

# Transport Subsidy as a Mediator between Employee Income and Work Effectiveness a Financial Perspective

**Don Henrique Daniel Bere, Teresa Freitas Belo, Estanislau de Sousa Saldanha**

*Student of the Master of Business Administration (MBA) Program, Dili Institute of Technology, Timor-Leste*

*Email: [donbere122@gmail.com](mailto:donbere122@gmail.com), [estanislausaldanha@yahoo.com](mailto:estanislausaldanha@yahoo.com).*

## ABSTRACT

This research investigates how transport subsidies function as a mediating factor between employee income and work effectiveness among civil servants in Timor-Leste. The findings indicate that income positively influences effectiveness, while transport subsidies not only reinforce this effect but also independently foster greater discipline, concentration, and productivity by easing financial pressures and commuting challenges. Conceptually, the study emphasizes the relevance of non-wage benefits within the frameworks of Equity Theory and Expectancy Theory. Practically, it demonstrates that incorporating transport subsidies into compensation structures can serve as a strategic approach to enhancing employee performance and strengthening the overall quality of public service delivery.

**Keywords:** Employee Income, Transport Subsidy, Work Effectiveness, Financial Perspective.

## 1. Introduction

Work effectiveness is given a general understanding as the main factor that can determine labor productivity and institutional performance, more specifically in developing countries where organizations have to operate with limited resources and faced with various structural constraints. This concept provides an overview of employees' abilities in efforts to complete work efficiently, comply with deadlines, and respond appropriately to organizational demands so that service quality and economic achievements can be better established (Asian Development Bank, 2020). In Timor-Leste itself, low labor productivity is faced as a continuing problem because it is far below regional standards so that efforts towards sustainable development and improving the efficiency of the public sector will be hampered (World Bank, 2023).

From a financial and management perspective, improving work effectiveness is not only given as a human resource issue but also a strategic issue related to cost efficiency, organizational sustainability, and the quality of public services. In the context of developing countries themselves, the provision of transportation subsidies is increasingly being implemented as one of the policy instruments whose goal is to reduce travel costs, increase attendance rates, and support employee welfare. A number of evidence from various countries is indicative of the provision of financial support in the field of transportation is able to improve punctuality, increase engagement, and boost overall work performance by reducing mobility barriers faced by employees in daily activities (Gómez-Lobo, 2019; Yulianti, Denessen, & Droop, 2019). In Timor-Leste itself, the government officially implemented this approach through Government Decree No. 21/2021 with the introduction of monthly transportation subsidies for civil servants. The policy is part of a broader effort to streamline public spending while increasing labor productivity.

Although policy attention to transportation subsidies continues to increase, most of the existing

studies still assume that the benefits of subsidies are felt equally by all employees, while the difference in income levels between workers has not been given much attention. A number of previous studies have indeed indicated a positive relationship between financial incentives and work performance, but the way or mechanism of how transportation subsidies affect work effectiveness has not been studied more specifically in the context of developing countries (Miller et al., 2016; Okwu, 2022). In particular, the empirical research that exists shows limitations in efforts to assess whether transportation subsidies affect work effectiveness directly or work indirectly through employee income conditions, even though travel costs tend to provide a greater financial burden for employees with low income levels.

This study provides a discussion of research problems whose content is still limited in empirical evidence regarding whether and how transportation subsidies mediate the relationship between employee income and work effectiveness. Although income has been widely associated with motivation and performance, it is not clear whether transportation subsidies only play a role as an additional benefit or a financial mechanism that can strengthen the influence of income on employees' ability to work effectively. The lack of mediation-based analysis will be the limit of theoretical understanding and the potential to result in ineffective or less targeted subsidy policies that are more specific in a public sector environment with limited resources such as in Timor-Leste (Memon et al., 2018; Serebrisky et al., 2021).

In line with this, this study was conducted to be able to examine the influence of employee income on work effectiveness and test the role of transportation subsidies as a mediating variable in the context of the public sector in Timor-Leste. This research contributes to the development of literature through three main ways. First, this study is able to present transportation subsidies as a mediation mechanism that provides a link between income and work effectiveness so that it does not only focus on the assumption of direct influence. Second, this study provides an expansion of perspectives on

compensation and organizational resources by focusing on financial and behavioral pathways that are clues to how non-wage benefits can affect performance in developing countries. Third, this study provides relevant evidence for policy formulation to support the design of transportation subsidy programs that are sensitive to income levels and oriented to efficiency while providing practical insights for public sector management and fiscal decision-making.

## 2. Literature Review

### 2.1. Employee Income

Employee income can be understood as the overall financial compensation that workers receive in return for the work they do, including salary or basic wages, bonuses, overtime pay, and various other forms of allowances in the form of money (Fulmer, Gerhart, & Kim, 2023). In empirical studies themselves, income is often measured as direct cash income because this component significantly affects the income that employees can spend as well as their economic ability in daily life. In addition to having an economic function, employee income also has symbolic value because it is a reflection of recognition and appreciation from the organization which then shapes perceptions of fairness, motivation, and work commitment (Wijayanti, Johannes, & Hendayana, 2022). That way, a decent and fair level of income is consistently related to higher welfare and stronger organizational loyalty, so that income will be one of the main factors that influence employee behavior and institutional performance (Putra, Nugroho, & Nugraha, 2023).

Recent research has highlighted the importance of indirect financial components such as transportation allowances, performance-based incentives, and employee income supplements (AEIs) in an effort to help reduce financial stress and employee productivity support (Bucăța & Rizescu, 2021; Voigt, 2022). AEI's policy, which has a function as a complement to the basic salary, has been shown to be able to provide an increase in work time fidelity, motivation, and operational efficiency while reducing the daily economic burden felt by employees (Akib, Hatimah, & Sakawati, 2023). When these financial incentives are implemented in a supportive organizational environment, the resulting impact is complementary so that it can strengthen work involvement, creativity, and employee satisfaction levels (Nafi'ah, Arifianto, & Qomariah, 2023). However, experts also warn that the excessive use of allowance-based compensation will cause the potential for increased organizational costs without a guarantee of long-term productivity increases, so a balance of fixed wages with variable benefits is needed to maintain aspects of fairness and efficiency (Meijerink, Boons, Keegan, & Marler, 2021).

The characteristics of human capital can also make an income dynamic more complex. (Yunisvita et al., 2022) Providing an explanation of higher education level usually has a relationship with the existence of an income premium while lower education tends to be the limit of the amount of income. However, research in developing countries provides clues that labor market imperfections, the dominance of informal employment, and weak institutions can reduce the return on individual education (Khan, 2023). This debate focuses on the policy tension between the implementation of a performance-based compensation system and a redistribution mechanism, which is like subsidies that aim to protect low-income workers. In the context of modern organizations more specifically in developing countries, income management frameworks are increasingly combining both approaches to maintain a balance of fairness and productivity.

The assessment of employee income is still being debated. On the one hand, objective measures like salaries, bonuses, and benefits are often used because they are standardized in nature. On the other hand, subjective assessments that are related to how employees provide a view of the adequacy, fairness, and fairness of their income also have an equally important role in efforts to form employee attitudes and behaviors (Yusoff et al., 2021) It provides a clue to perceptions of income fairness that include levels of satisfaction with benefits related to transportation, are very strong in predicting employee retention and commitment, and are even in some cases equivalent to the influence of income actually received. As the cost of living continues to increase and financial uncertainty increases economic pressures, subjective income assessments become increasingly important (Kerres & Bedenlier, 2020); Kurniawati & Mulyanto, 2024). However, there is still little research that combines the two dimensions of income, namely objective and subjective, into a more specific integrated analysis model in a context such as Timor-Leste where income adequacy and perception of justice simultaneously shape and influence work effectiveness.

### 2.2. Works Effectiveness

Work effectiveness is usually understood as an employee's ability to achieve organizational goals efficiently, productively, and with high quality. This aspect covers the number and quality of work, timeliness of task completion, and conformity to organizational goals as well as a clue to the difference in efficiency which means "doing something right" and effectiveness means "doing the right thing". At the individual level, high work effectiveness can provide a boost to professional recognition and career development (Saleh, Bau, & Darwis, 2024) Meanwhile, at the organizational level, work effectiveness contributes to optimizing resource

utilization, increasing competitiveness, and long-term sustainability (Retnowati et al., 2023). In addition, effective performance also has a role in efforts to reduce stress levels, improve welfare, and strengthen employee involvement.

Although it is given an important assumption, the measurement of work effectiveness is still often debated. Some researchers put a spotlight on the use of objective indicators such as productivity, timeliness, and the rate of achievement of results, while others focused more on subjective aspects such as motivation, engagement, and perception of fairness (Yusoff et al., 2021; Wang & Xu, 2022). A more comprehensive understanding of effectiveness is achieved when objective and subjective measures are combined, although the existing standard framework still shows relative limitations (Hadi, Prasetyo, & Purwanto, 2022).

Debate is still ongoing regarding the factors that affect the effectiveness of work. Intrinsic factors such as adaptability, resilience, and job design are often the focus (Putra, Nugroho, & Nugraha, 2023) while extrinsic factors that include compensation systems, incentives, and organizational resources are more emphasized by other researchers (Meianto, Bahiramsyah, & Endri, 2021). Managerial effectiveness also plays a role in efforts to build performance by aligning resources and encouraging innovation (Prabowo & Purwanto, 2023). However, the relative influence of these factors varies according to the context of the organization and the state.

From a financial perspective, the burden of travel can be alleviated by indirect support as well as transportation subsidies so that punctuality and attendance are increased (Voigt, 2022). However, experts still debate whether these impacts occur directly or are influenced indirectly through employees' perceptions of income adequacy and fairness, which then influences their levels of engagement and absenteeism (Kurniawati & Mulyanto, 2024; Li & Chen, 2023). This debate, which has not yet been resolved, confirms the need for a mediation approach to clarify how causal mechanisms link financial support to work effectiveness.

### 2.3. Transport Subsidy

Transportation subsidies are financial assistance provided by employers or the government to be able to ease employee travel costs which are usually in the form of cash allowances, fare vouchers, reimbursements, or periodic payments (Serebrisky et al., 2021). The amount of this subsidy often varies depending on the position of work, location, and distance traveled, so a measurement approach is needed that takes into account both the amount of money and the regularity of payment.

A growing number of studies have identified transportation subsidies as a policy instrument that is so important to improve accessibility, social equity,

and economic mobility more specifically for low-income urban workers who make the cost of daily travel a significant part of their household expenditures (Luke, 2021; Maharani, 2025). By reducing financial barriers, transportation subsidies can provide expanded access to jobs and education as well as support for social inclusion in the long term (Pereira et al., 2022 ; Li & Verma, 2023).

At the policy level itself, transportation subsidies work through supply-side mechanisms, for example by improving transportation services and demand-side mechanisms that lower tariffs and expand affordability. (Masbiran et al., 2022). If implemented effectively, this policy is not only able to provide increased mobility but also support broader sustainability goals such as congestion reduction and environmental protection (Basso & Silva, 2022). However, concerns about fiscal sustainability and efficiency remain, more specifically in developing countries with limited institutional capacity (Arif-your-Rahman & Inaba, 2020).

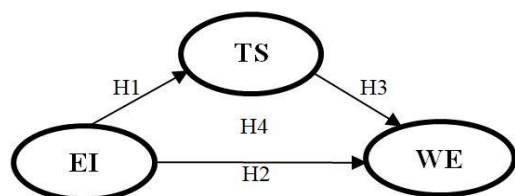
At the organizational level itself, employee work results are influenced by transportation subsidies because this support is able to relieve financial pressure, encourage punctuality, and increase job satisfaction and employee productivity (Voigt, 2022; Kurniawati & Mulyanto, 2024). Ongoing research reveals that these effects usually occur through mediation mechanisms such as perceptions of income adequacy and a sense of justice so that more detailed empirical models are indispensable (Zhao et al., 2023; Choudhury et al., 2024).

### 2.4. Theoretical Framework and Conceptual Model

This study provides a combination of Human Capital Theory, Maslow's Hierarchy of Needs, and Justice Theory to be able to explain how transportation subsidies mediate the relationship between employee income and work effectiveness. Instead of only playing the role of separate explanations, these three categories together become clues to complementary mechanisms in the mediation model.

Human Capital Theory (Becker, 1964) Making the concept of income and benefits is given a view as an organizational investment that can increase employee productivity and performance. In the context of modern organizations, more specifically in developing countries, making non-salary benefits such as transportation subsidies play a role as a strategic investment that increases the effective net income of employees while reducing job barriers. Maslow's Hierarchy of Needs (1943) although it falls within the classical framework, it is still relevant in the modern context characterized by the increasing cost of living and travel burden. Income meets physiological needs and a sense of security while transportation subsidies provide additional financial protection so that employees can be more focused on

achieving higher performance goals. Equity Theory (Adams, 1965) Being able to reinforce by placing more emphasis on how employees view fairness in total compensation by including transportation allowances, influencing their motivation, engagement, and quality of work.



**Figure 1.** Conceptual Framework and Hypotheses

Figure 1 provides a conceptual framework in this study that examines the relationship between employee income (EI), transportation subsidies (TS), and work effectiveness (WE). This model proposes that employee income has a direct influence on work effectiveness (H2) which means that income can be higher to increase employees' ability to carry out tasks effectively. In addition, employee income is also suspected to have a positive effect on transportation subsidies (H1) which is a reflection of how income structures and compensation policies determine employees' access to travel benefits. Transportation subsidies are also expected to have a direct positive influence on work effectiveness (H3) by reducing travel costs, reducing stress, and increasing punctuality and attendance. It is important to note that this framework is able to place transportation subsidies as a mediating variable (H4) that strengthens the relationship between employee income and work effectiveness working through financial pathways that provide increased disposable income, psychological pathways that reduce stress, and perception pathways that provide increased sense of fairness and organizational support.

## 2.5 Employee Income and Transport Subsidy

Previous research has mostly examined transportation subsidies as a stand-alone policy tool without explicitly linking them to employee income structures. With reference from Human Capital Theory and Benefit Cost Theory, this study is able to close this gap by providing a view of transportation subsidies as a mechanism that increases income so as to increase employee effective disposable income. Empirical evidence is that transportation benefits can reduce financial stress and increase employees' sense of income adequacy (Nguyen & Nguyen, 2022). However, there is still little research that explicitly examines this relationship in the context of developing countries such as Timor-Leste.

H1: Employee income has a positive effect on transport subsidy.

## 2.6. Employee Income and Work Effectiveness

Although previous research has provided an affirmation that income affects performance, most studies emphasize the direct effects without accounting for the contextual limitations faced by employees in emerging economies. With reference to Human Capital Theory and Maslow's framework, this study was able to close the gap by examining how income sufficiency provides support for work effectiveness through increased financial security and stress reduction. Empirical findings provide a clue that income is consistently positively related to productivity (Kim & Lee, 2020); Adeyemi & Ajayi, 2023) however, the evidence from the Timor-Leste context is still very limited.

H2: Employee income has a positive effect on work effectiveness.

## 2.7. Transport Subsidy and Work Effectiveness

Previous research has shown that transportation subsidies have benefits for increasing attendance and punctuality, but the effects are often assumed to be direct. By referring to Maslow's Hierarchy of Needs, Justice Theory, and the JD-R Model, this study was able to expand previous studies by placing transportation subsidies as a work resource that can provide an increase in the perception of justice and reduce the burden related to travel. Empirical studies support this relationship (Yusoff et al., 2021; Nguyen & Nguyen, 2022) Although explanations based on mediation are still rarely researched.

H3: Transport subsidies have a positive effect on work effectiveness.

## 2.8. Transport Subsidy, Employee Income, and Work Effectiveness

Although previous research has acknowledged the importance of income and transportation support for employee performance, few have explicitly examined transportation subsidies as a mediation mechanism. By combining Human Capital Theory, Maslow's framework, and Justice Theory, this study was able to close the gap by proposing that transportation subsidies strengthen the relationship between income and performance by increasing real disposable income, reducing stress, and strengthening the perception of justice.

H4: Transport subsidy mediates the relationship between employee income and work effectiveness.

## 3. Research Methodology

This study applied an explanatory quantitative design to be able to examine the role of transportation subsidy mediation in the relationship between employee income and work effectiveness. Data was collected through a structured questionnaire and

analysis using Partial Least Squares Structural Equation Modeling with SmartPLS 4.0, the right method to test mediation models with latent constructs.

This study was conducted on civil servants who received government transportation subsidies in three Timor-Leste municipalities with Dili, Baucau, and Bobonaro. Some of these municipalities were chosen not only because of their ease of administrative access but also to be representative of the diversity of socio-economic and infrastructure contexts. Dili, as the capital of the country located in the central part such as Aileu, Ainaro, and Manufahi, provides an overview of urban environments with higher income levels and better transportation access. Baucau, which is located in the eastern part, is also a representative of the eastern region such as Lautem, Manatuto, and Viqueque. Meanwhile, Bobonaro, which is in the western part and represents western regions such as Covalima, Ermera, and Liquica, is a reflection of semi-urban and rural areas with more limited transportation infrastructure. This variation provides a context that is so relevant to examine how transportation subsidies function in different income and travel conditions.

The population of this study consists of 1,157 civil servants who officially receive transportation subsidies. The purposive sampling technique was used to be able to select respondents who received the subsidy consistently. Using the Slovin formula and a margin of error of 5%, a minimum sample of 297 respondents was obtained which was then proportionally divided into three cities.

The three latent constructs that were examined were Employee Income (EI), Transportation Subsidy (TS), and Work Effectiveness (WE). All variables were measured using multi-item indicators adapted from previous literature and scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To make it easier to read, the questionnaire items are summarized in Table 1.

**Table 1.** Summary of Variables and Measurement Items

Variable	Indicators
Employee Income (EI)	Income adequacy, financial security, compensation satisfaction
Transport Subsidy (TS)	Reduction of commuting costs, payment regularity, punctuality support
Work Effectiveness (WE)	Punctuality, task completion, productivity, work commitment

Data analysis was carried out with a two-stage PLS-SEM procedure. The measurement model was evaluated on the basis of reliability and validity while the structural model was assessed using the path coefficient,  $R^2$ ,  $f^2$ , and  $Q^2$  values. The mediation effect was tested through bootstrapping with 5,000 resampling.

## 4. Result

### 4.1 Convergent Validity

The evaluation of the measurement model was carried out to be able to assess the validity and reliability of the instrument within the PLS-SEM framework. The constructs analyzed in this study include Employee Income (EI), Transportation Subsidy (TS), and Work Effectiveness (WE).

The results provide clues that all indicators have adequate convergent validity which can be reflected in the value of outer loading which is above the recommended threshold. The loading values ranged from 0.708 to 0.956 for EI, 0.721 to 0.962 for TS, and 0.729-0.956 for WE. In addition, the Average Variance Extracted (AVE) value for all constructs exceeds the minimum limit that indicates that some of these indicators are able to adequately represent latent variables (Hair et al., 2021); Sarstedt et al., 2021). These findings focus on the measurement model that has been able to meet the criteria for convergent validity.

The validity of discrimination is evaluated using the Fornell-Lacker criteria. As shown in Table 2, the square root of AVE for each construct (EI = 0.879; TS = 0.876; WE = 0.875) greater than the correlation between constructs which can be a clue that each construct is empirically different (Fornell & Larcker, 1981).

**Table 2.** Fornell-Larcker Criterion Value

Item	(EI)	(TS)	(WE)
Employee Income	0.879		
Transport Subsidy	0.565	0.876	
Work Effectiveness	0.637	0.654	0.875

Further reliability assessments become an adequate measurement model guide. Cronbach's Alpha values for EI (0.922), TS (0.919), and WE (0.919) provide an indication of high internal consistency. Similar results can also be seen in rho\_A and Composite Reliability which confirms that all constructs have a high level of reliability (Hair et al., 2021); Henseler, Ringle, & Sarstedt, 2015).

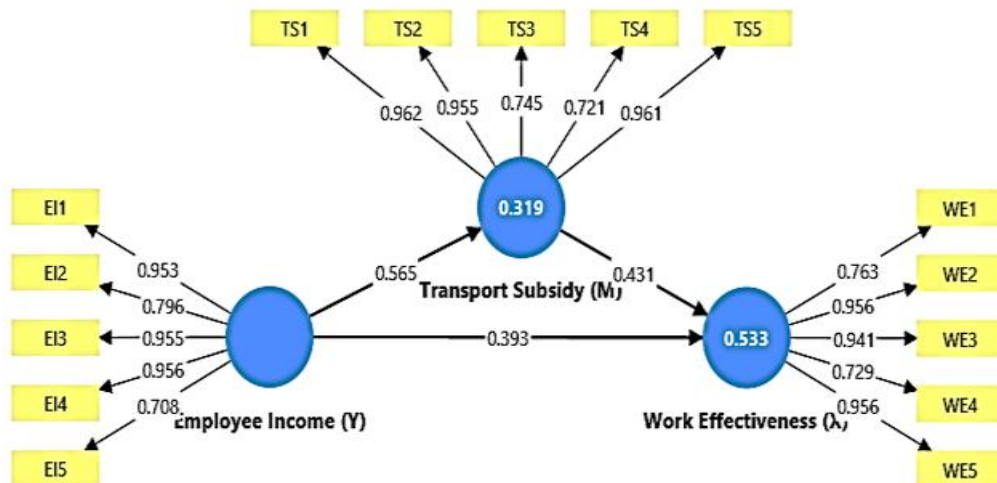


Figure 2. Result of the SMART-PLS Algorithm

Table 3. Result of the Reliability Test

Item	CA	CR	AVE
Employee Income (Y)	0.922	0.924	0.773
Transport Subsidy (M)	0.919	0.930	0.767
Work Effectiveness (X)	0.919	0.925	0.766

Overall, the results of the study provide instructions that the measurement model is able to meet the criteria of validity and reliability so that there is a strong basis to be able to continue the analysis on the structural model.

#### 4.2 Structural Model Assessment

The internal model assessment examined the structural relationship between Employee Income, Transportation Subsidies, and Work Effectiveness by evaluating the path coefficient, model suitability, and explainability ( $R^2$ ). The results of the path coefficient shown in Table 4 as an indicator of Employee Income have a positive influence on Transportation Subsidy with ( $\beta = 0.565$ ) and Work Effectiveness with ( $\beta = 0.393$ ). Transportation subsidies also have a positive and significant influence on Work Effectiveness with ( $\beta = 0.431$ ) which indicates that both financial income and transportation support both contribute to the improvement of work output.

The evaluation of the model fit provides sufficient affirmation of the structural model. As seen in Table 4, the SRMR value for the saturated model and the estimation model is 0.073 each, which is an indication of the acceptable level of capital suitability. The  $d\_ULS$  value of 0.645 also indicates a small discrepancy between the empirical covariance matrix and the matrix generated by the model.

Table 4. Model Fit

Item	Saturated Model	Estimated Model
SRMR	0.073	0.073
$d\_ULS$	0.645	0.645

The explanatory power of the model is reflected on the basis of the  $R^2$  value shown in Table 5, it shows that the Transportation Subsidy has  $R^2$  0.319 which means that Employee Income is able to provide an explanation of 31.9% variance. Work Effectiveness has  $R^2$  0.533 which is an indication of Employee Income and Transportation Subsidy together explaining the 53.3% variance. These values indicate a moderate level of predictive strength (Hair et al., 2021).

Table 5. R-Square

Variable	R-Square	R-Square Adjusted
EI	0.319	0.317
WE	0.533	0.529

#### 4.3 Hypothesis Testing and Mediation Effect

The hypothesis test was carried out with the PLS-SEM bootstrapping procedure to be able to assess the significance of the direct and indirect relationship between constructs. The results shown in Table 6 are a clue to the entire direct path proven to be statistically significant. Employee income significantly affects transportation subsidies and work effectiveness while transportation subsidies also create a significant influence on work effectiveness.

**Table 6.** Direct Effect

Item	T Statistics ( $O/STDEV$ )	P Values
EI -> TS	9.550	0.000
EI -> WE	6.505	0.000
TS -> WE	6.098	0.000
EI -> TS -> WE	5.993	0.000

The indirect influence of employee income on work effectiveness through transportation subsidies has also been proven to be significant, which is a sign of the mediation effect. Because the direct influence of employee income on work effectiveness remains significant despite the indirect influence through transportation subsidies, this mediation falls into the category of partial mediation. This provides a guide to transportation subsidies partially mediating the relationship between employee income and work effectiveness.

The findings of the study provide clues that employee income affects work effectiveness both directly and indirectly through transportation subsidies, emphasizing the complementary role of financial income and transportation support in efforts to improve employee performance.

## 5. Discussions

### 5.1. The Effect of Employee Income on Transport Subsidy

Based on the results of the hypothesis test itself, employee income (EI) has a positive and statistically significant influence on transportation subsidies (TS) as shown by the statistical t-value ( $t = 9.550$  greater than 1.96;  $p = 0.000$  less than 0.05). This result is an indication of a significant increase in employee income related to the increase in employee value and perception of transportation subsidies. These findings suggest employees do not consider transportation subsidies as an additional benefit or coincidence but rather as an integral part of their overall compensation structure. In a context where travel costs make up a large part of household expenses, transportation subsidies play an important role in increasing employees' real income by reducing transportation costs that must be paid and increasing income that can be used for other purposes. As a result, the higher the employee's income, the higher their recognition of the economic benefits of transportation subsidies in the compensation system.

From a theoretical point of view, these results support and expand the Theory of Equality (Adams, 1963) who provides an explanation employees assess whether their treatment is fair by comparing their efforts with the rewards given. Transportation subsidies are included in the reward and are considered as a way to improve distributive justice more specifically for employees who need large transportation costs. These findings are indicative of employees' perceptions of fairness not only on

salaries but also on additional benefits that directly reduce their cost of living. In addition, Compensation Theory is able to strengthen this explanation by providing a view of compensation as a reward system whose scope is in direct and indirect parts. In this framework, transportation subsidies play a role as a form of indirect compensation that increases the ability to buy goods and services and not just the salary received. Thus, these findings suggest that in developing countries where transportation costs drain most of income, additional benefits such as transportation subsidies play an important role in shaping employee perceptions of insufficient income and fairness in rewarding.

Empirical evidence from Vietnam (Nguyen & Nguyen, 2022) Malaysia (Yusoff et al., 2021), and Nigeria (Adeyemi & Ajayi, 2023) Consistently various findings indicate a positive relationship between income and transportation subsidies, which indicates that these benefits are able to reduce financial pressure while providing increased satisfaction with compensation. However, a number of studies conducted in high-income areas or highly urban areas have found a weaker relationship between income and transportation benefits. This condition occurs because of relatively lower travel costs and wider access to private transportation. The difference in results is a strong or weak indication of the relationship that was found to be highly dependent on context and strong relationships such as in this study are more relevant in areas such as Timor-Leste where transportation costs are still a significant economic burden for employees.

In practical terms, these findings are able to provide guidance that transportation subsidies should be included in the compensation structure formally, not just given as an additional welfare program. For public institutions, more specifically in areas with limited infrastructure, transportation subsidies play an effective role as an effective tool to increase income adequacy, reduce financial pressure, and strengthen employee motivation and organizational cohesion.

### 5.2. The Impact of Employee Income on Work Effectiveness

The results of the hypothesis test indicate that employee income, namely EI, has a positive and statistically significant influence on Work Effectiveness/WE where shown by the t-statistical value is  $t = 6.505 > 1.96$ ;  $p = 0.000 < 0.05$ ). This result indicates that the higher the value of the income level received by employees, the higher the level of productivity, discipline, and service quality produced. Income is not only understood as a form of financial reward alone, but this has a role as the main factor to support employees in carrying out their work duties optimally, where when employees get income adequately, it can be minimized so that attention with psychological energy is prioritized at work.

Therefore, employees can indicate a better level of work consistency so that they can increase overall effectiveness.

This result is in sync with Maslow's (1943) theory of the hierarchy of needs, which explains that income can be considered an important factor for physiological fulfillment needs and the need for a sense of security. After these basic needs have been met, employees are in a position with more supportive conditions in pursuing needs at a higher level, this includes self-actualization which is realized through effective performance. In addition, the theory of two factors from Herzberg (1959) indicates that salary has the function of being a hygiene factor where its adequacy can prevent the emergence of employee dissatisfaction and can help maintain the stability of employee work behavior. Expectancy Theory (Vroom, 1964) has indicated that work motivation will form when income is assessed fairly and in line with the effort that has been spent so that the relationship between business and performance becomes stronger. From the perspective of the Job Demands-Resources Model (JD-R) where income is positioned as the main work resource where it has a role in reducing financial pressure from outside work, maintaining work energy, and can support work involvement in a sustainable manner.

Empirical findings from Bangladesh (Al Mamun & Hasan, 2020) Kenya (Nyaga & Otieno, 2021), Nigeria (Adeyemi & Ajayi, 2023) consistently provides indications of income adequacy there is an increase in both the quantity and quality of employee performance. However, some studies in developed countries indicate a decline in marginal income results to performance after basic needs have been met. This difference focuses on the strong relationship between income and effectiveness found in this study to be particularly prominent in developing countries where financial sufficiency remains a major factor that can influence employee behavior.

For policymakers, these findings are able to emphasize the importance of designing income policies that are in line with living standards. Revenue should be viewed not only as operational costs but as long-term investments for the purpose of improving organizational effectiveness, discipline, and service quality, more specifically in the public sector.

### 5.3. The Influence of Transport Subsidy on Work Effectiveness

The results of the analysis indicate that transportation subsidies or abbreviated as TS have a positive and significant influence when viewed statistically on work effectiveness or WE which is shown by having a t-statistical value ( $t = 6.098 > 1.96$ ;  $p = 0.000 < 0.05$ ). These results indicate that the effectiveness of employees' work can be significantly improved through the provision of transportation subsidies. This transportation subsidy not only has a

role as an addition to financial but also has a function as a supporting mechanism that can help to eliminate structural obstacles in carrying out work where when obstacles related to travel activities can be reduced by means of punctuality, attendance levels, and better employee work concentration, which is important to form overall work effectiveness.

In the framework of the Job demands Resources model, or called JD-R in transportation subsidies, it has been positioned as a work resource that has a role in reducing financial or psychological pressure arising from commuting activities to work. In equity theory, it has been indicated that the view of employee justice can be improved by providing transportation subsidies so that the commitment to the organization becomes stronger. Based on Herzberg's two-factor theory where transportation subsidies are classified as hygiene factors which have the function of being used to prevent job dissatisfaction that arises due to excessive travel burdens, it is generally indicated that transportation subsidies have a role in maintaining the stability of employee working conditions when compared to directly encouraging performance improvement so that stress is suppressed daily activities related to transportation, a more supportive work environment can be created so that employees can maintain focus and work effectiveness consistently.

Consistent evidence from Malaysia (Yusoff et al., 2021) and various developing countries indicate that with work attendance can be increased where the level of fatigue can be suppressed, and employee productivity can be improved by providing transportation subsidies and vice versa the results of research conducted in areas with more advanced transportation systems indicate a relatively weak influence so that it can strengthen the nature of the results that can strengthen the nature of the results that depend on the context and therefore with differences This indicates that the effectiveness of subsidies on transportation can be influenced by the quality of local infrastructure and the level of coverage of travel costs so that in a work environment that is facing greater transportation constraints, the role of transportation subsidies becomes increasingly important to support the performance and welfare of employees.

For Timor-Lester itself, transportation subsidies are viewed more as a strategic investment than a financial burden. Implementing a need-based or income-sensitive subsidy scheme can provide a more specific level of equality and productivity boost for low-income employees faced with high travel costs. This targeted approach can ensure public resources are used efficiently while addressing the most pressing mobility limitations for civil servants. In addition, adjusting subsidy policies to income levels and regional conditions can strengthen policy effectiveness as well as support for sustainability and increase work effectiveness.

#### 5.4. The Mediation Effect of Transport Subsidy on the Relationship between Employee Income and Work Effectiveness

Mediation analysis provided a clue that transportation subsidies (TS) significantly affected the relationship between employee income (EI) and work effectiveness (WE) as shown by t-statistical values ( $t = 5.993 > 1.96$ ;  $p = 0.000 < 0.05$ ). This indicates that TS strengthens the impact of income on work effectiveness. The results of this study focusing on income alone are not enough to increase work effectiveness. The impact actually increases when income is combined with transportation subsidies which directly reduce the cost burden and stress due to travel. Therefore, transportation subsidies play a role as a tool that is able to change a sufficient level of income into a better performance improvement.

This finding is able to expand the Theory of Justice by providing clues to the perception of justice given the influence of wages and non-wage benefits. These findings also support the Expectation Theory because transportation subsidies increase employees' confidence that their efforts will yield tangible and valuable results. From the point of view of the JD-R Model itself, transportation subsidies play a role as a work resource that can help employees face the demands of their jobs and maintain their engagement.

In the context of Timor-Leste, the importance of transportation subsidies is very felt because the limited infrastructure in cities such as Baucau, Bobonaro, and Dili makes travel costs high. In this situation, transportation subsidies play a role not only as financial support but also as a strategic policy tool that helps employees use their income more efficiently, reduce travel-related stress, and minimize fatigue. As a result, employees are better able to maintain punctuality, attendance, and consistency of performance. The combined role of economic and psychosocial aspects provides an affirmation that transportation subsidies have a function as a financial buffer as well as a source of motivation in environments with limited infrastructure.

These findings are able to align and reinforce empirical evidence from a variety of contexts. (Yusoff et al., 2021) Providing the invention of transportation incentives can increase job satisfaction and reduce absenteeism among employees in Malaysia. Similarly, (Nguyen & Nguyen, 2022) indicates that the combination of transportation allowances with wages can increase real income and cognitive focus of workers in Vietnam and while (Adeyemi & Ajayi, 2023) focusing on the role of financial and non-wage benefits in efforts to improve discipline and productivity in Nigeria. Overall, some of these studies emphasize the consistent influence of transportation subsidy on employee performance under various economic and cultural conditions.

For governments and organizations more specifically in developing countries, it will make transportation subsidies an official part of

compensation policies that can significantly increase the effectiveness of income-based interventions. Therefore, transportation subsidies should be considered as a strategic component in the compensation system, not just an additional benefit.

#### 6. Limitations

In this study, transportation subsidies were not analyzed as an additional benefit but a strategic mediation factor that was able to strengthen the influence of income on employee performance.

However, the study covered only three regions with Baucau, Bobonaro, and Dili in Timor-Leste, so the ability to generalize the results to other regions that may have different geographical characteristics, transportation costs, or subsidy policies is limited.

In addition, this study only assesses the role of transportation subsidy mediation from a financial point of view. Non-financial factors such as comfort, safety, or the quality of available transportation can also affect the relationship between employee income and work effectiveness and all of it is not taken into account. Furthermore, this study is limited to three municipalities so that the application of its conclusions to the broad context in Timor-Leste with a wide variety of socio-economic conditions and high transport infrastructure is limited.

Therefore, future research should be able to expand its geographical reach by involving more cities or districts so that it will allow the analysis of differences between regions and increase the external validity of the research findings.

#### 7. Conclusion and Recommendation

##### 7.1. Conclusion

This study explored the relationship between employee income (EI), transportation subsidies (TS), and work effectiveness (WE) with a focus on the mediating role of transportation subsidies among civil servants in Baucau, Bobonaro, and Dili. This study aims to be able to assess the influence of employee income on transportation subsidies, the impact of employee income on work effectiveness, the effect of transportation subsidies on work effectiveness, and the role of transportation subsidy mediation in the relationship between employee income and work effectiveness. On the basis of empirical results, all research objectives were successfully achieved.

These findings provide guidelines for employee salaries that also affect work effectiveness positively and significantly. This means that a sufficient salary can make employees more motivated, focused, and improve their work results. In addition, transportation subsidies also have a positive impact on employee salaries because they can help reduce expenses for travel so that there is an increase in money that can be used for shopping. Transportation subsidies also directly affect work effectiveness because they can

help employees arrive on time, reduce fatigue due to travel, and provide improved work skills. In addition, the results of the study are also a guideline for transportation subsidies to strengthen the relationship between salary and work effectiveness, which means that a good salary can be more effective in efforts to improve work performance when accompanied by transportation subsidies. Overall, the study focuses on a payment strategy that provides a combination of direct salaries with additional benefits such as transportation subsidies that are critical to improving the work effectiveness of civil servants in Timor-Leste.

## 7.2. Recommendations

Based on the findings of this research itself, local governments and public institutions are encouraged to be able to officially include transportation subsidies in the civil servant compensation system as a structured and sustainable policy instrument. The design of transportation subsidy programs needs to pay attention to regional characteristics such as distance to work, availability of transportation infrastructure, and local travel costs. Targeting mechanisms should focus on employees who work in areas with limited transportation or high travel costs to ensure policy equity and effectiveness. In addition, public institutions also need to establish periodic evaluation mechanisms to monitor the impact of transportation subsidies on punctuality, attendance, and work effectiveness so that it will allow evidence-based policy adjustments from time to time.

At the individual level, transportation subsidies are given the hope that they can be used responsibly by civil servants for the purpose of supporting punctuality, discipline, and effectiveness in work so that the policy goals can be realized to the maximum. Reduced cost burden and physical fatigue due to travel is expected to help employees maintain concentration and increase productivity in carrying out daily tasks. In the future, follow-up research is recommended to expand the scope of the study by involving other regions of Timor-Leste or through comparative studies between public and private sector employees. In addition, follow-up research can add other variables such as job satisfaction, leadership quality, work motivation, and work environment conditions and use longitudinal research designs so that the causal relationship between employee income, transportation subsidies, and work effectiveness can be understood more deeply.

## References

- Adams, J. S. (1963). Towards an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67(5), 422–436.
- Adams, J. S. (1965). Inequity in social exchange. In L.

Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 2, pp. 267–299). Academic Press.

Adeyemi, S., & Ajayi, O. (2023). Income security and employee productivity: Evidence from Nigerian financial institutions. *Journal of African Business*, 24(2), 145–162.

Akib, H., Hatimah, I., & Sakawati, T. (2023). Additional employee income policies and motivation: An empirical review. *International Journal of Human Resource Studies*, 13(1), 45–58.

Al Mamun, C. A., & Hasan, M. (2020). Employee income and performance in the Bangladeshi manufacturing sector. *South Asian Journal of Business and Management Cases*, 9(2), 230–242.

Arif-your-Rahman, M., & Inaba, K. (2020). Financial integration and total factor productivity: In consideration of different capital controls and foreign direct investment. *Journal of Economic Structures*, 9(1). <https://doi.org/10.1186/s40008-020-00201-9>

Armstrong, M., & Taylor, S. (2020). *Armstrong's handbook of human resource management practice* (15th ed.). Kogan Page.

Asian Development Bank. (2020). *Key indicators for Asia and the Pacific 2020*. ADB.

Basso, L. J., & Silva, H. E. (2022). Transport subsidies and urban sustainability. *Transport Policy*, 115, 123–135.

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.

Bucăța, G., & Rizescu, A. M. (2021). Financial incentives and employee performance: A managerial perspective. *Economic Research – Ekonomska Istraživanja*, 34(1), 202–218.

Choudhury, C. F., Li, Y., & Tang, L. (2024). Commuting conditions and employee productivity: A moderation analysis. *Transportation Research Part A: Policy and Practice*, 180, 102–115.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.

Fulmer, I. S., Gerhart, B., & Kim, T. (2023). Employee compensation and income in HRM research. *Academy of Management Annals*, 17(1), 211–245.

Gómez-Lobo, A. (2019). Efficiency and equity in public transport subsidies. *Journal of Transport Economics and Policy*, 53(2), 103–123.

Hadi, S., Prasetyo, T., & Purwanto, A. (2022). Measuring work effectiveness: A review and conceptual framework. *Journal of Management Development*,

41(7), 560–575.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on PLS-SEM using SmartPLS 4*. Sage.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based SEM. *Journal of the Academy of Marketing Science*, 43(1), 115–135.

Herzberg, F. (1959). *The motivation to work*. John Wiley & Sons.

Ilmi Nafi'ah, A., Arifianto, S., & Qomariah, N. (2023). Additional income and supportive climate: A synergy for employee engagement. *Management Dynamics Journal*, 12(2), 64–80.

Khan, A. (2023). Labor market inequality in developing economies. *Development Economics Review*, 39(1), 87–102.

Kim, J., & Lee, H. (2020). Income, motivation and job engagement among IT employees in South Korea. *Journal of Asian Business and Economic Studies*, 27(2), 213–229.

Kurniawati, T., & Mulyanto, B. (2024). Perceptions of compensation, fairness and satisfaction. *Indonesian Journal of Business and Management*, 14(1), 54–70.

Li, J., & Chen, Z. (2023). Transport subsidies, engagement and fairness: Evidence from China. *Transport Policy*, 121, 40–52.

Li, T., & Verma, R. (2023). Women's workforce inclusion through transport interventions. *Journal of Transport Geography*, 105, 103–112.

Lucas, K. (2021). Transport subsidies, accessibility and social equity. *Journal of Transport and Social Policy*, 15(2), 210–227.

Maharani, D. (2025). Transport subsidies and urban workforce inclusion. *Urban Policy and Research*, 43(1), 34–48.

Masbiran, A., et al., (2022). Demand-side subsidies and public transport usage. *Journal of Public Transport Studies*, 25(3), pp.67–81.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396.

Meijerink, J., Boons, M., & Keegan, A. (2021). Allowances and sustainable HR practices. *Human Resource Management Journal*, 31(4), 713–729.

Meianto, R., Bahiramasyah, H., & Endri, E. (2021). Compensation and work effectiveness in Indonesian firms. *International Journal of Economics and Business Administration*, 9(3), 123–137.

Memon, M. A., Cheah, J., Ramayah, T., Ting, H., & Chuah, F. (2018). Mediation analysis in PLS-SEM. *Industrial Management & Data Systems*, 118(5), 170–188.

Miller, E., de Barros, A., Kattan, L. & Wirasinghe, S., (2016). Income differences and transport benefits. *Journal of Public Transportation*, 19(2), pp.45–59.

Nguyen, T., & Nguyen, H. (2022). Subsidized transport and employee productivity in Vietnam. *Asia-Pacific Journal of Business Administration*, 14(2), 165–180.

Nyaga, D. & Otieno, P. (2021). Salaries and work effectiveness among Kenyan government employees. *African Journal of Public Administration*, 14(1), pp.98–112.

Okwu, O. (2022). Subsidies and productivity: Evidence from developing countries. *Journal of Development Studies*, 58(6), pp.843–860.

Pereira, R., et al. (2022). Mobility, workforce inclusion and public transport subsidies. *Transport Reviews*, 42(2), pp.156–174.

Prabowo, H. & Purwanto, A. (2023). Managerial effectiveness and innovation. *International Journal of Productivity and Performance Management*, 72(5), pp.1241–1260.

Putra, A., Nugroho, B. & Nugraha, A. (2023). Employee income and work effectiveness in Indonesia. *Indonesian Journal of Management*, 23(1), pp.45–58.

Retnowati, E., Hariani, M., Irfan, M., Darmawan, D., Putra, A. R., Anjanarko, T. S., & Munir, M. (2023). Work effectiveness examined through the aspects of workload and burnout. *Sustainable Environmental and Optimizing Industry Journal*, 5(1), 1–10. <https://doi.org/10.36441/seoi.v5i1.1739>.

Saleh, S., Bau, Y. & Darwis, D. (2024). Career growth, recognition and work effectiveness. *International Journal of Human Capital and Business Strategy*, 16(2), pp.134–148.

Sarstedt, M., Ringle, C.M. & Hair, J.F. (2022). Partial least squares structural equation modeling. *Nature Reviews Methods Primers*, 2(1), pp.1–16.

Serebrisky, T., et al. (2021). Public transport subsidies in practice: An overview. World Bank Policy Research Working Paper. Washington, DC: World Bank.

Vroom, V. H. (1964). *Work and motivation*. Wiley.

Wang, Y. & Xu, Z. (2022). Work effectiveness: Objective and subjective measures. *Human Resource Development International*, 25(1), pp.34–50.

Wang, Z., Liu, J. & Zhang, H. (2024). Transport subsidies, retention and performance. *Transport Policy*, 121, pp.23–39.

Wijayanti, R., Johannes, A. & Hendayana, R. (2022). Fairness in income and employee motivation. *Indonesian Journal of Human Resource Management*, 10(2), pp.77–88.

World Bank. (2023). *Timor-Leste economic report*. World Bank.

Yi, H. & Lu, X. (2023). Transport subsidies in developing contexts: A comparative study. *Journal of Transport and Development Policy*, 7(2), pp.101–115.

Yulianti, R., Denessen, E. & Droop, W. (2019). Transport subsidies and punctuality in education. *International Journal of Educational Development*, 70, pp.102–114.

Yunisvita, V., et al. (2022). Education and income premiums: Evidence from Indonesia. *Journal of Development Economics*, 58(2), pp.201–219.

Yusoff, W., et al. (2021). Income fairness, transport subsidies and employee retention. *Journal of Human Resource and Sustainability Studies*, 9(3), 456–472.

Zhao, Y., Liu, H. & Wang, M. (2023). Hybrid work, flexibility and employee effectiveness. *Journal of Business Research*, 152, pp.1–12.