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DETERMINANTS OF TAX REVENUE THROUGH THE EFFECTIVENESS OF TAX AUDIT AS AN INTERVENING VARIABLE

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Abstract:

The contribution of tax audit results to tax revenue in Timor-Leste remains very low, averaging only 3.25% over the past four years. This has prompted further analysis of the factors determining the effectiveness of tax audits in order to enhance tax revenue. The study employs a survey approach using questionnaires as the data collection instrument and applies Partial Least Squares-Structural Equation Modeling (PLS/SEM) for analysis. The independent variables include the quality of tax auditors, the quantity of tax auditors, facilities and infrastructure, and financial compensation. The mediating variable is tax audit effectiveness, and the dependent variable is tax revenue. Results from direct effect testing show that the variables of auditor quality and facilities/infrastructure have a positive but insignificant effect on tax revenue. Meanwhile, the quantity of tax auditors and their financial compensation has a negative but insignificant effect on tax revenue. However, the effectiveness of tax audits has a significant positive effect on tax revenue. The indirect effect analysis reveals that auditor quality, auditor quantity, and financial compensation—through tax audit effectiveness—have a significant positive influence on tax revenue, whereas facilities and infrastructure have a positive but insignificant effect.

Keywords: Tax Audit, Effectiveness, Tax Revenue, Tax Auditor

INTRODUCTION

Tax revenue represents the total public contribution (collected under law) received by the state during a fiscal period, used to serve national interests for the greatest prosperity of the people (Hutagaol, 2007). Tax revenues can be obtained continuously and developed optimally according to governmental needs and societal conditions. Governments worldwide strive to enhance tax revenue, with tax audits being among the most effective policy tools to combat tax evasion (Slemrod, 2000). Previous studies (Mirera, 2014; Harelimana, 2018; Ogunwale, 2020) have shown that tax audits positively affect tax revenue collection. However, this contrasts with the situation in Timor-Leste, where tax audit contributions remain below 4% (2017–2020), indicating ineffective tax audit implementation. Therefore, identifying factors that can support effective tax audits is crucial.

Prior studies (Mirera, 2014; Harelimana, 2018; Tarfa, 2020) found that tax audit effectiveness influences tax revenue due to a significant relationship between tax collected before and after audits. This clearly shows that tax audits can improve revenue collection—the more audits conducted, the higher the potential tax revenue.

The literature suggests that tax audit effectiveness is a function of several factors, including information systems, tax laws, taxpayer ability, cooperation, audit unit structure, business type, audit quality, top management support, and fiscal policy. This study focuses on internal organizational factors within the tax authority that the government, especially the Timor-Leste Tax Authority, needs to address, following Contingency Theory. Hansen and Wernerfelt (1989) emphasize that internal organizational factors are key determinants of institutional success.



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The application of contingency theory here assumes that the success of tax audits depends on internal factors within the tax authority itself when designing and developing the audit function. Tax auditors must have sufficient knowledge and skills to perform their duties effectively. Chalu and Mzee (2018) found that educated, experienced, and well-trained auditors enhance audit effectiveness. The quality and quantity of auditors are interrelated concepts: highly qualified auditors perform higher-quality audits. Auditor quality can be developed through formal and informal education, regular training, experience, and participation in tax workshops or seminars.

In addition, effective audits require adequate facilities and infrastructure. Without proper support, audit implementation is hindered, and audit objectives cannot be achieved efficiently. Supporting facilities may include operational vehicles, office equipment, and adequate operational funding (Irawan et al., 2015).

Financial compensation also plays an essential role in motivating tax auditors. Fair compensation supports audit performance, as it encourages motivation and job satisfaction. Studies by Simbolon and Sumadi (2013) and Misral (2018) found that higher financial compensation positively affects employee performance.

Therefore, this study aims to analyze the direct and indirect effects of auditor quality, auditor quantity, audit facilities and infrastructure, and financial compensation on tax revenue both directly and indirectly through the effectiveness of tax audits.

METHODS

This research employs a survey method, drawing samples from a defined population and using a structured questionnaire for data collection. A verificative analysis was used to determine the extent of the influence of independent variables on the dependent variable, both directly and indirectly through the mediating variable. The independent variables are auditor quality, auditor quantity, facilities and infrastructure, and financial compensation; the mediating variable is tax audit effectiveness; and the dependent variable is tax revenue.

Data were collected from 125 respondents comprising tax authority officials representing the study population. The questionnaire used a four-point Likert scale: Strongly Agree, Agree, Disagree, and Strongly Disagree. Data were analyzed using Partial Least Squares (PLS), a technique within Structural Equation Modeling (SEM).

Conceptual Framework. The conceptual model illustrates the relationships between independent, mediating, and dependent variables tested both directly and indirectly. The following is the conceptual framework of this research:

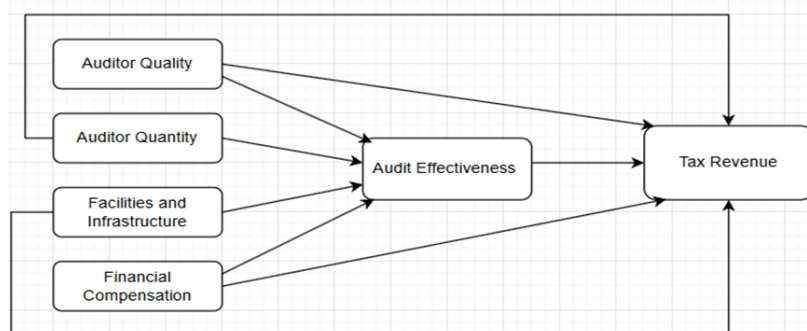


Figure 1. Conceptual Framework

findings (quality → effectiveness → revenue): auditor quality appears to operate through audit effectiveness rather than producing immediate direct uplifts in revenue. Practically, this implies that policy should not only hire/train competent auditors but also ensure those competencies are used within efficient audit workflows and performance management systems.

Auditor quantity (negative but insignificant, $p = 0.417$). The negative direct sign on the auditor quantity, although not statistically significant, raises important operational hypotheses. Adding auditors without adjusting workload allocation, supervision, and case-selection methods can create diseconomies of scale: more auditors may be assigned low-yield or administratively burdensome tasks, or they may be spread thin and unable to devote sufficient time to complex, high-yield audits. In other words, quantity alone can dilute per-audit effort and lower average audit impact. The significant indirect (mediated) effect found elsewhere suggests that when additional auditors contribute to improved audit effectiveness (through training, mentoring, or better supervision), they help revenue, but merely increasing headcount without strengthening supporting systems may not. This argues for strategic recruitment plus workload management and stronger managerial capacity, rather than blind expansion of headcount.

Facilities and infrastructure (positive but insignificant, $p = 0.201$). Facilities and infrastructure (vehicles, operational budgets, IT, office equipment) show a positive direction of effect but lack statistical significance in direct tests. This suggests these inputs are necessary but not sufficient conditions: they facilitate audit activity but do not automatically improve collection if not paired with competent auditors, targeted audit selection, and modern audit techniques. The weak direct effect may also reflect measurement issues (e.g., quality of IT systems vs. mere presence of equipment) or underutilization of existing resources. The implication is that investments in infrastructure should be designed to complement human capital and process improvements – for example, integrating case management software with risk models and training staff to exploit new tools.

Financial compensation (negative but insignificant, $p = 0.559$). A negative direct coefficient for financial compensation is counterintuitive but can be explained by incentive misalignment or measurement subtleties. If compensation is not tied to performance or is given as a flat allowance, it may not motivate auditors to pursue high-yield enforcement; it could even be associated with higher reported compensation in contexts where audits are less effective (reverse causality). Alternatively, if additional compensation comes at the expense of operational budgets (or is reactive to poor performance), the raw association with revenue could be negative. Importantly, the significant mediated result for compensation (through effectiveness) indicates that compensation can boost revenue when it strengthens audit effectiveness – for example, by funding training, enabling audit fieldwork, or forming part of a performance-based pay scheme (Larasdiputra & Saputra, 2021). Hence, the policy takeaway is to redesign compensation toward clear performance metrics and to ensure compensation supplements, rather than substitutes for, critical operational resources.

Tax audit effectiveness (significant positive, $p = 0.000$) – the central mechanism. The robust positive effect of audit effectiveness on tax revenue highlights that how audits are conducted strongly determines outcomes. Effectiveness captures case selection strategy, quality of investigative procedures, timeliness and completeness of follow-up, use of risk modeling, quality assurance, and managerial oversight (Dharmawan et al., 2024). The result implies that organizational inputs (quality, quantity, facilities, compensation) mainly matter insofar as they improve these operational dimensions. Therefore, reforms should prioritize process improvements: risk-based audit selection, standard operating procedures, data analytics for anomaly detection, targeted capacity building,

and clear KPIs for audit teams. Strengthening effectiveness yields higher marginal returns on investments in staff, equipment, and pay.

Indirect Effects. Audit effectiveness is a mediating variable on tax revenue through the influence of auditor quality, auditor quantity, facilities and infrastructure, and financial compensation. The following are the results for the indirect effect:

Table 2. Indirect Effects

Influence	Path	Coefficient	T-statistics	p-values	Description
X1 → Y → Z		0.125	3.127	0.020	Significant
X2 → Y → Z		0.157	2.805	0.042	Significant
X3 → Y → Z		0.034	0.443	0.658	Not significant
X4 → Y → Z		0.586	7.672	0.000	Significant

Auditor Quality through Audit Effectiveness. The analysis shows that auditor quality, mediated through audit effectiveness, has a positive and significant effect on tax revenue ($p = 0.020$). This indicates that higher-quality auditors contribute to more effective audits, which in turn significantly increase tax revenue. Well-trained, experienced, and skilled auditors are better equipped to detect compliance issues, reduce errors, and ensure thorough auditing. This finding underscores the importance of investing in human capital development for auditors, continuous professional training, and competency enhancement programs. Ultimately, auditor quality enhances audit efficiency, leading to measurable improvements in revenue collection.

Auditor Quantity through Audit Effectiveness. Auditor quantity, when mediated by audit effectiveness, also shows a positive and significant effect on tax revenue ($p = 0.042$). This suggests that while the number of auditors alone may not directly increase revenue, their deployment within an effective auditing framework can significantly impact tax collection. Adequate auditor allocation, guided by risk-based planning and supported by strong management oversight, ensures that audits cover high-risk areas efficiently. Thus, quantity becomes meaningful only when combined with strategic utilization and effectiveness in audit execution.

Facilities and Infrastructure through Audit Effectiveness. The effect of facilities and infrastructure on tax revenue via audit effectiveness is positive but not significant ($p = 0.658$). This implies that improvements in physical or digital resources, such as office equipment, IT systems, and transport facilities, alone do not substantially increase revenue. While they facilitate audit processes and may improve auditor productivity, these improvements require complementary factors such as skilled auditors, proper procedures, and enforcement mechanisms to translate into significant fiscal outcomes. Therefore, infrastructure development alone is insufficient without integrating human and organizational capabilities.

Financial Compensation through Audit Effectiveness. Financial compensation, mediated through audit effectiveness, has a strong positive and significant effect on tax revenue ($p = 0.000$). This indicates that fair and performance-linked compensation motivates auditors to conduct more thorough, efficient, and effective audits. Incentive systems tied to measurable outcomes, such as audit completion, compliance improvements, and revenue recovery, enhance auditor commitment and performance. This finding demonstrates that financial incentives, when properly structured and aligned with audit effectiveness, can significantly improve revenue collection and strengthen the overall tax administration.

Overall, the results highlight that audit effectiveness is the key mediator between organizational and resource factors and tax revenue. Human capital development, appropriate allocation of auditors, and performance-linked compensation significantly enhance tax collection when mediated by effective auditing practices. Conversely, infrastructure improvements alone are insufficient to create measurable revenue gains. Therefore, tax authorities should prioritize strategies that improve audit effectiveness, including training, professional development, performance management, and risk-based audit planning, to achieve sustainable revenue growth.

CONCLUSION

Based on the direct and indirect effect analysis, the study concludes the following:

- 1) Auditor quality has a positive but not significant direct effect on tax revenue; however, through audit effectiveness, it has a positive and significant indirect effect, indicating that high-quality auditors enhance revenue collection when audit processes are effective.
- 2) Auditor quantity has a negative and not significant direct effect on tax revenue, but when mediated by audit effectiveness, it shows a positive and significant indirect effect, suggesting that the number of auditors contributes to revenue only if audits are executed effectively.
- 3) Facilities and infrastructure have a positive but not significant effect, both directly and indirectly through audit effectiveness, implying that resources alone are insufficient to increase tax revenue without proper utilization and supporting factors.
- 4) Financial compensation has a negative and not significant direct effect, but through audit effectiveness, it exhibits a strong positive and significant indirect effect, showing that fair and performance-linked incentives significantly enhance tax revenue when auditors are motivated and audits are effective.
- 5) Audit effectiveness itself has a positive and significant direct effect on tax revenue, confirming that effective audits are the key driver of revenue improvement.

In summary, audit effectiveness serves as a crucial mediator between organizational and resource factors and tax revenue. Policies that focus on developing auditor skills, optimizing auditor allocation, and implementing performance-based compensation are essential to strengthen audit effectiveness and improve overall tax collection.

Policy implications and recommendations. The results point to a clear, prioritized strategy: invest in audit effectiveness first. Operational recommendations include adopting a risk-based audit model, strengthening case management and data analytics, developing rigorous SOPs, and implementing performance metrics that link compensation and promotion to verified audit outcomes. Personnel policies should emphasize targeted hiring, continuous professional development, and reasonable auditor workloads supported by mentoring and quality control. Infrastructure investments should be integrated with digital audit tools and training to ensure utilization. Finally, monitoring and evaluation should track not only inputs (staff, budgets) but process indicators of effectiveness (case selection quality, timeliness of audits, recovery rates) and link these to revenue outcomes to close the loop between inputs and results.

Policy Implications. The findings suggest that tax administration reform should prioritize the enhancement of audit effectiveness as the primary lever for revenue growth. Improving the quality of audit procedures, developing integrated information systems, and linking financial incentives with measurable outcomes are crucial steps. Investments in staff training, digital tools, and data analytics should strengthen audit precision and efficiency rather than merely expanding resources.

Recommendations. The results of this study indicate a clear, prioritized strategy; therefore, it is recommended that tax authorities and policymakers prioritize investment in the effectiveness of tax audits.

- 1) Enhance Auditor Competence: Invest in continuous training, professional development, and capacity-building programs to improve the skills, knowledge, and experience of auditors.
- 2) Optimize Auditor Allocation: Ensure sufficient and strategically distributed auditors in high-risk areas, guided by risk-based audit planning to maximize coverage and effectiveness.
- 3) Improve Audit Effectiveness: Strengthen audit procedures, monitoring, and performance evaluation to ensure that audits are thorough, accurate, and yield meaningful revenue outcomes.
- 4) Link Financial Compensation to Performance: Implement performance-based incentive systems that reward auditors for achieving audit targets, detecting non-compliance, and increasing tax revenue.
- 5) Integrate Resources Strategically: While providing adequate facilities and infrastructure is necessary, ensure that these resources are used effectively in conjunction with auditor capacity and management support.
- 6) Adopt a risk-based audit model to focus resources on high-risk areas with the potential for tax non-compliance.
- 7) Strengthen case management and data analytics to improve the accuracy and precision of audits.
- 8) Develop rigorous Standard Operating Procedures (SOPs) for every stage of the audit process.
- 9) Implement performance metrics that link auditor compensation and promotion to verified audit outcomes, incentivizing more effective work.
- 10) Personnel policies should emphasize targeted hiring, continuous professional development, and reasonable auditor workloads supported by mentoring and quality control.
- 11) Infrastructure investments should be integrated with digital audit tools and training programs to ensure optimal utilization.
- 12) Monitoring and evaluation should track not only inputs (staff, budgets) but also process indicators of effectiveness (case selection quality, timeliness of audits, recovery rates) and link these to revenue outcomes to close the loop between inputs and results.

Limitations and Suggestions for Future Research. Given the cross-sectional survey and PLS/SEM approach, caution is warranted regarding causal claims. Future studies should consider:

- 1) Using panel data or experimental/quasi-experimental designs, such as pilot performance-pay schemes or targeted investment initiatives.
- 2) Increasing reliance on administrative revenue records to validate self-reported measures.
- 3) Conducting qualitative case studies of high-performing audit units to identify specific managerial practices that successfully convert inputs into audit effectiveness and increased revenue.

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