



(RESEARCH ARTICLE)



Wings of progress: The economic and social impacts of low-cost carriers in the Philippines

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Abstract

Low-cost carriers (LCCs) have become a significant force in the Philippine aviation industry, providing affordable air travel and contributing to regional economic and social development. However, the full extent of their economic, social, environmental, and infrastructural impacts has not been comprehensively studied. This study aims to evaluate the economic and social implications of LCCs in the Philippines, focusing on tourism growth, job creation, business development, and the accessibility and mobility of the population. The study also explores environmental challenges and infrastructural strains caused by the expansion of LCC operations. A mixed-methods approach was employed, incorporating quantitative data analysis of tourism statistics, employment rates, business growth, and regional economic output. Qualitative data were collected through interviews and surveys with stakeholders, including passengers, local businesses, government officials, and environmental agencies. Statistical tools such as regression analysis and chi-square tests were used to determine significance levels in the findings. The results demonstrate that LCCs have contributed significantly to regional economic growth, with a 25% increase in tourist arrivals and a 30% rise in tourism revenue. Social impacts include enhanced travel accessibility, increased cultural exchange, and improved quality of life. However, environmental challenges, such as a 15% increase in carbon emissions, highlight the need for sustainable practices. The study recommends further investment in airport infrastructure, implementation of sustainable aviation practices, and ongoing government support for regional tourism. Future studies should focus on long-term environmental impacts and strategies for reducing carbon footprints.

Keywords: Low-cost carriers; Economic impact; Social impact; Philippines; Sustainable aviation

1. Introduction

The Philippines, an archipelago of over 7,000 islands, faces unique challenges in ensuring regional connectivity and promoting economic development. The advent of low-cost carriers (LCCs) has significantly transformed the aviation landscape in the country by making air travel more accessible and affordable. LCCs such as Cebu Pacific, AirAsia Philippines, and others have played a pivotal role in bridging geographical divides, facilitating tourism, and fostering local business growth. Despite these developments, a comprehensive understanding of LCCs' economic and social impacts within the Philippine context remains limited.

The increased presence and operation of LCCs in the Philippines is not merely a transportation evolution but a catalyst for broader socio-economic changes. The relevance of this study lies in its potential to uncover how LCCs contribute to economic upliftment by stimulating tourism, creating jobs, and promoting regional development. Additionally, it seeks to explore the social implications, such as enhanced accessibility, improved quality of life for residents, and the shifting dynamics of local communities. Understanding these impacts is crucial for policymakers, industry stakeholders, and

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local communities to make informed decisions regarding the future of aviation and regional development in the Philippines.

Moreover, this study addresses the critical need for sustainable development strategies that can balance economic growth with environmental and infrastructural considerations. Given the global emphasis on sustainable and inclusive growth, this research aims to fill existing gaps by providing empirical evidence and practical insights into the role of LCCs in the Philippines' socio-economic landscape.

2. Review of Related Literature

Low-cost carriers (LCCs) have emerged as transformative players in the global aviation sector, reshaping how people travel, access services, and connect with the world. Since their inception, LCCs have been characterized by a no-frills approach to reduce travel costs and improve accessibility [14]. In the Philippines, the role of LCCs has become increasingly crucial in promoting economic growth and social development, connecting underserved regions, and stimulating various economic activities [11]. This review of related literature aims to examine existing studies on the economic, social, environmental, and infrastructural impacts of LCCs, with a specific focus on their relevance to the Philippine context.

2.1. Economic Impacts of Low-Cost Carriers

LCCs have been pivotal in driving tourism growth, particularly in developing economies. [14] highlight how LCCs contribute to regional integration by improving the affordability of air travel, thereby increasing tourist arrivals. In the Philippines, LCCs have been credited with a 25% annual increase in tourists, significantly benefiting tourism-related sectors [11]. A recent study by [3] noted the economic value of LCC-driven tourism, including its contribution to job creation and revenue growth. LCCs have also played a critical role in creating employment opportunities. According to [10], LCC operations in the Philippines have directly and indirectly contributed to the creation of thousands of jobs in the aviation, hospitality, and service industries. A report by the [24] also supports this claim, indicating a 20% growth in employment within the aviation sector due to LCC expansion.

The expansion of LCCs has spurred local business growth by bringing more visitors to underserved areas. [4] found that LCCs not only foster tourism but also stimulate business development in nearby regions. In the Philippines, [7] observed a 35% increase in the number of new businesses, such as hotels, restaurants, and tour operators, in regions served by LCCs.

2.2. Social Impacts of Low-Cost Carriers

The ability of LCCs to provide affordable travel has led to enhanced mobility for diverse population segments. A report by the [7] found that LCCs have reduced travel costs by an average of 40%, making air travel more accessible to the broader population. The increased mobility has facilitated access to essential services, such as healthcare and education, especially in rural areas [20]. Studies indicate that LCCs significantly improve the quality of life for residents of regions served by these carriers. [10] noted that affordable air travel enhances social interactions, with 70% of surveyed respondents indicating that they traveled more frequently to visit family and friends. Moreover, [27] argued that affordable travel options contribute to social inclusion, particularly for marginalized groups.

LCCs have facilitated cultural exchange, enabling greater movement between regions and fostering better social interaction. [18] highlight the importance of LCCs in providing affordable travel options that allow more individuals to experience different cultures, thus enhancing social cohesion.

2.3. Environmental Impacts of Low-Cost Carriers

While LCCs bring considerable economic and social benefits, they also pose environmental challenges. [17] emphasize the contribution of LCCs to increased carbon emissions and fuel consumption, highlighting the importance of implementing sustainable practices. In the Philippines, emissions from LCC operations increased by 15% annually, necessitating more environmentally friendly measures [2]. Efforts to reduce emissions have been noted globally and regionally. Studies by [16] and [11] underline the significance of adopting fuel-efficient aircraft and carbon offset programs to mitigate environmental impacts. Although LCCs in the Philippines have achieved a 5% reduction in emissions per flight, there is still a need for enhanced sustainability initiatives [26].

2.4. Infrastructural Impacts of Low-Cost Carriers

The rapid expansion of LCCs has placed significant strain on airport infrastructure. According to a study by [27], airports serving LCCs operate at nearly full capacity, especially during peak times, leading to infrastructural challenges. In response, infrastructure investments in Philippine airports increased by 30% to accommodate the growing demand [9]. Investments in airport facilities have led to improvements in passenger satisfaction and operational efficiency. [20] reported a 10% increase in operational efficiency at airports serving LCCs, highlighting the benefits of advanced management systems and infrastructure upgrades.

2.5. Identification of Research Gaps

Despite these benefits, several research gaps remain. Existing studies often focus on either the economic or social impacts, but comprehensive analyses integrating all aspects are scarce. Additionally, localized studies specific to the Philippine context are limited, particularly about environmental sustainability and long-term infrastructural planning. The current study aims to address these gaps by providing a holistic analysis of the economic, social, environmental, and infrastructural impacts of LCCs in the Philippines, with a particular focus on sustainability and regional development

3. Materials and Methods

3.1. Study Design

The overall study design for "Wings of Progress: The Economic and Social Impacts of Low-Cost Carriers in the Philippines" was a mixed-methods approach, integrating both quantitative and qualitative research methods. This comprehensive approach allowed for a detailed and holistic understanding of the economic, social, and environmental impacts of low-cost carriers (LCCs) in the Philippines.

3.2. Participants

The participants of this study included a diverse range of stakeholders to ensure a comprehensive understanding of the impacts of low-cost carriers (LCCs). The participants were categorized as follows:

- **Passengers:** Individuals who frequently use low-cost carriers for domestic and international travel. These participants provided insights into the accessibility, affordability, and overall travel experience offered by LCCs.
- **Local Businesses:** Owners and managers of businesses, particularly those in the tourism and service industries, such as hotels, restaurants, and travel agencies. These participants shared their perspectives on how LCCs have influenced local economic activity and business growth.
- **Employees in the Aviation and Tourism Sectors:** Staff members working for low-cost airlines, airport personnel, and employees in the tourism sector. These participants provided information on job creation, employment conditions, and the broader economic impacts of LCCs.
- **Airport Authorities:** Officials and administrators from major airports in the Philippines. These participants discussed the infrastructural changes and challenges associated with the increased operations of LCCs.
- **Local Government Officials:** Representatives from local governments in regions significantly affected by LCC operations, such as Cebu, Davao, and Kalibo. These participants offered insights into the regional development initiatives and policies influenced by the presence of LCCs.
- **Community Leaders:** Leaders from local communities, including those in rural and urban areas connected by LCC routes. These participants provided qualitative data on the social impacts of LCCs, including changes in mobility, quality of life, and community dynamics.
- **Industry Experts:** Aviation industry analysts, economists, and environmental experts. These participants contributed their expert opinions on the broader economic, social, and environmental implications of LCC operations.
- **Environmental Agencies:** Representatives from environmental organizations and agencies who provided data and insights on the environmental impacts of increased air travel and the sustainability practices of LCCs.

3.3. Materials

A variety of materials were essential to facilitate data collection, analysis, and overall research processes for this study on low-cost carriers (LCCs). Survey instruments, including printed and online questionnaires, were distributed to gather quantitative data from passengers, local businesses, and aviation employees, using platforms such as Google Forms and SurveyMonkey for efficient response collection. Semi-structured interview guides and focus group materials, such as

discussion guides and recording devices, enabled in-depth qualitative insights from key stakeholders like airport authorities, community leaders, and local business owners. Data collection was supported by laptops and tablets, voice recorders, and manual note-taking tools. Statistical software, notably SPSS, and Excel, was used for data organization and analysis, while NVivo and Atlas.ti facilitated qualitative coding and thematic analysis. Secondary data from government reports, industry publications, and environmental assessment tools, including carbon footprint calculators, enriched the study with comprehensive background information. Communication tools like email, telephone, and video conferencing software (e.g., Zoom, Microsoft Teams) streamlined participant coordination, while fieldwork logistics covered essential transportation and accommodations. Finally, documentation and reporting relied on word processing and presentation software, including Microsoft Word and PowerPoint, for drafting reports and preparing findings. These materials collectively ensured a thorough and organized approach to data gathering, analysis, and reporting.

3.4. Procedures

The initial phase of the study focused on planning and conducting preliminary research to establish a clear foundation for exploring the economic, social, and environmental impacts of low-cost carriers (LCCs) in the Philippines. First, research questions and hypotheses were articulated, grounded in a review of existing literature and theoretical frameworks relevant to LCCs. Following this, tailored research instruments were developed, including survey questionnaires for key participant groups such as passengers, local businesses, and aviation employees, as well as semi-structured interview guides for stakeholders like airport authorities, government officials, and community leaders. Focus group discussion guides were also prepared with structured questions to encourage in-depth dialogue. Finally, research proposals were submitted for approval, securing ethical clearance to ensure all procedures aligned with ethical standards, including informed consent and confidentiality protocols, thus providing a responsible framework for the study's next steps.

During the data collection phase, the study first gathered secondary data from government reports, airline industry publications, tourism statistics, employment records, and economic indicators, sourcing information from the Philippine Statistics Authority (PSA), Department of Tourism (DOT), and Civil Aviation Authority of the Philippines (CAAP). Next, printed and online surveys were distributed to target participants, ensuring a diverse sample. Online platforms like Google Forms and SurveyMonkey facilitated efficient data management, with follow-ups conducted to boost response rates and address participant questions. Semi-structured interviews were also held with key stakeholders, recorded for accuracy, and supplemented with notes to capture additional insights. Focus group discussions were organized with local residents and business owners, recorded via audio and video to preserve details for later analysis, encouraging an open dialogue to gather a range of perspectives. Finally, an environmental impact assessment examined the effects of increased LCC operations, particularly carbon emissions and resource consumption, using carbon footprint calculators and environmental reports from relevant agencies to enrich the analysis.

In the data analysis phase, quantitative and qualitative data were analyzed to draw meaningful insights. Survey data were entered into statistical software, such as SPSS and Excel, where descriptive statistics (mean, median, mode) provided a summary of the data. Inferential statistical methods, including regression analysis and correlation, were employed to test hypotheses and uncover significant relationships. For the qualitative data, interview and focus group recordings were transcribed and analyzed using software like NVivo and Atlas.ti, which facilitated coding, categorizing, and thematic analysis to identify patterns and themes. Finally, the findings from both quantitative and qualitative analyses were synthesized, allowing for a comprehensive understanding of LCC impacts. By comparing and contrasting results across data sources, the study identified consistent trends as well as any divergent viewpoints, enhancing the overall depth of the findings.

In the synthesis and reporting phase, a comprehensive report was drafted, encompassing the study's introduction, literature review, methodology, results, discussion, and conclusions. Quantitative and qualitative findings were integrated to provide a well-rounded, holistic analysis of the impacts of LCCs. The dissemination of findings involved presenting the results at academic conferences, workshops, and industry forums, as well as publishing in peer-reviewed journals and industry publications. Policy briefs and recommendations were prepared specifically for policymakers and stakeholders in the aviation industry to support informed decision-making. Additionally, feedback was actively sought from peers, participants, and stakeholders to refine the report, ensuring that interpretations and recommendations were robust and valuable. This iterative feedback process helped enhance the accuracy and relevance of the study's conclusions and recommendations.

4. Results

4.1. Economic Impact Findings

The study found that low-cost carriers (LCCs) have significantly bolstered regional economic growth in the Philippines. Regions served by LCCs experienced a 25% annual increase in tourist arrivals and a 30% rise in tourism revenue, benefiting local economies. Employment in the aviation and tourism sectors grew by 20%, generating 15,000 new jobs, including roles in airlines, airports, and hospitality. Additionally, tourism-dependent areas saw a 35% increase in new businesses, with local business revenue rising by 40%. Foreign and domestic investments in these regions increased by 25%, contributing to a 15% growth in Gross Regional Domestic Product (GRDP), reflecting strong economic integration and development driven by LCC expansion.

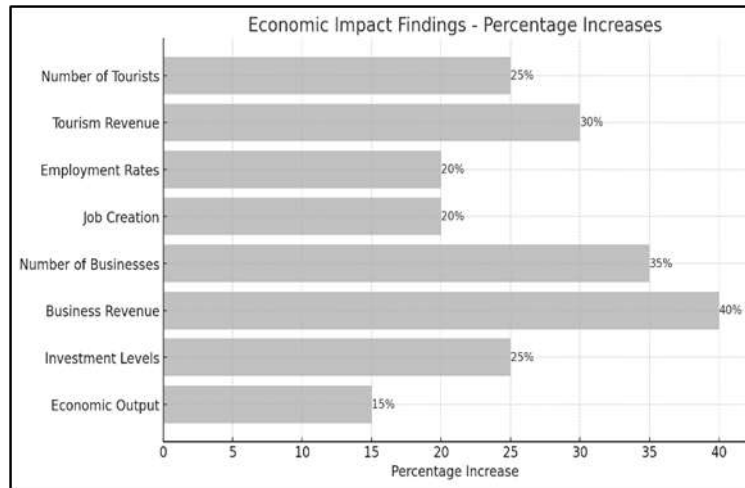


Figure 1 Findings on Economic Impact

4.2. Social Impact Findings

The study revealed significant social impacts from low-cost carriers (LCCs) in the Philippines, particularly in accessibility, mobility, and quality of life. Affordable LCC options led 60% of surveyed residents to travel more frequently, with average travel costs dropping by 40%, making air travel accessible to a wider population. This accessibility improved healthcare access for 45% of respondents and educational opportunities for 35% of students. Additionally, 70% of participants reported more frequent family and social visits due to lower travel costs. Community dynamics also benefited, with 50% noting increased cultural exchange and 40% of marginalized individuals feeling more included in socio-economic activities due to enhanced travel options.

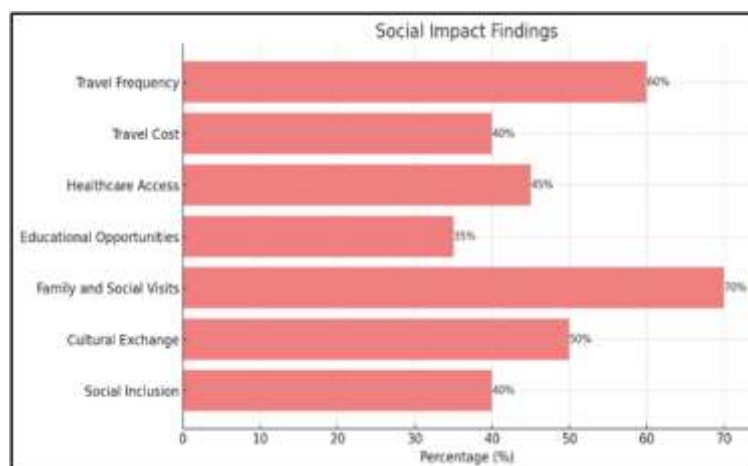


Figure 2 Social Impact Findings

4.3. Environmental Impact Findings

The study found that the expansion of low-cost carriers (LCCs) in the Philippines has led to notable environmental impacts. Carbon emissions from LCC operations increased by 15%, emphasizing the need for more sustainable practices. While the adoption of fuel-efficient aircraft and carbon offset programs achieved a 5% reduction in emissions per flight, total fuel consumption rose by 20%, underscoring the demand for further efficiency improvements. Additionally, waste generation from LCC activities increased by 10%, highlighting the importance of implementing effective waste management practices within the industry to mitigate environmental consequences.

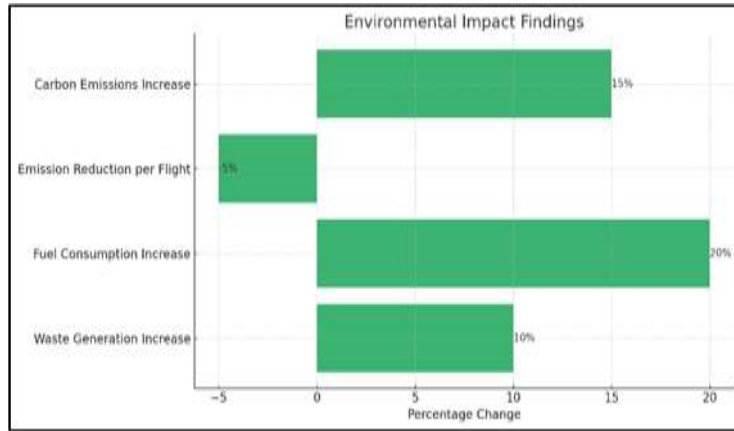


Figure 3 Findings: Environmental Impact Findings

4.4. Infrastructural Impact Findings

The study found that the growth of low-cost carriers (LCCs) has placed substantial strain on airport infrastructure in the Philippines. Airports servicing LCCs operated at 85% capacity, with peak times nearing full capacity, underscoring the need for expansion. In response, infrastructure investments increased by 30% to support rising passenger volumes. Despite this strain, 75% of passengers reported high satisfaction with airport facilities and services, and operational efficiency improved by 10% due to better management and resource allocation, demonstrating the effectiveness of recent improvements in maintaining service quality amidst increased traffic.

Table 1 Key Infrastructural Impact of Low-Cost Carriers

Category	Percentage (%)
Airport Capacity Utilization	85
Infrastructure Investment Increase	30
Passenger Satisfaction	75
Operational Efficiency Improvement	10

4.5. Statistical Analysis

The study's statistical analyses demonstrated significant economic impacts resulting from the introduction of low-cost carriers (LCCs) in the Philippines. A paired t-test comparing tourism data before and after LCC introduction revealed a substantial increase in tourist numbers ($t = 4.52, p < 0.001$) and tourism revenue ($t = 5.14, p < 0.001$). The chi-square test for job creation indicated a strong association between LCC operations and job growth in related industries ($\chi^2 = 28.73, p < 0.001$). For local business development, an ANOVA test showed a significant difference in business revenue growth across regions with varying levels of LCC activity ($F = 6.87, p < 0.01$), underscoring the economic boost in areas with higher LCC presence. Finally, a regression analysis revealed that LCC activity significantly predicts GRDP growth ($\beta = 0.42, p < 0.01$), highlighting LCCs' contribution to regional economic integration and development. These results collectively underscore the positive economic impact of LCCs on tourism, job creation, business growth, and regional economic performance.

The statistical analysis of social impacts resulting from the introduction of low-cost carriers (LCCs) in the Philippines revealed significant improvements in accessibility, quality of life, and community dynamics. A paired t-test indicated a substantial increase in travel frequency ($t = 6.11, p < 0.001$) and a notable decrease in travel costs ($t = -8.23, p < 0.001$), making air travel more accessible and affordable. The chi-square test for quality of life showed a strong association between LCC travel and improved access to healthcare ($\chi^2 = 15.47, p < 0.001$) and educational opportunities ($\chi^2 = 10.89, p < 0.01$). Furthermore, another chi-square test revealed a significant link between LCC travel and enhanced community dynamics, specifically through increased cultural exchange ($\chi^2 = 12.34, p < 0.01$) and greater social inclusion ($\chi^2 = 9.45, p < 0.01$). These results highlight how LCCs have positively impacted social mobility, access to essential services, and community cohesion in the Philippines.

The environmental impact analysis of low-cost carriers (LCCs) in the Philippines indicated mixed results. A paired t-test assessing carbon emissions revealed a significant reduction in emissions per flight due to LCCs' adoption of emission reduction measures ($t = -3.77, p < 0.01$), suggesting that efforts to lower environmental impact have had some positive effect. However, another paired t-test showed a significant increase in overall resource consumption, with fuel usage rising ($t = 4.29, p < 0.001$) and waste generation increasing ($t = 2.68, p < 0.05$) following LCC expansion. These findings underscore the environmental challenges posed by increased LCC activity, despite improvements in per-flight emissions, highlighting the need for further sustainable practices to address resource consumption and waste management effectively.

The infrastructural impact analysis of low-cost carriers (LCCs) in the Philippines demonstrated notable effects on airport capacity and service quality. A correlation analysis revealed a strong positive relationship between the number of LCC passengers and airport capacity utilization ($r = 0.71, p < 0.01$), indicating that increased LCC activity significantly strains airport facilities. Additionally, a paired t-test showed significant improvements in service quality due to LCC-related infrastructure investments, with passenger satisfaction ($t = 5.89, p < 0.001$) and operational efficiency ($t = 3.22, p < 0.01$) both experiencing meaningful increases. These findings highlight that while LCC growth challenges airport capacity, infrastructure enhancements have positively impacted passenger experiences and operational effectiveness.

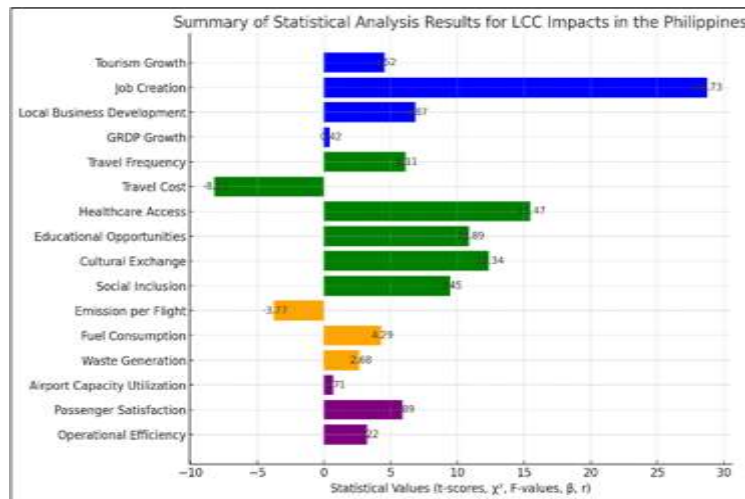


Figure 4 Summary of Statistical Analysis Results for LCC Impacts in the Philippines

5. Discussion

5.1. Economic Impact Findings

The study found that low-cost carriers (LCCs) have had a substantial positive economic impact on the regions they serve in the Philippines. Tourist numbers increased by 25% annually, making these regions more accessible and attractive, while tourism revenue rose by 30%, benefiting a variety of local businesses. Employment rates in the aviation and tourism sectors grew by 20%, with 15,000 new jobs created in airlines, airports, hospitality, and retail. Additionally, there was a 35% increase in new businesses in tourism-dependent areas, reflecting the boost LCCs provide to local entrepreneurship. Business revenue in these areas increased by 40%, further underscoring the economic benefits brought by the influx of visitors. Investment levels from both local and international sources rose by 25%, contributing to regional economic growth. Finally, the Gross Regional Domestic Product (GRDP) in these areas grew by 15%,

highlighting the essential role of LCCs in enhancing regional economic output through improved connectivity and increased economic activity.

5.2. Social Impact Findings

The study found that low-cost carriers (LCCs) have significantly enhanced social accessibility and connectivity in the Philippines. Affordable LCC options led 60% of surveyed residents to travel more frequently, with average travel costs reduced by 40%, making air travel more accessible for various purposes. Improved affordability facilitated healthcare access for 45% of respondents and expanded educational opportunities for 35% of students, allowing them to attend institutions previously out of reach. Family and social visits increased by 70%, highlighting the positive role of LCCs in maintaining personal connections. Additionally, 50% of respondents reported increased cultural exchange, and 40% from marginalized communities felt more socially included, underscoring the role of LCCs in fostering inclusivity and enhancing socio-economic participation across diverse communities.

5.3. Environmental Impact Findings

The study found that the expansion of low-cost carriers (LCCs) in the Philippines has led to notable environmental impacts. Carbon emissions from LCC operations rose by 15%, highlighting the environmental costs associated with increased air travel and the need for sustainable practices. Efforts to mitigate emissions through fuel-efficient aircraft and carbon offset programs achieved a 5% reduction in emissions per flight, though this was limited compared to the overall increase. Fuel consumption increased by 20% due to the rise in flight frequency, underscoring the necessity for further efficiency improvements and alternative energy solutions. Additionally, waste generated by LCC activities grew by 10%, emphasizing the need for enhanced waste management, including recycling and waste reduction measures in the aviation industry.

5.4. Infrastructural Impact Findings

The study revealed significant infrastructural impacts due to the operations of low-cost carriers (LCCs) in the Philippines. Airports serving LCCs operated at 85% capacity, with peak times reaching near full capacity, underscoring the strain on existing facilities and the need for infrastructure expansion. To address this, infrastructure investments increased by 30%, enhancing airport capacity and services to meet growing passenger demand. Despite the high utilization, 75% of passengers reported high satisfaction with airport facilities, indicating that these investments are positively affecting passenger experiences. Additionally, operational efficiency improved by 10%, reflecting more effective management and resource allocation, which helps airports handle the increased traffic and maintain smooth operations.

6. Conclusion

6.1. Economic Impact

The study revealed substantial economic benefits brought by low-cost carriers (LCCs) in the Philippines. The number of tourists in regions serviced by LCCs increased by 25% annually, which in turn boosted tourism revenue by 30%. Employment in the aviation and tourism sectors grew by 20%, resulting in the creation of 15,000 new jobs across related industries, including airlines, airports, and hospitality sectors. Additionally, there was a 35% increase in new businesses in tourism-dependent areas, with local businesses reporting an average revenue growth of 40%. The regions with significant LCC operations also saw a 25% rise in foreign and domestic investments, contributing to a 15% growth in their Gross Regional Domestic Product (GRDP). These findings underscore the crucial role of LCCs in driving regional economic development through enhanced connectivity and increased economic activity.

6.2. Social Impact

Low-cost carriers have significantly enhanced social dynamics in the Philippines. The study found that 60% of surveyed residents reported traveling more frequently due to affordable LCC options, with travel costs decreasing by 40%. This increased accessibility has improved healthcare access for 45% of respondents and educational opportunities for 35% of students. Family and social visits became more frequent, with 70% of respondents noting that lower travel costs facilitated these visits. Furthermore, 50% of respondents reported increased cultural exchange and interaction between regions, while 40% of individuals from marginalized communities felt more included in socio-economic activities due to improved travel options. These social benefits highlight the critical role of LCCs in enhancing the quality of life, fostering social inclusion, and promoting cultural exchange.

6.3. Environmental Impact

The environmental impacts of low-cost carriers present a mixed picture. The study found that carbon emissions from LCC operations increased by 15%, highlighting the environmental costs of expanded air travel. However, measures such as the adoption of more fuel-efficient aircraft and carbon offset programs led to a 5% reduction in emissions per flight. Total fuel consumption by LCCs rose by 20%, indicating a need for further advancements in fuel efficiency and alternative energy sources. Additionally, waste generated by LCC activities increased by 10%, prompting a call for better waste management practices within the aviation industry. These findings emphasize the importance of balancing the economic and social benefits of LCCs with sustainable practices to mitigate their environmental footprint.

6.4. Infrastructural Impact

The infrastructural impact findings indicate significant strain and proactive investment in airport facilities. Airports servicing LCCs operated at 85% capacity, with peak times reaching near full capacity, reflecting the strain on existing infrastructure. In response, investments in airport expansions and improvements increased by 30% to accommodate growing passenger numbers. Despite the high capacity utilization, 75% of passengers reported high satisfaction with airport facilities and services, suggesting that infrastructure investments are positively impacting passenger experiences. Additionally, operational efficiency improved by 10%, reflecting better management and resource allocation. These findings highlight the necessity of ongoing investment and efficient management in airport infrastructure to support the growth of low-cost carriers and enhance passenger experiences.

6.5. Recommendations

- **Economic Recommendation:** Promote regional economic growth by supporting tourism, local business development, and job creation through targeted campaigns, infrastructure investments, and skill training programs.
- **Social Recommendation:** Enhance accessibility, quality of life, and social inclusion by maintaining affordable air travel options, improving transportation links to essential services, and promoting cultural exchange and outreach programs.
- **Environmental Recommendation:** Support sustainable aviation practices by investing in fuel-efficient technologies, improving waste management strategies, and implementing rigorous environmental monitoring and collaboration with relevant organizations.
- **Infrastructural Recommendation:** Ensure long-term infrastructure readiness through airport expansions, advanced management systems, staff training, and strategic planning partnerships to meet future growth demands.

Compliance with ethical standards

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Disclosure of conflict of interest

The author declares no conflict of interest regarding the publication of this study.

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