible Consumption and Production) and Goal 13 (Climate Action). ESG criteria are directly impacted as green practices contribute to environmental stewardship and responsible business operations.

Proposition 2: Green knowledge sharing (GKS) positively impacts Green Capacities. This proposition suggests that robust ESG practices can enhance a firm's competitive advantage by differentiating it in the marketplace (Eccles, Ioannou, & Serafeim, 2014). It relates to SDG Goals 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation, and Infrastructure), emphasizing the role of sustainable practices in driving economic growth and innovation.

Proposition 3: Green knowledge sharing (GKS) positively influences Green Service Innovation. This proposition highlights the importance of leadership in driving the adoption of green practices (Avolio, & Bass, 2004). It connects with SDG Goal 16 (Peace, Justice, and Strong Institutions) by advocating for leadership that fosters sustainability and ethical practices.

Proposition 4: Green Capacities positively affect Green Service Innovation. This proposition examines how green practices influence customer loyalty and satisfaction (Yuksel & Yuksel, 2007), linking to SDG Goal 12 (Responsible Consumption and Production). ESG considerations are reflected in consumer preferences for sustainable and socially responsible businesses.

Proposition 5: Green Capacities positively influence Green Competitive Advantage (GCA). This proposition suggests that green investments lead to improved financial performance, relevant to SDG Goal 8 (Decent Work and Economic Growth). It highlights the economic benefits of investing in sustainable practices.

Proposition 6: Green Service Innovation positively influences Green Competitive Advantage (GCA). This proposition addresses the obstacles faced by businesses in adopting green practices (Bansal & Roth, 2000), connecting to SDG Goal 17 (Partnerships for the Goals). Understanding these barriers helps in developing targeted solutions to overcome them.

The sequential order of mediation is important because it emphasizes that the full impact of ESSL on GCA depends on the sequential occurrence of GKS, Green Capacities, and Green Service Innovation. Given the interdependence of each step in this process, it is reasonable to conclude that their collective implementation improves the company's ability to maintain a competitive advantage.

Proposition 7: Green Service Innovation mediates the relationship between Green Capacities and Green Competitive Advantage (GCA). This proposition focuses on identifying areas for future research to advance green practices in the hospitality industry (Buhalis & Law, 2008). It aligns with SDG Goal 4 (Quality Education) by fostering knowledge development and innovation.

Proposition 8: The impact of ESSL (Northouse, 2018) on GCA is sequentially mediated by GKS, Green Capacities, and Green Service Innovation. This proposition focuses on integrating green practices with leadership models to enhance sustainability, relating to SDG Goal 16 (Peace, Justice, and Strong Institutions) and Goal 12 (Responsible Consumption and Production).

Global Statistics and Impact

Green Knowledge Sharing

A study by Gholami et al. (2013) found that knowledge sharing in the context of environmental practices can increase an organization's innovation capabilities by up to 20%. This is because well-informed employees are more likely to engage in creative problem-solving for sustainability challenges,

mimicking creative leadership. Tangible effects include improved operational efficiencies and reduced environmental footprints. For example, organizations that actively share green knowledge can reduce energy consumption by 10-15% on average (Chen et al., 2013). Intangible effects include enhanced employee morale and engagement, as staff feel more involved and aligned with the company's environmental mission (Sarkis et al., 2019).

Green Capacities

According to a report by the International Labour Organization (ILO, 2019), companies that invest in green skills training see a 17% increase in productivity. This is because employees are better equipped to use eco-efficient technologies and processes. Tangible effects include direct cost savings from improved resource management and reductions in waste and emissions (OECD, 2020). Intangible effects include enhanced corporate reputation and increased attractiveness to talent who value sustainability (Horng et al., 2022).

Green Service Innovation

Globally, companies that focus on green innovation have been shown to grow their market share by an average of 15% more than those that do not (Porter & Kramer, 2011). This is particularly significant in consumer-facing industries like hospitality, where eco-conscious customers are willing to pay a premium for green services. Tangible effects include increased revenue from new green products and services and reduced costs through efficiency improvements. Intangible effects include enhanced customer loyalty and brand differentiation, as organizations are seen as leaders in sustainability (Chen & Chang, 2013).

Green Competitive Advantage

Research indicates that companies with a green competitive advantage report profit margins 10-20% higher than their peers (Schaltegger et al., 2016). This is due to lower operational costs, higher customer retention rates, and the ability to command premium pricing. Tangible effects include financial performance improvements, such as increased sales and reduced regulatory compliance costs. Intangible effects include stronger stakeholder relationships and resilience to environmental and market changes (Dangelico & Pujari, 2010).

Salient Policy Tactical Benefits

Implementing ESG practices and aligning with SDGs offers several tactical benefits, including enhanced reputation, compliance with regulatory requirements, reduced operational costs through efficiency gains, and the potential to attract a growing segment of environmentally conscious consumers. These strategies not only contribute to sustainability but also drive longterm profitability and resilience in the hospitality sector (UNWTO, 2019).

CONCLUSION

ESSL Instigated Green Competitive Advantage

Environmentally Specific Servant Leadership plays a critical role in enhancing an organization's green practices, leading to both tangible benefits, such as cost savings and increased revenue, and intangible benefits, such as improved reputation and employee satisfaction. By fostering green knowledge sharing, building green capacities, driving green service innovation, and securing a green competitive advantage, ESSL enables organizations to achieve sustainable success in a competitive global market, in compliance with ESG and SDGs.

Utilizing Green Knowledge Sharing (GKS), Green Capacities, and Green Service Innovation, the present conceptual paper introduces a sequential stakeholder mediation framework establishing a link between Environmentally Specific Servant Leadership (ESSL) and Green Competitive Advantage (GCA), in compliance with ESG and multiple SDGs. As mentioned earlier, the model emphasizes the great need for environmentally specific servant leadership (ESSL) to encourage sustainable practices, which in turn help acquire a competitive edge within the Pakistani hotel sector. Employing a thorough investigation of the routes via which ESSL influences GKS (Green Knowledge Sharing), Green Capacities, and Green Service Innovation), this paper makes a significant contribution to the body of knowledge already in use in sustainable leadership and organizational competitiveness, by postulating the ESG and SDG Stakeholder Compliance Framework. Clarifying these channels helps us better grasp the intricate interactions between sustainable leadership and several organizational results concerning environmental sustainability, within the confines of the Pakistani hospitality sector context. This study enhances the body of knowledge already in publication on sustainable leadership and how it affects organizational competitiveness, in retrospect of ESGs and multiple SDGs. For a broad spectrum of stakeholders, especially those with business prospects in the hotel sector who want to progress and capitalize on their sustainability initiatives and projects, the suggested model offers an ESG and SDG-compliant theoretical framework, in retrospect of multiple empirical studies with pragmatic advice and policy recommendations.

POLICY RECOMMENDATIONS

For Stakeholders in the Pakistani Hospitality Industry

To enhance the integration of Environmentally Specific Servant Leadership (ESSL) and green practices within the Pakistani hospitality sector, which aligns with the Sustainable Development Goals (SDGs) and Environmental, Social, and Governance (ESG) criteria, the following discrete and viable policy recommendations are proposed for i. regulatory agencies, ii. Parliament to enact laws, iii. the need to allocate funds and iv. to nurture a culture of green practices.

Regulations

Implement sector-specific environmental regulations that mandate sustainability benchmarks for hospitality businesses, such as energy, waste management, and water conservationstandards. Establishing clear regulatory frameworks can drive compliance and foster an industry-wide shift towards greener practices, directly contributing to SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action). Regulatory measures should include mandatory reporting of environmental performance and incentives for compliance, such as tax reductions or subsidies (UNEP, 2020). This can help hospitality businesses lower their environmental footprints and achieve Green Competitive Advantage (GCA). The implementation strategy should be to develop regulations in consultation with industry stakeholders, environmental experts, and regulatory bodies to ensure feasibility and industry buy-in. Further, establish monitoring and enforcement mechanisms to ensure compliance, supported by penalties for non-compliance.

Laws

Enact and enforce environmental laws that promote Green Knowledge Sharing and Green Capacities within the hospitality sector. Laws should encourage knowledge transfer through mandatory green training programs and certifications for hospitality staff, aligning with SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth). In this context, SDG 4 is often ignored, although it may hold a significant stake in altering the status quo with quality education. Such laws ensure that all employees possess the skills and knowledge necessary to contribute to the company's green initiatives, thus enhancing their overall service innovation capabilities (Gholami et al., 2013).

The implementation strategy should seek to develop legal frameworks that support green certifications and continuous learning for employees. Further, collaboration with educational institutions and professional bodies to develop standardized training modules and certifications (OECD, 2020).

Funding

Establish green funds and financial incentives for the hospitality sector to invest in sustainable technologies and practices. Funding mechanisms such as low-interest loans, grants, or subsidies for investments in green technologies (e.g., energy-efficient appliances, waste reduction systems) can significantly lower the financial barriers to sustainability (ILO, 2019). This approach supports SDG 9 (Industry, Innovation, and Infrastructure) and SDG 11 (Sustainable Cities and Communities). Financial incentives encourage the adoption of Green Service Innovation, helping businesses to achieve differentiation in a competitive market.

The implementation strategy should seek to create partnerships between government bodies, international organizations, and private investors to establish a green fund dedicated to the hospitality sector. Further, providing financial support conditioned to measurable sustainability outcomes ensures that funds are used effectively to achieve environmental goals.

Nurturing Green Cultural Practices

Foster a green organizational culture through the promotion of Environmentally Specific Servant Leadership (ESSL) across all levels of hospitality businesses in the widely dispersed sector in Pakistan. ESSL promotes a leadership style that prioritizes environmental stewardship, influencing the entire organization's approach to sustainability (Horng et al., 2022). This aligns with SDG 16 (Peace, Justice, and Strong Institutions) by promoting inclusive and sustainable leadership practices. Nurturing a green culture can result in both tangible benefits, such as reduced operational costs, and intangible benefits, including enhanced employee satisfaction and loyalty, thereby strengthening Green Competitive Advantage.

The implementation strategy should seek to develop programs that train leaders on ESSL principles, emphasizing the link between servant leadership and environmental performance. Further, encourage leaders to model sustainable behaviors and engage employees in green initiatives, creating a sense of shared responsibility and commitment to environmental goals, especially since creative employees tend to mimic creative leadership.

PROPOSITION BASED POLICY RECOMMENDATIONS

Proposition 1: Integration of Green Practices in Strategic Planning

Encourage hospitality businesses to adopt strategic frameworks that integrate green practices. This could involve government incentives for businesses that develop and implement sustainable strategic plans (Hart, 1997). Additionally, provides grants for research and development of green technologies tailored to the hospitality industry.

Proposition 2: Enhancement of Competitive Advantage through ESG Integration

Develop a national ESG framework for the hospitality sector, encouraging transparency and reporting. Offer recognition and certification programs for businesses excelling in ESG practices (Eccles, Ioannou, & Serafeim, 2014). This will foster a competitive market for sustainable businesses.

Proposition 3: Role of Environmental Leadership in Promoting Green Practices

Introduce leadership development programs specifically for environmental and sustainability roles. Create awards for exemplary environmental leadership in the hospitality sector to motivate and recognize leaders who drive green initiatives (Avolio, & Bass, 2004).

Proposition 4: Impact of Green Practices on Customer Satisfaction and Loyalty

Encourage businesses to develop and communicate their green credentials to customers. Implement customer feedback systems to assess the impact of green practices on satisfaction and loyalty and use these insights to refine green strategies (Yuksel & Yuksel, 2007).

Proposition 5: Financial Performance Correlation with Green Investments

Provide financial incentives for green investments in the hospitality sector, such as tax credits or low-interest loans. Develop case studies highlighting successful green investments to demonstrate their financial viability.

Proposition 6: Identification of Barriers to Green Practice Implementation

Conduct an industry-wide survey to identify common barriers to green practice implementation. Based on the findings, create targeted support programs, including technical assistance, financial support, and regulatory adjustments to address these challenges (Bansal & Roth, 2000). In this regard, SDG 4 – Quality Education may prove instrumental.

Proposition 7: Future Research Directions for Green Hospitality

Establish research grants and funding opportunities for studies focusing on green practices in the hospitality industry. Promote collaborations between academic institutions and industry practitioners to drive research and application of innovative green solutions (Buhalis & Law, 2008).

Proposition 8: Integration of Green Practices with Sustainable Leadership Models

Develop and promote leadership training programs that focus on integrating sustainable leadership practices (Northouse, 2018) with green initiatives. Encourage hospitality businesses to adopt and adapt sustainable leadership models that emphasize the importance of green practices.

SUMMARY AND RECOMMENDATIONS

These policy recommendations provide a structured approach to enhancing the Pakistani hospitality sector's commitment to sustainability. By aligning with global standards and SDGs and fostering an environment conducive to ESSL and green practices, stakeholders can achieve significant competitive advantages while contributing to broader environmental and socialgoals. These recommendations also underscore the need for collaboration among government, industry, and international bodies to create an enabling environment for sustainable development in the hospitality sector.

FUTURE RESEARCH DIRECTIONS

In this theoretical framework, we aim to investigate the possible mediating role of Green Knowledge Sharing (GKS), Green Capacities, and Green Service Innovation in the link between Environmentally Specific Servant Leadership (ESSL) and Green Competitive Advantage (GCA). The model mentioned above can produce productive empirical investigations within the designated field of research. The

The analysis of the suggested model should be carried out using empirical approaches and exact quantitative techniques such as structural equation modeling (SEM). This method is required to confirm the hypothesized links and determine the degree and direction of the under-examination influences. Future research should consider possible moderating factors that could affect the found correlations. Green capacities are affected by ESSL, which depends only partly on industry standards, regulatory framework (UN Environment Programme, 2019), and current organizational culture. The degree of sustainability shown by the company and the current industry environmental policies determine whether Green Capacities promoted by GKS (Green Knowledge Sharing) will be successful.

Having captured and examined characters' dynamic interactions as they change over time, longitudinal research is advised. Studying the dynamic interaction between environmentally specific servant leadership (ESSL) and the creation of green spaces and service innovations inside companies will help clarify the long-lasting sustainability of the competitive advantage attained by environmentally friendly policies. Case studies and interviews, among other qualitative research techniques, can offer insightful analysis of how ESSL is applied and how it affects organizational outcomes. These techniques allow researchers to investigate how ESSL affects organizational outcomes and probe the specifics and nuances of how companies use it inside. Through exhaustive case study research, these approaches would help enable context-specific analysis within the ESSL framework. These approaches would probably produce better quantitative results and a better awareness of the basic mechanisms under operation.

Future research using this approach becomes essential as awareness of sustainability rises inside companies, and it is necessary to provide insightful analysis that will help guideleadership practices. These studies will help enhance environmental performance and allow companies to acquire a competitive advantage in a market progressively driven by green projects, in compliance with ESG and SDGs.

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A THEORETICAL BRAND EQUITY MODEL FOR MARKETING IN THE PRESENCE OF ENVIRONMENTAL TURBULENCE

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ABSTRACT

This research finds out the impact of Customer Perception, Satisfaction, and Loyalty on Brand Equity with Environmental Turbulence as moderator. The questionnaire was completed by a total of 253 continental restaurant customers. Data were gathered from continental restaurant consumers related to Karachi, Pakistan and examined through statistical methods (SPSS and Partial Least Square). Results reveal a significant positive relationship between customer loyalty and brand equity. There is no significant positive relationship between customer perception, customer satisfaction, and brand equity. Also, environmental turbulence has a significant moderating effect on the relationship between customer perception and brand equity; and customer loyalty and brand equity. There was no significant moderating effect of environmental turbulence on the relationship between customer satisfaction and brand equity. This research would be helpful for the managers, marketers, students, and teachers in understanding the brand equity being impacted by various factors in the environment of Pakistan. This research can be generalized to Asian countries to further elaborate on the impact. The outcomes are helpful to the organizations and companies for emphasizing every element of brand enactment and, specifically, the three (customer perception, customer loyalty, and customer satisfaction) to get the best out of it.

Keywords: Brand Equity; Customer Perception; Customer Loyalty; Customer Satisfaction; Environmental Turbulence.

INTRODUCTION

Consumers are more likely to believe everyone but the marketers, as they tend to rely on word of-mouth publicity of the brands more than the actual one (Kang, 2018). It has been proven by many studies, time and again, that nothing matters to people more than people. Marketers may more easily identify deviations (consumer preferences) that require their concern by disintegrating the Customer-based brand equity (CBBE) measurements that forecast greater or less loyal patrons (Cambra-Fierro, Melero-Polo, & Javier Sese, 2015). According to Baldauf (2003), label value positively leads to the improvement of consumer value. Label's value is a source of authority, self-belief, and happiness.

Evaluating customer-based brand equity viewpoints in an alternative manner might be a good idea for future studies. The customer-based brand equity strategy is based on the idea that a brand's strength is derived according to what people have understood, sensed, witnessed, and overheard about it throughout the period. And it is a product's strength; based on whatever buyers believe about it. In establishing a consumer behavioral perspective about a label, Keller (2003) stressed the significance of comprehending the multidimensional nature and aspects of a label or brand equity. Employing an overly limited view might indicate a lack of depth, which is essential for providing integrative theoretical insights and development services. Brand equity is a multifaceted notion that includes customer loyalty, brand recognition, overall quality, brand connotations, and other proprietary assets.

Brand Equity is determined by the value that a label gives to its users (Xinxiang et al., 2016). When it comes to picking a brand, consumers are looking for a perceptive balance between the commodity's pricing and functionality (Lassar et al., 1995). Prior research has demonstrated that awareness of a label, its image, its associational behavior, and percept of relative quality; all have a significant impact on percept of worthiness or its value when examining the correlation amongst the components of brand equity (Wang et al., 2015). The deeper a consumer's value perception, the more likely they will replicate the same conduct. Because a consumer's impression of worth is an authentic mandate, it plays a vital role in forecasting the commitment and patterns of consumers (Yoo et al., 2000). Another important aspect is customer loyalty. Whenever a customer develops substantial, favorable sentiments for a particular product, customer loyalty refers to their inclination to repeat their purchase of favorite goods or facilities (Pham et al., 2016). Elevated consumer brand loyalty is attributed to a higher proclivity to generate buzz for everyone else and a lower proclivity to purchase competing products (Mittal & Kamakura, 2001). Consumer retention or loyalty, according to Dick and Basu (1994), customer loyalty encompasses not just buyback behavior but also strong emotional responses such as connection to organizations, goods, and offerings.

While addressing the link between various customer-related factors with brand equity, literature has provided evidence of these relations in the light of environmental turbulence. There have been several lines of inquiry into including environmental uncertainty in radical innovations. This line of inquiry addresses the moderate influence of environmental disturbance from a probabilistic viewpoint (Eggers, Kraus, & Covin, 2014). Although many researchers have employed the contingent aspect of environmental turbulence, there still is some lacking in finding the role of environmental factors from a dynamic viewpoint, as in several earlier research (Huang et al., 2018; Wang et al., 2015). The three major types of dynamic capabilities can be described as (1) connected to designing of products, innovative goods domain, and innovative business strategies, and studies have looked at technical capability (Camison & Villar-Lopez, 2014) and innovativeness (Omar et al., 2018), (2) knowledge management, facilitated by employing newest information technology to improve connectivity, market data collection, evaluation, and distribution, and collaboration inside and across strategic stakeholders (Brown, 2019) and (3) the creation, maintenance, and management of exterior partnerships.

As research and statistics were undertaken about the epidemic and its subsequent effects, especially regarding service or product promotion, a phase of the unparalleled global crash is strongly anticipated (HBR, 2020), which may cause brand equity change. Brand management is an essential part of marketing, and for every marketer, it is of utmost importance as they want the brand value to go up to the next level consistently to its peak. Various brands commonly face, have faced, and are facing a decline in their life cycles. It is necessary to reinvent the model with some creative add-ons as the consumers have shifted their shopping patterns during and after COVID19. Thus, the present study examines and adds to existing brand value literature by giving substantial alterations to the idea of brand equity over the past few years. It appears that more profound knowledge of brand equity in varied industries and areas across Pakistan is required, including in cases where operational purchases and choices prevail; brand equity plays a pivotal role in minimizing riskiness for innovative product uptake (Cuneo, Lopez, & Jesus Yague, 2012). The present study fills the discussed gap by examining the impact of three customer-related factors: perception, loyalty, and satisfaction, on brand equity with a moderating role of environmental turbulence. This paper is a guide for marketers, teachers, and students in the management of brands in a creative manner.

The post-COVID world has presented marketing companies and scholars with a difficult option to work on and continually improve the framework to keep up with competing for corporate promotional techniques. There have been various efforts to investigate the factors affecting brand equity in the past. However, the elements that impact it in the face of environmental turbulence have not been examined in the context of Pakistani culture to the best of the researcher's knowledge. Thus, this paper will serve as a guide for marketers, practitioners, and policymakers interested in understanding how companies may

positively manage their brands. Some suggestions are offered for new research scholars conducting more studies in this area based on the findings, applicability, and limits. As a result, we carried out a study that might be applied to other developing nations, such as Pakistan.

LITERATURE REVIEW

Aaker and Brand Equity

One of the most extensive brand equity models was developed by Aaker (1992), which comprises five separate components which are the drivers of value creation. Brand loyalty, premium brand recognition, brand trust quality, product involvement, the inherent quality, and other unique brand components, such as patent applications, rights, and multichannel agreements, are examples of these investments.

Loyalty

A study in 2005 (E-student retention) explained how customer loyalty produces value by lowering marketing expenses and amplifying trade, based on Aaker's approach. Loyal consumers expect the label to be readily accessible and encourage others to do so by recommending it. Sustaining current consumers is far less expensive than acquiring new ones. Even when switching costs are modest, clients have a high level of inertia. Rivals have a hard time communicating with pleased private label customers even though they have minimal desire to learn about possibilities. As a result, rivals may be hesitant to invest efforts in attracting pleased and devoted consumers, but even if they do, it will take some time. According to Aaker (1996), depending on brand loyalty is typically an effective strategy to manage equity. Also, a strong brand enhances the likelihood of brand choice and contributes to re-purchase intention.

Awareness

Awareness is a crucial aspect of a brand that is sometimes underestimated (Aaker, 1992). The capacity of a prospective buyer to recognize or retain that perhaps a label belongs to a specific type of product is referred to as its awareness (Aaker, 1996). At the stage of recognizing, awareness may offer the product a feeling of connection as well as a signal of quality, dedication, and recognition. In contrast, the recalling stage influences selection by determining which labels are viewed and picked. Brand recognition is critical for many businesses, and it is the foundation of successful identities (Aaker, 1996). For most analytical frameworks of the brand, familiarity plays a significant role. Even though people are more inclined to buy brands they are acquainted with, the brand image creates a high degree of purchasing, boosting the firm's financial performance as well as revenues (Baldauf et al., 2003).

Quality

Perceived quality adds value for the consumer; a cause to buy distinguishes the brand, boosts channel member interest, lays the groundwork for product lines extension, and justifies a premium price, according to Aaker (1992). To put it in other words, quality refers to a customer's assessment of an item's attribute performance (Umair, 2018). Product value is considered a separate factor from a trademark. It is now a primary corporate focus for most companies, and it may serve as inspiration for initiatives aimed at boosting its Value. Presumed quality is a significant and widely acknowledged key component (Aaker, 1992).

Associations

The most widely understood part of brand equity is product associations or image. In reality, it's anything that a shopper associates with a name. Product qualities, benefits, usage, subscribers, living patterns, commodity classifications, rivals, and regions are all examples of brand association. Shoppers may use

relationships to assist them in digesting or extracting information, differentiate and extend their offerings, and give them a cause to purchase and produce good sensations. Consumers utilize product attributes to organize, analyze, and extract data in their minds, which aids in buying it ultimately (Aaker, 1991, 1992). It is critical to grasp the essential characteristics of brand identity, which is brand personality, to develop a sustainable competitive advantage in the market (Heine et al., 2018). A line extension is more likely to become relevant in the market when there is a sign of consumer association.

Assets of the Brand

Aaker (1996) described intellectual property like copyrights, licenses, and channel partnerships that can create a substantial competitive advantage. A trademark signifies a company's brand value distinctive from competition who might use a similar theme, emblem, or packaging to confuse the buyers. If the patent property is powerful to the buying decision process, it can preclude competitive pressure. Lastly, a label might dominate a channel of distribution passively since patrons expect the product to be accessible.

Customer-Based Brand Equity

In 1993, Keller established the concept of "customer-based brand equity (CBBE)," which discusses the different reactions to the brand's struggle from buyers who might have varying levels of brand knowledge. In other words, the foundation and pillars of brand equity are brand awareness as well as the image.

Brand equity, according to Keller et al. (2011), is a distinguishing impact coming from a label's understanding in connection to consumer behavior to business strategy. As a result, the efficacy of a label should indeed be evaluated from the consumer's perspective. Strengthening customer-based brand equity entails expanding the label's mind share among consumers, not just in the marketplace (Aaker 1996; Keller et al., 2011). The idea of brand equity may be defined in various practices and appreciation of the insubstantial structures that build it up (Rossolatos, 2014). The framework proposed by Aaker and Keller that might be changed to meet the specifics of the investigations is used in the majority of brand equity research. According to Aaker, brand equity comprises awareness of a brand, its associational features, its relative quality, and customer retention. Brand equity, according to Lassar et al. (1995), is an aspect of public identity, valuation, trustworthiness, adherence to a brand alliance, awareness of the brand, and relative service quality. These were all acknowledged components of brand equity (Cob-Walgren et al., 1995). As the foundation of brand equity, Kirmani and Zeithaml (1993) advocated relative percept quality, percept value, attitude towards the brand, and image of the brand. The significant components of brand equity, according to Yoo et al. (2000), are customer loyalty, overall product quality, and powerful brand association or awareness. Brand equity was defined by Huang et al. (2018) as a combination of brand informatics, including its awareness, appearance/connotation, and customer reaction (significance of brand, behavioral intent). Ding and Tseng (2015) defined Brand equity in the service industry related to food as its association or awareness and relative percept quality. In contrast, Moreira et al. (2017) described it as awareness or association, loyalty, and percept of quality. As a result, these components of customer-based brand equity may be summarized as awareness of the product, image or association, percept of quality, worth, and customer retention, according to the researcher.

Consumers Perception

The percept of worthiness or value is an assimilated degree of the buyer's insight of the overheads and paybacks ascending after its usage or involvement with any service or commodity. Brand equity is determined by the value that a label gives to its users (Xinxianget al., 2016). Until it comes to picking a label, consumers are looking for a perceptive balance between the commodity's pricing and

functionality (Lassar et al. 1995). Consumer behavior is influenced by price–advantage value, which is a relatively high idea that incorporates desire, mindset, trustworthiness, viewpoint, and more. It is thought to have been a reliable determinant behavior (Gallarza & Saura 2006). Multiple types of research have demonstrated that awareness of a label, its image, its associational behavior, and percept of relative quality; all have a significant impact on percept of worthiness or its value when examining the correlation amongst the components of Brand Equity (Wang et al., 2015). He moreover stated that awareness of a specific label is a crucial causal variable to a percept of its worthiness, as seen by the findings of the study, which show indicate awareness of the brand of a food servicing company substantially increases percept of its food practical value. According to Wang et al. (2015), an airline's trademark mindfulness and its association and popularity have a favorable impact on its value perception. According to Ghodeswar (2008), the impression of a wellformed swift classy restaurant has a beneficial influence on overall value perception. Pham et al. (2016) discovered that a swift service-providing restaurant's quality perception is a significant preconditioned predictor that boosts its value perception.

Customer Retention or Loyalty

Whenever a customer develops substantial, favorable sentiments for a particular product, customer loyalty refers to their inclination to repeat their purchase of favorite goods or facility/ies (Worku, 2019). Buyers' recurrent buying behavior was also used to identify loyalty, according to the study (Worku., 2019). As a result, consumer loyal behavior is the most researched consumer attitudinal aspect. Several studies have confirmed the correlation between social value and consumer loyalty to a brand. A consumer's impression of worth is an authentic mandate; it performs a vital role in forecasting commitment, as well as behavioral patterns of consumers (Yoo et al., 2020).

In the setting of a services business, it was discovered that there is a link between commitment and users' subjective rational and psychological worth. Consumers would recognize the worth of utility in context to a grocery store or a fast food place that allows visitors to get the services or products as per their desire. The likelihood of these coming again and buying back this should grow. Furthermore, if a grocery store or restaurant allows guests to enjoy themselves while shopping, they will cherish their intrinsic worth, which will also encourage repetitive visits plus sales (Yoo et al., 2000).

Satisfaction related to Brand

According to Iazzi Antonio (2018), value perception of a consumer is "a percentage or exchange of overall advantages acquired to overall compromises," or "the consumers' percept or judgments of the usability of a commodity or facility based on evaluations of what has been gained and what has been surrendered." In the hospitality sector, the link amongst percept of value/worthiness and the satisfaction of consumers has been studied extensively. These two notions, along with perceived service quality, are referred to as the three "breakers of theoretical exploration" in promoting the service collected works. Numerous research initiatives investigating these themes have postulated resource models, with the most generally postulated sequence being the link between the relative quality of service, the percept of value, and contentment. Several scientists regard worthiness to become the world's most comprehensive crucial determining factor in this scenario. This deduction is also applied to general tourist and hotel management services (González-Mansilla et al., 2019).

Environmental Turbulence and Its Impact on Organizations in terms of Brand Equity

Technological and market turmoil are both responsible for environmental transformation (Yang et al., 2019). Technical volatility pertains to the unpredictable and quick level of innovation technically; such a development that renders a company's current technological expertise outdated.

Market Turbulence: Sensibly adapting to changes in the environment and persistently updating information systems are the greatest ways to maintain a comparative edge under volatile environmental circumstances (Yang et al., 2019). Turbulent marketplaces necessitate a firm's ability to adapt more swiftly to unanticipated change and have a variety of alternate paths for meeting latent client wants to remain competitive. Since the corporation might rely on obtaining a new technique to suit consumers' evolving wants in a notoriously risky economic environment, the value of technical expertise in increasing profitability must not be overlooked, which helps it to have a competitive advantage over other firms in the market (Yang et al., 2019).

Technical Turbulence: Existing technical expertise becomes outdated in a volatile technological company setting, necessitating the development of new ones (Ahmed, 2019). In a volatile technical scenario, a company will prefer to adopt more external technical expertise since its present technical expertise and goods will quickly turn redundant (Yang et al., 2019). Corporations that lack technology expertise should start learning technical information as soon as possible and integrate it with current technical expertise. Mutating advancement has the advantage of indicating that perhaps a substantial level of knowledge may involve more distinct technology domains that give more integrated prospects (Ahmed, 2019).

There have been several lines of research, including environmental uncertainty into radical innovations. This line of inquiry addresses the moderate influence of environmental disturbance from a probabilistic viewpoint (Yang et al., 2019). The latter side takes a processoriented approach, looking at environmental uncertainty as a referent. Although many researchers employ the contingent aspect, a current set of analyses reveals that technical volatility and intensity of competition may not be primary modifiers in the technology development related to the product (Ahmed, 2019). We investigate the role of environmental factors from a dynamic viewpoint, as in several earlier research (Yang et al., 2019). The economic scenario influences a company's operating conduct, which in turn can influence return, as per the structural system perspective. We look at research that looked at additional external elements in addition to technical and market volatility and intensity of competition. Consumer tastes are changing, the world is transforming quickly, and there is a lot of competition, which creates an uncertain and combative scenario. Generally speaking, a volatile situation makes a company more conscious of the importance of being outwardly focused, inventive, and aggressive. On the other hand, small-scale enterprises may see changes in the exterior environment as a danger rather than an option owing to resource constraints. Organizations have responded to the external environment in different ways depending on overall strategy formulation, even within a similar sector. The study has several conceptualizations of environmental disturbance. According to Jaworski and Kohli (1993), it has three components: market turmoil, technology instability, and intensity of competition. These three components are the most commonly studied components of an organization's surrounding environment or exterior (González-Benito et al., 2013). The rate at which consumers' priorities shift is known as market instability (Jaworski & Kohli, 1993).

Competitive Intensity

Sustainability strategies that consolidate, create, and restructure the productive capacity to adapt to changes in the business environment, promote knowledge management, and assist it in molding the surroundings to the corporation's benefit are referred to as strategic flexibility. To gain an unfair advantage and achieve superior financial performance, stagnant capabilities should be turned into intellectual capital (Yang et al., 2019). The relevance of capacities has been recognized in studies on exterior cooperation and alliances, but particular competencies essential for adequate cooperation have yet to be identified. For example, Yang et al. (2019) defined cooperation capability as having past knowledge and having a dedicated cooperation function within the organization. The three major types of dynamic skills reported in the investigations are as follows. The first is connected to designing products, innovative goods domain, and innovative business strategies, and studies have looked at

technical capability and innovativeness. The second is knowledge management, which is often facilitated by employing the newest information technology to improve connectivity, market data collection, evaluation, distribution, and collaboration inside and across strategic stakeholders. The third area covers creating, maintaining, and managing exterior partnerships. Affiliation aptitude, leadership ability, relational, and cooperation potential have been studied in this area. Technological innovation, function, supply chain management, distribution, relationship management with consumers, and supplier relationships are among the primary intra-andinter-business processes connected to multi collaboration that these three types of skills generally represent. Abilities that facilitate exterior collaboration should be capable of promoting innovative ideas throughout other numerous alliance partners, lessen employee dissatisfaction via recurrent and constructive feedback, and devise regulatory frameworks for team performance and sharing of risks. The organizational procedures for doing creative activities linked to offers, production, administration, and promotion to promote sufficient value for the consumers are referred to as innovativeness (Ahmed, 2019). Combining ethnic, financial, technical, physical, and other elements, as well as innovating aptitude, improves the firm's potential to withstand, integrate, modify, and utilize external assets for better earnings growth (Yang et al., 2019). Organizations focus on new technological aspects to collect data, find market possibilities, interact with foreign stakeholders, and expedite corporate operations since information is the backbone of cooperation and interaction. The firm's strategies for developing and managing its matrix of relations with multiple stakeholders for higher value generation are referred to as relationship capacity. It represents the firm's capacity to find the best associates, begin and nurture connections and establish an administration system for enhanced collaboration and meaningful connections (Ahmed, 2019).

Based on this authentic literature, we, in our study, have taken environmental turbulence (the moderator) as a factor and examined whether it is or is not impactful on the brand equity and its related constructs. It is not always entrepreneurship and change in the marketplace or rivalry, but rather a broad shift in an industrial system, government decisions, or even the global shutdown endured in recent years.

CONCEPTUAL FRAMEWORK

We have developed a conceptual framework based on Keller's model of Brand Equity while adding the moderator as environmental turbulence to examine the significant positive impact on the brand equity of the customer perception, customer loyalty, and customer satisfaction. The reason for including brand awareness and image as dimensions of customer-based brand equity arises from the important roles in determining the differential response that makes up brand equity. Consumers who have significant awareness about the brand, and its positive image, believe the make is of good quality and are committed to the product have substantial brand equity. The following figure represents the conceptual model for our research study:

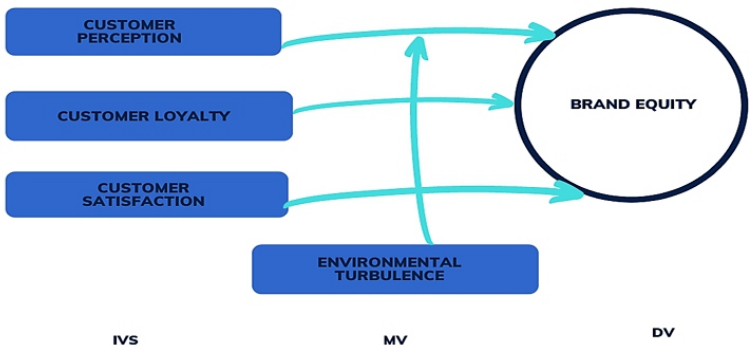


Figure 1. Conceptual Framework

RESEARCH HYPOTHESES

H1: There is a significant positive relationship between customer perception and brand equity.
H2: There is a significant positive relationship between customer loyalty and brand equity.
H3: There is a significant positive relationship between customer satisfaction and brand equity.
H4: There is a significant moderating effect of environmental turbulence on the relationship between customer perception and brand equity.
H5: There is a significant moderating effect of environmental turbulence on the relationship between customer loyalty and brand equity.
H6: There is a significant moderating effect of environmental turbulence on the relationship between customer satisfaction and brand equity.

METHODOLOGY

The methodology (quantitative technique) which has been followed in this study is confirmatory. We have adopted a five-point Likert scale to measure the scalable variable and further analyze its impact on Brand Equity in the course of environmental turbulence. From the population of continental restaurant consumers of Karachi (unknown), a sample of 253 was analyzed for the study. The respondent's approach was more than the desired sample size, but due to the pandemic scenario and survey forms being online filled, only several 253 respondents responded timely and accurately. Convenience sampling was used for this study. A structured questionnaire was designed to indicate our study variables and respondents' demographic information. The study variables were measured using validated scales derived from previous literature. All items were rated on a 5-point Likert-type scale with 1 = strongly disagree" and "5 = strongly agree". Independent variables of the study included Customer Perception, Customer Satisfaction, and Customer Loyalty. Environmental Turbulence is the moderating variable of this study. The dimensions of environmental turbulence used for this study are technological, market turbulence, and the competitive intensity of the market. Brand Equity is the dependent variable of this study. Data has been vigilantly collected online, and further, it has been checked for errors and outliers. We used measures from previous studies and adapted them based on theory and surveyed them through an online platform. To ensure content validity, the questionnaire was pre-tested; and minor revisions were made based on the feedback. The pilot study was conducted before running all the data analyses to check the feasibility of assessment, randomization, and retention. Data were analyzed statistically by using SPSS and PLS Analysis.

Respondents' Demographics

We categorized the age of the participants and assigned ranges to the same. Most of the participants were from the age bracket 36-40 (65%), some were from the age bracket 26-30 (20.2%), and a few were from the 31-35 age bracket (14.2%). The gender chart of the participants/respondents infers that 183 males and 70 females had participated in the survey. The descriptive education chart shows that the participants were primarily masters (73.1%), bachelors (25.3%), and very few of them were diploma holders (1.6%). Most of the participants were employed (70%), and some were self-employed (30%). Most of the participants had the income range of 125001-150000 (51.4%), then from 75001-100000 (34%), a few from 5000075000 (14.2%), and only one respondent had an income range of 100001-125000 (0.4 %).

Measurement of the Variables

A five-point Likert scale ranging from strongly disagree to strongly agree has been used for all variables. The scales used for this study are:

Brand awareness and Brand Image are the dependent variables of this study which are dimensions of Brand Equity.

a) Brand Awareness: For measuring brand awareness, Kim and Hyun (2011) have provided a scale that included two items to measure brand awareness.

b) Brand Image: The brand image scale was also provided by Kim and Hyun (2011) with four items to measure the construct.

2) Environmental Turbulence: The variable has three dimensions which were examined in this study as moderating variables.

a) Competitive Intensity: The scale was adopted from Zhang and Duan (2010) with three items to measure the moderating variable of this study.

b) Market Turbulence: The scale was adopted from Zhang and Duan (2010) with four items to measure the moderating variable of this study.

c) Technological Turbulence: The scale was adopted from Zhang and Duan (2010) with three items to measure the moderating variable of this study.

3) Customer Loyalty: The scale was adopted from Narayandas (1996) with four items to measure the independent variable of this study.

4) Customer Perception: The scale was adopted from Narayandas (1996) with five items to measure the independent variable of this study.

5) Customer Satisfaction: The scale was adopted from Narayandas (1996) with four items to measure the independent variable of this study.

Below presented are the 1st and the 2nd order models, which were empirically examined during the research. The models are self-explanatory.

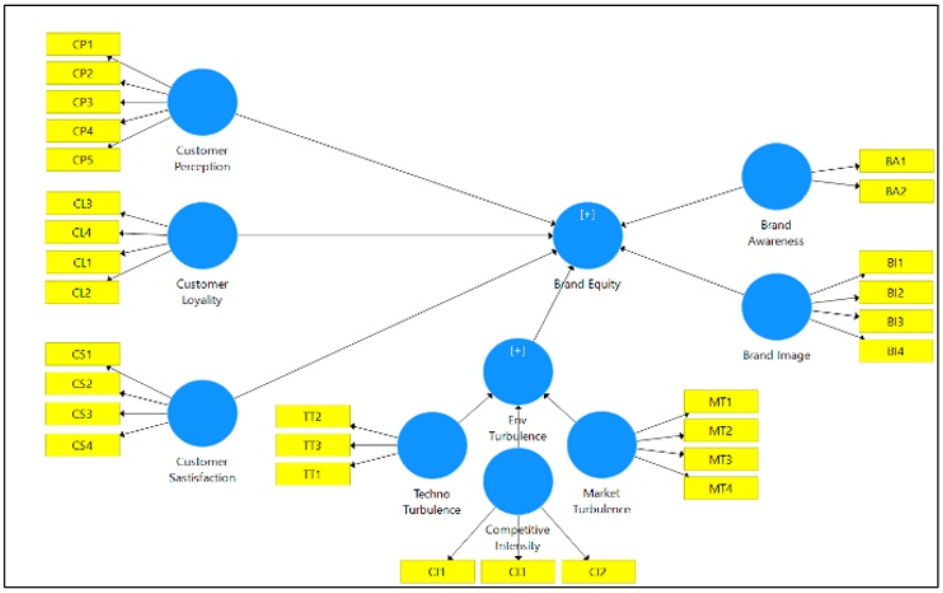


Figure 2. First Order Research Model

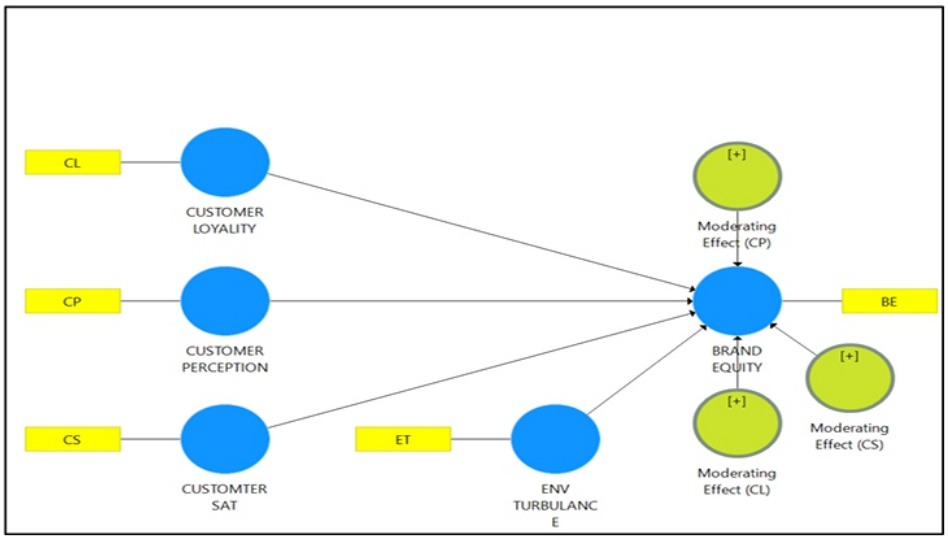


Figure 3. Second-Order Research Model

RESULTS

Assessment of Measurement Model

Cronbach's alpha has been used to assess the core reliability of items. Moreover, it undertakes that all items of a construct are switchable and do not reflect the fluctuating factor loadings of each item. Henceforth, composite reliability (CR) and indicator reliability (IR) measured through outer loadings were used to analyze the measurement model reliability. The loadings for each item should be above 0.7 for satisfactory indicator reliability (Sarstedt et al., 2014). In the following table, the outer loading for all the items is above 0.7; for example, BA1 is 0.888; also, this value is more than 0.7, which is acceptable (Hair et al., 2016). Moreover, the composite reliability is more than 0.7 and above, which is standard too. AVE value lesser than 0.5 reveals that there is a higher probability of errors within the items, and to overcome that, there must be a limit or standard which is to be determined (Hair et al., 2016). Results show that the minimum benchmarks required are all within the satisfactory limits of this study.

Discriminant validity is another method for evaluating items of a construct that are discrete from any other construct in the model, implying that there should be little association between items of various constructs. Each construct's items assess a different theoretical topic. The Fornell–Larcker Criterion and the Heterotrait–Monotrait Ratio of Correlations are two common methods for determining discriminant validity (HTMT). By comparing the square root of the AVE values to the construct's correlations, which should be greater than the construct's highest correlation with other constructs in the model, the Fornell–Larcker criterion is found. (Fornell & Larcker, 1981). This means that a construct's indicators have greater variation than those of any other construct in the model. Table 3 shows the highlighted diagonal line representing the greatest value of each construct's AVE square root in proportion to its association with other constructs, showing that the results meet the Fornell–Larcker criterion. The HTMT criteria are another option. As a conservative estimate, HTMT should be less than 0.85, and 0.90 is a widely recognized but slightly lighter estimate. (Hair et al., 2016).

Table 1. Factor Loadings, Composite Reliability, And Convergent Validity

Construct	Factor Loadings	Composite Reliability	AVE	Cronbach Alpha
Brand Awareness		0.886	0.795	0.742
BA1	0.888			
BA2	0.894			
Brand Image		0.901	0.696	0.854
BI1	0.804			
BI2	0.857			
BI3	0.839			
BI4	0.836			
Competitive Intensity		0.917	0.788	0.865
CI1	0.857			
CI2	0.926			
CI3	0.878			
Customer Loyalty		0.857	0.600	0.777
CL1	0.803			
CL2	0.745			
CL3	0.711			
CL4	0.835			
Customer Perception		0.865	0.561	0.806
CP1	0.758			
CP2	0.723			
CP3	0.804			
CP4	0.735			
CP5	0.723			
Customer Satisfaction		0.898	0.688	0.868
CS1	0.910			
CS2	0.830			
CS3	0.787			
CS4	0.785			
Market Turbulence		0.906	0.708	0.861
MT1	0.778			
MT2	0.844			
MT3	0.840			
MT4	0.898			
Techno Turbulence		0.923	0.800	0.875
TT1	0.888			
TT2	0.895			
TT3	0.901			

Table 2. Heterotrait-Monotrait Ratio (HTMT)

	Brand Awareness	Brand Image	Competitive Intensity	Customer Loyalty	Customer Perception	Customer Satisfaction	Market Turbulence	Techno Turbulence
Brand Awareness								
Brand Image	0.435							
Competitive Intensity	0.310	0.159						
Customer Loyalty	0.294	0.563	0.086					
Customer Perception	0.336	0.353	0.459	0.317				
Customer Satisfaction	0.074	0.114	0.061	0.119	0.266			
Market Turbulence	0.327	0.265	0.967	0.187	0.485	0.081	1.059	
Techno Turbulence	0.553	0.403	0.782	0.302	0.631	0.064	0.970	0.863

Table 3. Discriminant Validity (Fornell-Larcker Criterion)

	Brand Awarenes	Brand Equity	Brand Image	Competitive Intensity	Customer Loyalty	Customer Perception	Customer Satisfaction	Market Turbulence	Techno Turbulence
Brand Awareness	0.891								
Brand Image	0.350	0.958	0.834						
Competitive Intensity	0.248	0.194	0.139	0.887					
Customer Loyalty	0.223	0.461	0.462	0.072	0.775				
Customer Perception	0.254	0.336	0.304	0.377	0.253	0.749			
Customer Satisfaction	-0.027	0.087	0.112	0.017	0.079	0.213	0.830		
Market Turbulence	0.265	0.274	0.227	0.841	0.154	0.395	0.045	0.841	
Techno Turbulence	0.447	0.436	0.351	0.683	0.249	0.518	0.050	0.750	0.895

Table 4. Hypotheses Testing for the Theoretical Model of Brand Equity in Presence of Environmental Turbulence

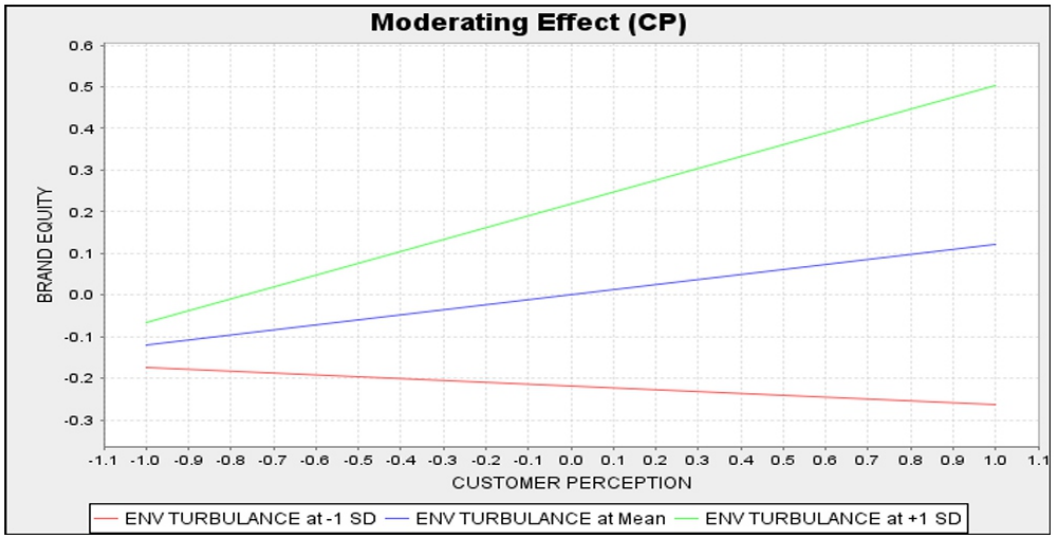
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
CUSTOMER LOYALTY -> BRAND EQUITY	0.346	0.340	0.069	5.018	0.000
CUSTOMER PERCEPTION -> BRAND EQUITY	0.120	0.126	0.083	1.445	0.149
CUSTOMTER SAT -> BRAND EQUITY	0.036	0.032	0.051	0.716	0.474
Moderating Effect (CL) -> BRAND EQUITY	0.132	0.138	0.063	2.090	0.037
Moderating Effect (CP) -> BRAND EQUITY	0.166	0.160	0.057	2.894	0.004
Moderating Effect (CS) -> BRAND EQUITY	0.015	0.011	0.075	0.198	0.843

$P<0.05$

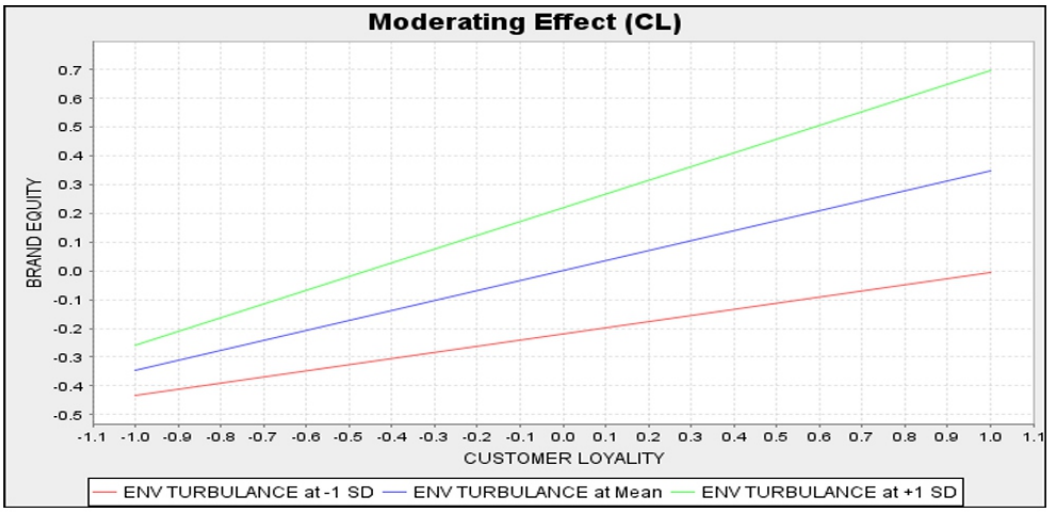
Assessment of Structural Model

Table 4 shows the relationships between independent, dependent, and moderating variables. The p-value is standard which should be lesser than 0.05 to get the hypothesis supported. It can be seen in Table 4 that some of the values are greater than 0.05 which makes some of the hypotheses not being supported statistically. The hypotheses H2, H4, and H5 were supportedwhile H1, H3, and H6 were not supported as the p-value was greater than 0.05, which shows that there was no significant effect of Customer perception and customer satisfaction on brand equity. Also, there was no moderating effect of the

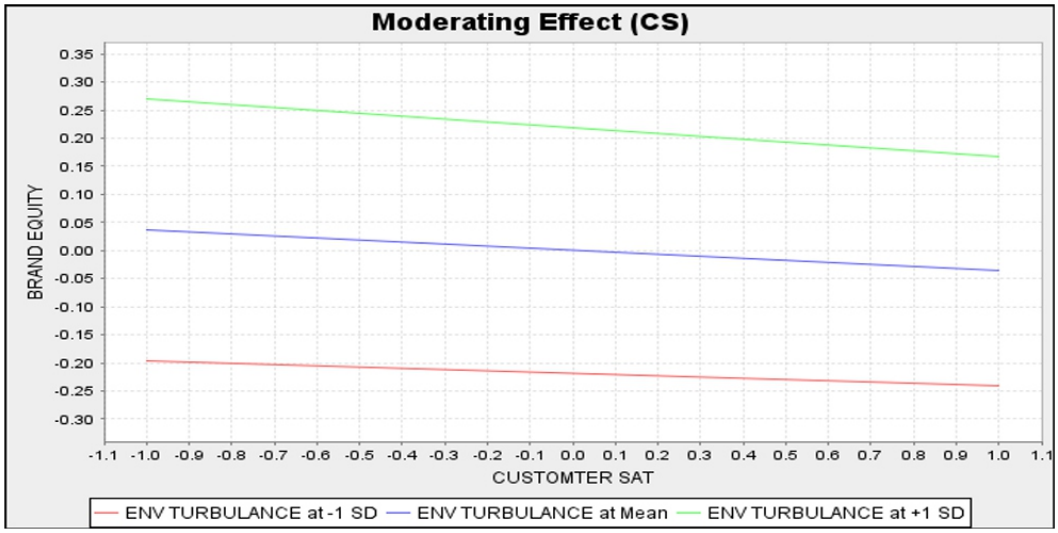
environmental turbulence on the relationship between customer satisfaction and brand equity.



Graph 1



Graph 2



Graph 3

DISCUSSION

The significant effect(s) of independent variables are customer loyalty, customer perception, and customer satisfaction on brand equity (dependent variable) and its dimensions of brand awareness and brand image in presence of moderator the environmental turbulence (and its dimensions that are competitive intensity, market turbulence, and technological turbulence) can be seen in the graphs 1,2 and 3 respectively.

The effect of customer perception on brand equity is varied when it comes to testing it in presence of environmental turbulence. As the customer perception is higher about the brand the equity is also higher and even when the perception is positive about the brand the equity is also positive. However, when the perception of the brand is negative the equity is significantly negatively impacted by it. Advertisements with emotional appeal have been typically used by marketers and advertisers for enhancing the impact of brand awareness and commitment (Frow & Payne, 2007). Nonetheless, to have a competitive edge over other brands, researchers propose that these brands have to be more persistent, have a stronger recall, and must possess a unique selling proposition (USP) so that affirmative sentiments and outlooks can be created for the product (Brakus, Schmitt, & Zarantonello, 2009). Empathy is usually defined as the capability to follow and respond to another's thoughts and feelings (Hall & Schwartz, 2018). Employees with high levels of empathy, according to several researchers, can more quickly detect and meet client wants and wishes (Homburg et al., 2009) and are more beneficial in terms of managerial support; hence are most likely to give effective results in terms of emotional commitment of the consumers. Customers are more likely to develop an affective commitment if employees can transfer favorable sensations and emotions to them (Mende & Bolton, 2011) condition is only the empathetic employees of an organization that would lead to effective commitment (Wieseke, Geigenmuller, & Kraus, 2012). This can be relatable to the services sector where the employee and customer communicate occasionally for the fulfillment of the transactions. There are arguments of researchers that while an empathic attitude is focused by the employees of an organization, its customers would be more committed to the brand (2018). Services can be more personalized for the consumers which would further provide customer satisfaction (Jones & Shandiz, 2015). Customer loyalty impacts significantly on the brand equity according to the results of this study and as shown in graph 2. As the loyalty increases the repeat purchase behavior of the customer also increases hence positively impacting the brand equity in long run. There has been much research work conducted on customer loyalty, but for more than the last twenty years, muchresearch work on the two outlooks of customer loyalty is in focus: behavioral loyalty and attitudinal loyalty. Behavioral loyalty is mostly related to the occurrence of repetitive purchasing. Attitudinal loyalty may be related to the emotional obligation that a consumer shows in the buying act, such as objectives to buy and objectives to vouch for without essentially buying (Gerashi & Fakhreddin, 2021).

Lastly, graph 3 shows that there is no significant moderating effect of environmental turbulence on the relationship between customer satisfaction and brand equity. As shown in the graph there is a decline in the dependent variable which is brand equity at each stage. Without satisfied customers, it is quite impossible to be profitable for any business. But not only getting the satisfied consumers will get you going (Rivera et al., 2019). Yeung et al. (2002) cross-examined 5 years data of from 100 organizations and concluded that there is a direct relationship between consumer satisfaction and productivity. "Delighted" customers are also another callout for totally satisfied consumers (Rivera et al., 2019). Based on the results and discussion above we state that:

H2: There is a significant positive relationship between customer loyalty and brand equity. (Supported)

H4: There is a significant moderating effect of environmental turbulence on the relationship between customer perception and brand equity. (Supported)

H5: There is a significant moderating effect of environmental turbulence on the relationship between customer loyalty and brand equity. (Supported) Whereas,

H1: There is a significant positive relationship between customer perception and brand equity. (Not supported)

H3: There is a significant positive relationship between customer satisfaction and brand equity. (Not Supported)

H6: There is a significant moderating effect of environmental turbulence on the relationship between customer satisfaction and brand equity. (Not Supported)

RESEARCH GAP

There is an originality value of this study that 1) there is no significant positive relationship between customer perception and brand equity, 2) there is no significant positive relationshipbetween customer satisfaction and brand equity, 3) the moderating effect of environmental turbulence has no impact on relation of customer satisfaction and brand equity; which serves an opportunity for more of such research involving mediation effect of other constructs or similar ones for varied results. In this study, we used a conceptual model with environmental turbulence having a moderation effect. There was no mediating variable in this study, however, in some earlier studies, customer satisfaction has been taken as a mediating variable too. This research addresses the gap between customer perception, loyalty, and satisfaction with brand equity in course of environmental turbulence in the Pakistani Continental restaurant industry. This methodology was tested in East Asia, where Asians made up the majority of the survey respondents. As a result, future brand-building research might be carried out in other countries such as Europe, America, and Australia, utilizing a similar sample approach to include a proportionate number of people of multicultural backgrounds. It would limit the field of investigation to a certain extent, too. Moreover, this research includes time limitations since it was completed within a necessary timeframe of one semester (which was authorized for this specific study). The study's resources were similarly constrained because we conducted the survey online and analyzed the results.

MANAGERIAL IMPLICATIONS/ RECOMMENDATIONS

Given the incorporation of the different functions of actual customer experiences in generating service brand equity, the results of this study are extremely significant for services marketing practitioners. Managers should focus on value maximization and approaches to achieve good service brand meaning. Delivering fun, pleasurable, and trustworthy treatment will improve the perception of the value of services since value arises and materializes via consumer experience (Rivera et al., 2019). When consumption encounters (advantages) are greater (i.e., joyful, pleasurable) than the time investment, cognitive and emotional effort, and price, a greater amount of brand value emerges (sacrifices). According to Makassy and Meng (2020), an institution's ability to manage consumer experience quickly and productively is connected to its stability. As a result, customer relationship managers should carefully develop each direct user experience aspect to grow each point of contact. If an airline wants to provide a friendly and dependable service, for example, the essence of that facility must be reflected in each experience along with the service-consuming roadmap. The degree of service delivered to the consumer should be in sync with marketing messaging. Also, an airline brand's propositional value should not be overstated.

As a result, a smart strategy would be to "deliver what we promise." Because perception of value and brand significance play such a large role in the choice for experienced consumers, brand knowledge has minimal influence on the overall differentiating reaction. Because strong brand recognition amongst experienced ones will assist recall earlier experiences and enable identifying the product, it cannot be

overlooked in the creation of good service brand equity. As a result, by providing interesting facilities that leave a lasting impression, delighted customers are more likely to tell their friends and family about the service brand. Furthermore, the service company's brand name, logo, color, slogan, distinctive picture, and so on must be exhibited regularly and constantly.

CONCLUSION

The outcomes of this study are helpful to the organizations and companies for emphasis on every single element of brand enactment and specifically the three (customer perception, customer loyalty, customer satisfaction) to get the best out of it. This research addresses the gap in customer perception, loyalty, and satisfaction with brand equity in course of environmental turbulence concerning the Pakistani Continental restaurant industry. This research is conducted in Pakistan and has feedback from a specified culture and society only, hence limiting it to Indo-Pak cultural norms and values. Apart from that Pakistan is a developing country and there is a lot of difference in the Brand Equity and Brand Management way more than the developed countries. However, it would be helpful for the managers, marketers, students, and teachers in understanding the brand equity being impacted by various factors in the environment of Pakistan. It can be generalized to the Asian countries to further elaborate on the impact.

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AINDUSTRIAL INNOVATION ON THE GREEN TRANSFORMATION OF MANUFACTURING COMMERCE

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ABSTRACT

Manufacturing industry is the foundation and pillar of the national economy. Under the background of China's economic development entering a new era and fully implementing the innovation driven development strategy, the manufacturing sector's level of green transformation has realized as one of the key indicators of China's economic development. Technology innovation-driven green manufacturing industry transformation is a key strategy to achieve high-quality economic development and boost global competitiveness in the context of a new round of technological revolution and industrial reform that are closely entwined with China's economic transformation and development. Based on this, we take the green transformation of China's manufacturing industry as the theme, focuses on industries, regions, and strategic industries, and explores the impact and spatial linkage effect of technological innovation on the green transformation of manufacturing industry. Based on the research perspective of manufacturing industry development heterogeneity, we construct the Slack based measure Undesirable-Malmquist-Tobit comprehensive evaluation method and puts forward the driving role and impact of technological innovation on the green transformation of manufacturing industry. The manufacturing industry is categorized into three categories based on the level of pollution, such as clean industry, medium pollution industry and heavy pollution industry. It is found that the green development efficiency of manufacturing clean industry is the highest, followed by heavy pollution industry, and the efficiency of medium pollution industry is the lowest.

Keywords: Technological Innovation; Manufacturing; Green Transformation; Efficiency Measurement.

INTRODUCTION

With the prominence of energy and environmental issues, green development has gradually become the growth concept of worldwide. "Made in China 2025" clearly states that the main development direction and important focus of a manufacturing powerhouse is green development. Study (Ralph et al., 2022) pointed out that green manufacturing is the embodiment of sustainable progress in the manufacturing process. It is a modern manufacturing mode under the constraints of environment and energy. Green development, according to the literature (Hsu & Immanuel CY, 1974) emphasizes the combined growth of economic development and environmental conservation. Green development is a new economic concept that emphasizes the interconnectedness of economic growth, social improvement, and environmental construction (Fang et al., 2020).

The green transformation of engineering industry is the transformation from the traditional extensive growth mode to the scientific intensive new development mode on the basis of green development. It is a dynamic system process to improve the total factor productivity of manufacturing industry and realize the intensive and sustainable utilization of energy driven by technological innovation. The essence of economic growth mode is reflected in total factor productivity (Wu et al., 2017; Bruton et al., 2021). Entire factor productivity is the comprehensive embodiment of the improvement of production unit

technology and efficiency, as well as the upgrading of management mode and structure. At present, digital technology has widely penetrated into production and life, and the digital economy is booming. Digital industrialization and industrial digitization are accelerating. The deep integration of the digital economy and the real economy has become an important path to promote the green and highquality development of manufacturing production methods (Kniazieva, 2021). On the one hand, the digital economy can not only effectively improve the production process, improve the efficiency of equipment operation, but also improve the accuracy of production process management. Improve production efficiency and energy saving and emission reduction through intelligent collaborative management (Liu et al., 2021). On the other hand, the digital economy can effectively optimize the pattern of resource allocation. Digital infrastructure in the fields of industrial Internet, big data, artificial intelligence, etc., can realize the integration and sharing of various resource elements of different industries and different enterprises. Resource allocation efficiency helps to be further improved through digital technology (Pan et al., 2022). Digital product innovation is the combination of new products or services that incorporate digital technologies, i.e., information, computing, communication, and connectivity technologies, or are supported by these digital technologies (Nagaraj, 2022; Jummani et al., 2019). Digital process innovation is the application of digital technology to improve or even reconstruct the original innovation process framework (Soluk, 2022). Digital organizational innovation means that digital technologies change the form or governance structure of an organization (Zhen et al., 2021). Digital business model innovation is to embed digital technology to change the original business model (Palmié et al., 2022). Compared with the development mode in which traditional factors contribute to economic growth, the mode in which total factor productivity promotes economic growth is scientific intensive (Du et al., 2021; Yu et al., 2021).

The development of total factor productivity, instead, is the new driving strength of economic transformation (Zhou et al., 2020). The key factor in industrial transformation is the increase in total factor productivity (Peng et al., 2020). The major goal of industrial transformation and upgrading from the supply side is to increase total factor productivity (Wu et al., 2021). As a result, improving total influence yield in the industrial growth process is critical to achieving the green change of China's engineering industry. Based on this, this paper takes manufacturing total factor productivity as the basis to measure manufacturing transformation. Figure 1 depicts the internal development mechanism for the manufacturing industry's green transformation in order to indorse the achievement of a new manufacturing industry green development model. We propose the SBM undesirable (Slack Based Measure) model, industry development heterogeneity, build a comprehensive measurement method, and will strive to achieve the following innovative objectives:

I. Based on the perspective of industry development heterogeneity, build a comprehensive measurement method including three stages.

ii. Evaluate green development efficiency Global Malmquist Luenberger (GML) method and whole influence productivity of manufacturing industry.

iii. Based on Porter hypothesis, explore the driving effect and static influence of technological novelty on the green transformation of industrial engineering.

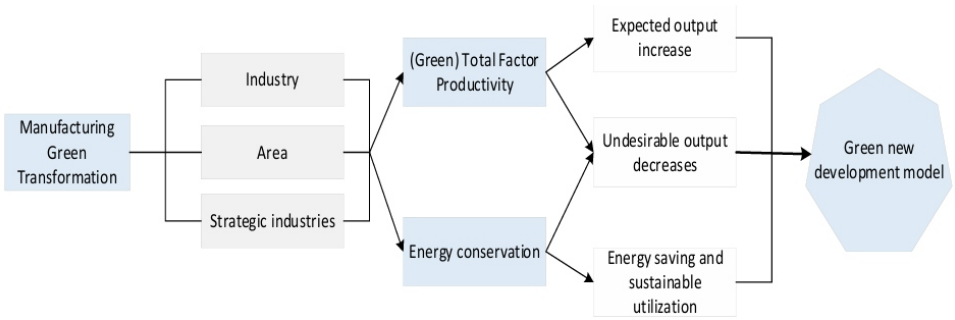

Figure 1. Scope and Connotation Expansion of Manufacturing Green Transformation

LITERATURE REVIEW

According to a summary of the existing literature, limited studies have considered the high quality progress of the manufacturing area, with the majority of them intent on the impact of ecofriendly regulation on technological innovation or green revolution in the manufacturing industry (Wang et al., 2014; Wang et al., 2014; Long et al., 2015). Green transition has become one of the most important directions for the further development of the world. It involves the development of green technologies and the formulation of laws and regulations, for example, to save energy or reduce greenhouse gas emissions, as well as any other activity aimed at changing society's attitudes towards acceptance often more expensive but more environmentally friendly technological solutions and legal norms. Therefore, green transition can be defined as the combination of economic growth and care for the environment to ensure a high quality of life for present and future generations at a level attainable by civilized development, as well as the efficient and rational use of resources available resources. Nonetheless, there is no single globally accepted way of making this transition. It happens in many ways and depends on many different factors (Cheba et al., 2022).

Accelerating the intelligent transformation of manufacturing industry is an important strategic choice to realize the transformation of green innovation. Based on the perspective of static efficiency and dynamic productivity (Yang et al., 2022) used dynamic spatial lag model (DSAR), mediation effect model and moderation effect model to analyze the impact of manufacturing intelligence on green innovation performance and its internal mechanism from the theoretical and empirical levels. The results show that on a national scale, manufacturing intelligence has a significant role in promoting green innovation performance; the reason that manufacturing intelligence is conducive to the production of "technology promotion effect" and "" cost reduction effect", thereby promoting green technology innovation, thereby effectively increasing desirable output and significantly reducing bad output; there is obvious regional heterogeneity in the impact of manufacturing intelligence on green innovation performance, the impact of manufacturing intelligence on green innovation performance in the eastern region. The improvement effect is significantly higher than that of the central and western regions. Furthermore, analysis showed that green technology progress, rather than green technology efficiency is the main driver for manufacturing intelligence to improve dynamic green innovation performance. In the current situation, technology has impacted all sectors including materials and manufacturing. Green Manufacturing and Internet of Things are two important applications that are applied in key business areas with positive results.

(Naim et al., 2022) conducted a study which showed the role of IoT as an emerging technology in Industrial Transformation and in three areas of Marketing Management explained in five research proposals. Their extended research article showcases the relevance of IoT for optimal growth, development and security efforts at Industrial Transformation and Marketing Management. Their research also described the general impact and benefits of green manufacturing in business process

models and product life cycle. Their results show that for Industrial Transformation and Marketing Management, Green Manufacturing and Internet of Things can be well integrated. In addition, the work of Industrial Transformation and Marketing Management became effective and contributed to social benefits through the application of Green Manufacturing and Internet of Things. According to economic theory, high-quality development is driven by basically different influences than high-speed growth, and the value characteristic of development as a total is given more consideration. People are willing to be on the demand side because they are so highly satisfied with high-quality development, which is the upper supply side of innovationdriven development (Jin, 2018). The high-quality change of the manufacturing trade reflects the overall level of development in the number of manufactured in a region or country. Manufacturing's fundamental attributes may run afoul of the explicit or tacit needs of society in the change approach. When considering the meaning of high-quality development for the industrial sector, it is based on raising the standard of the supply chain, with technological innovation acting as the main motivator. High-quality change of manufacturing not only helps to rush the transformation of new and old dynamic energy in the engineering industry from a "manufacturing power" to a "Green manufacturing power". The construction of the evaluation index system conducts a multi-dimensional dynamic evaluation of the high-quality growth level of the manufacturing industry, which is conducive to the objective analysis of the high quality status quo the advance level of China's manufacturing industry in various regions. It provides an in-depth breakdown of the deeper details because China's manufacturing industry is at the lower end of the worldwide worth chain. Furthermore, current characterization of manufacturing development worth is often measured in terms of total factor productivity. However, the productivity of these factors reflects technological development. As a result, there are clear limitations in using total factor productivity to gauge how well manufacturing is developing. This study assesses the effectiveness of the high-tech industry's green total factor productivity and value chain for technological innovation.

Connotation Inspiration

There are many ways to influence the transformation and upgrading of innovation-driven industrial structure. (Abernathy et al., 1978) specifically analyzed the path of innovation-driven industrial upgrading and proposed a famous industrial upgrading model. Wilkins et al. believes that innovation will cause production influences to flow from low-productivity divisions to high-productivity divisions, and the reallocation of resources will eventually lead to changes in the industrial structure (Wilkins and Mira, 2008). Rostow et al. pointed out that technology has strong penetration and substitution, which will lead to the birth of a series of new industries (Rostow et al., 1990). The collection of emerging industries and the combination of new production factors will cause changes in the industrial structure and initiative the transformation and advancement of old-style industries. Porter et al. pointed out in "National Competitive Advantage" that in order to achieve economic revolution and sustainable progress in the innovation-driven stage, the national competitive advantage will change, that is, from relying on natural resources, labor, and other production factors to relying on independent innovation (Porter, 1990). Gereffi et al. pointed out that industrial upgrading is the revolution of industries from low-end to high-end in the value chain, and innovation is an important support for industrial upgrading and transformation (Gereffi et al., 1999). The new normal state of the economy, we need to seek new driving forces for development, one of which is to take industrial invention as a new driving force.

Technological Innovation Drivers

Technological innovation is the direct driving force to indorse the transformation and advancement of the manufacturing industry and complete high-quality development. The driving force for reshaping economic evolution and the weapon to promote industrial transformation is the implementation of large-scale technological innovation and technologicaltransformation at the national level (Liu et al., 2011). The development process driven by technological innovation includes embedded drive, coordination drive, integration drive and reverse drive (Li et al., 2022). The growing of a country's economy is

is primarily determined by the accumulation of endogenous knowledge and the improvement of the level of specialized manpower, both of which come from long-term and stable R&D investment. Foreign direct investment (FDI) is now a major technological spillover channel (Hering et al., 2014), bringing not just advanced managerial knowledge, but also having a certain impact on the economies and environments of trading countries (Al-Mulali et al., 2013). Technology spillovers refer to the foreign direct investment of multinational corporations in the host country, which leads to the advancement of technology or productivity. Outward Foreign Direct Investment (OFDI) refers to the acquisition or purchase of shares in countries or regions with developed industries or advanced technologies to participate in or direct operations, which can acquire and absorb advanced technologies and help recover the affordability of enterprises. Therefore, the driving factors of technological novelty in this paper mainly come from R&D investment and the development of high-tech industries. FDI and OFDI are included in the evaluation system as technology spillover effects to discover the driving outcome of technological innovation on the green revolution of manufacturing.

Influence Mechanism

The change of industrial structure level is reflected in the process of economic development, which is the concrete manifestation of economic transformation and development (Liang et al., 2021). German economist Hoffman et al. (Hoffmann and Walther G, 1958) analyzed the evolution trend of the industrial sector structure in the process of industrialization, and put forward the “Hoffman's Theorem”, that is, the deeper the degree of industrialization, the lower the net asset ratio of the consumer goods industry and the capital goods industry. Author in (Rajan et al., 2001) proposed that priority should be given to the development of advantageous industries with high income elasticity, rapid productivity growth, and high rate of technological progress. However, the fundamental driving force of economic growth since industrialization is the minor industry, and the contribution of the tertiary commerce to economic growth is subordinate to the secondary industry (Zhou et al., 2021). The development of the industrial construction is not based on the first, second and third industries, but is cyclically fluctuating under the impetus of technological innovation, which is characterized by a wave or spiral development. Additionally, as it undergoes transformation, the manufacturing sector, reliant on the high-tech sector that employs a lot of technology, pushes the traditional manufacturing sector to continuously realize progressive innovation, improve its capacity for independent and collaborative innovation, and enhance its economic development mode and quality.

CONCEPTUAL FRAMEWORK

Based on the breakdown of the connotation and mechanism of green transformation of manufacturing industry, the specific research framework and innovations of this paper are as follows:

1. This article analyzes and reviews the current state of the study in the areas of manufacturing transformation mode, green development and efficiency, and the influence of technical innovation on manufacturing green transformation. Using this as a foundation, the article focuses on technical innovation and green transformation of manufacturing industry from the standpoint of industry, region, and strategic industry.

2. We define the concept of manufacturing green change, analyzes the characteristics of manufacturing green transformation, and expands the connotation of manufacturing transformation.

3. This paper constructs the slack based measure undesirable Malmquist Tobit comprehensive analysis method, and studies the driving effect and static influence of technological revolution on manufacturing industry green change under the background of the intersection of governance transformation and green development concept.

4. Based on the research perspective of efficiency measurement, this paper evaluates the efficiency of high-tech novelty charge chain and green total influence output of high-tech industry by constructing network Slack Based Measure model and Global Malmquist Luenberger index model.

RESEARCH METHODOLOGY

Green Transformation Trend in Manufacturing

According to the current study (Fan et al., 2021), the green transformation degree of manufacturing industry can be further analyzed by the green entire influence productivity calculated by GML index model. Taking 2008 as the base period, the green total feature output in 2008 is 1. The current situation of green transformation in other years is the product of the GML (Global Malmquist Luenberger) index of that year and the green total factor productivity of the previous year. The calculation formula is as follows:

$$GT_{2008} = 1 \qquad (1)$$

$$GT_{it} = 1 \times \prod_{t=2008}^{T} GML_{it} \qquad (2)$$

where, i is the province, $i = 1, \cdots, 30$; t is the time, $t = 2008, \cdots, 2020$.

Manufacturing total factor productivity can effectively analyze and measure the transformation efficiency between different economic development modes (Bi et al., 2016). Before exploring the influence of technological invention on the green transformation of manufacturing, first discusses the green total factor productivity (GTFP) of manufacturing development trend and green transformation (GT) degree to calculate and analyze. Due to the availability and uniformity of data, uses the facts of 30 provinces and cities in China from 2008 to 2020 (excluding Tibet, Hong Kong, Macao, and Taiwan) for decomposition analysis using Global Malmquist Luenberger, as shown in Figures 2 and 3.

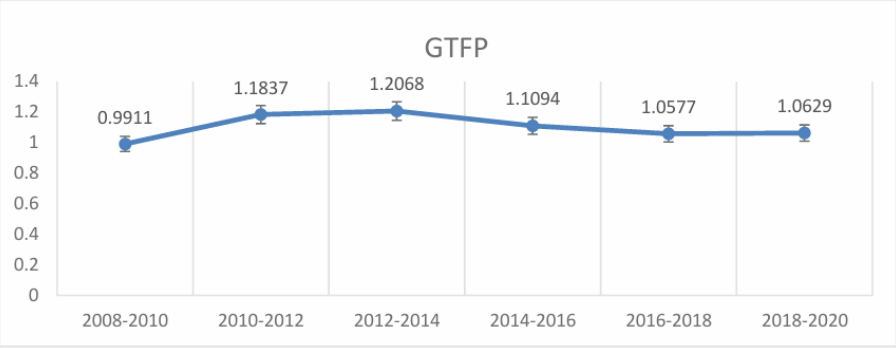

Figure 2. Green Transformation Efficiency of Manufacturing Industry

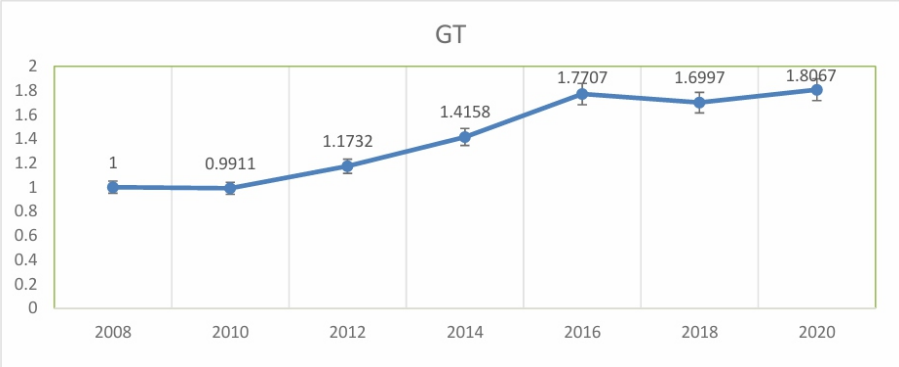

Figure 3. Degree of Green Transformation in Manufacturing

Figures 2 and 3 show the efficiency and extent of green change in the manufacturing commerce. From 2008 to 2020, the trend of green evolution in the manufacturing industry fluctuated slightly, but the overall trend was on the rise. GTFP in 2008-2009 was lower than the production frontier, as well as in 2012-2014 was higher than the production frontier, indicating that environmental governance has achieved certain results. As a result, as environmental regulations improve, manufacturing enterprises continue to increase corresponding production costs in order to reduce pollution emissions, and the manufacturing industry's development has been hampered. However, while the green transformation process of the manufacturing industry is hampered in the short term, as shown in Figure 3, the degree of green renovation of the manufacturing industry has shown a fluctuation in the long run.

EKC Curve of Green Manufacturing Development

The connection among economic development and environmental pollution is often analyzed by the Environment Kuznets Curve (EKC). Therefore, we use energy consumption as an indicator of environmental pollution to explore the affiliation among manufacturing development and environmental pollution in the context of the change of the new economic era. According to the empirical research (Hao et al., 2014), the benchmark as:

$$\ln e_{it} = \alpha_i + \gamma_t + \beta_1 \ln y_{it} + \beta_2 (\ln y_{it})^2 + \beta_3 (\ln y_{it})^3 + \varepsilon_{it} \qquad (3)$$

where, i represents the province, t represents the year, e_{it} represents the per capita energy consumption of province i in period t, y_{it} represents the per capita GDP of province i in period t, α_i represents the provincial cross-sectional effect that does not change with time, γ_t represents the time series effect, ε_{it} represents the random disturbance term.

As shown in Figure 4, the comprehensive evaluation method mainly consists of three steps: The first step is to classify the manufacturing industry according to the intensity of environmental pollution. The second step is to use the Slack Based Measure (SBM)undesirable-Malmquist model to evaluate the green development efficiency and total factor productivity of different industries. Finally, based on Porter's premise, a static panel model is built to empirically investigate the compound driving impacts of environmental legislation and technological innovation on the green transformation of industry.

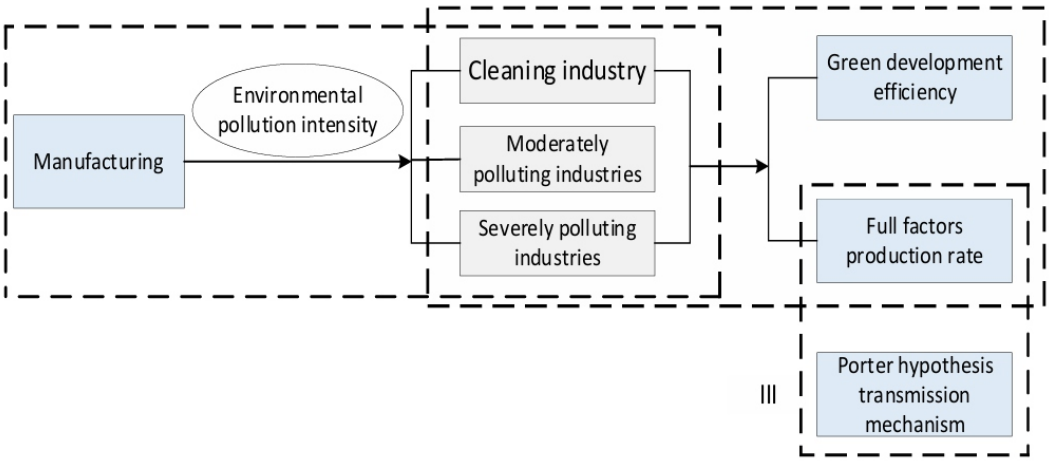

Figure 4. The Industrial Innovation on the Green Renovation of Manufacturing Industry and the Comprehensive Evaluation Method of Static Impact

Due to the availability of data, the green expansion efficiency and entire factor output of 27 manufacturing industries are analyzed in this paper. According to the environmental contamination strength of different industries, this chapter adopts the method proposed in (Li et al., 2012) to split the manufacturing industry into strongly infecting industries, temperately polluting industries, and cleaning industries for research purposes. The following are the specifics: To begin, compute each industry's pollution emission value as follows:

$$UE_{ij} = E_{ij}/O_i \tag{4}$$

where, E_{ij} *represents the main pollutant* $j(j = 1, \cdots, n)$ *of the sub-industry* $i(i = 1, \cdots, m)$*. Emissions;* O_i *represents the total output value of sub-sector* $i(i = 1, \cdots, m)$*.*

Then, according to the value range [0-1], linearize the pollution emission values of each industry is as:

$$UE_{ij}^{s} = \left[UE_{ij} - \min\left(UE_j\right)\right]/\left[\max\left(UE_j\right) - \min\left(UE_j\right)\right] \tag{5}$$

Based on the research purpose and data availability, the research time and area are 30 provinces in China from 2008 to 2020. This paper selects the per capita manufacturing energy consumption as the environmental pollution index, and the per capita manufacturing main business income represents the manufacturing development index. Variable selection and information sources are shown in table 1.

Table 1. Variable Selection and Data Sources

Variable	Symbol	Indicator	Unit
Environmental Pollution Index	e	Per capita energy consumption	Tons of standard coal / person
Manufacturing Development Indicators	GDP	Per capita main business income	Money / person

Note: the info comes from China Energy Statistics, China Statistics, and China Industrial Statistics Yearbooks

RESULTS AND DISCUSSION

Economic Development

The speed of economic growth has slowed in the new era of economic development, and the focus has switched from high-speed to high-quality development. China's economic growth rate has been decreasing since 2010. According to the scale effect of economic development on environmental quality, a slowdown in economic development is beneficial to reducing China's demand for total energy, hence reducing pressure on the ecological environment in some places. All pointers and information sources are shown in Table 2. Relevant data come from "China Foreign Economic and Trade Statistical Year-book" and "China Industrial Statistical Year-book". The statistics of environment variables are shown in Table 3.

Table 2. Indicator Range and Data Sources

Index	Definition
Input indicator	Net fixed assets (Billion yuan) Number of workers (10,000 people) Total Manufacturing Energy Consumption (Mtce)
Expected output	Manufacturing output value (Billion yuan)
Undesired output	Carbon dioxide emissions (Mtce)

Table 3. Statistics of Study Variables

Variable	Definition	Unit
er	Environmental regulation	%
rd	R&D spending	10^4 Yuan
fdi	Foreign direct investment	%
gt	Transformation of government governance	%

The environmental impact factors in the production process, incorporates environmental pollution into the evaluation system, and uses the SBM-undesirable model to estimate the green development proficiency of the manufacturing industry. The green change efficiency of heavily polluted industries is shown in Table 4.

Table 4. Green Development Efficiency of Heavily Polluting Industries in Manufacturing

Name	2007	2009	2011	2013	2015	2017	2019	Mean
Paper & petroleum	0.16	0.29	0.15	0.14	0.14	0.02	0.15	0.17
Nuclear fuel	0.21	1.00	0.37	1.00	1.00	1.00	1.00	0.86
Mineral products	0.05	0.34	0.20	0.08	0.21	0.03	0.04	0.17
Chemical products	0.15	0.68	0.42	0.14	0.51	0.10	0.70	0.40
Tea Manufacturing	0.19	0.41	0.32	0.27	0.26	0.07	0.29	0.27
Textile industry	0.23	0.34	0.30	1.00	0.33	0.01	0.35	0.33
Average value	0.40							

It can be realized from the table that the heavily polluting productions are conquered by energy intensive industries and traditional industries. Although the green development efficiency of heavily polluting industries varied slightly, it mostly showed an upward trend, with an average efficiency of 0.40 during

the study period. The petroleum processing sector, ferrous industry, non-ferrous industry, and chemical industry have green development efficiencies of 0.86, 0.65, 0.50, and 0.40, respectively. These sectors have a higher green development efficiency than other significantly polluting industries. Therefore, it can be found from the results that the green coordinated development capacity of the heavily polluting industries has gradually been improved. Chemical manufacturing, beverage manufacturing, textile, paper goods, and nonmetal products have green development efficiencies of 0.26, 0.27, 0.33, and 0.17, respectively. These industries' green development efficiency is lower than the average efficiency of significantly polluting industries, indicating that their ecological controls are generally inefficient. The industrial added value generally shows a fluctuating growth trend, as shown in Figure 5, the progress rate fluctuates greatly.

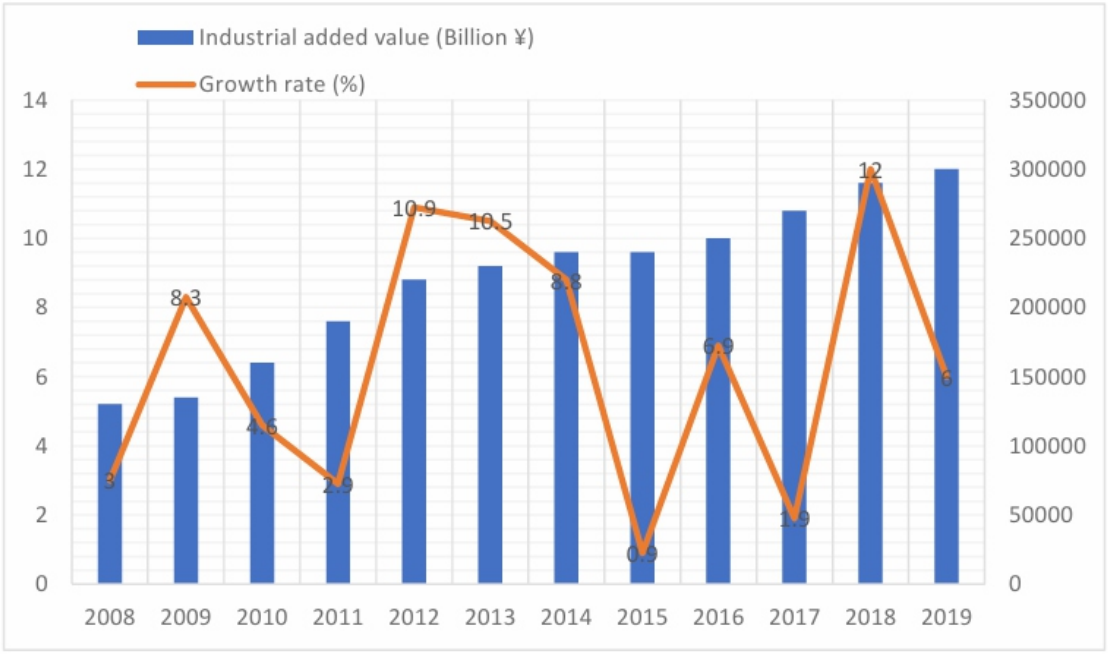

Figure 5. Industrial added value and growth rate in 2008-2019

The high-quality change of the manufacturing industry is the key to economic transformation and the essence of the manufacturing industry's green transformation, based on its status and role in the national economy. Manufacturing fixed asset investment has progressively increased and stabilized since 2008, as shown in Figure 6, and the growth rate of manufacturing fixed asset investment from 2014 to 2017 was lower than from 2008 to 2014. The added value of the engineering industry also showed an increasing trend, and the added value of the manufacturing industry was higher than the speculation in fixed assets, indicating that the growth capacity of the manufacturing industry continued to be stable. In 2017, the added value of China's engineering industry was 3.46 trillion U.S. dollars, and the additional worth of the U.S. manufacturing industry was 2.17 trillion U.S. dollars. The extra cost of China's manufacturing industry was 1.59 times that of the United States.

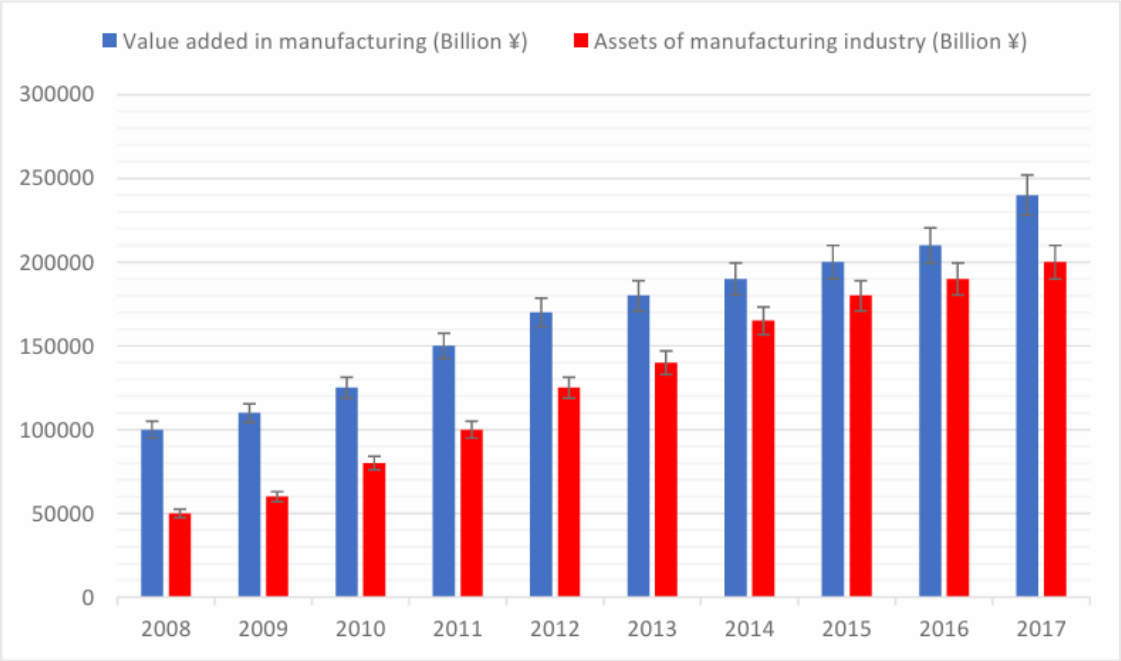

Figure 6. Asset investment and manufacturing value added, 2008-2017

Industrial Structure Adjustment

With the economic growth and the optimization and modification of the industrial structure, the output and input structure of economic activities are constantly changing. Moreover, based on the theory of industrial structure, the change of industrial structure level is reflected in the process of economic development, and is the concrete manifestation of economic transformation and development. The total factor productivity (TFP) of the manufacturing industry is analyzed using the Malmquist index model, as well as EC (Efficiency Change) and TC (Technological Change), respectively. As shown in Table 5, from the industry normal, the EC of the cleaning manufacturing is 1.019.

Table 5. Total Factor Productivity of Manufacturing Cleaning Industry

Industry	EC	TC	TFP
Tobacco	1.000	1.188	1.188
Special equipment	1.016	1.074	1.091
Instrument	1.033	1.012	1.046
General equipment	1.001	1.081	1.083
Furniture	1.100	0.972	1.069
Wood products	1.041	1.076	1.120
Printing and recording	1.054	1.067	1.124
Electronic equipment	1.000	1.018	1.018
Electrical machinery	1.041	1.045	1.087
Crafts manufacturing	0.900	1.176	1.059

In comparison to the excessively polluted industry, the cleaning industry's resources have been fairly utilized and apportioned. TFP has a mean of 1.089 while TC has a mean of 1.071. The continuous innovation of clean industry technology innovation and the continuous improvement of innovation

capabilities will help promote the green transformation of the manufacturing industry. In the early stage of China's economic development, the development of the industrial structure was unreasonable, and the secondary industry dominated by energyintensive industries occupied the main position of the economic structure. From the perspective of output, that is, the contribution rate of the three industries to GDP, as shown in Figure 7.

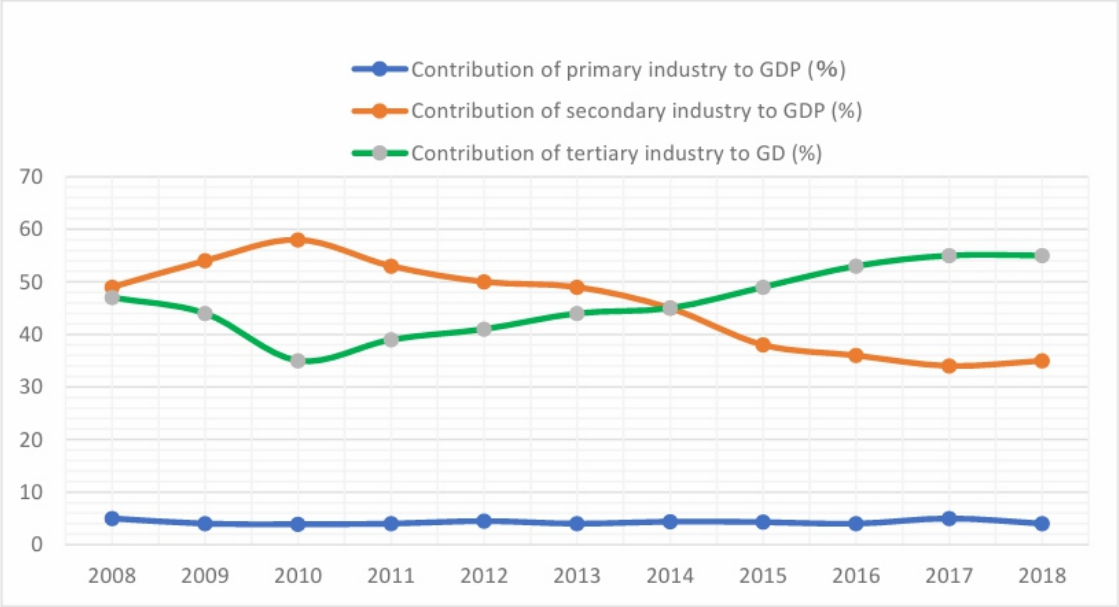

Figure 7. Contribution rate of three industries to GDP from 2008 to 2018

At existing, the dominant industry in China's economic assembly is the tertiary industry, which indicates that the factors of production have removed from labor- or capital-intensive industries to technology- and knowledge-intensive industries, and China has gradually entered a postindustrial era dominated by service industries (Dasgupta et al., 2002). The continuous optimization of the industrial structure provides a good development environment for the green transformation of manufacturing.

Technological Innovation and Development

Research and development (R&D) asset will promote technological improvement, which in turn will have an impact on environmental quality. Innovation is the important driving force of the new era of economic development, and technological novelty is the first driving strength for the high-quality expansion of the manufacturing industry. As shown in Figure 8, R&D spending continues to rise rapidly.

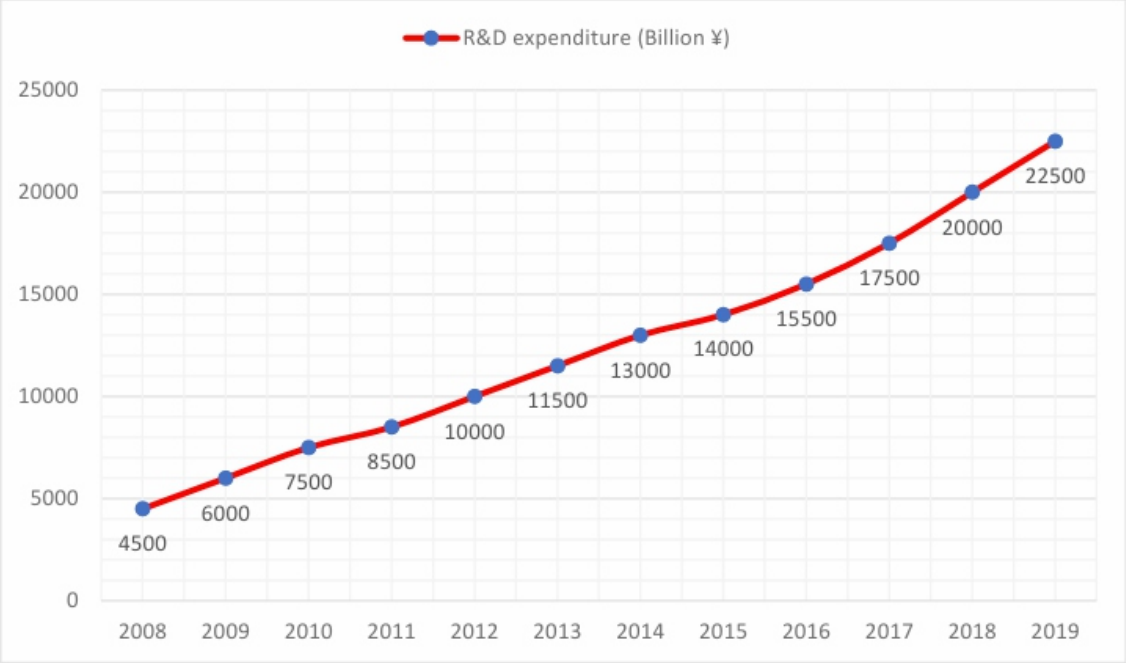

Figure 8. R&D expenditure in 2008-2019

In 2019, China's R&D investment strength reached 2.23%, and the total investment reached 2214.316 billion yuan. In addition, the proportion of basic research funding has reached 6.03%, and the overall innovation capability and investment structure have gradually improved. From the view of technological invention output, the number of authorized patents and invention patents in China has shown a rapid upward trend, as shown in Table 6.

Table 6. Number of patents granted, and invention patents granted from 2008 to 2017

Year	Number of patents granted (items)	Number of invention patents authorized (items)
2008	380,000	100,000
2009	620,000	120,000
2010	800,000	150,000
2011	900,000	175,000
2012	1,250,000	230,000
2013	1,350,000	210,000
2014	1,300,000	235,000
2015	1,650,000	360,000
2016	1,700,000	400,000
2017	1,750,000	415,000

According to a study from the Intellectual Property Office, China had placed first in the world for seven years in a row in terms of innovative patent applications. The SBM Undesirable standard is used to examine the manufacturing industry's green progress efficiency, and the green development coordination ability between the manufacturing industry's development and the environment is discussed. According to the findings, the clean manufacturing industry has the highest green development efficiency, followed by the extremely polluted industry and the moderately polluted industry, which has the lowest. Moreover, the overall influence output ofthe manufacturing industry is on the rise. Based on the observed results, relevant policy recommendations are put forward.

CONCLUSION

Technological innovation-driven green revolution of manufacturing industry is a vital means to reach high-quality economic development and improve international competitiveness in the framework of a new round of technological change and industrial reform closely intertwined with China's economic transformation and expansion. Based on the heterogeneity of the development of manufacturing industries, the static panel model is used based on the panel info of manufacturing industries from 2006 to 2019 to explore the promoting role and static influence of technological invention on the green transformation of manufacturing. The manufacturing industry is categorized into three categories based on its environmental pollution intensity: extremely polluted industries, moderately polluted industries, and clean industries. The SBM-undesirable mode is used to assess the manufacturing industry's green change competence. The clean manufacturing industry has the highest green development efficiency, with a value of 0.52; the extremely polluted industry comes second, with a value of 0.40; and the temperately polluted enterprise has the lowest green development productivity, with a value of 0.32. The significantly polluting industries' mean total factor productivity is 1.106, whereas the EC and TC are 0.944 and 1.145, respectively. The average values of TFP, EC, and TC in the moderately polluted and clean industries are all greater than 1, indicating that resources have been reasonably utilized and allocated in the moderately polluted and clean industries, and the technological innovation capability of the manufacturing industry has been continuously improved. Finally, we employ a static panel model to investigate the combined influence of environmental parameter and technological novelty in driving the green revolution of manufacturing in the context of changing government governance. The results show that R&D asset and government ascendency transformation can directly drive the green transformation of manufacturing.

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ROLE OF UNCERTAINTY AS A MODERATOR ON CONSUMERS' PURCHASE INTENTIONS TOWARDS ORGANIC FOOD: A COMPARATIVE STUDY

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ABSTRACT

The growing advent of the organic food market requires knowledge about how consumers' attitudes and lack of uncertainty increase or decrease purchase intention. This study examines the factors influencing consumers' organic food purchase intention and the moderating role of uncertainty through a cross country comparative analysis conducted in three developing countries, where lack of food safety, environmental security, and health consciousness are considered to be the growing concern towards the success of organic food. To find the factors affecting purchase intention and attitude towards products produced organically, a theoretical model was developed and tested, representing factors of health consciousness, food safety concern, environmental consciousness, and consumers' attitude, whereas uncertainty was taken as a moderator. Hence, the current study expands the existing literature by analyzing the model to integrate individuals' organic food usage motives to extend their purchasing intentions. The quantitative data was collected from three countries, including Pakistan (n=287), India (n=256), and China (n=354). The findings revealed that health consciousness is a significant forecaster of shaping consumers' attitudes toward organic food and influencing their intentions towards organic food purchasing. Moreover, the findings also indicated that consumers with a higher level of uncertainty avoid purchasing organic food. The results of this study will be useful for marketing managers, scholars, and retailers to develop appropriate strategies for marketing organic food.

Keywords: Organic Food; Uncertainty; Attitude; Purchase Intention.

INTRODUCTION

The shift in food technologies and consumers' lifestyles are reshaping the landscape for businesses, and a noticeable shift may be observed in the ways businesses operate. For example, in countries like China, Pakistan, and India, farmers are gradually shifting farming activities from traditional (i.e., use of fertilizers and chemicals) to modern technologies (i.e., organic production). Several people prefer to use healthier food, which leads to the use of advanced technologies, which play a significant role in shaping consumers' organic food purchase intentions. However, companies can offer better services with the support of information for identifying factors that enhance consumers' organic food purchase intentions.To identify varying critical factors that influence consumers' intention to buying attitude towards organic food, various scholars endeavored research studies (Iyer et al., 2016; McFadden & Huffman 2017; Le-Anh & Nguyen-To, 2020). A few scholars identified these factors as labeling and demographics (Gracia & de-Magistris 2016), while some discovered that consumers' attitude depends on their personal values (Barbarosaa et al., 2015). Furthermore, Wu et al. (2021) found a new variable of traceability information that affects the consumers' intention toward organic food. However, consumers' attitude changes with perceived surroundings. In extension to this, consumers may resist the purchase intention due to the reasons like how much they can rely on the organic food certifications, etc. The main

concern of consumers is to find the credible quality the organic food which they can trust. These two factors mainly affect their attitude and purchase intention. For example, incomplete and ambiguous knowledge towards organic food quality will lead to mistrust and ambiguity about the quality of the product subsequently reducing consumers' organic food purchase decisions (Prakash et al., 2018; Tandon et al., 2020). Hence, uncertainty may moderate the relationship between consumers' attitudes and purchase intentions. Uncertainty can help us better to understand the consumers' attitudes and their influence on purchase intentions. Based on the discussion above, this study aims at exploring the consumers' purchase intentions towards organic food in emerging markets (i.e., China, Pakistan, and India) scenario, where lack of food safety, environmental security, and health consciousness are being considered the growing concern towards the success of organic food. A theoretical model is developed and tested to find the factors affecting purchase intention and attitude towards products produced organically, representing factors of health consciousness, food safety concern, environmental consciousness, consumers' attitude, and uncertainty as a moderator. This recommended model is then investigated empirically, and the results are evaluated through PLS-SEM.

THEORETICAL FRAMEWORK

This study makes some significant contributions to the existing body of literature. First, by integrating variables, lack of food safety, environmental safety, and health consciousness to understand the factors significantly affecting purchase intention of organic food are reestablished in emerging markets context, where being health conscious is considered the growing concern for the success of organic food products. Secondly, this study investigates the moderating role of uncertainty between consumers' attitudes and purchase intentions. Thirdly, this manuscript explores the combined effect of health consciousness, food safety concerns, environmental consciousness, attitude, and uncertainty on consumers' purchase intentions by employing PLS-SEM. The Theory of Planned Behavior (TPB) has been frequently used by various scholars to explain and forecast the variations and development in consumer behavior due to the latest trends (Watson et al., 2014) and to explore the relationship between attitudes, values, beliefs, action, and intentions (Webb & Sheeran 2006; Chekima et al., 2016; Ajzen, 2020). Prior studies used TPB to test the organic buying behavior of consumers (Chekima et al., 2016) to describe the antecedents of consumers' hygiene and cleaning products, clothing, and organic food intention (McFadden & Huffman 2017). TPB has also been used by Yarimoglu and Gunay (2019) to determine the factors that influence creating consumers' intention to visit green hotels. Bosnjak et al. (2020) analyzed the further extension of the theory and explained that according to the web science database, TPB has been used by more than 4,200 researchers in various disciplines like management, health sciences, environmental sciences, and educational industry.

Previous studies proposed that there are three primary objectives of consumers to adopt the usage of organically produced products. Schleenbecker and Hamm (2013) assert that the reliability of the information, health consciousness and degree of awareness of consumers through different mediums like labels and packaging help consumers develop a positive attitude towards organic food. Further, the significance of environmental and food safety is also acknowledged as the key motive for purchasing organic food in Taiwan (Teng & Lu, 2016), India (Kushwah et al., 2019), and Pakistan (Iqbal et al., 2021). Also, several studies examined the marketing of organic products in diverse cultures and determined that consumers relate health, environment, and food safety to organic food (Hemmerling et al., 2015, Boobalan & Nachimuthu, 2020). Further, more research has explored the factors affecting this relationship, including self-determination motives (Shrestha, 2020) along with personal values (Molinillo et al., 2020) and product features as well (Le-Anh & Nguyen-To, 2020). Motivated by the above studies, this study investigates the role of health, food safety, and environmental consciousness as the essential factors in determining consumers' intention to purchase organic food.

The consumption of organic food can result in consuming better nutrients and fewer chemicals (Hasselbach & Roosen, 2015). Numerous studies suggest that people's desire for natural products depends not only on but is also motivated by their desire for good health (Yadav & Pathak, 2016; Basha & Lal, 2019; Rizzo et al., 2020). For example, several food-related scandals in most developing countries affect peoples' physical health, making people more conscious about their food. As consumers are becoming more health-conscious, health has become a crucial motivator for purchasing organic food.

Researchers recently demonstrated that due to the increased health awareness, consumers are making serious efforts to understand and investigate the manufacturing and processing procedures of organic farming (Hsu et al., 2016). For example, in China, food safety is a national issue and threatens citizens' psychological and physical health, regardless of strict laws related to food safety. The food safety concern is getting more focus in emergent economies. Studying food safety concerns could be a promising avenue. Tandon et al. (2020) discovered another factor of environmental consciousness that works as a vital aspect of building consumers' perception of organic products. It proposes that environmental consciousness might have an essential role in developing the purchase intention of environment-friendly food products. Smith and Paladino (2010) also highlighted the significance of environmental consciousness in the scenario of organic food as it is treated as a pro-environmental attitude. Wang et al. (2020) further investigated the concept with the mediation effect of perceived food quality between environmental consciousness and organic food purchase intention. Saraiva et al. (2021) further extended this concept by identifying that community and social economy can lead to ecological safety. A few latest researches have also addressed the relationship between consumer' intention towards organic buying and environmental consciousness (Kushwah et al., 2019; Gupta et al., 2021; Saraiva et al., 2021). Given these findings, it can be stated that consumers are more inclined to purchase organic products when they realize the environmental concerns.

Consumers seldom rely on the claims made by an organization, especially when it is related to sustainability (Janssen & Hamm, 2012). They may feel uncertain about the issues related to organic food products like the certification authenticity and healthy food claims, etc. since organic is based on credible quality. Therefore, trust is the key for people to buy organic food products. Previous studies have identified that perceived uncertainty negatively influences trust and organic purchase intention (Nuttavuthisit & Thøgersen, 2015; Basha & Lal, 2019; Tandon et al., 2020; Yu et al., 2021). As a trust being an essential factor for selecting a brand, consumers tend to switch to brands who present valid and authentic proofs of their claims related to sustainability and organic production. With a higher level of uncertainty, the influence of organic food will stimulate the consumer to buy others. Whereas, if they have adequate information on ingredients and production process of organic food, their level of uncertainty will be low, and they will show conscious intention to buy organic food products (Gracia & de-Magistris, 2016). The relevance of uncertainty makes it quite worthy to investigate its moderating role between consumers' attitude towards organic products and purchasing intention.

HYPOTHESES DEVELOPMENT

Consumers contemplate health as a significant motive at the time of purchasing the food items and express their concerns related to health and food through their buying patterns. Research has identified that consumers with high health consciousness prefer to purchase organic food. Consumers who are overly cautious about the challenges related to their health are ready to give extra efforts and resources to finding and purchasing organic food products. Previous studies indicate that health is one of the critical drivers to stimulate consumers' attitudes and intentions towards the purchasing of organic food products (Yadav & Pathak, 2016; Molinillo et al., 2020). Therefore, we suggest that:

H1a: Health consciousness impacts consumers' attitudes toward organic food.
H1b: Health consciousness impacts consumers' purchasing intention.

Consumers are more focusing on their health, quality of food, and the food contents of what they eat or drink (Basha & Lal, 2019; Molinillo et al., 2020). Suh et al. (2012) identified in their research that women get more conscious about their food selection to avoid pregnancy issues, food-related diseases, and other illnesses. Hence, they choose to buy chemical-free and natural food. Based on findings from several research studies, it can be established that food safety is a crucial element in predicting individuals' readiness to shop for organic food (Michaelidou & Hassan, 2008; Shrestha, 2020). Therefore, the hypothesis is determined that:

H2a: Food safety concerns impact consumers' attitudes toward organic food.
H2b: Food safety concerns impact consumers' purchasing intentions.

Pagiaslis and Krontalis (2014) pointed out that environmental consciousness positively influences consumers' intentions toward purchasing environment-friendly products (Tandon et al., 2020). Environmental consciousness had a major influence in shaping purchase intentions towards organic food products (Smith & Paladino, 2010) as the purchase of organic food products is accounted for as a pro-environmental attitude. Tregear et al. (1994) determined that consumers who choose organic food were more likely to involve in environment-friendly behavior, which indicates their interest in a sustainable environment. The evolving interest in a sustainable environment shows consumers' growing purchase intention toward organic food products (Wang et al., 2020). Thus, the study investigates that:

H3a: Environmental consciousness impacts consumers' attitudes toward organic food.
H3b: Environmental consciousness impacts consumers' purchasing intention.

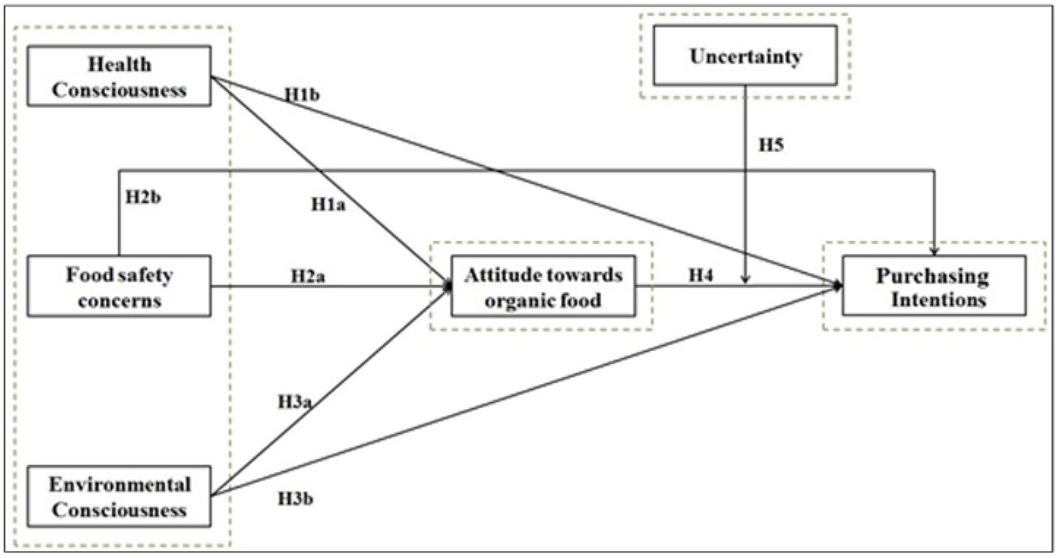
Yip and Janssen (2015) discovered that Chinese consumers are more conscious and have a higher purchase intention of organic food than consumers in Hong Kong. Yee et al. (2005) investigated this phenomenon and endorsed that when consumers believe that the food is manufactured and treated without chemicals, their intention to buy that product becomes positive. Moreover, most of the earlier studies have found a significant relationship between consumers' attitudes and intentions to purchase organic food (Yeon Kim & Chung, 2011; Pino et al., 2012; Basha & Lal, 2019). Consequently, it is proposed that:

H4: Consumers' attitude impacts their purchasing intention.

Thøgersen et al. (2012) revealed uncertainty as a significant impediment in developing favorable consumer attitude towards purchasing organic food. Previous studies have explored that when consumers have detailed information about the organization, production and processing of the product, their uncertainty level reduces, and they will be more inclined to purchase such organic food products (Gracia & de-Magistris, 2016; Shan et al., 2020). Hence, it has been found that the consumers in those countries who cannot deal with food-related scandals are incredibly critical about selecting organic food. Addressing this food safety concern (Tonkin et al., 2021) tested the DOTIFS scale and concluded that in order to reduce uncertainty of consumers regarding food concerns, state has to be vigilant in implementing appropriate regulations. Thus, there is a need to investigate the moderating role of uncertainty between the link between consumers' attitudes towards an organic product, and their purchase intention could be significant. Therefore, we hypothesize:

H5: Uncertainty moderates the relationship between consumers' attitudes and purchase intentions.

PROPOSED FRAMEWORK



METHODOLOGY

Measures

A measurement scale consisting of a "five-point Likert scale" is designed to evaluate all the items that range from "strongly disagree" (1) and "strongly agree" (5). The questions to assess the variable of environmental consciousness are adapted from Prakash et al. (2018), and the scale items of attitude towards organic food are adopted from Wang et al. (2013). The items for food safety concerns are adopted from Soler et al. (2002), while the items of health consciousness, uncertainty, and purchase intentions are adapted from (Jiang et al., 2019; Rashid et al., 2019; Rashid et al., 2020).

Collection of Data

To contact the maximum number of respondents from all three countries, data is collected through email, official groups, Facebook, Wechat, WhatsApp, QQ, and in-person with the support of students understanding of data collection through this kind of survey. Most of the target population respondents were approached around purchase malls and in universities. The questionnaire was forwarded to around 570 respondents in Pakistan with a response rate of 54.91%, as 313 responses were received, out of which 287 replies were used for analysis. The questionnaire was forwarded to around 540 respondents in India with a response rate of 53.88%, 291 responses received, out of which 256 responses were used for analysis. In comparison, the questionnaire was forwarded to around 650 respondents in China with a response rate of 61.08%, 397 responses received, out of which 354 responses were used for analysis. The validity and reliability of the data collected are presented below.

Table 1. CFA and Measures of Validity

	Pakistan				India				China			
Items	Loading	α	CR	AVE	Loading	α	CR	AVE	Loading	α	CR	AVE
HC1	0.799				0.816				0.843			
HC2	0.801				0.809				0.935			
HC3	0.856	0.854	0.911	0.774	0.777	0.880	0.902	0.755	0.812	0.901	0.928	0.720
HC4	0.888				0.862				0.769			
HC5	0.895				0.844				0.874			
FSC1	0.904				0.901				0.839			
FSC2	0.915	0.871	0.921	0.796	0.920	0.902	0.939	0.836	0.863	0.811	0.888	0.726
FSC3	0.856				0.922				0.853			

EC1	0.906				0.839				0.894			
EC2	0.918	0.902	0.939	0.836	0.880	0.830	0.898	0.747	0.886	0.836	0.902	0.754
EC3	0.919				0.873				0.823			
ATOF1	0.895				0.900				0.895			
ATOF2	0.885	0.848	0.905	0.735	0.893	0.836	0.902	0.755	0.885	0.852	0.910	0.772
ATOF3	0.854				0.809				0.855			
Uncrt1	0.795				0.795				0.805			
Uncrt2	0.812				0.776				0.840			
Uncrt3	0.801	0.813	0.875	0.669	0.796	0.869	0.844	0.653	0.824	0.874	0.908	0.664
Uncrt4	0.797				0.759				0.791			
Uncrt5	0.834				0.801				0.814			
PI1	0.848				0.842				0.840			
PI2	0.805				0.790				0.830			
PI3	0.834	0.883	0.914	0.681	0.842	0.872	0.907	0.662	0.839	0.895	0.922	0.704
PI4	0.788				0.762				0.835			
PI5	0.848				0.830				0.851			

HC. Health consciousness, **FSC**. Food safety concern, **EC**. Environmental consciousness, **ATOF.** Attitude towards organic food, Uncert. Uncertainty, PI. Purchasing intention.

RESULTS

Measurement Model (All Models)

To check the reliability and validity of each hypothesis, we conducted different necessary tests: discriminate validity, the reliability of items, convergent validity, and internal consistency (Hair et al., 2011). According to Bagozzi and Yi (1988), the goodness of fit for the model the standard factor loading must be between 0.50 to 0.95, while the value of average variance extracted (AVE) is above 0.50; composite reliability is above 0.70 Fornell and Larcker (1981). The result of convergent validity shows that the value of factor loadings and Cronbach's alpha (α) were above the cut-off level of 0.7 in all three countries, and values of AVE of all variables were above the threshold of 0.5. Composite reliability was also above the threshold of 0.7 in all three countries. The results are shown in Table 1. After confirming the reliability and validity of the instrument and data, the proposed model is tested separately through the data collected from each country.

Hypothesis Testing

Pakistan

The value of SRMR was 0.063 less than the threshold value =<0.08, which shows that model has a good fit, while Chi-Square was equal to 1879.079, and NFI was equal to 0.851. The demographic characteristics of participants in Pakistan were 73.29% male and 26.71% female. The participants' age was 18-24 (30.25%), 25-30 (33.57%), 31-40 (31.73%), and 41-above (4.45%). Health consciousness shows significant effect on consumers' attitude and purchasing intentions with H1a $\beta = 0.474$ $p < .001$, and H1b $\beta = 0.143$ $p < .01$. Furthermore, the findings confirms that consumers' food safety concerns significantly related to support for their attitude H2a $\beta = 0.202$ $p < .001$, but insignificant effect on purchasing intentions with H2b $\beta = 0.027$ $p < .512$ns. Environmental consciousness is significantly related with consumers' attitude and purchasing intention H3a $\beta = 0.238$ $p < .001$, and H3b $\beta = 0.300$ $p < .001$, respectively. H4 is supported by results with $\beta = 0.240$ $p < .001$, which means that consumers' attitude is positively related to their purchasing intention toward organic food. The model explains that 69% of the variance is related to consumers' attitudes, and 85% is related to purchasing intention. These results show the acceptability of our hypothesized model.

Table 2. Model Fit Summary

Pakistan		India		China	
Estimated Model		Estimated Model		Estimated Model	
SRMR	0.063	SRMR	0.069	SRMR	0.071
d_ULS	1.532	d_ULS	1.659	d_ULS	1.709
d_G1	0.879	d_G1	0.819	d_G1	0.789
d_G2	0.812	d_G2	0.905	d_G2	0.854
Chi-Square	1879.079	Chi-Square	1958.085	Chi-Square	1899.081
NFI	0.851	NFI	0.876	NFI	0.799

ndia

The value of SRMR was 0.069 less than the threshold value =<0.08, which shows that model has a good fit, while Chi-Square was equal to 1958.085, and NFI was equal to 0.876. The demographic characteristics of participants in India were 61.39% male and 38.61% female. The participants' age was 18-24 (26.18%), 25-30 (29.64%), 31-40 (34.56%), and 41-above (9.62%). Health consciousness shows significant effect on consumers' attitude and purchasing intentions with H1a $\beta = 0.367$ $p < .01$, and H1b $\beta = 0.143$ $p < .01$ $\beta = 0.207$ $p < .01$. Furthermore, the findings confirm that consumers' food safety concerns significantly related to support for their attitude and purchasing intentions H2a $\beta = 0.278$ $p < .001$, and H2b $\beta = 0.156$ $p < .01$, respectively. Environmental consciousness is significantly related with consumers' attitude H3a $\beta = 0.287$ $p < .001$, but insignificant effect on purchasing intentions with H3b $\beta = 0.08$ $p < .169$ns. H4 is supported by results with $\beta = 0.125$ $p < .05$, which means that consumers' attitude is positively related to their purchasing intention toward organic food. The model explains that 75% of the variance is related to consumers' attitudes, and 84% is related to purchasing intention. These results show the acceptability of our hypothesized model.

China

The value of SRMR was 0.071 less than the threshold value =<0.08, which shows that model has a good fit, while Chi-Square was equal to 1879.079, and NFI was equal to 0.799. The demographic characteristics of participants in China were 52.54% male and 47.46% female. The participants' age was 18-24 (27.68%), 25-30 (31.92%), 31-40 (32.49%), and 41-above (7.91%). Health consciousness shows significant effect on consumers' attitude and purchasing intentions with H1a $\beta = 0.236$ $p < .01$, and H1b $\beta = 0.182$ $p < .01$ $\beta = 0.207$ $p < .01$. Furthermore, the findings confirm that consumers' food safety concerns significantly related to support for their attitude H2a $\beta = 0.199$ $p < .05$, but insignificant effect on purchasing intentions with H2b -0.018 $p < .783$ns. Environmental consciousness is significantly related with consumers' attitude H3a $\beta = 0.419$ $p < .001$, but insignificant effect on purchasing intentions with H3b $\beta = 0.054$ $p < .388$ns. H4 is supported by results with $\beta = 0.460$ $p < .001$, which means that consumers' attitude is positively related to their purchasing intention toward organic food. The model explains that 65% of the variance is related to consumers' attitudes, and 84% is related to purchasing intention. These results show the acceptability of our hypothesized model.

Table 3a. Correlations of the Variables

	Pakistan					
Constructs	**1**	**2**	**3**	**4**	**5**	**6**
Health consciousness	0.880					
Food safety concern	0.576	0.892				
Environmental consciousness	0.582	0.529	0.914			
Attitude towards organic food	0.489	0.618	0.409	0.857		
Uncertainty	0.512	0.325	0.386	0.467	0.820	
Purchasing intentions	0.473	0.479	0.519	0.534	0.438	0.825

Table 3b. Correlations of the Variables

	India					
Constructs	**1**	**2**	**3**	**4**	**5**	**6**
Health consciousness	0.870					
Food safety concern	0.592	0.914				
Environmental consciousness	0.612	0.546	0.864			
Attitude towards organic food	0.427	0.623	0.439	0.870		
Uncertainty	0.498	0.439	0.598	0.387	0.808	
Purchasing intentions	0.589	0.657	0.436	0.678	0.588	0.814

Table 3c. Correlations of the Variables

	China					
Constructs	**1**	**2**	**3**	**4**	**5**	**6**
Health consciousness	0.850					
Food safety concern	0.653	0.852				
Environmental consciousness	0.509	0.582	0.868			
Attitude towards organic food	0.578	0.605	0.489	0.880		
Uncertainty	0.619	0.539	0.566	0.588	0.815	
Purchasing intentions	0.654	0.598	0.658	0.581	0.699	0.839

*Boldface numbers are the square root of the AVE model

Table 4. Results of Hypothesized Effects (Direct & Indirect)

	Pakistan			India			China		
Hypothesis	β	Sig	Result	β	Sig	Result	β	Sig	Result
$H1_a$	0.474	0.000	Supported	0.367	0.000	Supported	0.236	0.008	Supported
$H1_b$	0.143	0.012	Supported	0.207	0.005	Supported	0.182	0.002	Supported
$H2_a$	0.202	0.000	Supported	0.278	0.000	Supported	0.199	0.038	Supported
$H2_b$	0.027	0.512	Not Supported	0.156	0.004	Supported	-0.018	0.789	Not Supported
$H3_a$	0.238	0.001	Supported	0.287	0.001	Supported	0.419	0.000	Supported
$H3_b$	0.300	0.000	Supported	0.083	0.169	Not Supported	0.054	0.388	Not Supported
H4	0.240	0.000	Supported	0.125	0.042	Supported	0.460	0.000	Supported

Moderation

The PLS multigroup analysis was applied to statistically check the moderating influence of uncertainty. Before conducting the test, the samples were divided from each of the countries into two groups, i.e., Pakistan's higher uncertainty (n=184) and lower uncertainty (n=103), India's higher uncertainty (n=149) and lower uncertainty (n=107), China's higher uncertainty (n=203) and lower uncertainty (n=151). All groups were made on the bases of the average score (M=4.18) as a cutting point for each group. Few earlier studies also confirmed that PLS multigroup analysis is an effective technique to examine differences among subgroups. Results of the combined model show that path coefficient of uncertainty is $\beta = 0.229$ $p < 0.01$ in Pakistan, $\beta = 0.198$ $p < 0.01$in India, and $\beta = 0.327$ $p < 0.01$ in China. The structural model for both groups was tested separately and then compared with the path coefficients across bothgroups. The results of MGA show a significant difference $\beta = 0.119$ $p < 0.05$ in Pakistan, $\beta = 0.125$ $p < 0.05$ in India, and $\beta = 0.123$ $p < 0.05$ in China, and confirm that uncertainty is significantly moderating the link between consumers' attitude and their purchasing intentions. Furthermore, the results indicates that the path coefficients from the attitude to purchase intentions in Pakistan are 0.203** ($p<0.01$) in less uncertainty, while 0.187** ($p<0.01$) in more uncertainty, in India 0.195** ($p<0.01$) in less uncertainty, while 0.219** ($p<0.01$) in moreuncertainty, and in China 0.214** ($p<0.01$) in less uncertainty, while 0.178** ($p<0.01$) in more uncertainty group. As anticipated, results show that when the consumers' level of uncertainty is high towards organic food products, the association between

consumers' attitudes toward organic food and their purchasing intentions will be weakened. Hence, H7 is supported. The details of the above results are presented in Table 05.

Table 5. MGA for Both Groups.

Pakistan	**High Uncertainty (n=184)**			**Low Uncertainty (n=103)**			**Moderation**	
	Path Coefficient	t-statistics	Standard error	Path Coefficient	t-statistics	Standard error	Path Coefficient	t-statistics
ATOF → SI	0.187	2.63**	0.039	0.203	2.37**	0.049	0.119	2.01*
India	**High Uncertainty (n=149)**			**Low Uncertainty (n=107)**			**Moderation**	
	Path Coefficient	t-statistics	Standard error	Path Coefficient	t-statistics	Standard error	Path Coefficient	t-statistics
ATOF → SI	0.219	2.84**	0.029	0.195	2.28**	0.051	0.125	2.18*
China	**High Uncertainty (n=203)**			**Low Uncertainty (n=151)**			**Moderation**	
	Path Coefficient	t-statistics	Standard error	Path Coefficient	t-statistics	Standard error	Path Coefficient	t-statistics
ATOF → SI	0.178	2.37**	0.058	0.214	2.56**	0.059	0.123	2.07*

*p< 0.05, **p< 0.01, ***p< 0.001, ns= non-significant

DISCUSSION AND IMPLICATIONS

The primary intention of the current study is to explore the factors affecting consumers' purchase intentions towards purchasing organic food and the role of uncertainty as a moderator by following TPB as a theoretical base. The outcomes confirmed the role of TPB and health, environmental consciousness, and food safety concerns while forecasting consumers' purchasing intentions toward organic food products or services in developing countries. Secondly, the findings from Pakistan, India, and China were also compared. The findings revealed that health consciousness is a significant forecaster of shaping consumers' attitudes towards organic food and influencing their intentions towards organic food purchasing in Pakistan, India, and China. These outcomes are aligned with (Yadav & Pathak, 2016; Molinillo et al., 2020); health consciousness positively influences consumers' attitudes and purchase intentions toward organic food products. This shows that people perceive organic food as healthier than traditional food, while the quickly emergent middle class that is financially sound and well educated is in a position and therefore inclined to shop for organic food. For example, two big dairy companies in China, 'Yili' and 'Mengniu,' play a significant role in making and marketing organic food in China.

Food safety is related to problems of artificial additives, different chemicals, and pesticides, which is a significant cause of concern for those individuals who are more conscious about their health. This study shows that consumers' concern about food safety does not directly influence their intentions to shop for organic food in Pakistan and China. These findings oppose a study conducted by (Hsu et al., 2016; Iqbal et al., 2021). These findings indicate the level of consumers' trust in local or national regulatory authorities to prioritize people's health safety (Tonkin et al., 2021). For example, there is no central food authority in China for halal food; hence, every province follows its own standards for halal food.

Moreover, the study further establishes that participants who are aware of the significance of a sustainable environment have been found to have a strong attitude towards organic food in all three countries. These outcomes are against the findings of earlier studies (Zagata, 2012) which have found that the usage of organic food may differ from country to country. For example, Chryssohoidis and Krystallis (2005) reported no significant role of eco-friendliness in Greece, while other countries may have a considerable influence. However, the results are consistent with the findings of (Molinillo et al., 2020), who found environmental concerns of millennials in two countries.

The current study confirms that uncertainty notably weakens the link between attitude toward organic food products and purchase intentions. Such findings are aligned with earlier studies, indicating that even though purchasing organic food needs a more robust attitude than buyingtraditional food, a stronger feeling of uncertainty decreases the influence of consumers' attitudes on purchase decisions

towards organic food. This is because of perceived risk, and less incomplete information about organic food may negatively affect consumers' purchase intentions (Teng & Lu, 2016). When people feel uncertain about the significance of organic food, they show less interest in purchasing decisions of organic food because they don't have the right information and knowledge of organic food to accurately forecast the consequences of organic food.

Implications

This study has some theoretical enlightenment for scholars. The current study expands the existing literature by analyzing a model that integrates individuals' organic food usage motives to extend their purchasing intentions. PLS-SEM analysis indicates a positive influence on consumers' purchasing intentions toward organic food. This study also has some managerial implications; first, it provides an opportunity for marketing managers to design marketing messages, highlighting the benefits of adopting organic food in three different countries. Through aggressive marketing campaigns, organizations can develop consumers' confidence in organic food by focusing on the perceived significance of the environment and health consciousness to strengthen consumers' attitudes towards organic food, which eventually leads them toward organic food purchase intentions. Moreover, to reduce uncertainty and increase consumers' organic food purchasing intentions, companies should adopt a product tracking system through which consumers can systematically track products from the start of production to the shelf, including government certifications related to organic food production as organic food products market is still at its preliminary stages in China. Developing a trustworthy organic food system that provides comprehensive and reliable information is essential to enhance their trust in organic food products.

LIMITATIONS AND FUTURE STUDY DIRECTIONS

Despite extensive research, few recommendations are advised for further research based on some limitations faced. First, the variables used in this study have been measured at a single point in time. Future studies may consider the longitudinal technique to confirm the suggested framework. Second, this study did not investigate consumers' actual purchasing behavior as this kind of data is scant in academics. Future studies may compare consumers' purchasing intentions and actual purchasing behavior towards organic products. In order to deeply understand the trust of consumers and their level of uncertainty, future studies can focus on evaluating the change in consumer intention by implementing a new DOTIFS scale and enhancing the trust of the consumers (Tonkin et al., 2021). This model can be applied to study the organic purchase intention in a specific industry, like Tourists' site-specific intention (Gupta et al., 2021).

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