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ECONOMY-WIDE IMPACTS OF AIRFARE VAT INCENTIVES IN INDONESIA: A SOCIAL ACCOUNTING MATRIX APPROACH

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ABSTRACT

Research Originality – Unlike previous studies relied on regression techniques, which are limited to capture the direct and indirect impacts across the entire economy, this study using the Social Accounting Matrix (SAM) in conjunction with Path Analysis approach to provide a more comprehensive analysis of the Government-borne VAT incentive on domestic airfare prices to captures economic-wide impacts on Wages, Gross Operating Surplus (GOS), Tax Revenue, and Gross Domestic Product (GDP).

Research Objectives This study aimed to evaluate the economic impact of the Government-borne VAT incentive on domestic airfare prices during the 2025 Eid al-Fitr period, particularly regarding effects on Wages, GOS, Tax Revenue, and GDP.

Research Methods – The SAM and Path Analysis were adopted to assess the impact of Government-borne VAT incentive on domestic airfare prices on Wages, GOS, Tax Revenue, and GDP.

Empirical Results – The findings showed that the policy increases Indonesia's GDP by approximately 0.27%–0.29%. Furthermore, Wages are projected to rise by 0.26%–0.28%, GOS by 0.29%–0.31%, and net Tax Revenues by 0.12%–0.13%, reflecting positive impacts across multiple economic indicators.

Implications – The results implied that the policy increased mobility during the Eid al-Fitr period and contributed positively to Indonesia's 2025 economic growth. For the Government, the policy could be extended to other major holidays, such as Eid al-Adha and Christmas, as well as implemented during periods of economic slowdown to support overall economic activity.

Keywords: VAT Incentive; Airfare; GDP; Path Analysis; SAM.

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INTRODUCTION

Eid al-Fitr is one of the most important religious occasions for Muslims around the world, including those in Indonesia. For many people, especially those living away from their hometowns, Eid al-Fitr is a special moment because it provides an opportunity to return home and reunite with their families. For this reason, migrant workers in Indonesia have a tradition of returning home, known as "mudik", which has become an integral part of Eid al-Fitr (Japarudin, 2023). As a result, Eid al-Fitr is not only a religious celebration but also a period marked by high population mobility and increased economic and social activities across regions.

Ministry of Transportation's survey show that the number of people traveling for Eid al-Fitr in Indonesia has increased from 2016 to 2024. In Figure 1, the number of travellers in Indonesia from 2016 to 2019 remained relatively stagnant. However, from 2020 to 2022, there was a decline due to government advisories discouraging travel because of the COVID-19 pandemic. From 2023 to 2024, there was a sharp increase, with the number of travellers nearly reaching 200 million people in 2024.

One of the modes of transportation used by travellers in Indonesia is the airplane. Traveling by plane for Eid al-Fitr offers many advantages, one of which is a shorter travel time. Safety is also an important

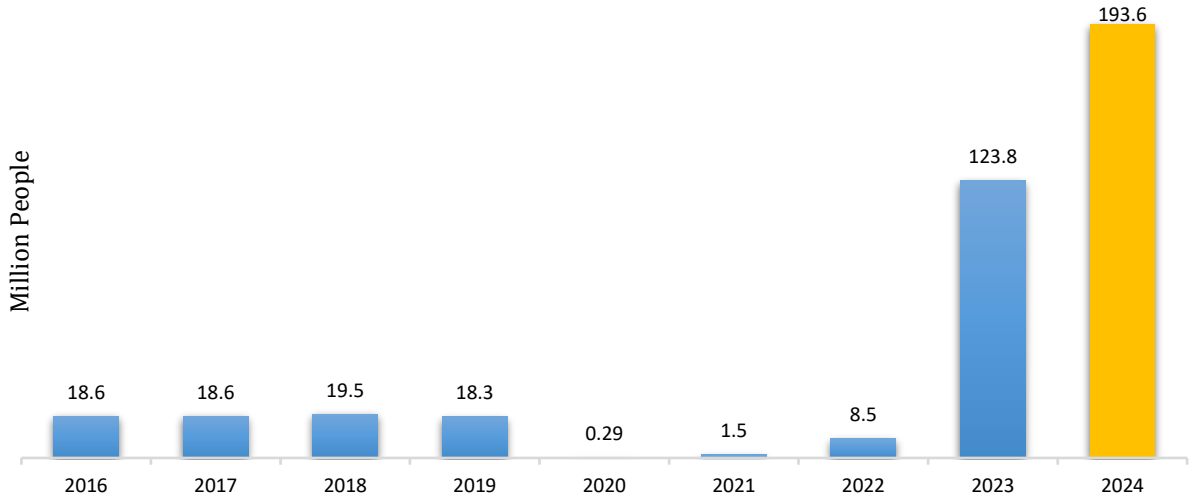
factor, as land travel often faces risks such as accidents or traffic jams. During the peak of the mudik season, traffic congestion can be severe, but flying can avoid these issues. This aligns with the research by Nurdjanah & Haidar (2023), which provides evidence that travellers who consider speed, punctuality, safety, and comfort are more likely to choose air travel over other modes of transportation. Furthermore, Narti et al. (2020) explains that air travel is one of the highest-priority modes of transportation for mudik travellers in Indonesia, and Yuliana et al. (2022) highlights that the increase in fleet size and flight frequency has successfully met the needs of travellers, making airplanes the primary choice for mudik.

APPLICATIONS FOR PRACTICE

- The policy of reducing domestic airfare prices during the 2025 Eid al-Fitr season can increase Indonesia's GDP by 0.27% to 0.29%.
- This study demonstrates that the fare reduction policy can raise wage levels in Indonesia by 0.26% to 0.28%, gross operating surplus by 0.29% to 0.31%, and net tax receipts by 0.12% to 0.13%.
- The government should implement similar airfare reduction policies during other major holidays, such as Eid al-Adha and Christmas, given their positive impact on the economy.
- A policy with a similar structure could also be applied if Indonesia experiences an economic slowdown in the future.

Although air travel offers many advantages compared to other modes of transportation, the cost of airline tickets is a major challenge for travellers, especially during the Eid al-Fitr season. During the peak mudik period, airfare can skyrocket due to high demand. This leads travellers with limited budgets to choose more affordable modes of transportation, such as buses or trains. While airplanes offer convenience and comfort, the high cost often makes many people think twice about choosing air travel, and most opt for land transportation instead. This aligns with the findings of Nurdjanah & Haidar (2023), who state that the likelihood of travellers using air travel is lower when they consider the cost-saving and affordable aspects compared to other modes of transportation. Narti et al. (2020) also mentioned that land transportation, such as buses, is the top priority for mudik travellers in Indonesia during the Eid al-Fitr season.

Figure 1 Number of Travelers in Indonesia 2016-2024



Source: Ministry of Transportation

The government should implement policies that can lower airfare prices, making air travel a more accessible option for everyone, especially for migrant workers who are far from their hometowns. One such policy the government could consider is regulating ticket prices and providing incentives to airlines, ensuring they do not exploit demand surges by raising prices excessively. This is supported by the recommendations of the research by Nurdjanah & Haidar (2023), which suggests that price adjustments are necessary for travellers wishing to use air travel, particularly for those from lower-income backgrounds who travel long distances from their hometowns. Yuliana et al. (2022) also provided the same recommendation, stating that the government should offer incentives such as reducing service fees and implementing a cap on maximum airfare prices for airlines.

In early March 2025, the Indonesian government announced a policy to reduce domestic airfare prices during the 2025 Eid al-Fitr travel period, resulting in a 13–14 percent reduction in domestic economy-class airfares (Ministry of Transportation, 2025). The Government introduced a partial VAT subsidy of 6% on

domestic economy-class airline tickets through Minister of Finance Regulation No. 18/2025 to reduce airfare costs during the 2025 Eid al-Fitr travel period, covering ticket purchases made between March 1 and April 7, 2025, for flights scheduled from March 24 to April 7, 2025 (Ministry of Finance, 2025). This VAT reduction facility is what will lower the prices of domestic economy class tickets by 13% - 14%.

Previous research discussing the impact of tax incentives on the economy in Indonesia includes a study by Sulastri & Kholis (2022), which found that providing tax incentives can increase people's purchasing power, which in turn boosts the overall economy of Indonesia. Indahsari & Fitriandi (2021) also stated that tax incentives can significantly provide a large multiplier effect on the economy. Aji & Haptari (2022) further supported the idea that tax incentives have a large multiplier effect on the national economy. Kartiko (2020) emphasized that tax incentives are one of the stimulate used to drive Indonesia's economy. Ahuja & Pandit (2020) and Gupta (2018) show that tax incentives that lead to government spending are capable of stimulating economic growth.

Considering the theory that the VAT incentive, in the form of a 13%-14% reduction in domestic airfare prices during the 2025 Eid al-Fitr season, can accelerate the economy, an evaluation is necessary to measure the impact of this policy on Indonesia's economy. Furthermore, the Government-borne VAT injection on domestic airfare prices not only affects the Transportation sector but also impacts other economic sectors, making it essential to include inter-sectoral transaction relationships in the evaluation of this policy. According to BPS (2024), the appropriate analytical tool used to provide a solid foundation for evaluating a policy, considering inter-sectoral transactions, is the Social Accounting Matrix (SAM).

So far, research on the impact of VAT incentives for domestic airfare prices on the national economy using the Social Accounting Matrix (SAM) table is still very limited . Therefore, the researcher is motivated to evaluate the impact of the VAT incentive policy on domestic airfare prices during the 2025 Eid al-Fitr season on the economy using the SAM table. The aim of this study is to evaluate the impact of this VAT incentive policy on Indonesia's economy.

LITERATURE REVIEW

Value Added Tax (VAT) is a tax imposed on the consumption of goods and services within the customs area, which is levied in stages at each stage of production and distribution. VAT is categorized as an indirect tax, meaning that it is collected by traders from consumers. More specifically, VAT is paid by consumers as the tax bearer to the traders, who are not the tax bearers to the government. Purnomo & Soerjatno (2021) provide a simple explanation of the VAT collection system. Process of collecting VAT begins when the taxable goods are handed over by the seller to the buyer during a transaction, while simultaneously collecting VAT from the buyer. The VAT collected by the seller is then remitted to the government according to the applicable regulations. If the seller does not collect VAT from the buyer, the seller will be fully responsible for the VAT; however, the responsibility for paying the VAT remains entirely with the buyer. Since the VAT is entirely the buyer's responsibility, this results in a decrease in the real consumption of the buyer. A reduction in the buyer's real consumption will lower their purchasing power, particularly for buyers with lower incomes who have a higher proportion of their expenditure allocated to basic needs (Kurnaini & Rahmawati, 2024).

Consumption is the act carried out by individuals to fulfil their needs by using goods and services. When someone wants to eat fast food, wear nice clothes, use cosmetics, go to the cinema, visit a doctor, and so on, these actions are all part of consumption. The consumption behaviour of individuals directly depends on their disposable income (Mankiw, 2015). Disposable income refers to the income available after taxes have been deducted. It includes salaries or other income received by individuals after income tax, other taxes, and other obligations have been deducted. The higher the disposable income, the larger the amount available for consumption of goods and services. When taxes increase, households' disposable income decreases, which in turn reduces consumption expenditures, and vice versa. Therefore, tax policies such as VAT have a direct impact on household consumption patterns in the economy. The explanation above can be summarized mathematically in the following equation (1):

$$C = c(Y - T) \quad \ldots (1)$$

Equation (1) above is referred to as the consumption function, which links household consumption with disposable income (income minus all taxes borne by the household). The higher the disposable income, the greater the level of household consumption will be. Together, all forms of consumption make up about two-thirds of Gross Domestic Product (Mankiw, 2015).

Gross Domestic Product (GDP) is the best measure used to assess the economic performance of a region over a specific period of time (Mankiw, 2015). GDP figures are calculated every three months by the Central Bureau of Statistics (BPS), from the district/city level to the national level. BPS (2025) explains that GDP is one of the macroeconomic indicators used to evaluate the economic performance of a country over

a specific period. The dynamics reflected in GDP indicators and their derivatives represent the economic conditions occurring within a given economy. GDP is calculated using three approaches, one of which is the expenditure approach. GDP according to the expenditure approach explains the use of goods and services produced by various economic activities to meet final consumption expenditures, capital formation, inventory changes, and exports and imports. Another way to calculate GDP is by using the production approach, which is the accumulation of Gross Value Added (BPS, 2025). Gross Value Added (GVA) is defined as the total output minus total intermediate consumption, reflecting the contribution of labour and capital in the production process (United Nations, 2009).

BPS (2025) explains that GVA consists of three main components: labour compensation, gross operating surplus, and net taxes (taxes minus subsidies). Labour compensation refers to the total payments, either in cash or goods, made by enterprises to workers in exchange for the work performed during the accounting period, based on accrual accounting (United Nations, 2009). Gross operating surplus is the value of the surplus obtained from production before deducting interest, rent, and other ownership income from financial assets, land, or other natural resources (United Nations, 2009). Net taxes are mandatory payments, in cash or goods, made by government institutional units that are non-reciprocal, after being adjusted for any subsidies (United Nations, 2009).

SAM is frequently used by policymakers, academics, and researchers to conduct simulations and evaluations of specific policies (Pardede, 2026). SAM format is presented in Table 1 below.

Table 1 Structure of the Social Accounting Matrix (SAM) for Indonesian

Classification of Accounts		Income Generation (Value Added)	Institutions	Production Sectors (Industries)	Commodities (Products)	Capital Account	Other Accounts
		1	2	3	4	5	6
Factor of Production (Value Added)	1			Value Added			Value Added from abroad
Institutions	2	Domestic Income	Inter-institutional Transactions				Transactions with Abroad
Production Sectors (Industries)	3				Output		
Commodities (Products	4		Final Demand	Intermediate Consumption		Non-financial Investment	Export
Capital Account	5		Saving			Domestic capital transfer	
Other Accounts	6		Transactions with foreign entities		Import	Net capital transfers to and from abroad	Net lending

Source: BPS-Statistics Indonesia (2024)

According to Table 1, it is shown that in row 1, column 3, there is an entry for added value. This entry represents the income derived from production factors, which come from the expenditures of the production sector (industry). Added value consists of three main components: labour compensation, business surplus, and taxes less subsidies. Labour compensation refers to the total payments made by enterprises in the form of money or goods to employees in exchange for the work performed during the balance period. This compensation is recorded on an accrual basis, measured by the value of payments made in money or goods, which employees are entitled to receive from employers based on the work completed during the period, whether paid in advance, concurrently, or after completion of the work.

Row 2 and column 1 is an entry for domestic income. This entry reflects the income received by institutions from the creation of income expenditures. Domestic income (net generated income) is derived from gross added value, plus labour compensation received from abroad, minus labour compensation paid to foreign countries. The amount of labour compensation received and paid abroad is obtained from the NIT 2022. The disaggregation of each element of added value by institution uses the structure of NIT 2022 and the structure of labour compensation received by households in the household survey.

Row 2 and column 2 is an entry for inter-institutional transactions. This entry represents the income received by institutions from their own expenditures. Inter-institutional transactions in the Social Accounting Matrix (SAM) refer to the flow of goods, services, and income between different sectors or

institutions in the economy, which are recorded in a table depicting the economic relationships within a region or country. In SAM, the institutions referred to include households, enterprises, government, the foreign sector, and other sectors such as banks or financial institutions. These transactions illustrate how resources, income, and expenditures move between sectors within the economy (Pardede, 2026).

Row 3 and column 4 is an entry for output. This entry represents the income from the production sector, derived from the expenditures on commodity products. Output refers to goods and services produced by establishments, excluding the value of goods and services used in activities where establishments disregard the risks of product use in production. The value of goods and services consumed by the same establishment is not included unless those goods and services are used for capital formation (fixed capital goods or inventory changes) or own final consumption (Pardede, 2026).

Row 4 and column 2 is an entry for final consumption. This entry represents the income from commodity products received from institutional expenditures. Final consumption expenditure is the use of goods or services (without further transformation through production) as reflected in row 4, column 3, which contains intermediate consumption. Intermediate consumption refers to the value of goods and services consumed as inputs in the production process, excluding fixed assets, where consumption is recorded as the consumption of capital goods. These goods or services can also change form or be completely used up in the production process (Pardede, 2026).

Row 4 and column 5 is an entry for non-financial investment. This entry represents the income from commodity products derived from capital balance expenditures. Non-financial investment includes the formation of gross fixed capital (GFCF) and changes in inventories. GFCF is the total value of acquisitions less disposals of fixed assets by producers during the balance period, plus expenditures on certain services that enhance the value of non-produced assets. Changes in inventories are defined as the value of inventory increases less the decreases in inventory, minus the loss in value of goods during the accounting period. Some of these acquisitions and disposals can be attributed as actual purchases or sales, while others reflect internal transactions within enterprises (Pardede, 2026).

Row 5 and column 2 is an entry for saving. Saving is basically the part of income that is left over. In economic accounts, it acts as a balancing item between income and spending. After disposable income (already adjusted, for example, for pension entitlements) is used for consumption of goods and services, whatever remains is called saving (United Nations, 2009). Row 5 and column 5 is an entry for Domestic Capital Transfer. A domestic capital transfer is a one-way transfer where something is given without a direct return. It usually involves giving up or receiving assets or giving up a financial claim (other than accounts receivable). The party receiving the transfer is expected to obtain an asset, and sometimes both sides are affected in these ways at the same time (United Nations, 2009).

The main analysis in the SAM model focuses on both direct and total (multiplier) effects, which are expressed in matrix form. The role of the multiplier matrix within the SAM framework is crucial, as it captures the full impact of changes in one sector on other sectors within the economy. It is also used to explain the effects occurring in one balance due to changes in another balance. Initially, a particular sector influences one or more other sectors. In subsequent rounds, the affected sectors then influence other sectors. This process continues in a series of rounds until a new equilibrium point is reached and referred to as the multiplier. The formulas to calculate the direct and total (multiplier) effects are presented in equations (2) and (3) below:

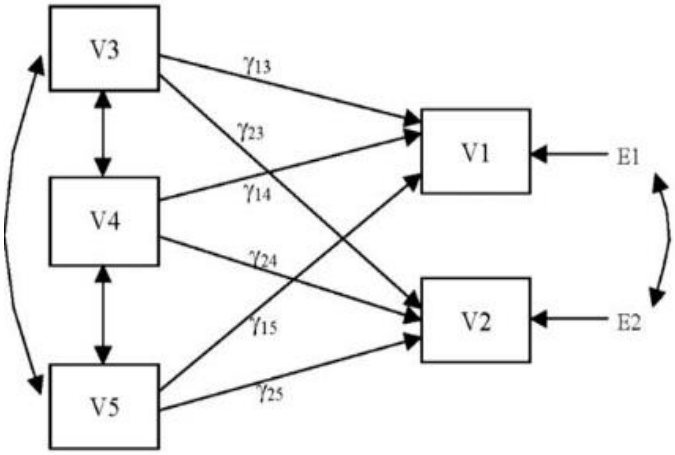
$$a_{ij} = \frac{z_{ij}}{y_j} \dots (2)$$

$$\mathrm{M_a} = (\mathrm{I} - \mathrm{A})^{-1} \dots (3)$$

where a_{ij} represents the direct effect from row i to column j, z_{ij} is the element of the SAM matrix at row i and column j, X_j is the input for the SAM matrix in column j, A is the matrix direct effects containing the elements a_{ij}, I I is the identity matrix of size i x i, dan $\mathrm{M_a}$ is the matrix representing the total effect or multiplier (Muljono, 2017). Furthermore, SAM analysis includes the calculation of both direct and total impact effects. To study the explanatory relationships between variables and calculate both direct and total effects, one of the methods used is Path Analysis (Raykov & Marcoulides, 2006).

Path analysis is an approach to modelling relationship between observed variables (Muljono, 2017). The explanatory variables are presumed to have no measurement errors, or any errors present are considered to be minimal. On the other hand, the dependent variables may have measurement errors, which are accounted for in the residual terms of the model equations. A distinctive feature of path analysis models is that they do not include latent variables. In its application, path analysis involves two types of influences: direct and indirect influences. Direct influence occurs when one variable directly affects another variable. In contrast, indirect influence takes place through intermediary variables that affect the relationship

Figure 2 Path Analysis Model



Source: Raykov & Marcoulides (2006)

between two other variables. Path analysis also calculates path coefficients, which indicate the strength of the relationship between these variables. Path analysis shows in Figure 2.

In Figure 2, three bidirectional arrows link all the independent variables, illustrating the relationships V3, V4, and V5. None of the independent variables contain measurement errors. However, the dependent variables are linked to residual terms that may include both measurement and prediction errors, which would be mixed within these terms. The curved bidirectional arrow connecting the residuals E1 and E2 represents the potential relationship between them, which is also considered in the model. It is important to note that allowing for the correlation of residual terms is a departure from the traditional path analysis approach. Therefore, the following relationships are assumed to occur simultaneously:

$$V_1 = \gamma_{13}V_3 + \gamma_{14}V_4 + \gamma_{15}V_5 + E_1$$
$$V_2 = \gamma_{23}V_3 + \gamma_{24}V_4 + \gamma_{25}V_5 + E_2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

In this context, γ_{13} to γ_{25} represent the six key parameters of interest, also known as path coefficients. These coefficients indicate the predictive strength, based on the specific metric used, of V3, V4, dan V5 on the two dependent variables (V1 dan V2). Additionally, in Equation 6, the variables E1 and E2 represent the residuals of the model equations, which, as mentioned earlier, may include measurement errors along with any influences on the relevant dependent variables that are not captured by the linear combination of their presumed predictors. When connected to the context of SAM, the coefficients γ_{13} to γ_{25} represent direct effects whose values are derived from equation (4). These effects form a chain, creating a pathway known as Structural Path Analysis (SPA). SPA is used to identify the influence pathways transmitted from one sector to another. By applying SPA to the SAM, it is possible to identify the pathways through which a specific influence is transmitted (Pardede, 2026).

METHODS

This research is a quantitative study aimed at examining the relationships between the SAM with path analysis. The research design approach used is a quantitative descriptive and explanatory design to identify the direct effects of interactions between the SAM balances when an injection is applied through path analysis. The population and sample for this study are all components of the SAM within the Indonesian economic system for the year 2022, assuming that the economic conditions of Indonesia in 2025 will not differ significantly from those of 2022, given that the SAM table is published every 5 to 6 years. SAM tables assumes that the economic structure remains relatively stable over the next 5–6 years, which is supported by BPS data showing that Indonesia's economic growth from 2022 through the second quarter of 2025 has remained relatively stable, even though some shifts in the economy may occur. Data collection was carried out by downloading the SAM table data from the BPS Indonesia website.

The analysis begins by estimating the direct effects between SAM balances using matrix A, followed by introducing a policy shock in the form of a 13% to 14% reduction in domestic airfare prices supported by a 6% government borne VAT incentive to assess its impact on GDP through path analysis. The transmission starts from increased household demand for flight tickets, which boosts output in the transportation sector and spreads across all sectors of the economy. This expansion then raises production factors such as Wages, GOS, and Net Taxes revenue, which ultimately contribute to the growth of GDP.

RESULT AND DISCUSSION

In the initial step, the direct effects of each pathway adopted to explain the impact of the 13%-14% reduction in domestic flight ticket prices were determined, and the results are presented in Table 2. The first pathway includes the impact of the Household sector on the Transportation sector. Meanwhile, the second reflected the influence of Transportation on related sectors within the same domain.

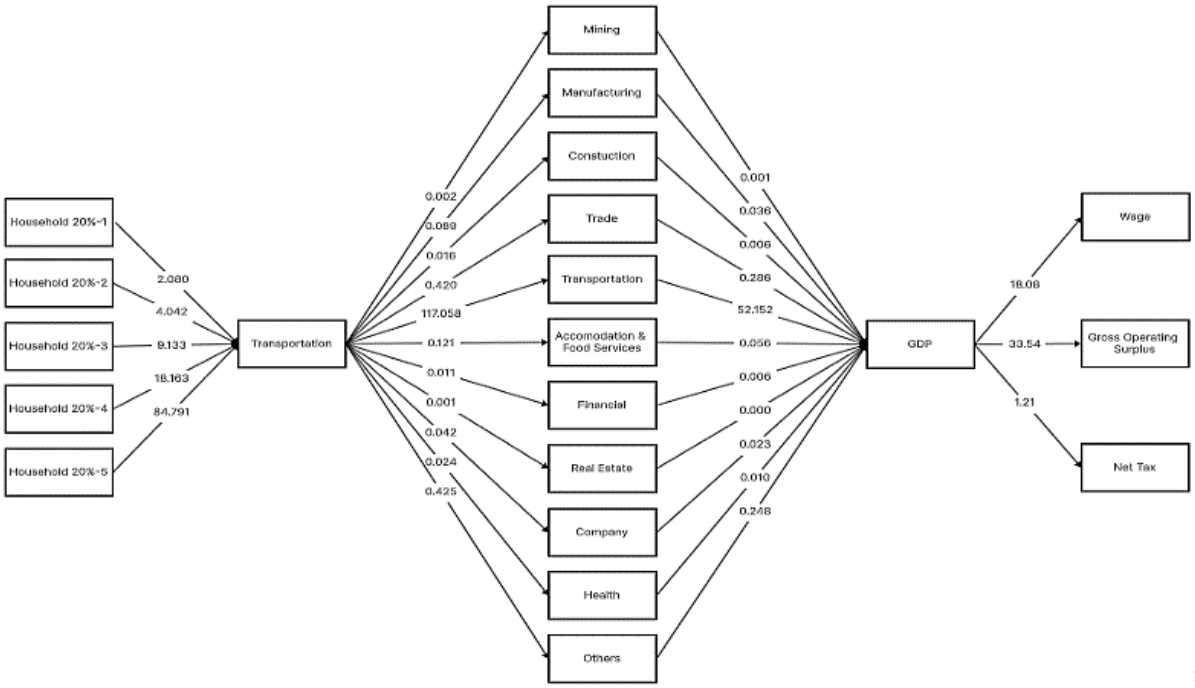
Table 2 Direct Effects SAM

Path	Expenditure	Revenue	Direct Effects
1.	Household 20%-1	Transportation	0.01204
	Household 20%-2		0.01065
	Household 20%-3		0.01264
	Household 20%-4		0.01694
	Household 20%-5		0.03792
2.	Transportation	Mines	0.00002
		Manufacturing	0.00075
		Constructions	0.00014
		Trade	0.00355
		Transportation	0.99027
		Accommodation & Food Services	0.00103
		Finance	0.00009
		Real Estate	0.00001
		Company	0.00035
		Health	0.00020
		Other	0.00359
3a.	Mines	Wage	0.13182
	Manufacturing		0.09920
	Constructions		0.16702
	Trade		0.28814
	Transportation		0.15188
	Accommodation & Food Services		0.19724
	Finance		0.15808
	Real Estate		0.05552
	Company		0.22088
	Health		0.23823
	Other		0.28944
3b.	Mines	Gross Operating Surplus	0.48140
	Manufacturing		0.23469
	Constructions		0.19501
	Trade		0.38719
	Transportation		0.28346
	Accommodation & Food Services		0.22328
	Finance		0.43280
	Real Estate		0.63074
	Company		0.33017
	Health		0.19589
	Other		0.28256
3c.	Mines	Net Taxes	0.01371
	Manufacturing		0.06890
	Constructions		0.02658
	Trade		0.00589
	Transportation		0.01018
	Accommodation & Food Services		0.03873
	Finance		0.02332
	Real Estate		0.04052
	Company		0.01385
	Health		0.00422
	Other		0.01197

Source: Processed by the author

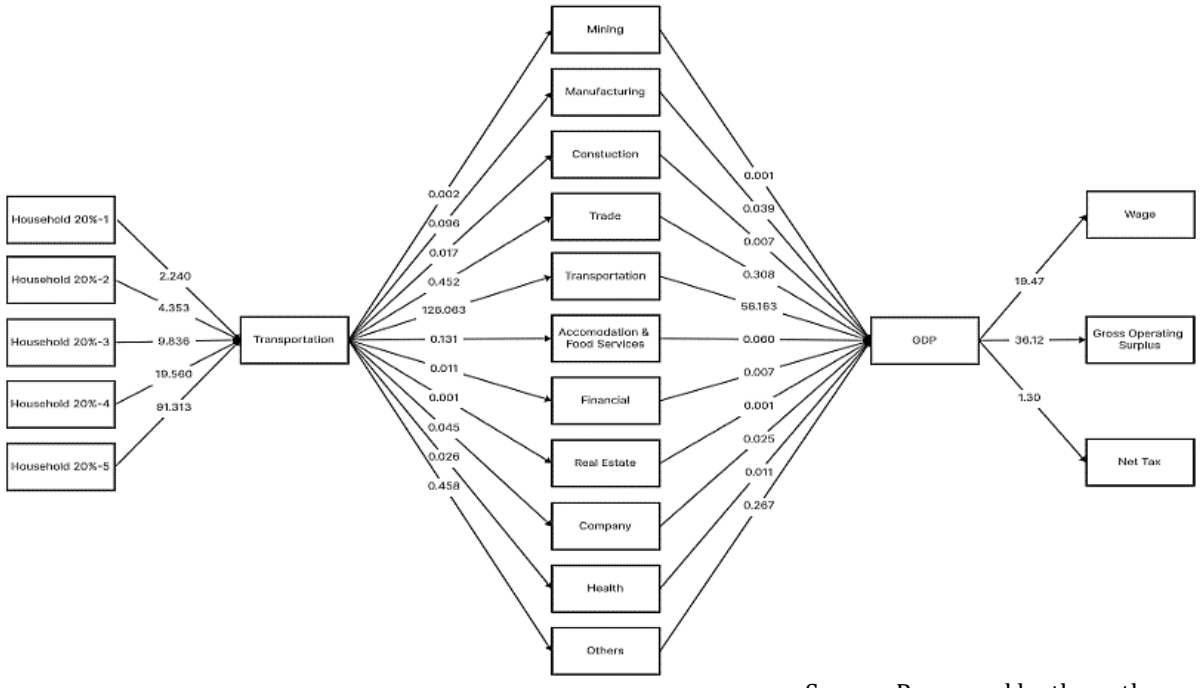
The next step was the creation of pathways by incorporating the injection of a 13%-14% reduction in domestic flight ticket prices into the analysis using direct effects, as shown in Table 2. The results are presented in Figures 3 and Figure 4.

Figure 3 Path Analysis Injection of a 13% Reduction in Domestic Flight Ticket Prices



Source: Processed by the author

Figure 4 Path Analysis Injection of a 14% Reduction in Domestic Flight Ticket Prices



Source: Processed by the author

The next step is to calculate the increase in GDP growth, based on wages, gross operating surplus, and net taxes. The results are presented in Table 3.

Table 3 Growth of Gross Value-Added Components

Component of GVA	Growth	
	A 13% Reduction in Ticket Prices	A 14% Reduction in Ticket Prices
Wage	0.26%	0.28%
Gross Operating Surplus	0.29%	0.31%
Net Taxes	0.12%	0.13%
GDP	0.27%	0.29%

Source: Processed by the author

The discussion begins with the results presented in Table 2. Table 2 shows the direct effects between the accounts derived from the technical coefficient matrix of the SAM table. In Path 1, the direct effect of the Household Institution on the Transportation sector is presented as a result of the increased demand from households due to the reduction in domestic flight ticket prices. The direct effect of household expenditures on the receipts of the Transportation sector, starting from households with incomes in the bottom 20% to those in the top 20%, is 1.20%, 1.06%, 1.26%, 1.69%, and 3.79%, respectively. This means that households across various income groups in Indonesia allocate 1.20%, 1.06%, 1.26%, 1.69%, and 3.79% of their total expenditures to purchase commodities from the domestic Transportation sector, including purchasing domestic flight tickets.

In Path 2, direct effect of the Transportation sector on the codomain economic sectors is presented. This path indicates that the increased demand for commodities from the Transportation sector will certainly boost demand for inputs from other codomain sectors. The direct effects from the Transportation sector to codomain sectors such as Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services are 0.002%, 0.075%, 0.014%, 0.355%, 99.027%, 0.103%, 0.009%, 0.001%, 0.035%, 0.020%, and 0.359%, respectively. This means that to produce 1 unit of output in the Transportation sector, inputs are needed from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors in the proportions of 0.002%, 0.075%, 0.014%, 0.355%, 99.027%, 0.103%, 0.009%, 0.001%, 0.035%, 0.020%, and 0.359%.

In Path 3a, the direct effect of the codomain sectors of the Transportation sector on the compensation of labour is presented. This path indicates that the increased use of inputs from these codomain sectors will result in a higher demand for labour, leading to increased wage levels. The direct effects from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors on labour compensation in Indonesia are 13.18%, 9.92%, 16.70%, 28.81%, 15.19%, 19.72%, 15.81%, 5.55%, 22.09%, 23.82%, and 28.94%, respectively. This means that the total labour compensation in Indonesia originating from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors is 13.18%, 9.92%, 16.70%, 28.81%, 15.19%, 19.72%, 15.81%, 5.55%, 22.09%, 23.82%, and 28.94%, respectively.

In Path 3b, the direct effect of the codomain sectors of the Transportation sector on the gross operating surplus is presented. This path indicates that the increased use of inputs from these codomain sectors will raise the output produced and simultaneously increase the gross surplus. The direct effects from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors on the gross operating surplus in Indonesia are 48.14%, 23.47%, 19.50%, 38.72%, 28.35%, 22.33%, 43.28%, 63.07%, 33.02%, 19.59%, and 28.26%, respectively. This means that the composition of the total gross operating surplus in Indonesia coming from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors is 48.14%, 23.47%, 19.50%, 38.72%, 28.35%, 22.33%, 43.28%, 63.07%, 33.02%, 19.59%, and 28.26%, respectively.

In Path 3c, the direct effect of the codomain sectors of the Transportation sector on net taxes is presented. This path indicates that the increased use of inputs from these codomain sectors will boost net tax receipts in Indonesia. The direct effects from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors on net taxes in Indonesia are 1.37%, 6.89%, 2.66%, 0.59%, 1.02%, 3.87%, 2.33%, 4.05%, 1.38%, 0.42%, and 1.20%, respectively. This means that the composition of total net tax receipts in Indonesia originating from the Mining, Manufacturing, Construction, Trade, Transportation, Accommodation & Food Services, Financial Services, Real Estate, Business Services, Health Services, and Other Services sectors is 1.37%, 6.89%, 2.66%, 0.59%, 1.02%, 3.87%, 2.33%, 4.05%, 1.38%, 0.42%, and 1.20%, respectively.

The following discussion will focus on the results presented in Figure 4 and 5. In Path 1, when domestic flight ticket prices decrease by 13%-14%, the total demand from household institutions for the transportation sector ranges from IDR 118.21 trillion to IDR 127.30 trillion. Breaking this down, demand from the lowest 20% of household income for the transportation sector will increase by IDR 2.08 trillion to IDR 2.24 trillion; demand from the second 20% will rise by IDR 4.04 trillion to IDR 4.35 trillion; demand from the third 20% will increase by IDR 9.13 trillion to IDR 9.84 trillion; demand from the fourth 20% will increase by IDR 18.16 trillion to IDR 19.56 trillion; and demand from the top 20% of household income will increase by IDR 84.79 trillion to IDR 91.31 trillion. These findings are consistent with the study by Perera

& Tan (2019) which shows that the price elasticity of demand in the air transport sector is elastic whereby when airfares decrease by 1%, the average demand for air travel increases by more than 1%. Another study by Sianturi et al. (2022) that explains that the event reduced the ridership by 7.4 per cent, implying price inelastic demand to a 100 per cent price increase.

In Path 2, it is explained that when the demand for the transportation sector rises due to the drop in flight ticket prices, it will, of course, increase the entire economy's output in the relevant sectors, which will range from IDR 118.21 trillion to IDR 127.30 trillion. Breaking it down, the increase in demand for the transportation sector of IDR 118.21 trillion to IDR 127.30 trillion will boost the output of the mining sector by IDR 2.12 billion to IDR 2.28 billion, the output of the industrial sector by IDR 88.96 million to IDR 95.80 million, the output of the construction sector by IDR 16.09 million to IDR 17.33 million, the output of the trade sector by IDR 420.01 million to IDR 452.32 million, the output of the transportation sector by IDR 117.06 trillion to IDR 126.06 trillion, the output of the accommodation and food and beverage sector by IDR 121.39 million to IDR 130.73 million, the output of the financial services sector by IDR 10.53 million to IDR 11.34 million, the output of the real estate sector by IDR 0.67 million to IDR 0.72 million, the output of the corporate services sector by IDR 41.54 million to IDR 44.74 million, the output of the healthcare sector by IDR 23.69 million to IDR 25.51 million, and the output of other services by IDR 424.85 million to IDR 457.53 million.

The increase in demand for the transportation sector will boost the output of the mining sector consistent with the study by Dolganova et al. (2022) which explain that aircraft manufacturing, particularly in engines, wings, and fuselage, relies heavily on various metals such as aluminium, titanium, tantalum, molybdenum, and tin. These materials are essential inputs in the aviation sector, though some of them also pose scarcity and environmental challenges. Therefore, the aircraft transport sector requires a continuous supply of metals and alloys, especially aluminium and steel, while rare metals like tantalum, tungsten, and niobium are critical for engine production. The growing demand for titanium reflects the aviation sector's need for lighter, fuel-efficient aircraft, showing its strong dependence on mining products. Therefore, when public demand for air transportation increases, the output from the mining sector also rises.

The increase in demand for the transportation sector will boost the output of the industrial sector consistent with study by Zuo & Chen (2024) which show that investment in air transport generates considerable spill-over effects in downstream industries, including manufacturing and services and increase regional productivity. The increase in demand for the transportation sector will boost the output of the construction sector consistent with studies by Zuo & Chen (2024) and Njoya & Ragab (2022) which show that airport construction not only stimulates local entrepreneurial opportunities and economic activity but also induces broader spill-over effects such as GDP growth, employment, and investment across related sectors including construction. Furthermore, this study consistent with study by Njoya & Ragab (2022) which indicates that increased public demand in air transport is expected to boost output in the air transport sector and generate spill-over effects across oil-intensive industries, agriculture, information and communication, real estate, financial and insurance services, administrative and support services.

Next, in Path 3, it is explained that the increase in the output of the economy's codomain sectors from the transportation sector, due to the 13%-14% reduction in domestic flight ticket prices, will raise Indonesia's GDP by IDR 52.82 trillion to IDR 56.89 trillion. Breaking it down, the GDP of the mining sector will rise by IDR 1.33 billion to IDR 1.43 billion, the GDP of the manufacturing sector will increase by IDR 35.83 billion to IDR 38.59 billion, the GDP of the construction sector will rise by IDR 6.25 billion to IDR 6.72 billion, the GDP of the trade sector will increase by IDR 286.11 billion to IDR 308.12 billion, the GDP of the transportation sector will increase by IDR 52.15 trillion to IDR 56.16 trillion, the GDP of the accommodation and food services sector will rise by IDR 55.75 billion to IDR 60.04 billion, the GDP of the financial services sector will increase by IDR 6.46 billion to IDR 6.96 billion, the GDP of the real estate sector will rise by IDR 0.48 billion to IDR 0.52 billion, the GDP of the corporate services sector will increase by IDR 23.47 billion to IDR 25.27 billion, the GDP of the healthcare sector will rise by IDR 10.38 billion to IDR 11.18 billion, and the GDP of other services will increase by IDR 248.09 billion to IDR 267.18 billion. When calculated as a percentage, the 13%-14% reduction in domestic flight ticket prices during Eid al-Fitr mudik will raise Indonesia's GDP by 0.27% to 0.29%. This result consistent with study by Njoya & Ragab (2022) which shows that with CGE simulation show expanding demand public air transport induces modest growth in GDP. Another study consistent with these findings is by Nguyen (2024) and Rai & Raju (2025) which show that air transport contributes positively and significantly to economic growth.

Lastly, Path 4 explains the impact on the components of GDP, such as wages, gross operating surplus, and net taxes. The 13%-14% reduction in domestic flight ticket prices during the 2025 Eid al-Fitr mudik will ultimately increase total wages by IDR 18.08 trillion to IDR 19.47 trillion, total gross operating surplus by IDR 33.54 trillion to IDR 36.12 trillion, and total net tax revenue by IDR 1.21 trillion to IDR 1.30 trillion. In percentage terms, wages will increase by 0.26% to 0.28%, gross operating surplus will rise by 0.29% to

0.31%, and net taxes will increase by 0.12% to 0.13%. This result consistent with study by Njoya & Ragab (2022) increase in the stock of air capital would lead to increase aggregate wage rate.

CONCLUSION

In conclusion, the policy of reducing domestic flight ticket prices during the Eid al-Fitr holiday season in Indonesia by 13%-14% increased the economy by 0.27% to 0.29%. This reduction accelerated GDP growth across almost all sectors in the country, leading to an increase in Gross Value Added (GVA). If broken down, wages in Indonesia will rise by 0.26% to 0.28%, Gross Operating Surplus (GOS) will increase by 0.29% to 0.31%, and net tax receipts will rise by 0.12% to 0.13%. This study implies that this policy not only increases public mobility and the performance of the transportation sector, but also generates multiplier effects on related economic sectors, which ultimately accelerate overall economic growth. Based on these findings, the Government, particularly the Ministry of Finance and the Ministry of Transportation, may consider implementing similar policies in the future, not only during Eid al-Fitr but also during Eid al-Adha and the Christmas New Year holiday period. A similar policy could also be adopted as a short-term economic stimulus measure if the national economy experiences a slowdown in the future, with the aim of stimulating domestic consumption and supporting economic recovery. In its implementation, the Government should also establish objective mechanisms and evaluation tools to ensure that the economic benefits generated by this policy are maximized without compromising fiscal sustainability and the operational viability of the aviation industry.

This study is limited by the use of the 2022 Social Accounting Matrix (SAM), as the latest SAM released by the Central Bureau of Statistics was the 2022 edition and has not been updated up to the period of this research. Consequently, this analysis assumes that the structure of the Indonesian economy in 2025 does not differ significantly from that of 2022. As a result, these findings should be interpreted with caution because the analysis may not fully reflect the economic dynamics and structural changes that have occurred by 2025. Future studies are encouraged to use an updated SAM if the Central Bureau of Statistics releases a newer version to evaluate the impacts of similar policies or other government interventions more accurately and in line with current economic conditions.

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