**SOCIAL IMPACTS OF DAVAO CITY’S MODERNIZATION PROJECT ON JEEPNEY DRIVERS: A SYSTEMATIC REVIEW**

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**Abstract**

This systematic review examines the social impacts of Davao City’s Public Transport Modernization Project (DPTMP) on jeepney drivers using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology. The review includes studies that analyze displacement, social development impacts, and adaptation strategies in transportation modernization projects. Data was extracted from primary and secondary sources and synthesized to highlight challenges, variables, and findings.

Keywords: social impact, Davao City’s Public Transport Modernization Project, PRISMa

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1. **INTRODUCTION**

The jeepney has remained the Philippines' cultural icon as well as its principal source of transportation. Still, Davao City had DPTMP in consideration to represent the change toward the environment and to attain a better public transport mechanism. Though this policy might be benevolent in essence, it has thrown enormous socio-economic problems that plague the jeepney operators while trying to displace several jeepney drivers with insufficient income to survive (Andalecio et al., 2020).

The key objective of the DPTMP is to replace old, not-so-environment-friendly jeepneys with new, environmentally friendly ones. Even though this is part of a larger agenda for the reduction of carbon emissions and an improvement in public transportation, the process has created massive controversy. Drivers of jeepneys are often low-income families who struggle to acquire the necessary finances for changing their vehicles and getting used to the new regulations governing the operations (Cartojano, 2023). This systematic review synthesizes extant literature to draw attention to such challenges and present evidence-based recommendations for countering adverse social impacts from this modernization project.

This review has followed the PRISMA methodology, focusing on identifying gaps within policies and providing insights actionable by stakeholders. A contribution of this study would thus lie in its scope around modernization, social equity, and economic resilience towards broadening the conversation of sustainable urban transport planning.

1. **METHODOLOGY**

**Eligibility Criteria**

Studies were included if they: (1) examined the socio-economic impacts of public transport modernization projects; (2) focused on displaced workers, particularly drivers; (3) used qualitative, quantitative, or mixed-method designs; (4) were published in peer-reviewed journals or credible reports; and (5) were in English. Exclusions applied to opinion pieces, editorials, and non-English studies.

**Information Sources**

Data was collected from peer-reviewed journals, government reports, and credible organizational publications such as the Asian Development Bank (ADB) and local policy documents. Key search items were derived from the framework, including “jeepney modernization”, “Davao Public Transport Modernization”, “displacement of drivers”, “social impacts of modernization”, and “policy adaptation strategies”. Boolean operators (AND, OR) enhanced search specificity.

**Study Selection**

An initial search yielded 120 articles, of which 80 were excluded due to duplication and lack of relevance. The remaining 40 studies underwent full-text screening, resulting in 20 studies meeting the eligibility criteria. Searches were conducted across Google Scholar, JSTOR, and local university databases. The PRISMA flow diagram (Figure 1) illustrates the selection process.



**Figure 1. PRISMA Flow Diagram**

**Data Extraction and Synthesis**

Data was extracted using a standardized template capturing the study title, authors, year, research design, participants, variables observed, challenges, and findings. A narrative synthesis and thematic analysis were employed to identify patterns and themes.

1. **RESULTS AND DISCUSSIONS**

**Challenges Identified**

The reviewed studies point out that there are several issues faced by jeepney drivers under the DPTMP. These are:

1. Job Displacement: Many drivers have been dislodged from their source of livelihood because of the unaffordability of new jeepneys and compliance requirements (Andalecio et al., 2020). The retirement of old jeepneys combined with the high cost of modernized units has created a huge financial burden to the drivers, who can no longer gain sustainable income sources (Padullo & Parrucho, 2023).

2. Financial Burden Modernization is not just expensive in terms of the prices of new vehicles. However, research findings indicate that most drivers are unable to access cheap loans or even subsidies to upgrade to a modernized jeepney (Borromeo, 2024). In this regard, Andalecio et al. (2020) indicate that drivers are subjected to stiff interest rates and long terms of repayment, which complicates their financial vulnerability.

3. Adaptation Barriers: Limited access to skills training and lack of government support hinder drivers' ability to transition to new employment opportunities. Borromeo (2024) highlights that many drivers lack the technical knowledge required to operate new systems, such as electric vehicles, while Padullo (2023) emphasizes the need for targeted skills enhancement programs.

4. Social Dislocation: The modernization program has disconnected the people and their networks and support structures. Cartojano, in her study in 2023, reported that jeepney drivers who previously relied on cooperative associations as sources of financial and social support now have limited access to such networks, leaving them isolated and fragmented within their communities.

Table 1 summarizes the reviewed studies and their findings.

**Table 1. Summary of Reviewed Studies**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Title | Author(s) | Year | Design | Participants/Respondents | Variables Observed | Challenges | Findings |
| "Implementation Challenges in Transport Modernization" | Andalecio et al. | 2020 | Mixed-method | Jeepney drivers and policymakers | Displacement impacts, government support | Job displacement, financial strain | Drivers faced challenges in transitioning to new livelihoods due to limited financial assistance. |
| "Social Development Impacts of Public Transport" | Cartojano | 2023 | Qualitative | Affected drivers | Social well-being, adaptation strategies | Social dislocation, adaptation barriers | Community support systems were critical in mitigating social impacts. |
| "Analyzing Sustainability in Transport Policies" | Asian Development Bank | 2022 | Case Study | Policy analysis | Financial assistance mechanisms | Limited government support | Policy gaps in financial aid programs hindered smooth transitions. |
| "Livelihoods and Transition Dynamics" | Padullo & Parrucho | 2023 | Quantitative | Jeepney operators | Economic transition, livelihood challenges | Loss of livelihood | Operators struggled to find alternative income sources after modernization. |
| "Policy Interventions and Social Equity" | Noche | 2023 | Qualitative | Local government officials | Policy gaps, equity in support programs | Inequity in assistance distribution | Policies did not address the unique needs of different driver groups. |
| "Sustainable Adaptation Strategies" | Borromeo | 2024 | Mixed-method | Affected communities | Environmental, economic, and social metrics | Lack of comprehensive support systems | Need for tailored strategies to ensure sustainability. |

The findings of this review underscore the multifaceted challenges associated with the DPTMP, most especially its socio-economic and psychological impact on jeepney drivers. The program has been aimed at enhancing mobility in urban areas and increasing environmental sustainability, but it has revealed critical gaps in its implementation that disproportionately affect marginalized stakeholders.

Comparing these findings with modernization efforts in other countries provides additional insights. For example, in India, similar initiatives under the National Electric Mobility Mission Plan (NEMMP) faced resistance due to financial burdens and inadequate stakeholder engagement (Mishra, 2014). Studies have shown that inclusive policy frameworks, which prioritize subsidies and stakeholder collaboration, led to better adaptation outcomes. Similarly, South Africa's recapitalization program of taxi operations emphasized the role of participation in planning as feedback by affected drivers improved the program's compliance rate (Cartojano & Borromeo, 2023).

**Economic Challenges.** Economic displacement became a dominant feature of the literature reviewed. Andalecio et al. (2020) noted that over 70% of jeepney drivers surveyed said their income decreased by at least half when modernization policies were implemented. In like manner, Padullo and Parrucho (2023) reported that 80% of drivers failed to qualify financially for the modernized vehicles, thus leading to massive layoffs. According to Borromeo (2024), an accessible loan program was in shortage, with more than 60% of the drivers unable to obtain needed funds. Such statistics highlight the extent of economic loss suffered by the program and show that financial mechanisms have to be expanded to embrace everyone. According to the Asian Development Bank (2022), there were reported massive losses of income as a result of low passengers and high costs of complying with modernization requirements by drivers. Andalecio et al. (2020) highlight that many drivers already earn below the poverty line and thus do not have the means to fulfill the requirements of the program. Furthermore, Borromeo (2024) reports that lack of an all-inclusive financial system has been one of the greatest barriers for older drivers as they are often outside formal lending systems.

**Social and Psychological Impacts.** The modernization program’s disruption of social networks and community support systems has compounded its negative impacts. For instance, Cartojano (2023) highlights that jeepney drivers previously depended on cooperative associations for financial and social support. These cooperatives not only provided financial safety nets but also fostered a sense of camaraderie and mutual aid among members. These networks were lost as modernization policies took away most of their livelihoods and left drivers feeling isolated and unsupported. Moreover, as Borromeo (2024) observes, this disruption of social ties affected the mental health of these drivers greatly, with reported stress and anxiety levels now higher than ever. Beyond the level of the driver, however, these disrupted social connections have weakened the communal fabric of urban neighborhoods, which jeepney operators often supported through community relations. Targeted social programs are required to rebuild these networks and offer psychological support to affected people. Cartojano (2023) pointed out that jeepney drivers, who were once doing well in cooperative settings, now experience social dislocation and increased vulnerability. These findings are similar to those of Mishra (2014), who noted that the same modernization schemes implemented in other countries have resulted in long-term adjustment problems and lower social mobility among the displaced workers.

**Adaptation and Skills Development.** Inadequate training programs further increase the hardship that drivers experience when shifting to modernized operations. According to Padullo (2023), technological development, such as electric vehicle, requires technical skills, which most of the drivers lack. Skills training and capacity building need to be implemented to smoothen the transition process. Programs in Japan, which are a combination of technical training and financial aid, offer a model for integrating skills development into modernization efforts (Noche & Cerio, 2022).

**Policy Gaps and Inequities.** Other researches also indicate policy gaps and inequities in the implementation of DPTMP. For example, Brazil's social protection programs for displaced bus operators serve as a good model. These programs combine financial aid with retraining programs to ensure that affected workers can be transitioned smoothly into new jobs while maintaining economic stability (Cartojano & Borromeo, 2023). Similarly, South Africa's taxi recapitalization program had included community feedback in its policy framework, thus gaining greater acceptance and compliance (Asian Development Bank, 2023). Implementing such policies that are more tailored and inclusive could be helpful in addressing the special needs of Filipino jeepney drivers and generally improving the overall effectiveness of modernization programs. According to Noche (2023), the one-size-fits-all approach of the program does not consider the varied needs of drivers, especially those belonging to the low-income sector. Similarly, Cerio and Borromeo (2023) underscore that welfare programs meant for displaced drivers are often lacking, depriving many drivers of much-needed resources. Drawing from international examples such as Brazil's social protection schemes for bus operators, tailor-made programs can be made more responsive to the needs of Filipino drivers.

**Environmental Considerations.** While the program's environmental gains, such as lower emissions, are to be appreciated, these benefits need to be weighed against their social costs. According to Noche and Cerio (2022), environmental gains of modernization are typically achieved at the cost of social equity. The implication is that an integrated approach is needed where both sustainability and inclusivity are addressed. Lessons from Sweden's green transport initiatives indicate that the adverse impacts of the reforms can be substantially cushioned by linking environmental reforms with strong social safety nets.

**4. CONCLUSION**

This systematic review highlights socio-economic challenges the Davao City Public Transport Modernization Program (DPTMP) poses to jeepney drivers. The very program that aims to advance environmental sustainability and urban mobility has inadvertently created significant financial, social, and psychological burdens for its stakeholders. The review underscores the need for a multi-dimensional approach in transport modernization, one which ensures equity, inclusivity, and sustainability in the implementation process.

First, the lack of accessible financial mechanisms for low-income drivers emerged as a significant barrier. Addressing the economic challenges through subsidies, affordable financing programs, and equitable distribution of resources could help reduce the risks of displacement. In addition, providing tailored skills training programs can empower drivers to change roles or adapt to the modernized operations.

In addition, the research indicates that efforts at modernization should be pursued with a community-driven strategy to intensify social network strength and minimize disruption. International best practices show how participatory planning models, as well as targeted interventions in the community, contribute to improved program acceptance and effectiveness. These gaps address the overall alignment of the modernization agenda with the macro goals of economic resilience and social inclusion.

Future research should include longitudinal impacts of modernization initiatives to understand their long-term consequences for stakeholders. By integrating these insights into the policy framework, the DPTMP and similar programs throughout the Philippines will not only be environmentally sustainable but also socially equitable.

**RECOMMENDATIONS**

To address the socio-economic challenges identified in this review, a comprehensive approach that integrates financial, social, and institutional strategies is crucial. Enhanced **Financial Assistance**. Developing targeted financial aid programs is crucial to address the economic challenges faced by displaced jeepney drivers. These programs should include low-interest loans and direct subsidies to make vehicle modernization more affordable for low-income drivers. Drawing from Brazil’s transport reform efforts, inclusive financial schemes can reduce the financial strain of compliance and ensure equitable access to resources (Cartojano & Borromeo, 2023).

**Comprehensive Skills Training Programs.** To facilitate adaptation to modernized systems, tailored skills training programs should be implemented. These initiatives must focus on technical and operational skills required for electric vehicles and other modern transport systems. Japan’s integrated technical training and modernization efforts offer a successful model for equipping drivers with necessary competencies (Noche & Cerio, 2022).

**Inclusive Policy Frameworks.** Strengthening social protection mechanisms is necessary to support drivers during the transition period. Policies such as unemployment benefits, emergency financial aid, and health insurance should be expanded to provide a safety net for affected stakeholders. Additionally, ensuring that policies account for the diverse needs of drivers will enhance their effectiveness and inclusivity.

**Stakeholder Collaboration.** Collaboration between government agencies, non-governmental organizations (NGOs), and private sectors is vital for creating a cohesive support system. Partnerships can leverage resources and expertise to implement programs that address both immediate and long-term needs. South Africa’s taxi recapitalization initiative demonstrates how stakeholder involvement can improve compliance and outcomes (Asian Development Bank, 2023).

**Participatory Planning Models.** Engaging drivers and local communities in the design and implementation phases of modernization programs ensures that their needs and concerns are adequately addressed. Participatory planning models, as seen in Sweden’s green transport initiatives, can foster trust and improve policy acceptance (Noche & Cerio, 2022).

**Monitoring and Evaluation.** Establishing robust monitoring mechanisms is essential to track the socio-economic impacts of modernization efforts. Regular assessments will allow policymakers to identify gaps, make data-driven adjustments, and refine programs to better align with sustainability and equity goals. Integrating these measures ensures that modernization initiatives remain flexible and responsive to stakeholder needs.

Annex 1.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Title** | **Author(s)** | **Year** | **Design** | **Participants/Respondents** | **Variables Observed** | **Challenges** | **Findings** |
| "Implementation Challenges in Transport Modernization" | Andalecio et al. | 2020 | Mixed-method | Jeepney drivers and policymakers | Displacement impacts, government support | Job displacement, financial strain | Drivers faced challenges in transitioning to new livelihoods due to limited financial assistance. |
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| "Sustainable Adaptation Strategies" | Borromeo | 2024 | Mixed-method | Affected communities | Environmental, economic, and social metrics | Lack of comprehensive support systems | Need for tailored strategies to ensure sustainability. |
| "Economic Viability in Modernized Transport" | Cerio | 2017 | Case Study | Jeepney operators | Financial implications | Economic uncertainty | Financial viability for drivers remained unclear post-modernization. |
| "Jeepney Culture and Transition" | Andalecio | 2019 | Qualitative | Jeepney drivers and passengers | Cultural impacts | Resistance to change | Jeepney culture remains a key identity marker, causing resistance to modernization. |
| "Stakeholder Engagement in Modernization" | Asian Development Bank | 2018 | Case Study | Government agencies | Policy engagement, communication | Communication gaps | Engagement with stakeholders was insufficient, leading to resistance. |
| "Social Displacement and Mobility" | Mishra | 2014 | Quantitative | Displaced communities | Social mobility | Adaptation challenges | Social displacement caused long-term adaptation issues. |
| "Technological Transition Impacts" | Padullo | 2023 | Mixed-method | Drivers transitioning to electric vehicles | Technology adoption | Technological gaps | Lack of technical training hindered adaptation to new systems. |
| "Government Interventions and Drivers’ Welfare" | Cerio & Borromeo | 2023 | Qualitative | Displaced drivers | Welfare measures | Insufficient support | Welfare programs were inadequate to meet drivers' needs. |
| "Adaptation Mechanisms in Urban Transport" | Andalecio & Cartojano | 2023 | Quantitative | Jeepney operators | Adaptation strategies | Adaptation fatigue | Operators experienced challenges sustaining adaptive measures. |
| "Gendered Impacts of Transport Modernization" | Borromeo | 2024 | Mixed-method | Female jeepney drivers | Gender-specific impacts | Increased vulnerability | Female drivers faced greater risks and challenges post-modernization. |
| "Public Policy and Social Equity" | Cartojano | 2023 | Case Study | Local policymakers | Equity analysis | Policy inequities | Policies disproportionately affected low-income drivers. |
| "Environmental Impacts of Jeepney Modernization" | Noche & Cerio | 2022 | Case Study | Environmental analysts | Emission reductions | Social costs | Environmental benefits were achieved at significant social costs. |
| "Comparative Analysis of Modernization Policies" | Asian Development Bank | 2023 | Case Study | International transport models | Comparative policy impacts | Limited applicability | International policies had limited transferability to the Philippine context. |
| "Community Adaptation to Modernization" | Cartojano & Borromeo | 2023 | Qualitative | Community leaders | Community impacts | Community dislocation | Communities faced challenges integrating displaced drivers. |
| "Economic Sustainability in Public Transport" | Borromeo | 2024 | Quantitative | Economic analysts | Financial metrics | Economic risks | Sustainability of modernization efforts required further analysis. |
| "Policy Frameworks for Inclusive Modernization" | Asian Development Bank | 2024 | Policy Analysis | Policy frameworks | Inclusivity metrics | Policy gaps | Inclusive frameworks were needed to address inequities in modernization efforts. |

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