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## Contents

- Health Tourism in Nepal: Opportunities, Challenges, and Strategic Directions  
- **Laxmi Kanta Sharma and Indira Pant** 1-12
- Do Tuition Fees Matter for Students' Enrolment? An Analysis of Academic Programs Implemented by Council for Technical Education and Vocational Training in Nepal  
- **Sabitri Devi Acharya Adhikari** 13-22
- Operational Optimization and Cost Efficiency in Nepalese Banks  
- **Prakash Shrestha, Dipendra Karki and Sailaza Pandit** 23-32
- Determinants of Informal Workers' Readiness to Transition towards Formal Economy: Empirical Evidence from Nepal  
- **Preeti Gupta, Sushanta Kumar Mahapatra, Niranjana Devkota, Dipak Bahadur Adhikari and Udaya Raj Paudel** 33-44
- Determinants of Foreign Migration Destinations Selection in Nepali Rural Households  
- **Tilak Kshetri and Resham Thapa-Parajuli** 45-52

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# *Health Tourism in Nepal: Opportunities, Challenges, and Strategic Directions*

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## **Abstract**

This study examines the current state of health tourism in Nepal, focusing on evaluating the sector's strengths, opportunities, and challenges, and proposing strategic directions for enhancing its competitiveness. Nepal's unique position as a potential leader in health tourism is highlighted, due to its rich cultural heritage, diverse natural landscapes, and traditional healing practices such as Ayurveda and yoga. To achieve the study's objectives, a comprehensive qualitative research design was employed, utilizing key stakeholder interviews, focus groups, and document analysis to gather data from a diverse range of participants. Stakeholders included health tourists, hospital representatives, and wellness service providers across major cities like Kathmandu, Pokhara, Bharatpur, and Lumbini. The analysis reveals Nepal's strengths in providing affordable healthcare services and integrating modern medical treatments with traditional wellness practices. However, significant challenges persist, including inadequate infrastructure, fragmented marketing efforts, and inconsistent regulatory standards. The findings emphasize the necessity for strategic improvements, highlighting Nepal's potential to become a premier destination for health tourism. The study recommends strategic initiatives, including investment in healthcare infrastructure, the development of cohesive marketing strategies, fostering collaborations between medical and wellness providers, and establishing robust regulatory frameworks to ensure quality and safety. By addressing these challenges and capitalizing on its unique offerings, Nepal can strengthen its position as a leading destination for health tourists seeking comprehensive and transformative healthcare experiences. This research offers actionable insights for policymakers, healthcare providers, and industry stakeholders, aiming to drive sustainable economic growth through strategic enhancements in Nepal's health tourism sector.

**Keywords:** Health tourism, Wellness tourism, Strategic directions, Traditional healing, Healthcare infrastructure

## **1. Introduction**

Health tourism, the convergence of healthcare services and travel, has become a significant global industry, drawing millions of tourists seeking medical, wellness, and alternative therapies outside their home countries. The rising cost of healthcare in developed nations, long waiting times for medical treatments, and the increasing availability of high-quality healthcare services at competitive prices in developing countries are key drivers of this industry (Dündar Ege & Demir Uslu, 2018). With the global health tourism market projected to reach USD 207.9 billion by 2028, growing at a compound annual growth rate (CAGR) of 21.1 percentage from 2021 to 2028, the potential for destinations like Nepal to capture a share of this market is significant (Fortune Business Insights, 2022).

Nepal, known for its rich cultural heritage, natural beauty, and traditional healing practices, holds immense potential to become a leading destination for health tourism. The country offers a unique blend of modern healthcare facilities and traditional healing methods, such as Ayurveda, yoga, and meditation, attracting tourists seeking holistic health experiences (Maskay, Tobgay, & Kharel, 2010). Recent advancements in healthcare infrastructure, including state-of-the-art hospitals and wellness centers in major cities like Kathmandu, Pokhara, Bharatpur and Lumbini position Nepal to capitalize on the growing demand for health tourism.

Despite the COVID-19 pandemic's impact, Nepal recorded 150,962 tourist arrivals in 2021, with an increased average length of stay to 15.5 days, indicating a rising interest in immersive wellness experiences (Nepal Tourism Statistics, 2021). This suggests that Nepal can rebound and grow as international travelers increasingly seek destinations offering relaxation and rejuvenation.

Economically, tourism is a significant contributor to Nepal's foreign exchange earnings, with an average daily visitor expenditure of USD 48 in 2021. The integration of wellness services presents an opportunity to attract high-spending tourists, enhancing revenue potential (Nepal Tourism Statistics, 2021). The expanding hospitality infrastructure, featuring 1,345 hotels with a bed capacity of 48,412, aligns with global wellness trends and strengthens Nepal's appeal as a health-focused destination (Nepal Tourism Statistics, 2021). Demographic data further supports the potential for growth in wellness tourism, with 11,172 visitors coming for pilgrimage, often linked to wellness practices, and tourists over 60, who constituted 9.4 percent of arrivals, showing particular inclination towards health-oriented activities (Nepal Tourism Statistics, 2021). Nepal's established adventure tourism, including trekking, complements wellness offerings by integrating mindfulness and yoga into packages. Additionally, training programs from institutions like the National Academy of Tourism and Hotel Management (NATHM) equip the workforce with skills to cater to health-conscious travelers (Nepal Tourism Statistics, 2021). Together, these elements position Nepal to leverage the growing wellness tourism market, promising significant economic benefits and sustainable growth.

Despite its potential, Nepal's health tourism sector faces several challenges, including inadequate infrastructure, limited marketing, and inconsistent quality standards. According to the Ministry of Culture, Tourism, and Civil Aviation, Nepal aims to attract 2.5 million tourists by 2025, with health tourism identified as a key area for growth (Ministry of Culture, Tourism, and Civil Aviation, 2021). However, achieving this goal requires strategic investments, targeted marketing efforts, and collaboration between the public and private sectors to address existing challenges and enhance Nepal's competitiveness in the global health tourism market.

This study aims to analyze the current state of health tourism in Nepal by examining both medical and wellness tourism sectors. The research seeks to provide a comprehensive overview of the industry's present condition, including infrastructure, services, and market trends. By considering the perspectives of key stakeholders such as healthcare providers, tourism operators, and international tourists, the study identifies potential growth areas and challenges within Nepal's health tourism sector. The objective is to highlight opportunities for improvement and address obstacles that may impede development. Additionally, the study proposes strategic directions to enhance Nepal's position as a premier health tourism destination. By offering actionable insights and recommendations, the research aims to strengthen Nepal's competitiveness in the global health tourism market and elevate its status as a leading destination for health tourism.

The scope of this study includes an in-depth examination of the experiences and expectations of various stakeholders in Nepal's health tourism industry. However, the research is subject to limitations such as data availability and potential biases in qualitative responses, which may affect the generalizability of the findings to other regions. Despite these constraints, the study endeavors to provide valuable insights into the dynamics of Nepal's health tourism industry and support the development of effective strategies for its advancement. By addressing both opportunities and challenges, the research contributes to the ongoing growth and success of health tourism in Nepal, ensuring that the sector continues to thrive in a competitive global market.

## 2. Literature Review

### 2.1 The Concept of Health Tourism

Health tourism has emerged as a growing trend globally, driven by the desire for individuals to travel to other countries to improve or maintain their health while experiencing the cultural and tourist attractions of these destinations. Health tourism encompasses two major branches: medical tourism and wellness tourism. **Medical tourism** involves traveling to foreign countries to seek Western-style medical treatments and procedures, including elective surgeries, dental treatments, cosmetic surgeries, and specialized surgeries like cardiac surgery and orthopedic

therapy. Wellness tourism, on the other hand, focuses on holistic health practices such as yoga, meditation, Ayurveda, and the use of local herbs. This branch emphasizes positive human functioning and preventive care rather than treating illness. Wellness tourism is characterized by location-based experiences and therapies, often considered integral to daily life in Asian countries. Together, these branches of health tourism offer a comprehensive approach to health and well-being, combining traditional medical practices with holistic and preventive care to cater to a wide range of health and wellness needs.

The practice of yoga is deeply rooted in ancient Indian philosophy and spirituality. The Sanskrit term "yoga" translates to "union," signifying the harmonious integration of body, mind, and spirit (Fish, 2006). This philosophical foundation is essential for understanding the transformative power of yoga tourism, as it provides a framework for personal growth and self-discovery. The teachings of Patanjali, a revered ancient sage, emphasize the importance of physical and mental discipline in achieving spiritual enlightenment (Maddox, 2015).

Yoga tourism offers physical health benefits and contributes to psychological and emotional well-being. It encourages individuals to explore their inner selves, foster mindfulness, and cultivate a sense of peace and contentment (Norman & Pokorny, 2017). The spiritual dimension of yoga tourism is particularly appealing to tourists seeking a deeper connection with themselves and the world around them (Ponder & Holladay, 2013).

Health tourism, encompassing medical and wellness tourism, has become a pivotal component of the global tourism industry. It attracts both patients and wellness seekers to destinations offering healthcare services, wellness retreats, and alternative therapies (Connell, 2013; Smith & Puczkó, 2009). This diverse industry includes elective surgeries, dental care, fertility treatments, cosmetic procedures, and traditional wellness practices such as Ayurveda and yoga. Countries such as India, Thailand, and Singapore have emerged as leading destinations for health tourism due to their advanced medical infrastructure, skilled healthcare professionals, and cost-effective services (Pocock & Phua, 2011).

## 2.2 Global Trends in Health Tourism

Countries like India, Thailand, and Singapore have positioned themselves as leaders in health tourism by leveraging their unique offerings:

- **India** is renowned for its Ayurveda, yoga, and modern medical services, attracting patients seeking holistic health treatments and surgeries at lower costs compared to Western countries (Reddy & Qadeer, 2010). The Indian government's promotion of medical tourism through supportive policies and infrastructure development has significantly contributed to the sector's growth (Mudur, 2004).
- **Thailand** offers a wide range of medical and wellness services, including cosmetic surgery, dental care, and traditional Thai massage. Its reputation for hospitality and affordable healthcare has made it a popular choice for health tourists (Cohen, 2008). International accreditation of Thai hospitals ensures high standards of care.
- **Singapore** is recognized for its advanced healthcare system, offering specialized medical treatments and procedures. The country's emphasis on quality and safety has made it a preferred destination for complex medical procedures (Yeoh et al., 2013).

## 2.3 Health Tourism in Nepal

### Unique Combination of Modern and Traditional Practices

Nepal is uniquely positioned as a promising destination for health tourism, offering a blend of modern healthcare facilities and traditional healing practices such as Ayurveda, yoga, and meditation. The country's natural beauty, rich cultural heritage, and spiritual ambiance enhance its appeal as a hub for wellness and healing (Henderson, 2004). Studies have highlighted Nepal's potential to attract health tourists interested in alternative therapies and wellness retreats. For instance, Rijal & Ghimire (2016) discusses the growing interest in Nepal as a wellness tourism destination, while Regmi et al. (2019) highlight the expansion of health tourism driven by Nepal's diverse offerings in alternative medicine and spiritual healing practices.

### Ayurveda and Traditional Medicine

Nepal's long history of traditional medicine practices, including Ayurveda, emphasizes holistic healing through herbal treatments, dietary changes, and lifestyle modifications. These traditional practices, which also include Amchi, Homeopathy, and Naturopathy, are deeply rooted in Nepal's cultural and religious traditions, making them a vital part of the healthcare system, especially in rural areas where modern medical services are scarce (Giri & Malla, 2023).

The popularity of Ayurvedic treatments among tourists seeking natural and alternative therapies has increased in recent years.

### **Yoga and Meditation**

Nepal's spiritual heritage and serene environment make it an ideal destination for yoga and meditation retreats. The practice of yoga, combined with meditation, provides mental and physical benefits, attracting tourists seeking stress relief and self-discovery (Shakya & Shrestha, 2019).

### **Government Recognition and Infrastructure**

The Nepalese government recognizes the importance of traditional medicine and has integrated it into the healthcare system through the Department of Ayurveda and Alternative Medicine. This integration is evident in establishing a network of health centers and dispensaries that provide free or nominally charged services, ensuring widespread access to traditional healthcare (Giri & Malla, 2023).

### **Utilization and Cultural Significance**

Traditional medicine is extensively used by over 75% of the Nepalese population due to its accessibility, affordability, and cultural acceptance. Ayurveda is the most popular system, supported by a robust infrastructure of hospitals and health centers at national and local levels (Giri & Malla, 2023). The government's National Ayurveda Health Policy (1996) and National Health Policy (2014) underscore the integration of traditional medicine into the broader healthcare framework, aiming to enhance service quality and promote using locally available medicinal herbs, thereby contributing to both healthcare and health tourism (Giri & Malla, 2023).

### **Challenges and Opportunities**

While traditional medicine presents significant opportunities for health tourism, challenges such as inadequate research, training, and regulatory frameworks persist. Addressing these challenges is essential for leveraging the full potential of health tourism, ensuring it contributes positively to Nepal's healthcare system and economic development (Giri & Malla, 2023).

### **Yoga Tourism as a Component of Health Tourism**

Yoga tourism is a growing segment within the broader context of health tourism. It involves travel to destinations where individuals engage in yoga practices, seeking physical, mental, and spiritual well-being. As a form of wellness tourism, yoga tourism provides an opportunity for tourists to embark on a journey of self-discovery, healing, and transformation (Lehto, Brown, Chen, & Morrison, 2006). This holistic experience combines physical postures (asanas), breathing exercises (pranayama), meditation, and spiritual practices to foster a union of body, mind, and spirit (Kunwar & Sharma, 2020). Ali-Knight and Ensor (2017) describe yoga tourism as a niche market distinct from mass tourism, focusing on personalized and intensive devotion to yoga practices at specific destinations. It offers transformative experiences, enabling participants to shift from a state of illness to wellness and from a restless existence to a peaceful state of being (Smith & Kelly, 2006). This transformative aspect aligns yoga tourism with the concept of transformational tourism, emphasizing personal growth and self-improvement through travel (Voigt, Brown, & Howat, 2011).

#### ***2.4 Motivations for Yoga Tourism***

Understanding the motivations behind yoga tourism is crucial for developing effective marketing strategies and designing tailored experiences for tourists. Motivation in yoga tourism is multifaceted, encompassing physical, cultural, interpersonal, and prestige-related factors (Ali-Knight & Ensor, 2017). Physical motivators include the desire to improve flexibility, strength, and overall health. Cultural motivators involve engaging with the philosophical principles of yoga and experiencing different cultures. Interpersonal motivators relate to escapism, spiritual healing, and connecting with like-minded individuals. Finally, status and prestige play a role, as yoga is often perceived as a fashionable pursuit that enhances one's social image (Smith & Kelly, 2006). Three primary 'push' factors drive individuals to participate in yoga tourism: the need to escape routine work, the search for authentic yoga experiences, and the desire to enjoy yoga as a leisure activity (Lehto et al., 2006). These factors highlight the diverse motivations of yoga tourists, ranging from those seeking relaxation and stress relief to those pursuing spiritual growth and enlightenment (Ponder & Holladay, 2013).

### 2.5 Yoga Tourism in Nepal

Nepal's rich cultural and spiritual heritage positions it as a unique destination for yoga tourism. The country boasts natural landscapes, sacred sites, and a long tradition of spiritual practices that appeal to yoga enthusiasts (Kunwar & Sharma, 2020). Its association with the birth of Gautama Buddha and the presence of numerous yoga retreat centers further enhance Nepal's significance as a yoga tourism destination (Sharma & Nayak, 2019). Despite its potential, yoga tourism in Nepal faces challenges, including inadequate infrastructure, a lack of trained yoga instructors, and insufficient marketing efforts (Khanal & Shimizu, 2019). To fully realize Nepal's potential as a premier yoga tourism destination, the government and tourism stakeholders must address these issues. Developing quality yoga retreat centers, enhancing transportation networks, and promoting yoga tourism through targeted campaigns could significantly boost Nepal's appeal to international tourists (Kunwar & Sharma, 2020).

### 2.6 Philosophical Foundations

Yoga tourism plays a vital role in the health tourism industry by promoting holistic well-being and offering alternative approaches to health and wellness. It aligns with the growing consumer demand for wellness experiences that prioritize mental and emotional health alongside physical fitness (Smith & Kelly, 2006). As a component of health tourism, yoga tourism diversifies tourism offerings and supports sustainable practices by emphasizing personal growth and cultural exchange (Voigt et al., 2011). Moreover, yoga tourism can stimulate local economies by generating employment opportunities and attracting international tourists (Kumar, 2017). By investing in infrastructure, training, and marketing, destinations like Nepal can capitalize on the increasing popularity of yoga tourism and establish themselves as leaders in the wellness tourism sector (Khanal & Shimizu, 2019).

### 2.7 Research Gap

While there is a substantial body of literature on health tourism in established destinations such as India, Thailand, and Singapore, focused research on Nepal's specific potential and challenges remains limited. Existing studies often emphasize Nepal's rich cultural and spiritual heritage in attracting yoga tourists but overlook the integration of modern medical services with traditional practices like Ayurveda and yoga. There is a lack of comprehensive analysis regarding how Nepal can effectively merge these practices to offer a competitive advantage. Additionally, the literature does not sufficiently address the strategic initiatives required to overcome challenges in infrastructure development, marketing strategies, and quality assurance. Research is needed to explore specific strategies and investments necessary for improving healthcare facilities and transportation networks, as well as effective marketing campaigns tailored to international audiences. Moreover, ensuring consistent quality and safety standards in both traditional and modern healthcare services is crucial for building trust among health tourists. Addressing these gaps will offer valuable insights for policymakers and practitioners aiming to utilize health tourism for economic growth and cultural preservation in Nepal and other emerging destinations.

## 3. Research Methodology

This study utilized a qualitative research design to assess the current state of health tourism in Nepal, identify sector-specific opportunities and challenges, and propose strategies to bolster Nepal's position as a leading health tourism destination. The research involved key stakeholders, including health tourists, hospitals, yoga centers, and wellness service providers, using purposive sampling to ensure diverse perspectives from Kathmandu, Pokhara, Bharatpur, and Lumbini. The sample consisted of 50 health tourists, 30 representatives from internationally recognized hospitals, and 20 from wellness centers, with snowball sampling used to reach additional participants.

Data collection methods included in-depth interviews, focus groups, and document analysis. Semi-structured interviews, guided by open-ended questions, gathered insights into stakeholders' experiences and perceptions regarding motivations for seeking healthcare in Nepal, available services, and promotional challenges (Kvale & Brinkmann, 2009). Interviews conducted both in person and via video calls, lasted 30–60 minutes each. Focus groups, consisting of 6–8 participants, explored themes related to health tourism opportunities and challenges and lasted about 90 minutes each (Krueger & Casey, 2014). Document analysis supplemented this data by reviewing existing documents and reports related to health tourism, providing contextual understanding and triangulating findings (Bowen, 2009).

Thematic analysis was employed to identify and interpret patterns within the data, focusing on themes related to the study's objectives (Braun & Clarke, 2006). This involved coding data and organizing it into themes addressing the state, opportunities, and challenges of health tourism in Nepal. Triangulation enhanced the validity and reliability of findings by cross-verifying data from various sources (Denzin, 1978). Ethical considerations included obtaining

approval from the institutional review board, ensuring informed consent, confidentiality, and voluntary participation (Mertens, 2014). Limitations include the qualitative nature of the study, which may affect generalizability, and potential biases in responses. However, triangulation and diverse sampling strategies were used to mitigate these limitations and provide a comprehensive understanding of health tourism in Nepal (Patton, 2002).

## 4. Findings

### 4.1 Current State of Health Tourism in Nepal

The analysis indicates that health tourism in Nepal is at a promising yet evolving stage. Health tourists are primarily motivated by the affordability of services, the quality of care, and the opportunity to combine medical treatment with travel experiences. For instance, one health tourist remarked, "I opted for surgery in Nepal because it was significantly less expensive than in my home country, and I could also explore the stunning landscapes during my recovery" (Participant 12, Health Tourist). This perspective is common among visitors who appreciate Nepal's cost-effective healthcare options alongside its rich cultural and natural offerings.

Nepalese hospitals are actively marketing health tourism by creating customized packages that integrate medical treatments with wellness activities. A representative from a local hospital stated, "We have seen a surge in interest for our comprehensive packages that merge surgical procedures with spa and yoga retreats. This approach sets us apart" (Hospital Representative 5). These offerings not only address the medical needs of tourists but also promote overall wellness, utilizing Nepal's diverse cultural and natural resources to support the healing journey.

In addition to hospitals, wellness centers, including yoga studios and spa facilities, significantly contribute to attracting tourists seeking holistic health experiences. A wellness provider shared, "Many clients visit Nepal looking for healing that transcends traditional medicine. They are particularly drawn to yoga and natural therapies" (Wellness Provider 3). These centers provide a variety of programs that blend traditional Nepali healing methods with contemporary wellness practices, appealing to those interested in achieving balance and rejuvenation.

The Nepalese government is also backing health tourism initiatives, as evidenced by policies aimed at enhancing the sector's growth. The National Tourism Strategy Plan outlines specific actions to improve infrastructure and services related to health tourism, with the goal of establishing Nepal as a leading destination for health and wellness travelers. This includes investments in healthcare facilities, training for healthcare professionals, and marketing strategies targeting international patients.

Despite these positive strides, challenges persist, such as the need to enhance the quality of healthcare services and maintain consistency across facilities. Overcoming these hurdles will require collaboration among government bodies, healthcare providers, and tourism stakeholders to foster a sustainable and competitive health tourism industry in Nepal. In conclusion, Nepal's health tourism sector is developing, offering a unique combination of affordable medical care and holistic wellness experiences. By leveraging its cultural heritage and natural beauty, Nepal has the potential to emerge as a premier destination for health tourists seeking comprehensive and transformative healthcare solutions.

### 4.2 Opportunities in the Health Tourism Sector

The study identified several promising opportunities for growth within Nepal's health tourism sector. One of the primary opportunities lies in capitalizing on Nepal's rich cultural heritage and breathtaking natural landscapes. The country's unique combination of world-class medical services and scenic beauty provides a distinctive attraction for health tourists. As one health tourist noted, "Combining my dental treatment with a trek in the Himalayas was an unforgettable experience. It's something you can't find anywhere else" (Participant 7, Health Tourist). This blend of healthcare and adventure tourism offers a unique selling proposition that sets Nepal apart from other health tourism destinations.

Moreover, the potential for collaboration between hospitals and wellness centers emerged as a significant area for expansion. By creating integrated health packages, Nepal can cater to a broader audience seeking comprehensive wellness solutions that address both medical and holistic health needs. This approach can include medical procedures such as surgeries or dental treatments, coupled with relaxation and rejuvenation therapies like yoga, meditation, and spa services. A hospital administrator emphasized this potential, stating, "We are exploring partnerships with local wellness centers to offer a complete health tourism package that includes everything from surgery to relaxation therapies" (Hospital Administrator 10).

Such integrated health packages not only enhance the overall patient experience but also encourage longer stays and repeat visits, boosting the local economy. This holistic approach aligns with global trends where wellness tourism is gaining traction, as more travelers seek experiences that improve both their physical health and mental well-being.

Furthermore, Nepal's strategic position in South Asia and its relatively low cost of healthcare compared to Western countries make it an attractive destination for international patients. The government's support for developing medical infrastructure and promoting health tourism further strengthens this potential. By investing in state-of-the-art medical facilities and training healthcare professionals, Nepal can enhance its reputation as a reliable and appealing destination for health tourists.

In summary, Nepal's health tourism sector can achieve substantial growth by leveraging its cultural and natural assets, fostering collaborations between medical and wellness providers, and continuing to improve healthcare quality and accessibility. These strategies not only enhance Nepal's appeal to international health tourists but also contribute to sustainable economic development within the country.

### ***4.3 Challenges in Promoting Health Tourism***

While Nepal's health tourism sector holds significant promise, several challenges impede its growth. A primary concern is the country's infrastructure limitations, particularly in the healthcare sector. Many hospitals and medical facilities in Nepal still struggle with outdated equipment and a lack of advanced medical technology, which are critical to attracting international patients seeking high-quality care. A hospital representative elaborated, "Our hospital is well-regarded, but we still lack some of the advanced technology found in other countries. This limits our ability to provide cutting-edge treatments that health tourists expect" (Hospital Representative 14). Investing in modern medical infrastructure and ensuring continuous training for healthcare professionals are essential steps to overcoming these barriers.

In addition to infrastructure, marketing and awareness of Nepal's health tourism offerings remain significant challenges. Although Nepal possesses unique attributes that could attract health tourists, such as its cultural heritage and natural beauty, these are not widely recognized on the global stage. Many potential tourists are unaware of the high-quality and affordable healthcare options available in Nepal. A wellness provider commented on this issue, stating, "We have so much to offer, but our marketing efforts are fragmented. We need a unified strategy to reach more potential tourists and effectively communicate the benefits of choosing Nepal for their health and wellness needs" (Wellness Provider 8). Developing a cohesive and comprehensive marketing plan that highlights Nepal's unique offerings can help increase international visibility and attract more health tourists.

Another critical challenge is the regulatory environment surrounding health tourism in Nepal. Currently, there is a need for clearer policies and standards to ensure the quality and safety of healthcare services provided to international patients. Inconsistent regulations can lead to uncertainty and deter potential health tourists who prioritize safety and reliability. A health tourist expressed this concern, saying, "I did a lot of research before coming here because I wasn't sure about the standards. Clearer regulations would make people more confident about choosing Nepal for their medical needs" (Participant 22, Health Tourist). Establishing transparent and consistent regulatory frameworks will not only enhance the credibility of Nepal's health tourism sector but also build trust among prospective international patients.

Furthermore, logistical challenges such as transportation and accommodation can impact the overall experience of health tourists. Improving infrastructure related to these areas, including better roads, efficient public transport, and high-quality lodging options, can significantly enhance the attractiveness of Nepal as a health tourism destination.

In conclusion, addressing these challenges requires a multi-faceted approach that involves government support, private sector investment, and collaboration between stakeholders. By improving healthcare infrastructure, developing effective marketing strategies, implementing clear regulatory standards, and enhancing logistical support, Nepal can unlock the full potential of its health tourism sector, ultimately contributing to the country's economic growth and global reputation.

### ***4.4 Strategic Directions for Enhancing Health Tourism***

To position Nepal as a leading health tourism destination, several strategic initiatives are essential. These strategies aim to capitalize on Nepal's unique offerings while addressing the existing challenges to create a thriving health tourism industry.

**Investment in Infrastructure:**

Upgrading healthcare facilities and equipment is a top priority to improve service quality and meet international standards. Currently, many hospitals and clinics in Nepal lack the advanced medical technology required to perform complex procedures. Investing in modern infrastructure will enable these institutions to offer a wider range of treatments, thereby attracting more international patients. A hospital representative highlighted this need, stating, "Investment in our infrastructure will allow us to offer more advanced treatments and attract more international patients" (Hospital Representative 19). This includes not only medical equipment but also the expansion and renovation of existing facilities to accommodate more patients comfortably.

**Collaboration and Integration:**

Creating integrated health tourism packages that combine medical treatments with wellness experiences can provide a unique value proposition for tourists. By partnering with wellness centers, hotels, and travel agencies, hospitals can offer comprehensive packages that include everything from medical procedures to relaxation therapies, cultural tours, and adventure activities. A wellness center manager noted, "By collaborating with hospitals, we can offer something truly unique—comprehensive care that addresses both body and mind" (Wellness Center Manager 6). This holistic approach caters to the growing global demand for wellness tourism, where travelers seek experiences that promote both physical and mental well-being.

**Enhanced Marketing Strategies:**

Implementing targeted marketing campaigns is essential to raise awareness of Nepal's health tourism offerings on an international scale. Many potential visitors are unaware of the high-quality and affordable healthcare services available in Nepal. A hospital marketing director emphasized, "We need to tell our story better, both online and through partnerships with international travel agencies" (Marketing Director 3). Developing a strong online presence through social media, healthcare tourism websites, and digital marketing can help attract health tourists. Additionally, forming alliances with international travel agencies and participating in global health tourism fairs can increase visibility and credibility.

**Regulatory Framework Development:**

Establishing standardized guidelines and regulations for health tourism is crucial to ensuring the quality and safety of healthcare services. Consistent and transparent regulations will build trust among international tourists, who often prioritize safety and reliability when choosing a health tourism destination. A hospital administrator remarked, "Clear regulations would assure visitors of the quality and safety of our services, encouraging more people to choose Nepal" (Hospital Administrator 4). The government, in collaboration with healthcare providers, should work on developing and enforcing these standards, which include accreditation of healthcare facilities, patient safety protocols, and ethical marketing practices.

**Training and Development of Healthcare Professionals:**

Enhancing the skills and expertise of healthcare professionals through continuous training and education programs is vital. Providing opportunities for medical staff to learn about the latest advancements in medical technology and international best practices will ensure that they can offer top-notch services to health tourists. This commitment to professional development not only improves service quality but also enhances Nepal's reputation as a destination for reliable healthcare.

**Building Strategic Partnerships:**

Fostering partnerships with international medical institutions, research organizations, and educational institutions can further strengthen Nepal's health tourism sector. These partnerships can facilitate knowledge exchange, joint research projects, and the development of innovative healthcare solutions that benefit both local and international patients.

In conclusion, by implementing these strategic directions, Nepal can enhance its appeal as a premier health tourism destination. These efforts will not only attract more international patients but also contribute to the sustainable development of the healthcare sector and the broader economy, positioning Nepal as a key player in the global health tourism industry.

## 5. Discussion

The findings of this research shed light on the dynamic field of health tourism in Nepal, providing a detailed analysis of its current status, potential opportunities, and existing challenges. Nepal has the potential to become a leading destination for health tourism; however, significant enhancements are needed in infrastructure, marketing approaches, and regulatory frameworks. The research underscores the necessity of utilizing Nepal's rich cultural and natural assets to attract international health tourists. The proposed strategies aim to steer the nation towards sustainable development, which would not only boost the local economy but also ensure the delivery of high-quality health services to health tourists. Through a combination of interviews, focus groups, and document analysis, the study reveals the complexities and opportunities within Nepal's health tourism sector, highlighting the urgent need for strategic initiatives to address current obstacles and leverage new prospects.

### *Current State and Opportunities*

Nepal's health tourism sector is characterized by its unique offering of affordable medical services combined with wellness experiences in a culturally rich and naturally beautiful environment. This combination attracts health tourists who are not only seeking cost-effective healthcare but also a holistic healing experience. The integration of traditional medical treatments with wellness activities such as yoga and spa services sets Nepal apart from other health tourism destinations. As participants indicated, there is a clear demand for these integrated packages, suggesting a strong potential for further development in this area. Similar findings were reported by Smith and Puczkó (2009), who noted that the integration of wellness tourism with traditional health services can create a unique value proposition for destinations. Additionally, Connell (2013) emphasized the importance of leveraging natural and cultural heritage in developing health tourism sectors.

The opportunity to leverage Nepal's natural and cultural heritage as a backdrop for health tourism is significant. In the context of Nepal, a study by Subedi (2015) highlighted that Nepal's diverse cultural and natural attractions can be effectively used to enhance its health tourism appeal. The country offers unique experiences that can be marketed to health tourists seeking both medical care and leisure. By emphasizing these distinct attributes, Nepal can differentiate itself in the competitive global health tourism market. Additionally, the potential for collaboration between hospitals and wellness centers presents an opportunity to create comprehensive packages that cater to a broad spectrum of health tourists.

### *Challenges*

Despite the promising opportunities, the study identified several challenges that need to be addressed to realize the full potential of Nepal's health tourism sector. Infrastructure limitations, such as outdated medical equipment and insufficiently trained personnel, pose a significant barrier to delivering high-quality healthcare services. These limitations can impact the perception of Nepal's health tourism offerings and hinder the ability to attract more international tourists.

Marketing and awareness are also critical issues. The fragmented nature of current marketing efforts means that many potential health tourists are unaware of what Nepal has to offer. A unified marketing strategy that effectively communicates the unique benefits of health tourism in Nepal is essential for attracting a global audience.

Regulatory challenges were another significant finding, with the need for clearer policies and standards to ensure the safety and quality of healthcare services provided to international tourists. Establishing a robust regulatory framework would enhance the credibility of Nepal's health tourism sector and build trust among potential health tourists.

### *Strategic Directions*

To address these challenges and capitalize on opportunities, several strategic directions are proposed. Investing in healthcare infrastructure is paramount to improving service quality and expanding the range of medical procedures available. This investment will require collaboration between the government, healthcare providers, and private investors to upgrade facilities and equipment.

Collaboration between hospitals and wellness centers should be encouraged to develop integrated health tourism packages that appeal to a diverse audience. Such collaboration can create a seamless experience for health tourists, combining medical care with wellness and cultural experiences.

Enhanced marketing strategies are necessary to raise awareness of Nepal's health tourism offerings. Digital marketing campaigns, international partnerships, and participation in health tourism exhibitions can help promote Nepal as a premier destination for health and wellness.

Finally, developing a clear regulatory framework with standardized guidelines for health tourism is crucial to ensuring the quality and safety of services. This framework will build confidence among international tourists and establish Nepal as a reputable health tourism destination.

## 6. Conclusion

The study concludes that Nepal's health tourism sector holds significant potential for growth, driven by its unique integration of medical and wellness services set in a culturally and naturally rich environment. By addressing the identified challenges and implementing the proposed strategic directions, Nepal can enhance its position as a leading health tourism destination. This advancement will not only boost the local economy but also provide international tourists with high-quality healthcare and holistic wellness experiences. The findings of this study offer a roadmap for policymakers, healthcare providers, and industry stakeholders to collaborate effectively and foster a sustainable and thriving health tourism sector in Nepal.

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# Do Tuition Fees Matter for Students' Enrolment? An Analysis of Academic Programs Implemented by Council for Technical Education and Vocational Training in Nepal

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## Abstract

The amount of knowledge and skills of a country's citizens has a direct impact on its wealth and progress. The goal of the country is to increase human capital by offering technical education and vocational training to citizens. The Nepalese government prioritises the advancement of technical education and vocational training, as evidenced by budget allocations. This increasing tendency indicates a positive commitment to developing a skilled workforce. However, the challenges are in integrating the institution's increased capability with actual enrolment levels. Policymakers are faced with the challenge of resolving the gap between enrolment capacity and actual enrolment. Underutilization of the institution's capacity shows a misallocation of resources. Understanding why enrolment is low necessitates a closer examination of the hurdles. The goal of this study is to investigate the factors that influence student enrolment. Tuition fees may be the key factor determining poor enrolment in both programmes, including pre-diploma and diploma. CTEVT has paid effort to provide TVET opportunity to low income and marginalized groups. Therefore, Policymakers have dramatically expanded both constituent and private institutions throughout with increasing enrolment capacity to enhance student accessibility. Despite these excellent efforts, a significant difficulty arises for the tuition fee payment. There is considerable disparity in tuition fees among private institutions. This disparity has significant ramifications for kids and families considering enrolment. To address this issue, the research uses an economic model to determine if tuition fees influence enrolment. The findings indisputably show that tuition fees influence enrolment patterns. Higher tuition prices lead to decrease enrolment rates, whereas reduced tuition fees serve as a positive catalyst, driving higher enrolment rates. This difference has serious implication on decision making behaviour of the students and households anticipating enrolment. Understanding this issue, the paper utilizes econometrics models to ascertain whether tuition fees serve as a determinant factor in enrolment. Higher tuition fees are associated with lower enrolment rates, while lower tuition fees act as a positive catalyst, encouraging higher rates of enrolment. The result for both pre-diploma and diploma programs unequivocally reveal that tuition fees play a key role in shaping enrolment patterns.

**Keywords:** Enrolment, Tuition fees, Decision making, Econometrics model

## 1. Introduction

The prosperity and development are directly related to the level of knowledge and skills of the citizen of the country. The aim of the country is to raise the human capital through providing technical education and vocational training to the citizen (NPC, 2020). Technical education and vocational training, therefore, are an essential component of national development. The workforces with technical and vocational skills are required for national development. The human capital plays the key role to the socio-economic transformation of the country. Investment in technical and commercial education and training plays an important role in meeting socio-economic challenges and enriching the

country. Technical and vocational skills are required to increase the productivity of the economy. Education without skills is not sufficient to improve the productivity. Technical education and vocational training play a key role to improve the productivity of the economy. All level of governments including central, provincial and local government, therefore, are paying the priority to provide the technical and vocational training to the citizens.

The Council for Technical Education and Vocational Training (CTEVT) was established in 1988 and managed to organize technical education and vocational training in a planned manner, as well as to set skill standards and certify them to produce basic, middle, and advanced level technical human resources. The CTEVT is responsible to make, to implement, and to evaluate the policy and programme related to technical education and vocational training. In addition to these, as indicated in the act of CTEVT, it has many functions including curriculum development, skill development, accreditation, industry collaboration among others. The CTEVT contributes significantly to the development of a skill and competitive workforce.

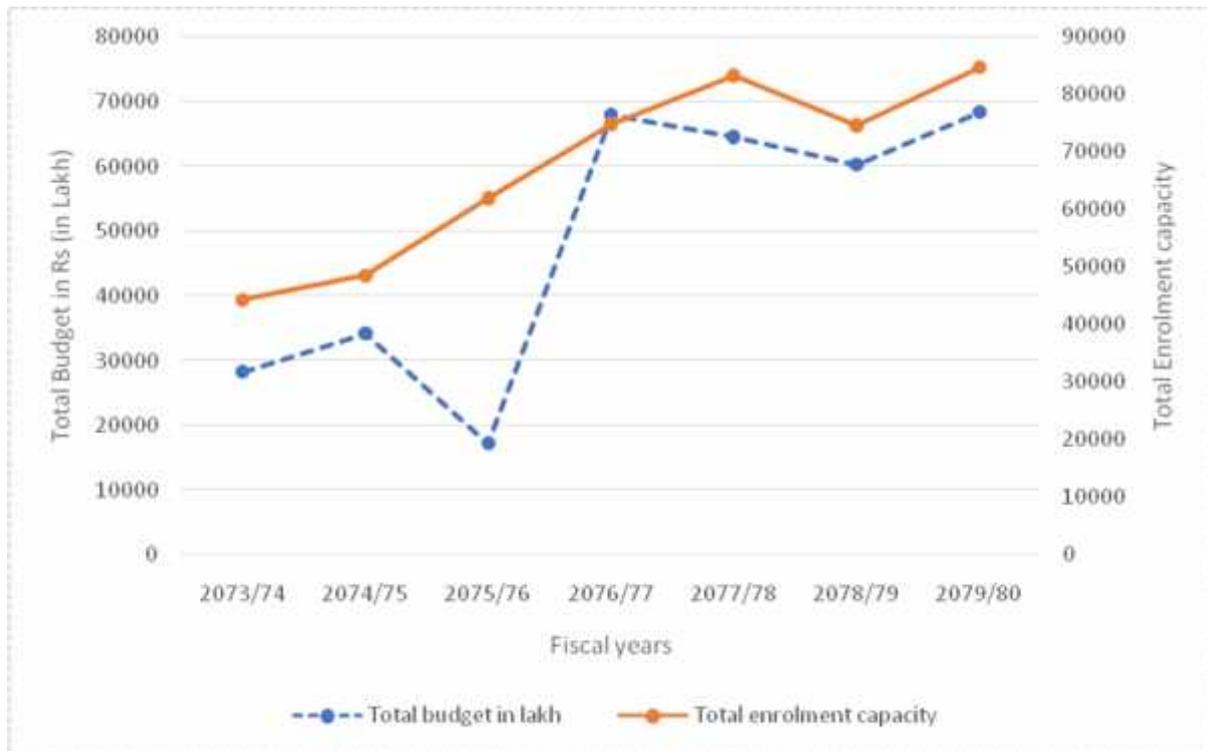
The relationship between CTEVT and sustainable development goals (SDGs) is crucial. Five out of 17 SDGs are directly and indirectly are related to technical and vocational education training (TVET). The Government of Nepal has crafted the Sustainable Development Goals (SDGs) to the Nepalese context and has made institutional arrangements for its effective implementation. The Fourteenth Plan (2016/17–2018/19) and SDGs were implemented same fiscal year. The year 2015, before implementing the SDGs, was decided as base year to monitoring the SDGs progress. The Fourteenth plan was consistent and integrated with SDGs. The major sectoral plans and policies aligned and mainstreamed with SDGs. Nepal has completed most of the preparatory works for implementing the SDGs. TVET plays key role in advancing education related goals. The SDG 4 indicates to ensuring inclusive and equitable quality education for all. We need to provide lifelong learning opportunity for all. Education plays a vital role across all SDGs as it is a standalone goal itself as well as the enabler to achieving other goals. The SDG 4 aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities to all. The government intervention on the technical education program is important to provide the technical and vocational training for youth and to enable them to get decent jobs. The government program particularly related to SDG ensure equal access for males and female to affordable and quality technical and vocational training.

Decent work and economic growth-related goals (SDG 8) also get benefit from TVET. TVET provides skill human resources that enhance employability, foster entrepreneurship, and contribute to creation of decent jobs. By investing in TVET, countries can strengthen their industrial based, infrastructure and industrial practices. These all are related to SDGs 9. Similarly, TVET can reduce inequality (SDG 10) through improving the access to quality education and training opportunities to marginalized groups, persons with disabilities and low-income groups. TVET contributes to the development of sustainable cities and communities (SDG 11) by training professionals in urban planning, renewable energy, environmental management, construction and among others. TVET is instrumental in advancing multiple SDGs (NPC, 2018).

CTEVT is implementing TVET programmes to produce basic and mid-level technical (with certificate or diploma degree) human resources in the country since its establishment in 1989 (2045 BS). Among others the council has given emphasis to production and supply of technical human resources in four thematic areas of economy viz. 1) agriculture; 2) engineering/construction; 3) health/medical sciences and 4) hospitality and others. But a market-based study on the demand side of production of such technical human resources is largely lacking in the country to strengthen TVET need by sector of economy.

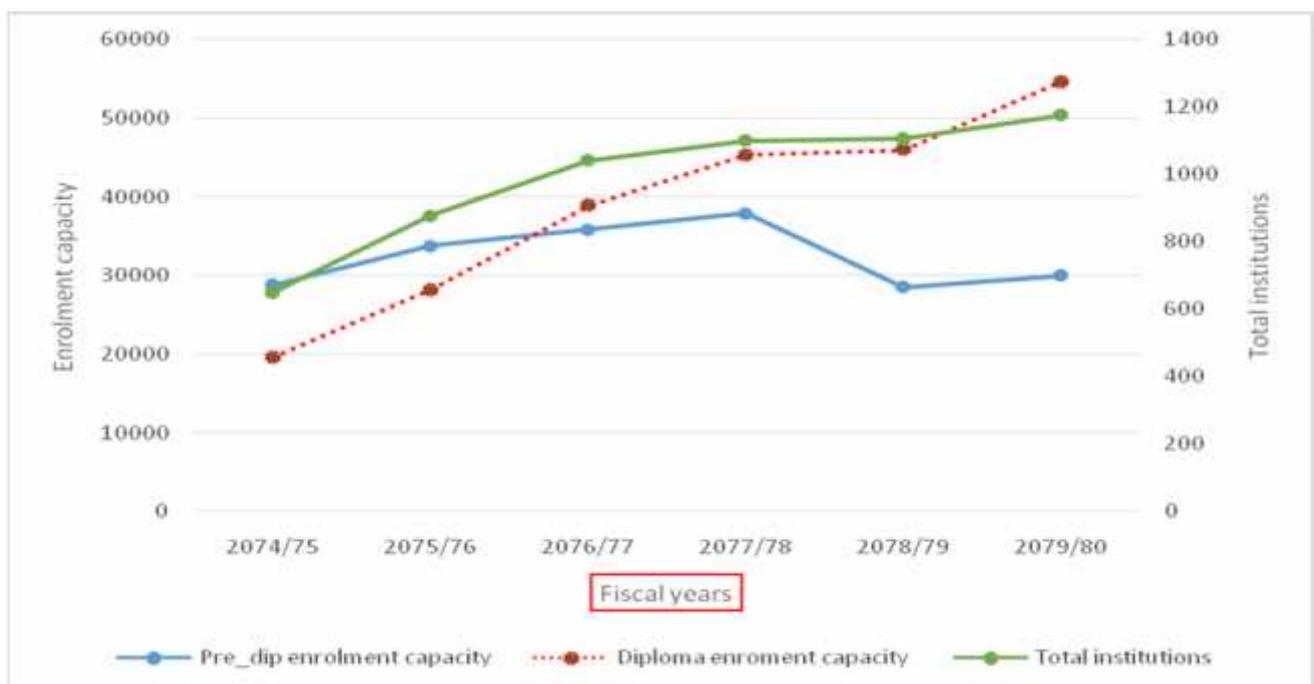
The government of Nepal is paying high priority for expansion of technical education and vocational training and this priority can be seen in the allocation of budget. In nominal term, it has increasing trend over the years. An increasing trend in total enrolment capacity is closely related with the trend in the total budget allocated for CTEVT as indicated in figure 1. This increasing trend shows the positive indication of the commitment to fostering a skill workforce. However, the challenges are found in aligning the increase capacity of the institution and with actual enrolment numbers.

The figure shows the trend lines of total budget for CTEVT and total enrolment capacity for the given programmes. It shows the complex relationship or interdependence between financial resources and technical education and vocational training accessibility. Fluctuating trendline of the budget indicates the budgetary challenges in the first year of implementing federal system. However, it did not influence the overall progress of the education.



**Figure: 1 Trends of total budget and total enrolment capacity**  
 Source: CTEVT, 2079/80

We need to evaluate existing policy and programmes. The evaluation provides insights into the strengths and weaknesses of the programs. It helps to assess whether the institution is utilizing its resources optimally in relation to its capacity and enrolment of the students. The potential gap between capacity and enrolment can impact on quality of education, allocation of resources. The assessment can identify the problems and uncover the barriers preventing eligible students from enrolling. At the same time, it helps to understand how resources are utilized and whether desired outcomes are achieved or not. The figure 2 indicates relationship between total institutions and pre-diploma and diploma program, all of them have a positive association. However, for the pre-diploma program, it has been decreased during the last two years. The trend of no. of institutions is going upward over the years. If we look at the both figures, 1 and 2, they have seen a harmonious alignment among the budget, total institutions and total enrolment capacity for the program.



**Figure 2: Trend of institutions and enrolment capacity**

Sources: CTEVT, 2079/80

## 2. Statement of Problem and Objectives

Various documents such as (CTEVT, 2020, CTEVT, 2016) published by CTEVT including annual reports and research report indicate that there is huge gap between institution capacity and enrolments of the students. Now questions come into the mind why this gap is happening and what are factors to determine the enrolment of the students. The gap between enrolment capacity actual enrolment indicates challenges for the institution. Underutilization of the capacity of the institution indicates the misallocation of resources. Determining the most effective policy requires a comprehensive understanding of the factors influencing student enrolment. As suggested by the existing literature, such as (Tarimo, 2013; Wamichwe, 2017; Matsolo et al. 2018), several factors affect the actual enrolment despite the increase in the capacity. Understanding why enrolment remains low requires a closer examination of obstacles. There may be demand and supply side barriers for enrolment of the students. Supply side barriers include curriculum, admission policy, condition of infrastructure such as classroom, laboratories, library, quality of faculties, training program relevance to industry need and among others (Muhonja, 2012:). The documents published by the CTEVT and research reports indicated the factors that affect the educational achievement, but no systematically analysed reports were found to identify the supply side barriers to increase the enrolment of the students. On the hand, increasing trend of institution capacity over the year as mentioned above indicates that there may be noticeable problem in the supply side. If there are many problems or barriers in supply side, institutional capacity may not have an increasing trend.

Socio-economic status of the students, distance and accessibility are main demand side barriers to enrolment (Njogu, 2019; Muriithi, 2013). The institutions, schools and programs are expanded throughout the country. It exhibits that distance and accessibility may not be the barriers because it may not be possible to establish the community schools and programs in each and all villages and cities. It may cover majority of local governments.

Economic status or affordable capacity of the household for the training program may be the key barrier. To identify the socio-economic characteristics of the households may be out of the scope of this paper. The CTEVT has set the tuition fee for all programs by institutions. In general, behaviour of the people based on the demand theory is that higher price may affect the demand for goods and services. Similarly, higher tuition fee may affect the choices whether to enrol the program or not. Affordability capacity may be different among the households. However, not only high tuition fee but also high difference in tuition fee among the institution may discourage to enrol the program. The curium and programs are same but tuition fees are different by different institutions may create the psychological impact or barrier to the households. Differences in tuition fees among the institutions offering the same programs intensify the difficulties that students or household encounter. This may lead to difficulties in choosing the certain program or schools. At the same time, each political parties and all the citizens are discussing about the education is fundamental right as mentioned in the constitution. If there are choices to enrol the schools, difference in prices or tuition fees matters. In this case tuition fee and difference in tuition fees have become a significant concern while enrolling the program Enrolling the program indicates the demand for program. The demand theory in economics suggested that prices or tuition fees are major factor to determine the enrolment for the program.

The objective of the paper is to identify the factors to determine the enrolment of the students. Above mentioned arguments inform that tuition fee may be the primary factor to determine low enrolment for both programs including pre-diploma and diploma. The behavioural relationships between enrolment of total and female students for both pre-diploma and diploma program are estimated using appropriate economic model. Estimated results suggest the tuition fees determine the number of students enrolment for CTEVT program.

The structures of the remaining part of the paper are as follows. The next section offers research method and materials used for this paper including, data sources, model specifications. The third section presents the results and interpretation. The last section offers conclusions.

## 3. Research Method and Materials

### *Research Design*

This paper utilized the descriptive as well econometrics methods to meet the objective. Program-wise tuition fees, no. of enrolments, tuitions fees differences among the private and other than private institution, characteristics of the households are important variables to develop the models to determine the enrolments for the programs. The paper

used the reported data published by the CTEVT for this analysis. It is better to use the household survey-based data, if available for this model. Based on available data as reported by CTEVT, the paper produces indicative results.

**Data Sources**

The reported data that are published in various annual reports (CTEVT, 2020, 2018) are used to identify the determinants of low enrolment of the students. Reported data may have some limitations, for example, all the data may not be captured and all of them are collected for reporting purpose. However, these data have some strengthen as well. They are collected during the process of implementation and can be used as proxy indicators of problem of implementation. Therefore, all the data that are available in the annual reports (CTEVT, 2020) and useful for the paper are utilized into the econometrics model. As mentioned in the annual reports, all together 33 academic programs under diploma program and 23 academic programs under pre-diploma. Institution capacity for enrolments, actual enrolments, tuition fees by the academic programs are available in the annual report published by CTEVT. The unit of analysis for this paper is academic program. From the perspective economics, enrolments of students for the academic program indicate demand for the academic programs. In this paper, tuition fees treated as price of the academic programs. It, therefore, allows us to apply the demand model. The paper adopts a descriptive and econometrics research design to meet the objective of the paper.

Tables 1 and 2 exhibit the data collected from annual reports. Table 1 provides the distribution of programs by province. In other words, it indicates the geographical access of institutions of community school and programs. The wider distribution of institutions of community school and programs suggests accessibility for the households. Geographical access, therefore, may not be the problem. Table 2 provides the tuition fees for the program. Tuition fees are the variable of interest for this paper. The tuition fees for some of the programs are found in the annual report. Therefore, observations for pre-diploma and diploma are 23 and 33 respectively.

**Table 1: Distribution of institutions of community school and programs by provinces**

S.N.	Provinces	Total technical education in community Schools (TECS)	Pre-diploma program	Diploma Program	Total programs
1	Koshi	46	33	36	69
2	Madhesh	96	35	85	120
3	Bagmati	119	68	89	157
4	Gandaki	60	40	37	77
5	Lumbini	86	59	83	142
6	Karnali	110	69	80	149
7	Sudur-Pashchim	129	103	75	178
		646	407	485	892

Source: CTEVT, 2020

**Table 2: Tuition fee for the programs by institutions (in Nepali Rupees)**

	Programs	Constituents	TECS	Partnership institutions
<b>Pre-diploma program</b>				
1	Agriculture and forestry science	15000	55000	55000
2	Engineering	22000	65000	65000
3	Management and others	18000	55000	55000
4	Hospitality and hotel management	15000	55000	55000
<b>Diploma program</b>				
1	Agriculture and forest science	85000	175000	175000
2	Engineering	98000	190000	205000
3	Health	16000	-	-
4	Hospitality	99000	175000	175000
	Management and others	99000	175000	175000

Source: CTEVT, 2020

**Model Specification**

Model specification involves outlining the structure of the econometric model. based on law of demand I, it is assumed that there is a negative relationship between enrolment and tuition fees set by CTEVT. the statement suggested that

an inverse relationship between tuition fees and student enrolment, indicating that higher tuition fees are associated with lower levels of student enrolment.

$$Y = f(X_1; X_2) \dots \dots \dots (1)$$

$$f_{x_1} < 0;$$

While developing the structure of the model, the dependent variable of the model is student enrolment for different program, Y and tuition fees and difference in tuition fees are independent variable and control variable such as x1 and x2 respectively. It indicates the linear regression model that is estimated through ordinary least squared (OLS) method. There are four models: total enrolment of students for pre-diploma and diploma programs and female enrolment for pre-diploma and diploma programs.

#### **Model for pre-diploma program:**

$$T = \beta_0 + \beta_1 F_1 + \beta_2 D_2 + \epsilon_i \dots \dots \dots (2)$$

T is the dependent variable. It indicates total enrolment of students for pre-diploma program.  $F_1$  is independent variable and indicates tuition fees for pre-diploma program.  $D_2$  is control variable and it indicates differences in tuition fees charged by the different institutions.  $\beta_0$  is the intercept.  $\beta_1$  and  $\beta_2$  are coefficients for  $F_1$  and  $D_2$  respectively,  $F_1$  is expected to have negative sign.  $\epsilon_i$  represent the error terms. Female are facing different types of problems than male while enrolling the academic program or getting achievement from the programs (Paudel, 2019) Female are also price sensitive (Muhanja, 2012). Therefore, female enrolments-based model is also appropriate to analyse the factor in the paper.

$$G = \alpha_0 + \alpha_1 F_1 + \alpha_2 D_2 + \epsilon_i \dots \dots \dots (3)$$

G is the dependent variable. It indicates total enrolment of female students for pre-diploma program.  $F_1$  is independent variable and indicates tuition fees for pre-diploma program.  $D_2$  is control variable and it indicates differences in tuition fees charged by the different institutions.  $\alpha_0$  is the intercept.  $\alpha_1$  and  $\alpha_2$  are coefficients  $F_1$  and  $D_2$  respectively,  $F_1$  is expected to have negative sign.  $\epsilon_i$  represent the error terms.

#### **Model for diploma program:**

$$E = \alpha_0 + \alpha_1 P_1 + \alpha_2 V_2 + \epsilon_i \dots \dots \dots (4)$$

E is the dependent variable. It indicates total enrolment of students for diploma program.  $P_1$  is independent variable and indicates tuition fee payment for diploma program.  $V_2$  is control variable and it indicates differences or variation in tuition fees charged by the different institutions.  $\alpha_0$  is the intercept.  $\alpha_1$  and  $\alpha_2$  are coefficients for  $P_1$  and  $V_2$  respectively,  $P_1$  is expected to have negative sign.  $V_2$  is treated as a control variable.  $\epsilon_i$  represent the error terms

$$M = \alpha_0 + \alpha_1 P_1 + \alpha_2 V_2 + \epsilon_i \dots \dots \dots (5)$$

M is the dependent variable. It indicates total enrolment of female students for diploma program.  $P_1$  is independent variable and indicates tuition fee payment for diploma program.  $V_2$  is control variable and it indicates differences or variation in tuition fees charged by the different institutions.  $\alpha_0$  is the intercept.  $\alpha_1$  and  $\alpha_2$  are coefficients for  $P_1$  and  $V_2$  respectively,  $P_1$  is expected to have negative sign.  $V_2$  is treated as a control variable.  $\epsilon_i$  represents the error terms.

STATA v.17 was used to perform OLS regression and derive significant insights from the data. The OLS regression is a popular statistical technique that seeks to represent the relationship between dependent and independent variables by minimizing the sum of squared differences between observed and expected values. In this work, regression analysis was used on four independent equations, each representing a different component of the dataset. STATA v.17 was chosen as the statistical programme due to its strong econometric analysis capabilities and user-friendly interface. The OLS regression results were then examined and analysed to provide a thorough knowledge of the data's linkages, casting light on crucial patterns and associations.

## **4. Results Presentation and Interpretation**

Skills and knowledge of the citizen of a nation help to strengthen its economy and development. We must focus on strengthening the skills of their populations in order to development of a country. Skill development is vital for the economic development of Nepal and should be prioritised, which has a growing youth population with formal education but lacks the practical skills required for the job market. The policy of the government aims for quick,

sustainable, and employment-oriented economic growth. To meet this aim, we need to provide employment-oriented skill, and practical education to all young people. Education, which comprises the transfer, acquisition, creation, and application of information, is a key driver of sustainable development because it involves the transfer, acquisition, creation, and application of information, knowledge, skills, and values.

CTEVT was established as the premier institution to foster the expansion of Nepal's TVET sector. The CTEVT strives to develop all levels of technical human resources in accordance with labour market demands by coordinating with and among various TVET-providing bodies around the country, as well as certifying workers' informally/unofficially acquired skills. Since its beginning, CTEVT has provided 140 1696-hour short-term vocational training programmes, such as 24-month apprenticeship programmes, 18-month pre-diploma programmes, and three-year diploma programmes. There are currently 1106 institutes in Nepal offering CTEVT courses, comprising 63 component institutions, 429 related private institutes, 572 community schools offering TECS programmes, and 42 partnering institutes. Similarly, CTEVT now provides 260 short-term training curricula, 49 diploma-level curricula, 33 pre-diploma level curricula (including apprenticeship), and 9 professional curricula in disciplines such as engineering, agriculture, health, hospitality, and among others.

**Pre-diploma program**

**Table 3: Summary results of enrolments and tuition fees for pre-diploma program**

Variables	Observations	Mean	Std. dev.	Min	Max
Total enrolment	23	433.00	602.46	12	2336
Total Female Enrolment	23	204.22	374.93	0	1651
Tuition fee for private institutions	23	61521.74	4869.85	55000	65000
Tuition fee for constituent institutions	23	20217.39	2645.01	15000	22000
Differences in tuition fee	23	41304.35	2530.45	37000	43000

Source: Calculated by Author

Table 3 provides the summary results of all variables of interest. Total observations based on reported data are 23. In an average total enrolment for pre-diploma program are 433; however, minimum number of enrolments is 12. An average enrolment female student is 204; however, none of the female students are for the programs. Tuition fees for private institutions are Rs 61521 that is three times higher than tuition fees for constituent institutions.

A total of four models are estimated to identify the relationship between enrolment and tuition fee set by the CTEVT for both constituent institution and private institution. The results of the first model are presented in table 4. It exhibits that there is a negative relationship with 0.2536 coefficient between total enrolment of the student for pre-diploma program and tuition fee for private institutions. It indicates that due to high tuition fee, total enrolment for pre-diploma program tend to decrease. Statistically significant at 1 percent level indicates that the estimated relationship is unlikely to have occurred by chance. The relationship is significance at 1 percent level and the model has bet fitting with 50% R squared.

Similarly, the table 4 presents the relationship between female enrolment for pre-diploma program and tuition fee for private institutions. To know this relationship is important because the policy and programs encouraged the female participation in the labour market. On the other hand, female students are more price sensitive. The results suggest that there is inverse relationship between female enrolment for pre-diploma program and tuition fee for private institutions with statistically significance at 1 percent level. The given model is best fitted. It shows that 54 percent of the variability in the female enrolment can be explained by the model.

**Table 4: Total enrolment for pre-diploma and tuition fee for private institution**

Source	SS	df	MS	Number of obs		23
Model	4067896.53	2.00	2033948.27	F(2,20)		10.38
Residual	3917159.47	20.00	195857.97	Prob>F		0.0008
total	7985056.00	22.00	362957.09	R-squared		0.5094
				Adjusted R-squared		0.4604
				Root MSE		442.56
Total Enrolment	Coefficient	Std. err.	t	Prob> t	[95% conf.interval]	
Tuition fee private	-0.2536	0.0556	-4.53	0.0000	-3704	-1368
Difference in fee structure	0.4764	0.1077	4.42	0.0000	0.2516	0.7011
Constant	-3639.822	1707.23	-2.13	0.0460	-7201.06	-78.5891

Source: Estimated by Author

**Table 5: Female enrolment for pre-diploma and tuition fee for private institution**

Source	SS	df	MS	Number of obs		23
Model	1683242.05	2.00	841621.02	F(2,20)		11.94
Residual	1409407.87	20.00	70470.39	Prob>F		0.0004
total	3092649.91	22.00	140574.99	R-squared		0.5443
				Adjusted R-squared		0.4987
				Root MSE		265.46
Total Enrolment	Coefficient	Std. err.	t	Prob> t	[95% conf.interval]	
Tuition fee private	-0.1639	0.03357	-4.88	0.0000	-0.2339	-0.09383
Difference in fee structure	0.29	0.06462	4.49	0.0000	0.1552	0.4248
Constant	-1693.189	1024.062	-1.65	0.1140	-3829.35	442.9679

Source: Estimated by Author

### Diploma program

Table 6 provides the summary results of all variables of interest that are related to diploma program. Total observations based on reported data are 33. In an average total enrolment for pre-diploma program are 805; however, minimum number of enrolments is 4. An average enrolment female student is 393; however, none of the female students are for the programs. Tuition fees for private institutions are Rs 185909 that is slightly higher than tuition fees for constituent institutions. The main reasons behind this issue is that some of costly programs such as nursing education

**Table 6: Summary results of enrolments and tuition fees for diploma program**

Variables	Obs.	Mean	Std. dev.	Min	Max
Total enrolment	33	805.15	1237.27	4	5379
total Female Enrolment	33	393.12	612.53	0	2051
Tuition fee for constituent institutions	33	117151.50	31053.50	85000	160000
Tuition fee for private institutions	22	185909.10	6837.64	175000	190000
Differences in tuition fee	33	113454.50	33635.07	76000	160000

Source: Calculated by Author

For the case of diploma program, the result indicates the negative relationship between total enrolment and tuition fee for private institution; however, they are not significant at 5 percent level. It doesn't ensure the negative association. It may be the problem of data limitations because all the data are from reported data. It may be better fit for household survey data. However, table 7 confirms the inverse association between female enrolment for diploma program and tuition fee. All the results and R squared are significant at 5 percent level.

Some data limitations are found because this model is based on reported data. Household survey data are better to use to estimate the determinants of enrolment. Household characteristics can be used as control variables while estimating model. Therefore, this model provides indicative results. It conforms that tuition fee is one of the determinants for enrolment for both programs.

**Table 7: Total enrolment for diploma and tuition fee for private institution**

Source	SS	df	MS	Number of obs		22
Model	2243441.90	2.00	1121720.95	F(2,20)		0.71
Residual	30075173.20	19.00	1582903.85	Prob>F		0.5049
total	32318615.10	21.00	1538981.67	R-squared		0.0694
				Adjusted R-squared		-0.0285
				Root MSE		1258.1
Total Enrolment	Coefficient	Std. err.	t	Prob> t	[95% conf.interval]	
Tuition fee private	-0.0586696	0.052997	-1.11	0.2820	-0.16959	-5225
Difference in fee structure	0.08205	0.07782	1.05	0.3050	-0.08084	0.24494
Constant	4205.116	7492.628	0.56	0.5810	-11477.1	19887.37

Source: Estimated by Author

**Table 8: Female enrolment for diploma and tuition fee for private institution**

Source	SS	df	MS	Number of obs	22	
Model	1015836.82	2.00	507918.41	F(2,19)	2.89	
Residual	3334091.00	19.00	175478.47	Prob>F	0.0799	
total	4349927.82	21.00	297139.42	R-squared	0.2335	
				Adjusted R-squared	0.1528	
				Root MSE	418.9	
Total Enrolment	Coefficient	Std. err.	t	Prob> t	[95% conf.interval]	
Tuition fee private	-0.042147	0.017646	-2.39	0.0270	-0.07907	-0.00521
Difference in fee structure	0.046125	0.025913	1.78	0.0910	-0.00811	0.100361
Constant	3919.792	2494.703	1.57	0.1330	-1301.68	9141.265

Source: Estimated by Author

## 5. Discussion

The CTEVT provides training opportunity for young people. Vocational education and training provide accredited training in self-employment, job related and technical skills. Vocational education and training lays focus more on practical skill and being able to perform task related to working in the particular health, agriculture, construction, industry, tourism sectors. It supports to enhance skills development for increased productivity in order to stimulate socio-economic growth and development as well as employment creation for the youth. TVET is an important tool to improve the employability of individuals, increase productivity in business and industry and reduce poverty.

Many papers are found in the literature that measures the association between enrolment or demand for education and tuition fee. Havranek et al. (2018) estimated the association using meta-analysis using 43 publications. They produced similar results as suggested in this paper with indicating that an inverse relationship between enrolment and tuition fee.

Insufficient publicity led to an insufficient understanding of the benefits of TVET education and its courses. This has resulted in fewer female students enrolling in TVET programmes. TVET schools have been determined to be expensive, despite the lack of financial help and tuition rate reductions. This negatively impacts girls' enrolment in technical education (Umulia, 2020). Similarly, this study also explored to see the impact of reduction of tuition fees on no. of girls in TVET. Almost 93 % female respondents agreed that no. of girls would be increased after reduction of tuition fees (Umulisa, 2020).

Declercq and Verboven (2015) employed the cost sensitivity channel to model the effects of tuition fee hikes. They found that a uniform tuition fee increase has a very minor influence on total enrolment, but it significantly affects enrolment of socially disadvantaged students. This result is also consistent with the results produced by this paper. No uniform tuition fees set by CTEVT for both constituent and private institutions are found. Tuition fees for private institution are at least two times higher than constituent institutions. Similarly, female students are more tuition fee sensitive in Nepal too. Removing primary and secondary school fees has affected all school-age children, with bigger effects on children from low-income households. School fees and other hidden costs of education is one of the major barriers of dropout and non-enrolment for children from low-income households.

We can conclude with validation from similar findings that tuition fees matter the student enrolment for both pre-diploma and diploma program implemented by CTEVT. It should be careful to make the interpretation of the results because the results are based on the reported data produced by CTEVT. The analysis of household survey data will give more robust results. This paper also produces indicative results and the policy makers should rethink about the tuition fees for pre-diploma and diploma programs.

## 6. Conclusion

CTEVT has paid effort to provide TVET opportunity to low income and marginalized groups. Therefore, Policymakers have dramatically expanded both constituent and private institutions throughout with increasing enrolment capacity to enhance student accessibility. Despite these excellent efforts, a significant difficulty arises for the tuition fee payment. There is considerable disparity in tuition fees among private institutions. This disparity has significant ramifications for kids and families considering enrolment. To address this issue, the research uses an

economic model to determine if tuition fees influence enrolment. The findings indisputably show that tuition fees influence enrolment patterns. Higher tuition prices lead to decrease enrolment rates, whereas reduced tuition fees serve as a positive catalyst, driving higher enrolment rates. This difference has serious implication on decision making behaviour of the students and households anticipating enrolment. Understanding this issue, the paper utilizes econometrics models to ascertain whether tuition fees serve as a determinant factor in enrolment. Higher tuition fees are associated with lower enrolment rates, while lower tuition fees act as a positive catalyst, encouraging higher rates of enrolment. The result for both pre-diploma and diploma programs unequivocally reveal that tuition fees play a key role in shaping enrolment patterns.

It indicates some trade-off in policy designing. Targeting to marginalized and low-income group with high tuition fee may not be right policy designing. Geographical access to the institution may be important, but it is not sufficient instrument to encourage the enrolment for the marginalized and low-income group. They are highly tuition fee sensitive because they may face the hand to mouth problem. Education may be still luxury good for them. On the other hand, they may estimate the returns from TVET. Returns may be lower than the costs. We need to carry out the survey-based study to understand these issues.

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# Operational Optimization and Cost Efficiency in Nepalese Banks

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## Abstract

The purpose of this study was to explore the key factors influencing cost efficiency in Nepalese commercial banks. By examining the impact of endogenous variables including bank size (S), return on assets (ROA), capital adequacy ratio (CAR), credit risk (CR), and net interest margin (NIM), this study explores the complex relationship between these variables and cost efficiency. Utilizing a balanced panel dataset spanning a decade from 2011/12 to 2020/21, the study employed descriptive and inferential analyses, along with econometric models such as pooled OLS (ordinary least squares), fixed effects regressions, and random effects regression techniques. Additionally, various statistical tests, including the variance inflation factor test, Hausman specification test, and the Breusch-Pagan test for homoscedasticity, were conducted to ensure the robustness of the models. The results found that return on assets (ROA) and capital adequacy ratio (CAR) exert a positive influence on cost efficiency, while the net interest margin (NIM) exhibits a negative impact. However, no significant relationship was found between bank size, credit risk, and cost efficiency. These results emphasize the importance for banks to prioritize the enhancement of their return on assets (ROA) and capital adequacy ratio (CAR) while maintaining an optimal net interest margin (NIM). The study offers valuable insights for bank management and policymakers, contributing to an improved understanding of cost efficiency in Nepal's commercial banks. By providing evidence-based recommendations, this research opens the path for the formation of strategies aimed at optimizing operational undertakings and fostering overall cost-efficiency within Nepalese banks.

**Keywords:** Panel Data, Capital Adequacy, Credit Risk, Net Interest Margin, Return on Assets

## 1. Introduction

The banking sector is an integral part of the financial system, playing a significant role in the development of an economy (Akrani, 2011). With their primary function of mobilizing deposits and providing loans and advances to various sectors, such as agriculture, industry, and business, private and public banks compete each other in the free and open market economy (Bhattarai, 2015; Bhandari et al., 2021). However, for the banking sector to effectively contribute to economic development, it is crucial to ensure consistency and efficiency (Akrani, 2011).

Cost efficiency is a fundamental concept that focuses on saving money by improving processes and products (Miller, 2022). In the banking context, cost efficiency is determined by comparing total operating costs to total income, where a larger ratio indicates lower cost efficiency and vice versa. Cost efficiency is crucial for banks as it directly impacts their profitability, success, and sustainability (Miller, 2022). Furthermore, it enables banks to optimize their capabilities, generate more revenue, and provide enhanced value to customers (Bergret et al., 1993).

In Nepal, where there are 22 commercial banks as of the end of 2022, cost efficiency becomes even more critical as these banks offer a range of services such as loans, savings accounts, and certificates of deposit (Williams, 2022). Achieving cost efficiency is vital not only for the banks themselves but also for facilitating economic growth and supporting various sectors, including agriculture, trade, industry, energy, and services (Bhattarai, 2015; Karki, 2012, 2018). Efficiency measures in the banking sector are viewed as essential tools for improving bank performance and

providing bank-specific information to enhance efficiency (Tecles & Tabak, 2010). Efficient banks can provide trustworthy services to consumers at optimal prices, thereby fostering faith, confidence, and reliability in the banking sector and equity market (Zeitun & Benjelloun, 2012; Karki, 2017). In an increasingly competitive banking industry due to deregulation, liberalization, and globalization, cost efficiency becomes a significant challenge for commercial banks to remain competitive (Dahal & Bhaskar, 2020).

Recent studies have highlighted challenges in achieving cost efficiency in the Nepalese banking industry. These include high-ratio problems leading to a lack of cost efficiency (Dahal & Bhaskar, 2020) and a decline in efficiency due to adverse political situations, liquidity crunch, and inefficient management practices (Neupane, 2013). Moreover, deregulation, liberalization, globalization, and change in employee professional dynamics have further intensified competition, necessitating higher levels of efficiency and stability (Dahal & Bhaskar, 2020; Bhattarai et al., 2020). The cost efficiency of Nepalese banks has been a subject of concern, as evidenced by Adhikari's (2021) survey of 27 commercial banks conducted between 2011/12 and 2019/20. Adhikari (2021) revealed a decline in average efficiency from 47.3% to 39.42% in 2015/16, followed by a slight increase to 40.38% in 2019/20. These results emphasize the inherent instability and predominantly inefficient nature of the efficiency ratio among Nepalese banks. However, by improving their operational efficiency and functioning optimally, banks can unlock their latent capabilities, generate increased revenue, and enhance customer value, ultimately improving efficiency and contributing to the overall economic development of the nation. Given the challenges faced by Nepalese commercial banks, this research proposes to address the subsequent three research questions. 1) What are the most significant factors influencing cost efficiency in Nepalese commercial banks? 2) Is there a significant relationship between various independent variables (S, ROA, CAR, CR, & NIM) and the dependent variable (cost efficiency) of Nepalese commercial banks?, and 3) What is the impact of the various independent variables (S, ROA, CAR, CR, & NIM) on the cost efficiency of Nepalese commercial banks?

With these research questions in focus and given the importance of cost efficiency for profitability, success, and sustainability in the banking sector, the primary objective of this research is to determine the operational factors that have a major influence on cost efficiency in Nepalese commercial banks. Through a comprehensive analysis of the link between these factors and cost efficiency, this research seeks to provide valuable insights for bank management and policymakers into optimizing operational variables that drive cost efficiency in Nepal's banking sector.

## 2. Review of Literature

Several researchers have conducted studies on cost efficiency in banking across various countries, revealing valuable insights into the factors influencing efficiency in different contexts. The profitability and competitiveness of financial institutions are directly impacted by cost efficiency in the banking sector (Berger & Humphrey, 1997). It involves optimizing resource allocation, improving productivity, and adopting efficient management practices to achieve higher output with minimal resource utilization and expenses. Adopting new technologies makes banks more cost-effective, but acceptance is reliant on people's understanding, knowledge, and level of education (Dahal et al. 2020; Maharjan et al. 2022). Cost efficiency is the ratio of overhead expenses to the total net interest revenue and other operating revenue (Amer et al., 2011). A lower ratio indicates that a bank is operating more efficiently. Several studies have examined the determinants of cost efficiency in banking. For instance, Maudos, Pastor, and Perez (2002) explored the cost efficiency of European banks, highlighting the influence of market structure, ownership, and financial liberalization on cost efficiency. In addition, Casu and Thanassoulis (2006) conducted research on central bank branches in the UK, applying frontier efficiency analysis to evaluate their cost performance. They found that this approach can effectively assess cost efficiency in central bank operations. Meanwhile, Sufian and Habibullah (2009) investigated the determinants of bank efficiency in Malaysia, including factors such as bank size, capitalization, and market structure. Their findings shed light on the specific factors that contribute to cost efficiency in a developing economy.

**Bank Size:** The connection between bank size and cost efficiency has been extensively studied in various banking systems. Gajurel (2010) conducted a study on the factors affecting cost efficiency in Nepalese banks and revealed a positive correlation between bank size and cost efficiency. In Malaysian banks, Ab-Rahim et al. (2012) explored the link between bank size and cost-effectiveness and found conflicting results. Their study revealed the positive effects of population density, government ownership, market concentration, and demand density on cost efficiency. However, the impact of macroeconomic conditions, capitalization, credit risk, and bank size on cost efficiency showed mixed evidence. Similarly, Stanek (2015) conducted a study on Czech commercial banks and did not find a significant influence of bank size on cost efficiency. These contradictory findings suggest the need for more

comprehensive research to understand the specific dynamics of the relationship between bank size and cost efficiency in different regions.

H<sub>1</sub>: There is a significant relationship between bank size and the cost efficiency of Nepalese commercial banks.

**Return on Assets:** The relationship between return on assets (ROA) and cost efficiency has been extensively explored in the literature. Nitoi and Spulbar (2015) conducted a study in emerging countries in Central and Eastern Europe and found a positive influence of ROA on cost efficiency. This suggests that banks with higher ROA tend to exhibit higher levels of cost efficiency. Similarly, Elahi and Poswal (2017) examined banks in the United Kingdom and Germany and discovered a significant positive relationship between ROA and cost efficiency. Their findings indicate that banks with higher ROA are more likely to achieve better cost efficiency. In the context of Nigerian commercial banks, Ojeyinka and Akinlo (2021) investigated the factors affecting cost efficiency and found a positive effect of ROA on cost efficiency. These findings highlight the potential importance of ROA as a determinant of cost efficiency in the banking sector. However, it is essential to critically appreciate that these researches were carried out in different contexts, and their findings may not directly apply to the Nepalese banking sector.

H<sub>2</sub>: There is a significantly positive relationship between the Return on Assets (ROA) and cost efficiency of Nepalese commercial banks.

**Capital Adequacy Ratio:** The effect of the capital adequacy ratio (CAR) on cost efficiency in the banking sector has been studied in the past. Ereta et al. (2020) conducted a study in Ethiopian commercial banks and found a positive correlation between CAR and cost efficiency. This suggests that greater levels of capital adequacy can contribute to improved cost efficiency in banks. Similarly, Adhikari (2021) examined Nepalese commercial banks and reported a negative relationship between CAR and cost efficiency. Their findings indicated that higher CAR was associated with lower cost efficiency. Further, Blankson et al. (2022) measured the cost-efficiency of Ghanaian banks and reported a positive impact of capitalization on cost-efficiency. However, it is crucial to note that this study was conducted in the Ghanaian banking sector, which may have different characteristics and regulatory frameworks compared to Nepalese commercial banks. To provide additional reference and validate the earlier findings, it is important to investigate whether CAR has a significantly positive relationship with cost efficiency in Nepalese commercial banks.

H<sub>3</sub>: There is a significantly positive relationship between the Capital Adequacy Ratio (CAR) and the cost efficiency of Nepalese commercial banks.

**Credit Risk:** The causal relation between credit risks and cost-efficiency in Nepalese commercial banks has been the subject of investigation in several studies. Gajurel (2010) analyzed factors affecting cost efficiency in Nepalese commercial banks and found that higher credit risk is associated with lower cost efficiency. The study revealed that government banks exhibited lower cost-efficiency compared to private sector banks (both domestic & foreign), emphasizing the importance of effectively managing credit risk to enhance cost-efficiency in the Nepalese banking industry. Furthermore, Adjei-Frimpong et al. (2014) explored the effectiveness of the Ghanaian banking sector and examined the impact of credit risk, measured by loan loss provision (LLP), on cost efficiency. Utilizing a data envelopment model and static and dynamic panel data analysis, the study demonstrated a negative association between credit risks and cost-efficiency in Ghanaian banks. Specifically, well-capitalized banks exhibited lower cost efficiency, highlighting the significance of managing credit risk to enhance overall efficiency. However, it is crucial to recognize that the influence of credit risks on cost efficiency may vary across different banking systems and timeframes. Hadhek et al. (2018) documented a positive relationship between credit risks and cost-efficiency in Islamic banks, suggesting that the relationship can differ based on the specific characteristics of the banking system. Therefore, it is essential to investigate the relationship between credit risks and cost-efficiency in the context of Nepalese commercial banks, considering the unique characteristics and dynamics of the Nepalese banking sector.

H<sub>4</sub>: There is a significantly negative relationship between credit risk and cost efficiency of Nepalese commercial banks.

**Net Interest Margin:** The impact of net interest margin (NIM) on cost efficiency has been the focus of research in various banking systems. Esho (2001) conducted a study on factors affecting cost efficiency in cooperative financial institutions in Australia and discovered a positive influence of net interest margins on cost efficiency. The study revealed steady progress in cost efficiency over the analyzed period, underscoring the importance of effectively managing net interest margins to enhance the efficiency of cooperative financial institutions. Similarly, Bandaranayake and Jayasinghe (2014) examined the impact of bank-specific factors and variables of the operating environment on bank efficiency in Sri Lanka. Their study highlighted that net interest margin (NIM) is an efficient

measure for evaluating the performance of private and foreign commercial banks. This finding suggests that optimizing and effectively managing net interest margins can contribute to enhancing the efficiency of these banks. Contrarily, Nitoi, and Spulbar (2015) found a negative relationship between net interest margin (NIM) and cost efficiency in emerging economies. It is crucial to note that this finding may not directly apply to the Nepalese banking sector. Therefore, further research is required to investigate whether NIM has a significant negative relationship with cost efficiency in Nepalese commercial banks.

H<sub>5</sub>: There is a significantly negative relationship between the Net Interest Margin (NIM) and cost efficiency of Nepalese commercial banks.

### 3. Research Methods

This quantitative research study adopts a panel data approach to investigate the factors influencing the cost-efficiency of Nepalese commercial banks. By employing a descriptive and causal-comparative research design, the study aims to uncover pertinent information and establish causal relationships between the variables. Secondary data spanning from the fiscal year 2011/12 to 2020/21 were collected from Nepal Rastra Bank, ensuring a comprehensive analysis. The sample for this study comprises seven commercial banks out of the 22 operating in Nepal, with a data collection period of ten years. Careful consideration was given to avoid survivorship bias and data inconsistencies by selecting banks that had not undergone mergers during the study period. The selected banks include Nepal Bank Ltd. (NBL), Everest Bank Ltd. (EBL), Nabil Bank Ltd. (NABIL), Himalayan Bank Ltd. (HBL), Agriculture Development Bank Ltd. (ADBL), Nepal SBI Bank Ltd. (SBI), and Standard Chartered Bank Nepal Ltd. (SCBNL).

In addition to descriptive statistics, econometric models were used to explore the link between cost efficiency and independent variables like bank size, ROA, CAR, credit risk, and NIM.

**Pooled Ordinary Least Square (OLS) Model:** Pooled OLS regression is performed as a baseline comparison model as follows:

$$CE_{it} = \alpha_0 + \alpha_1 BS_{it} + \alpha_2 ROA_{it} + \alpha_3 CAR_{it} + \alpha_4 CR_{it} + \alpha_5 NIM_{it} + \epsilon_{it} \dots \dots \dots (i)$$

where,

$CE_{it}$  = Dependent variable i.e. Cost Efficiency of  $i$  bank at time  $t$ . It is measured as the sum of operating expenses divided by total income, which includes net interest income and non-interest income

$BS_{it}$  = Bank Size of  $i$  bank at time  $t$ . It is measured as the natural logarithm of the values of total assets.

$ROA_{it}$  = Return on Assets of  $i$  bank at time  $t$

$CAR_{it}$  = Capital Adequacy Ratio of  $i$  bank at time  $t$

$CR_{it}$  = Credit Risk of  $i$  bank at time  $t$

$NIM_{it}$  = Net Interest Margin of  $i$  bank at time  $t$

$\alpha_0$  = Constant

$\alpha_i$  = Regression coefficients for corresponding endogenous variables

$\epsilon_{it}$  = error term or residual

Here,  $i$  takes the value from 1 to 7 which represents the sample banks and  $t$  ranges from 2011/12 to 2020/21 which represents the study period.

**Fixed Effects Regression Model (FEM):** FEM assumes that each distinct effect is connected with the endogenous factors and that any variation in the intercept is due to different properties of the entity. One-way and two-way FEMs are described below:

*One-Way Fixed Effects Model:* Equation (i) assumes a constant intersection point, but in practice, the intersection point may vary depending on bank characteristics. Consequently, a one-way FEM has been run as follows to find the bank-specific effects:

$$CE_{it} = \alpha_0 + \alpha_1 BS_{it} + \alpha_2 ROA_{it} + \alpha_3 CAR_{it} + \alpha_4 CR_{it} + \alpha_5 NIM_{it} + \sum_{i=1}^7 \delta_i \beta_i + \epsilon_{it} \dots \dots \dots (ii)$$

The model demonstrates that the intercept can vary depending on the bank-specific effects. The bank's dummy variable is represented by  $\beta_i$ , where  $\beta_i = 1$  if the cross-sectional unit is  $i$ , otherwise 0; this formula is also used for

the other dummies (  $\delta_i$  ). Here, six dummy variables (the total number of sample banks minus one) are utilized to overcome the dummy variable trap, which is a circumstance of perfect collinearity.

*Two-Way Fixed Effects Regression Model:* For identifying bank-specific effects as well as time effects, this two-way effects model or time-variant model has been used. The model includes a time dummy in addition to the unit dummies in equation (ii) to account for time trends. So, a two-way effects model has been conducted as:

$$CE_{it} = \alpha + \beta_1 BS_{it} + \beta_2 ROA_{it} + \beta_3 CAR_{it} + \beta_4 CR_{it} + \beta_5 NIM_{it} + \sum_{i=1}^6 \delta_i \beta_i + \sum_{t=1}^9 \delta_t T_t + \epsilon_{it} \dots \dots (iii)$$

The term  $\delta_t T_t$  represents a time dummy. The total number of time dummies used in the model is 9 as the total period used in this study minus one. Similarly, the one-time dummy has also been reduced to avoid the problem of the dummy variable trap.

**Random Effects Regression Model (REM):** REM presupposes that differences in intercepts are caused by randomness in sampling from a larger universe and that individual-specific effects are uncorrelated with independent variables. This model has been estimated to address the issue of having too many dummy variables as well as to overview the bank- and time-specific effects in the intercept term as in equations (ii) and (iii). Because each bank's intercept values vary individually, it is shown as " $\mu_i$ " in the error term. Consequently, the total residuals:  $\epsilon_{it} = \mu_i + \nu_{it}$ .

The random effects model has been conducted as:

$$CE_{it} = \alpha + \beta_1 BS_{it} + \beta_2 ROA_{it} + \beta_3 CAR_{it} + \beta_4 CR_{it} + \beta_5 NIM_{it} + \mu_i + \delta_t T_t + \nu_{it} \dots \dots (iv)$$

As a result, in the model above,  $\mu_i + \nu_{it}$  stands for the same thing as in model (ii), where  $\mu_i$  stands for the specific variation in each bank's intercept values.

**Diagnostic Tests:** Diagnostic tests are performed to assess data characteristics and quality to find the best effect model for the study.

**Variance Inflation Factor (VIF):** Multi-collinearity creates difficulties in testing individual regression coefficients due to the presence of inflated standard errors. VIF is used for measuring the amount of multi-collinearity in regression analysis. The study tested if each variable had a VIF score of 10 or more, which suggests multi-collinearity.

**Hausman Specification Test:** In panel data analysis, it distinguishes between the FEM (Fixed Effects Model) and the REM (Random Effects Model) and recommends one over the other. The null hypothesis ( $H_0$ ) states that the REM is superior to the FEM.

**Breusch-Pagan Test:** The Breusch-Pagan test is employed to ascertain whether there is the presence of heteroscedasticity or not in a regression model. The null hypothesis ( $H_0$ ) asserts that there is the presence of homoscedasticity.

#### 4. Data Analysis and Results

The proposed models were used to analyze the dataset, which contained information obtained from a sample of seven banks chosen from a population of 22 institutions. Table 1 depicts the descriptive statistics for dependent and independent variables, including minimum and maximum values, mean, and standard deviation.

**Table 1: Descriptive Statistics**

Variables	Mean	Standard Deviation	Minimum	Maximum
Cost Efficiency Ratio (CE)	42.41	14.82	23.29	98.23
Bank Size (S)	11.55	0.44	10.64	12.58
Return on Assets (ROA)	1.86	0.63	0.30	3.57
Capital Adequacy Ratio (CAR)	13.78	4.50	-5.82	23.68
Credit Risk (CR)	91.23	14.40	78.80	173.51
NIM	3.60	0.94	1.54	5.76

Table 4 provides descriptive statistics. The cost efficiency ratio has a mean value of 42.41% (SD = 14.82%), indicating the level of operational efficiency in Nepalese commercial banks. Bank size has a mean of 11.55 (SD = 0.44), which reflects moderate bank size compared to industry benchmarks. Return on Assets has a mean of 1.86% (SD = 0.63%), suggesting a profitability level that can be compared to industry averages. The Capital Adequacy Ratio has a mean of 13.78% (SD = 4.50%), indicating a satisfactory level of capital adequacy. Credit Risk has a mean of 91.23% (SD = 14.40%), which suggests the banks' loan portfolio risk should be carefully managed. Net Interest Margin has a mean of 3.60% (SD = 0.94%), indicating the profitability from interest-earning activities.

Table 2: Correlation Analysis

	CE	S	ROA	CAR	CR	NIM
Cost Efficiency Ratio (CE)	1.000					
Bank Size (S)	-0.068	1				
Return on Assets (ROA)	0.576		1			
Capital Adequacy Ratio (CAR)	-0.490***	-0.148	0.379***	1		
Credit Risk (CR)	0.000	0.222	-0.111	-0.077	1	
Net Interest Margin (NIM)	-0.417***	0.337***	0.687***	0.133	-0.255**	1
	0.000	0.004	0.001	0.525	0.033	
	-0.015	-0.268**	-0.111	0.360		
	0.900	0.025	0.360	0.525		
	0.085	-0.201*	0.687***	0.133	-0.255**	1
	0.483	0.096	0.000	0.272	0.033	

\*, sign denotes the significance at 0.10 level (2-tailed),

\*\*, sign denotes the significance at 0.05 level (2-tailed),

\*\*\*, sign denotes the significance at 0.01 level (2-tailed)

Table 2 reveals the correlations between different variables. The correlation coefficient between bank size and the cost efficiency ratio is -0.0679, suggesting no significant relationship (p-value = 0.5764). This indicates that the size of the bank does not have a significant influence on its cost efficiency. However, the correlation coefficient between the return on assets (ROA) and the cost efficiency ratio is -0.4904, indicating a significant negative relationship (p-value = 0.0000). This implies that higher ROA leads to a lower CE ratio ultimately associated with improved cost efficiency. Similarly, the correlation coefficient between the capital adequacy ratio (CAR) and the cost-efficiency ratio is -0.4174, showing a significant negative relationship (p-value = 0.0003). This implies that higher CAR is associated with enhanced cost efficiency. On the other hand, the correlation coefficient between credit risk and the cost efficiency ratio is -0.015, indicating no significant relationship (p-value = 0.9002). This suggests that credit risk does not have a significant impact on cost efficiency. Additionally, the correlation coefficient between the net interest margin (NIM) and the cost efficiency ratio is 0.0852, showing no significant relationship (p-value = 0.4830). Therefore, the findings indicate that ROA and CAR are important factors influencing cost efficiency in Nepalese commercial banks, while bank size, credit risk, and NIM do not significantly affect cost efficiency.

Panel data regression analysis was performed using the proposed models Pooled OLS, One-Way FEM, Two-Way FEM, and REM, and the results are displayed in Table 3.

Table 3: Comparison of Results of Different Regression Models

Variables	Pooled OLS	One-Way Fixed Effects	Two-Way Fixed Effects	Random Effects	VIF
Constant	31.542	17.290	-3.372	16.526	
Bank Size	0.737	4.509	6.402	3.407	0.707874
ROA	-22.646***	-12.691***	-11.291***	-16.620***	0.426614
CAR	-0.529*	-1.733***	-1.908***	-1.250***	0.681976
Credit Risk	0.075	0.063	0.098	0.070	0.819438
NIM	12.484***	4.289**	4.037*	7.845***	0.463948
du_EBL		18.662***	18.219**		
du_HBL		-10.566***	-11.521**		
du_NABIL		-3.692	-4.431		
du_ADBL		-13.604***	-15.618**		
du_SBI		3.367	2.546		
du_SCBNL		0.943	0.438		
dt_FY2012/13			-4.798		
dt_FY2013/14			-1.285		
dt_FY2014/15			-3.067		
dt_FY2015/16			-7.836		

Variables	Pooled OLS	One-Way Fixed Effects	Two-Way Fixed Effects	Random Effects	VIF
dt_FY2016/17			-1.651		
dt_FY2017/18			-0.443		
dt_FY2018/19			-3.717		
dt_FY2019/20			-3.867		
dt_FY2020/21			-1.725		
F- test	$F(5, 64) = 19.41$	$F(11, 58) = 27.06$	$F(20, 49) = 14.74$	'Between' 2 = 0.440	
p-value	0.0000	0.000	0.000	'Within' 2 = 0.631	
R <sup>2</sup>	0.603	0.837	0.858	<sup>2</sup> = 91.99	
Adj. R <sup>2</sup>	0.572	0.806	0.799	p-value <sup>2</sup> = 0.000	

‘\*\*\*’, sign denotes the significance at 0.01 level. ‘\*\*’, and ‘\*’, signs denote the significance at 0.05 and 0.10 levels, respectively. For fixed effect models, *du\_NBL* and *dt\_FY2011/12* were retained as benchmarks.

Table 3 displays the results of various regression models, including the pooled OLS model, one-way FEM, two-way FEM, and REM. These models were used to assess the relationship between the variables and cost efficiency in Nepalese banks. Upon comparison, it was observed that Bank Size and Credit Risk did not exhibit a statistically significant relationship with cost efficiency. This suggests that changes in these variables do not significantly impact cost efficiency in the banking sector, despite their positive correlations. On the other hand, Return on Assets (ROA) was found to be the most influential factor across all models, showing a significantly negative relationship with cost efficiency. This implies that improving ROA can have a positive impact on cost efficiency. Additionally, the Capital Adequacy Ratio was found to have a significantly negative relationship, indicating its positive influence on cost efficiency. Conversely, the Net Interest Margin (NIM) exhibited a significantly positive relationship, suggesting a negative impact on cost efficiency.

In Table 3, both the pooled OLS model and fixed effects model were found to be statistically significant with a p-value less than 0.05. However, the fixed effects model demonstrated more significant impacts on the variables compared to the pooled OLS model. Moreover, the fixed effects model exhibited higher R<sup>2</sup> and adjusted R<sup>2</sup> values, indicating a better fit for the data. Therefore, the fixed effects model was deemed more suitable. The random effects model, presented in the table, also showed comparable robustness to the fixed effects models. To ascertain the best model between the fixed effects and random effects models, the Hausman specification test, displayed in Table 4, was conducted.

**Table 4: Hausman Specification Test**

	Chi-square (x <sup>2</sup> )	P-value
Model: Bank-specific variables and cost efficiency	262.39	0.0000

The null hypothesis of the Hausman Specification (H<sub>0</sub>) states that the random effects model is superior, while the alternative hypothesis (H<sub>1</sub>) posits that the fixed effects model is superior. As shown in Table 4, the obtained p-value is less than 0.05, suggesting the acceptance of the alternative hypothesis. Thus, the fixed effects model is deemed appropriate for this study. Further, among the one-way and two-way FEMs, the two-way FEM was selected based on its statistical significance and robustness. This model displayed an improved R-square value (0.858) compared to the one-way FEM (0.837), suggesting a better fit for the data.

After selecting the two-way FEM, the presence of heteroscedasticity was examined using the Breusch-Pagan (BP) test to validate the model's significance and the robustness of the results, as depicted in Table 5.

**Table 5: Breusch-Pagan Test for Homoscedasticity**

	Chi-square (x <sup>2</sup> )	P-value
Model: Bank-specific variables and cost efficiency	2.88	0.0898

The Breusch-Pagan test holds the null hypothesis (H<sub>0</sub>) stating that there is homoscedasticity. Table 5 indicates that the obtained p-value is greater than 0.05, indicating the acceptance of the null hypothesis that shows the presence of homoscedasticity in the data.

The selected two-way fixed effects model in Table 3 reveals several significant findings regarding the impact of different variables on the cost-efficiency ratio. Bank size (6.402) and credit risk (0.098) demonstrate a positive

relationship with the cost efficiency ratio, although they are statistically insignificant, indicating that bank size and credit risk have no significant impact on cost efficiency. On the other hand, return on assets (ROA: -11.291) and capital adequacy ratio (CAR: -1.908) exhibit a negative relationship with the cost efficiency ratio and are significant at the 0.01 level, indicating that an improvement in ROA and CAR significantly enhances cost efficiency. Net interest margin (NIM) demonstrates a positive relationship with the cost efficiency ratio and is significant at the 0.10 level, suggesting a weakly significant negative impact on cost efficiency.

Table 3 also includes dummy variables for banks ( $d_{it}$ ) and time periods ( $d_t$ ). The results indicate that when the cost efficiency ratio of Nepal Bank Ltd. is 1, the cost efficiency ratio of du\_Everest bank increases by 18.22, although it is significant at the 0.05 level. Similarly, efficiency increments are observed for SBI (2.546) and SCBNL (0.438), but they are statistically insignificant. Conversely, other banks (HBL, NABIL, ADBL) exhibit opposite relationships with Nepal Bank, and except for NABIL, their relationships are statistically significant. Furthermore, time dummies serve as benchmarks for FY 2011/12, revealing that when the cost efficiency ratio in FY 2011/12 is 1, the cost efficiency ratio in FY 2012/13 decreases by 4.798 and continues to decrease across all periods, although these changes are statistically insignificant.

The findings suggest that improving return on assets (ROA), capital adequacy ratio (CAR), and net interest margin (NIM) can significantly enhance cost efficiency in the banking sector. However, bank size (S) and credit risk (CR) do not exhibit significant impacts on cost efficiency. The relationships between different banks and periods also provide insights into their relative efficiency levels. The results of hypothesis testing have been summarized in Table 6.

**Table 6. Summary of Hypothesis Testing**

Hypotheses	Remarks
H <sub>1</sub> : There is a significant relationship between bank size and the cost efficiency of Nepalese commercial banks.	Rejected
H <sub>2</sub> : There is a significantly positive relationship between ROA and the cost efficiency of Nepalese commercial banks.	Accepted
H <sub>3</sub> : There is a significantly positive relationship between CAR and the cost efficiency of Nepalese commercial banks.	Accepted
H <sub>4</sub> : There is a significantly negative relationship between credit risk and cost efficiency of Nepalese commercial banks.	Rejected
H <sub>5</sub> : There is a significantly negative relationship between NIM and the cost efficiency of Nepalese commercial banks.	Accepted

## 5. Conclusion

The results indicate that return on assets (ROA), capital adequacy ratio (CAR), and net interest margin (NIM) have significant influences on cost efficiency. A higher ROA indicates optimized revenue and resource utilization, leading to reduced expenses and enhanced cost efficiency. This finding aligns with previous studies by Nitoi and Spulbar (2015) and Hadhek et al. (2018), while it contradicts the research conducted by Oredogbe (2020). Similarly, a higher CAR allows banks to effectively utilize their capital and minimize costs, thereby enhancing cost efficiency. This finding supports prior research by Ereta et al. (2020) and Dahal and Bhaskar (2020). Additionally, NIM was found to have a significantly negative relationship with cost efficiency in Nepalese commercial banks. This finding is consistent with the study by Nitoi and Spulbar (2015). The negative relationship can be attributed to the impact of credit risk, which incurs higher interest rates, leading to increased interest income but reduced cost efficiency.

On the other hand, the study found no significant influence of bank size and credit risk on cost efficiency. These findings support the research by Stanek (2015) but contradict the studies conducted by Elahi and Poswal (2017) and Hadhek et al. (2018). It suggests that merely increasing the size of the bank does not improve cost efficiency, as profitability and cost depend on how effectively the bank utilizes its assets. Similarly, credit risk, while reducing potential losses, does not directly impact cost efficiency.

Based on these findings, it is recommended that banks should focus on enhancing ROA, CAR, and maintaining NIM to improve cost efficiency. Rather than emphasizing bank size, banks should prioritize optimizing revenue generation and resource allocation. Additionally, banks should adopt stringent loan screening processes and avoid aggressive lending practices to mitigate credit risk. The findings have implications for bank management and policymakers, highlighting the importance of strategic decision-making and resource optimization to achieve cost efficiency.

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# Determinants of Informal Workers' Readiness to Transition towards *Formal Economy: Empirical Evidence from Nepal*

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## Abstract

The informal sector in Nepal plays a significant role, encompassing over 70% of the economically active population. However, informal workers face numerous challenges, including violence, exploitation, lack of rights, and inadequate protection against income loss due to sickness or old age. This study examines the readiness of informal business sectors in Kathmandu Valley to transition to formal business sectors. An analytical research design was used, involving 400 respondents from the informal sector. The study evaluated the readiness index based on legal and policy frameworks, socioeconomic status, employment, structuralism, and income status. The findings reveal that informal business owners are generally ready to transition to the formal sector. However, higher income from informal activities is negatively associated with the likelihood of transitioning, indicating that workers earning sufficiently from informal work are less inclined to move to the formal sector. The study suggests that formalizing vocational training, enhancing insurance and security measures, implementing legal policies, and addressing income disparities are crucial steps to encourage the transition of informal workers to the formal economy.

**Keywords:** Transition economy, Informal sector, Formal economy, Labor market, Logistic regression analysis

## 1. Introduction

Formal economy refers to all economic activities operating with the official legal framework that pays taxes on all generated income. Formal activities are the diversified set of economic activities, enterprises jobs, and workers that are regulated and protected by states. Workers in a formal economy have an organized system of employment with clear written rules and recruitments, agreements, and job responsibilities. This relationship is long run and maintained through formal contracts. From the government's perspective formal sector poses security, and business certainty, maintains a proper record system, easy to handle and monitor with minimal effort, countries around the world prefer a formal economy to prevail in their territory. From an economic point of view, a government can increase the tax base by incorporating many new enterprises and small businesses into its tax system; and regulating the system to the sector any government wants to want the informal economy to enter into the formal economy.

Despite it being undesired, the informal sector plays a key role in almost all of the economy. Informal economic behavior and arrangements include any invention or transaction of merchandise and services that is not recorded in official statistics and/or disregards principles recognized and regulated by the state. Informal economic activities operate on a small scale and with low capital, often traditional or easy technology, and engagement of family labor in an unorganized way (Hays 1993; Adhikari et al., 2021). Studies show that the nature and characteristics of the informal economy are completely different from country to country and differ from sector to sector (Chen, 2005;

Uruthirapathy & Kiggundu, 2018; Sharma & Adhikari, 2020). For countries, the informal sector is not only an engine of irregular jobs, but it is also gaining ground for the formal sector (Rauch, 1991; Welter et al., 2015). As Chambwera et al. (2011) this sector accounts for half of global employment and in poor developing countries over 90% population is engaged in this sector for their employment and livelihood. In Nepal, the informal economy accounts for over 70 percent of the economically active population (Adhikari, 2018). Ulrichs (2016) argued that the informal sector is the engine of jobs that helps to reduce work deficits. ILO (2014) also mentioned that, worldwide, those laborers who have lost their jobs in the formal economy enter to informal economy for their livelihoods because of a lack of alternatives. It is increasing illegal practices in many parts of the world, leading to an increase in illicit jobs in both informal and formal sectors (ILO, 2014).

Being informal is not easy (Thomas, 2001). In the informal economy, workers are prone to violence and are stripped of many of the fundamental rights at work (Brown & McGranahan, 2016). Decent Work deficits take the form of unemployment and underemployment, poor quality and unproductive jobs, unsafe work and insecure income, rights that are denied, and gender inequality. Many migrant workers are particularly vulnerable to exploitation, lack representation and voice, and inadequate protection from income loss during sickness, disability, and old age. It is a potential threat to the workers involved in an informal economy. Further, in informal staff the majority is deprived of secure work, edges for staff such as pension funds and treatment, social protection, and illustration or voice (Kudzai Ngundu, 2010). Though decent work deficits are most pronounced in the informal economy still people, especially in developing countries, are compelling to engage and be involved in this sector as they don't have basic livelihood options. If they are not engaged in this sector, they have difficulties to survive. In Nepal, workers in the informal sector often lack formal contract letters of appointment and legal provision of protection. Their job is characterized as verbal contract-based, irregular employment, uncertain wage rates with low income, long and uncertain working hours with many other attributes (ILO, Social Protection for People in the Informal Economy of Nepal, 2004).

Increasingly, transition to formality has emerged as a priority policy agenda in developed and developing countries, and new policy initiatives and approaches are taken in different regions that facilitate this transition through multiple pathways. The term 'informal' has already called for us to turn it into 'formal' form. For this, the state should first take an initiation. State such as Nepal, where more than 70% of the population is in the informal sector, structural labor force growth cannot be anticipated without placing it on structured frontiers. That is why as Chen and Chen (2004), appropriate legal frameworks should be in place to cover all informal markets.

Arguments against the informal sector are that it is not organized and disrupts the market and labor in terms of work conditions and wages. It demands government support and initiatives to formalize the informal sector which can be done by providing skill training, awareness raising, and logistic support as needed by the people working in the informal sector (Sakamoto & Sung, 2018). A recent study made by Adhikari et al. (2021) shows that Nepalese entrepreneurs involved in informal sectors are ready to move towards the formal sector, but administrative problems are hindering them. Despite several talks, the informal sector-related study is always demanding and trying to create new avenues to integrate the sector into the formal sector. For this, proper assessment is required as mentioned by Adhikari et al. (2021) that helps to explore the entrepreneurs engaged in the informal business sector to move into the formal business sector. The informal part of the economy of Nepal is extremely large and rises relative to its tiny formal equivalent. In this light, this study aims to analyze the readiness of informal business sectors towards formal business sectors in Kathmandu Valley.

This study uses a binary logistic model to visualize the shift to the formal from the informal sector. The readiness Index considering legal and policy framework, socioeconomic status, employment status, structuralism status, and income status indicates business owners in informal sectors are ready to transfer to the formal sector. Also, the result from the logistic model indicates workers' readiness with their level of education, marital status, and work experience, but contradicts the income earning from the informal sector to transition towards the formal economy.

The further part of this paper is organized as; the second section includes methodology, followed by results, discussion, and finally conclusion in the last section.

## **2. Methods**

### ***2.1 Theoretical & Conceptual Debates***

Despite its negative perceptions of non-compliance, illegality, social exploitation, and marginalization, the informal sector contributes significantly to the economy of developing countries (Darbi et al., 2018) thus several debates are going on about the movement of informal sectors toward the formal sector. In that sense, five major hypotheses tend

to inform theories on the movement of enterprises from the informal to the formal business sector, particularly: role theory, dual labor market theory, organizational theory, institutional theory, and the transaction cost theory. Firstly, the role theory explains roles by suggesting that persons are representatives of social positions and have beliefs about their actions and alternative men. In recent fieldwork, a minimum of five views could also be discriminated against practical, symbolic interactions, structural, structural, and psychological role theory of features. The proliferation of position research represents logical principles and developed concepts, and the study is checked on four specific theories: consensus, alignment, contrasting positions, and role-taking. Second, the dual labor market hypothesis asserts the prevalence of a major low-wage (secondary) economy in which there are no educational returns and no non-economic incentives for employees to seek higher-paying (primary) jobs through work coaching. Workers are essentially divided into two groups, according to twin market economists: those with low incomes, hazardous working conditions, precarious labor, and few possibilities for advancement (secondary jobs), and those with relatively high wages, safe working conditions, and opportunities for advancement to higher paying jobs (main occupations) (Doeringer and Plore, 2020).

Thirdly, the organizational theory fulfills different personal goals, programs, and operational strategies. Farmers' markets as a social structure that connects formal and informal economies are organizationally complex. The results reflect the diverse nature of farmers' markets for full-time growers, part-time farmers, and non-farmers, craftsmen, and artisans. The farmer markets accomplished social and economic purposes for all vendors. Likewise, the fourth theory deals with the institutions and their patterns of work. The regulatory system consists of both institutional frameworks, including codified rules and laws, and informal bodies, encompassing more tacit financial, economic, and interpersonal norms, and theorizing that a corporation's business environment consists of both a structured corruption atmosphere (FCE) and an informal corruption environment (ICE) and the fifth is transaction cost theory that describes how companies develop as a reaction to three transaction dimensions: property uncertainty, variability, and tempo. Regulation should inevitably follow vertical integration in the basic framework, but how regulation (or enforcement) is achieved in partnerships between non-integrated companies is much less obvious (Heide & George, 1992). The concept of competitive games partly addresses these shortcomings (Steer & Sen, 2010). Thus, organizational theory better manages an economy's circumstances and fortunate scenario as it analyses companies to identify the best ways to solve problems and think about improving productivity and efficiency. Once a company has an opportunity to grow it begins to grow and changes the economic balance by catapulting it forward. This development leads not only to changes in the organization's infrastructure but also in competing organizations and culture as a whole.

Based on the theory discussed in the earlier part of this section still, some issues seem to remain unaddressed such as; whether long-term or political factors impact the decision of owners to formalize their business or not (Richbell, Watts, & Wardle, 2006). In other terms, motivations are the factors for formalization that may include, among other items, business owners' dreams and desire to grow their businesses. There are challenges to contend with if the owner/manager decides to formalize (USAID, 2005). Also, USAID (2005) depicted that challenges include regulatory, bureaucratic, and tax issues amongst others. It is further suggested that an informal business' ability to successfully resolve such obstacles would rely on some of the owner's and/or managers' context variables (Vuvor & Ackah, 2011). At the end of the day, a firm's managers with the potential ability to overcome obstacles will progress to a formal corporate structure (Scott, 2017). Companies whose shareholders or administrators lack the necessary qualities, on the other hand, may remain in informal sectors due to their inability to cope with the circumstances (OECD, 1996). Entrepreneurial focus, strategic orientation, educational level, and networking skills are some of the characteristics that help owners overcome problems. If all other factors are equal, 'master' companies will gain from formalization benefits, while, among other things, improved job creation, tax contributions, and donations to social responsibility will benefit society as a whole. If a company fails to graduate, it will continue to produce only a minimum level of income for its shareholders while avoiding taxes and other obligations (Dzansi & Tasssin-Njike, 2014).

The informal economy's characteristics are mostly negative by definition (Alderslade, Talmage, & Freeman, 2006). It has the potential to lock people and organizations in a cycle of poor productivity and poverty (Mehrotra & Biggeri, 2002). The cost of casual employment is high for businesses, people, and the environment, according to a comprehensive national strategy for pushing improvements in formality (Adams, Silva, & Razmara, 2013). From the perspective of disadvantaged labor, the disadvantages of working in the informal economy far outweigh the benefits (Williams, 2016). Because they are not recognized, registered, regulated, or protected under labor and social protection regulations, they are unable to enjoy, exercise, or defend their fundamental rights. They have little or no collective representation in front of employers or government bodies because they are not generally organized.

Employees and consumers in the informal economy are linked to the global economy in a variety of ways, which has an impact on the degree of insecurity among economic units and workers in the informal economy, as well as the functioning and capability of actors in the informal economy, and the transitional paths to formalization (Stuart, Samman, & Hunt, 2018). As a result, changes in domestic aggregate demand decreases in credit flow, drops in international commerce, and other aspects of the economic crisis have a significant impact on informal economic activity, as they do on others. Workers in the informal economy, on the other hand, have few options for dealing with the crisis-induced drop in household income, and they require immediate assistance and social protection benefits (ILO, 2014).

## 2.2 Empirical framework

For the empirical framework, a binary logistic model was used for data analysis. We use a binary logistic model to visualize the shift to the formal from the informal sector. The binary logistic model is based on a latent variable that continues. The study used the binary logistic model to investigate and determine the effect of the descriptive variables of education, age, sex, marital status, occupation, work experience, motivation, and working environment on the income of individuals and the impact of each variable on the probability of individuals (Mohammadi, Torabi, & Dogani, 2015).

The binary logistic model was chosen for empirical analysis of the study to discover the significant variables that determine the readiness of the informal business sector to transition to the formal business sector. The model is given as:

$$Y = \alpha + \beta_1 \text{income} + \beta_2 \text{age} + \beta_3 \text{sex} + \beta_4 \text{education\_level} + \beta_5 \text{marital\_status} + \beta_6 \text{Occupation} + \beta_7 \text{work\_experience} + \beta_8 \text{motivation} + \beta_9 \text{Xwork\_environment} + E$$

Where, Y= Probability of the outcomes,  $\beta_1 \dots \beta_9$  = Coefficient and E = error

The hypothesis used for the study below is:

**H<sub>01</sub>:** Age has no significant relationship with income.

**H<sub>02</sub>:** Sex has no significant relationship with income.

**H<sub>03</sub>:** Education level has no significant relationship with income.

**H<sub>04</sub>:** Marital status has no significant relationship with income.

**H<sub>05</sub>:** Occupation has no significant relationship with income.

**H<sub>06</sub>:** Work experience has no significant relationship with income.

**H<sub>07</sub>:** Motivation has no significant relationship with income.

**H<sub>08</sub>:** The working environment has no significant relationship with income.

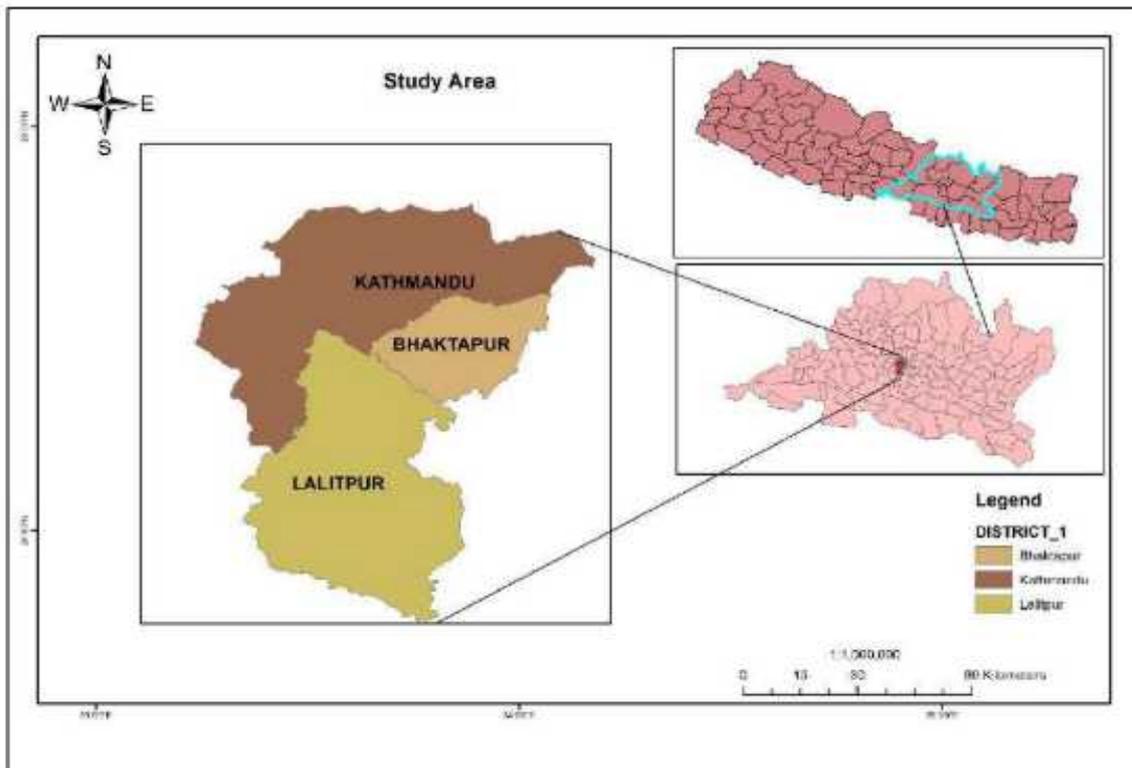
**Table 1 showcases various variables (dependent and independent) used in this study.**

**Table 1: Variables and Expected Sign of Variables**

Variables	Description	Value	Expected sign
1. Income	Income from the informal sector	High = 1, Moderate = 2, Low = 3	±
2. Age	Age of the respondent	Continuous	±
3. Sex	Sex of the respondent	Female = 0 Male = 1	+
4. Education Level	The education level of the respondent	Primary = 0, Secondary=1, Higher Secondary = 1, Bachelors = 1, Masters and above = 1	+
5. Marital status	Marital status of the respondent	Married = 1 Others= 0	±
6. Occupation	Occupation of the respondent	Agriculture = 0, Business = 1, Service = 1, Industrial worker = 1, Others = 1	+
7. Work experience	Experience of the respondents	In years	+
8. Motivation	Respondents motivation	Yes=1 No=0	+
9. Working environment	The working environment of respondents	Yes=1 No=0	+

### 2.3 Study Area and Population

Kathmandu Valley is considered an area of study for this research. It is the country's capital and is located in the country's central region. It lies at an average elevation of roughly 1,300 meters (4,265 feet) above sea level and is found at latitudes 27° 32' 13" and 27° 49' 10" north and longitudes 85° 11' 31" and 85° 31' 38" east (Paudel et al., 2020). For many informal micro-entrepreneurs, Kathmandu has become a land of opportunity. There are three main informal sector areas inside the Valley which are Bhaktapur, Lalitpur, and Kathmandu itself. According to (an NEST) representative, street vendors alone registered in the Kathmandu Valley 30,000 (about 3 percent of the economically active population) Nepal's Central Bureau of Statistics (CBS) regular data collection system does not cover the informal sector that consists of households with at least some market output. The informal sector details were revised with the data collected through the Nepal Labor Force Survey (2008). The NLFS (2008) reports that the informal sector hires above 11 million people aged 15 years and older, with a share of around 96.2 percent of the total workforce. However, this also indicates that more than 76 percent of this overall informally employing community is active in the agricultural sector and that about 24 percent are working in the informal non-agricultural sector. Based on the estimation of the value added per worker and the total number of informally employed people, the informal sector's share of total GDP is calculated at around 51.47 percent. The importance of the informal sector to Nepal's overall economy is therefore highly significant (Suwal & Pant, 2009).



**Figure 1: Map of Kathmandu Valley**

The purpose of this study is to examine entrepreneurs' perspectives on informal business with a high degree of informal practice experience and expertise, and the target demographic is informal business entrepreneurs in the Kathmandu Valley. This study uses stratified random sampling was adopted. Due to the large variation within the population of interest, a stratified random sampling strategy was adopted in this study. According to Wilson (2014), stratified random sampling is frequently utilized when there is a lot of variance within a population and each stratum needs to be effectively represented. As a result, using this sample strategy to verify that each stratum or category of interest was adequately represented seemed appropriate. The demographic under consideration in this study is Kathmandu Valley's informal sector entrepreneurs.

The study covered all categories of the Informal sector, including self-employment, casual labor, and unregulated employees, according to the working definition of the Informal sector stated in section 2. As a result, the population boundary is defined as all informal sector entrepreneurs in Kathmandu Valley who have at least one employee and are the owner/manager of a business involved in manufacturing/processing, services, or retail. Nonetheless, due to the informality of such a sector in Kathmandu Valley and the lack of credible records/databases from which to draw information, determining the total population estimate proved difficult.

## 2.4 Sources and Nature of Data

For the analysis of data, both primary and secondary sources are used. The characteristics of the informal business sector, as well as its typologies, have been properly structured according to the type and goal of the study, as has the desired demographic and sample design. The survey questionnaire was created after a thorough assessment of the literature and well-known publications on the topic. To determine the survey's relevance, several experts, including the study supervisor, were requested to assess the quality and importance of the suggested questionnaire. Secondary data was also used to confirm the study's findings. National Planning Commission (NPC) report, Ministry of Local Development (MoLD), population census, Nepal Labor Force Survey (NLFS), International Labor Organization (ILO) standards based on the United Nations 1993 System of National Accounts (SNA), Central Bureau of Statistics (CBS): Survey of Small Manufacturing Establishments 1999/2000), Federation of Nepalese Chamber of Commerce and Industries (FNCCI).

Considering the nature of the study, we depended primarily on the primary data, since there are no such detailed data available for the informal sector in Nepal. Since the activities of the informal sector are found in rural and urban settings, we included both of these in our study. Throughout Nepal, the informal sector is split into two main parts: the urban informal sector, and the rural informal sector. Non-agricultural business activities in Nepal's rural area are conventional and minimal, but a greater proportion of the population lives in this field, while non-agricultural small business activities in the urban informal sector are diverse and new in comparison with rural activities. We want to quantify the results and therefore we would use appropriate techniques for this purpose.

The study is based largely on primary data that was obtained by using a structured interview schedule. The sample size for the study was calculated using the formula:  $n = z^2 pq / l^2$  (Adhikari et al., 2021). Where  $n_0$  represents the sample size required for the investigation,  $z$  represents the standard tabular value for a 5% level of significance ( $z$ ) = 1.96, and  $p$  represents the prevalence or proportion of an event 50 percent = 0.50. (More et al., 2012), As a result,  $P=0.5$  and  $q=1-p, = 0.5$ , Allowable error to be accepted ( $e$ ) = 5%. So, total population  $n_0 = z^2 pq / l^2 = (1.96)^2 0.50.5 / (0.05)^2 = 384.16$ , Non-response error 5%, i.e.  $384.16 * 5 / 100 = 19.208$ . As a result, the sample size for this investigation was  $(384.16 + 19.208) = 403.368 (403)$ .

Key informant interview was facilitated following the preparation of the survey questionnaire based on literature reviews to determine whether the current research has covered informal sector challenges in Kathmandu Valley. The KII was done with an expert in the related field and the methodology was designed based on their recommendations. For data collection from entrepreneurs in the relevant businesses, a detailed questionnaire has been created and planned. Each interview begins with a summary of the study and the objectives of the research effort. To address the advanced problems of empirical research and the hypotheses controlling this study, the data is tagged, cleansed, and exposed to a series of statistical techniques. In this regard, the statistical analysis performed in this study was categorized into: descriptive statistics and inferential statistics based on multiple latent structures using binary logit. Data analysis is carried out using STATA software, and data entry and test tabulation are carried out using Microsoft Excel. Below is information on how each of the operations is carried out.

## 3. Results

### 3.1 Socio-Demographic Analysis

In this study, as suggested by Bergman & Strulovici (1970) age, sex, marital status, education, occupation, income, and working experience is considered under socio-demographic analysis. Among 400 respondents, surveyed from various locations of Kathmandu Valley, most of them are male (79%) and 21% are female. One of the most important characteristics of workers in the informal economy is their age. This study observed that the maximum number (41%) of respondents involved in the informal sector were from the age group 20-29 years. Similarly, another age group involved in the informal sector is 30-39 years (27%) and 40-49 years (14%). It indicates that in Nepal, people in the active labor force are involved massively in the informal sector. It is not a good message because, in the long run, it may hamper the future of young youth. Hence, causes unemployment and poverty. It is observed that a total of 70% of the respondents are married and the rest 30% are unmarried. The study suggests that the involvement of married ones in informal business is not a good message because if their business collapses, or closes, due to changes in government policy, municipal rules, expansion of roads and removal of informal business, other pressure, etc. then they will be unable to earn which means their family, child education, health condition and living standard will get affected (David, Ulrich, Zelezeck, & Majoe, 2012).

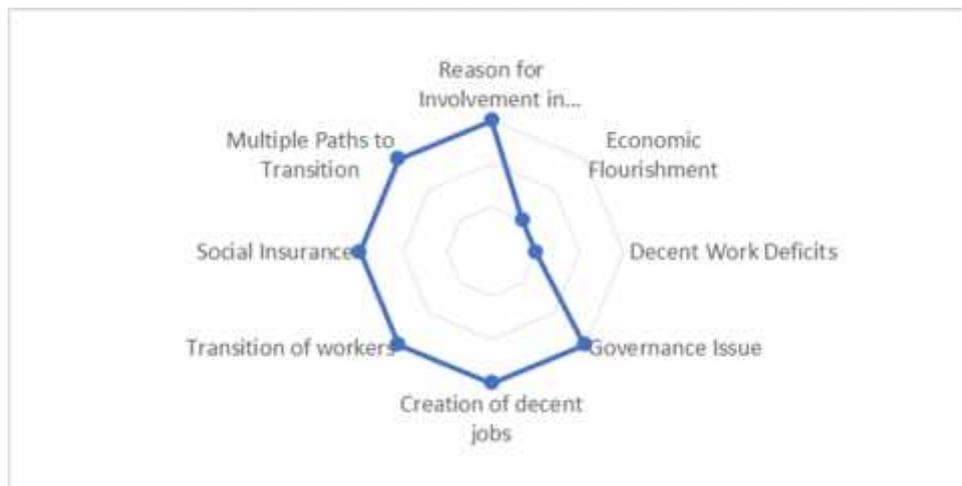
37.25% of respondents involved in this sector hold education up to the secondary level. However, according to Medina & Suthers (2008), secondary-level education is not enough for mature thinking and strong business activities because the higher the education level, the higher be thinking capacity and business development and promotion. Another interesting finding of the study is that people who received a higher level of education have not been involved in the informal sector. It indicates people with a high level of education prefer the informal sector. Thus, to control or manage the informal sector, the promotion of education is vital (Skills, 2012). Street sellers and home-based workers (such as dependent subcontractors, independent own account producers, and unpaid workers in family businesses) are frequent types of jobs in the informal sector. From this study, it was found that the majority of respondents (225) were found involved in business and a minority of respondents were found engaged in agriculture and industrial work.

Further income from informal sectors was found to be vulnerable as 142 respondents earned 20,000- 29,000 NRs. which is not sufficient enough for them. That means just to survive they are being involved in this sector. More than 35.5% of individuals are involved in this sector in comparison to the National Standard which means below 30000 is just money to survive a family. Also, it was found that only a minimum i.e. 9 respondents were found to be involved themselves in the informal sector for the long term. Those who work for a long time automatically leave the informal sector. They seem involved in the informal sector just for their livelihood in the short run. In the long run, they are not very interested in such a sector because of its uncertainty (Weiss, Klein, & Grauenhorst, 2014).

### 3.2 Status of Informal Sector in Kathmandu Valley

The reason for the involvement of people is determined by the percentage of people being familiar with the informal sector and the source from which they have come to know about it. This section is in the form of a Yes/ No question where people have stated their opinion and 100% of respondents stated that persons being familiar with informal sectors also involves them in the informal sector. In that sense, figure 2 illustrates almost 100% of respondents i.e. 399 have said that if barriers to transition to the formal economy could be eliminated then entrepreneurial potential and creativity could flourish. Furthermore, all 399 respondents believed that decent work shortages are particularly severe in the informal economy.

Almost every respondent has agreed on the statement decent jobs should be promoted in a formal economy by employers. Respondents also stated that employers should encourage the formal economy to create excellent jobs. The vast majority of respondents agree that the growth of decent jobs in the formal economy should be encouraged, with only one respondent disagreeing as a small response.

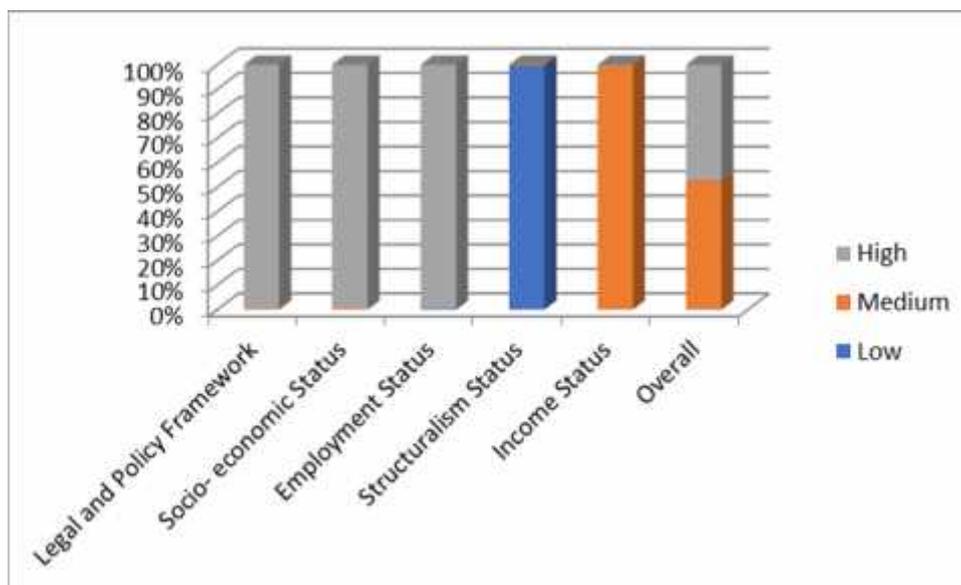


**Figure 2: Status of Informal Sector in Kathmandu Valley**

As seen in the figure, most of the respondents agreed that it is critical to facilitate worker and economic unit migrations from the informal to the formal economy. This assertion is supported by none of the responders. Similarly, only one respondent is unsure whether or not it is necessary to support worker and economic unit transitions from the informal to the formal economy. As a result, for the vast majority of workers, Social Security will be their only source of guaranteed retirement income that is not susceptible to investment risk or market fluctuations. The majority of respondents (about 100 percent) agreed that there are numerous paths to transition from the informal to the formal sector depending on the individual country's environment and preference, while only one person said no to the statement.

### 3.3 Readiness Index

**How Question Asked** This section includes a readiness index that depicts the informal sector's preparation for the formal sector. The readiness index was developed considering the following factors into consideration: legal and policy framework, Socioeconomic status, employment status, structuralism status, and Income status.



**Figure 3: Readiness Index**

Finally, the overall readiness index was also developed. From the perspective of legal and policy framework, socioeconomic status, and employment status readiness index was found to be high whereas, readiness for structuralism status was found to be low and income status was found to be medium. The overall readiness level of the informal sector was also determined and examined using the readiness index in this study. Among the total respondents, 0.25 percent of respondents believe there is low readiness in the informal sector, whereas 54 percent believe that there is moderate readiness in the informal sector, and finally 45.75 percent believe that there is high readiness in the informal sector.

### 3.4 Econometric Analysis

The binary model estimates the determinants of workers' readiness to transition towards a formal economy. Before final estimation, the available data were cross-checked using pre and post-estimation tests. The Pre-test consists of specification error to find out the mode appropriateness, goodness of fit to identify normal distribution of sample data, and other diagnostic testing including count  $R^2$ ; and found that all the variables and samples provide meaningful results. Further, we perform a post-estimation test – Multicollinearity and Heteroscedasticity. The test result of Multicollinearity (Mean VIF = 1.52) and Heteroscedasticity (Prob>Chi<sup>2</sup> = 0.0018), indicates that the dataset has only the issue of Heteroscedasticity. As a result, in our final regression, we estimate a robust standard error test to solve the problem of Heteroscedasticity in our dataset. The final results are presented in Table 3.

#### **Final Logistic Regression Estimation:**

The regression result (Table 3) indicates that informal workers' level of education, marital status, and work experience are positively associated with their readiness to transition toward a formal economy. The positive sign of the marginal effect of these three variables indicates that the probability of shifting workers engaged in the informal sector towards the formal economy increases with the upgrade of their family's education level, marital status of the workers, and long-time work experience in the informal sector. More in detail, if workers involved in the informal economy have a higher level of education their readiness towards the formal economy is three times higher compared to those having less education. Similarly, the readiness of married workers is 2.75 higher compared to unmarried ones, and long-year work experience with 1.06 times higher compared to less work experience. On the other hand, income-earning status is found to be negatively associated with the transition towards a formal economy, meaning that informal workers have a lower probability of transition towards a formal economy if their income level is sufficiently high from the involvement in informal sector activities.

Table 3: Final Regression

VARIABLES	(1) Logit Coeff	(2) Odds ratio	(3) Marginal effects
Income	-5.59e-05*** (1.21e-05)	1.000*** (1.21e-05)	-1.13e-05*** (2.23e-06)
Age	-0.0208 (0.0178)	0.979 (0.0174)	-0.00421 (0.00360)
Sex	-0.124 (0.291)	0.884 (0.257)	-0.0251 (0.0591)
Education Level	1.075*** (0.370)	2.929*** (1.085)	0.218*** (0.0723)
Marital Status	1.015*** (0.319)	2.758*** (0.880)	0.206*** (0.0618)
Work Experience	0.0623** (0.0246)	1.064** (0.0262)	0.0126*** (0.00487)
Motivation	-0.248 (0.280)	0.781 (0.219)	-0.0502 (0.0566)
Working Environment	0.00845 (0.297)	1.008 (0.300)	0.00171 (0.0602)
Constant	-0.375 (0.743)	0.687 (0.511)	
Observations	399	399	399

*Robust standard errors in parentheses*

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

#### 4. Discussion and Conclusion

In Nepal, the informal economy is largely outside rules and laws. The 2048 Labor Act seems to have little meaning for workers in the informal economy, other than as a conceptual structure. Data and figures related to the protection of workers' rights in the informal sector are very case-specific and segregated, if available at all. There seems to be no holistic study available. On the government side, little has been done to resolve the concerns of informal workers, which is in line with the absence of legislation addressing the informal economy and contrasts with the formal economy. Considering the large number of informally working Nepalese employees, this leaves most staff vulnerable.

A deep-rooted problem is the informal economy, especially undeclared labor. Kathmandu Valley's recent halt in the transition from the informal to the formal sector demonstrates the informal economy's great resilience (Parajuli, 2015). Therefore, policies aimed at the transition to formality and the reduction of undeclared work require long-term engagement and ongoing efforts by all stakeholders. Above all, the political will to change the current situation should be solid. A national plan for ensuring comprehensive social security should be established to effectively tackle the informal economy (ILO, 2019). Two goals should be met by such a plan. First, the national plan should strive to gradually expand social security coverage to the informal economy's currently uncovered population (Angelini & Hirose, 2004). Second, by strengthening the compliance and contribution selection of the social security systems, the national strategy should resolve the problem of undeclared jobs. Taking into account current coverage gaps, target group requirements, gender concerns, budget limitations, and implementation capacities, the strategy should formulate and prioritize its course of action and outline a short- and long-term implementation plan (Government of Nepal, 2018). From the overall study, we found that there is a need to examine not only the informal business sector but also it is necessary to have a deeper knowledge of the impact of the informal sector and its transition to formality (ILO, 2009). It is probably not too far from the mark to suggest that most micro-enterprise systems currently represent those people who have already taken measures to formalize their enterprises (or are willing to consider them).

Based on the conclusion derived from the study following recommendations are put forward this study: Launch a research agenda and action plan to examine and introduce policies that help small informal companies boost their efficiency while promoting modernization by large informal actors, Start a kind of realistic public-private conversation that can expose aspects of a public-private bargain that boosts both public efficiency and public finance private donations. Such a dialogue must involve players from the informal economy in the face of this shared need for change and not be limited to voters based on maintaining the status quo. Similarly concerned authorities should continue to establish staff training and business service systems to improve the ability of disadvantaged stakeholders and improve the efficiency of the smallest businesses along the spectrum (as mentioned above), but not to formalize

or tax them. Implement the requisite incentives and reform packages to promote the progressive formalization of large or sophisticated informal enterprises.

Examine trade policies for elements that encourage illicit trade and seek changes in governance, such as cross-checks between customs and tax authorities, which can make trading networks more open and better integrate emerging countries with the global economy. At the same time, attention should be given to the effect of informal trade on the income of poor border regions, and alternative sources of income should be considered. To promote greater regional policy cooperation, regional integration efforts should be mobilized to avoid the kinds of distortions that set the stage for smuggling between member countries. Poverty eradication strategies targeting women-headed households should be developed at the government and municipal levels. The social policy system supporting the integration of social and economic development should guide such strategies. The government and the municipality should make the registration of enterprises in the informal economy simpler. To encourage individuals to register their informal enterprises, Citizens should be informed and educated about the registration process, and incentives should be provided to encourage them to register. In alliances, states, local municipalities, and non-governmental organizations can collaborate to provide skills creation and training in business management and entrepreneurship skills, as well as other skills to improve the human resources of households.

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# *Determinants of Foreign Migration Destinations Selection in Nepali Rural Households*

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## **Abstract**

This paper examines the factors influencing rural Nepalese households' preferences for selecting foreign migration destinations. The study utilizes panel data from the World Bank's Nepal Household Risk and Vulnerability (NHRV) Survey from 2016 to 2018. We estimate a multinomial logistic regression to assess how household assets affect the choice of migration destinations, which include India, OECD countries, the Gulf region, and Asia. Our findings indicate that household asset accumulation is a crucial determinant of migration destination choice. Specifically, households with larger asset endowments are more likely to migrate to OECD countries, followed by the Gulf region, Asia, and India. The households with higher assets are more likely to migrate to the destinations offering possible higher wages, all else equal.

**Keywords:** Foreign migration, Destination choices, Remittance, Rural Nepal

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## **1. Introduction**

Over the years, there has been a notable rise in global economic migration. In 2000, international migration was at 173 million, representing 2.8 per cent of the global population; in two decades, it rose to 281 million by 2020, equivalent to 3.6 per cent. Among these migrants, males accounted for 52% (IOM, 2022a). Furthermore, OECD and Gulf countries are the major destinations for international migrants as shown by IOM (2022b), where OECD countries cover about 40 % of total global economic migration, followed by lower-middle-income countries and the Gulf.

With such a massive departure of international migration towards high-income countries, global remittance has increased, reaching 831 billion USD in 2022, recording a 4.81% year-to-year change. The remittance, valued at 647 billion USD, generally flows to low- and middle-income countries. For most countries, excluding China, the international flow of labour and remittance has played a deciding role in their economic development. It is also one of the significant sources of foreign exchange in developing economies. In the global context, the South Asian region remains a considerable remittance recipient, receiving 21.17% of the global remittance and growing by 10.79% year on year (World Bank, 2022).

Nepal's remittance to GDP ratio is the world's 9<sup>th</sup> largest (World Bank, 2022). The ratio was, on average, at 23 per cent in the 2010s (NRB/GoN, 2022). In 2022, migrant remittances covered 56.6 per cent of the trade deficit, integral to Nepal's Balance of Payment (NRB/GoN, 2022). Lions' share of remittance comes from Nepalese labour migrants who go to Gulf and Oceanic countries: Qatar, UAE, Saudi Arabia, Kuwait, and Malaysia. Out of total international labour migration, 88 per cent opt for these countries. The Nepali international labour migration is predominantly male (90%), inducing a sharp increase in female-headed households back home (MFES/GoN, 2022).

The facts and figures indicate that Nepali households end up in specific destinations. When destination selection is less diverse, it might create economic vulnerability. Possible economic slowdowns or social unrest in some countries, like the Arab spring in the GCC or ethnic issues in Malaysia, might curtail remittance receipt, inducing economic shocks in Nepal. Similarly, in the case of informal migration, India remains one of the accessible labour

destinations for unskilled Nepali workers- it was a reality during the 1990s, and it sustains until 2010s (Dixit, 1997) due to the open border, language, culture, low cost of migration and other proximities. Economic slowdown, social unrest, and COVID-19 might pose remittance-induced risks.

Migration decisions and destination selection of individuals and households are determined by several factors such as migration cost (Angelucci, 2015), migration network (Boyd, 1989; Munshi, 2003), and household shocks (Shrestha, 2017a). Households with less endowment are more likely to migrate outside the country (Abramitzky et al., 2013) as it provides financing options. The migration network reduces the cost of information for aspirant migrants. Migration networks provide information about the destination, such as potential risks and returns, plus comfort to potential migrants regarding physical safety and money, which induces international migration (Tilly, 1991).

International migration also happens due to natural calamities and conflicts. Shrestha (2017b) finds conflict to be one of the push factors of Nepali international migration. Such shocks can deplete the existing household's wealth stocks to zero. Households with no or little wealth stock face smaller opportunity costs of moving, especially if they have suffered physical and emotional trauma during the shock. Further, the household may not be able to maintain the prior income level, and relocation may be one of the ways to access better economic opportunities. At the same time, the household may not be able to finance the migration. Thus, shocks affect both directions: they make households more mobile and reduce the resources available for moving. As a result, victims of the shocks might choose labour destinations that are cheaper and with fewer legal barriers, Indian cities for Nepalese rural households. In this context, what explains the selection of international migration destinations is an important policy issue.

This paper estimates the determinants of Nepali rural households' destination preferences using NHRVS panel data. Following this introductory section, we have a brief literature review on foreign migration decisions. Section three describes the estimation strategy and the nature of the data. Section four explains the findings and discusses destination selection. The last section concludes with references and an appendix.

## 2. Foreign Migration Decision

The neoclassical theory of labour migration has long been centred on the individual's choice of labour movement. Within this framework, economists identify pull and push factors that influence migration. According to the Pull-Push theory of migration (one of the fundamental theories on labour migration under the neoclassical school) proposed by Lee (1966), crucial elements influencing the migration decisions of individuals include the costs and benefits associated with migration, as well as the distance to the intended destination. Furthermore, the theory emphasizes structural changes as significant determinants of labour migration (Abreu, 2012). In addition, Harris and Todaro (1970) analyzed the earning differential between host and destination as the prime determinants of labour migration.

An extension of the neoclassical theory is the New Economics of Labor Migration (NELM), which posits that labour migration is a household decision to optimize the risk and returns associated with migration. In this view, households strategically send labour migrants to maximize their wealth and utility (Taylor, 1999). The focus shifts from the individual to the collective decision-making within households.

Social networks play a critical role in assisting migrants in finding job and housing searches, exchanging goods and services, and offering psychological support and access to up-to-date social and economic information (Vertovec, 2002). Additionally, these networks often guide migrants, helping them navigate specific locations and professions. As a result, local labour markets can become interconnected through the interpersonal and organizational connections migrants establish.

The empirical studies identified the pull and push factors of labour migration, which include the cost of migration, household wealth, migration network, household shocks, and economic indicators of destination. Abramitzky et al. (2013) studied how parental wealth influences the choice to migrate domestically or internationally during the age of mass migration (1850-1913) when European migrants were not restricted by the US government. The result shows that men with assets are less likely to move outside their birthplace, and if there are no restrictions on migration, poor individuals are more likely to migrate.

The household shocks(wealth shock) also determine the migration decision of the households Bazzi (2017), Marchiori et al. (2012) and Shrestha (2017b) and the financial constraint is one of the prime obstacles to potential

migration that migrants cannot afford the migration cost Angelucci (2015). The social network is a crucial determinant of international migration and destination selection of potential migration (Docquier et al., 2014). Besides this, Becker et al. (2005) and Docquier et al. (2014) traced the economic indicators of destination countries that played a significant role in the migration choice of potential migrants.

### 3. Estimation Strategy and Data

Since migration has a cost, a household choosing to send its members away must make a trade-off. Suppose the total wealth of the household is  $w$ . Then the ability to invest for migration, say  $F(\cdot)$ , is the increasing function of  $w$ . The current wage  $l_0$  of the household member planning to migrate is the opportunity cost faced by the household. The wage  $l_0$  may not be the whole story since family members may engage in other non-market valued work for the household so that the real cost  $l'_0$  will be greater than  $l_0$ . Even when the migrant is unemployed in the labour force, the services provided to the household welfare ensure that  $l'_0 > l_0 > 0$ . Then, the wage faced by the migrant in the new labour market  $l_1$  at the destination must sufficiently cover the real cost  $l'_0$  along with the opportunity cost of investing  $F(w)$ . For a period of the horizon, say of  $t$  length with a market discount rate of  $r$  for that period, we get:

$$t.l_1 \geq t.l'_0 + r.f(w) \dots\dots\dots(1)$$

$$t.(l_1 - l'_0) \geq r.F(w) \dots\dots\dots(2)$$

i.e., returns from migration must be larger than opportunity cost of migration. The probability to migrate  $P(\cdot)$  to each destination becomes:

$$P(t.(l_1 - l'_0) \geq r.F(w)) \dots\dots\dots(3)$$

Consider the case of choosing between  $n$  migration destinations. By construction sum of probabilities of selecting each destination and probability of no migration must equal to one, i.e.,

$$\sum_{i=1}^n P(l_i, l'_0, r, F(w)) + P(\text{no migration}) = 1 \dots\dots\dots(4)$$

The destination selection is modelled using a multinomial logistic regression. If the decision is made by the individual to select country  $Y_i = k$  out of  $K$  possible choices (i.e., India, Asia, Gulf, and OECD), the estimation of destination selection can be empirically performed using the following regression setup,

$$Pr(Y = k) = \frac{e^{\theta_{ki}}}{1 + \sum_{j=1}^{k-1} e^{\theta_{ji}}}$$

Where,

$$\theta_{j,i} = \beta_0 + \beta_h H + \beta_m M + \epsilon \dots\dots\dots(5)$$

$H$  is a set of households' characteristics (i.e. wealth, year of schooling of the head, etc.) that determine the ability of the household to invest in migration,  $M$  migration network.  $\theta_{j,i}$  is destination  $j$  selected by  $i^{\text{th}}$  individual. This study applied the multinomial logistic model to estimate the model's coefficient. The coefficients are reported in terms of odd ratios, which can be attributed to the relative risk ratio considering India as the reference category.

We use nationally representative survey data called the Nepal Household Risk and Vulnerability (NHRV) Survey. It interviewed 6000 households from rural and peri-urban Nepal for year 2016-2018, details are in World Bank (2016). The NHRV uses the 2011 census as the sampling frame for the survey, excluding all urban areas. The country was divided into 11 analytical regions based on geographical classifications. Sampling was restricted to 50

out of 75 districts. Primary Sampling Units (PSUs) were chosen with probability proportional to size from a list of wards in the selected districts. A total of 400 PSUs were identified for sampling. Within each PSU, 15 households were randomly selected, resulting in a sample of 6,000 households.

**Table 1: Descriptive summary of the variables used**

Variables	2016-2017	2017-2018	
Total assets (in 000s)	1127.87 (1749.92)	1165.26 (1593.10)	
Land size (ha)	0.40 (0.42)	0.4 (0.71)	
Household migration network	0.51 (0.81)	0.71 (1.02)	
Household size of Migrants	5.82 (2.33)	4.93 (2.00)	
Number of children aged 12	1.41 (1.26)	1.08 (1.17)	
Years of Schooling of HH head	4.17 (4.42)	3.7 (4.31)	
Market time (in hours)	1.01 (1.23)	1.14 (2.04)	
Community migration trend (%)	83.3	72.2	
Male Migrants (%)	90.1	88.7	
Literate migrants (%)	96.1	90.8	
Caste (in %)			
	Khas	35.7	35.4
	Adhibasi Janajati	30.4	32.1
	Madhesi	14.7	12.0
	Dalit	14.7	16.7
	Others	4.5	3.8
Destination (%)			
	India	38.8	39.4
	Asia	16.5	15.1
	Gulf	39.7	37.3
	OECD	5.0	8.3
Sample size	516	424	

*Note: Reported amounts are inflation-adjusted; SE are in parenthesis*

We combined the HRVS household roster with other sections' information related to housing, other durable assets, household characteristics, and community. The details of the variables are in Table 1. We present the summary of the variables in terms of change in 2016-2017 and change in 2017-2018, which also helps to capture the changes over time.

## 4. Results and discussion

### 4.1 Descriptive statistics

The panel data under consideration covers 2016, 2017, and 2018. The sample encompasses 940 individuals who migrated between 2016-2017 and 2017-2018. The study utilizes the household characteristics and other information from 2016 and 2017, which is more suitable for identifying the destination selection of newly migrant individuals during these two economic years. Table 1 presents the household characteristics, assets of migrant individuals, destination countries' income, and other pertinent information.

The descriptive statistics in Table 1 reveal that the average household assets increased in Nepali rural households over the years. In 2016, the value of assets was NRS 1,135.77 thousand, increasing to NRS 1,265.58 thousand in 2017. Over these two years, 72% of communities experienced historical migration. Among international migrants, the Khas ethnicity is the most prevalent, followed by the Adhibasi Janajati, Madhesi, and Dalit groups. Males constitute the majority of migrants, with the most significant number migrating to India, followed by the Gulf countries, other parts of Asia, and OECD nations.

Additionally, household characteristics, including factors such as home ownership and the gender of the household head, have changed over the years. For instance, in 2016, 19% of households were headed by males, but this figure rose to 24% by 2018. Meanwhile, household heads' average years of schooling remain relatively low at four years,

reflecting the study's focus on rural households in Nepal. Among the ethnic groups in Nepalese households, the Khas are the predominant group, comprising one-third of all households, followed by the Janajati.

#### 4.2 Determinants of destination selection

The destination records that Nepali rural migrants chose between 2016 and 2018 are our independent variable. We have reorganized the destination countries into four groups: OECD, Gulf countries, Other Asian countries without India, and India alone. In terms of per capita income and potential earnings, assuming that foreign migrants find employment, the categories differ somewhat. Our regrouping, with Indian serving as a reference category, is on a nominal scale. Multinomial logit regression estimate is the ideal method for us because we aim to associate this nominally categorical destination variable with other covariates; thus, we use it.

Table 2 summarizes the relationship between the outcome variable (destinations) and their determinants. The coefficients are in relative risk ratios, which give the relative probability of selecting that particular destination relative to India. First, the log odds are estimated, and the relative risk ratios are obtained by exponentiating the multinomial logit coefficients. The estimated log odds are in Appendix Table 4.

According to Table 2's coefficients, Nepali rural households heavily consider household assets when deciding where to migrate abroad. Wealthier families are more likely to migrate to more developed nations than India. The OECD is the top choice among the options available to wealthy households; other Asian nations and the Gulf countries are last compared to India. Naturally, they would have the necessary abilities, know more about the location, or be able to pay the expense.

The findings reveal that economically disadvantaged households are inclined to choose India as their destination compared to other options. Furthermore, land size emerges as another significant factor influencing migration destination selection. The coefficient associated with land size indicates that migrants with larger land holdings are more likely to choose Asian and OECD destinations over India.

**Table 2: Destination choice categories (Multinomial logit odd ratios)**

Independent Variables ( )	Asia (1)	Gulf (2)	OECD (3)
HH assets	1.416*** (0.115)	1.648*** (0.089)	3.023*** (0.182)
Land size <i>ha</i>	1.835*** (0.207)	1.127 (0.196)	1.525* (0.246)
Household migration network	0.606*** (0.141)	0.734*** (0.095)	1.445*** (0.136)
Community migration status	0.367*** (0.234)	0.638** (0.199)	0.386*** (0.345)
Sex of HH head	1.113 (0.289)	0.679* (0.202)	0.713 (0.413)
Year of schooling of head	0.992 (0.025)	1.041** (0.019)	1.140*** (0.034)
Time to daily market	0.841* (0.094)	0.98 (0.046)	0.949 (0.153)
Akaike Inf. Crit.	2108.052	2108.052	2108.052

Note: \*  $p < 0.1$ ;  $p < 0.05$ ;  $p < 0.01$ ; and SE in parenthesis

The migration network is another important factor when choosing a destination. There is statistical significance in the coefficients of the home migration network. Families with a migratory trend outside of India are comparatively less likely to choose destinations in Asia and the Gulf than in India. This suggests that despite choosing OECD destinations is more likely, households with migratory trends are more likely to prefer India over Asia. According to the OECD coefficient, households with migration patterns are more likely to choose OECD destinations than India by 1.445 times. This implies that while rural households with migration patterns are more likely to choose OECD locations, they still prefer to migrate to India over Asia and the Gulf.

Furthermore, as Table 2 illustrates, the migration history within the community substantially impacts rural households' decisions about migration destinations. Additionally, a key consideration in choosing a migration destination is the educational attainment of the head of the household. As the table shows, the likelihood of selecting OECD locations over India rises 1.40 times with an increase in the number of years of education for the head of the household.

**Table 3: Hausman tests of IIA assumption**

Destination	$\chi^2$	df	P > $\chi^2$
India (Reference group)	3.818	16	0.999
Asia other than India	8.815	16	0.921
Gulf countries	23.338	16	0.105
OECD countries	1.650	15	1.000

*H<sub>0</sub> Odds (Outcome (J) vs Outcome (K) are independent of other alternatives)*

Table 3 examines the robustness of the conclusion using the Hausman tests of independence of Irrelevant Alternatives (IIA). The test assesses the outcome variable's independence. For every result category in the table, the P value is greater than  $\chi^2$ . This indicates that the test does not reject the null hypotheses. It suggests that the model's outcome variables are independent. Our estimated multinomial logit model is the statistical best fit.

## 5. Discussion

Household assets are a significant factor influencing rural families' migration destination choices, according to the results of the destination selection model (Table 2). An interesting pattern that the coefficients reveal is that the likelihood of choosing Asian, Gulf, and OECD locations increases significantly as household assets rise. Wealthier households may mitigate financial constraints by having more substantial financing choices to cover their migration costs. This finding, which explains assets as a threshold of migration affordability, is compatible with the theoretical framework of Shrestha (2017b) and the conclusions reached by Angelucci (2015).

Some counterarguments claim that resourcefulness creates opportunities for international migrants. In this regard, the conclusion derived by Abramitzky et al. (2013) differs in that individuals with more considerable wealth or endowments have a lower propensity to relocate outside of Norway. Therefore, the choice of destination and migration strategy may need to be case-specific in light of the sociopolitical features of developed or developing nations and the urban/rural setup, which is outside the purview of this study.

A noteworthy aspect of this paper's findings is the correlation between migrator networks and destination preference. The findings clearly show that those residing in areas with a history of international migration are likelier to choose OECD countries over India. This realization emphasizes how important migratory networks are in helping rural residents overcome their informational limitations. These networks actively encourage disseminating important information and destination (related data, enabling people to make well-informed selections. Additionally, as Munshi (2003) and Vertovec (2002) explained, these migration networks expand their significance within rural communities by lending financial support to households. Furthermore, our results are consistent with Tilly's theoretical model (1991).

Furthermore, the findings indicate that households with more years of education are more likely to choose the OECD and Gulf as their destination than India or Asia. It implies that heads of educated families move their members to the Gulf and OECD because rural areas with excellent education rates possess more knowledge about their destination than those with lower rates.

## 6. Conclusion

Examining Nepali rural migration trends between 2016 and 2018 offers critical new perspectives on the variables affecting migration decisions. Using multinomial logit regression, we categorized the destinations into four groups: OECD, Gulf countries, Other Asian countries (except India), and India. This allowed us to identify several significant predictors.

The importance of household assets cannot be overstated. Wealthier households are more likely to emigrate to industrialized countries, such as the OECD, primarily because of the higher employability prospects and prospective incomes. On the other hand, because of its closeness and lower migration costs, India is preferred by those with lower incomes. Another essential factor is land size; households with more considerable land holdings are more

likely to select locations in Asia and the OECD over India, indicating that economic resources influence the choice of destination.

Decisions are also influenced by migration networks within the home community. Even though families with current migration trends are more likely to relocate to OECD nations, they still prefer India over other Asian or Gulf countries. The household head's level of education also affects migration; the likelihood of selecting OECD countries increases with higher levels of education. In summary, asset endowment, migration networks, and educational attainment influence movement decisions, providing crucial information for policymakers and those developing assistance programs for Nepali migrants living in rural areas.

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## Appendix

**Table 4: Multinomial logit coefficient for “Destination selection categories”**

Independent Variables ( )	Asia (1)	Gulf (2)	OECD (3)
HH assets	0.348*** (0.115)	0.500*** (0.089)	1.106*** (0.182)
Land size <i>ha</i>	0.607*** (0.207)	0.12 (0.196)	0.422* (0.246)
HH migration network	-0.501*** (0.141)	-0.309*** (0.095)	0.368*** (0.136)
Community migration status	-1.004*** (0.234)	-0.449** (0.199)	-0.952*** (0.345)
Sex of HH head	0.107 (0.289)	-0.387* (0.202)	-0.338 (0.413)
year of schooling of head	-0.008 (0.025)	0.040** (0.019)	0.131*** (0.034)
Time to daily market	-0.174* (0.094)	-0.021 (0.046)	-0.052 (0.153)
Constant	-4.629*** (1.568)	-5.995*** (1.201)	-17.084*** (2.568)
Akaike Inf. Crit.	2108.052	2108.052	2108.052

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; SE in parenthesis

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