

ASSESSING THE DISTRIBUTIONAL IMPLICATION OF VAT EXEMPTIONS OF EDUCATION AND HEALTH SECTORS

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ABSTRACT

The tax revenues are still the primary state revenue sources in Indonesia. With the declining trend of corporate taxes, the challenge of increasing other taxes becomes even more severe, including Value Added Tax (VAT). The main change in the VAT provisions in the Law on the Harmonization of Tax Regulations is broadening the VAT basis. Among others are education and health services. This study aims to determine the effect of that policy combined with hypothetical reform on spending. Using *micro simulation* method and Susana's data for March 2019, this study estimates that the imposition of VAT increases poverty and reduces the relatively small income level for consumption. In general, it estimates that the imposition of VAT in Indonesia will increase poverty, although it can reduce inequality. When receiving cash transfers, poverty and inequality decreased relatively small. These results imply that the fiscal policy of providing direct cash transfers is moderately effective in reducing poverty but not inequality.

Keywords: *VAT; direct cash transfer; micro simulation.*

A. INTRODUCTION

The tax ratio in many developing countries tends to be stagnant, including Indonesia. In 2018, Indonesia's tax ratio only reached 11, 4% of Gross Domestic Product (GDP). But in 2019 and 2020, a tax ratio decline becomes 10, 70% and 8, 91%, respectively (Annual Report GDT). However, tax revenues are still the primary state revenue sources in Indonesia. Low tax revenue is a significant challenge in many developing countries (Basri et al., 2020). Indonesia is also experiencing the same challenges in achieving its revenue target, as seen from the historical tax revenue target in 2009. Macro-fiscal developments from 1998 to 2019 show that tax revenues fluctuated according to macroeconomic dynamics (KEMPKF, 2021). In addition to achieving the target, revenue growth is essential to the Directorate General of Taxes (DGT) performance. With the declining trend of corporate taxes, the challenge of increasing other taxes becomes even more severe, including Value Added Tax (VAT).

As a part of the tax structure in Indonesia, Value Added Tax (VAT) is generally not well-known as a tax on value-added but rather a tax on the

consumption of goods or services subject to VAT. This tax is charged at all stages of production, but with specific mechanisms, companies can deduct the VAT paid on the purchase of goods for their production inputs with the VAT collected from the buyer (Ebrill et al., 2001). VAT in Indonesia is levied at the same rate of 10% before the 2021 Harmonization of Taxation Regulations (*UU HPP*). One of its constituent parts is consumption. Changes in VAT revenue are driven by consumption patterns (Sancak et al., 2021).

Consumption is the largest share of Indonesia's Gross Domestic Product (GDP). When GDP increases, VAT should also increase (Baunsgaard & Keen, 2010). Compared to other countries, especially in Southeast Asia, VAT exemptions in Indonesia are among the most numerous, so there are fewer VAT objects. For example, Singapore is countries where the basis for imposition is quite broad, including educational services, which are also subject to VAT. Another country in Asia that imposes VAT on the education sector is Tajikistan. Meanwhile, in the health sector, Philippine and Uruguay are some countries that levy VAT on that sector. As we know, these services in Indonesia were excluded before the *HPP* Law was enacted.

The government needs to pick up the tax reform plan effectively. The reform plan is to simplify the VAT system, such as narrowing down exemptions/negative lists, but it needs a careful examination of the distributional impact. With the *HPP* Law, broadening the VAT base can increase its revenue. The efficiency of VAT can depend primarily on whether the basis for imposition is broad, including all forms of consumption, and whether its administration is also carried out efficiently (Arnold, 2012). However, developing country like Indonesia often faces a political economy dilemma. That's why, despite the new clauses dropping some services sectors from the exemption list in the new Law, there is a specific condition based on article 16B. This article reinstates them as strategic items so that they may still not be collected or released for a certain period if there is a specific purpose under certain conditions. In this study, we consider if the article does not exist or if all share of expenditure in the education and health sector is taxed based on survey data.

Health and education services are not clearly defined in the *HPP* Law, only using the term covering so that the types of services subject to VAT are widely open. Based on the Ministry of Health data, the number of private hospitals in Indonesia in 2019 was 1,787 (64%) out of 2,813 hospitals. More hospitals (public or private) offer VVIP (very very important person) services. It shows that the demand for these services in the health sector is still high. Education in the State Budget (*APBN*) has 20% and is a priority sector. But on the other side, the number of private schools is also increasing. Based on data from the Central Statistics Agency (*BPS*) for 2019/2020 for junior and secondary school levels, the proportion of private schools is higher at 57% and 66%, respectively. It does not include educational services outside of school, taking various forms. From this, it can be seen that the demand for the health and education sector with more good quality is still increasing.

The developing country government often argues that education and health tax exemption is justifiable to help the lower-income group afford these services.

VAT became the feature of developing countries' VAT system for redistribution with that exemption and was discussed theoretically (Keen, 2014). But when there is still a lot of demand from the private side, higher-income people can still afford education and health services. If the government cannot provide public services optimally, the private sector can offer them. However, these services from the private sector, including health services and education, have relatively higher costs than public services. Of course, this difference is accompanied by differences in service quality. Individuals who choose to use private services from these two sectors tend to be economically able to make payments and, of course, more money they have.

On the other hand, the existence of VAT exemptions for education and health services widens the range of variations in costs for using these services. Service providers are increasingly free to charge service fees without imposing the VAT. Moreover, with such a wide range of people's economic capabilities in Indonesia. This range causes the poor and the rich to receive different services in terms of quality and quantity. The government's role as a policymaker aims to realize the interests of the general public (Purwanto & Septycasari, 2022). The imposition of VAT on education and health services for wealthier people can be an option in making fiscal policy. Additional revenue through VAT received can be used to increase the quality and quantity of education and health for people with low incomes.

Inequality and poverty are some of the problems that Indonesia still faces. The government has provided social assistance programs such as direct cash transfers to reduce this condition. Cash transfer and in-kind benefits significantly reduced income inequality (Nugraha & Lewis, 2013; Yusuf, 2013). One of the sources of funding for this program is tax revenue. The more tax revenue, the easier the government's efforts to reduce inequality and poverty. One way to distribute income and reduce poverty is through taxes and public spending (Gasparini & Pinto, 2006). By reducing objects not subject to VAT or negative list, the potential for additional VAT revenues will be easier to get. VAT is also considered regressive because it is charged the same rate for consumers with different income levels. The challenge is to design a tax system that keeps interested- and growth-reducing distortions to a minimum while achieving the desired revenue and social objectives (Arnold, 2012).

We want to conduct a study that aims to assess the effect of the imposition of VAT on inequality and poverty in Indonesia. We focus on the current application of VAT and what if the imposition is carried out in the education and health sectors. This research will contribute through two things. First, this study will be the first to use micro simulation in conducting research to project when VAT is imposed on health and education services and if the proceeds are used to finance social protection programs. Second, this study tries to add literature to evaluate existing tax policies and input for future policy formulation. This study will use the *micro simulation* method from the Commitment to Equity (CEQ) Institute at Tulane University.

B. LITERATURE REVIEW

Literature Study

The previous research that became the primary reference was the research conducted by Warwick et al. (2022), which used several countries included in the group of developing countries. The findings are fascinating because it turns out that the existing VAT system can indeed reduce poverty and inequality but is relatively impartial to the poor. And when the simulation is carried out, it is known that there is a more significant reduction in inequality and poverty and provides more benefits for poorer households.

Research using the CEQ Assessment has been carried out in several developing countries. Among these were carried out by Lustig & Higgins (2013), Jouini et al. (2018), Jellema et al. (2017), Enami et al. (2019), Rossignolo (2018), Higgins & Pereira (2014), and Martinez-Aguilar et al., (2017). Fiscal policy unquestionably reduces income inequality and significantly impacts inequality (Lustig & Higgins, 2013; Rossignolo, 2018). The transfer is generally more effective in reducing inequality than taxes that raise revenue (Enami et al., 2019). For poverty, fiscal policy does not always reduce the percentage of poor individuals (Rossignolo, 2018). Indirect taxes can increase poverty (Rossignolo, 2018; Enami et al., 2019; Higgins & Pereira, 2014; Martinez-Aguilar et al., 2017). Indirect taxes can also balance the progressive effects of direct taxes and direct transfers (Martinez-Aguilar et al., 2017; Jouini et al., 2018).

Many studies in Indonesia have analyzed fiscal policy on income distribution. Some of them were carried out by Nugraha & Lewis (2013) and Jellema et al. (2017). Using Susana's data, Jellema et al. (2017) use CEQ *micro simulation* to assess the government policy impact of several fiscal policies. This study found that taxes and cash transfers caused 40% of the poor. However, this figure decreased with the provision of in-kind transfers. In general, fiscal policy can reduce inequality and poverty relatively modest. Like Jellema et al. (2017), Nugraha & Lewis (2013) evaluate several fiscal policies to determine whether they provide benefits or even losses to poor households, but with different results. With the conventional method and the benefit approach, it was found that non-market income contributed significantly to reducing income inequality in cash transfers and in-kind benefits.

Fiscal Policy in Indonesia

The object of the imposition of VAT in Indonesia is the consumption by individuals and business entities, following the consumption-based principle. This imposition is similar to most other countries that apply VAT in their taxation system. However, some articles regulate goods and services that do not object to tax in their provisions, namely in Article 4A of the *Undang-Undang Nomor 8 Tahun 1983* concerning Value Added Tax and/or Sales of Luxury Goods revised with the *Undang-Undang Nomor 42 Tahun 2009*. So that other than those included in the list can be subject to PPN. In other words, this article regulates the negative list. The negative list is a list of goods and services exempt from VAT. The exemption in the Indonesian VAT regime is one of the forms of facilities provided. The others are taxable but not collected, the free of the taxable object, and the imposition of a 0% tariff. Those facilities regulate the different provisions

according to the objectives of each policy. The goals are to provide legal certainty and justice and support national interests and programs.

The provision of these VAT facilities is one factor in which VAT revenue is less optimal. In Indonesia, the primary way to increase acceptance is to reduce the number of exemptions and increase compliance (Arnold, 2012). While on the other hand, it is necessary to ask whether this exemption has been right on target under the original purpose of the exemption provision. Since the enactment of the *HPP* Law, there have been significant changes in the imposition of tax objects, namely changes in the imposition of some exempt goods and services. For non-VAT-able goods, there were four types into two types. While non-VAT-able services, which previously had seventeen types, became six types. Among the services issued from the non-VAT type are health and education services.

Fiscal policy is a policy used by the government related to revenues and expenditures. According to Dornbusch et al. (2011), fiscal policy is a policy taken by the government associated with government spending and transfers and the tax structure. Meanwhile, Romer (2016) said that fiscal policy concerns the overall levels and broad composition of taxes and government spending and their effect on the aggregate economy. So, in general, this policy is used to achieve government goals such as reducing poverty, inequality and increasing growth. The instruments of this policy are state revenues (including taxes therein), state expenditures, and financing. The functions of fiscal policy generally can be grouped into authority, planning, monitoring, allocation, distribution, and stabilization. This study will focus on the distribution function through state revenue instruments in VAT and state expenditures to provide social assistance, namely direct transfers and indirect subsidies.

Fiscal incident analysis is an incident used to analyze fiscal policy using state revenue instruments: taxes and government spending, one of which is spending on social assistance. Fiscal incident analysis determines who benefits from government transfers and bears the tax burden. Taxes have an essential role as a source of revenue which will then be redistributed for distribution purposes under state objectives through budgeting in the State Revenue and Expenditure Budget (*APBN*). The goals of all of the study tax systems have been obvious: to achieve distributional equity, reduce economic distortions, promote economic growth, simplify taxes, generate additional revenues, and even improve the political acceptability of the tax system (Alm, 2019). This analysis uses additional revenue from VAT imposition on the education and health sector to finance social assistance, namely cash transfers.

Fiscal policy affects income distribution between households and individuals through taxes and spending. This distribution can have an impact on economic growth and macroeconomic stability. Regarding taxation, the individual who bears the tax burden (economic incidence) differs from those legally responsible for paying taxes to the tax authorities (statutory incidence). Meanwhile, for expenditures related to public spending in the form of direct transfers and indirect subsidies, the benefits will vary between household types and socioeconomic conditions. This difference will make an incidence analysis for each fiscal intervention that will help determine whether each intervention will

have a progressive or redistributive effect. In addition, the combination of interventions will provide a broader picture of the impact of fiscal policy on distribution and redistribution efficiency. Fiscal redistribution is the fundamental equation that links the redistributive effect, which is the difference between post-fiscal and pre-fiscal income inequality (Lustig, 2018). This thesis will concern income levels as a measurement of post-fiscal and pre-fiscal income depending on the fiscal policy imposed.

As part of tax revenue, VAT still has the potential to be increased if it sees so many exemptions that apply. Since the *UU HPP* was enacted in 2021, there have been significant changes. These changes include pulling out several goods and services from the negative list of VAT imposition and an increase in the tax rate to 11%. There are two types of services issued: education services and health services. We only focus on broadening these two sectors, which will be used as simulations to determine how they impact poverty, inequality, and VAT application progressivity without changing the tax rate.

Regarding government spending, the incidence of fiscal analysis used is expenditure for transfers (direct transfers) and benefits (indirect subsidies). Direct transfer in the form of Prosperous Family Program (*Program Keluarga Harapan/PKH*), the Smart Indonesia Program (*Program Indonesia Pintar/PIP*), and the and Non-Cash Food Assistance (*Bantuan Pangan Non Tunai/BPNT*). Meanwhile, indirect subsidies are energy subsidies for electricity, fuel oil (*Bahan Bakar Minyak/BBM*), and liquefied petroleum gas (LPG). We used the nominal for each program based on the rules at year 2019. To simulate hypothetical reform on the spending side, it will focus on providing direct transfers in additional *PKH* nominal and Conditional Cash Transfers (CCT) for poor people.

Inequality and poverty are universal problems in many developing countries, including Indonesia. These two things are also part of the goals of the Sustainable Development Goals (SDGs), which are action plans agreed upon by world leaders, including Indonesia, to end poverty, reduce inequality and protect the environment. The SDGs consist of 17 and 169 targets expected to be achieved by 2030. In 2020, the inequality score showed the lowest compared to other goal scores. The inequality merits attention in the form of policy interventions to ensure that high or rising inequality does not reach extremities that hinder economic growth and/or more substantial poverty reduction (UNDP, 2015). Poverty and inequality conditions also worsened when the COVID-19 pandemic hit. One of the crucial keys to achieving SDG goals is the ability of fiscal resources to provide social protection.

C. METHOD

Research Model

Micro simulation is one kind of research method that is used to simulate a policy. *Micro simulation* uses micro data about individuals, households, or companies to analyze the impact of socioeconomic changes on each of these data units (Weeks et al., 2000). To determine the effect of a policy, we can compare it before and after a policy is implemented. This research method is called ex-post research. It requires the enactment of a policy applied to determine its effect.

Meanwhile, the *micro simulation* method can provide ex-ante research before a policy is enacted so that the expected goals of a policy can be achieved optimally. *Micro simulation* techniques have become relevant for applied economic policy analysis (Bourguignon & Spadaro, 2006).

The *micro simulation* that will be used refers to the handbook made by the Commitment to Equity (CEQ) Institute at Tulane University. The CEQ assessment is a diagnostic tool that uses fiscal incident analysis to determine which fiscal policy impacts can reduce inequality and poverty. This method uses income before and after fiscal policy to determine its effects on inequality and poverty. Some of the advantages of the CEQ assessment that are the reasons for using this method are as follows: develop and adapt the concept of micro data and indicators used to evaluate redistribution in the context of developing countries carefully, using alternative income concepts that is the expenditure approach, and it emphasizes the role of indirect taxes and indirect subsidies, which is different from the typical analysis in developed countries that emphasize direct taxes and direct transfers.

As previously explained, generally, the assumptions used to analyze the effect of VAT use the assumption of a cost-push model. This assumption requires additional production chain information to produce a commodity. Where households will consume this commodity in the survey, under this assumption, the inputs from the excluded VAT will be charged to the price of the goods and services purchased because they cannot credit or claim taxes on the inputs. In other words, the buyer will still bear the burden of VAT even though the goods or services are excluded. If the buyer uses it for other commodity inputs, then the input price's VAT burden will be part of calculating VAT for other commodities subject to VAT. So that the next buyer will bear the VAT burden above the statutory VAT rate. Referring to the equation Warwick et al. (2022) used, we use the following equation to determine the effective tariff imposed on household commodities.

$$TX = (1 - \alpha)tX + T\Gamma^D X - (1 - \alpha)(E \circ t\Gamma^D)X + t\Gamma^F X - (E \circ t\Gamma^F)X \quad \dots (1)$$

Then rearranged to:

$$T = [(1 - \alpha)t - ((1 - \alpha) E \circ (t\Gamma^D)) + t\Gamma^F - (E \circ (t\Gamma^F))](I_N - \Gamma^D)^{-1} \quad \dots (2)$$

With the following explanation:

- T is the $1 \times N$ vector of effective VAT rates.
- X is a diagonal $N \times N$ matrix of domestic outputs of these products.
- t is a $1 \times N$ vector of statutory VAT rates applicable on the sales of each sector.
- Γ^D and Γ^F are $N \times N$ matrices of technical coefficients for domestic and imported inputs for each sector, respectively. Each coefficient i, j in these matrices captures the share of the cost of product j that is made up of the cost of each product $i \in N$ as an input into the production of product j , separately for domestically produced inputs (in matrix Γ^D) and imported inputs (in matrix Γ^F).

- E is a $1 \times N$ vector where each entry is equal to 0 if the corresponding sector cannot reclaim VAT paid on inputs (e.g. it is VAT exempt), and is equal to 1 otherwise. This value-based on VAT rules that impose in the year 2019 (Appendice).
- \circ is the Hadamard product, which shows a matrix of interrelationships between one product and another.
- α , the proportion of MSMEs and companies that do tax avoidance. We use proxy data from the Economic Census, which includes micro, Small, and Medium Enterprises (Usaha Mikro Kecil/UMK) and Large and Medium Enterprises (Usaha Menengah Besar/UMB). So we only use UMK, although it will tend to go up because it is different from the definition of UMKM in the tax authority.

Furthermore, to determine the effective tariff borne by the buyer, Warwick et al. (2022) create an effective tariff vector (τ) which is a weighted average of the effective tariff vector on domestically produced output (T), the statutory tariff of imported goods (t) And the share of each product obtained from imports (β). By defining 1_N as a vector of N rows of 1, then:

$$\tau = (1_N - \beta) \circ T + \beta \circ t \quad \dots (3)$$

To get the effective tariff vector that is borne by the buyer, we use the available input-output table for 2016 and then calculate the supporting parameters ($\alpha, \beta, \Gamma^D, \Gamma^F$). The description of the parameters and proxies used are as follows:

- β is part of each imported product, taken from the Input-Output data.
- The distinction into Γ^D dan Γ^F is intended to determine the effect of components originating from domestic and imported. We use a proxy for the input quantities that make up each input in the input-output table to calculate this.

In this study, two analyses will be carried out after the changes in the object of VAT imposition and the spending side from revenue. The first analysis is the pre-fiscal treatment condition which is the baseline measurement before any fiscal intervention comes up on the individual income. The second analysis compares the pre-fiscal in the first analysis with the enactment of VAT on the education and health sector combined with hypothetical reform of the benefits incident fiscal treatment. This benefit was in the form of additional direct transfer assistance, specifically for existing *PKH* and Conditional Cash Transfer (CCT) for poor people, which were substantially and relatively more significant. The long-term benefits felt better than other cash transfers or indirect subsidies. The value will be adjusted according to how much revenue is received from VAT on health and education services. The beneficiaries are people who are still below the poverty line.

Data

The primary data used is the Economic and Social Community Survey Data (*Survei Sosial Ekonomi Nasional/Susenas*) for the March 2019 period. The Susenas data consists of observations representing the sub-national level. This data provides important information at the individual and household levels that will later receive fiscal policy interventions. It contains household expenditure

data which can then be used as a proxy for household income. The existing theories of household consumption behavior, such as the life-cycle and permanent income hypothesis, argue that expenditure tends to better represent permanent income over time and perhaps a better proxy for a household's long-term welfare (Martines-Vazquez, 2004). The second data used is administrative data owned by the government through the relevant agencies. Among these data are data from the State Budget and Revenue (*APBN*), poverty indicator (*BPS*), inequality indicator (*BPS*), and report data from agencies such as the State Electricity Company (*PLN*). These data are needed to compare data with the data in the survey.

The third data used is Input-Output (I-O) data. The I-O data is a statistical description in the form of a matrix that presents information on transactions of goods and services and the interrelationships between units of economic activity in a region in a certain period. One of the benefits of I-O data is to estimate the impact of final demand on output, value-added, and tax revenue. The linkages between sectors can be used as proxies to determine the inputs used to form a specific production, thus making it possible to apply the equation above. This procedure uses the technical coefficient matrix of each sector input from the I-O data. The fourth data used is the 2016 *BPS* economic census data. The data used is on Micro, Small and Medium Enterprises (*Unit Mikro dan Kecil/UMK*) and Large Medium Enterprises (*Unit Menengah dan Besar/UMB*) in Indonesia.

Micro simulation CEQ Model

The *micro simulation* procedure begins with identifying questions in the survey related to fiscal policy interventions. For example, for tax interventions, such as how much you spend for a week for each type of consumption. And then, we map out the expenses subject to VAT and those not subject to VAT. This procedure requires provisions for implementing VAT concerning the existing facilities associated with these expenditures. Meanwhile, for spending interventions (direct cash/near cash transfers and indirect subsidies), we will use questions related to *PKH*, *PIP*, *BPNT*, and energy subsidies receipts so that we know which households and individuals get some of that intervention.

This assessment needs some primary assumptions. The assumptions used are: considers only first-order effects, partial equilibrium analysis where we only look at one side of policy, zero demand price and labour supply elasticities, zero elasticities of substitution assumption among inputs, static incidence analysis, no behavioural response, and using a cost-push model of VAT incidence where the buyer bears the total VAT burden. This assumption follows the research to be carried out because it considers data and time limitations.

We need to know the income concept by CEQ assessment before doing an analysis. Market income consists of salary before tax, income from business, income derived from capital assets (rent, interest, dividends), and personal transfers. Net market income is market income after deducting income tax. Disposable income is market income after deducting income tax and added with direct cash/near cash transfer. The direct cash/near cash transfers are *PKH*, *PIP*, and *BPNT*. Based on the CEQ concept, disposable income is the same as expenditure per capita. Expenditure per capita is the starting point for calculating other income levels. Consumable income is disposable income after deducting

indirect taxes (VAT) and adding indirect subsidies. The indirect subsidies are electricity, fuel (*BBM*), and LPG subsidies. Final income is consumable income after adding the value of in-kind transfers (such as education and health) and deducting co-payments/user fees. Due to the data and time limitation, we only analyze from market income until consumable income. There will be some implications because of this choice. Indonesia's education and health sector is heavy with public service delivery subsidies, especially in the in-kind transfer. There is a lot of assistance for public schools and public hospitals. Our assessment will be upward biased because it does not include this intervention.

After determining the concept of household income at each level adapted to the Susenas data and identifying the questions in the data, the next step is to carry out a *micro simulation* process as follows:

- Determine poor people. In the analysis, the poverty line at the provincial level is used. Households are categorized as poor if they are below the poverty line. We separated urban and rural to get more precise data.
- Determine poverty and inequality indicators.
- Determine expenditure per capita.
- Allocation of direct cash/near cash transfers. We identify individuals who do not get this type of transfer, including *PKH*, *PIP*, and *BPNT*.
- Income tax allocation. The survey data does not know the exact value of income tax. For this reason, we use a proxy according to the available data.
- Determine the small companies/companies which do not pay VAT (α). We use SME data from the 2016 *BPS* economic census to proxy for this parameter.
- Determine the part of the output whose input comes from imports (β). This data is obtained from the I-O table for the import section.
- Allocation of Indirect Taxes (VAT). The data used is the I-O data table which contains the inputs used to produce output for each existing sector. The first step is calculating the technical coefficient matrix for each output produced within the country (domestic) and abroad (imports). This technical coefficient (Γ^D, Γ^F) is a proxy for the share of domestic or imported inputs. And then it will use to produce the output of each sector. The second step is to apply the formula in equation (3) to determine the average effective vector rate that the consumer bears. This rate is then calculated with the consumption value in the consumption module to determine the VAT burden for all commodities in the Susenas data. After getting the VAT per capita per month, this value will be deducted from disposable income to get consumable income.
- Indirect Subsidy Allocation. To determine the value of each energy subsidy, we used the provisions in force in 2019. These subsidies consist of electricity, fuel (*BBM*), and LPG assistance.
- Determine the poverty and inequality based on the provisions before the *HPP* Law came into effect. The condition of the VAT rate is still 10%, and health and education services are still excluded.
- Determine poverty and inequality based on the provisions after the *HPP* Law. The VAT rate still uses 10%, and health and education services are excluded from the VAT exemption list, so these services are subject to VAT.

- Determine poverty and inequality based on the provisions of the hypothetical reform simulation. This stage is carried out by redistributing VAT revenue received from education and health services. This distribution is given as additional direct transfers, namely *PKH* (beneficiaries who have received previous benefits) and CCT for the poor.

Before *HPP* Law was enacted, some parts of the education and health sector were imposed with VAT. The explanation of this imposition before and after *HPP* Law is found in the appendices. Generally, after *HPP* Law, only health services from public services are exempted from VAT. Meanwhile, due to the data limitation, we impose all the expenditure with VAT for the education sector. We know that public education should not pay for monthly tuition. So we assume households mainly fill data for education on Susenas with children who attend private schools.

D. EXPLANATION

Descriptive Statistic

Household representatives used in this study are household respondents who filled out the Susenas questionnaire for March 2019. The concept of income used in this study uses a household expenditure approach. The statistical summary is divided into ten deciles to summarize the descriptive data used. The data used consists of household data and individual data. Household data consists of 315,672 households spread across 34 provinces in Indonesia. The survey data are divided into ten deciles to summarize the households based on monthly expenditures.

The household has family members ranging from 1 to 34 family members. The total number of individuals in the survey is 1.204.466 individual. Each family member's data consists of identity and consumption spending. The consumption data (hereafter, we called expenditure) consists of food, beverages, cigarettes, and non-food items, including expenditures to obtain services. Table 1 summarizes monthly per capita expenditure data for each individual in the household. Like total expenditure, per capita expenditure shows the highest deviation in the tenth deciles, and lowest in the third deciles. This expenditure depends on the number of family members. This trend is the same with total expenditure for each household. From this data, it can be concluded that the number of family members across deciles is almost the same. The statistics summary further emphasizes that Indonesia still has inequality problems. Even though it only used representative households, it could describe the population level. Since the Susenas data included very few of the richest of Indonesia, the inequality would be wider across deciles.

As part of non-food expenditure types, education and health sector expenditures are divided into several details. The proportion of expenditure of each kind of sector to the overall expenditure can be seen in Figure 2. In general, the expenditure of the two sectors is relatively progressive, where the higher the household deciles, the more significant the proportion of the expenditure. The average for the education sector is relatively not too much difference between the second to the ninth deciles. However, this is not the case for the first deciles to the

Table 1. Statistic Summary Expenditure per Capita of Households (in a month)

Decile	N	mean	min	max	sd
1	31.568	344.221,6	121.349,2	427.476,2	57.236,5
2	31.567	489.555,9	427.484,1	549.246,6	34.942,6
3	31.567	604.240,1	549.247,9	659.470,3	31.916,6
4	31.567	720.844,1	659.470,6	784.143,8	35.908,2
5	31.568	855.306,7	784.148,4	930.150,0	42.180,9
6	31.567	1.015.543,0	930.154,8	1.106.954,0	51.036,9
7	31.567	1.207.331,0	1.106.955,0	1.317.460,0	60.700,4
8	31.567	1.461.727,0	1.317.468,0	1.633.712,0	90.213,0
9	31.567	1.889.265,0	1.633.750,0	2.228.610,0	168.402,5
10	31.567	3.539.148,0	2.228.741,0	80.906.952,0	2.197.097,0
Total	315.672	1.212.715,0	121.349,2	80.906.952,0	1.134.307,0

Source: Stata Result

second deciles and the ninth deciles to the tenth deciles. For the health sector, the progress is relatively high, where the highest income has a higher spending percentage on health.

Susenas data allows for weighting so that the number of households at the research sample level and the number of households at the population level can be seen. This procedure is used to get the value on the population scale. If the value is close enough, then the research can describe the population's actual condition. Weighting can also measure poverty and inequality at the population level. The study results also use this weighting to be compared with existing administrative data.

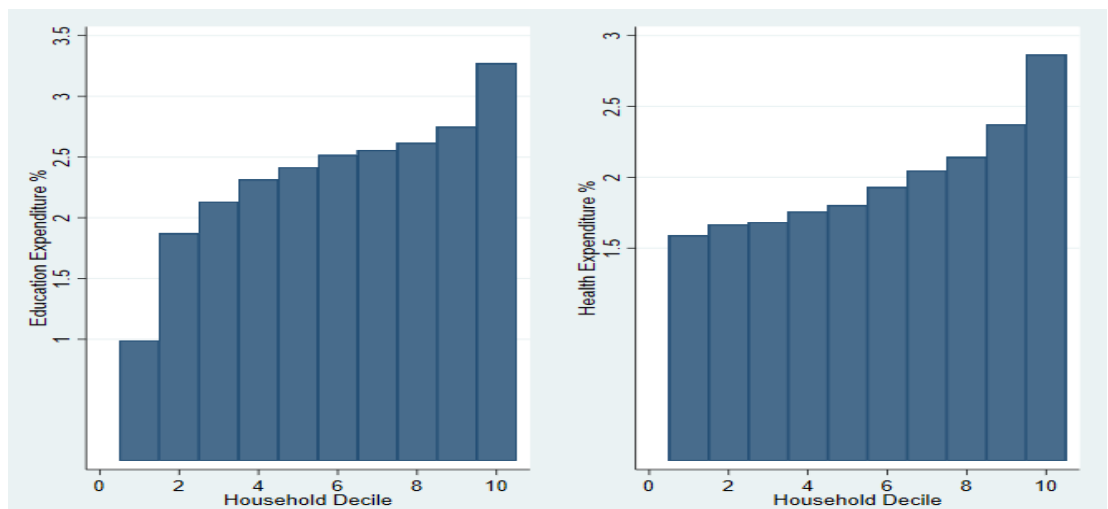


Figure 1. The Education and Health Expenditure Proportion

Source: Stata Result

The Impact of VAT Regime before and after *HPP* Law

The fiscal policy needs to be carried out to influence the country's household income distribution. All taxes tend to increase poverty (as long as poor and near-poor people have to pay taxes), but VAT is the type of tax considered the leading cause (Lustig, 2018). VAT, which is the focus of this research, is regressive. What is meant here is that the richer the individual, the more he benefits, while the poorer, the more he loses, especially from the exemption of the VAT regime. This difference is because the imposition tends to be aimed at all income levels. And also use the uniform rate for all households.

Before *HPP* Law, the high proportion of poor people at the net market income level is due to the provision of cash transfers which reduces disposable income (which is the starting point for the concept of income), so there will be a decline. Conversely, net market income is market income after being deducted from income tax. It follows the theory that tax impoverishes individuals. Disposable income broadly measures how an individual's income can be spent on goods and services (including saving but not included in this study). So that at this level it shows household expenditure which will become national expenditure aggregate data. The consumable income is the last income level that becomes our focus where the intervention of the imposition of VAT in the education and health sectors and the indirect subsidies happened.

Table 2 shows the differences between the conditions before and after implementing the *HPP* Law with the three simulations above and the previous conditions that became the research baseline. We analyze how fiscal intervention in VAT will affect individual income at each income level. From the table, it can be seen that the highest poverty occurs at the level of net market income. Meanwhile, from the inequality indicator, it is known that the highest inequality occurs at the level of market income. This income level includes income from salaries, capital assets (rent, interest, dividends), and personal transfers, all of which are not subject to any tax. In other words, this income is all that is earned before being taxed, incredibly individual taxes. The national calculation of

poverty and inequality uses the level of disposable income. We use weights to estimate poverty and inequality at the population level. The trends in poverty and inequality above are also obtained from research conducted in Chile, Dominican Republic, El Salvador, Tunisia, and Uganda.

Since the research focuses on the imposition of VAT on the education and health sectors, we conducted three simulations when the *HPP* Law came into effect. The three simulations were conducted to determine how much the sector has on changes in consumable income as the income level is affected by VAT policy intervention. The first simulation is when VAT is imposed on the education and health sectors. The second simulation is when VAT is only imposed on the education sector. The third simulation is when VAT is only imposed on the health sector.

Table 2. Simulation of the Effects of the VAT Regime Before and After *HPP* Law Applied

Level Income	Market Income	Net Market Income	Disposable Income	Consumable Income	Change from DI to CI	Change CI from baseline
Poverty:						
Head Count						
Before <i>HPP</i>	11,969%	11,973%	9,400%	10,017%	0,6168%	-
Head Count 1	11,969%	11,973%	9,400%	10,078%	0,6776%	0,0608%
Head Count 2	11,969%	11,973%	9,400%	10,044%	0,6435%	0,0267%
Head Count 3	11,969%	11,973%	9,400%	10,040%	0,6398%	0,0230%
Inequality:						
Gini Ratio						
Before <i>HPP</i>	0,40244	0,40216	0,3925	0,38571	-0,00679	-
Gini Ratio 1	0,40244	0,40216	0,3925	0,38537	-0,00713	-0,00034
Gini Ratio 2	0,40244	0,40216	0,3925	0,38556	-0,00694	-0,00015
Gini Ratio 3	0,40244	0,40216	0,3925	0,38556	-0,00694	-0,00015

Source: Stata Result

The head count and Gini ratio using population level. From table 2, it can be seen that there is an increase in poverty when compared to disposable income and consumable income under baseline conditions. The highest increase in poverty occurred in the first simulation. The rise in poverty was 0,6776% and 0,0608%, respectively, if compared with disposable income and consumable income on baseline conditions. For the first simulation, there is a relatively very slight decrease in inequality compared with disposable income and consumable income on baseline conditions, which are 0,00713 and 0,00034, respectively. This decrease is also the highest compared to other simulations.

The second simulation is when only the education sector is subject to VAT. For the second simulation, from the poverty indicator, it can be seen that there was an increase even though it was relatively less compared to the first

simulation, which was 0,6435% and 0,0267%, respectively, if compared with disposable income and consumable income on baseline condition. Meanwhile, from inequality, it can be seen that there has been a relatively very slight decrease in inequality. If we compare disposable and consumable income on baseline conditions, there are 0,00694 and 0,00015, respectively. This decrease is smaller than the first simulation when both sectors are subject to VAT.

The third simulation is when only the health sector is subject to VAT. The poverty that occurs is relatively less than only in the education sector. If we compare disposable and consumable income under baseline conditions, there are 0,6398% and 0,0230%, respectively. Poverty is also less than the two sectors imposed but still makes the addition of poor individuals at the consumable income level. Meanwhile, for inequality, it can be seen that there has been a relatively very slight decrease in inequality. If we compare disposable and consumable income on baseline condition, there are 0,00694 and 0,00015, respectively. Overall, the imposition of VAT in both sectors will only affect consumable income. From the poverty indicator, the imposition of VAT increases poverty. Meanwhile, from the inequality indicator, the imposition of VAT reduces inequality by a relatively tiny number. These results are the same as Alavuontaki (2021): disposable income measurement leads to increased inequality because of VAT compared with consumable income.

The Impact of Hypothetical Reform

As part of fiscal policy, government spending is a crucial proportion that needs prudent and suitable planning. This plan is necessary so that the results of government programs financed from the government budget can be optimized. The redistribution goal of fiscal policy is to reduce poverty and inequality. One of the Indonesian government policies is to provide social assistance in direct cash or near-cash transfers. According to the *Peraturan Menteri Keuangan Nomor 254/PMK.05/2015* concerning Social Assistance Expenditure at State Ministries/Institutions is expenditure in the form of transfers of money, goods, or services provided by the government to the poor or unable to protect the community from possible risks, increasing economic capacity /or community welfare.

Tax revenue is an important issue in fiscal policy. Likewise, VAT revenue has the potential to be added if the object of the exemption is narrowed. Susenas expenditure data before implementing the *HPP* Law showed that VAT receipts amounted to IDR. 492,098,693,407.61. From the simulation results of the imposition of VAT on the two sectors, there was an addition of IDR. 37,166,301,713.60. If only the education sector is subject to additional revenue of IDR. 16,864,390,771.05. Meanwhile, if the health sector is subject to additional revenue, the amount obtained is IDR. 15,773,593,148.05. Of course, the addition will be greater if both sectors are charged. And the revenues from these two sectors will be the source of funds to finance the hypothetical reform in terms of spending.

The simulation will be conducted on how the hypothetical reform's impact on spending will affect poverty and inequality. We choose this type of transfer because the future sustainability goal will benefit individuals, especially the poor,

more than indirect subsidy. There are two types of simulation to be carried out, namely:

1. The Simulation of Additional *PKH* Nominal. *PKH* is a form of direct cash transfer intended for the sustainable benefit of each individual who receives it. Accepting this assistance can increase their capacity through adequate education and health. In the future, they can provide added value to compete for opportunities to improve their social and economic conditions and families. Additions are made at the level of disposable income as a starting point for calculating the income concept. By doing this simulation, we need IDR. 30,341,900,000.00. This budget is about 82% of additional revenue from imposing VAT on the education and health sector. The adding scheme show in Table 3.

Table 3. Adding Scheme for *PKH*

Category	Before	After
1. Pregnant Women	IDR. 2.400.000,-	IDR. 3.000.000,-
2. Children under 6 years old	IDR. 2.400.000,-	IDR. 3.000.000,-
3. Elementary School	IDR. 900.000,-	IDR. 1.200.000,-
4. Junior High School	IDR. 1.500.000,-	IDR. 1.800.000,-
5. Senior High School	IDR. 2.000.000,-	IDR. 2.400.000,-
6. Severe Disability	IDR. 2.400.000,-	IDR. 2.400.000,-
7. Elderly more than 60 years old	IDR. 2.400.000,-	IDR. 2.400.000,-

Source: Author Illustration

2. The Simulation of Additional Conditional Cash Transfer (CCT) for specific criteria. CCT is meant to assist poor households that give to poor individuals in the form of money regularly. The aim is to increase the income of needy individuals. The selection of all poor households was carried out to anticipate any mistargeted *PKH* grants. With this increase in income, it is hoped that it will reduce the problem of household spending on basic needs, especially those related to improving nutrition from the health side and fulfilling school supplements from the education side. The procedure carried out is to assist in the amount of IDR. 1,200,000.00 for all poor households when the *HPP* Law has not yet been implemented at the level of disposable income. By doing this simulation, we need IDR. 35,421,600,000.00. This budget is about 95% of additional revenue from imposing the education and health sector with VAT. Both of the simulations are applicable to do and still leave some revenue.

Table 4. Simulation of The Effects of Adding *PKH*'s Value and Expanding CCT for Poor People

Level Income	Market Income	Net Market Income	Disposable Income	Consumable Income	Change MI from baseline	Change N-MI from baseline	Change DI from baseline	Change CI from baseline
Poverty:								
Before	11,96	11,973						
<i>HPP</i>	9%	%	9,400%	10,011%	-	-	-	-
After	11,96	11,973						0,060
<i>HPP</i>	9%	%	9,400%	10,078%	-	-	-	8%
Adding <i>PKH</i>	10,24	10,249			1,7220	1,723	1,729	1,777
	8%	%	7,671%	8,239%	%	9%	3%	4%
Adding CCT	11,32	11,323			0,6483	0,649	1,517	0,908
	2%	%	7,883%	9,108%	%	5%	1%	9%
Inequality:								
Before	0,402	0,4021						
<i>HPP</i>	44	6	0,3925	0,38571	-	-	-	-
After	0,402	0,4021						0,000
<i>HPP</i>	44	6	0,3925	0,38537	-	-	-	3
Adding <i>PKH</i>	0,397	0,3973			-0,005	-0,005	-	0,004
	63	6	0,3925	0,38102				7
Adding CCT	0,401	0,4011			-0,001	-0,001	-0,002	0,002
	44	7	0,3905	0,38330				4

Source: Stata Result

The simulation results of the two schemes are shown in table 4. From the table, it can be seen that the effect of giving direct cash transfers occurs at all levels of income. From the poverty indicator, granting the two schemes reduces poverty reasonably significantly. For the additional *PKH* scheme, poverty decreased by 1.7774%, while for the CCT scheme, it was 0.9089%. Both on consumable income, this difference occurred compared to poverty before the *HPP* Law came into effect. For each income level, the slighter decrease in market income becomes 1.7220% for adding *PKH* and 0.6483% for adding CCT. This decrease is because the spending scheme happens at the net market income level.

Meanwhile, for inequality indicators, both had decreased to the condition of inequality before the *HPP* Law came into effect. The decrease for the *PKH* addition scheme is 0.0047, while the decline for the CCT scheme is 0.0024. For each level of income, there is no difference. It is in line with Warwick et al. (2022) found that broadening the VAT base would create significant net gains for the poorest households, reducing poverty if accompanied by the expansion of

social protection programs. But the implication is relatively very small. This result is the same as Jellema et al. (2018) that the fiscal policy does reduce inequality and poverty by a modest amount.

Next, we need to look at how progressive the VAT is to the two sectors compared to the total expenditure per household deciles. Figure 3 shows that VAT for the education sector is relatively progressive before being applied to all expenditure breakdowns in each sector, although it declines at high deciles. As for the health sector, the results are pretty surprising because the lowest deciles pay higher taxes than the other deciles unless compared to the highest deciles. This difference is possible because low deciles tend to consume drugs subject to VAT than treatment at a *Puskesmas* or hospital whose services are legally excluded from VAT. After VAT is imposed on all details of the education and health sectors, progress has followed the amount of expenditure in the two sectors. This condition is more appropriate because VAT is charged based on the household's economic capacity and income, using expenditure as the proxy.



Figure 2. The VAT Progressivity over Total Expenditure of Household
Source: Stata Result

The subsequent analysis is to know the distributional incidence from both fiscal policies that have been implemented. Figure 4 show the gain accepted by each household. We calculate by comparing VAT paid by households with cash/near cash transfer plus indirect subsidies for each household. The consumable income is used as an analysis because this is the lowest income level. Nevertheless, there will be not firm enough to get the real gain if we use final income where fiscal intervention on this level is so heavy with subsidies. The figure shows that adding *PKH* nominal will yield until the second deciles.

Meanwhile, if we give CCT to the poor, only the lowest deciles gets the yield. But, the gain nominal from CCT to the poor is more significant than adding *PKH* nominal.

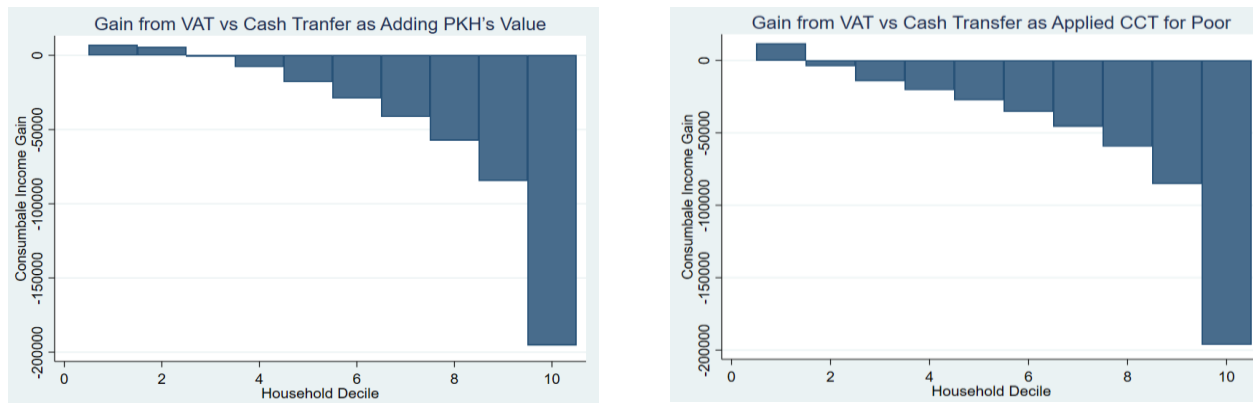


Figure 3. The VAT Gain from Fiscal Policy
Source: Stata Result

Based on the results of calculations that have been carried out, the imposition of VAT for several services in education and health has impacted inequality and poverty. The visible impact is a decrease in inequality and poverty which varies according to the type of simulation being carried out. The government's fiscal policies in determining the amount of assistance provided and target recipients may be different and change every year. However, this research using the *CEQ micro simulation* method, for the first time, has provided an overview of how much inequality and poverty have decreased from increased assistance in terms of increasing the number and recipients of direct cash transfers. The simulation can give an initial picture to the government before making policies related to financing the provision of direct cash transfers to people in need.

E. CONCLUSION

The Tax Harmonization Law (*UU HPP*) is one of Indonesia's newest provisions governing taxation. This provision is comprehensive to regulate all changes to the previous tax law. The aim is to improve the state deficit and increase the tax ratio, among others, by broadening the tax base and creating a tax system that prioritizes justice and legal certainty. One of the amended provisions is reducing exemptions for VAT objects, including the education and health sectors. So research using the *CEQ micro simulation* method was conducted to assess how these policies influence poverty and inequality. At the same time, what if a hypothetical reform is carried out in cash transfer spending, which is expected to be an equalizing effect of the imposition of VAT. Where commonly, the imposition of taxes will increase poverty, and the provision of cash transfers can equalize the impact.

The first assessment is when a fiscal intervention is carried out as the imposition of VAT. If the two sectors are applied jointly or independently, they can increase poverty and reduce inequality. The most significant effect on poverty is obtained when VAT is imposed on both sectors, while the minor effect is imposed only on the health sector. The largest reduction in inequality occurs when both sectors are applied, while the smallest reduction is if the sector is imposed independently. A hypothetical reform carries out the second assessment on the spending side in cash transfers. The scheme provides an additional nominal value of *PKH* and *CCT* for the poor with the same amount. After being subject to VAT in the education and health sectors and then granting the two schemes, there was a reduction in poverty and inequality compared to the baseline condition. Interestingly, the effect on poverty and inequality is better in the *PKH* nominal increase scheme. This difference shows that the possibility of targeting *PKH* has been done well.

In general, it can be seen that the imposition of VAT in Indonesia will increase poverty, although it can reduce inequality. Nevertheless, the implication is slightly small. For this reason, as a form of equalizing the effects of fiscal policy, the provision of assistance in the form of cash transfers can be a choice to reduce the poverty rate that arises. We need an integrated system for tax and spending on social programs so that the impact can be monitored well.

The elimination of several exemptions for VAT objects contained in Article 4A of the *HPP* Law as one of the objectives of the *HPP* Law to broaden the tax base is appropriate. Based on the research results, conceptually, the imposition of VAT can positively affect poverty more clearly than the inequality indicator. With more detailed and comprehensive data, this thesis will be used as input in making public policy decisions in the future, especially if there is income data so that we can simulate using an income approach. Besides that, data like the wealthiest people included in the survey and detailed information on public or private consumption in the education and health sector will make the analysis more precise.

However, some research limitations limit the research. Only a few from the wealthiest group are survey respondents, so the research results tend to be biased downwards for VAT progressivity. The details of the *SUSENAS* expenditure are still too general, so it is difficult to enter into which category the VAT object is imposed, so that the authors generally identify the closest following the existing provisions. The absence of administrative data for companies included in Micro, Small, and Medium Enterprises (*MSMEs*) makes the authors perform proxies in applying the equation that becomes the model for calculating the effective rate of VAT. There is a heavy subsidy for public schools and public hospitals. Our assessment of poverty and inequality will be upward biased because it does not include this intervention (final income).

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