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The Unveiling of the E-Jeepney Modernization Program Through the Lenses of the Diverse Sectors in Southern Philippines

Marlyn Francesquite[1], Joy C. Calva[2*]
Mindanao State University, General Santos
Corresponding Author: Joy C. Calva joycecalvs@gmail.com

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A B S T R A C T

Filipino passengers use Jeepneys as their primary mode of transportation in their everyday lives. However, as the world is trailing through an era of advancements, the modernization of public utility vehicles (PUV) is introduced to solve other societal problems. This study centered on the implementation, challenges, and repercussions of modernized jeepneys in the Philippines between four stakeholders involved: jeepneys operator/ driver, passenger, and implementer. The qualitative research design was utilized to gather data through key-informant interviews and archival research.The findings revealed that modernized e-jeepney positively affect the transportation system, with benefits such as reduced pollution, comfort, and job opportunities. Despite the myriad benefits associated, various stakeholders encounter significant challenges throughout its implementation, such as route rationalization, financial burden, and fierce competition.

INTRODUCTION

In the 20th century, the changes in transportation began as focuses on the accessibility, mobility, and safety of vehicles. The Department of Transportation (DOTr) has been continuously finding ways to address transport-related problems and the demands of ever-changing advancements and technology through various projects, including the Public Utility Vehicle Modernization Program (PUVMP). According to Viado (2023), the implementation of PUVMP is based on two department orders, the DOTr Department Order (DO) 2017-11 or the Omnibus Franchising Guidelines, and theJoint Memorandum Circular 2017-001 of the Department of Interior and Local Government (DILG) and the DOTr. This is in consonance with Section 17 of Republic Act (RA) 7160 or the Local Government Code (LGC) of the Philippines, which provides that local government units (LGUs), particularly cities, shall endeavor to provide adequate, effective, and efficient transportation facilities that would provide access and mobility for the people to pursue socio-economic activities as stipulated in its Comprehensive Land Use Plan.

Most of the country's population resort to Public Utility Vehicles for transportation upon going to and from certain destinations. One of these is Jeepneys, which are preferred by commuters because they are cheaper and faster than other PUVs. Unfortunately, these vehicles have grown old and rusted after some time. And with this, jeepneys have been one of the major causes of road-related accidents in the Philippines. To ensure the safety and the health of both the commuters and the environment, the government devised a plan such as the jeepney modernization, which is the phasing out of old jeepneys aged 15 years and above.

The e-jeepney modernization program represents a transformative initiative within the public transportation landscape of the Philippines, specifically targeting the iconic jeepney sector. This ambitious program is part of a broader governmental effort to modernize and upgrade the country's public transportation infrastructure, addressing environmental, economic, and technological concerns. Jeepneys, long considered a symbol of Filipino culture and ubiquitous mode of transportation, have substantially evolved with the introduction of electric-powered variants. This modernization program has been recognized as a strategic response to the challenges posed by traditional jeepneys, particularly in major urban centers. The extensive use of conventional jeepneys has contributed to air pollution and inefficiencies in the transportation system. To address these issues, the Philippine government has embarked on a comprehensive modernization plan that mandates the replacement of traditional jeepneys with electric ones equipped with state-of-the-art features.

The impetus for this program is grounded in the need to align the country's transportation sector with global environmental standards. In particular, the move to electric-powered vehicles aims to reduce carbon emissions and mitigate the environmental impact of traditional internal combustion engine jeepneys. This aligns with broader global efforts to combat climate change and create more sustainable modes of transportation. This electric-powered vehicle had features such as CCTV, Wi-Fi, and a cashless payment system. The vehicle was 100% electric and used lithium-ion batteries

encased in a water tight casing to protect it from rain and floods. Countless meetings and fora were conducted for jeepney operators and drivers to share opinions and ideas with regard to the modernization program (Mendoza 2021).

In recent years, the issue of public utility vehicle (PUV) modernization and phase-out has received increased attention in the Philippines. Raises questions from the drivers,operators,and commuters responding to the total PUV phase-out and whether or not they are affected by the modernization program. Despite its potential to address problems related to air pollution, traffic congestion, dependence on fuel imports,and carbon emissions,transport groups show resistance to adopting the government program due to costs and investment risk issues.

Meanwhile, the DOTr reiterated that the PUV Modernization Program is not limited to modernizing the country's current PUV fleet, but rather a transformational program that aims to modernize the whole industry. Moreover, the department laid out ten (10) components for the implementation of the program, namely: (1) regulatory reform, (2) LGU capacity building, (3) route rationalization, (4) fleet modernization, (5)industry consolidation, (6) financing, (7) vehicle useful life, (8) stakeholder support mechanism, (9) initial implementation, and (10) communications.

General Santos City, the focus of this study, takes center stage as a pioneer in the jeepney modernization program. As the first city to adopt this initiative, it sets a precedent for progressive changes in the transportation landscape. Positioned at the forefront, General Santos City is committed to environmental sustainability with mandated euro-4 engines, showcasing its readiness to meet global standards. This proactive approach enhances the city's image and positions it as a leader in innovative transportation, influencing other regions to follow suit. In essence, General Santos City stands as a trailblazer, shaping the future of public transportation in the Philippines.

In line with this, the city implemented ordinances to encourage a livable city. For instance, in 2018, the city government passed an ordinance enacting the city's comprehensive land transport and traffic code. Additionally, in 2020, there was an ordinance adopting the new organization structure of the Public Safety Office (PSO), which governs the City Transportation and Traffic Engineering Division, City Transport and Traffic Management Division, City Civil Security Division, City Disaster Risk Reduction and Management Division, and Administrative Division. The PSO is responsible for administering and implementing all traffic enforcement operations, traffic engineering services, traffic and transport planning, regulations and franchising, transport facilities management, traffic education programs, and movement of persons and goods.

The argument in this paper draws from Key Informant Interviews involving ten distinct stakeholders—jeepney operators/drivers, passengers, and implementers in General Santos City, South Cotabato. Conducted in a semi-structured format, these interviews serve as the primary data source and archival research as a supplement in acquiring data offering deep insights into the perspectives and experiences of the stakeholders.

THEORETICAL REVIEW

The dynamic public transit priority system is designed to improve public transport efficiency by considering factors such as traffic volume, public, vehicle volume, and intersection saturation. The main objective is to ensure that public transport carrying speed is high enough to enable it to compete with other vehicles, thereby making public transport a better option for commuters. Hence, the system aims to prevent public transport commuters from experiencing lower profits or higher travel costs than other vehicle travelers (Zhu, Chen, & Ma, 2014).

METHODOLOGY

The qualitative research approach was used in this study by the researcher to determine the guidelines, perspectives, impacts and challenges encountered among the stakeholders involved in the e-jeepney modernization program in General Santos City. It provides information on how the research developed step-by-step. The qualitative research approach is quite appropriate because it explores perceptions, reviews, and examines methods like observations and interviews for gathering information to assess further the impacts and challenges of E- Jeepney modernization. The study incorporates qualitative data collection methods such as Key Informant Interviews (KII) and Archival research. The Key Informant Interview (KII) is a qualitative approach that involves using an oral interview with the key interviewee to collect relevant data for the investigation. Key Informant Interviews (KII) serve to gather data from a diverse group of individuals, such as community leaders, professionals, or residents, who possess firsthand knowledge of the community. Additionally, this paper used Archival research as a supplementary in acquiring data. Archival research is used by extracting information from various materials, such as manuscripts, documents, records (including electronic records), objects, sound and audiovisual materials, or other materials. Having found that these references were valid and reliable to use, the researcher secured that these related references are appropriately utilized to achieve this study's objectives. Furthermore, this qualitative research is ideal for this study because it frequently conducts in-depth analyses of events and situations.

Furthermore, General Santos City, Philippines was chosen as the locale of the study. In different barangays, there are a lot of jeepneys operating that have been affected by this E-Jeepney modernization. General Santos, officially the City of General Santos and abbreviated as GenSan, is a 1st class, highly urbanized city in the region of Soccsksargen, Philippines. It is located on the island of Mindanao, the southernmost and 15th-most populous city in the Philippines. It is the regional center for commerce and industry of the Soccsksargen region and is geographically located within the province of South Cotabato but administered independently of it. Moreover, the respondents of the study are the stakeholders of General Santos City that are affected by the modernization program, which are the Land Transportation Franchising and Regulatory Board (LTFRB), Jeepeny Operator /Driver and commuters who

currently living in the vicinity of General Santos City where most e-jeepneys are positioned. Therefore, this study aimed to interview at least ten individuals; three Jeepney Operators, three Jeepney Drivers, one LTFRB official, and three commuters living near General Santos City, where the e- jeepneys are currently in service.

RESULTS AND DISCUSSION

The research is structured around four key objectives. Firstly, it seeks to elucidate the guidelines governing the implementation of e-jeepney modernization. Secondly, it delves into the viewpoints of implementers, jeepney operators/drivers, and commuters. Thirdly, the study aims to scrutinize and understand the challenges of implementing e-jeepney modernization. Lastly, it examines the impacts resulting from the adoption of the program, shedding light on the city's local dynamics, opportunities, and challenges in embracing sustainable and modernized transportation options.

Revolutionary Age of Advancement

The Jeepney Modernization Program, a groundbreaking initiative on a national scale in the Philippines, signifies a transformative shift in the country's public transportation landscape. Focused on addressing safety, environmental concerns, and enhancing overall efficiency, this program represents a departure from conventional modes of transport, particularly the iconic jeepney. As the nation embraces modern technologies and sustainable practices, the Jeepney Modernization Program aims to set new benchmarks for public transportation standards throughout the Philippines.

The goal is to formalize the informal. Currently, jeepney drivers and operators in the Philippines area fragmented part of the transport industry. A key component of the jeepney modernization program of the Land Transportation Franchising and Regulatory Board (LTFRB) is the consolidation of jeepney drivers and operators under a cooperative or a corporation. According to Mendoza (2023), under the government's Public Utility Vehicle Modernization Program (PUVMP), old public utility vehicles (PUVs)—including jeepneys—are to be replaced with locally assembled modern PUVs that are fueled by either the brand-new Euro 4-compliant diesel engines or electric motors. In addition, the modern PUVs are also expected to be air-conditioned, equipped with safety features (all imported), and operated in a consolidated or cooperative manner under what is called "fleet management." This electric-powered vehicle had features such as CCTV, Wi-Fi, and a cashless payment system.The vehicle was 100% electric and used lithium-ion batteries encased in a watertight casing to protect it from rain and floods.

Under the Omnibus Franchising Guidelines, cooperatives and corporations will also be required to upgrade their fleet into modern jeepneys eventually. An average investment for a traditional jeepney and franchise was estimated to be about PHP 350,000. In contrast, a Euro IV-compliant jeepney would cost PHP 2,624,000, and an electric jeepney would cost PHP 2,500,000. The government allows cooperatives to secure loans for these vehicles through

state-owned banks Transportation Secretary Jaime Bautista, under the current administration of President Ferdinand R. Marcos Jr., reiterates the need to modernize PUV, adding that the plan is far from being scrapped. Furthermore, Secretary Bautista mentions that this project will strengthen the CASA (convenient, accessible, safe, secure, and affordable) program in the transport sector. He adds that it will also generate more jobs across the industry – mechanics, dispatchers, administrative staff, and others (Mayo 2019).

Notably, General Santos City emerged as a pioneer in adopting and implementing this nationwide program. Recognizing the unique challenges and opportunities within its local transport ecosystem, General Santos City is the trailblazer, becoming the first city to embrace the Jeepney Modernization Program. Positioned in the heart of Mindanao, where traditional jeepneys have long been an integral part of daily life, General Santos City's proactive approach underscores its commitment to leading the way in modernizing public transportation.

This discussion explores the dual perspectives of the Jeepney Modernization Program, highlighting its national significance and then delving into the local context of General Santos City. By being the first to adapt this program, General Santos City not only shapes the local narrative but also contributes significantly to the overarching success and future trajectory of the Jeepney Modernization Program across the Philippines.

Stakeholders embarking on a nuanced political expedition amidst the intricate tapestry of modernization dynamics.

Sensations of Ease

Jeepneys are believed to come from the combination of the words "jeep" and "knee" because of the knee-to-knee seating style inside the vehicle, which is one of the major concerns of every commuter. It has been said that the commuters' concern was how uncomfortable the standardgas-powered jeepneys were. The government took action to address this concern, thus changing the design of the E-jeepneys. The comfortability of the E-jeepney was an advantage for the commuters because, in the standard gas-powered jeepneys, passengers are compressed in a small space, thus making the wayfarers feel awkward and uncomfortable. Due to the E-jeepney design, there is a big difference between the two vehicles; passengers no longer encounter discomfort when riding an E-jeepney.

According to John Gabriel Molate, one of the commuters:

["I prefer electronic jeepneys over traditional ones for several reasons. Unlike their counterparts, e-jeepneys don't require waiting for all seats to be filled before starting the ride, which saves time and makes the commute more efficient.The spacious design of e-jeepneys eliminates the need to bend or adjust posture during boarding, providing a more comfortable experience for passengers of all ages. The open structure allows for a constant fresh air flow during the ride, creating a pleasant environment. Also, the absence of noise from the vehicle engine contributes to a peaceful atmosphere, especially appreciated by commuters seeking a quiet and serene journey. The combination

of efficiency, comfort, fresh air, and a noise-free environment makes e-jeepneys a preferable choice for commuters like myself."]

This narrative from John Gabriel Molate shows that one of the commuters' major concerns was how close bodies were to each other and how tight the seating in the traditional jeepney was. However, this modernization program helps commuters have comfortable rides. Since General Santos City is the first city in the Philippines to experience riding the jeepney first hand, the respondents noticed how the vehicle design offers comfortability. There is no need for slouching when riding the vehicle; seats are only limited to a certain number, which is 20; no more, no less. In General Santos City,the modernized e-jeepneys prioritize ergonomic design, offering spacious interiors, comfortable seating arrangements, and a smooth, noise-free ride. These enhancements not only transform the daily commute into a more pleasant experience but also underscore the commitment to ensuring that passengers arrive at their destinations on time and in a state of ease and comfort.

The emphasis on the comfort of passengers in e-jeepneys, as outlined in the responses, resonates with distributive justice theory within the context of e-jeepney modernization. Highlighting features like not waiting for full occupancy, spacious design, and a noise-free environment suggests an intent to provide an improved and equitable commuting experience for all. However, to align with distributive justice principles, it becomes crucial to ensure that these benefits are uniformly accessible to the entire community. Potential disparities in the distribution of e-jeepney routes or service concentrations in specific areas could lead to unequal access, contradicting the distributive justice goal of providing fair and inclusive benefits to all members of the community. Therefore, in implementing e-jeepney modernization, careful consideration should be given to address potential disparities and ensure that the positive aspects, especially those related to passenger comfort, contribute to a more just and equitable transportation system.

Eco-friendly

E-jeepneys aim to slowly contribute to decreasing the carbon-dioxide and carbon-monoxide emissions in the atmosphere by taking advantage of solar power. As stated by Reynato Paterno Padua, LTFRB Regional Director XII:

["This platform replaced traditional jeepneys to minimize air pollution in the Philippines. We're having a good input with this program. It improves the quality of public transport quality, and it was established for community improvement, especially to avoid necessary contribution to pollution in environmental issues. Due to its electric nature, the vehicle produces no carbon emissions. It relies on batteries and operates silently, in stark contrast to conventional local jeepneys that have been identified as substantial contributors to pollution. In comparison, modernized jeepneys are more environmentally sustainable."]

Through this, an exhaust system is not present in the e-jeepney design since E-jeepneys do not depend on gasoline, diesel, and etc. gases as primary energy sources. The E-jeepneys are also barely capable of producing sound,

which also helps decrease noise pollution, especially in the city. Since the E-jeepney runs on solar power, it lessens the Carbon Monoxide present in the atmosphere.Most of the respondents took into consideration the fact that the E-jeepney is eco-friendly. By spreading awareness of this effect on the environment, the production of environment-friendly vehicles will grow, and the city will be less polluted, making it safer for current and future generations.John Gabriel Molate, a prominent voice in this narrative, asserts

["Perhaps positively, this modernization initiative proves to be more environmentally friendly and beneficial to commuters compared to traditional jeepneys. It avoids emitting smoke,making it particularly suitable for individuals with health issues such as asthma, enhancing the overall well-being of commuters."]

Additionally, introducing e-jeepneys is crucial in benefiting commuters, especially those with health problems. Unlike traditional jeepneys that rely on combustion engines, e-jeepneys operate with electric power, emitting zero tailpipe pollutants. This transition to cleaner transportation is particularly advantageous for commuters with respiratory issues, such as asthma orallergies, as it helps reduce air pollution and potentially improves air quality. Additionally, the smoother and quieter ride of e-jeepneys might benefit individuals with sensitivities to noise and vibrations. By providing a healthier and more comfortable commuting experience, e-jeepneys contribute positively to the well-being of commuters, especially those facing health challenges. Adopting an eco-friendly e-jeepney program in General Santos City brings about multifaceted benefits, positively impacting the urban environment and the daily lives of its residents. The eco-friendly e-jeepney program in General Santos City catalyzes positive change. It addresses immediate concerns related to air quality and traffic congestion. It contributes to the city's long-term sustainability goals, economic growth, and a higher quality of life for its residents.

Jeepney Operators and Driver's Occupational Standing

The employment issue of e-jeepney drivers in the Philippines was a topic of concern and discussion. The e-jeepney modernization program aimed to upgrade the country's public transportation system by replacing traditional jeepneys with modern electric jeepneys. However, this transition posed challenges for many drivers, particularly those who owned or operated the older, conventional jeepneys. As with other cities, such as Manila City,many operators have opposed these initiatives (Talabong 2017). Several transport groups have been staging strikes against the proposed new regulatory model. In contrast, some groups regard the initiatives as profit-oriented and 'anti-poor', which may result in small individual-owned franchisees losing autonomy and leading to bankruptcy in the employment sector. Jeepney operators say that what they need isn't a more extended deadline but more substantial financial support from the government to consolidate and upgrade their fleets. However, in the context of e-jeepney drivers and operators in General Santos City, they

admitted that it was a difficult decision for them initially because they also considered that their incomes would be affected.

["We are really hesitant at first just because it might affect our livelihood. The income of these two option systems is quite different, and having us surrender our individual franchise and take on millions in debt puts us at risk. It would take me a lot of time to support this program because I really don't want to have debt, considering that I only belong to the low-income earners.However, after a lot of consultation and seminars provided by our cooperative, it helped me to understand this program and lead me to accept the offer and surrender my individual franchise."]

This narrative of an e-jeepney driver of LADOTRANSCO for nine years, pointed out that the e-jeepney modernization program was along process for him and his co-drivers. It takes them much consultation, considering they are the first transport cooperative to adopt this modernization. He also asserts that there was no resistance or strikes happened. The Land Transportation Franchising and Regulatory Board (LTFRB) also made an initiative such as a symposium and consultation for a dialogue.

["It wouldn't be accurate to label it as resistance. While there is an acknowledged concern, both the Land Transportation Franchising and Regulatory Board (LTFRB) and the Local Government Unit (LGU) are actively engaged in swift and effective resolutions. This was evident during the nationwide strike, where General Santos City chose not to partake, given a consensus among stakeholders that the modernization program posed no inherent problems. It is noteworthy that abandoning designated routes is outlined as a violation in the operational manual; however, the right to engage in peaceful rallies is acknowledged. Despite these problems, General Santos City stands out as particularly fortunate, as local stakeholders are notably supportive of the modernization initiative."]

This narrative from the Regional Director of LTFRB XII, agreed with Ronnie Alcosir's claims, e-jeepney driver. The absence of reported resistance to the e-jeepney program in General Santos City suggests several potential factors contributing to a smooth implementation. Effective communication strategies, highlighting the program's benefits, and addressing concerns have played a pivotal role in garnering support. Financial incentives or support provided to operators could have alleviated financial challenges associated with transitioning to electric vehicles. Robust community engagement, including consultations and involvement of stakeholders, fostered a sense of inclusivity in decision-making, reducing the likelihood of opposition.

The provided narrative reflects a positive stance on the e-jeepney modernization program in General Santos City, emphasizing collaboration between the Land Transportation Franchising and Regulatory Board (LTFRB), the Local Government Unit (LGU), and local stakeholders.The answer highlights the city's fortune in having local stakeholders supportive of modernization, and it now includes information about the on-the-job opportunities facilitated by the LTFRB and consultation seminars. If these benefits are uniformly distributed to different cooperatives, ensuring equal

access to job opportunities and information, it aligns more closely with distributive justice principles. This approach reflects a commitment to providing opportunities and benefits across various segments of the community, fostering a more equitable distribution of resources and opportunities in line with distributive justice goals. The emphasis on uniform distribution contributes to mitigating potential disparities and reinforces the notion that the positive aspects of the modernization initiative are accessible to all participating cooperatives, promoting a more just and inclusive transportation system. Additionally, if General Santos City had prepared and implemented charging infrastructure, a common concern with electric vehicles, this could have positively influenced stakeholders' perceptions. Public support and clear regulatory guidelines also contributed to a favorable environment for the e-jeepney program. While the absence of resistance is notable, ongoing efforts to monitor and address potential challenges will be crucial for the program's sustained success in General Santos City.

The "Blind sides" of E-Jeepney Modernization

Although the E-jeepneys seem promising, they also have their own drawbacks. Since E-jeepneys need to be as light as possible, heavy objects are prohibited from being boarded inside the e-jeepneys to conserve energy and prevent damage inside and outside the vehicle. The speed of the said vehicle is also a concern because it does not rely on gasoline but on solar power, making it a disadvantage during heavy downpours. According to one of the respondents, riding the E-jeepney is not advisable when you are in a hurry.

The Paradox of Easy Accessibility

One of the components of the Public Utility Vehicle Modernization Program (PUVMP) is route rationalization. This strategic initiative involves a comprehensive reassessment and optimization of existing transportation routes to enhance overall system efficiency. The primary objectives include creating a well-organized network that minimizes overlaps, reduces travel times, and better addresses the specific needs of commuters. Through consultations with various stakeholders, including transport operators and local government units, the PUVMP seeks to streamline public transportation, making it economically sustainable for operators while providing improved and reliable service for passengers. The anticipated benefits encompass reduced traffic congestion, optimized fuel consumption, and enhanced environmental sustainability through more efficient transportation operations. One of the problems that commuters encounter in the said area is the availability of vehicles bound for specific routes. The e-jeepneys present in General Santos City make it more convenient for commuters to reach a particular destination, it is intended to improve accessibility for the commuters:

As stated by the LFTRB Regional Director XII.

["We expanded our route coverage by incorporating previously inactive paths, ensuring that passengers have access to transportation even on secluded streets.The design of the e-jeepney is specifically tailored to enhance passenger convenience, allowing them to easily board at any station."]

However, the statements from the commuters are different from the statement of the implementer. John Phet Basilio, one of the commuters, claimed that it is difficult for him to take an e-jeepney sometimes since it is limited to the highways.

["Potentially, a challenge with e-jeepneys lies in their restricted routes. It would be beneficial if the routes could extend to include other streets, as the current emphasis seems to be primarily on highways."]

It is also supported by one of the commuters, John Gabriel Molate.

["A minor challenge arises due to variations in routes among different e-jeepneys, causing confusion with their designated paths. This discrepancy in imprinted routes can sometimes lead to uncertainty about whether the e-jeepney taken is the correct one, resulting in instances where I find myself on the wrong route due to this issue."]

Also by the other commuter, John Lester Pombo.

["Due to the restricted routes of the e-jeepney, certain passengers are unable to board directly and must instead head to the terminal for boarding. This poses a challenge for me,particularly when attending classes at GFI, as there is non-jeepney route servicing the school. The situation becomes particularly inconvenient since the e-jeepneys strictly adhere to their departure schedule, regardless of whether they are full or not. Consequently, if I miss a departure, I am compelled to wait for the next scheduled e-jeepney, prompting occasions where I find it necessary to resort to taking a tricycle, even if it lacks the spaciousness I would prefer."]

The narratives from various informants underscore that despite the program's intention to optimize transportation efficiency, commuters of General Santos City often need help accessing reliable and convenient public transportation options. Rationalizing routes inadvertently leads to longer walking distances to reach transportation hubs or difficulty finding suitable connections to their destinations. In some cases, the adjustments might need to align with different communities' diverse commuting patterns and needs, making it harder for passengers to access essential services. Addressing these challenges requires a comprehensive approach that prioritizes the accessibility and convenience of public transportation for commuters, ensuring that the benefits of route rationalization are felt positively on the ground.

The challenges and limitations outlined in the context of e-jeepneys in General Santos City, such as varying routes, restricted accessibility to certain areas, and strict departure schedules, highlight potential issues related to distributive justice in the modernization program. Distributive justice involves the fair distribution of resources and benefits in society. In the case of e-jeepneys, the uneven distribution of routes may lead to unequal access to

sustainable transportation services. The disparities in route coverage may result in some passengers having easier access to eco-friendly transportation, while others face challenges, especially those attending schools or residing in areas not covered by the e-jeepney routes. This situation contradicts the distributive justice goals,as the benefits of modernization should ideally be accessible to all members of the community. Additionally, the strict adherence to departure schedules, regardless of capacity, may impact the convenience and fairness of the transportation system. Passengers who miss a scheduled departure may face longer waiting times, potentially affecting those with time-sensitive commitments and thereby introducing an element of inequity. To address these distributive justice concerns, it becomes essential for the e-jeepney modernization program in General Santos City to focus on inclusive route planning, ensuring that a diverse range of areas, including schools and less accessible locations, are adequately covered. Moreover, a balance between adherence to schedules and flexibility based on passenger demand should be considered to enhance the accessibility and fairness of the transportation system for all residents.

Financial Burden

Though modernization can increase fare box revenues, improve commercial performance, and reduce long-term operational costs, capitalization remains a considerable barrier to adoption. As such, while commercial viability was seen in the long run, initial adoption depends on significant financial solutions to reduce capital expenditure. In addition, the right sequencing of activities and programs of the PUVMP is critical. Regulatory reform is needed even before requiring the LPTRP formulation and submission, route rationalization, and investments in new fleets. This would have allowed for better appreciation and acceptance by stakeholders had they been allowed more time to prepare and adjust for modernization (Congressional Policy and Budget Research Department, 2020.

Though GenSan's cooperatives have by now accepted the national government's thrust for modernization, they recognize that the plans of the DOTR are not perfect. Their main concern remains financing.

Orlando Sabelita's reiterated sentiment reinforces this thematic focus on the main challenge they encounter in acquiring units.

["Getting the money is a big issue. Despite the government's efforts to provide subsidies, acquiring the necessary units remains a formidable task due to the considerable investment involved,often reaching into the millions. Getting a loan is also tricky, and some groups had problems with banks before, making us worried about government attention. Plus, there are so many regular cabs and jeeps around that the bank might not be able to help all of us in the transportation business."]

His assertion that "even there's a subsidy coming from the government,it is still difficult to acquire units since you need millions" echoes the financial challenges within the e-jeepney modernization program in the Philippines arise due to a combination of factors:

The high costs of transitioning from traditional jeepneys to electric ones present a substantial financial burden. Purchasing electric vehicles, setting up charging infrastructure, and ensuring proper maintenance require significant investments.

The economic constraints within the transportation sector, where many operators are small-scale businesses, exacerbate the financial strain. Limited access to affordable financing options and concerns about the return on investment further impede the adoption of e-jeepneys.

Uncertainties regarding the long-term operational costs, including maintenance and electricity expenses, contribute to the financial challenges.

The financial impediments encountered by cooperatives in General Santos City regarding e-jeepney modernization present a discord with the overarching goals of distributive justice within the program. The substantial financial investment required for acquiring modernized vehicles poses a barrier that may result in unequal participation, hindering certain cooperatives from accessing the intended benefits of a more sustainable and contemporary transportation system. This misalignment with distributive justice principles accentuates disparities, as the advantages of the modernization initiative, such as environmental sustainability and enhanced transportation services, may not be uniformly accessible across the community. Furthermore, the challenges in securing loans introduce an additional layer of potential inequality, favoring larger or financially robust cooperatives. To foster distributive justice, it is imperative to address these financial barriers, ensuring that the benefits of e-jeepney modernization are equitably distributed, irrespective of the financial capacities of the cooperatives involved.

Overcoming these obstacles demands a comprehensive approach that considers financial support mechanisms, incentivizes the transition, and addresses the specific economic conditions within the local transportation industry.As per DBP and Landbank policy, modernization subsidies were initially pegged at PHP 80,000.00 before eventually increasing to PHP 160,000.00.This needed to be done more as the DOTR could not assess and clarify the up-front costs of acquiring modernized jeepneys, such as chattel mortgage fees, bank service fees, etc. As such, this has led to many people thinking that the policy is anti-poor, as it is difficult for small operators and cooperatives to get the money together to fund the modernization. Moreover, this study has shown that existing policies, including necessary investment in infrastructure, terminal fees, cooperativization, and others, do not cover other costs.There are also trumped-up costs internalized by the current policies, such as a garage, safety officers, and resident mechanic requirements (Cantero, 2019). The cooperatives suggest that in this regard, the national and local governments should work together to co-finance and support the operators. Since the cooperatives maintained open communication with the GenSan LGU, they could voice their concerns on funding the procurement of new vehicles,specifically leveraging the fact that the LGU encouraged the operators

to go into the public transport industry. As stated by Reynato Paterno, LTFRB XII Regional Director:

["Our equity will be utilized in the financing of the Public Utility Vehicle (PUV) modernization program. This involves a subsidy system known as the 5-6-7percentage, where a subsidy is provided to affected operators or cooperatives, amounting to 260,000 pesos per unit. This subsidy is exclusively designated for the acquisition of units, with direct transfer to the partnered bank through checks, eliminating the use of cash to prevent personal interest. It cannot be diverted for any other cooperative purposes.In terms of the drivers, the cooperatives not only offer job opportunities but also ensure their well-being by providing incentives and allowances to mitigate potential issues. Through these initiatives by the national government and individual cooperatives, we aim to guarantee equal opportunities for all involved parties."]

The LGU and LFTRB have legislated an ordinance providing additional subsidies for the modernization program. The ordinance declared that for every modern vehicle unit a transport cooperative or corporation acquires, a subsidy of PHP 260,000.00 will be given. The assistance guarantee from the LGU was a great boon for the transport cooperatives and eventually led to their agreement to modernize their operations (Mendoza 2020).

Despite the government's subsidy efforts, the financial burden of the Public Utility Vehicle Modernization Program (PUVMP) persists, particularly concerning the acquisition of e-jeepneys. While a positive step, the subsidy may only partially alleviate the financial strain on operators. The need to acquire a more extensive fleet of e-jeepneys often translates into increased debt obligations to banks. This persistent challenge underscores the complex economic landscape faced by small-scale operators, as the upfront costs and ongoing financial commitments may outweigh the benefits provided by government support. Consequently, a more nuanced approach is necessary, addressing not only the initial costs but also considering sustainable financing models and ongoing financial support mechanisms to ensure the successful and equitable implementation of the PUVMP.

The analysis of the contradicting answers reveals a tension between the cooperative's perspective and the LTFRB's approach in the e-jeepney modernization context with respect to distributive justice. The cooperative underscores persistent financial challenges at the grassroots level, implying potential inequities despite government subsidies. This highlights distributive justice concerns, emphasizing the necessity of an inclusive approach for all stakeholders. Conversely, the LTFRB's response, emphasizing the 5-6-7 percentage subsidy system, signifies an acknowledgment of financial barriers and an attempt to provide support. However, the contradiction arises from the perceived effectiveness of these measures, as the cooperative's stance suggests that the current strategies may not be fully addressing the financial challenges faced by smaller operators. Resolving this contradiction may require a closer examination of the specific concerns raised by cooperatives and potential

adjustments to the subsidy program to better align with distributive justice principles.

Rivalry in a Diverse Transport Showdown

Upon implementation of the LPTRP and the legislation of an ordinance disallowing tricycles from traversing the national highway, the cooperatives saw opportunity and viability of operations because of the changes at the planning and policy stage. However, this was met with opposition from tricycle drivers. The tricycle drivers perceived the changes as "theft" of their routes, threatening their income and resulting in alleged harassment incidents.

["There's an overwhelming number of unregistered vehicles. The other public vehicles are disorganized, so as a cooperative, we cannot achieve full viability on our route unless everyone adheres to the guidelines. Certainly, if ridership decreases, it becomes challenging to repay our loans to the bank, which could lead to a halt in the production of modernized jeepneys. The positive aspect is that the national government supported us by providing income through the free riding program, a service contracting initiative subsidized by the government. However, the downside is that this assistance is not consistent."]

This narrative from the general manager of Metro Gensan Transport Cooperative, encapsulates the challenge they encounter in competing with the other modes of transportation, specifically those tricycles that are colors. Because of this, the jeepney drivers fought for support from local decision-makers. The cooperatives believe stronger political will is needed from the local government to prevent "colorum" vehicles from operating. National and local governments should also ensure the continuity of the LPTRP when the administration changes. Colorum vehicles should be prevented and eventually eliminated using the LPTRP as the basis. The competition among different modes of transportation, particularly with colorum tricycles deviating from assigned routes, exacerbates financial challenges for legitimate operators and often results in lower income levels. This heightened competition reduces passenger volumes for authorized public utility vehicles, making it difficult for operators to achieve their target daily income. The financial strain is further amplified when commuters opt for alternative, often unregulated, transportation options. An intensive information and education campaign (IEC) should also target local implementers, such as barangay officials and enforcers so that the LPTRP can be properly implemented. Their roles should be stipulated in an ordinance.

Diesel or Electric Jeepney?

The E-Jeep Modernization Program in General Santos City, it's crucial to compare the fuel consumption of traditional and electric jeepneys in the Philippines. Traditional jeepneys typically consume 4 to 6 kilometers per liter of diesel fuel, costing approximately 8.85 to 13.3 Philippine pesos per kilometer based on the current diesel priceof53.15Philippinepesosperliter. On the other hand, electric jeepneys can travel 1.6 to 2.5 kilometers per kilowatt-hour of

electricity, costing approximately 3.36 to 5.28 Philippine pesos per kilometer based on electricity rates averaging around 9 to 11Philippines as per kilowatt-hour (Viado, 2023). This significant difference in fuel consumption underscores the cost-effectiveness and efficiency of electric jeepneys over traditional ones, highlighting their potential as a sustainable alternative for public transportation in the Philippines.

Regarding the findings above, one particular study titled Perception of the Jeepney Drivers on the Jeepney Modernization in Indang, Cavite, also supported similar results that challenges persist, including financial burdens. Based on the study's findings, the analysis of ungrouped data showed that jeepney drivers disagree on financial needs and work opportunities but agree on individuality. The Friedman test confirmed a significant difference in their perception of jeepney modernization, and the Wilcoxon-Signed Rank Test indicated consistent and significant differences in their views (Savilla, Mojica, Macaya. and Reyes, 2024).

CONCLUSIONS AND RECOMMENDATIONS

General Santos City has undergone a transformative change in its public transportation landscape in recent years by implementing the E-Jeep Modernization Program. This ambitious initiative, led by the Land Transportation Franchising and Regulatory Board (LTFRB), aimed to revolutionize the local commuting experience by introducing electric jeepneys to the streets of General Santos City. As this program unfolded, stakeholders, including jeepney drivers, operators, passengers, and regulatory bodies, found themselves at the forefront of a paradigm shift, bringing myriad perceptions, challenges, and transformative impacts specific to the city. The addition of the E-jeepneys was an effective movement that made people's lives much easier and safer. With only five (5) years of pioneering the said vehicles, it has already contributed much to the residents of General Santos City and the community as well. The perceptions of key stakeholders, particularly the jeepney drivers in General Santos City, were initially met with curiosity and skepticism. The shift from traditional combustion engines to electric-powered vehicles brought concerns and uncertainties about the new technology. However, as e-jeepney drivers began to experience the benefits firsthand, such as reduced maintenance costs and a more comfortable driving experience, perceptions gradually shifted towards acceptance. The upfront investment required for acquiring electric vehicles raised concerns about return on investment and overall profitability. However, as the program progressed, operators in General Santos City began to appreciate the long-term benefits, including lower operational costs, reduced environmental impact, and positive public perception. These factors translated into increased ridership and revenue, aligning with the city's commitment to sustainable and efficient public transportation. This shift toward cleaner and quieter transportation gained widespread support among passengers, who now prioritize their daily commutes' eco-friendly and health-conscious aspects. This reflects a trend seen in developing countries like Thailand, where electric mobility solutions tailored to local conditions, such as electric "tuk-tuks," have

been embraced. Thailand's initiative to modernize traditional tuk-tuks into electric ones showcases the country's dedication to sustainable transportation Through strategies like incentivizing the transition, Thailand aims to establish a cleaner and more effective tuk-tuk transportation system, benefiting both the environment and the livelihoods of tuk-tuk operators (Agaton 2019).

The Land Transportation Franchising and Regulatory Board (LTFRB), as the regulatory body overseeing the transportation sector in General Santos City, played a pivotal role in shaping the program's trajectory. Despite initial resistance, their enforcement of regulations and sustainability promotion were pivotal. Collaborating with stakeholders, they addressed challenges and ensured success, reflecting the city's commitment to eco-friendly transport. However, challenges persist, including financial burdens, competition with unauthorized vehicles, and route issues. Overcoming these requires innovative financing, stronger enforcement, and comprehensive planning, emphasizing strategic collaboration among agencies and stakeholders. The E-Jeep Modernization Program in General Santos City aimed to distribute benefits and burdens fairly among stakeholders, aligning with distributive justice principles. It sought to improve working conditions and reduce maintenance costs for jeepney drivers while providing passengers with a healthier, eco-friendly commuting experience. The program was overseen by the LTFRB, highlighting its commitment to fairness. Despite challenges, efforts were made to create a just transportation system, reflecting the broader goal of distributive justice to ensure equitable resource distribution and societal well-being.

The E-Jeep Modernization Program in General Santos City mirrors the overarching national dialogue on jeepney modernization in the Philippines. It serves as a blueprint for sustainable public transportation in the Philippines. Its localized success underscores the potential for nationwide transformation, emphasizing the need for inclusivity and fairness in the modernization process. As the country continues its modernization journey, it is essential to draw lessons from programs like this to ensure that the transition is not only efficient but also comprehensive, benefiting all stakeholders and promoting a more just society.

FURTHER STUDY

Further study should expand the research locale to other cities or regions, thereby employing a comparative research investigation. Also, exploration of additional research methods, including quantitative analysis should also be considered, which may provide with a more comprehensive understanding of the subject matter at hand.

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