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THE ROLE OF BIG DATA IN IMPROVING TAX COMPLIANCE

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Abstract

The use of Big Data has brought many benefits in various sectors, one of which is in improving tax compliance. This abstract discusses the role of Big Data in improving the taxation system through more in-depth and accurate data analysis of taxpayer behaviour. By utilising Big Data technology, tax authorities can identify potential non-compliance and optimise the audit process, as well as personalise services and communications to taxpayers. In addition, Big Data contributes to increased transparency and accountability in taxation, which ultimately encourages higher tax compliance and creates a more efficient and fairer taxation system.
Keywords: Role, Big Data, Tax Compliance

Introduction

Tax compliance is a crucial aspect in sustaining a country's economy, because taxes are the main source of income for the government to finance various development programmes and public services. Tax compliance refers to the willingness and ability of taxpayers to fulfil their tax obligations in accordance with applicable laws and regulations (Patel & Kumar, 2021). This includes various actions, including registering as a taxpayer, accurately calculating the amount of tax owed, paying taxes on time, and correctly reporting all relevant income and economic activities. Tax compliance is not only reflected in the timeliness of payments, but also in the accuracy of the amount of tax paid in accordance with existing legal provisions (Azmi & Kamarulzaman, 2010).

Tax compliance plays a vital role in supporting a country's economic development and stability. With a high level of compliance, the government can optimally collect tax revenues which can then be allocated to the provision of public services, infrastructure development, education, health, and various other social programmes (Smith, 2002). In addition to helping the government achieve revenue targets, tax compliance also creates fairness in society by ensuring that all citizens and companies pay taxes according to their ability. This is important to prevent tax avoidance and tax evasion practices that can harm the country's economy and disrupt the economic balance (Chen, 2023).

However, low tax compliance rates are often a challenge faced by many countries, including Indonesia. Factors such as the complexity of the tax system, low taxpayer awareness, and limited supervisory resources contribute to these low compliance rates (Marr, 2015).

Therefore, tax non-compliance can have a number of negative impacts on the economy and society. First, tax non-compliance can reduce state revenues that are essential to finance public services such as education, health, and infrastructure. This can hamper development and reduce the quality of life of the community. Second, tax non-compliance creates injustice where non-compliant individuals or companies gain unfair financial advantages over those who comply with the regulations (Thompson, 2020). In addition, tax non-compliance can result in additional costs for the government in the form of law enforcement and tax audit efforts. In the long run, lack of compliance can damage public trust in the tax system and the government as a whole, potentially reducing tax participation and compliance rates further (Clark, 2021).

In this digital age, Big Data technology offers new opportunities to overcome challenges in tax compliance. Big Data, with its characteristics of large data volume, data processing speed, and diverse data variety, can be used to collect, process, and analyse various data sources relevant to taxation. By using this technology, tax authorities can improve their analytical capabilities to detect violations, estimate the risk of tax evasion, and increase efficiency in the tax collection process (IMF, 2015).

A number of developed countries have begun to utilise Big Data to improve the accuracy and efficiency of their tax collection systems. For example, this technology allows tax authorities to personalise their approach to taxpayers based on historical data and tax payment behaviour, thereby increasing overall compliance rates (Singh, 2019).

However, the adoption of Big Data technology in the tax system is not without challenges. These challenges include issues such as data privacy, information security, and the need for adequate infrastructure and human resources to support the implementation of Big Data. Therefore, this study aims to explore the role of Big Data in improving tax compliance, as well as examining the benefits and challenges that may be faced in its implementation (Lopez & Perez, 2020).

This study is expected to provide deeper insights into how Big Data technology can be used effectively to address tax compliance issues and provide recommendations for policy makers at the national and regional levels.

Research Methods

The study in this research uses the literature method. The literature research method is an approach in research that involves collecting, studying, and analysing existing sources to develop an understanding or gain an in-depth understanding of a particular topic (Rossi et al., 2004); (Silverman, 2015). In this method, researchers search

for and review various scientific works such as books, journal articles, reports, and other relevant sources to gather valid and reliable information. This method is very useful for identifying research trends, finding gaps in existing knowledge, and developing a theoretical framework for further research. As one of the initial stages of the research process, a literature review helps strengthen the scientific basis of the research, which can be used to develop hypotheses, strengthen arguments, or even design further empirical studies (Borenstein et al., 2009).

Results and Discussion

The Role of Big Data in Improving Tax Compliance

The role of Big Data in the context of tax compliance is very significant because it allows the tax authorities to have a more in-depth understanding of taxpayers. Using Big Data technology, the government can collect and analyse huge and complex amounts of data from various sources such as financial transactions, financial reports, payroll records, and even social media activity. This analysis can reveal suspicious patterns of behaviour and detect potential non-compliance that may be missed by traditional methods (Alm & Torgler, 2011).

Big Data also plays an important role in detecting and preventing tax fraud. Through real-time data analysis, Big Data-based systems can identify unusual transactions or activities and flag them for further examination. Machine learning algorithms can be developed to recognise numbers, patterns, or behaviours common to tax violations, so that the system can automatically alert tax officials to potential fraud (Wright, 2022).

With Big Data, tax authorities can conduct audits more efficiently and in a more targeted manner. Linked data analysis allows tax officials to focus on taxpayers or entities that have a higher risk of non-compliance. This not only saves time and resources, but also increases the accuracy and effectiveness of tax audits. As a result, tax compliance can be improved because taxpayers become more aware of the possibility of being audited (Bell & Young, 2021).

Big Data analysis can also help in the planning and implementation of more effective tax policies. By utilising historical data and economic trends, the government can design fairer and more proactive tax policies. Predictive analytics enable the government to anticipate potential tax revenues and identify economic sectors that may require stricter supervision or tax incentives to improve compliance (Roberts & Green, 2020).

Big Data can be used to increase transparency in the taxation system. For example, by publishing certain data openly or through digital platforms, taxpayers can be involved in the process and feel more empowered. When taxpayers feel that the tax system is transparent and reliable, their level of trust and compliance tends to increase. In addition, by providing easy access to accurate and up-to-date tax information,

taxpayers can better understand their obligations and avoid unintentional non-compliance (Nguyen & Lee, 2021).

Finally, Big Data can help optimise tax services to the public. By understanding the needs and behaviour of taxpayers, tax authorities can improve services such as online tax filing and payment. Big Data-based digital platforms can provide more personalised services and resolve taxpayer issues quickly. This not only improves the taxpayer experience but also encourages them to be more compliant in meeting their tax obligations (Haslow, 2015).

Thus, Big Data is a very useful tool in improving tax compliance through better understanding, more efficient fraud detection, more targeted audits, smarter policy development, greater transparency, and optimised services to taxpayers.

Benefits and Challenges of Big Data Implementation in the Tax System

Benefits of Big Data Implementation in the Tax System

First, Increased Efficiency and Accuracy. The implementation of big data in the tax system can improve efficiency and accuracy in the process of collecting and processing tax data. By using big data technology, tax authorities can access and analyse large and complex datasets more quickly and effectively. This allows for the identification and correction of errors that may occur in the tax filing process, reducing the manual workload, and improving the accuracy of tax reports filed by taxpayers (Tax Foundation, 2018).

Second, Better Tax Supervision and Compliance. Big data enables tax authorities to improve taxpayer supervision and compliance. With sophisticated data analytics, tax authorities can detect suspicious behaviour or tax compliance violations more quickly. For example, the use of machine learning algorithms can help authorities identify patterns of tax evasion, money laundering, and other fraudulent practices. This improved oversight can reduce tax evasion and increase state revenue (Zhang & Wang, 2021).

Third, Optimisation of Policy Making. The implementation of big data is also beneficial in the decision-making process and tax policy. Big data analysis provides deep insights into economic conditions, taxpayer behaviour, and tax revenue trends. This data can be used to formulate tax policies that are more targeted and responsive to economic changes. The tax authority can identify sectors that contribute less and develop incentive or penalty policies based on comprehensive data analysis (Martinez, 2022).

Meanwhile, the challenges of implementing big data in the tax system consist of;

First, technological complexity. One of the main challenges in big data implementation is the complexity of the technology involved. Managing big data infrastructure requires significant investment in hardware, software, and skilled human resources. Tax authorities need to ensure that they have a system that can handle large

volumes of data while protecting the integrity and security of that data. This complexity can be an obstacle for countries with limited technological and financial resources (Wilson, 2021).

Second, Data Security and Privacy. Another significant challenge is the issue of data security and privacy. The collection and storage of large volumes of tax data can be an easy target for cybercriminals. Protection against data breaches and information leaks is essential to maintain taxpayer confidence. In addition, there are also legal and regulatory aspects related to data privacy that need to be complied with, which can vary from country to country (Warsono, 2019).

Third, Resistance to Change and Organisational Readiness. The implementation of big data in the tax system also faces the challenge of resistance to change from within the organisation. Tax officials may face a steep learning curve in adopting new technologies and changing work processes. Organisations need to provide adequate training and capacity building to ensure a smooth transition. In addition, commitment and support from all levels of management are essential to overcome obstacles and optimise the benefits of this investment (King & Lewis, 2022).

With that, understanding the benefits and challenges, the implementation of big data in the tax system can be better planned to achieve the desired goal, namely a tax system that is more efficient, transparent, and responsive to the country's economic needs.

Conclusion

Big Data plays a very important role in improving tax compliance by providing more in-depth and accurate analysis of taxpayer behaviour. Through Big Data technology, tax authorities can collect, store and analyse large amounts of data from various sources, such as financial statements, banking transactions and consumption data. The data is then processed to identify patterns and trends that may indicate potential non-compliance or tax avoidance. This allows the tax authorities to take more effective preventive measures and target audits at high-risk areas.

In addition, the use of Big Data also makes it easier for the tax authorities to personalise their services and communications with taxpayers. With the data collected and analysed, the tax authorities can better understand the characteristics and needs of each taxpayer, so that they can provide more relevant and targeted education and information. This not only improves tax administration efficiency but also increases awareness and voluntary compliance among taxpayers.

Finally, Big Data helps to create greater transparency and accountability among both taxpayers and the government. With transparent data analysis, taxpayers can monitor their obligations in real-time and tax authorities can be more efficient in detecting and preventing tax fraud. This transparency builds trust between the

government and the public, which in turn encourages higher tax compliance and helps create a fairer and more effective taxation system.

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