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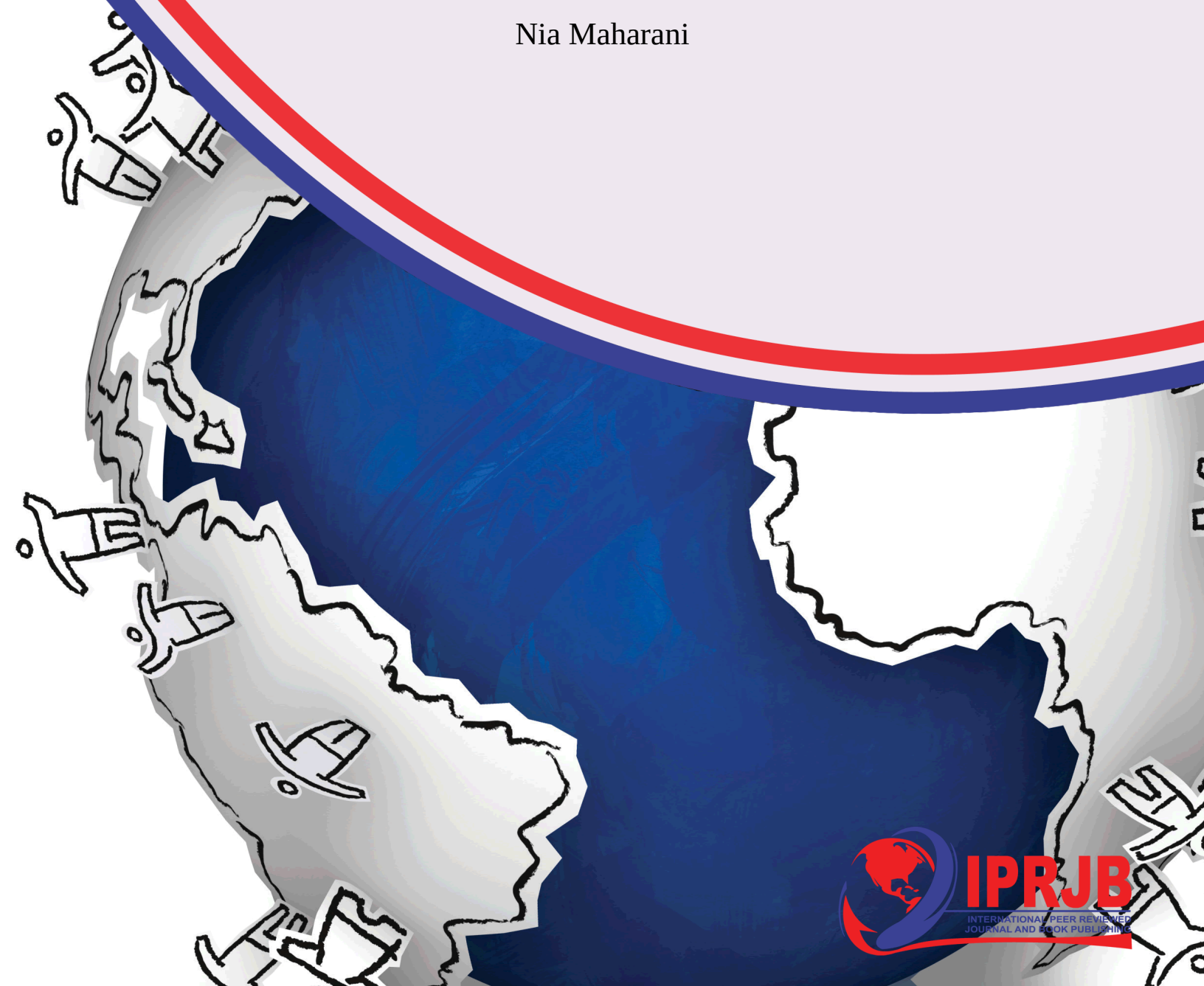
Nia Maharani



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Nia Maharani
Binus University

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Abstract

Purpose: The aim of the study was to analyze the effect of public transportation accessibility on employment rates in Indonesia.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: The effect of public transportation accessibility on employment rates in Indonesia has been shown to have a positive relationship. Improved access to public transportation enhances mobility, allowing individuals to access a wider range of job opportunities, particularly in urban areas. Research indicates that areas with better transportation infrastructure see increased employment rates, especially among lower-income groups who rely on public transit. Additionally, more efficient public transport systems can reduce travel time and costs, further encouraging job participation.

Unique Contribution to Theory, Practice and Policy: Social exclusion theory, human capital theory & spatial mismatch theory may be used to anchor future studies on the effect of public transportation accessibility on employment rates in Indonesia. Transit-oriented development can encourage the creation of job hubs around public transportation stations, reducing the time spent commuting. Policies should prioritize investments in sustainable and accessible public transportation systems, particularly in areas with high unemployment rates or underserved communities.

Keywords: *Public Transportation, Accessibility Employment Rates*

INTRODUCTION

Employment rates in developed economies are often high, but trends show fluctuations influenced by economic cycles, technological change, and demographic shifts. In the United States, the employment rate has seen a recovery following the 2008 financial crisis, with a steady rise in recent years. According to the U.S. Bureau of Labor Statistics, as of 2023, the employment-population ratio was 60.2%, an increase from 58.4% in 2019 (U.S. Bureau of Labor Statistics, 2023). Similarly, in the United Kingdom, the employment rate reached 75.5% in 2022, marking a post-pandemic recovery despite challenges like Brexit and COVID-19 disruptions (Office for National Statistics, 2023). Japan, known for its high employment levels, experienced a slight decline in the unemployment rate to 2.5% in 2022, reflecting the country's aging population and low levels of youth employment (Ministry of Internal Affairs and Communications, 2022). These trends reflect the impact of economic resilience, labor market policies, and technological changes on employment outcomes.

In France, the employment rate was 66.2% in 2022, reflecting a steady recovery from the impacts of the COVID-19 pandemic (National Institute of Statistics and Economic Studies, 2022). Italy, similarly, has shown positive trends, with an employment rate of 58.9% in 2022, which is notable given the country's ongoing economic challenges, including low fertility rates and high youth unemployment (Istat, 2022). Sweden, known for its progressive labor market policies, exhibited an employment rate of 80.7% in 2022, one of the highest among European countries (Statistics Sweden, 2022). These economies, despite differences in regional challenges, show strong employment participation, supported by robust social welfare systems, higher levels of education, and active labor market policies. However, they also face issues such as rising youth unemployment and the need to adapt to the digital economy to keep up with changing job demands.

In developing economies, employment rates can be significantly impacted by structural issues, including high informality, underdeveloped industries, and inadequate job creation. In Brazil, for example, the employment rate in 2021 was 55.3%, with a high proportion of workers in informal sectors, limiting access to benefits like healthcare and social security (World Bank, 2022). India also faces challenges in its labor market, with a relatively low female labor force participation rate, and in 2022, its overall employment rate was around 50.3% (World Bank, 2022). Employment trends in these economies show a high level of underemployment, with many workers employed in low-wage, part-time, or informal jobs that do not offer long-term stability or adequate benefits. The unemployment rates in these countries often fluctuate significantly due to external shocks like political instability or global economic crises. In both cases, improving infrastructure, education, and formal labor market participation is essential to enhancing employment rates.

Mexico, a significant developing economy in Latin America, has an employment rate of 59.1% in 2022, with a considerable portion of the workforce engaged in informal work (National Institute of Statistics and Geography, 2022). In Egypt, employment struggles are reflected in its youth unemployment rate, with an overall unemployment rate of 7.3% in 2022, and a notable challenge being the high level of underemployment and limited opportunities for skilled labor (Central Agency for Public Mobilization and Statistics, 2022). Employment trends in these countries indicate a reliance on informal sectors, limited job creation in higher-productivity industries, and large disparities in access to stable jobs, especially for young people and women. These challenges

highlight the need for economic reforms aimed at formal job creation, enhancing educational opportunities, and improving labor market policies to foster inclusive growth. As seen in Mexico and Egypt, improving job quality and increasing opportunities in the formal sector are key to boosting employment rates.

In Indonesia, a key economy in Southeast Asia, the employment rate was 60.5% in 2022, with a significant portion of the workforce engaged in the informal sector (Indonesian Bureau of Statistics, 2022). In the Philippines, the employment rate stood at 94.6% in 2022, but a substantial number of workers remain underemployed, working fewer hours than desired (Philippine Statistics Authority, 2022). These economies face challenges in creating enough formal jobs to meet the demands of their growing populations, while the informal sector remains a large part of their labor markets. Indonesia and the Philippines also struggle with large disparities in employment opportunities, especially between urban and rural areas, where access to jobs is limited. Both countries need comprehensive policies aimed at boosting job creation, improving education and skills, and transitioning informal workers into formal employment.

Sub-Saharan Africa faces particularly high unemployment rates, which are compounded by rapid population growth, lack of industrialization, and limited access to education. In South Africa, the official unemployment rate in 2022 was 34.5%, one of the highest in the world, reflecting systemic issues in the labor market, including a mismatch between education and labor market demands (Statistics South Africa, 2022). In Nigeria, another large economy in the region, the unemployment rate reached 33.3% in 2022, with youth unemployment being particularly concerning at over 50% (National Bureau of Statistics, 2022). Employment trends in Sub-Saharan Africa show that the youth demographic is disproportionately affected by unemployment, and many young people are forced into informal, low-wage work. The region also struggles with job creation in formal sectors due to underdeveloped infrastructure and limited access to capital for small businesses. These high unemployment rates highlight the need for comprehensive economic reforms to support job creation and workforce development.

Kenya, a growing economy in Sub-Saharan Africa, faces unemployment rates around 7.4% in 2022, though youth unemployment remains a major concern, with over 35% of young people unemployed (Kenya National Bureau of Statistics, 2022). In Ghana, the unemployment rate stands at 6.8% in 2022, with challenges related to high youth unemployment and underemployment (Ghana Statistical Service, 2022). In both countries, labor markets are characterized by a high level of informality and a mismatch between education and market needs, leading to high rates of underemployment. The situation is exacerbated by limited access to capital for small enterprises, which stifles job creation in formal sectors. Addressing these challenges will require a focus on improving access to education, formalizing the informal economy, and creating more opportunities in the private sector to sustain long-term employment growth in the region.

In Uganda, the unemployment rate was around 2.7% in 2022, but this figure masks the high level of underemployment, particularly among youth (Uganda Bureau of Statistics, 2022). Tanzania, with an unemployment rate of approximately 10.3% in 2022, faces similar challenges, with significant gaps in job creation, especially in urban centers (National Bureau of Statistics, 2022). These countries in Sub-Saharan Africa are struggling to create sufficient employment opportunities, particularly for young people entering the labor force. The informal sector in both

nations is highly prevalent, providing livelihood to the majority of the population, yet lacking in stability and social security benefits. Therefore, a focus on job creation, vocational training, and improving access to financial resources for small businesses is critical to improving employment rates and economic stability.

The concept of accessibility in public transportation refers to how easily individuals can reach transport services, particularly in terms of distance, affordability, convenience, and frequency. Four key dimensions of accessibility include geographic accessibility (the physical proximity of transit stations to residential and job areas), temporal accessibility (the frequency and reliability of services), financial accessibility (the affordability of fares), and functional accessibility (the ease of use, including services for disabled or elderly individuals). These factors play a crucial role in shaping employment outcomes, as they directly affect individuals' ability to access job opportunities. Geographic accessibility ensures that residents can reach employment hubs easily, while temporal accessibility ensures that transport schedules align with working hours (Hickman & Rees, 2020). Financial accessibility reduces the burden on low-income individuals, allowing them to use transportation to access jobs without prohibitive costs (Lucas & Jones, 2021).

Improving these dimensions of accessibility can significantly impact employment rates by removing barriers to job access. When public transportation is geographically accessible, workers are more likely to reach job centers, increasing their chances of securing employment. Temporal accessibility ensures that individuals can commute at any time required, supporting job retention and stability (Steinberger & Harris, 2019). Financial accessibility also plays a crucial role, as high fares can prevent low-income individuals from pursuing job opportunities. Lastly, functional accessibility ensures that transportation services are inclusive, allowing all individuals, including the disabled and elderly, to participate in the labor market (Klein & James, 2022). Therefore, improving public transportation accessibility across these dimensions is essential for reducing unemployment, particularly in marginalized communities.

Problem Statement

The effect of public transportation accessibility on employment rates is a critical issue, particularly in urban and rural areas where disparities in transport infrastructure significantly impact job access. Inadequate public transportation networks often create barriers for marginalized groups, limiting their ability to reach job opportunities and participate in the labor market. Research indicates that individuals in areas with poor public transportation access are less likely to find and retain employment due to longer travel times and higher costs associated with commuting (Hickman & Rees, 2020). Furthermore, the lack of reliable and affordable transport systems exacerbates unemployment rates among low-income populations and those living in remote areas, thus reinforcing cycles of social exclusion and economic inequality (Lucas & Jones, 2021). While some studies highlight the positive correlation between improved public transportation and employment outcomes, gaps in service quality, frequency, and coverage still present significant challenges, particularly in underserved communities (Steinberger & Harris, 2019). Addressing these transportation barriers is crucial to fostering inclusive economic growth and reducing employment disparities across different regions. Thus, understanding how transportation accessibility influences employment rates is essential for policymakers aiming to enhance labor market participation and reduce unemployment in disadvantaged areas.

Theoretical Framework

Social Exclusion Theory (Pierre Bourdieu, 1984)

Social Exclusion Theory focuses on how individuals or groups are excluded from essential societal opportunities, including employment, due to factors like socio-economic status, limited access to services, or spatial constraints. Bourdieu's concept of social exclusion suggests that accessibility to public services, including transportation, plays a significant role in whether marginalized groups can fully participate in the labor market. This theory is relevant for understanding how poor public transportation systems contribute to employment disparities, particularly for those in low-income or rural areas (Lucas & Jones, 2021). By improving transportation access, the theory posits that individuals can overcome exclusion and gain better access to employment opportunities.

Human Capital Theory (Gary Becker, 1964)

Human Capital Theory posits that investments in education, training, and resources enhance an individual's productivity and employment potential. In the context of public transportation, this theory emphasizes how accessible and affordable transport can expand an individual's opportunities to acquire skills and participate in the labor market. When transportation systems are limited, individuals face barriers to accessing job training or employment, diminishing their human capital. This theory is relevant because it connects the concept of mobility with employment outcomes, suggesting that improving transport systems can facilitate access to a broader range of jobs, especially for disadvantaged populations (Hickman & Rees, 2020).

Spatial Mismatch Theory (John Kain, 1968)

Spatial Mismatch Theory suggests that employment opportunities are often geographically separated from residential areas, particularly for low-income and minority populations. Kain's theory posits that poor access to transportation exacerbates this issue, as individuals cannot reach distant job locations. This theory is pertinent for understanding how public transportation can bridge the gap between job locations and residential areas, thereby increasing employment participation for people in underserved areas (Steinberger & Harris, 2019). Enhanced public transport access addresses the spatial mismatch by improving the connectivity between workers and jobs.

Empirical Review

Hickman and Rees (2020) explored how improved public transportation accessibility influences individual employment probabilities in Great Britain. The research used data from the UK Household Longitudinal Study and employed logistic regression models to understand the relationship between transport accessibility and employment status. The findings revealed that enhanced public transport access significantly increases the likelihood of employment, particularly in metropolitan and urban areas where job opportunities are concentrated. Areas with high levels of public transport connectivity saw more people entering the labor force, suggesting that job seekers could easily reach job centers. This was especially impactful in reducing unemployment among low-income and marginalized groups. Additionally, the study found that those in less connected areas faced more challenges in finding employment due to longer commutes or higher costs associated with traveling. Hickman and Rees recommended that policymakers prioritize

transport infrastructure development in areas with high unemployment to increase access to job opportunities. The study emphasized that improving connectivity can lead to greater economic participation and reduce regional unemployment disparities. They suggested that transport investments should focus on areas where job opportunities are abundant but underutilized due to poor transport links. Furthermore, the research highlighted the importance of integrating employment policies with transport planning to create a seamless connection between labor markets and job seekers. The study also acknowledged the limitations of public transport systems, particularly in rural and suburban areas where access remains inadequate. By increasing the frequency and coverage of services, transportation could support long-term economic growth. Overall, this research provides strong evidence that investing in public transport infrastructure is an effective strategy for improving employment outcomes. The findings are particularly relevant for policymakers in cities where unemployment is concentrated in less connected areas.

Lucas and Jones (2021) provided a comprehensive understanding of how transport access impacts employment by analyzing various interventions implemented across different regions. The findings showed a generally positive impact of transportation improvements on employment, although the magnitude of this effect varied based on geographical context, service quality, and the demographic characteristics of the population being studied. In areas with well-developed transportation networks, increased accessibility led to better job retention and lower unemployment rates. However, in regions with poor transport infrastructure, interventions showed less effectiveness in improving employment outcomes, especially for low-income individuals. One key observation was that access to reliable and affordable public transportation significantly reduced the barriers to employment for marginalized groups, including those with disabilities, elderly people, and those living in rural or suburban areas. Lucas and Jones also noted that transportation interventions were more effective when combined with other supportive policies, such as job training programs and employment subsidies. The review recommended a more targeted approach to transportation investments, especially for disadvantaged populations who face additional challenges in accessing jobs due to transport limitations. They emphasized that policymakers should design interventions that address specific regional needs and align transport systems with employment hubs. Furthermore, the study pointed out that future research should explore the long-term effects of transport interventions on employment outcomes to better understand their sustainability.

Steinberger and Harris (2019) explored the impact of transportation accessibility on local employment markets. The study used a simultaneous equation model to analyze data from several metropolitan regions, investigating the relationship between transportation improvements and employment levels. Their findings indicated that increasing transportation accessibility positively impacted local employment, particularly in areas that were previously underserved by public transport. They found that individuals living in areas with better transportation links were more likely to access job centers and retain employment due to shorter travel times and lower commuting costs. The research highlighted that industries relying on a large workforce, such as manufacturing and retail, benefited significantly from improved transportation, as workers could more easily reach job sites. However, the impact varied depending on the specific characteristics of the local labor market, with some areas experiencing stronger effects than others. In areas with high concentrations of low-wage jobs, transportation access had a more pronounced effect on

employment rates, as it allowed workers to access more job opportunities. Steinberger and Harris recommended that cities invest in public transportation systems that directly connect residential areas with job centers, particularly for low-income workers who rely heavily on public transport. They also emphasized that public transportation policies should be tailored to the needs of specific industries and job types. By enhancing connectivity, cities could unlock untapped labor potential, leading to increased employment rates and greater economic output. The study concluded that public transportation is a critical component of urban economic strategies, and investments in transit infrastructure should be prioritized to foster employment growth. Additionally, the authors suggested that local governments consider the distribution of employment opportunities when planning transportation routes and services to maximize their impact.

Fitzgerald and Jennings (2021) examined the transportation needs of rural communities and how these affect employment opportunities. The study focused on Pickens County, Alabama, and used a mixed-methods approach, combining quantitative surveys with qualitative interviews to assess transportation barriers faced by rural residents. The findings revealed that limited public transportation options were a significant hindrance to accessing employment, healthcare, and education in rural areas. Many residents relied on private vehicles, but those without access to a car faced significant challenges in finding and maintaining employment. The study found that rural residents often had to travel long distances to reach job centers, which was particularly problematic for low-income individuals who could not afford the costs of private transportation. Fitzgerald and Jennings recommended the development of demand-responsive transportation services tailored to the unique needs of rural populations. They suggested that such services could increase mobility and improve access to jobs, especially in areas where traditional public transport infrastructure is not viable. The study also proposed that public transportation should be subsidized to make it affordable for residents in low-income households. Moreover, they highlighted the importance of collaboration between local governments, employers, and transportation agencies to develop integrated solutions that meet the mobility needs of rural communities. The research emphasized that addressing transportation gaps in rural areas could significantly reduce barriers to employment and enhance economic opportunities for underserved populations. Fitzgerald and Jennings concluded that improving rural transportation could be a key strategy for reducing regional unemployment disparities.

Klein and James (2022) investigated the role of transportation access in upward mobility and employment outcomes in low-income communities. Their study focused on neighborhoods with limited access to public transport and examined how proximity to transit hubs influenced employment rates. Using data from urban areas, Klein and James found that areas with better access to public transportation had higher employment rates, as workers could easily commute to a wider variety of job opportunities. They highlighted that public transit not only increased the likelihood of employment but also contributed to higher job retention and career progression. The study revealed that low-income workers who had access to affordable and reliable transportation were more likely to secure stable, long-term employment. Klein and James recommended expanding public transportation networks in underserved neighborhoods, especially those with high concentrations of low-income families. They suggested that improving access to transit hubs would provide residents with better connections to high-demand job sectors such as healthcare, retail, and manufacturing. The study also pointed out that affordable transportation options are

crucial for workers who cannot afford the costs associated with private vehicles. In addition, they emphasized the need for better integration of transit services with employment programs and job fairs to help job seekers access opportunities more efficiently. Klein and James concluded that public transportation is a key enabler of upward mobility, and expanding transit systems is essential for reducing poverty and promoting economic inclusion.

Klein and Zhang (2020) explored the relationship between public transit availability and employment participation, focusing on the ability of transportation to bridge gaps between residential areas and job locations. They conducted a literature review and analyzed data from national surveys, including the American Housing Survey and Nationwide Personal Transportation Survey. The findings revealed that public transit significantly reduces spatial mismatches between job locations and residential areas, improving access to employment opportunities. However, they also found that the effectiveness of public transport in increasing employment varied depending on the quality of the service, such as frequency, reliability, and coverage. Klein and Zhang suggested that in suburban and rural areas, where public transport infrastructure is often lacking, investments in reliable bus and train services could help connect people to job markets. They recommended that policymakers focus on expanding transit services to underserved areas to alleviate transportation barriers to employment. The study highlighted that transit-oriented development could create job hubs around transit stations, fostering economic activity and increasing employment opportunities. Klein and Zhang concluded that while public transportation is an effective tool for improving employment outcomes, its success depends on the availability of quality service that meets the needs of commuters. They emphasized the importance of designing transit systems that provide direct access to major employment centers.

Hassan and Abdallah (2023) assessed how transportation issues impact youth employment, particularly among disadvantaged groups. The findings revealed that mobility challenges, such as high transportation costs and limited access to public transport, significantly hindered young people's ability to access employment and training opportunities. Many young people living in suburban or rural areas were unable to reach job interviews or work locations due to inadequate transportation options. Hassan and Abdallah recommended that policymakers implement policies to reduce transportation barriers for youth, such as subsidized fares for young people or increased public transport services during peak job-search times. They also suggested introducing programs that would integrate job placement services with accessible transport options. The study emphasized the need for increased investment in public transport infrastructure targeting youth employment needs. Hassan and Abdallah concluded that addressing youth mobility challenges is critical for improving employment outcomes and reducing youth unemployment in disadvantaged areas. They recommended that future policies integrate transport and employment services to create a more seamless transition from education to the workforce for young people.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Gaps: While studies like Hickman and Rees (2020) and Lucas and Jones (2021) highlight the positive effects of improved transportation access, there is a need for deeper exploration of the specific pathways, such as how transportation accessibility directly influences job retention, career progression, or skills development. The studies primarily focus on employment rates, but they often overlook long-term economic mobility and career growth after individuals gain initial employment. Further conceptual clarity is needed on how transportation access affects job quality, including job security and wage progression.

Contextual Gaps: While many studies focus on urban areas, there is a lack of in-depth analysis in other contexts, such as transitional economies or post-conflict regions where infrastructure is more fragmented. The research by Steinberger and Harris (2019) and Fitzgerald and Jennings (2021) highlights the effects of transportation in urban and rural areas, but it does not address the unique challenges faced by people in areas with unstable or developing transport infrastructure. Further research could examine how public transportation interventions work in lower-income, non-industrialized regions or in countries with varying levels of economic development. Additionally, more work is needed on the interaction between transportation policies and broader socio-economic policies, such as welfare reform, housing, and educational access, to fully understand the impact on employment outcomes.

Geographical Gaps: Geographically, there is limited research on how transportation impacts employment in specific global regions outside the studies' primary focus areas, such as South Asia, Sub-Saharan Africa, or Latin America. While studies by Lucas and Jones (2021) and Klein and Zhang (2020) provide insights into regions like the UK and the US, more research is needed in non-Western contexts, where transportation infrastructure, employment patterns, and socio-economic structures may differ. For example, in rural parts of developing countries, public transportation may be more sporadic or unreliable, and new models of transportation such as shared rides or community-based services might play a larger role in employment outcomes. Research in these regions could further identify whether the patterns seen in highly developed economies are applicable or require adaptation to local conditions.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The accessibility of public transportation is a critical factor influencing employment rates, with far-reaching implications for economic growth, social equity, and mobility. By improving access to job opportunities, reducing travel time and costs, and connecting marginalized communities to the labor market, public transportation serves as a powerful tool for enhancing employment outcomes. Well-designed transportation systems can help individuals overcome geographical and socio-economic barriers, thereby expanding access to a wider range of employment opportunities. Moreover, the relationship between public transportation and employment underscores the importance of integrating transportation planning with policies aimed at reducing inequality and fostering inclusive economic development. Accessible public transportation not only boosts

individual job prospects but also contributes to the broader economic vibrancy of urban areas, creating more efficient, sustainable, and equitable communities.

In conclusion, ensuring equitable access to public transportation is not just a matter of improving mobility, but a strategic approach to improving employment outcomes and fostering a more inclusive economy. As cities and regions continue to grow, investing in accessible public transportation systems remains a key factor in driving employment growth, reducing disparities, and building resilient economies.

Recommendations

Theory

Public transportation access can be analyzed within the broader framework of mobility and employment theory. The basic idea is that transportation accessibility increases geographic mobility, which in turn expands the labor market and reduces frictional unemployment. By improving access to job centers, public transportation can also contribute to reducing regional disparities in employment opportunities. Public transportation accessibility can contribute to enhancing human capital by allowing individuals to access a wider range of job opportunities, thereby improving their skill development and long-term career growth. Another theoretical angle relates to how transportation systems can either exacerbate or reduce social exclusion. Lack of access to transportation is often correlated with lower employment rates, especially for marginalized groups, including low-income communities, disabled individuals, and residents of suburban or rural areas. Understanding how transportation access influences employment helps us address social inequalities.

Practice

A practical contribution to improving employment rates is integrating public transportation systems with land-use policies. Transit-oriented development can encourage the creation of job hubs around public transportation stations, reducing the time spent commuting. This can improve both employment opportunities and quality of life for workers. Developing public transportation solutions tailored to underrepresented groups (e.g., low-income workers, elderly individuals, people with disabilities) is essential. Introducing programs like subsidized passes, tailored routes, or flexible schedules can increase accessibility for these groups and potentially reduce disparities in employment outcomes. Utilizing data on transportation patterns, employment trends, and demographic shifts can help cities and planners design more effective transportation networks that meet the needs of job seekers. Understanding the temporal and spatial patterns of commuter flows can lead to more efficient public transportation routes and schedules.

Policy

Policies should prioritize investments in sustainable and accessible public transportation systems, particularly in areas with high unemployment rates or underserved communities. Adequate funding for transportation infrastructure can bridge the gap between job seekers and available employment opportunities, especially in cities with a large geographic spread. Policy can encourage collaboration between the transportation sector and employment agencies to identify areas where job access is hindered by transportation barriers. This could include establishing

policies that incentivize employers to locate near transit hubs or offering transportation subsidies for workers in high-demand sectors. Policies should ensure that public transportation systems are not only affordable but also accessible to all, including those with physical disabilities, those living in remote areas, or those with irregular work schedules (such as shift workers). This can be supported through mandates for accessibility features, such as ramps, elevators, and flexible hours.

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