ALBUKHARY INTERNATIONAL UNIVERSITY

albukhary socialbusiness journal

Albukhary Social Business JOURNAL

VOLUME 5 ISSUE 2 (2025)

e-ISSN : 2735-2358

9 772735 235002

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NOTES FROM THE EDITOR-IN-CHIEF

Welcome to Volume 5, Issue 2 of the Albukhary Social Business Journal (ASBJ). This issue brings together five compelling studies that redefine how we address societal challenges through the lens of sustainability, innovation, and community-driven social business.

A primary theme in this issue is the reimagining of urban and social infrastructure. Karim and Haider challenge traditional transport economics by introducing the concept of "human mobility DNA" and proposing that wasted urban spaces be reclaimed as vibrant ecosystems for social business. By transforming public spaces into collectively managed hubs, we can foster microeconomic activity and well-being within planetary boundaries.

The internal mechanics of social ventures are also explored. Nguyen et al. provide a conceptual framework for social enterprise performance, arguing that a strong Entrepreneurial Orientation (EO) is a prerequisite for financial sustainability. Their work emphasizes that financial performance is not at odds with social missions but is a fundamental facilitator of enduring societal transformation.

In the realm of financial inclusion, Ballesteros et al. develop a theoretical model for measuring the social impact of Self-Financed Communities (SFCs). Their research highlights how community-based savings and trust-based credit can drive meaningful outcomes in resilience and opportunity. Complementing this is Chamhuri et al.'s investigation into parental investment in education. Their findings reveal that while the intention to save for children's education is high, financial constraints remain a significant barrier, necessitating innovative solutions like insurance-linked savings and enhanced financial education.

Finally, we examine the role of digital technology in healthcare. Alam and Hossain investigate the reach of telemedicine in Bangladesh, uncovering a significant awareness gap between urban and rural populations. Despite lower awareness, rural residents perceive telemedicine as highly effective, presenting a vast opportunity for sustainable social business models that utilize community involvement to bridge the healthcare divide.

Collectively, these articles demonstrate that the path toward Sustainable Development Goals (SDGs) requires a departure from traditional, profit-maximizing paradigms. Whether through the scientific allocation of urban land or the empowerment of local entrepreneurs through microfinance, this issue highlights the transformative power of social business to create a more equitable and resilient world.

I hope these insights inspire researchers, practitioners, and policymakers to continue pushing the boundaries of what social business can achieve.

Editor-in-Chief, Albukhary Social Business Journal

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Decoding Human Life: Transforming Our Quotidian Movement and Activity in Urban Public Spaces into Social Business

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Abstract

The transportation sector accounts for nearly one-third of many national economies; yet, a significant gap remains in our understanding of daily human movement and activities within cities. Traditional transport economics, although based on rational principles, often leads to systemic failures, including high debt, underutilized infrastructure, social inequality, unsustainable resource demands, and environmental degradation. This disconnect arises from a top-down approach that does not reflect the realities of urban life. Amidst the climate crisis and resource depletion, new transport models are emerging, aided by real-time data and advanced machine learning, which allow a deeper exploration of human mobility patterns. This paper aims to redefine transport economics and propose prototypes of social business concepts by analyzing the "human mobility DNA" and "urban life code," which reflect the unconscious drive for community that has shaped urban life since the beginning of civilization. Streets and public spaces, historically the heart of economic activity, are now lifeless spaces and lack small businesses. This paper proposes the process of reclaiming these wasted spaces, reviving vibrant street life, and promoting microeconomic activity through collective resource management. The envisioned outcome is a multimodal mobility and public space ecosystem that fosters pedestrian and bicycle-friendly environments, interconnected transit, and compact, self-sustaining city structures, ultimately balancing economic growth with environmental and social well-being within planetary boundaries.

***Keywords*:** Ontology of human urban life, human mobility code, quotidian activity, human well-being, collective street management, public space as social business

Abstrak

Sektor pengangkutan menyumbang hampir satu pertiga kepada banyak ekonomi negara; namun, masih wujud jurang yang ketara dalam pemahaman kita mengenai pergerakan dan aktiviti manusia seharian di dalam bandar. Ekonomi pengangkutan tradisional, walaupun berasaskan prinsip rasional, sering membawa kepada kegagalan sistemik, termasuk hutang yang tinggi, infrastruktur yang kurang dimanfaatkan, ketidaksamaan sosial, permintaan sumber yang tidak mampan, dan kemerosotan alam sekitar. Ketidakselarasan ini berpunca daripada pendekatan dari atas ke bawah yang tidak mencerminkan realiti kehidupan bandar. Dalam menghadapi krisis iklim dan penyusutan sumber, model pengangkutan baharu sedang muncul, dibantu oleh data masa nyata dan pembelajaran mesin lanjutan, yang membolehkan penerokaan mendalam terhadap corak mobiliti manusia. Makalah ini bertujuan untuk mentakrif semula ekonomi pengangkutan dan mencadangkan prototaip konsep perniagaan sosial dengan menganalisis "DNA mobiliti manusia" dan "kod kehidupan bandar," yang mencerminkan dorongan tidak sedar terhadap kemasyarakatan yang telah membentuk kehidupan bandar sejak permulaan tamadun. Jalan raya dan ruang awam, yang secara sejarahnya merupakan nadi aktiviti ekonomi, kini menjadi ruang yang tidak bermaya dan kekurangan perniagaan kecil. Makalah ini mencadangkan proses menuntut semula ruang yang terbazir ini, menghidupkan semula kehidupan jalanan yang rancak, dan menggalakkan aktiviti mikroekonomi melalui pengurusan sumber secara kolektif. Hasil yang dihasratkan ialah ekosistem mobiliti multimod dan ruang awam yang memupuk persekitaran mesra pejalan kaki dan basikal, transit yang saling berhubung, serta struktur bandar yang padat dan mandiri, yang akhirnya mengimbangi pertumbuhan ekonomi dengan kesejahteraan alam sekitar dan sosial dalam lingkungan sempadan planet.

Introduction

Life in cities is comprised of two fundamental activities - daily activities for our needs and movement between the activity locations. Since the dawn of civilization, humans have shaped all manmade built environments around these core elements. Our social, economic, and cultural life evolved, shaped, and transformed around these two basic elements of urban life. First component, human mobility is an essential component of our creativity that comes from our unconscious desire to become a part of a community. We are born to move, migrate, and settle in communities. Without

movement, we feel isolated, lonely, and suffer from boredom. Humans built an array of mobility ecosystems to satisfy our need for movement. The second component encompasses the daily activities that fulfil our survival needs, foster creativity, provide recreation, encourage social interaction, and drive economic activity. Urban culture emerges from this social cohesion. Our survival as a species depends on community, which extends beyond social and cultural aspects to include the physical environment that supports our daily activities.

Between our primary spaces, home (First Space) and work or study (Second Space), our communities thrive within "Third Space." (Lefebvre, 1968) which refers to the dynamic and socially constructed areas where diverse urban experiences intersect, blending public and private life, and fostering community interaction. And this largest visible third space is an array of spatial ecosystem – markets in open spaces, streets, public spaces, squares, parks, and other common spaces. In the third space, people engage in everyday activities, exchange cultural diversity, and perform social interactions that shape urban life and economic activity, and most importantly, a place for social business to address societal challenges. Third Spaces are hubs for social interaction, diversity, and cultural expression, fostering a sense of belonging and community (Soja, 1996.).

However, the rise of the automobile and top-down economic ideologies in the modern era led to lifeless streets, disconnected communities, degraded the quality of life, and produced an unsustainable path throughout the 20th century. This paper proposes a circular economy system (Foundation., 2013) in third spaces, particularly on streets, driven by social business and shared resource management. The goal is to create an asset-light, locally empowered approach that revitalizes public spaces, reclaims underused vehicle areas, and transforms surplus resources into neighbourhood well-being with a thriving local economy. A dialectical relationship between these two foundational elements of urban life and an emerging form of prototype social business system is one of the philosophical foundations of the multimodal mobility solutions proposed in this paper.

To counter the failures in mobility space planning and poor design principles that have led to disconnected urban economies, disembodied experiences in public spaces, and systemic economic inequality in cities, this paper introduces the concept of the creation of high-quality public spaces from the findings of daily activities and movement pattern while forming a framework and basic foundation of the

largest social business in veery cities. This ecosystem of public space and multimodal mobility, supported by local social business frameworks, aims to replace traditional large-scale mobility infrastructure planning with common spaces that are collectively managed and governed by shared norms, agreements, and regulations among users. This approach offers a more equitable, community-centered solution for developing sustainable urban environments.

Literature Review

Transportation sector generally contributes to one-third of most nation's economy. And yet we still do not fully understand the underlying pattern of quotidian human movements and activities of our daily life in cities. The traditional assumptions and models in transport economics, though designed with rational and practical intentions, have often led to outcomes that contribute to systemic failures, such as high debt, financial strain, underutilized mega structures, lopsided scale leading to increasing inequality, unsustainable resource needs, and overwhelming external negatives. These failures of traditional transport economics arise largely from a disconnect between theory and policies and the reality of the true nature of human movement behaviours.

Facing climate crisis and resource depletion, alternative models of transport economics are emerging that prioritize social equity, environmental sustainability, and local solutions for managing shared resources and achieving a more balanced economy. The availability of real-time data, combined with new intelligence and technologies, is opening a door to understanding the existence of our hidden mobility code. Mobility shapes who we are. Mobility infrastructure shapes the form and economy of cities. The paper aims to develop a different relationship between alternatives from transport economics while drawing in-depth insights into daily human movement and activities by utilizing real-time tracked data to uncover the true nature of our daily activities and needs that would promote economies staying within "planetary boundaries" while ensuring social equity.

The foundation study is based on the trailblazing discovery of the "human mobility code" and its implications for defining urban mobility boundaries in the recently published two-volume book series by the author (Karim D. M., 2023.). These insights stem from an eight-year collaboration with a German startup leveraging innovative technology to analyse human movement and activity patterns across six European and two Asian cities. This earlier primary research collected and gathered human movement data and daily activities from a tracked but geoprivacy-

enhancing toolkit to influence local transportation models, practices, and policies to shift towards holistic transport models that prioritize asset-light infrastructure systems, environmental and financial sustainability, equity, public health, and managing limited shared resources. The outcome of new transport economics and supporting ecosystem that will aim to achieve new urban multimodal transport infrastructure, such as vibrant streets, pedestrian- and bicycle-friendly environments, and interconnected public transit systems that support compact, dense, and self-sustaining city structures.

Urban economics and capitalism play a role in shaping cities, focusing on the economic processes underlying urbanization, the structure and functioning of cities, and the spatial organization of activities within urban areas. Urban focus capitalism's tendency to commodify urban space and generate structural causes of inequality (Harvey D. , 2013.). After World War II, urban renewal and associated massive system of highways and infrastructural transformations, suburbanization, and the total re-engineering of city and region resolved the problem of capital surplus via "secondary circuit of capital". One of the fundamental causes of this structural inequality in the post-modern lifestyle (Lyotard, 1984.) was linear travel demand circulating around fossil fuel-based resources, including automobile technology based on the monocentric city model (Alonso, 1964.). Over time, the city's planning division developed travel demand models assuming humans will generate longer trips to access jobs in downtown from suburban locations. These pattern of transportation economics needs mega structures such as highways, wide urban streets, and intercity trains. However, rapid urbanization trend created severe class struggle, social division and inequality in 21st century. Climate crisis, resource depletion, and financial strain are aggravating the urban quality of life. Transportation economics form and policies developed in the last century are falling apart and need a major overhaul to adjust to the current social, economic, and environmental conditions of the 21st century.

Current theories and policies of transport economics often create a vicious cycle of unsustainable growth. To understand why traditional transport economics often fails, we must into six major flaws in its underlying assumptions 1) overemphasis on infrastructure that requires intensive borrowing creating high-debt and annual financial strain, 2) overwhelming negative externalities in environmental, resource, energy and social costs, 3) misalignment of human movement and activities that could be tangible and intangible which is linked basic habitual and

instinct reflection of human species, 4) exchange values of derived demand of automobile reliance that does not meet frequent and minute nature of human activities and movement 5) overreliance pf short-term focus, ignore long-term impacts and lack resilience under future changing conditions and 6) exploitation of human and resource utilization creates waste and lower productivity resulting in social disconnections such as inequality and exclusion.

These symptoms are connected to underlying travel demand models and traditional supply-demand theories that are based on unreliable static sources of data and oversimplified assumptions about complex human movement and activities. By identifying where conventional economic models fall short, this research intends to derive new travel demand models and multimodal mobility infrastructure systems that better align with sustainable, equitable transport systems. For instance, traditional linear travel demand assumes over 80% of daily trips are longer, which requires high-speed highways, mega-streets, and vast underutilized parking lots. Instead of mundane urban life reflected in our quotidian movement and daily activities in cities from real-time data identified in the author's book, traditional monocentric linear commodity consumption theories rely on 'spectacular' mega shopping, gigantic recreation, or overused digital product consumption. However, breaking this enmity's existing cycle is not easy and requires solid and scientific evidence, such as a proposed series of research to counter equally powerful tools and models to replace these outdated 20th-century underlying ideological foundations.

Informed by insights into everyday human activities and movements, the principal investigator and co-investigators aim to explore and test multimodal economics focused on the "practice of everyday life" bodies (Certeau, 2011) and the mobility DNA elements of the "human mobility code." (Karim D. M., 2023.). This investigation builds upon recent economic experiments in Western Europe, particularly in response to the emerging "asset-light business model." (Toyoda, 1950.), (Womack, 1991.), (Jacobs J. , 1985), which parallels the rise of the service and sharing economy (Company., 2010.) in the fourth industrial era.

Drawing inspiration from (Raworth, 2017.) Doughnut Economics and (Ostrom, 1990.) principles of local, collective governance, partially implemented as common-pool resources in Amsterdam, this exploration of a multimodal economics model seeks to curb excessive demand and unsustainable consumption while safeguarding "planetary boundaries" (Steffen, et al., 2015) and enhancing human

well-being. The proposed mobility economics system in this paper emphasizes long-term investment in human development (Sen, 1999.) and well-being of future generations. By incorporating emerging economic theories and applying circular economy principles ((Boulding, 1966.), (Stahel, 1982.), (Braungart, 2002.), (Foundation., 2013)), this paper touches onto transition from a linear, wasteful economy to a regenerative circular system. This proposed research will mark the beginning of a complex series aimed at shifting away from traditional linear transportation economics. It seeks to establish an asset-light, locally driven, collective model for revitalizing public spaces by reclaiming underutilized vehicle spaces and regenerating excess resources into an effective local economy. The goal is to develop a shared, multimodal mobility, public space ecosystem and associated multimodal mobility economics and social business platform that aligns with the short-trip nature and mundane daily activities within self-sustaining neighbourhoods. The aim of this paper is to focus on creating a sustainable, low-emission mobility system designed to thrive in a post-Anthropocene world.

Methodology and Approach

This paper delineates the methodology and findings pertaining to four interrelated foundational principles aimed at establishing an alternative framework for urban planning, design, and the economic aspects of transportation infrastructure delivery systems that could create a platform of local social business entrepreneurship (Yunus, 2011.) proposed by Muhammad Yunus in his seminal work on the micro-credit financing model (Yunus M. , 2003.). The conceptual development of the "human mobility code" (Karim D. M., 2023.) and mobility boundary (Karim D. M., 2017). It is grounded in the novel discovery as explored in the author's previously published books. This paper reintroduces these initial concepts with updated and refined methodologies. Furthermore, the economic dimensions and the framework for social business for public space were developed independently to address critical gaps, thereby creating a comprehensive understanding of a new approach to a sustainable mobility ecosystem, which seeks to supplant the outdated and flawed 20th-century vehicle-centric paradigms of urban development. The following sections detail the modified and newly interconnected methodologies employed in this research.

Decoding Urban Life: quotidian movement and activities

Among all new and innovative ideas and solutions provided in this paper, the one underlying concept that pulls them all

together is the understanding of the existence of our hidden 'mobility code and its DNA elements'. Additionally, recent research has focused on analysing the patterns and underlying dynamics of human daily activities, both tangible and intangible, to gain a deeper understanding of how individuals accomplish their daily needs as an integral part of their everyday lives.

The underlying concept of the 'human mobility code' is, however, simple. Mobility shapes who we are. We move to satisfy our internal, hidden individual desire for movement. Over time, we develop mobility habits that create a mobility motif with a unique pattern. The question is, how do we display such a unique mobility identity? First, a human is a living organism that self-organizes its own activities. Whether searching for food, reproduction, or simple recreation, we move from one place to another. Second, the movements and stillness become part of our daily habits and develop into an internal, hidden structure that dictates our daily movement habits. Our conscious brain directs other intelligence, but our desire for movement and daily activities are predominantly controlled by our unconscious sense, so it remains unknown. Our brain does not calculate our movements or activities every day and tell us what to do. The habit of movement and staying somewhere for activities is ingrained into our senses, through feelings, emotions, tangible, and intangible purposes. Finally, our movement and activity habits start to show an individual, group, or collective mass pattern. From there, we develop tools through the different mobility modes to decide how we will move in the most energy-efficient and economical way.

Similarly, the nature of human activities plays a crucial role in shaping and influencing the built form and the broader built environment, including the design and functionality of public spaces. Our mobility takes a full form and displays the many hidden natures that are unique to every individual. This hidden but stable form of movement and activities is presented herein as our "mobility code" and "urban life code" along with traces of DNA elements, similar to our biological DNA but influenced or changed by the living environment, societal and cultural norms, geography, and built or mobility forms, our adaptation culture, and the ecosystem available to us. When these systems change, our mobility and activity, along with its DNA, change to adjust to new conditions but stabilize and reemerge after a period to show the same individual traits.

Formulation of Mobility in Motion

Mobility in motion simply refers to daily habitual movement by humans in cities. A defining characteristic of the human species is our remarkable capacity to create and utilize a diverse range of tools,

each tailored for distinct tasks and purposes (Shea, 2017.). This highlights a key aspect of human evolution and cognitive development (Stout, 2017.). The same is true for human mobility for both passenger and freight systems. It is our natural habit to use multiple mobility options ('multimodal mobility') if those options are available, affordable, comfortable, and easily accessible. The integration of these options within diverse contexts is commonly referred to as a "mobility ecosystem". This unique human capacity, which distinguishes us from other species, allows for the expression of a mobility ecosystem as a multimodal mode share which is formulated as follows:

$$T_{i,j} = W_{i,j} + V_{i,j} + C_{i,j} + PT_{i,j} + PT(od)_{i,j} + TR_{i,j} + MM_{i,j} + NM_{i,j}$$

for total person trips (1)

$$MS_c = 0.5 + \frac{\sum_n^i WM_{i,j}}{\sum_n^i T_{i,j}} \quad s.t.\, A_{i,j}, BE_{i,j}, SE_{i,j}$$

for the collective mode share for the area of the city (2)

$$MS_P = \frac{W_{i,j}}{\sum_n^i T_{i,j}} \, s.t.\, BE_{i,j} \,\&\, SE_{i,j} + \frac{\sum_n^i WM_{i,j}}{\sum_n^i T_{i,j}} \, s.t.\, A_{i,j}, BE_{i,j}, SE_{i,j}$$

for individual person mode share (3)

where MS_c = Collective mode share, MS_P = Person or individual trips, i, j = trip origin (i) and destinations (j), $T_{i,j}$ = Total person trips, $W_c \approx$ Walking constant or roughly 0.5. representing 50% mode of share for collective pattern, $W_{i,j}$ = Walking trips for individual person trips, and, $V_{i,j}$ = Vehicle trips (∈ medium to long distance), $C_{i,j}$ = Total cycling trips (∈ short distance), $PT_{i,j}$ = Total public transit person trips (∈ medium to long distance), $PT(od)_{i,j}$ = Total on-demand shared or transit trips (∈ short to medium distance), $TR_{i,j}$ = Total train trips (∈ very long distance), $MM_{i,j}$ = Total micromobility trips (∈ shorter distance), and $MM_{i,j}$ = New modes invented in the future (∈ short to medium distance), $WM_{i,j}$ = wheeled mobility modes (other than walking), $BE_{i,j}$ = Quality Built Environment, $SE_{i,j}$ = Socioeconomic conditions (income and wealth, health, employment, social status, political, social and social networks, age, gender, race, other physical factors) and $A_{i,j}$ = Mobility access which a function of 7Ds (Density, Diversity, Design, Destinations, Distance to Transit, Digital Access).

Formulation of Mobility in Stillness

Mobility in stillness refers to the habitual time spent by individuals at various locations within urban built or natural environments. This mobility in stillness concept is intricately linked to traditional land-use systems, which regard space as a fixed and objective commodity, which is opposed by LeFèvre's "production of space" (Lefebvre H. , 1991). He argued that space is not merely a neutral, passive backdrop as a fixed and objective reality for social actions,

but rather it is actively produced by social, political, and economic forces. He sees the necessity for inclusivity, accessibility, and democratic engagement in urban spaces (Lefebvre H. , Le droit à la ville., 1968.). Subsequently, Harvey critiques the effects of neoliberal governance on public spaces, arguing that the planning processes often prioritize commercial interests over community needs (Harvey, 2006.). Rather than allowing public spaces to fall victim to privatization, where corporate interests and capital-driven developments undermine the fundamental rights to public, accessible, and inclusive urban environments, Harvey advocates for transforming these spaces into platforms for democratic engagement and social justice.

In response to these foundational critiques, new planning paradigms have emerged over the past two decades, such as the Dutch model of "spatial planning and design." (Priemus, 2007.) This model seeks to reflect the complex layers of the urban ecosystem, emphasizing the interrelations between various modes of travel and the underlying natural built environment (Forman, 2014.). This paper aligns with the broader perspective of physical space and the emotional connections individuals form with places (Tuan, 1977.). A new perspective on urban public spaces is proposed herein, with detailed methodologies outlined in the subsequent sections. To conceptualize mobility in stillness, daily staying activities, and the time spent per visit at diverse locations (both private and public) are broadly categorized as follows:

$$TS_p = \sum_{j=1}^{n} t_{pa} \quad (4)$$

Where TS = total time spent for individual person p, t_{pa} = Time spent by on activity a by individual person p, and n = Number of activities. Individuals select places based on their habitual and emotional connections, which can differ according to various factors such as purpose, personal preferences, limitations, available alternatives, associated costs (both tangible and intangible), and the overall quality of the spaces. For analytical purposes, the time spent in these spaces can be broadly categorized as follows: 1. Very short stay (less than one hour, typically transfer between modes, waiting to meet people, etc.), 2. Short stay between 1 to 2 hours (typically shops, restaurants, people-watching in public spaces, other leisure), 3. Medium stay between 2 to 5 hours (non-sleeping activities like lifestyle and personal habits), Long stay between 5 to 8 hours (typical work or study), and 5. Very Long stay more than 8 hours (typically sleep time is 7 to 9 hours). These staying durations are later used in the analysis of the urban life network model, which is present in Section 4.0.

Creation of Quality Public Space

Truly well-designed quality public spaces are typically underpinned by a complex, multilayered system that includes economic, social, and cultural norms, as well as habits and practices. We can apply progressive design ideas to fix the hardware of our broken mobility spaces, similar to fixing digital software, but the Covid-19 pandemic has already pointed out very clearly our mobility hardware problems of underutilized or wasted nature and unnecessary consumption that enabled us to right-size our mobility infrastructures or facilities (Price, 2021) when condition changes.

Fortunately, we have been paying attention to the better design of our streets over the last two decades. Human relation with space is embedded in four basic instincts. Human's lack of blueprint creates a desire to interact with other human in public space. This initial impression is built through the dialectic process of mental and physical well-being. In the postmodern era, the approach to constructing urban environments and public spaces has undergone a significant transformation, supplanting the nuanced sensibilities characteristic of the modern period that began in the early twentieth century. But the knowledge of this relation is sporadic and haphazard. Engineers or planners who oversaw the redesign of walkable, bikeable, transit-oriented places were often inspired by progressive ideas, without paying attention to the four distinct layers of mobility facilities as public space. This paper reintroduces four new major mobility space concepts (Karim D. M., 2023.). This third layer would intentionally build our public space for daily life activities. The final layer would be understanding how our emotion, feelings, and human resonance is connected to build environment to avoid systematic inequality and alienation with public space. The authors expect the final layer need artistic and cultural convergence once the third layer is accomplished properly.

To incorporate the first three layers of human and space relations in 21st-century living spaces, the four new concepts of mobility space transformation were proposed (Karim D. M., 2023.).

- The first concept incorporates people's habit of gathering in popular places, referred to as "Multimodal ecomobility hubs". Instead of centralizing multimodal access at transit stations, the ecomobility hub concept spreads the mobility hub to every corner of a neighbourhood within a very short walking distance. The hubs would act as a one-stop service spot for all types of mobility modes that would be context sensitive and align with local

mobility cultures. Ineffective traditional travel demand management becomes effective at multimodal ecomobility hubs.

- The second concept is invisible spaces. Ironically, many 'traffic spaces' given over to vehicles are never used by vehicles. These spaces make up roughly one-third to more than 40% of total mobility space in our cities. The concept provides a systematic process through space typology, category, identification, and the reclaiming of these invisible spaces, and converting them into quality public space where social business can thrive.
- The third concept is green (mobility) spaces. The concept of creating six major types of green space in mobility facilities is introduced to bring back at least one-third of the space for organic nature that was lost to the 'modern' automobility system.
- The fourth concept is intentionally creating human spaces. Through a reclaiming and greening process, another one-third of spaces would be dedicated to various daily human activities. The objective is to revive lost mobility culture through social interaction, recreation, gathering, and lingering activities, the observing of humans by humans.

The creation or revival of these new public spaces reclaimed unused or underutilized mobility systems is not a utopian dream, but rather a barebone of basic human right to equity, daily life necessities, and the long-term viability of well-designed places. The entire mobility space in cities can be formulated as follows:

$$MS_j^i = HS_j^i \cup G_m S_j^i \cup IS_j^i \cup SFS_j^i$$

Where MS = Total mobility space, SFS = Shared flow spaces, HS = Human spaces, $G_m S$ = Green (mobility) spaces, IS = Interaction spaces.

To address very basic issues, this book proposes to start a new rule and borrow a page from the mobility boundary concept, a second page from the human resonance concept, a third page from the resiliency perspective, a fourth page from space allocation science, and a final page from an equitable lens. When these principles are applied correctly, a new equation of street planning and design emerges for total street space (SS):

$$SS_n^l = \frac{1}{3} HS_j^i + \frac{1}{3} G_m S_j^i + \frac{1}{3} SFS_j^i$$

where n = l types of street classification, n is the total number of streets in cities, SFS = shared flow spaces for moving vehicles,

and i = types of space in each mobility space to j types of street urban design form.

Economics of Mobility Boundary

Our mobility economy system has emerged as a major strain on the planetary systems. Ever-expanding mobility infrastructures with underlying traditional infrastructure around vehicle-oriented systems are pushing the planetary boundary (Steffen, et al., 2015) and urban boundary (Hoornweg, Hosseini, Kennedy, & Behdadi, 2016) to an unsafe zone. The link between the limits of mobility system expansion and the planet's limits is missing in the daily mobility planning process. The mobility boundary concept was introduced by the author (Karim D. M., 2017) to identify the limits of mobility expansion, toward the maximum benefit of human well-being while keeping the strain on the planetary system within a safe zone (See Figure 1). Both unchecked expansion and growth, and never-ending new "efficient" and sustainable technologies are equally unsustainable. The boundary concept proposes to abandon our 'infinite cycle of repeated growth and failure' ideology (Berg P. , 2011) built into the broken utility-based "slash-and-burn" unchecked capitalism system (Williaams & Khanna, 2020) in favour of setting new mobility limits to control demand and limit unchecked megastructure supply practices. The intention is to impose a boundary to push the system planners and decision makers to a low-emission and multimodal ecosystem.

Building on Sen's approach (Sen, 1999.), which emphasizes measuring a country's average achievements in three fundamental aspects of human development - health, education, and standard of living - this study identifies six fundamental elements of human well-being that should be prioritized for incremental improvements. These enhancements can only be achieved through local social business entrepreneurship and the collective management of neighbourhood's resources and urban environments. Identifying the future aspects of the symbiotic relationship between the six fundamental interactive elements in a mobility ecosystem, the concept of shifting mobility approach envisions a novel urban morphology, shapes a new experience of urban space, and turns unexplored assets into an ecosystem of vibrant, sustainable innovation. The concept is built on six fundamental elements (and associated planning policies) of the mobility ecosystem: (1) healthy environment, low-carbon footprint and clean energy; (2) smart growth principles using multimodal ecosystem; (3) sociability and liveability by enhancing social capital and innovation; (4) smart and easy access to all types of mobility services; (5) sustainable safety by reducing

crash risk and severity; and (6) very low impact and resilient infrastructures that prioritizes sustainable and shared uses. The well-being of the community is summarized in a Genuine Progress Indicator (GPI), which represents the quality of life for city residents. The path to a desired level of mobility ecosystem (MES) of this mobility boundary is formulated as:

$$MES_{t+1} = IBC_{t=0} + \sum_{i=1}^{n} \Delta FBC_t\,(F \mid P)$$

$$\Delta GPI = MES_{t+1} \pm \sum_{i=1}^{n} E_{(t+1)} \geq 0$$

Where t = a practical timeframe for planning and implementation, IBC = Initial boundary conditions (or zero or old or current) for mobility, urban and planetary level, FFBC = Final boundary conditions within timeframe t, E = Sustainability constraints $=\int (FE_i)=$ where i represents number of fundamental ecosystem (FE) elements, F = Economic fundamentals, P = Policies for development planning, design, mobility, social, environmental, cultural aspects of urban development. Aggregate sustainability constraints will be identified through an investigation of the limiting boundaries of each fundamental ecosystem element (FE) and the net benefits achieved through the progress of sustainable, shared resources and infrastructure, utilizing policy incentives and effective strategies.

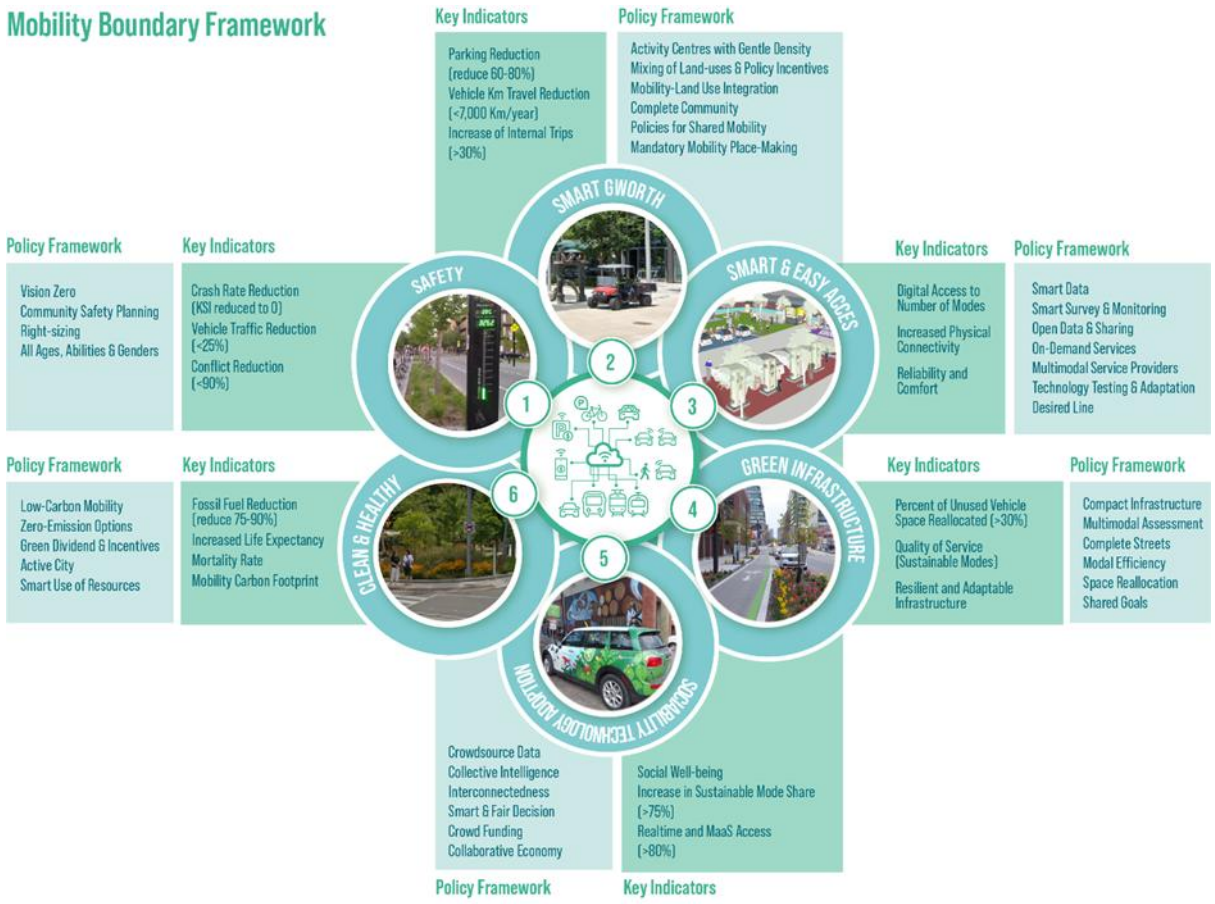

Figure 1: The concept of mobility boundary

Public Space as Social Business

Social business, as defined by Yunus (Yunus, 2011.), is a business model aimed at solving social problems in a financially self-sustaining manner. It is distinct from traditional businesses, as it does not distribute dividends to investors; profits are reinvested to expand the social impact of the business. Social businesses operate with the primary goal of addressing issues like poverty, health, education, or the environment while they strive to be financially sustainable and avoid the traditional business focus on profit maximization for shareholders. Yunus' ideas can be applied to urban development, especially in street revitalization, public space creation, and the revival of small-scale retail and entrepreneurship. The guiding principle here is the empowerment of local communities to create sustainable, socially beneficial economic activity.

In this prototype social business for public space in cities, the initial focus is on four major areas:

1) Public space creation and governance: New reclaimed public space creation could be approached by empowering local

residents and businesses to form social enterprises aimed at maintaining and improving these spaces. For example, a social business could be responsible for managing local mobility pakettes, provides shared mobility services such bikeshare, carshare, and management of rideshare activities, maintaining mini parks while integrating street theatres and arctic performance platforms, collective management of common area in plazas with amenities, and creation of maintenance of pedestrian areas, with revenue coming from food stalls, craft markets, or entertainment events held within these spaces. The focus would be on providing a public good while ensuring that the space remains sustainable without needing continuous external funding.

2) Street revitalization: Microcredit (low-interest and accessible loans) can be used to provide capital to small businesses, artists, pop-up shops, artisans, street vendors, and local entrepreneurs in underdeveloped or neglected urban areas. For instance, local women could receive microloans to set up food stalls or handicraft businesses along a street that has been historically underserved. These businesses would not only bring life back to the area but also offer employment opportunities and foster a sense of community ownership. Social businesses focused on collective agreement of the form of urban renewal can play a key role in transforming declining streets into vibrant, economically active corridors. For instance, a social business could be created with the goal of managing and maintaining local street markets in reclaimed green and human mobility spaces or revitalizing vacant storefronts into community-run cafes or co-working spaces. Profits from the enterprise would be reinvested into the further development and maintenance of the area, circulating economic surplus within the community. Another example of social business could be established to convert abandoned vehicle spaces or parking lots into community gardens or public spaces for flower, fruit, or vegetable growing businesses, generating employment through urban farming and creating social gathering places that improve neighbourhoods' connectivity and liveability.

3) Reviving Old Small Retail and Entrepreneurship using microcredit: Microcredit could help revitalize old small retail and on-street or curb-side vendors that have suffered due to competition from larger chains or e-commerce. Through small, targeted loans, local shop owners can upgrade their storefronts, stock more competitive products, or implement digital tools to reach a broader customer base. A young entrepreneur might receive a microloan to open a pop-up sidewalk,

median, or curbside collectively managed mobility space that sells eco-friendly products, encouraging sustainable consumption while contributing to the revitalization of the commercial landscape.

4) Local neighbourhood economic empowerment: Both microcredit and social business can empower local entrepreneurs, enabling them to participate in and contribute to the local economy. A group of local entrepreneurs could create a social business that offers services like waste collection, landscaping, and park maintenance in exchange for small fees or donations from the community and local businesses. This would ensure public spaces remain well-maintained and foster a sense of community stewardship. Small loans could be used by local artists, street performers, or community groups to create installations, cultural events, or art markets in public spaces. This not only enhances the visual and cultural appeal of the area but also provides micro-entrepreneurs with opportunities to develop sustainable ventures. An artist could take out a microloan to finance a public art installation or mural project in a neglected urban park.

Results and Discussion

This section describes a series of new findings, including a summary of previous relevant results from recently completed research and practical experience from real-life neighbourhood or area redevelopment projects across North America and Asia.

Decoding Urban Life: quotidian movement and activities

The human mobility of each individual is unique but also follows some regular collective pattern. Collective movement displays a relatively stable behaviour. Individual movement pattern shows a series of common motifs of mobility and staying activity sequence. The results indicate we need a more realistic mobility supply, i.e., an infrastructure system and economics that match both our individual and collective needs, instead of the current vehicle-oriented system focusing on individual needs but producing many negative externalities.

Individual mobility code: Using the general and Mobility Markov Chain method (Gambs, Killijian, & Cortez, 2011), a clear mobility pattern of the individual emerged. Each person has a unique combination of multiple modes; their distance, travel time, and speed are unique to that individual. No single person displays exactly the same or a similar mobility pattern. Every person's mobility pattern is statistically significant, indicating a unique mobility footprint is not accidental. This unique discovery is called the "human mobility code," with distinct elements of DNA that constitute each and every individual's mobility code. Figure 2 presents clear evidence from the cluster

analysis (principal component analysis, PCA) of 200 users across eight cities in Europe and Asia, demonstrating that the combined movement and activity centres of individuals within the same cluster do not overlap with those of others. In addition, the results show that we make nearly six to eight trips every day during regular periods. During the time of constraints, such as the COVID-19 pandemic, the number of trips was reduced by half.

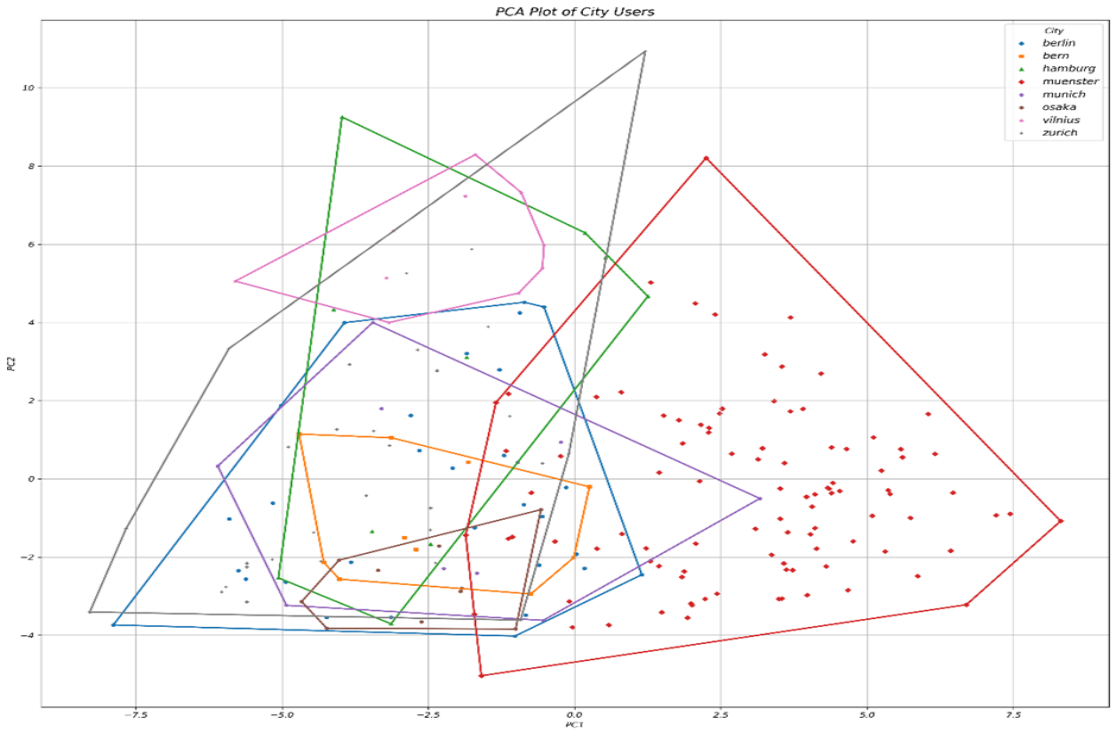

Figure 2: Cluster analysis indicating that each user's mobility and stay profile is unique to every person in cities

All users in the database have shown repeated use of the same combination of multiple modes. None was unimodal. At least two mobility modes (an extreme example is the car and walking) were used by everyone in the database. The most common multimodal users regularly use at least three or four mobility modes. Those who combine five modes are less frequent but not rare. The probability density function and cumulative distribution of mobility are illustrated in Figure 3. Occasionally, some users switch mobility modes, but over time (roughly six months) their behaviour stabilizes. Unlike folklore among vehicle-oriented practitioners, not a single person used a single mode (i.e., car-only), meaning a unimodal person does not exist in reality. It's practically impossible to use a car for all possible trips and conditions without supporting access trips, such as walking, cycling, or micromobility.

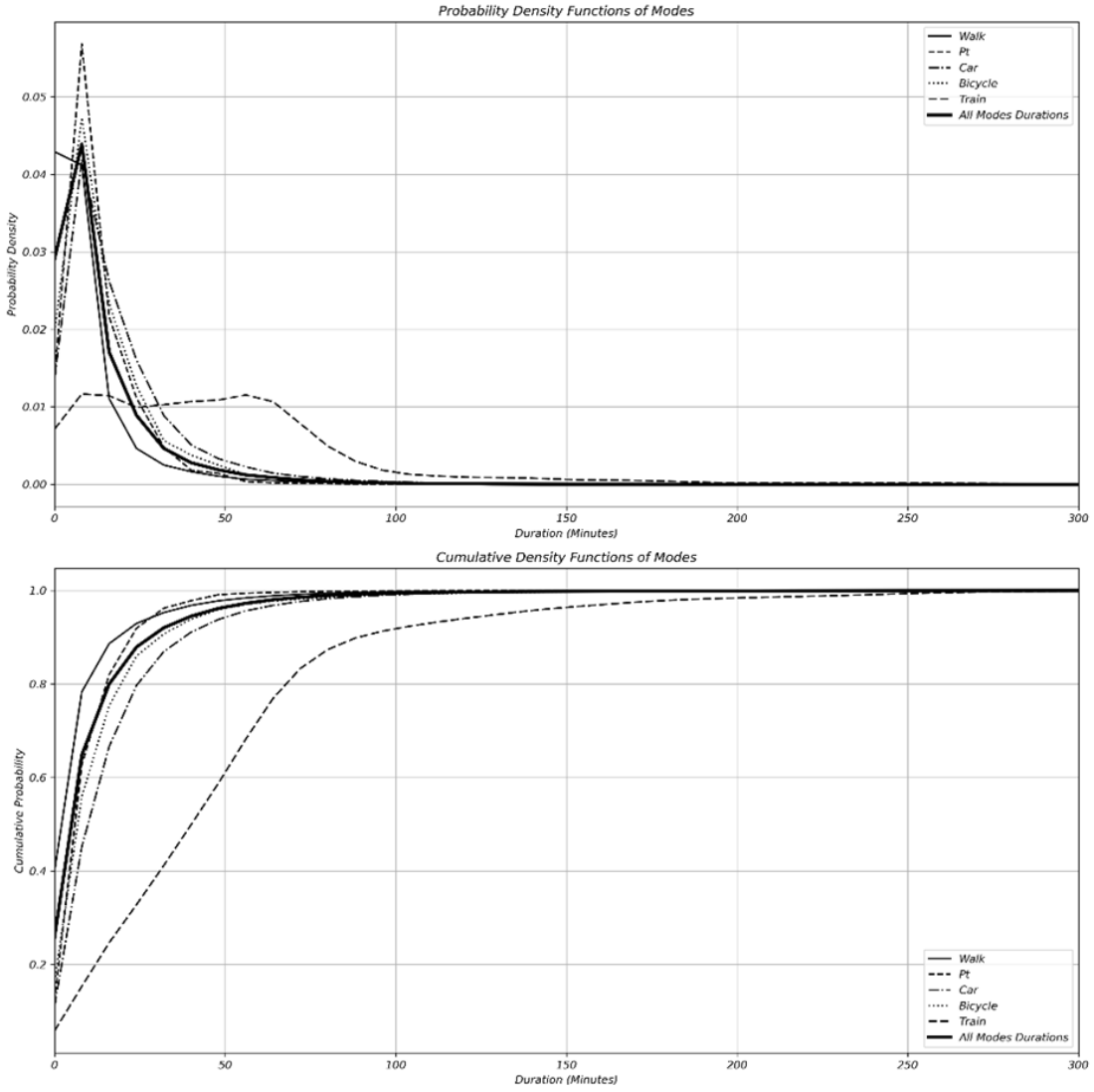

Figure 3: Probability density function and cumulative probability of multimodal mobility modes

Collective mobility code: Some unique collective pattern, our hidden desire to produce a collective pattern. Walking is the most fundamental of the building blocks of human mobility. The majority of personal walking mode share falls within a range from 33% to 71%; however, when all trips in the area or city are combined, half of our total trips come from walking. It also shows that no seasonal, geographic, built form, or any other disruption was able to change the ever-constant group or citywide walking mode share. And yet, our walking infrastructure in the city's infrastructure receives less than 5% of the transportation budget. Additionally, the results show the existence of 'mobility mode couples' between vehicle and transit trips since their

characteristics (distance, duration) are similar, i.e., one-third of total trips are vehicle trips which could be replaced if a comfortable, easily accessible, and high-frequency public transit service is provided. Walking, cycling, and micromobility also act as dependent modes and often "couple" with long-distance modes, i.e., vehicle and transit. The most critical finding is that most urban trips are remarkably short (less than 10 km), except an a small share of long-distance train trips.

Daily life activity code: Human daily activity patterns are inherently complex. On average, individuals generate multiple trips between various locations, with each trip typically associated with a corresponding stay. On a daily basis, individuals produce approximately 3 to 4 trips, roughly half of their total daily trips. Stays, however, are not homogeneous. The most frequent type involves very short durations (less than an hour) between movements (~40%-43%). In contrast, a substantial portion (~23%) of stays are much longer (more than 8 hours), such as overnight stays at home. These long stays are typically associated with two-way trips, with walking being the most common last-mile mode of mobility. Both very short and long stays follow a log-normal distribution, indicating that most data points cluster towards shorter durations, with a long tail extending towards longer times.

In contrast, short (1–2 hours), medium (2–5 hours), and longer (5–8 hours) stays exhibit patterns that align with a beta distribution, reflecting a variety of shapes where data may be concentrated near the extremes (close to 0 or 1) or more evenly spread across the range. These stays often correspond to activities such as eating, recreation, brief meetings, appointments, work or study-related tasks, or other habitual lifestyle events. These stays function as temporary pauses between sequences of short trips. After a certain period, movement typically resumes. Longer stays outside the home, usually related to work or school, necessitate extended durations to complete tasks. These longer stays also often precede return trips in the reverse direction, whereas shorter trips are connected by one-way trips.

The probability density function and cumulative distribution of mobility are illustrated in Figure 4, showing that approximately 55% of the stays are shorter than 120 minutes (2 hours), and around 70% of trips last less than 5 hours. These findings suggest that the majority of human activity is characterized by short or medium durations, highlighting the tendency for habitual patterns like the predominance of short trips undertaken by individuals daily.

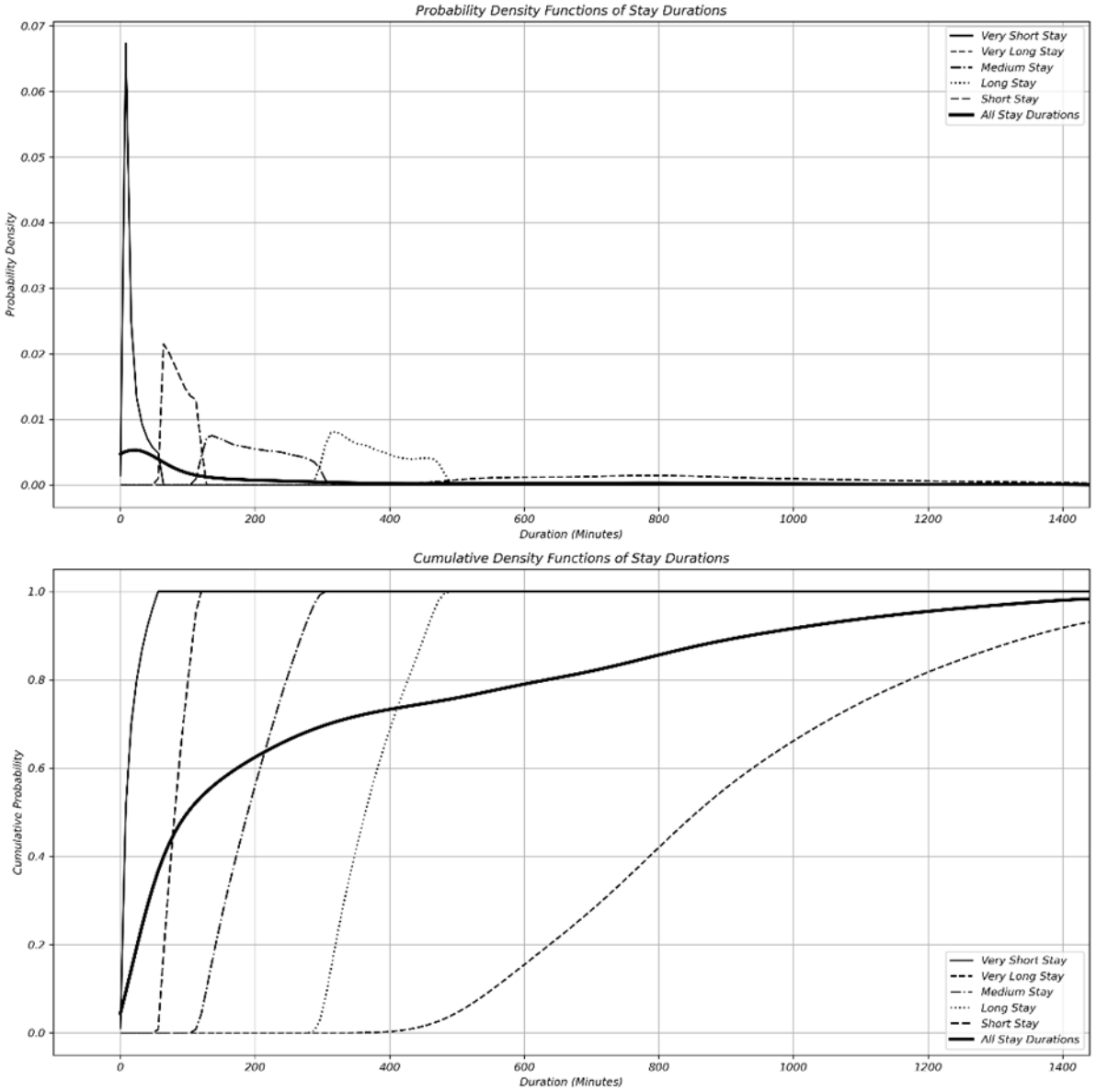

Figure 4: Probability density function and cumulative probability of types of stay

Urban life code: Analysing individual movement and daily activity networks through Markov chain analysis reveals distinct patterns in personal habits and the complexity of urban life. Figure 5 provides a detailed profile of one user's daily activity and movement network, shedding light on the hidden patterns that characterize urban living. Several common trends emerge: for example, walking is highly probable after both long and medium stays, suggesting that following extended periods of rest, individuals frequently rely on walking, the most accessible and common mode of mobility. Likewise, short stays are closely associated with walking. Public transit usage also shows a strong connection to walking, with a notable link between cycling and very short stays.

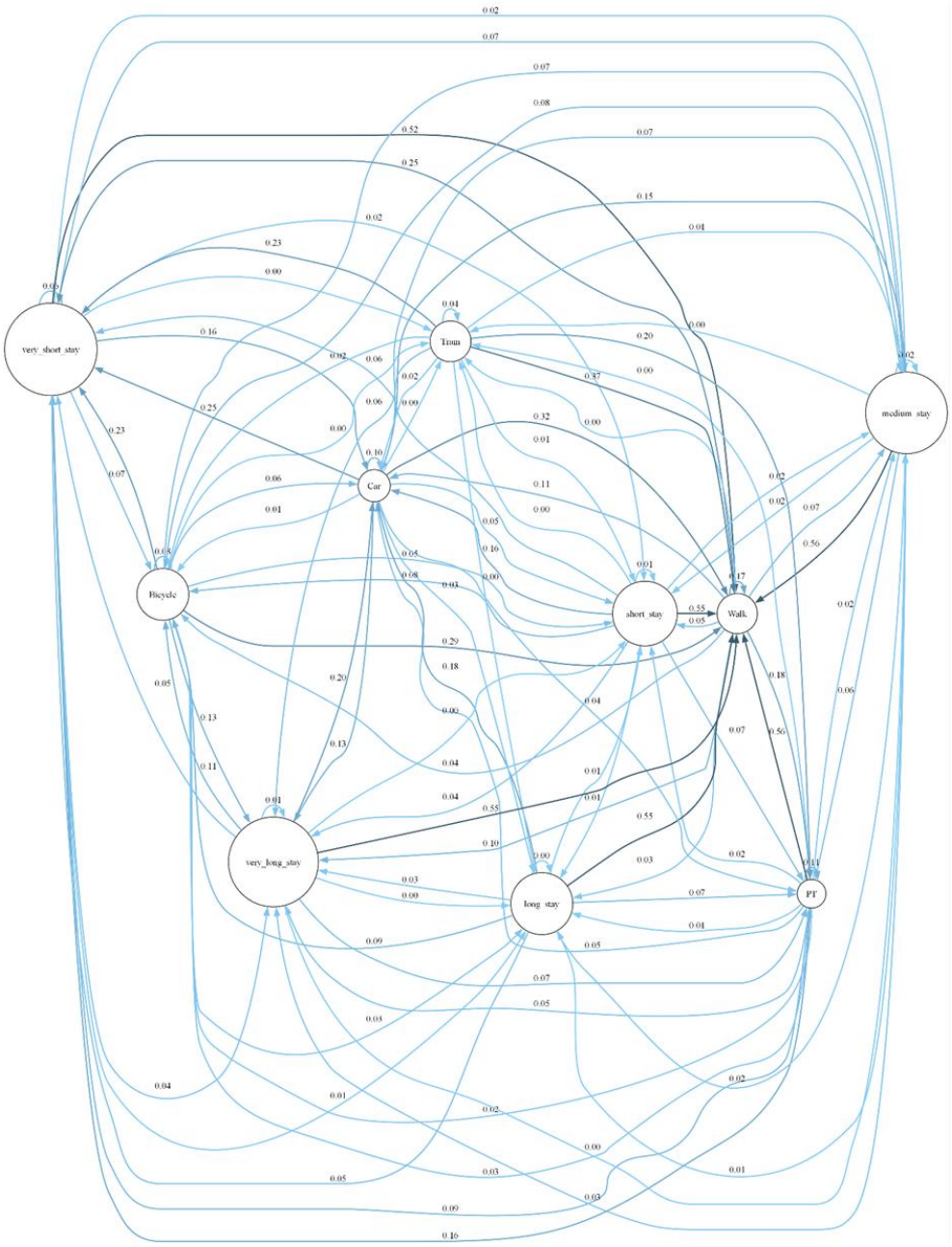

Figure 5: Example of urban life code and network profile of daily activity and stay of Berlin city residents

Collective city profile: A comparative analysis of urban life codes and network profiles across different cities reveals that residents within the same city tend to exhibit relatively homogeneous movement and activity patterns. As demonstrated in Figure 6, these similarities can be attributed to shared mobility infrastructures, despite individual differences. For instance, Bern, Switzerland, exhibits the highest level of consistency in residents' urban life patterns, with approximately 94% similarity. In contrast, only 62% similarity is observed between Vilnius, Lithuania, and Münster,

Germany. The differences in mobility patterns arise from variations in transit infrastructure, with Vilnius lacking rapid transit options and primarily relying on buses and intercity trains, while Münster offers a comprehensive network of trams, trains, express and local buses, as well as high-quality cycling and walking facilities (with a 37.6% mode share) and reduced vehicle usage (36.4% mode share). These insights suggest that the successful elements of mobility systems and infrastructure in well-performing cities can be adapted and applied to cities with underdeveloped sustainable mobility systems and inadequate public space.

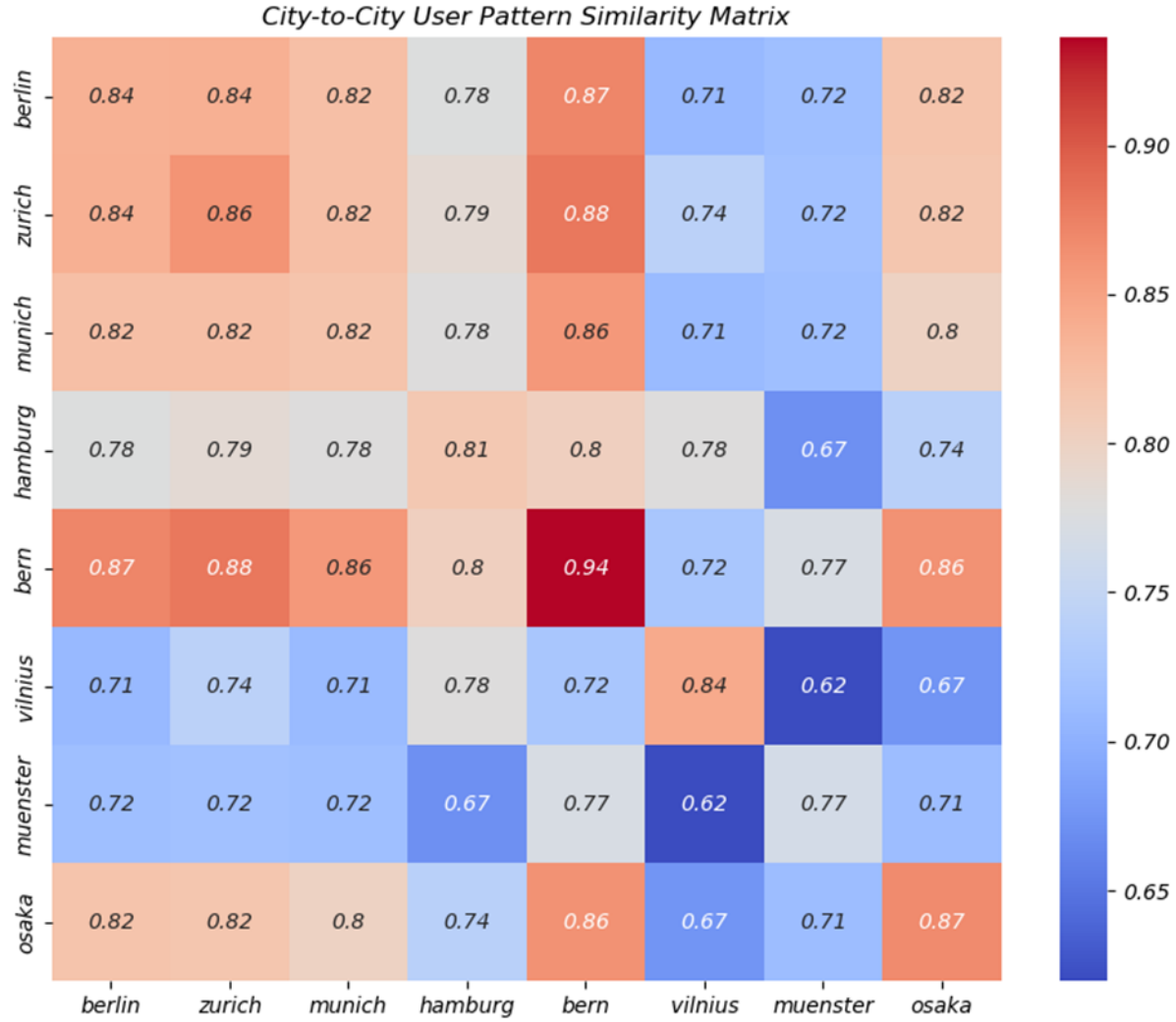

Figure 6: City-to-city similarity and differences in their urban life

Creation of Quality Public Space

The creation of inclusive urban mobility spaces that accommodate all genders, races, ethnicities, ages, and abilities remains an elusive goal, despite growing awareness. Over the 20th century, much of the public realm was converted into wide vehicle streets and parking lots. However, large-

scale infrastructure often breeds inefficiency and waste. An analysis of public space dedicated to mobility systems reveals that approximately 30-40% of street space allocated to vehicles remains unused or neglected. Moreover, about 20-25% of vehicle travel lanes are underutilized, due to overly wide or unnecessarily flared lanes. On average, roadways are occupied by vehicles for only 10% of the day, while intersections see usage just 25% of the time. These underutilized spaces are primarily found within public streets or a city's right-of-way, yet many adjacent areas deemed "essential" for vehicles are similarly underused. By applying more thoughtful engineering and design standards, communities can reclaim these spaces for green and human-centred purposes. Through creative design and collective neighbourhoods' efforts, up to 30-40% of public streets, half of private streets, and 60% of vehicle storage spaces could be repurposed. These findings highlight significant inefficiencies in traditional infrastructure development, revealing a misallocation of city funds and public resources.

Mobility Economics and Public Space as Social Business

Human activity is often overlooked in the planning of public streets. While all public streets can be designed to accommodate diverse mobility modes and create new public spaces by reclaiming underutilized or unused vehicle-dedicated areas, without a strategy to activate these spaces with engaging daily activities, even the most progressive design ideas may fail to bring life to the streets. The concept of "green (mobility) parks" addresses this issue by integrating mobility infrastructure with green and human spaces within a city's small, expansive, and interconnected public realms. These spaces will primarily come from unused or abandoned spaces described in the last section. This approach identifies six potential types of new green spaces (Large invisible mobility space, Island Parks, Mobility Parkette, Micro Parkettes, Mini Corner Space), highlighting their hidden locations, varying shapes and forms, and high-level design strategies for reclaiming these areas for public use. Figure 7 illustrates these potential spaces and the design principles that guide their transformation into vital green (mobility) spaces in urban environments.

Using the prototype and high-level concept of social business, a variety of space created through social business plat for variety to address an array for human needs. If done with careful thought, street design, planning, and policies could act as the catalyst to encourage these activities by default. "Human space" is introduced here to reflect at least six major types that touch

most of the a human's social life and culture on our streets and in our public places. All these activities need special sizes, shapes, and a few common criteria (Figure 8). This is the core idea of the human space concept, in addition to the preceding complete street approach. The idea is simple: deliberately create space to give an option for human activities rather than just adding "typical" walkable or bikeable features to "complete" our urban streets and other mobility spaces. This is not a comprehensive list of human activity; rather, it is an attempt to invoke design thoughts beyond concrete, asphalt, or the typical streetscape.

- Streets for street vendors, commerce, and economic activity. This does not support off-street retail, but rather deliberately creates flexible space beyond just for food trucks.
- Space for the social life that creates our identity through public space.
- Space for art and culture activities that preserve our heritage, on public outdoor spaces instead of hiding behind the walls of inaccessible museums or galleries, making art and culture open to every citizen at any time.
- Space for street theatre and performance to activate static and dead space with signs of human life.
- Space for street organics to bring urban food, the natural environment, and wildlife to our urban doorsteps.
- Space for knowledge, awareness, and interaction to increase our connectivity between people, neighbours, and different cultures to address our inequality and invisible divisions.

The creation of these spaces and the empowerment of local economies provide a straightforward yet effective solution to a complex array of social challenges. By utilizing circular economic principles in street and public space-related social enterprises, the generated surplus profits can be reinvested to broaden the well-being of local people. This process incrementally strengthens community resilience, better equipping neighbourhoods to address the imminent challenges posed by climate change through locally driven efforts

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Figure 7: Creation of quality green (mobility) park through reclaiming traffic spaces

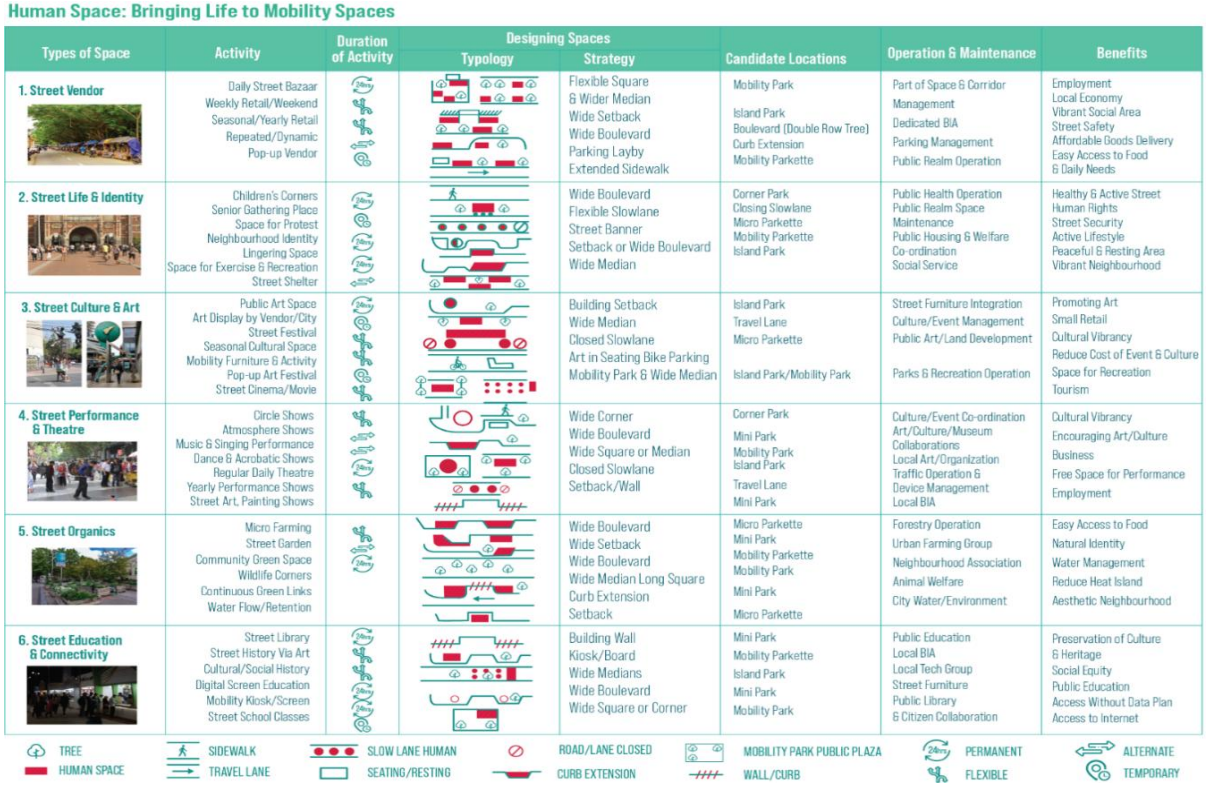

Figure 8: Creation of platform for variety of social business and entrepreneurship

Limitations

While space reclaiming and creation of quality of public spaces gain ground recent decade, alienating local or original residents through gentrification

Conclusions

Human mobility and daily activities are fundamental to the identity of Homo sapiens, with natural movement representing one of the earliest expressions of true freedom. Among all urban forms, mobility systems constitute the most extensive, dynamic, and vibrant third spaces within cities. Despite their importance, our understanding of the intricate patterns and systems underlying human movement remains limited. This paper contributes new insights into this complex yet beautiful world of urban life, revealing that the ontology of human movement is shaped by frequent small trips between short to medium-duration activities. These movements and activities influence nearly every facet of human civilization, forging intimate connections with the third space and nurturing lifelong bonds with the built environment. Such intimate interactions underpin the foundation of communal living and foster local social, cultural, and economic dimensions of urban life. The infrastructure required for the most frequent and short-distance trips typically involves smaller, more compact systems, such as walking paths, cycling lanes, and transit networks, rather than the oversized infrastructure often constructed under the false postulation that most trips are long. Similarly, short to medium-length stays are best accommodated by smaller shops and businesses located near mobility hubs and communal gathering places, rather than the sprawling shopping malls surrounded by vast, underutilized parking lots. This flawed approach to urban infrastructure and built forms has led to an immense waste of space, resources, and public funds. The paper proposes an alternative model to reclaim underutilized spaces and transform them into green, human spaces. By introducing the concept of the "mobility boundary," it emphasizes the importance of sustainable infrastructure limits to prevent the creation of unsafe zones and to avoid reaching a tipping point beyond which recovery is impossible. This concept identifies a threshold beyond which the negative effects of excessive mobility infrastructure become evident. Reclaimed spaces hold the potential to stimulate local economies by reviving small businesses, supporting street vendors, and promoting various forms of social enterprises that address the pressures of urban living. This paper proposes a prototype for social businesses in public spaces that could be further refined through ongoing research and data collection from successful case studies worldwide. It also introduces new frameworks for space management and governance, seeking to address the unscientific allocation of land currently dedicated to empty parking lots and oversized vehicle infrastructure. These

ideas are not mere utopian visions but are grounded in practical applications that have been successfully implemented in numerous cities across North America and Europe. As David Harvey might have argued, reclaiming public spaces is a critical step in challenging the exploitation of unchecked capitalism in shaping urban life.

Acknowledgements

I would like to express our gratitude to Motion Tag for providing essential raw data and additional resources for this research. Special thanks to Dr. Shakil Haider for his invaluable feedback on economic theories and to Mahmood Hossain for his expertise in programming and machine learning analytics during the research analysis and writing process. The initial publication of this research study was made possible through the support of CRC Press, Springer, and the editors of Disrupting Mobility, Dr. Gereon Meyer and Dr. Susan Shaheen.

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ALBUKHARY INTERNATIONAL UNIVERSITY
albukhary socialbusiness journal
Vol. 5, Issue 2, 2025

Doing Social Good in a Sustainable Way: A Conceptual Paper on Social Enterprise Performance

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Abstract

Social entrepreneurship has gained prominence over the past few decades as a means of driving potentially transformative societal improvements. These ventures typically aim to support economically disadvantaged groups who are unable to improve their circumstances without help. However, the endeavours should be financially sustainable, as there is no guarantee that subsidies from taxpayers or charitable donors will continue indefinitely. The importance of financial outcomes as a resource for achieving greater social impact is often underestimated, particularly by social entrepreneurs who prioritize social goals over financial success. Previous research findings were systematically synthesized to provide insights into the specific factors that enhance the performance of social enterprises. This paper especially employs business perspectives to understand the self-sustaining mechanism for social good. The framework suggests that Entrepreneurial Orientation is a predictor that maximizes financial returns (mediating variable) for the social performance of social enterprises. A moderating variable of Social Orientation was adopted to reflect the relationship between the predictor and the level of financial performance. This offers new insights into the strategic management of social enterprises.

Keywords: Conceptual paper, social enterprise, social entrepreneur, social entrepreneurship, social enterprise performance, sustainability

Abstrak

Keusahawanan sosial telah mendapat perhatian yang semakin meningkat sejak beberapa dekad kebelakangan ini sebagai satu pendekatan untuk memacu perubahan sosial yang berpotensi bersifat transformatif. Perusahaan ini lazimnya bertujuan untuk menyokong kumpulan masyarakat yang kurang berkemampuan dari segi ekonomi dan tidak mampu memperbaiki keadaan hidup mereka tanpa bantuan. Namun demikian, inisiatif sedemikian perlu bersifat mampan dari segi kewangan, memandangkan tiada jaminan bahawa sokongan

subsidi daripada pembayar cukai atau penderma kebajikan akan berterusan dalam jangka panjang. Kepentingan prestasi kewangan sebagai sumber utama untuk menjana impak sosial yang lebih besar sering dipandang remeh, khususnya oleh usahawan sosial yang lebih mengutamakan matlamat sosial berbanding kejayaan kewangan. Kajian-kajian terdahulu telah disintesis secara sistematik bagi memberikan pandangan tentang faktor-faktor khusus yang dapat meningkatkan prestasi perusahaan sosial. Makalah ini menggunakan perspektif perniagaan untuk memahami mekanisme pengekalan kendiri dalam pelaksanaan kebaikan sosial. Rangka kerja yang dicadangkan menunjukkan bahawa Orientasi Keusahawanan bertindak sebagai peramal yang memaksimumkan pulangan kewangan (pemboleh ubah pengantara) bagi meningkatkan prestasi sosial perusahaan sosial. Pemboleh ubah penyederhana, iaitu Orientasi Sosial, digunakan untuk mencerminkan hubungan antara peramal tersebut dan tahap prestasi kewangan. Pendekatan ini menawarkan pandangan baharu terhadap pengurusan strategik perusahaan sosial.

Introduction

The emergence and development of social entrepreneurship represent a significant shift in the way individuals and organizations approach social challenges. Social entrepreneurship combines the innovative and risk-taking spirit of traditional entrepreneurship with a deep commitment to addressing societal issues. This movement began to gain traction in the late 20th century, as people increasingly recognized that conventional business models and government interventions alone were insufficient to tackle complex social problems such as poverty, inequality, and environmental degradation. Early pioneers of social entrepreneurship, like Muhammad Yunus with the Grameen Bank, demonstrated that it was possible to create sustainable, scalable solutions that not only addressed social needs but also generated economic value (Yunus, 2010).

As the concept of social entrepreneurship evolved, it began to attract a diverse range of actors, including governments, non-profit organizations, and for-profit businesses. The development of social entrepreneurship has been fuelled by a growing awareness of global challenges, advancements in technology, and the rise of a new generation of socially conscious consumers and investors. Social entrepreneurs are now leveraging innovative business models, impact investing, and cross-sector partnerships to create systemic change. They are not just focused on alleviating the symptoms of social issues, but also work to address their

root causes, often through community-driven approaches and sustainable practices. The importance of social enterprises was further magnified by international bodies such as the United Nations, especially in light of concerns about the growing risk of world economies failing to meet the 17 Sustainable Development Goals (SDGs) (UNDP, 2015). As a result, the rise in social enterprise activity is increasingly seen as a viable and effective alternative for creating employment and supporting vulnerable and marginalized communities, thereby helping to move the world closer to achieving the SDGs.

Lumpkin et al. (2018) emphasized that running a social enterprise in practice takes work, as social entrepreneurs must create a successful and scalable business model while also considering the social and environmental impacts of their products or services. However, the reality on the ground is that social enterprises often face significant financial hurdles that hinder their growth or even their ability to survive, largely due to limited resources (Cheah et al., 2023). This hampers the enduring and in-depth social impact these organizations aim to achieve. For this reason, addressing the key factors surrounding the enhancement of performance and sustainability of social enterprises is viewed as a crucial conundrum that needs resolution.

Social enterprise ventures, like all other organizations, achieve a competitive advantage based on available internal resources. This paper constructs a research framework by incorporating the Resource-Based View (RBV) (Barney, 1991), which further refines the theoretical rationale for the existing relationship between variables. The theory stipulates that for an organization to achieve robust performance, it first must be able to effectively and efficiently optimize the resources and capabilities it acquires. In the context of social or non-profit institutions, the theory supports the shift from traditional charity organizations, which rely entirely on external funding, to financially self-sustaining models. This transformation helps prevent power-dependent relationships with funders and enhances the organization's performance and sustainability. A recent review of social entrepreneurship literature (Short et al., 2009) revealed that, despite its being a topic of academic inquiry for nearly two decades, relatively little effort has been made to investigate it from mainstream management and entrepreneurship theoretical lenses. With the help of this theoretical lens, our paper argues that alleviating social issues in a self-sustained

manner can be learned using concepts and tools from strategy literature, such as RBV.

This conceptual paper proposes factors that influence the performance of social enterprises in adapting to ever-changing, dynamic, hostile, and unpredictable environments. Specifically, it advocates that enhancing entrepreneurial orientation will positively contribute to improved financial performance of social enterprises. Furthermore, examining the mediating role of financial performance and the moderating role of social orientation can enhance the existing framework on social enterprise performance.

Literature Review

The resource-based approach focuses on the features of resources and capabilities necessary for long-term performance and organizational survival (Barney, 1991). The characteristics of resources that are valuable, rare, imitable, and non-substitutable (VRIN) can create competitive advantages and have a great effect on organizational performance. Although social enterprises are established for purposes other than profit (McManus et al., 2007), the financial field should also consider the entity's resources and capabilities, which focus on the activities conducted and, therefore, on the goods and services produced, and performance realized. It can be deduced that similar to a profit-based organization, social enterprises will utilize similar bundles of resources and capabilities to develop their competitive advantages, and subsequently increase their organizational effectiveness.

The content analysis in the previous peer-reviewed quantitative literature has identified three prevalent resource-based variables affecting the effectiveness and efficiency of social enterprises in this paper. They are entrepreneurial Orientation, social Orientation, and financial performance. This section will discuss the conceptualization of each predictor, viewed under the resource-based view and social entrepreneurship lens, in relation to organizational performance.

Entrepreneurial Orientation (EO)

The concept of entrepreneurial orientation, long hallowed in the context of business and economic endeavors, also encompasses emerging phenomena like social entrepreneurship because these hybrid organizations do not stand out of the market, they also face uncertainties of the market and are even more challenging when solving the two objectives subsequently. They face significant obstacles in finding practical and long-lasting solutions with a significant decrease in government funding, demanding performance assessment or social impact analysis, and suspicion about the

effectiveness of traditional charitable remedies for social problems. Thus, Dees et al. (2002) recommended that social leaders need to be entrepreneurs now more than ever.

In a comparative analysis conducted by Smith et al. (2014), the majority of relevant literature found that both social entrepreneurs and corporate entrepreneurs exhibited the same entrepreneurial attitude. Both require creativity and innovation, proactiveness, and risk-taking with the only variation in the level of each attribute (Lumpkin & Dess, 1996). Innovativeness is the engagement in creativity and experimentation to research and develop new products/services and processes (Bustinza et al., 2019). Proactiveness involves actively seeking and accessing new opportunities that others may be hesitant to pursue (Coleman & Adim, 2019). Risk-taking relates to a willingness to accept uncertainty and tolerate ambiguity in organizational management (Nobre et al., 2018). The combination of these attributes leads to the development of improved or new products, services, or processes, allowing companies to respond to environmental signals earlier than their competitors and create unique, favorable products that are difficult to imitate and substitute (Lee & Trimi, 2018). Hence, entrepreneurial orientation apparently conforms to the characteristics of strategic resources required by the resource-based theory.

In the case of social enterprises, the increasingly competitive climate may have compelled social entrepreneurs to get more focused on innovation to develop a sustainable business model with very limited existing resources, so that they may provide long-term aid to the poor and marginalized groups (Tykkyläinen & Ritala, 2021). Also, social entrepreneurs are said to become more proactive in formulating strategic plans for survival and equipping themselves with basic forecasting tools to endure and expand within the market. Social entrepreneurs have also learned to be risky to solve emerging issues but are extremely careful to safeguard the sustainability of their organizations. Entrepreneurial orientation is described as the behavior propensity of the entrepreneur or top-level management to exhibit innovativeness and favorable to challenge conventional and established thinking, practice a proactive approach in pursuing new possibilities and resources, as well as take calculated risks (Liu et al., 2014).

Social Orientation (SO)

Social orientation has been defined as the importance the founding entrepreneur early perceives to social responsibilities and emphasizes the accomplishment of their organization's social mission (Lortie et al.,

2017). Their specific social missions could include but are not limited to, giving low-income families and rural communities access to basic education; employing the disabled or formerly imprisoned; cutting down on edible food waste; recycling used materials; and providing capital investment for impact-driven businesses in underprivileged areas. The social orientation of the leadership team directs the organization's whole focus (employees, organizational practices, etc.) toward enacting the organizational mission to achieve higher performance (Cheah et al., 2023).

According to Helfaya & Moussa (2017), the social orientation of the founding teams not only reminds them to allocate scarce resources to their initial social motive efficiently, but it can also be transformed into strategy planning. In this sense, the organization's social orientation plays a pivotal role in shaping its entire strategy, encompassing decisions about what products and services to introduce, how quickly to expand, and which stakeholders to prioritize. This suggests that leaders of organizations with a specific orientation towards social and environmental goals can make their social enterprises distinct and more original than others.

Nevertheless, social enterprises solely concentrating on societal demands may prevent them from investing in the finest commercial opportunities (Besharov et al., 2019). Entrepreneurs who place a high importance on social value tend to hire people with social work expertise but little managerial experience, or they develop internal systems and procedures that prioritize beneficiaries above customers. This may have an indirect impact on their economic efficiency and output. Furthermore, an empirical study also found that aged organizations have better survival than emerging social enterprises because they have greater expertise and capacity to manage the complexity of hybrid entities (Bouchard & Rousselière, 2016).

Financial Performance (FP)

From the perspective of Resource-Based Theory, financial performance is a crucial resource for social enterprise organizations because it provides the foundation upon which they can build and sustain their competitive advantage. In the context of social enterprises, strong financial performance is a valuable resource because it enables the organization to invest in other critical assets, such as skilled personnel, innovative technologies, and robust operational systems, all of which are essential for delivering on their social mission (Bull & Crompton, 2006).

Financial performance is also rare and inimitable in the sense that not all social

enterprises can achieve and sustain it, particularly in environments where funding is scarce and competition for resources is intense (Barauskaite & Streimikiene, 2021). Organizations that manage to maintain strong financial performance are better positioned to attract additional resources, such as grants, investments, and partnerships, which can further enhance their ability to create social impact. This financial stability offers them the autonomy and discretion needed to allocate funds where they are most needed and allows them to weather economic downturns, invest in long-term projects, and experiment with innovative solutions to social problems. In this way, financial performance is not just a measure of success but a strategic resource that enables social enterprises to build and sustain a competitive advantage, ultimately allowing them to reinforce their social impact.

Underpinning Theories and Proposed Framework

Resource-Based View: Resource Based View (RBV), also known as Resource Based Theory (RBT) concentrates on how organizations achieve competitive advantage and long-term performance through their internal resources (Barney, 1991). The resource-based theory suggests that an organization as a bundle of unique assets (tangible and intangible) and capabilities (knowledge and competencies) that differentiate one organization from other organizations in a similar industry (Chuang & Lin, 2017). More specifically, Barney (1991) categorized organizational resources into three classifications (i.e., tangible, human, and managerial resources). Such resources, satisfying the four criteria of being valuable, rare, inimitable, and non-substitutable, are termed 'strategic resources' (Semaan et al., 2020).

In the context of social entrepreneurship, resource acquisition and utilization differ from commercial entrepreneurship (Gupta et al., 2020). Social entrepreneurs operate in a challenging environment where resources are scarce (Weerawardena et al., 2021), financing is difficult (Richter, 2019), and there is a desire to bring positive externalities (Jayawarna et al., 2020). Therefore, to fulfill dual mission goals and to adapt to resource restrictions, social entrepreneurs should be competent in acquiring and mobilizing necessary resources for the delivery of products/services. These products and services, in turn, enhance social value creation and sustainable organizational growth (Agarwal et al., 2020).

The body of literature has recognized the significance of the resource-based theory in the social entrepreneurship sector

and revealed the positive relationship between organizational internal resources and the organizational performance of social enterprises (Bacq & Eddleston, 2018). In fact, there are empirical studies, which have already developed their research model for social enterprises based on resource-based perspectives (e.g., Coombes et al., 2011; Liu et al., 2014; and Meyskens et al., 2010). Along with that, scholars such as Short et al. (2009) and Bhardwaj et al. (2022) even encouraged more employment of this management theory towards hybrid social entrepreneurship research.

Hereafter, in the pertinent literature, entrepreneurial Orientation, social Orientation, and financial performance have been regarded as the distinctive internal resources and strategic attributes of an organization that helps obtain outstanding entrepreneurial performance. Barney (2001) indicated that the resource-based theory offers a valuable viewpoint for strategic management research. This is also agreed by Bacq et al. (2013) who argued that the simultaneous pursuit of serving social and financial goals makes business operations more complicated and "puts higher requirements on the social entrepreneur's ability and leadership skills". If organizations cannot translate their profit into a meaningful social impact, they have squandered precious resources. Therefore, social enterprises require effective resource leaders to manage their resources effectively.

Proposition Development

Entrepreneurial Orientation to Organizational Performance

Entrepreneurial orientation refers to organizational-level processes, practices, and decision-making styles (Covin & Miller, 2014), viewed as a strategic preference, and has been recognized as a major engine for the expansion and success of an organization (Soares & Perin, 2020). Like term in the business sector, entrepreneurial orientation is an organizational capability of top managers to respond to environmental complexity by creating a preference for innovative activities, proactive behavior, and risk management. Basically, customers take an interest in new products, services, and technologies, which may result in organizational growth. Social enterprises also hold the view that they need to be proactive to survive and to grow in the marketplace. Active organizations with continuous innovation have more often reported better organizational performance. Additionally, they have to be highly cautious in dealing with risk management with a clear focus on the survival of the organization. Effective risk management contributes to retaining and accelerating

performance variation in the long term. Therefore, entrepreneurial orientation possessed by social entrepreneurs is an asset to exploit market opportunities and resolve threats in the competitive business world, leading to the relationship between entrepreneurship orientation and financial performance is found significant, which is consistent with most of the findings from the previous quantitative research such as Braendle et al., 2019; Cheah et al., 2019, Liu et al., 2021). Thus:

Proposition 1: Entrepreneurial Orientation has a positive effect on the financial performance of social enterprises.

Financial Performance to Social Performance

In social enterprises, financial performance and social progress are inextricably linked, as the latter frequently depends on the former. Financial performance describes the state in which revenues are generated and reinvested to fulfill social impact. The fine financial performance of social enterprises allows them to continue operations, hire employees, and invest in their social goals. On the other hand, financial difficulties may have a cascading effect on carrying out social goals, reaching disadvantaged communities, or maintaining staff morale. Therefore, it is obvious that stronger financial resources obtained from trading, donors, and funders are critical for social enterprises to provide higher social value in the emerging social entrepreneurship regions. The relationship between financial performance and social achievement has not received enough attention in studies on social entrepreneurship except for Amran et al. (2023), Cho & Kim (2017), and Cheah et al. (2023). They concluded that a positive relationship could be established, or at least financial performance does not negatively affect social performance. This is not to say that financial performance is the ultimate and most important achievement of social enterprises; yet, social enterprises cannot survive with poor economic performance. Thus, the following proposition is put forth:

Proposition 2: Financial performance has a positive effect on the social performance of social enterprises.

Mediating Effect of Financial Performance

Despite the awareness of the importance of the two types of performance, social enterprises struggle to attain balanced performance. Non-profit social enterprises are more inclined to focus on social missions than good organizational management and profit-generating strategy. This can result in poor returns, which in turn hinder social performance. In addition, the shifting markets and constantly unpredictable events (e.g., the COVID-19 pandemic) have worsened the situation and

threatened the sustainability of social enterprises. Therefore, it is reasonable to let financial performance come first. It means that performing well in business practice may generate financial resources to perform activities for social goals, suggesting that social performance also depends on good economic performance.

Besides, promoting sustainable growth and self-sufficiency in social enterprises requires a strong entrepreneurial orientation. Hence, an indirect relationship between entrepreneurial orientation and the social performance of social enterprises is proposed, as this orientation helps to leverage financial performance. There is just minimal empirical evidence having examined financial performance as a mediator, such as Cho & Kim (2017) and Cheah et al. (2023). Following:

Proposition 3: Financial performance significantly mediates the relationship between entrepreneurial orientation and social performance.

Moderating Effect of Social Orientation

The relationship between entrepreneurial orientation and financial performance is expected to be significant. Despite this possible pathway, the strength of this relationship can vary depending on the social orientation of the founding entrepreneurs because it influences how these enterprises balance their dual goals of social impact and financial sustainability. When a social enterprise has a high social orientation, it places a strong emphasis on its mission, so may choose entrepreneurial opportunities that align closely with its social mission, even if these opportunities offer lower financial returns. This alignment might moderate the direct financial gains from entrepreneurial orientation. In contrast, a social enterprise with a lower social orientation might focus more on financial performance, potentially leveraging entrepreneurial orientation more aggressively to pursue profit-driven opportunities. This could lead to higher financial performance in the short term but might dilute the social mission, potentially harming the enterprise's long-term sustainability and reputation. A moderate level of social orientation might allow the enterprise to leverage entrepreneurial orientation effectively while still maintaining a strong commitment to its social mission. This balance can lead to sustainable financial performance, as the enterprise can innovate and grow while staying true to its social goals. The moderating role of social orientation has also been confirmed in the findings of Amran et al. (2023). Formally:

Proposition 4: Social Orientation significantly moderates the relationship between entrepreneurial orientation and financial performance.

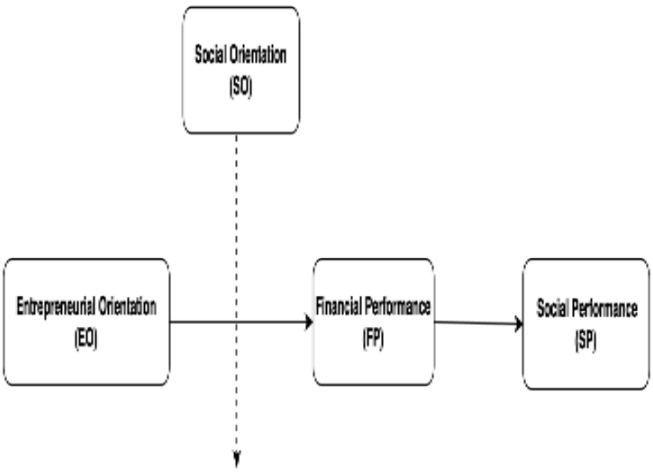

Figure 1: Proposed Research Framework

Conclusion

Achieving financial stability is as much a critical success factor to a social business organization as it is for any other organization. Traditionally, many social entrepreneurs have been reluctant to openly discuss their business aspirations, fearing it might undermine stakeholder trust in their social mission, or diminish the sympathy from external supporters (Davies et al., 2019; Mascena Barbosa & Dumont, 2024). However, this paper challenges this approach, underscoring the critical need to cultivate a business-oriented approach for the performance and sustainability of social enterprises. While the primary goal of a social enterprise is to address social or environmental issues, operating with a business mindset ensures that the organization remains financially viable and capable of scaling its impact. Without a strong business foundation, even the most well-intentioned social enterprises may struggle to sustain their activities and achieve long-term impact.

Based on the resource-based analysis, we develop a theoretical understanding of how SEs can achieve a competitive advantage for their social business model. Social enterprises, with a strong entrepreneurial orientation (EO) in terms of innovativeness, calculated risk-taking, and proactiveness could be considered as a resource-mobilizing strategy to improve their social performance through financial performance (the mediator). Financial strength is not in conflict with social performance but rather a fundamental facilitator of enduring and meaningful societal transformation. The degree of social orientation determines how much emphasis is placed on social missions, thereby affecting how EO translates into financial outcomes to keep SEs balanced. This paper has created a detailed framework that could be beneficial for future research in this field. While the conceptual framework suggested potential relationships between independent and dependent variables, empirical data is necessary to confirm these connections.

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Vol. 5, Issue 2, 2025

Understanding the Reach of Telemedicine: Awareness, Usages, and Social Business Opportunities for Sustainable Healthcare in Rural and Urban Bangladesh

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Abstract

This study investigates awareness, use, perceptions, and future intentions regarding telemedicine among rural and urban populations in Bangladesh. It further explores how these findings can inform sustainable social business strategies to expand access to telemedicine. A survey of 76 individuals from Dhaka (Urban) and Gopalganj (Rural) was conducted to assess key behaviors and attitudes. The results show that urban respondents are more familiar with telemedicine, whereas rural participants perceive it as more effective and are more likely to use it in the future. A notable gap exists between awareness and actual usage across age groups, with only weak correlations observed between perceived quality, awareness, and future intention. This suggests that people's interest in telemedicine is driven more by their healthcare needs than by familiarity with the technology. A social business model that focuses on keeping costs low, engaging the community, and reinvesting profits could help overcome barriers such as low awareness, lack of trust, and limited access. The study concludes that telemedicine, when supported by sustainable social business practices, has the potential to improve healthcare access in underserved areas of Bangladesh and other developing countries.

Keywords: social business, telemedicine, Bangladesh, digital health

Abstrak

Kajian ini menyelidik kesedaran, penggunaan, persepsi, dan hasrat masa hadapan mengenai teleperubatan dalam kalangan penduduk luar bandar dan bandar di Bangladesh. Ia seterusnya meneroka bagaimana dapatan ini boleh memandu strategi perniagaan sosial yang mampan bagi memperluas akses kepada teleperubatan. Satu tinjauan terhadap 76 individu dari Dhaka (Bandar) dan Gopalganj (Luar Bandar) telah dijalankan untuk menilai tingkah laku dan sikap utama. Hasil kajian menunjukkan bahawa responden bandar lebih maklum mengenai teleperubatan, manakala peserta luar bandar menganggapnya lebih berkesan dan lebih

cenderung untuk menggunakannya pada masa hadapan. Wujud jurang yang ketara antara kesedaran dan penggunaan sebenar merentas kumpulan umur, dengan hanya korelasi lemah diperhatikan antara persepsi kualiti, kesedaran, dan hasrat masa hadapan. Ini menunjukkan bahawa minat masyarakat terhadap teleperubatan lebih didorong oleh keperluan penjagaan kesihatan berbanding kebiasaan dengan teknologi tersebut. Model perniagaan sosial yang memberi tumpuan kepada pengekalan kos yang rendah, penglibatan komuniti, dan pelaburan semula keuntungan berupaya membantu mengatasi halangan seperti tahap kesedaran yang rendah, kurangnya kepercayaan, dan akses yang terhad. Kajian ini menyimpulkan bahawa teleperubatan, apabila disokong oleh amalan perniagaan sosial yang mampan, berpotensi meningkatkan akses penjagaan kesihatan di kawasan yang kurang mendapat perkhidmatan di Bangladesh serta negara-negara membangun yang lain.

Introduction

Bangladesh is a densely populated developing country that continues to struggle to provide equitable access to quality healthcare. The national doctor-patient ratio is well below the World Health Organization (WHO) recommendations, with only seven doctors per 10,000 population (World Bank, 2021; Kumar & Pal, 2018). The gap is even wider between cities and rural areas. Rural regions have just 1.1 doctors per 10,000 population, while major cities have 18.2 per 10,000 (Ahmed et al., 2011). Because of this shortage, many rural residents turn to informal and untrained "village doctors, who are often the first people they consult for health issues (Mahmood et al., 2010). This situation raises concerns about improper treatment, misuse of medication, and long-term health risks.

In recent years, digital health tools, particularly telemedicine, have emerged as promising solutions to overcome barriers to healthcare resulting from distance and limited resources. Telemedicine has been around for decades, but its widespread use was limited due to challenges related to access to technology, cost, and infrastructure (Bergmo, 2015; Nessa et al., 2008). The COVID-19 pandemic quickly changed this, making telemedicine a crucial means of providing care remotely and maintaining services during lockdowns and travel restrictions (Chowdhury et al., 2021). Increasingly, studies from both international and local contexts demonstrate that telemedicine can enhance access, reduce costs, and facilitate the delivery of timely healthcare, particularly in underserved communities (Ahmed et al., 2023; Bali, 2019).

Telemedicine in Bangladesh is not just about making healthcare more convenient. It also offers an opportunity to integrate social business and other entrepreneurial innovation models, such as Micro Healthcare Entrepreneurship (MHE), which combines affordability, accessibility, community empowerment, and sustainable healthcare delivery (Hossain et al., 2024). These models can help bring telemedicine, how much they know about it, how often they use it, and how these factors differ between rural and urban areas.

While earlier studies have explored telemedicine in Bangladesh, there are still few detailed comparisons of awareness, usage, and attitudes between rural and urban populations. Even fewer studies connect these findings to social business opportunities that could help telemedicine grow and last. This study aims to fill that gap by analysing survey data from Gopalganj (a rural area) and Dhaka (an urban area) to understand better how far telemedicine has reached and what its potential is in Bangladesh.

Research Objectives

This study has three primary objectives:

1. To assess the level of awareness and usage of telemedicine services among rural and urban populations in Bangladesh.
2. To examine perceptions, perceived benefits, concerns, and perceived effectiveness of telemedicine across rural and urban contexts.
3. To explore how these empirical insights can inform sustainable social business opportunities for expanding telemedicine reach in Bangladesh.

This study aims to provide evidence to help policymakers and practitioners improve digital health strategies and create scalable, socially focused telemedicine models for Bangladesh. The next sections cover literature review, methodology, results and discussion, limitations, and conclusion.

Literature Review

Telemedicine has become a vital component of digital health systems worldwide, particularly in areas where healthcare access is limited by geography, income, or staff shortages. It refers to providing healthcare remotely via technologies such as audio, video, and digital platforms (WHO, 2010). Early studies looked at whether telemedicine was practical and cost-effective. For instance, Bergmo (2015) described ways to measure economic results in eHealth, showing that telemedicine can lower costs for travel, waiting, and administration. Later research

found that telehealth systems improved inpatient care, patient satisfaction, and access to specialists (Krzystanek *et al.,* 2018; Wootton, 2012).

Telemedicine in Developing Countries

In developing countries, the adoption of telemedicine is influenced by factors such as technology readiness, digital literacy, reliable infrastructure, and local cultural norms. Sood et al. (2007) reviewed telemedicine programs in low- and middle-income countries and found that, while these programs often lead to better health outcomes, they also face challenges such as limited internet access, low awareness, and uneven service quality. Bali (2019) also noted that many developing countries face challenges in expanding telemedicine due to weak policies, uneven workforce training, and low public awareness. These challenges underscore the need for solutions that cater to local contexts and address the disparities between urban and rural areas, particularly in Bangladesh.

Telemedicine in Bangladesh

Bangladesh's healthcare system has an uneven distribution of medical professionals, and rural areas often have too few qualified doctors (Ahmed et al., 2011). Telemedicine is seen as a possible way to close this gap. Nessa et al. (2008) described the early history of telemedicine in Bangladesh and found that early adoption was low due to infrastructure constraints and low public trust. The COVID-19 pandemic, however, led to a significant increase in telemedicine use. Chowdhury et al. (2021) reported that teleconsultations rose rapidly when people could not move freely, indicating that many accepted telemedicine when regular healthcare was difficult to access. Despite recent progress, telemedicine in Bangladesh still faces challenges, including high costs, gaps in digital skills, and privacy concerns. Hoque & Sorwar (2017) found that while most people think telemedicine is helpful, in many rural areas, people often know little about it and rely heavily on informal healthcare providers, such as village doctors, which makes early adoption more difficult. Mahmood et al. (2010) noted that village doctors are often the first to treat rural patients, so they can either accelerate or slow the spread of telemedicine, depending on their involvement.

Social Business Model and Telemedicine Sustainability

Social business models are now seen as a way to provide healthcare that is both helpful to society and financially stable. Yunus (2010) introduced this idea, focusing on solving social problems through businesses that support themselves instead of relying on donations. In healthcare,

social businesses have improved access by supporting local communities, offering low-cost services to underserved groups, and utilizing digital platforms to reduce costs (Battilana & Lee, 2014). Several studies show that social business can work well in digital health. Yi et al. (2024) found that community-based digital health businesses in Southeast Asia improved health outcomes and remained financially stable by employing mixed revenue models. In rural telemedicine, social business methods can help more people utilize these services by involving local community members, encouraging them to try the services, and sustaining the programs over time. In Bangladesh, social business solutions have been used across many areas, but they are not yet widely used in telemedicine (Ashraf et al., 2019). Because there are significant differences in telemedicine awareness between cities and rural areas, and rural residents are open to using telemedicine in the future, social businesses could be a good way to expand these services sustainably.

Summary Gaps

Research shows that telemedicine can help solve major problems in Bangladesh's healthcare system, especially in rural areas. However, there are still gaps in our understanding:

1. Differences in awareness and actual usage between rural and urban populations.
2. How perceived benefits, concerns, and service quality perceptions influence adoption.
3. The role of social business opportunities in extending telemedicine reach and ensuring long-term sustainability.

This study addresses these gaps by comparing awareness, usage, perceptions, and the perceived effectiveness of telemedicine between rural and urban groups in Bangladesh. It also examines the results from the perspectives of social business and sustainable healthcare.

Methods

The study employed a cross-sectional survey design to assess awareness, usage behaviour, perceptions, and perceived effectiveness of telemedicine services among rural and urban populations in Bangladesh. The study also aimed to identify gaps between awareness and usage, demographic differences in telemedicine attitudes, and potential implications for sustainable social business strategies. The survey was conducted using structured questionnaires, both online and in person.

Two locations were selected to represent distinct population settings in Bangladesh. Dhaka is an urban metropolitan area with widespread access to healthcare facilities, diverse socio-economic groups, and relatively advanced digital infrastructure. Gopalganj is a rural district characterized by limited access to certified healthcare providers and greater reliance on informal healthcare providers. These locations were intentionally chosen to enable direct comparison between rural and urban populations regarding telemedicine awareness and adoption.

Individuals aged 18 years or older residing in Dhaka and Gopalganj were included in the study. The sample consisted of 76 participants, comprising 41 from Dhaka and 35 from Gopalganj. Convenience sampling was employed due to challenges in accessing certain rural areas and achieving a balanced sample. Participants from Dhaka were recruited online, whereas local field workers in Gopalganj invited individuals in public places to share their feedback.

Data collection was conducted in May 2024. Two modes were utilized: an online survey for Dhaka residents, distributed via Google Forms through social networks and email, and face-to-face interviews for Gopalganj residents using printed questionnaires to address lower digital literacy. Informed consent was obtained from all participants. The survey comprised close-ended questions on demographic characteristics, awareness and usage of telemedicine, perceived benefits and concerns, perceived effectiveness, and likelihood of future use, measured on a 5-point Likert scale. The primary variables included awareness (yes or no), telemedicine usage (yes or no, with frequency), perceived quality compared to in-person care (much better, better, about the same, or worse), perceived effectiveness for rural and urban healthcare needs (1-5 scales), and future likelihood of use (1-5 scale). Demographic data, including age, gender, occupation, and location, were also collected.

Data were analyzed using Python (Pandas, SciPy, StatsModels) to perform both descriptive and inferential statistical analyses. Descriptive statistics included frequencies, percentages, means, and standard deviations. Cross-tabulations were used to explore patterns across demographic groups, and chi-square tests examined associations among categorical variables, including location and awareness, location and usage, awareness and usage, and gender and awareness or usage. Independent-sample t-tests and Mann-Whitney U tests compared rural and urban respondents on future likelihood of

telemedicine use, perceived effectiveness, and perceived quality. Effect size calculations, such as the r-statistics, quantified the magnitude of observed differences. Logistic regression was attempted to predict telemedicine usage; however, quasi-separation occurred because none of the "not aware" respondents reported use, rendering awareness a perfect predictor of use. Consequently, the regression coefficient could not be reliably estimated. All analyses were conducted at a significance threshold of $p < .05$.

Participation was voluntary, and respondents were informed of the study objectives, confidentiality procedures, and their right to withdraw at any time. No personally identifiable information was collected. Online responses were stored securely, and physical questionnaires were managed exclusively by trained field assistants.

Results

This section presents findings on telemedicine awareness, usage patterns, perceptions and future intentions among rural and urban respondents in Bangladesh. These results incorporate deeper analytical insights, including age-based awareness-usage disparities and correlations among key behavioural variables.

Awareness and Usage of Telemedicine

Among the 76 respondents, 44.7% reported being aware of telemedicine services, but only 21.1% had ever used them. Awareness differed significantly by location: 68% of urban respondents were aware compared to 17% of rural respondents ($\chi^2(1) = 17.97$, $p < .001$). However, usage remained uniformly low in both groups (urban: 26.8%; rural:14.3%), with no significant difference (p=0.292). Importantly, none of the respondents who were unaware of telemedicine had ever used it, indicating that awareness is an essential prerequisite for adoption ($\chi^2(1) = 22.28$, $p < .001$). Age-based differences in the awareness-usage gap are visualized in Figure 1. Younger age groups (particularly 18-24 and 25-34) exhibit higher awareness, but their usage levels remain comparatively low, creating a substantial gap. Older age groups show lower awareness and nearly negligible usage. This pattern highlights significant latent potential in younger populations, those who know about telemedicine but have not yet translated awareness into use. Such insights are useful for designing targeted awareness or activation strategies.

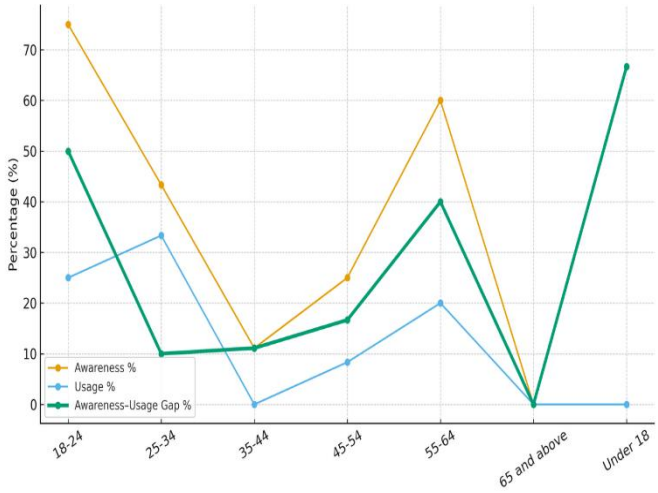

Figure 1: Awareness-Usage Gap by Age Group

Perceptions of Telemedicine: Quality, Benefits, Concerns, and Effectiveness

Respondents reported moderately positive views of telemedicine quality, with an overall mean of 2.56 on a 4-point scale, and no significant difference was found between rural and urban respondents ($p = 0.787$). Commonly reported benefits included convenience, reduced travel costs, and improved access to specialists. Concerns, on the other hand, centred on privacy, connectivity issues, and a preference for face-to-face interactions. Perceived effectiveness varied by context. Rural respondents rated telemedicine as highly effective for improving rural healthcare access ($M = 4.06$), reflecting a strong recognition of unmet needs in their communities. Urban respondents rated effectiveness more moderately ($M = 3.10$), consistent with their greater access to in-person services. To better understand how perceptions relate to actual behavior, Figure 2 presents a correlation heatmap of four core variables: awareness, usage, perceived quality, and future intention. Awareness and usage are strongly correlated, confirming the dependency observed in descriptive results. However, perceived quality shows a weak association with both awareness and usage, suggesting that quality perceptions do not meaningfully drive adoption at this stage. Future intention also correlates only weakly with other variables, suggesting that motivational factors may be more influenced by contextual needs than by past experience or quality judgments.

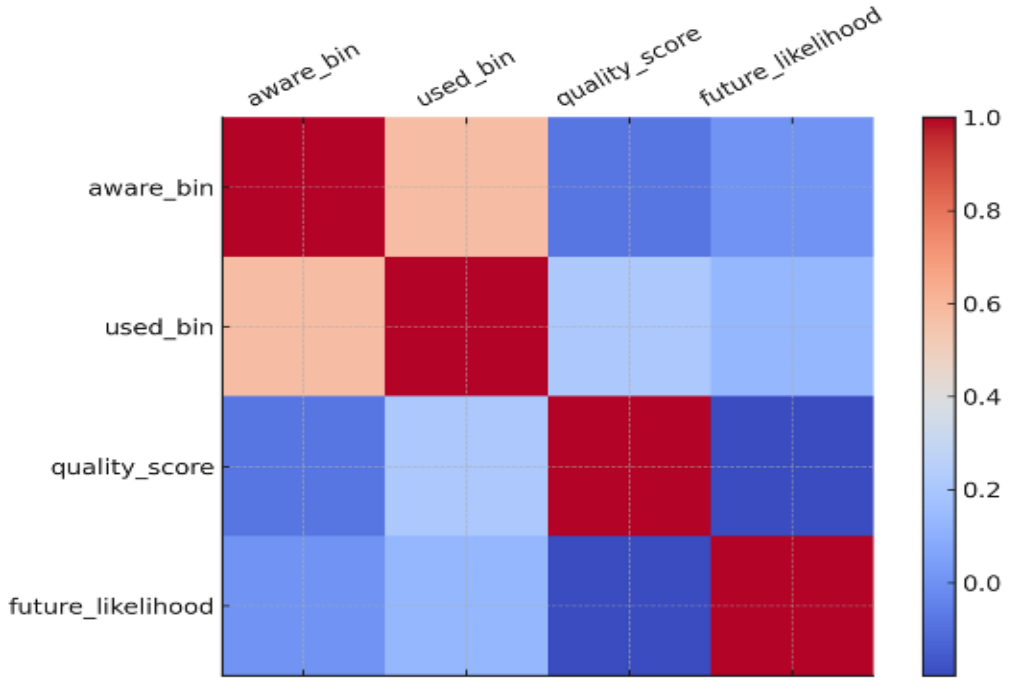

Figure 2: Correlation Heatmap of Key Telemedicine Variables

Future Intentions to Use Telemedicine

The overall mean score for future likelihood of using telemedicine was 3.34, indicating generally positive attitudes toward potential adoption. Rural respondents expressed significantly stronger intention to use telemedicine (M= 3.77) than urban respondents (M= 2.98), as confirmed by both parametric (t (67.6) = – 2.57, p = .012) and non-parametric tests (U= 474.5, p= 0.009). This medium effect size (r ≈ 0.30) indicates that, despite low awareness, rural communities exhibit higher motivation and perceive greater effectiveness, positioning them as a promising target group for future telemedicine expansion. Interestingly, neither awareness nor prior usage significantly influenced future intention (p > 0.30), consistent with the weak correlations shown in Figure 2. This suggests that interest in telemedicine is not currently driven by familiarity or experience but by underlying unmet healthcare needs, especially in rural populations.

Taken together, the results show that while telemedicine awareness is concentrated in urban areas, rural respondents express stronger perceived effectiveness and higher future use intentions. The awareness-usage gap and weak behavioural correlations across variables suggest that telemedicine

adoption in Bangladesh is still in its early stages of development. These insights highlight clear opportunities for targeted awareness initiatives and socially oriented business models that prioritize rural healthcare access and community-level engagement.

Discussion

This study aimed to investigate how people in rural and urban Bangladesh perceive, utilize, and feel about telemedicine, as well as their future plans for its use. We also examined how these findings could inform sustainable social strategies. The results indicate that telemedicine is still relatively new in Bangladesh, characterized by low awareness, limited adoption, and a notable disparity between rural and urban areas. Still, people's views on its effectiveness and their intentions to use it suggest there are good opportunities for targeted, sustainable solutions.

Awareness-Usage Gaps in the Context of Existing Literature

The gap between awareness of telemedicine and its actual use in this study is similar to what has been observed in other low- and middle-income countries (LMICs). Research from South Asia shows that merely being aware of digital health tools does not guarantee their use (Rahman et al., 2021; Hoque & Sorwar, 2017). Even though younger people are more comfortable with technology, they often lack clear ways to turn awareness into action, a phenomenon also observed in India and Nepal (Chandwani & Dwivedi, 2015). Our data, by age group, reveal the same trend: young adults are aware of telemedicine, but few actually utilize it. The significant difference in awareness between urban (68%) and rural (17%) areas is consistent with findings in Kenya, Ghana, and the Philippines, where city residents tend to benefit more from telehealth (Dodoo et al., 2021; Fabian et al., 2024). Rural areas often lack the digital infrastructure, support, or exposure needed to adopt telemedicine (Hengst et al., 2023). These results demonstrate that awareness is a crucial factor in adopting telemedicine, aligning with Technology Acceptance Models (TAM), which suggest that individuals must be aware of a technology before they intend to use it (Davis, 1989; Venkatesh et al., 2003).

Perceived Effectiveness and the Role of Contextual Healthcare Needs

Even though rural participants had less awareness and digital skills, they perceived telemedicine as being significantly more effective for healthcare. Similar results have been found in rural Indonesia and Ethiopia, where people view telemedicine

as a viable option when healthcare is difficult to access (Alfian et al., 2025; Chereka et al., 2024). This suggests that people's need for healthcare, rather than their familiarity with telemedicine, is the primary reason they accept it. The correlation heatmap shows that perceived quality, usage, and future intention are only weakly linked. Other studies have found that in places where digital health is new, people prioritize ease, convenience, and affordability over quality (Eslami Jahromi & Ayatollahi, 2023; Zahid et al., 2023). Our results are similar: people, especially those in rural areas where in-person care is difficult to access or expensive, are willing to use telemedicine, even if they do not think it is of high quality.

Implications for Social Business Opportunities

Bringing together our findings and social business ideas points to several practical steps. The social business model, as described by Yunus (2010) as mission-driven companies that use profits to benefit society, is a good fit for growing telemedicine in Bangladesh. The intense interest in rural areas suggests that these types of businesses could help address gaps in healthcare access. Previous studies on health-focused social businesses in Bangladesh, such as BRAC Health and Grameen Health, demonstrate that community-based services can foster trust and encourage people to utilize them, even in low-resource areas (Chowdhury et al., 2021; Jahan & Khondaker, 2023). Our results suggest that similar approaches could be effective for telemedicine, such as community kiosks, small telehealth centers, and hybrid digital and offline services. Table 1 illustrates how social business can help address the identified challenges. For instance, very low awareness in rural areas aligns with research indicating that community health workers are an effective way to promote digital health (Hosseini et al., 2024). Additionally, the strong interest in telemedicine in rural areas aligns with business models that prioritize low cost and subscription access, which have proven effective in Kenya and Rwanda (Wilson et al., 2023).

Table 1: Social Business Opportunities for Addressing Key Challenges in Telemedicine Awareness and Use

Social Business Features	Survey Insights	Key Challenges	Social Business Opportunities
Mission-driven focus	Rural respondents see telemedicine as highly effective.	Unmet rural healthcare needs.	Deploy low-cost rural telemedicine hubs prioritizing essential care.
Financial sustainability	High rural intention to use.	Limited ability to pay.	Affordable subscriptions or micro-payment models.
Affordable pricing	Low overall usage (21%).	Cost concerns and risk aversion.	Free first consultation; cross-subsidized pricing.
Community involvement	Very low rural awareness (17%).	Low digital literacy and trust.	Use community health workers or local entrepreneurs for awareness and service delivery.
Transparency and trust	Weak link between quality perception and usage.	Low trust in remote care.	Verified doctors, clear fees, guaranteed follow-up.
User empowerment	Awareness-usage gap (younger groups)	Awareness is not converting into action.	Simple interfaces, onboarding support, and incentives for first-time users.
Reinvestment for social impact	Rural areas identify strong benefits.	Scaling requires infrastructure.	Reinvest profits to expand kiosks, devices, and outreach.

A social business model can play a vital role by designing services that align with local needs, leveraging community networks, and operating sustainably with nominal profit while reinvesting profits to support scale-up. Unlike charity-based rural health initiatives or costly private medical services, a social business-driven approach can deliver healthcare that is more accessible, affordable, and sustainable.

Such a model has the potential to bridge existing gaps in awareness, access, and infrastructure, ultimately leading to equitable adoption of telemedicine across the country.

Conclusion

This study investigated the awareness, utilization, perceptions, and future intentions regarding telemedicine among residents of rural and urban areas in Bangladesh. It further examined how these findings could inform social business strategies to enhance healthcare access. The results indicate that awareness of telemedicine is significantly higher in urban areas. However, rural participants perceived telemedicine as more effective and expressed greater willingness to use it in the future. These findings highlight a substantial unmet demand for telemedicine in rural communities and suggest that, with appropriate service models, telemedicine could serve as a practical and affordable healthcare solution. Adding social business to make service more affordable, involving the local community, and reinvesting profits can make telemedicine more sustainable and inclusive.

This study has several limitations. The sample size, limited to two districts, may restrict the generalizability of the findings. Self-reported data may introduce errors or bias. Additionally, the cross-sectional design does not allow for causal conclusions. Future research should utilize larger, more diverse samples and consider longitudinal or experimental designs to gain a deeper understanding of the factors influencing telemedicine use.

Despite these limitations, the findings offer practical value. Policymakers, telemedicine providers, and social entrepreneurs can use this information to develop awareness campaigns, localized service models, and affordable packages tailored to community needs. Future research should explore strategies to bridge the gap between telemedicine awareness and usage, and assess how digital literacy programs and community health workers can support sustained engagement.

In summary, telemedicine has the potential to significantly improve healthcare access in Bangladesh and other developing countries, particularly in underserved rural areas. Combined social business strategies can contribute to a more equitable, sustainable, and scalable health system.

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ALBUKHARY INTERNATIONAL UNIVERSITY
albukhary socialbusiness journal
Vol. 5, Issue 2, 2025

Proposal of a Theoretical Model for Measuring the Social Impact of Community Savings.

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Abstract

This article develops and conceptually clarifies a theoretical framework for measuring and managing the social impact of Self-Financed Communities (SFCs), with particular emphasis on usefulness and outcomes related to well-being, resilience, and opportunity in line with the Financial Inclusion 2.0 agenda. A deductive-descriptive research design was adopted, drawing on three primary inputs: a synthesis of academic and institutional literature on financial inclusion, financial health, and savings groups; a mapping of impact pathways and core metric sets from IRIS+; and alignment with CGAP's impact narrative centered on resilience and opportunity, complemented by evidence from the Global Findex 2021 and recent findings from the 60 Decibels Microfinance Index.

The proposed model identifies six dimensions of change—economic, health, psychological, social-community, gender equity, and education—and introduces a structured set of indicators aligned with IRIS+ metrics and the Sustainable Development Goals (SDGs). It further presents an impact value chain tailored to SFCs, outlines a validation protocol using case study approaches, and proposes a core indicator set for operational application. Existing evidence suggests that financial service outcomes are heterogeneous and influenced by product design, contextual factors, and client characteristics, while the integration of financial training, complementary services, and group-based lending mechanisms enhances reported outcomes. The study offers operational recommendations for SFC promoters, including financial and digital literacy initiatives, advisory support, and client protection protocols, and proposes alignment with national financial education and inclusion strategies. It also specifies hypotheses and methodological approaches for future validation through longitudinal and experimental research designs. Evidence from CAF groups in Europe indicates comparable improvements in trust and leadership development.

***Keywords*:** financial inclusion; savings groups; self-financed communities; IRIS+; theory of change; impact measurement; financial health

Abstrak

Artikel ini membangunkan dan memperjelas suatu kerangka teoretikal bagi mengukur serta mengurus impak sosial Komuniti Swabiaya (SFC), dengan penekanan terhadap kebergunaan dan hasil yang berkaitan dengan kesejahteraan, daya tahan dan peluang, selaras dengan agenda Rangkuman Kewangan 2.0 (Financial Inclusion 2.0). Reka bentuk kajian deduktif-deskriptif telah diguna pakai dengan memanfaatkan tiga input utama, iaitu: (a) sintesis literatur akademik dan institusi berkaitan rangkuman kewangan, kesihatan kewangan dan kumpulan tabungan; (b) pemetaan laluan impak serta set metrik teras daripada IRIS+; dan (c) penjajaran dengan naratif impak CGAP yang menekankan daya tahan dan peluang, disokong oleh data Global Findex 2021 serta dapatan terkini daripada Indeks Kewangan Mikro 60 Decibels.

Model yang dicadangkan mengenal pasti enam dimensi perubahan, iaitu ekonomi, kesihatan, psikologi, sosial-komuniti, ekuiti gender dan pendidikan, serta memperkenalkan satu set indikator berstruktur yang selaras dengan metrik IRIS+ dan Matlamat Pembangunan Mampan (SDG). Kerangka ini turut mencadangkan rantaian nilai impak yang disesuaikan khusus untuk SFC, menggariskan protokol pengesahan melalui pendekatan kajian kes, dan menyediakan set indikator teras untuk kegunaan operasi. Bukti sedia ada menunjukkan bahawa hasil perkhidmatan kewangan adalah bersifat heterogen dan dipengaruhi oleh reka bentuk produk, faktor konteks serta ciri-ciri klien, manakala pengintegrasian latihan kewangan, perkhidmatan pelengkap dan mekanisme pinjaman berkumpulan berpotensi meningkatkan hasil yang dilaporkan. Penemuan daripada kumpulan CAF di Eropah turut menunjukkan peningkatan yang sebanding dari segi pembinaan kepercayaan dan pembangunan kepimpinan.

Introduction

Financial inclusion is understood as access to and effective use of affordable and responsible financial services that meet the needs of individuals and businesses. Recent studies confirm that financial inclusion is multidimensional and requires more than access and usage (Pesqué-Cela et al., 2021). Beyond access, the focus is on outcomes—such as agency, resilience, and opportunities. According to Global Findex (World Bank, 2022), 1.4 billion adults

remain unbanked despite progress in digital payments; the challenge is to turn access into better results for households and microenterprises.

Self-Financed Communities (SFCs)—also known as Bankomunales or VSLAs—are self-managed savings and credit mechanisms based on trust. They have shown positive effects on savings, risk management, and women's economic participation, though results vary by design and context.

Objectives and Research Questions

This study proposes a theoretical model for measuring the social impact of financial inclusion programs implemented through self-financed communities (SFCs), demonstrating that financial education, facilitated by community-based savings practices, self-management, and credit access, is an effective means of generating positive changes in participants' well-being. This work seeks to advance scientific understanding of poverty alleviation, following in the footsteps of the 2018 Nobel laureate in Economics, Esther Duflo.

Thus, specific objectives of this study are as follows:

1. Determine the dimensions of social impact resulting from financial inclusion facilitated by participation in a community savings group and its trajectory of change.
2. Develop a set of impact indicators suitable for each dimension.
3. Verify whether the proper implementation of an SFC contributes to the well-being of individuals facing financial exclusion.

All of this is based on the following research questions:

1. What roles do financial education, savings, credit, and community belonging play in transformation? What patterns explain group success or failure?
2. How do income, consumption, and resilience evolve among members?
3. How do SFCs contribute to well-being outcomes in CGAP's impact narrative?

Conceptual Delimitation

Savings groups emerged several decades ago as tools to complement credit and microfinance. They involve "members who save together, lend their savings with interest, and share the benefits" (Allen, H., & Panetta, D., 2010). In this document, we will focus on Bankomunales and Self-Financed Communities, terms we will clarify before proceeding. The term "Bankomunal" refers to savings and credit groups whose origins date back to 1998 in Venezuela, when Salomon Raydán, inspired by other practices, established these self-managed communities under the name "Bankomunales" through Fundefir

(Rivas et al., 2011). Later, Jean Claude Rodríguez referred to them as "Self-Financed Communities" (hereinafter, SFC), a term adopted throughout this document and synonymous with "Bankomunales". A Self-Financed Community is "a community organization in which members, usually of minimal resources, are both shareholders and credit seekers. In other words, they own the capital and take on the business of providing credit to generate profits and distribute them" Section 2.2 delves deeper into this concept and explains how SFCs become tools for financial inclusion**.**

Relevance

Financial inclusion and its significance for people's well-being entered the global political agenda in 2009, particularly during the G-20 meeting in Pittsburgh. Financial inclusion is considered a key factor in reducing poverty and driving prosperity. Numerous initiatives have been undertaken in this regard, leading to significant advancements since 2009. Efforts have focused on refining the definition, collecting data (Global Findex), and governments of developing countries committing to goals and sharing successful experiences. However, little has been written about measuring its impact.

Measuring the social impact produced by micro-financial tools, understood as vehicles for inclusion and development, has become a necessity. However, there is little consensus on methods, standards, and frameworks for measuring this impact, let alone the concept of social impact and its measurement (San Pedro and Ballesteros, 2021). The relevance and need for instruments and measurement results for these impacts are clear: whereas in the past demonstrating proper and coherent resource use sufficed to achieve results, it no longer does.

San Pedro and Ballesteros (2021; 23-24) compile a comprehensive and intriguing list of social impact definitions used in academic literature. Following Höchstädter & Scheck (2015) and Mackevičiūtė (2020), they emphasize that regardless of the chosen definition, three indispensable dimensions are inherent in its conceptualization: the intention to generate such impact, its financial profitability, and its management and measurement.

Like the lack of a singular definition for "social impact" there doesn't seem to be one for the term "measurement and management of impact" (European Commission & OECD, 2015). In this context, San Pedro and Ballesteros (2021; 37) establish, after consulting a wide range of experts from academia and professionals, that any measurement must put stakeholders at the centre, focusing on social changes directly resulting from the entity's actions that can be verified. Furthermore, impact measurement should

serve organizations' management, enabling the measurement of generated impact to show the created value and integrate social performance throughout the value chain.

Scientific literature on measuring the impact of financial inclusion has grown rapidly in recent years. However, research on the impact of various dimensions of financial inclusion on economic development is still nascent, especially regarding payments/transfers, savings, and insurance (Demirguc-Kunt et al., 2017: 19). Doubts also exist about the applicability of findings from randomized studies in one country to other countries and groups (Demirguc-Kunt et al., 2017).

Research Methods

The methodology used for this research is deductive and descriptive. Starting from the design of a theoretical conceptual model based on scientific literature, the study examines how community savings groups contribute to the financial inclusion envisioned by the Consultative Group to Assist the Poor (CGAP) of the World Bank. Using the model's design as a basis and drawing on references such as the IRIS+ standards and indicators, as well as the CGAP-designed theory of change for financial inclusion, indicators for measuring social impact have been developed. These indicators will be subsequently validated against information provided by a case study in a later phase of the research.

Theoretical Framework from Inclusion to Financial Health:

Financial inclusion is understood as individuals' and businesses' access and usage of a suitable array of financial products that meet their needs, which brings forth numerous advantages. An inclusive financial system enhances efficiency and security in savings practices and other financial services, as well as overall well-being (Sarma & Pais, 2011). Furthermore, it reduces reliance on informal credit sources (loan sharks) that are often exploitative. Meta-analyses show that financial education improves literacy and behaviour, though effects vary by income level (Kaiser & Menkhoff, 2017). The UNSGSA framework emphasizes financial health as resilience, confidence, and goal-setting (UNSGSA, 2021).However, Demirguc-Kunt, Klapper, and Singer (2017: 3 and 4) assert that the relationship between financial inclusion, inequality, and economic growth isn't yet well understood, and there's limited research on this due to a lack of historical data series for measuring the impact of financial inclusion.

The lack of financial inclusion can be attributed to various factors related to both demand and supply of financial services

(Herrera and Raccanello, 2014). On the demand side, low-income levels and lack of financial education diminish savings and prevent potential clients from appreciating the benefits of these services. On the supply side, the presence of a financial sector concentrated on segments of the population with higher purchasing power, offering financially limited instruments, coupled with greater urban coverage compared to rural areas, disadvantages the population, particularly those concentrated in the latter.

People seek the most convenient and secure ways to accumulate, retain, and transfer value. Financial inclusion helps families save and plan for recurring expenses, such as education or rent. Several studies highlight that inclusion can improve income, and increase savings, enabling previously excluded individuals to invest in necessities such as health, education, food, business growth, or effective financial risk management (Adams, 2018). However, financial services don't always generate uniform effects. The literature shows different paths through which financial inclusion can change the lives of the poor, but it doesn't always translate into poverty reduction (Tomilova & Dokle, 2019). Context, particularly regulatory framework, macroeconomic stability, social policy, good governance, and community assets and resources, significantly influence this outcome (Tomilova, & Dokle, 2019). Based on evidence analysis and extensive consultation, this international alliance of organizations considers that the impact of financial inclusion is linked to individuals' well-being rather than to poverty levels. They develop a Theory of Change that serves as a global framework of reference to guide research and action, which will be considered in section 2.3 for creating the dimensions of the impact measurement model.

Within the context of financial inclusion, financial education is defined as "the process by which consumers and investors improve their understanding of financial concepts and products; and through information, instruction, and objective guidance, develop the skills and confidence to become more aware of financial risks and opportunities that enable them to make informed decisions, know where to turn for help, and take other effective actions to enhance their well-being and security" (OECD, 2005). An interesting study by Atkinson and Messy (2012) delves into the conceptualization of the term, offering insights into its relation to financial inclusion. Specifically, this study discusses financial literacy concerning the possession of knowledge, skills, attitudes, and behaviors necessary for making sensible

decisions about matters that can affect financial situation and well-being).

Financial capability is thus a comprehensive concept that necessarily links individual functioning to entities within the financial system (Calderón et al., 2014). It is defined as "the ability and opportunity to use the knowledge and skills involved in financial literacy" (Lusardi and Michell, 2011). It's also "the combination of knowledge, skills, and attitudes, with the opportunity to apply them" (Calderón et al., 2014). Therefore, it's not merely about acquiring knowledge but also about the capacity and opportunity to use it appropriately to improve economic and financial decisions. Education and financial knowledge alone aren't enough; an inclusive financial system is necessary.

Financial inclusion is part of a broader concept, financial health, which refers to the financial well-being of individuals – the ability to manage the financial aspects of their lives properly. Key elements of financial health include the ability to save, earn more than you spend, manage debt, handle financial shocks, make sound financial decisions, and achieve financial freedom, which means meeting financial needs without extraordinary effort**.**

Self-Financed Communities. A Tool for Financial Inclusion

Microfinance institutions, initially focused on providing loans to individuals unable to access credit, emerged in the 1970s. However, it was during the 1980s that group-based methodologies began to develop. The primary proponent of such methods was Yunus (1999), who introduced a new idea in rural communities in Bangladesh by creating the Grameen Bank, which offered microloans to aid community development. Since then, various initiatives have arisen from microfinance, such as Rotating Savings and Credit Associations (ROSCA), community banks, bankomunales, and self-financed communities (SFCs). These group-based models are characterized by mutual aid and addressing the basic economic needs of their members.

Numerous terms exist across different countries to describe the same concept: *bankomunal* in Venezuela, *tontín* in Cameroon, *pandero* in Peru, and *arisán* in Indonesia, all denoting the idea of satisfying the savings and investment needs of small communities through informal financial mechanisms. Self-financed communities are composed of individuals forming a group that contributes social capital, enabling the granting of small loans to group members. One of their main characteristics is their autonomy and independence. The Association of Self-

Financed Communities (ACAF) defines them as "small communities in which members, usually ranging from 10 to 30 individuals, contribute small amounts of money that allow them to become owners of the SFC. With the created fund, small loans are offered to members for covering expenses such as repairs, schoolbooks for children, remittances to the home country" (Debref & Boudes, 2016; Association of Self-Funded Communities, 2020). Moreover, regulations should cover minimum action, credit repayment terms, interest rates, penalties, the need for collateral, maximum loan amount, maximum cash holdings, and meeting frequency (Durán Navarro et al., 2011). Group formation primarily relies on trust among members, savings capacity, and individual responsibility.

According to ACAF, SFCs offer several advantages, including easy access to small credit, stimulation of individual savings, distribution of credit repayments among SFC members, facilitating access to other services, and serving as a platform for financial education. From a social standpoint, SFCs foster a sense of community belonging, a support network, and boost confidence and leadership.

Belonging to an SFC has a positive impact across various domains, including economic, health, psychological, educational, familial, and communal realms, as well as multicultural aspects (Crespo, 2013). This self-financing system is rooted in values of solidarity and trust, involving a learning process that makes it an interesting tool for promoting financial inclusion

Social Impact Dimensions in Self-Financed Communities

To identify the main dimensions of impact within Self-Financed Communities (SFCs), three complementary approaches have been undertaken. Firstly, a review of scientific literature was conducted to empirically identify impact dimensions associated with organizations engaged in financial inclusion. This literature focuses on various aspects or dimensions, indicating that the changes brought about by financial inclusion processes are diverse and affect a wide range of aspects of people's lives and communities. Some authors emphasize economic aspects (Banerjee & Duflo, 2015), while others explore its impact on health (Dupas & Robinson, 2013) or dietary habits (Attanasio et al., 2011), education (Angelucci et al. 2013), and gender equity (Ahsraf et al. 2010).Recent systematic reviews and meta-regressions underline heterogeneity in empowerment outcomes, stressing the need for complementary interventions (Duvendack et al., 2025).

Secondly, the social impact measurement consultancy "60 Decibels" developed a Microfinance Index in recent years. They conducted an initial measurement in 2021, surveying 8,000 clients across five impact areas: Access, Business Impact, Family Impact, Financial Management, and Resilience.

Thirdly, CGAP's (2019) Theory of Change, which offers a contemporary narrative on the impact of access to financial services for the poor, served as a framework. This proposal considers individual and contextual factors to explain how financial services can drive changes that improve well-being. Following the suggested pathways of change, well-being improvement arises through enhanced resilience and better utilization of opportunities, two mutually reinforcing changes. Resilience, on the one hand, alleviates stress from uncertainty and risk for the poor, allowing openness to riskier but potentially more rewarding long-term investments. On the other hand, a person's ability to seize opportunities depends on financial resources, human capital, and physical capacity. Financial services contribute to these three outcome areas, facilitating increased and diversified income for people in poverty and improved household expense management. Financial inclusion also contributes to human capital development, enabling people to invest in education and develop support networks, which, in turn, can lead to higher levels of self-efficacy and better future prospects. Finally, financial services enable investments in basic services such as water, sanitation, housing, energy, and health, thereby enhancing physical capacity.

Drawing on a literature review, the "60 Decibels" index, and CGAP's Theory of Change, our approach focuses on analysing databases that compile recognized indicators (IRIS+ and SDG metrics) within the professional impact community. This involves adapting some indicators to the proposed model and creating new ones deemed relevant in this specific context. Alignment with IRIS+ and MIX standards ensures comparability across financial inclusion initiatives (IRIS & MIX, 2020).

Based on these approaches, the following dimensions encompassing the identified aspects are proposed in this research:

1. Economic Dimension
2. Health Dimension
3. Psychological Dimension
4. Social/Community Dimension
5. Gender Equity Dimension
6. Educational Dimension

The economic dimension encompasses five main outcome types:

- Increase in savings capacity (Karlan et al. 2017) (IRIS+)

- Increase in investment (Dupas & Robinson, 2013a) (Attanasio et al., 2011) (Augsburg et al., 2012) (Cole et al., 2013) (Karlan et al., 2013) (IRIS+)
- Growth in consumption/spending and client income (Banerjee et al., 2014) (Crepón et al., 2011) (Karlan & Zinmmann 2011) (Angelucci et al., 2013)
- Improved financial resilience (Matul et al., 2012) (IRIS+)
- Reduction in client income (negative impact associated with investment failure) (IRIS+)

The Health Dimension encompasses three notable changes:

- Increased healthy eating habits (Attanasio et al., 2011)
- Higher spending on preventive health (Dupas & Robinson, 2013b)
- Enhanced crisis health management capability (Dupas & Robinson, 2013b)

The Psychological Dimension integrates three types of changes:

- Improved mental health (Karlan & Zinmann, 2010) (Angelucci et al., 2013)
- Enhanced self-concept/self-esteem (Angelucci et al., 2013)
- Increased personal autonomy/independence

The Social/Community Dimension also encompasses three types of changes: 4

- Heightened sense of belonging
- Increased social capital (Social Network)
- Enhanced leadership

The Gender Equity Dimension includes:

- Increased income volume among female clients (IRIS+)
- Women's empowerment (Ahsraf et al., 2010) (SDG 5)

Lastly, the Educational Dimension involves four changes:

- Improvement in financial education and new technology usage
- Enhancement in economic/financial decision-making (Angelucci et al., 2013)
- Incorporation of healthy financial habits
- Increased educational level of family members (schooling) (SDG 4)

Proposed Theoretical Model for Measuring Social Impact in Financial Inclusion

Proposed Impact Value Chain for SFCs: In this section, a theoretical model is proposed for measuring the social impact of financial inclusion, particularly within Self-Financed Communities (SFCs). This model, as shown in Figure 1, is built on the identified impact dimensions and the

specific types of change within each dimension. It represents an impact value chain that elucidates the process of social impact generation, identifying inputs or resources, activities, outputs or products (short-term results), outcomes or changes induced (medium- and long-term results), and impacts. This impact value chain aligns with CGAP's theory of change, which defines outcomes and effects generated by financial services in terms of well-being, accounting for both individual and contextual factors. The proposed value chain conforms to this model, as can be seen in Figure 1.

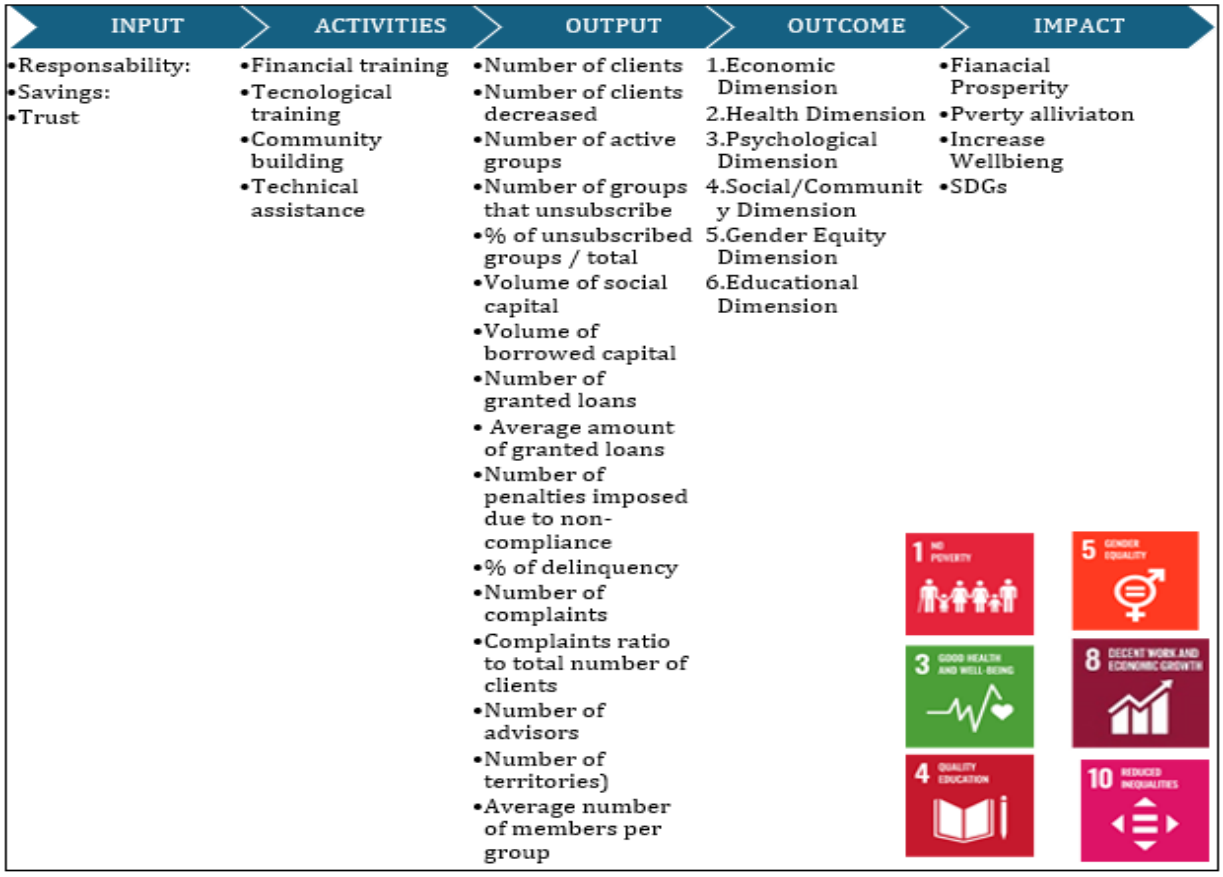

Figure 1. Proposed Value Chain

Proposed Indicators Framework

Building on the impact value chain outlined above, a set of indicators is proposed to measure the social impact of Self-Financed Communities (SFCs) and financial inclusion efforts. These indicators are designed to capture changes across various dimensions resulting from activities and interventions within SFCs.

Table 1: Proposed indicators for inputs

INPUTS		
RESPONSIBILITY:	% of delinquency and total delinquent amount.	
	% of clients not complying with regulations	
	% of sanctioned clients	
SAVINGS:	Average initial contribution amount	
	Total volume of saved capital	
	Average saved capital per client member	
TRUST	% of membership applications to the group rejected	
	% of loans rejected de to lack of trust	
	% of members leaving or complaining due to lack of trust	
	Declared level of trust among group members	IRIS + OI7914

Table 2: Proposed indicators for activities

ACTIVITIES		
FINANCIAL TRAINING	% of monthly time dedicated to financial training	IRIS + PD9681
TECHNOLOGICAL TRAINING	% of monthly time dedicated to technological training	IRIS + PD9681
COMMUNITY BUILDING	% of time dedicated to conducting shared activities, events	IRIS + PD9681
TECHNICAL ASSISTANCE	Number of hours devoted to consulting at each group	IRIS + PD9681
	% of monthly time dedicated to customer consulting	IRIS + PI9319

Table 3: Proposed indicators for outputs

OUTPUTS
Number of clients
Number of clients decreased

Number of active groups	
Number of groups that unsubscribe	
% of unsubscribed groups with respect to the total	
Volume of social capital	
Volume of borrowed capital	
Number of granted loans	IRIS + PI1478
Average amount of granted loans	IRIS + PI5160
Number of penalties imposed due to non-compliance	
% of delinquency	IRIS + FP2635
Number of complaints	IRIS + PI7163/OI5049
Complaints ratio to total number of clients	IRIS + PI9872
Number of advisors	
Number of territories where they are present (provinces/municipalities)	
Average number of members per group	

Table 4:. Proposed indicators for outcomes

OUTCOMES			
Economic Dimension	Increase in Savings Capacity	Savings value or amount	IRIS+ (PI3240)
		Calculation of the change in savings account value	IRIS+ (PI3240)
	Increase In Investment	Number of new businesses created thanks to the loan	
		% of newly created businesses out of the total group of businesses	
		% of businesses that have grown due to the loan:	
		Number of new jobs directly financed by the loan	

		% of businesses belonging to the group that have created new jobs	
		Number of employees exceeding the minimum wage	
		% of clients transitioning from subsistence farming to commercial farming	
		% of granted credit dedicated to business investment	
	Growth in Customer Consumption/Spending and Income	% increase in household consumption and expenses	IRIS+ (PI5184)
	Enhancement of Financial Resilience	Number of transactions performed by clients	
Health Dimension	Increase in Healthy Eating Habits	% of family expenditure dedicated to healthy foods	
	Rise in Preventive Healthcare Spending	% of family expenditure dedicated to preventive healthcare	
	Improvement in Crisis Management Capacity for Health Issues	Number of visits to health centers/hospitals	
		Ratio: medical visits/need, health crisis	
Psychological Dimension	Betterment of Mental Health	Level of stress reported due to repayment of loans under usurious conditions	
		Level of stress reported by the client due to pressure caused by loan repayment	

	Boost in Self-Esteem	Number of reported episodes of depression Declared level of trust in others by the client Perception of respect and intrafamily leadership by the client Declared level of self-esteem	
Social/ Community Dimension	Sense of Belonging	Client's perception of their sense of belonging to the group Perceived internal cohesion level of the group by the clients	
	Social Networking	Number of clients from nearby neighborhoods/villages Number of contacts/relationships between different groups Perceived internal cohesion level of the group by the clients	IRIS + PD6424
	Leadership	Number of clients holding positions of responsibility in local councils/territorial political organizations	
Gender Equity Dimension	Increase in Women's Income Volume	Income of female clients Rate of increase in women's income	IRIS + (PI9409)

	Empowerment of Women	Women's participation in decision-making within the family % of the family budget allocated to durable goods targeted towards women Number of new women entrepreneurs
Educational Dimension	Financial Literacy	Ratio of financial decision-making to seeking advice
	Improved Decision-Making Prioritization	% of the budget dedicated to discretionary spending compared to the total group
	Adoption of Habits	% of children and adolescents who are savers
	Increase in Educational Level	Number of years of schooling for clients' children

Conclusion and Recommendations

The need to measure social impact is widely debated, yet there is little consensus on methods, standards, and reference frameworks. CGAP (2019, 2020) calls for evidence-based narratives that integrate resilience and opportunity pathways. The economic, labor, and social aftermath of the 2008 financial crisis is still present in both developed and developing parts of the world and has been exacerbated by the current coronavirus pandemic. Some of the major challenges we face as a society today are primarily socioeconomic: unemployment; loss of household purchasing power; a high percentage of the population at risk of poverty; unequal opportunities in access to education, caused, among other factors, by the digital divide; uncontrolled migratory flows, and so on.

The business sector is increasingly aware of its key role in addressing these problems and must tackle them through its value chain—that is, through the capabilities of its employees, business

development, client and supplier relationships, investment policies, and direct action in the community. Companies are realizing that having a clear purpose inspires trust in both leaders and stakeholders, can create a competitive advantage in times of change and uncertainty, and allows them to address the economic, social, and environmental challenges facing humanity. Society expects business leaders to be proactive in generating a positive impact and responding to the needs of employees, customers, suppliers, and society.

A few years ago, it was sufficient to demonstrate a correct and coherent use of resources to achieve results, but now that is no longer enough. Society increasingly demands explanations regarding the use of both public and private funds, not just in terms of efficiency or transparency but in terms of contribution and impact on collective well-being. Consumers, who vote with their purchases, want products and services that contribute to a cleaner planet and a fairer society, making people happier; taxpayers, who pay their taxes, want those funds spent on building societies where collective well-being prevails; investors want to see their savings produce environmental and social returns in addition to financial ones. And all of this must be measured rigorously to avoid greenwashing and opacity. We, therefore, face the challenge of establishing as a society what footprint, what impacts we want to generate, and how to demonstrate that we are on the right track.

The foundational research we propose in this article, through the design of a theoretical model, is merely the first step on a path that establishes the conceptual foundations of social impact generated by the powerful combination of financial education, savings promotion, access to microcredit, and technology. We can say that all people have financial needs, including the more than 4 billion who make up the base of the pyramid, and in this sense, these needs are met more or less effectively in different regions using various resources.

To adequately meet these needs and properly manage personal and family finances, it is essential to have financial literacy and ensure that programs are tailored to the target population. The direct relationship between financial education and social inclusion is therefore evident, as is the link between both and microfinance (a tool inherently aimed at the financial inclusion of the most disadvantaged segments of the population). If we go a step further and introduce the concept of financial health, taking into account all its

components, savings, spending, debt, and planning, we will be closer to identifying the impacts we want to highlight

Limitations and future research

- Context-specific variability: The model may perform differently across cultural, regulatory, and socioeconomic contexts, requiring adaptation.
- Data availability constraints: Reliable longitudinal and granular data on SFC operations and member outcomes are often scarce.
- Attribution challenges: Isolating the effects of SFC participation from other social or economic interventions remains complex.
- Need for longitudinal validation: Empirical testing through multi-year studies and quasi-experimental designs is essential to confirm causal pathways.

Future research will include empirical validation through a longitudinal design with baseline and endline assessments over 12–18 months, plus a pilot quasi-experiment comparing groups receiving complementary interventions (e.g., financial and digital education) with a control group.

Data sources will include operational records (membership, loans, delinquency, sanctions, complaints, turnover), household surveys adapted from OECD/INFE Toolkit and FinHealth scales, and client voice modules inspired by 60 Decibels.

Analysis will estimate changes in outcome indicators and build normalized indices by dimension. For causal analysis, we will apply difference-in-differences with matching where feasible and analyze heterogeneity by gender, group tenure, and vulnerability level.

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ALBUKHARY INTERNATIONAL UNIVERSITY
albukhary socialbusiness journal
Vol. 5, Issue 2, 2025

Resilience and Insights: Bumiputera Parental Investment in Education Amidst Challenges

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Abstract

Higher education plays a vital role in human capital development and a nation's economic growth. Nonetheless, parents' awareness of saving is still low. This paper explores the factors that influence Bumiputeras' financial investment in their children's education. A survey was conducted in the Klang Valley with 311 respondents. The findings show that Bumiputera parents' intention to save for their children's education is high, but financial constraints remain as the main challenge. An Exploratory Factor Analysis identified financial ability, source of knowledge and financial behaviour, financial stress, credit card usage, and financial responsibility as factors with a significant influence on Bumiputeras' financial wellbeing. These findings highlight a few policy implications to encourage parental investment. Financial education about the need to save for children's education raises parents' early awareness. In addition, an insurance system combined with education savings may stimulate parental investment. Education is crucial to enabling Bumiputera to escape poverty.

Keywords: B40; Bumiputera; children's' education; education; financial wellbeing; Malaysia; parental investment

Abstrak

Pendidikan tinggi memainkan peranan penting dalam pembangunan modal insan dan pertumbuhan ekonomi sesebuah negara. Walau bagaimanapun, tahap kesedaran ibu bapa terhadap amalan menabung masih rendah. Makalah ini meneroka faktor-faktor yang mempengaruhi pelaburan kewangan Bumiputera dalam pendidikan anak-anak mereka. Satu

tinjauan telah dijalankan di Lembah Klang yang melibatkan 311 responden. Dapatan kajian menunjukkan bahawa niat ibu bapa Bumiputera untuk menabung demi pendidikan anak-anak adalah tinggi, namun kekangan kewangan kekal sebagai cabaran utama.

Analisis Faktor Penerokaan (EFA) mengenal pasti keupayaan kewangan, sumber pengetahuan dan tingkah laku kewangan, tekanan kewangan, penggunaan kad kredit, serta tanggungjawab kewangan sebagai faktor-faktor yang mempunyai pengaruh signifikan terhadap kesejahteraan kewangan Bumiputera. Dapatan ini menyerlahkan beberapa implikasi dasar untuk menggalakkan pelaburan ibu bapa. Pendidikan kewangan mengenai keperluan menabung untuk pendidikan anak-anak berupaya meningkatkan kesedaran awal ibu bapa. Selain itu, sistem insurans yang digabungkan dengan simpanan pendidikan boleh merangsang pelaburan ibu bapa. Pendidikan adalah amat penting bagi membolehkan kaum Bumiputera keluar daripada belenggu kemiskinan.

Introduction

Higher education is a new norm in this modern age. Given its strong positive correlation with lifetime earnings, attaining a bachelor's degree has become a common life path for society (Zainal et al. 2009). Higher education in Malaysia remains an essential element in the nation's development. According to UNESCO (2020), Malaysians' enrolment rate in tertiary education has steadily increased from 3.82 percent in 1979 to 45.13 percent in 2018. Among the working-age population, 21.3% or 5.29 million Malaysians are graduates, indicating that tertiary education attainment is quite common (DOSM 2019). On average, Malaysian parents spend RM107,920 (USD 25,479) per child on their education from primary school to the undergraduate level; interestingly, this is more than double Malaysia's per capita income (HSBC 2017; World Bank 2019). However, the cost of higher education has risen each year, becoming a financial burden for many families. In the past decade, the average tuition fees for higher education have increased more than tenfold (Hamilton 2013). This trend raises financial concerns among parents and students about their ability to cover all expenses, especially among those from low-income households.

Research found that many parents are poorly informed about higher education costs and thus, often unprepared to undertake it (Kim et al. 2014; Hamzah et al. 2011; Yi 2018). Inadequate parental planning will hinder children from pursuing higher education or force them to settle down for poor-

quality institutions (rather than fulfilling their academic potential) to avoid financial burden. Often, student loans are the only option for children who do not have savings to cover their tertiary education expenses. Nevertheless, this conventional financial route has led to another long-term social issue: graduating with debt. Lack of proper financial management, the high cost of living, and the risk of unemployment may keep the younger generation continuously trapped in debt and the cycle of poverty. In the long run, education may be seen as a burden instead of a way out of poverty. This might contradict the government's plan to improve society's welfare through education. Hence, this emphasizes the need for early parental investment. Despite various incentives to encourage early parental investment, such as the National Education Savings Scheme (SSPN), interest in saving remains low (Steelman & Powell, 1991; Yi, 2018). Some parents have even placed the responsibility for funding their children's higher education on the government, or even on their own children (Steelman and Powell 1991). Yet, there is still minimal literature on Malaysians' parental investment towards financing their children's higher education, particularly among the Bumiputera.

The indigenous people of Malaysia and the Malays are both labelled in this country as Bumiputera. Out of Malaysia's 29.7 million citizens, 69.6% are Bumiputera (DOSM 2020). Despite being the majority ethnic group holding political power, the Bumiputera also constitutes the poorest segment of society, with the lowest average income. Within the Bumiputera group itself, almost half (44.7%) are low-income households, or the bottom 40 percent (B40) (DOSM, 2020). The income gaps between racial groups are wide and have caused socioeconomic imbalance in 1969 (Khalid 2011).

Given that Bumiputera households receive substantial government aid, the researchers would like to determine whether saving for their children's higher education remains a priority. As previous parental investment literature was mainly conducted outside Malaysia, a native study may provide some perspectives for the formulation of government policies and the roles of industrial players in encouraging parental investment. This paper aims to gain an understanding of Bumiputera parents' financial investment in their children's education.

Literature Review

Bumiputera Education and Financial Assistance

In Malaysia, public higher education is mainly funded by the federal government through its annual budget allocation and lump-sum funding for development expenditure. Under the NEP, various quotas and scholarships are provided through agencies such as the Public Service Department (PSD) and Majlis Amanah Rakyat (MARA) to help finance Bumiputera higher education and encourage the target group to enter universities (Shaari 2011). In 2018, a total of RM2 billion out of RM3.8 billion in government spending on scholarships was allocated exclusively to Bumiputera students through MARA institutions (Zulkafeli 2018). In 2019, Malaysia provided its largest education budget yet, totalling RM60.2 billion, or 19.1 percent of the government's total spending (Ramasamy 2018). Nevertheless, the continuous increase in higher education tuition costs, coupled with the pandemic, has forced the Malaysian government to cut its education budget allocation for 2021 to RM50.4 billion, or 15.2 percent of total government spending (A. Hamzah 2020).

Introduced in 1997, the National Higher Education Fund (PTPTN) is a government initiative to finance Malaysians' tertiary education through loans. Once graduated and employed, borrowers are required to repay their student loans through monthly commitments. The interest rate on the loan is intentionally kept at 1% per annum to make education available to all Malaysians. Compared with other bank educational loans, the PTPTN is certainly considered a generous loan scheme (Yi 2018).

The National Education Savings Scheme (SSPN) was introduced in 2004 to encourage parents to save for their children's future education and reduce dependency on loans. These two prominent incentives are the most common pathways to financing tertiary education for low-income students.

Even though some universities, e.g., private universities, also offer scholarships for Malaysians, they are limited and highly competitive. Compared to public institutions, private tertiary education institutions are six to ten times more costly and cannot be afforded by students from low and average-earning households (Benjamin et al. 2011). It is worth noting that PTPTN has offered a total of RM 40 billion in student loans and RM13 billion in interest since its establishment (Wan Jan 2020). It is also concerning that 97% of defaulters come from the B40 group – this

may indicate their inability to repay their student debts due to their own financial struggles. This social issue of graduates' debt may eventually degrade the quality of life of youths in the long run.

The Price for Tertiary Education in Malaysia

As in other countries, financing tertiary education has become a challenge in Malaysia. As shown in Table 1, the estimated course fees for a Bachelor of Engineering in a private university are considerably higher than those for a similar course taken at a public university. The constant rise in enrolment numbers in tertiary education, coupled with budgetary constraints and the rising costs of higher education, has become a challenge for Malaysians pursuing their education. Financial assistance for students at the tertiary level has been found insufficient, and the costs are too high for students from low-income households to bear (Benjamin et al. 2011). This trend stresses the need for early parental investment, as financial constraints would certainly hinder meaningful access to education.

Table 1. Estimated private and public university costs in Malaysia.

Provider	Qualification	Estimated course fees (RM)
Private university	Bachelor of Engineering (Hons)	RM 158,038
Public university	Bachelor of Engineering (Hons)	RM 9,520

Source: Taylor's University (2024); UKM (2024)

Limited financial aid quotas and highly competitive scholarships have forced some students to bury their dreams of pursuing higher education due to financial constraints. Some students had to work for a few years to save for university fees before they could afford to enroll. However, since they have been out of academia for too long, their interest in learning has faded. Some of them enrolled in university for a few years but dropped out when the financial burden became unbearable (Mustafa 2019).

Factors Influencing Parents' Investment Decisions on Education

In providing the family's basic needs, parents must decide how to allocate their resources among their children. Past literature found that parents' investment decisions for their children are influenced

by various factors, including socioeconomic background (Eckel et al. 2013; Hotz et al. 2018), parents' aspirations (Hu & Yeung, 2019; Lee, 2008), and financial wellbeing (H. Hamzah et al. 2011; Hotz et al. 2018).

Socioeconomic background

Many studies have shown that parents' sociodemographic background does influence their investment in children's education (Lee 2008; Hamzah et al. 2011; Hotz et al. 2018; Hu & Yeung 2019). Parents' gender may determine their attitudes towards parental responsibility, with mothers more willing to make financial sacrifices than fathers, due to a unique, closer bond with their children. As women are more risk-averse than men (Loke 2017; Seguino and Floro 2003), they tend to save more for their children's education. Cultural norms also highlight the independent traits among males, leading fathers to overestimate their financial capabilities or to believe that children should cover their own college expenses (Steelman & Powell, 1991).

Higher socioeconomic status parents and those who are better educated tend to provide higher-quality education and more parental assistance than their less educated peers. Thus, the likelihood of their children graduating is also higher (Hotz et al. 2018; Hamilton 2013). Interestingly, the notion that more educated parents invest more in their children's education is more prevalent among mothers' education than fathers' (Hu & Yeung, 2019). Family structure also plays a role, with married parents (Turley and Desmond 2011) and families with fewer children (Lee 2008) more likely to invest in their children's education than single parents or those with many children.

Parents' aspirations

According to the status-attainment model (Sewell and Hauser, 1980), as cited in Kim et al. (2014), parents' aspirations and socioeconomic status play key roles in children's educational attainment. Parents from highly educated backgrounds are more willing to sponsor their children's education, as they may feel it is a duty to provide the same support they received. Similarly, if parents have high expectations for their children's academic success, they are more likely to be motivated to invest (Kim et al., 2014).

The child's gender may also alter parents' aspirations. Cultural norms that prioritise sons may change parents' decisions, leading them to invest more in sons than in daughters. The human capital perspective holds that sons will become future household heads who are more

independent and have better job prospects, thereby providing higher returns to their parents (Steelman and Powell 1991). If expected returns are lower for females, parents might invest more in their sons. On the contrary, studies by Lee (2008) and Kim et al. (2014) found no gender bias in parents' investment, thus negating this theory. Parents' aspirations remain a strong predictor of their investment and, as such, need to be explored in the context of Malaysia, as no past research has yet studied this cultural norm.

Financial wellbeing

Financial wellbeing (FWB) is defined as a financial situation free of anxiety and characterized by health and happiness (Gerrans et al. 2013). Parents' financial wellbeing is an important predictor of investment in children's education, as it reflects the household's ability to afford it. FWB is determined by various factors, including financial behaviour (Yusof et al. 2015; Loke 2016; 2017), financial knowledge (Daud et al. 2019), and financial stress (Mahdzan et al., 2019). Financial behaviour is an individual's habit of managing finances, e.g., planning expenses, recording cash flows, and paying bills on time. It is known that positive financial behaviour, such as consistent savings and under-spending, leads to better FWB (Sabri et al. 2020; Yusof et al. 2015; Loke 2016). However, some Malaysian households were found to practice reckless financial behaviour, including inclinations to live beyond means (Loke 2016; 2017), low capability in managing long-term investments (Sabri et al., 2020), inadequate savings, and over-indebtedness (Daud et al. 2019; Yusof et al. 2015). These behaviours lead to lower levels of FWB and may eventually reduce parents' tendency to save for their children's college.

In addition, financial knowledge also plays a massive role in determining FWB (Daud et al. 2019; Loke 2016; Mahdzan et al. 2019). Individuals with high financial knowledge tend to be more confident in managing their finances and, as a result, are less vulnerable to economic shocks. Another element of FWB is financial stress–financial strain that occurs when one faces inadequacies to meet the essential needs to sustain a standard of living (Mahdzan et al. 2019). Economic pressures such as unemployment, divorce or death of spouse, and physical disability significantly impact a household's FWB, especially among low-income and seasonal-income earners (Loke 2016; Mahdzan et al. 2019). More than a fifth of urban Malaysian households lack sufficient savings and are unable to

sustain their expenses for more than 3 months if their income is cut off (Yusof et al. 2015; Loke 2016; 2017). Thus, parents need prudent financial management skills, as this may contribute to their investment in their children's education.

Based on the literature review, a theoretical framework has been developed (Figure 1). The authors posit that sociodemographic factors, parents' aspirations, and parents' financial wellbeing are the main factors that influence parents' investment in their children's education.

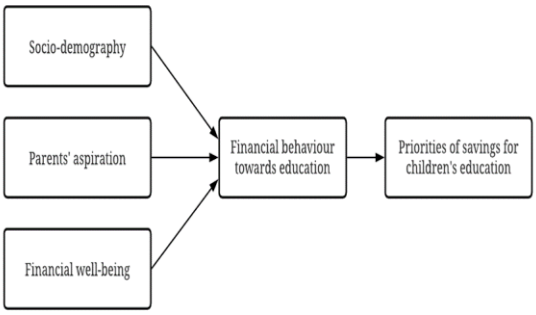

Figure 1. Theoretical framework

Source: adapted from H. Hamzah et al., (2011); Kim et al., (2014)

Methods

A total of 311 respondents participated in this study. The survey was conducted online using the Google Form platform. The primary inclusion criteria for this study's participants were: aged 19 years or older; married or a single parent; categorised as Bumiputera; and living in the Klang Valley, an urban region in Malaysia.

The questionnaire was developed based on the literature, including Agensi Kaunseling dan Pengurusan Kredit (AKPK) (2018); Gerrans et al. (2013); Houts & Knoll (2020); and Mahdzan et al. The questionnaire's link was set to allow one-time access per email to avoid duplication. The first section of the questionnaire consists of demographic questions on age, gender, location, educational background, and marital status. Sections Two through Four consist of a series of statements used by respondents to describe their behavioural pattern or agreeability using a four-point Likert scale ranging from 1 = Most Disagree, 2 = Disagree, 3 = Agree, to 4 = Most Agree. A four-point Likert scale was used because it has high internal reliability (Croasmun and Ostrom 2011) and helps avoid central tendency bias.

Descriptive analysis and Exploratory Factor Analysis (EFA) were performed using a principal component analysis and varimax rotation. For EFA, the minimum factor loading criterion was set to 0.50. The communality of the scale, which indicates the amount of variance in each dimension, was also assessed to ensure acceptable levels of explanation.

EFA was conducted using SPSS version 26. The reliability of the scale and

the item correlations were tested using Cronbach's Alpha, which yields a high value indicating high reliability. A principal component analysis was conducted to determine the underlying factors, and the Varimax rotation was used as the orthogonal technique, which maximizes the variance loadings on the axes. The maximum likelihood factor analysis with a cut-off point of 0.40 and the Kaiser's criterion of eigenvalues of greater than 1 were included in the model (Yong and Pearce 2013).

Results and Discussion

The sample comprised 311 *Bumiputera* living in the Klang Valley (Table 2). A majority of respondents in this study were females (n=252, 81%), aged 25 to 44 years old (n=256, 82.3%), and had attained secondary education (n=131, 42%). Most respondents were unemployed or housewives (n=114, 37%), had household monthly incomes below RM 3859 (n=217, 70%), and were married (n=294, 95%). In short, a majority of the sample are female respondents who are mothers in B40 households. Nevertheless, the literature indicates that women are more sensitive to household expenditures and children's wellbeing than fathers (Yusof 2015; Seguino and Floro 2003). Therefore, their responses are still valuable for this research.

Table 2. Respondents' sociodemographics

	Demographic variable	Frequency	Percentage
Gender	Male	59	19.0
	Female	252	81.0
Age	19-24 years old	9	2.9
	25-34 years old	129	41.5
	35-44 years old	127	40.8
	45-54 years old	37	11.9
	55-64 years old	5	1.6
	65 years old and above	4	1.3
Education level	Primary school	4	1.3
	Secondary school/SPM	131	42.1
	STPM / Matriculation / Foundation / Diploma	82	26.4
	Bachelor's degree	75	24.1

	Master's degree	15	4.8
	PhD	3	1.0
	Professional level	1	.3
Main occupation	Student	2	.6
	Government sector	58	18.6
	Private sector	85	27.3
	Part-time workers	10	3.2
	Self-employed	38	12.2
	Unemployed	114	36.7
	Retiree	3	1.0
	Statutory body	1	.3
Household monthly income	Below RM 3859 (B40)	217	69.8
	RM 3860 - RM 8319 (M40)	72	23.2
	RM 8320 and above (T20)	22	7.1
Marital status	Married	294	94.5
	Single parent	17	5.5
	Total	**311**	**100.0**

Table 3 shows households' spending patterns by monthly priority.

Table 3. Households' spending patterns

	Spending category	Ranking					N	%
		1	2	3	4	5		
1	Groceries	91	36	59	57	30	273	88.3
2	Utilities (Electricity, water, Wi-Fi, phone bill)	22	56	61	46	37	222	71.8
3	Accommodation (loan/rental)	112	25	10	9	10	166	53.7
4	School expenses (fees, extra classes, sports)	25	38	27	36	18	144	46.6
5	Vehicle loan	15	63	29	17	8	132	42.7
6	Children necessities (childcare, milk, diapers)	19	28	26	21	23	117	37.9
7	Transportation (petrol, toll, bus, motor)	3	6	17	29	16	71	23.0
8	Daily expenses	3	3	6	8	22	42	13.6
9	Private expenses (shopping, vacation)	0	4	7	11	24	46	14.9
10	Loan repayment (personal/student loan)	6	6	10	7	5	34	11.0

11	Insurance / Takaful / Hibah	1	4	7	3	5	20	6.5
12	Savings	1	1	0	2	4	8	2.6
13	Allocation for parents/spouse	2	1	2	5	2	12	3.9
14	Hospital bills, medicine	0	0	0	2	3	5	1.6
	Error	9						
	No. of respondents	309						

Groceries (88%) were the top priority among respondents' top five monthly expenses. The second priority was utility bills (72%), followed by accommodation (54%), which were the households' necessary expenses. Expenses for children, such as school expenses (47%) and children's necessities (38%), ranked fourth and sixth, respectively. However, these expenses were more for immediate needs than for long-term investment. These spending patterns suggest that these households' expenses were more oriented towards fulfilling necessities than towards investment. This is understandable, as more than half of the sample consisted of B40 individuals. Studies by AKPK (2018) also showed that low-income households spend more on essentials and short-term-oriented items than on long-term-oriented items. Savings ranked 12th, with only 2.6% of respondents listing it as one of their top five monthly priorities. The respondents' inability to save may be due to limited financial resources and a high cost of living, which, in turn, leads to a smaller income surplus for savings.

From the 44 statements, an exploratory factor analysis (EFA) was conducted to identify the most prominent factors influencing respondents' financial wellbeing. The analysis helped the authors reduce the constructs to 22 statements under 5 factors. Using the principal component analysis and varimax rotation, EFA revealed five factors that collectively explained 60.7% of the variance (Table 4).

Table 4. EFA Bumiputera Financial Wellbeing

Item	Rotated Component Matrix				
	1	2	3	4	5
1. I am confident that I can sustain the same standards of living after retirement.	0.793				

2. My finances are stable enough to afford a more comfortable living after retirement.	0.784			
3. If an emergency/financial shock occurs, I can manage my expenses & commitments for three months using my emergency savings.	0.779			
4. I am confident of my financial ability to achieve my short-term goals (furniture, vacation, etc.)	0.736			
5. I have extra money at the end of the month.	0.721			
6. My finances are sufficient for me and my dependents in terms of daily expenses.	0.706			
7. I save consistently every month.	0.701			
8. I am confident with my personal money management.	0.645			
9. I am able to prepare RM 1000 in emergency cases.	0.609			
10. I am able to pay all expenses and commitments every month.	0.594			
11. I ask for financial advice from my partner/parent/family member.		0.723		
12. I prefer to gain financial knowledge from reading/internet.		0.713		
13. I am disciplined in settling my debts.		0.652		
14. I always keep track of my household's expenses every month.		0.602		
15. I often face difficulties to settle my utility bills (electric, water, phone, internet).			0.804	

16. I have no emergency savings.			0.728		
17. I do not easily lend money to others.			0.663		
18. I often overspend my monthly budget.			0.543		
19. I only have to pay the minimum of credit card amount every month.				0.787	
20. I often use a credit card to shop.				0.781	
21. I only save if I have extra money.					0.758
22. I am fully responsible for my financial situation.					0.651
Eigenvalue	6.264	2.922	1.836	1.221	1.107
Percent variance	24.65	11.46	9.70	8.25	6.64
Cumulative variance	24.645	36.099	45.801	54.051	60.688
Cronbach's alpha	0.907	0.715	0.677	0.692	0.473
Factors mean	2.30	2.78	2.33	1.76	2.77

Factor One with an Eigenvalue of 6.26, comprised of 10 items. This factor was labelled "financial ability" because these items collectively explain respondents' confidence in their financial capability to reach any goal or respond to emergency shocks. The ability to commit to consistent monthly savings and to prepare an RM1000 emergency fund provided a glimpse of the Bumiputera households' financial situation. This is an essential factor to assess, as low levels of financial capability are negatively associated with poor financial planning and savings (Sabri et al. 2020); thus, it will also reveal the group's priority for saving for their children's education. With a Cronbach's alpha of 0.907, this construct

was considered very reliable. A mean score of 2.30 ranked this factor fourth in measuring parents' financial wellbeing.

Factor Two, with an Eigenvalue of 2.92 and a Cronbach's alpha of 0.715, had four items categorised as "source of knowledge and financial behaviour". Items 11 and 12 described the source of financial knowledge, showing the most preferred medium for households to seek financial expertise or advice. On the other hand, items 13 and 14 describe the respondents' financial behaviour in settling debts and managing household expenses. With a factor mean of 2.78, this is the most essential factor in determining financial wellbeing among Bumiputera parents. Several past studies also highlighted financial knowledge as a necessary element of financial behaviour (Loke 2016; Yusof et al. 2015; Mahdzan et al. 2019). A lack of financial literacy has been found to be a strong reason households lack plans for emergency expenses or savings (Gathergood and Wylie 2018). Parents must have adequate financial knowledge. Individuals with a high level of financial knowledge can understand and evaluate financial options; therefore, they tend to have better future plans and respond appropriately to their financial situation. Family members, friends, and the internet are common sources respondents use to gain financial knowledge (Yi 2018). Hence, the agents of financial expertise play a crucial role in shaping society's financial behaviour. This differs from the conventional approach to building financial literacy, which involves attending money management classes or seminars. Therefore, the government should rethink an innovative solution to encourage and increase awareness of parental savings.

Factor Three, which had an Eigenvalue of 1.84 and a Cronbach's alpha of 0.68, comprised four items under the umbrella term "financial stress". The four items covered respondents' ability to pay utility bills, ownership of emergency funds, ability to lend, and overspending habits. Financial stress signals a household's ability to withstand economic shocks, such as sudden unemployment or medical expenses. Parents under high financial stress are less likely to have good financial wellbeing and thus are less likely to invest in their children's education. With a mean of 2.33, this factor ranked third among indicators.

Factor Four, with an Eigenvalue of 1.22, included two items related to "credit card usage". This factor shows the respondents' understanding of credit card management and expenses. The results imply that the respondents have limited knowledge and commitment to credit card use. This is justified because low-income

households are less likely to use credit cards (AKPK 2018). This factor had the lowest mean of 1.76 and a Cronbach's alpha of 0.69; thus, it is considered the least important construct for Bumiputera households' financial wellbeing.

Factor Five, with an Eigenvalue of 1.11 and a Cronbach's alpha score of only 0.47, also consisted of two items: savings after expenses and responsibility towards financial situation. This concept was labelled "financial responsibility" and reflects individuals' sense of responsibility for managing their own finances. The factor mean was 2.77, making this factor the second most crucial construct for the Bumiputera's financial wellbeing.

Table 5. Reliability statistics

Factors reloaded	Mean	SD	Cronbach's alpha
Source of knowledge and financial behaviour	2.78	0.75	0.715
Financial responsibility	2.77	0.79	0.473
Financial stress	2.33	0.84	0.677
Financial ability	2.30	0.80	0.907
Credit card usage	1.76	0.82	0.692

Table 5 summarizes the reliability scores for the financial wellbeing factors. These factors, reloaded, are reliable constructs that can be used to measure financial wellbeing. All factors have good reliability (>0.50) except for factor 5. However, since the reliability of Factor 5, "financial responsibility," is close to 0.5, the item is retained.

Conclusion

The spending pattern among the Bumiputera is more inclined towards immediate needs rather than long-term investment. This finding suggests that a majority of Bumiputera households, especially those in the B40 group, may not consider investing in their children's education as a top priority due to limited incomes.

In addition, the exploratory factor analysis identified financial ability, source of knowledge, financial behaviour, financial stress, credit card usage, and financial responsibility as factors that could significantly influence Bumiputera financial wellbeing and investment

decisions. Awareness of Bumiputera financial aid, dependency on government support, and parents' financial preparations are the three most reliable factors influencing Bumiputera's willingness to pay for their children's education.

Parents' early preparation for their children's education could be more substantial to reduce the burden of student loan debt from financial institutions. Efforts from both the government and households are crucial for the long term; however, policies are needed to support low-income households, as they may still be unable to cover the costs. In efforts to encourage parental investment, this research recommends that relevant government or non-government agencies provide more financial education on savings and university fees to raise parents' awareness of the importance of early investment in their children's education. As parents increasingly seek financial information online, a one-stop information centre on university fees, savings plans, and financial assistance may be useful. An affordable insurance scheme bundled with education savings may also be one of the solutions to encourage parental investment, as many low-income households are poorly insured (Gathergood and Wylie 2018). This is important because savings with insurance protection cushion households from financial shocks and, at the same time, safeguard their children's future.

Despite its exploratory nature, this study also offers some insight into the financial situation of Bumiputera households. The plan to reduce the government's fiscal burden and reduce the Bumiputera's dependency on government aid might still have a long way to go, as it requires careful consideration given the continuous rise in higher education costs that low-income Bumiputera households cannot afford (Khalid 2011; UNICEF & UNFPA 2020). Moreover, the COVID-19 crisis has shifted many households' priorities toward survival rather than long-term investment. Faced with unemployment and economic uncertainties, low-income households are certainly having a hard time surviving, and all their savings might already be used up. Hence, cutting financial aid for *Bumiputera* is not the best option for the time being, as it may eliminate their children's chances of pursuing tertiary education and worsen their families' socioeconomic position in the long run. This action may further deepen the economic disparity in the future.

To reduce the fiscal burden of financing education, the government should first ensure that the current financial aid only serves the appropriate

focus group, B40 households. A thorough and fair selection should be made not only on the basis of students' performance but also on their backgrounds. Poor students may not achieve outstanding results due to an unsupportive environment and an inability to afford educational assistance, such as tuition, internet access, or revision books. Therefore, selection for scholarship awards should not be based solely on examination performance or an online application. Frequent on-field observations by relevant institutions are crucial to ensure that only the appropriate group receives financial aid, rather than random applicants, including those from wealthy families.

Acknowledgements

This research was supported by Geran Inisiatif Penyelidikan Fakulti Ekonomi dan Pengurusan, UKM (EP-2019-026).

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