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UDC 332

THE ANALYSIS OF TAX RATIO IN INDONESIA AND THE STEPS TAKEN TO INCREASE IT

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ABSTRACT
This research was conducted to determine how to calculate the tax ratio in Indonesia during a certain period of time and the tax elasticity and buoyancy. The background of this research is that Indonesia has the largest GDP (gross domestic products) in ASEAN countries but its tax ratio is ranked the lowest. One of the reasons is that not all elements of state revenue are included as tax revenue, such as local taxes. This research was quantitative descriptive. In this study, it is argued that there are 3 methods used to calculate the components made up of as revenue to calculate the tax ratio, namely according to the OECD, GSMF and the Indonesian government. The results of previous studies conducted in several countries found that elasticity and buoyancy are different from one another and it has not been found which revenue sector has the most influence on a country's elasticity and buoyancy. Research conducted in Indonesia with time intervals from 2011 to 2019 found that the Indonesian Tax Ratio was 11.59 if carried out by including elements of local taxes and a level of tax elasticity of 0.59 before local taxes were entered, and 0.93 after local taxes were entered and buoyancy tax of 0.67 before inclusion and 0.44 after inclusion. Buoyancy and elasticity that have the most impact on the tax ratio are the tax revenue sector in the procurement of electricity, gas, steam / hot water and cold air followed by the health and social services sector.

KEY WORDS
Tax ratio, elasticity, buoyancy.

Tax Ratio is an indication of the public obedience in paying taxes in a country and the tax ratio itself is the comparison between the amount of tax received and the Gross Domestic Product (GDP). Based on the data issued by the World Bank in 2016, the tax ratio and GDP in several countries, especially in Southeast Asia or ASEAN countries is recorded as follows:

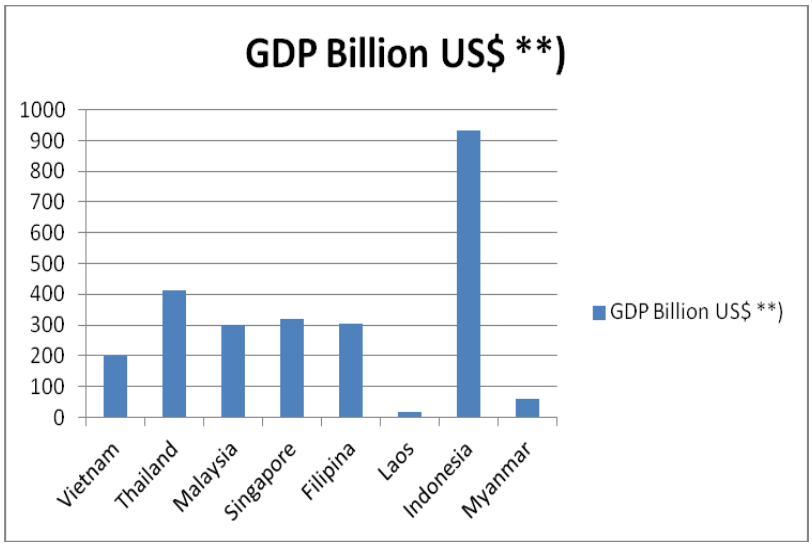

Figure 1 - The comparison between GDP several countries in ASEAN
(Source: http://www.statista.com/statistic/796245/gdp-of-the-asean-countries/)

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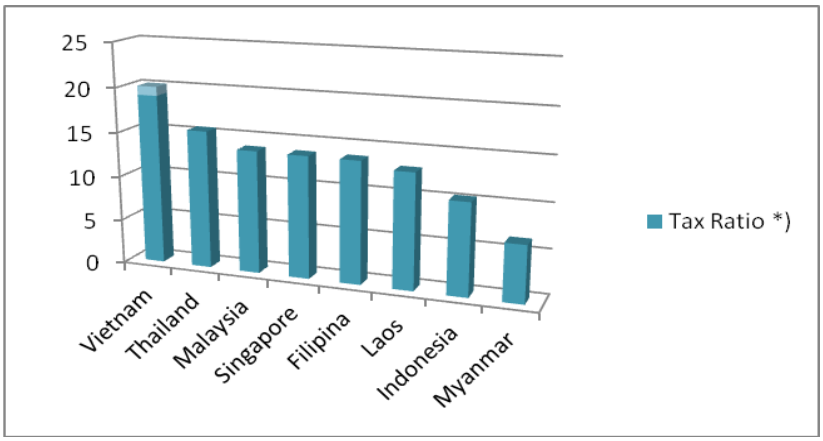

Figure 2 – The comparison between tax ratio in several countries in ASEAN
(Source: https://databoks.katadata.co.id/datapublish/2018/11/26/di-tingkat-asean-rasio-pajak-indonesia-di-bawah-laos)

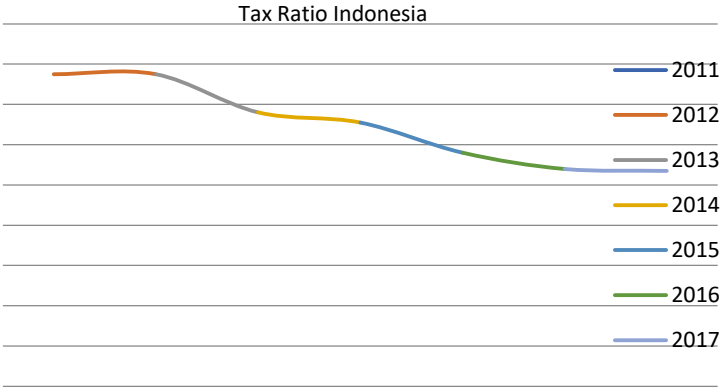

Figure 3 – Tax Ratio in Indonesia
(Source: Annual report of DJP 2017 & 2014)

Based on the data above, it appears that Indonesia's tax ratio has decreased since 2012 and if compared to some other countries in AEAN, it is in the seventh or second position from the bottom and is at 10.33%, far beyond the neighboring countries such as Singapore, Malaysia. , Thailand and Vietnam. Indonesia is only above Myanmar. On the other hand, Indonesia's GDP is number one among ASEAN countries. Various efforts have been made by the Indonesian government to increase the tax ratio both through intensification of tax revenues such as collection of payable taxes and through policy approaches as stated in Law No.11 of 2016 concerning tax amnesty or tax amnesty on income earned and still stored abroad. Extending tax revenue or tax objects such as expanding the basis of tax revenues for tax objects that were not previously covered by tax, such as the micro, small and medium enterprises (MSMEs) by providing incentives in the form of very low rates for final income tax of 1% of turnover as stated in the government regulation of 46 of 2013) which is reduced to 0.5% of turnover in 2018 (PP 23 of 2018). Some of the things that cause Indonesia's tax ratio to remain low, around 57.6% (Asia Development Bank Study in 2016) are the community businesses that are not detected or have not been recorded or are called “economic undercover” that have not been or are not taxed in this case is the MSME sector. On the other hand, for tax subjects, several things have been done, such as the expansion of tax subjects by providing a taxpayer principal number in position (Article 2 of the KUP Law) and requiring taxable entrepreneurs to become taxable entrepreneurs after passing the turnover limit of 4.8 billion per year (Article 1. Law No. 42 of 2009)

Based on the background above, this study aims 1) to find out how the tax ratio was calculated in Indonesia which caused the tax ratio calculation results to be 10.33% , very low

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compared to other countries, especially in Southeast Asian countries, 2) to determine the elasticity and buoyancy of tax revenue to GDP which affects the size of the tax ratio, 3) to provide results of research findings to tax authorities for policy making.

LITERATURE REVIEW

Tax Ratio

In general, the tax ratio is the ratio between Gross Domestic Product (GDP) and tax revenue. More exactly, there are several definitions of the tax ratio. The first is the understanding of the tax ratio by organizations for economic cooperation and development or the Organization for Economic Cooperation and Development (OECD, 2018). In calculating the tax ratio, what is meant by tax revenue is revenue obtained from the government sector, both central and local governments, whether directly received by the government or from institutions or business entities that are under government control such as state-owned enterprises (BUMN) such as government banks, and transportation companies. In more detail, the components of tax revenue include: Income tax, defined as tax on business entities; tax on salaries and wages, defined as income tax on individuals; taxes on property, such as taxes on the sale of property and taxes on transfer fees for both vehicles (BBNKB) and houses (BPHTB); taxes on goods and services, such as taxes on rent; taxes on international trade; other taxes, such as taxes on sales, including sales of luxury goods.

The second definition of the tax ratio by the Government Financial Statistics Manual (GFSM, 2014) is broader because there are other components. This definition is to include social security contributions as one of the main components of income tax and profit tax receipts, mandatory social security contributions paid to the government, payroll for workers, property ownership, goods and services, and others. The Indonesian government, according to a press release from the tax directorate general, said that the tax ratio is the ratio of tax revenue to gross domestic product. This ratio is a measuring tool for assessing the performance of tax revenue from a country.

Third, while the measure of tax revenue in Indonesia includes central government tax revenue (State Budget Analysis and Implementation Bureau - Secretariat General of the DPR RI).Non-tax state revenue (PNBP) consists of oil and gas, and general mining and regional tax (PNBP) is not a component of the tax ratio calculation. From some of the above definitions, a calculation can be made and the tax ratio can be described more precisely as follows, formula of tax ratio calculation:

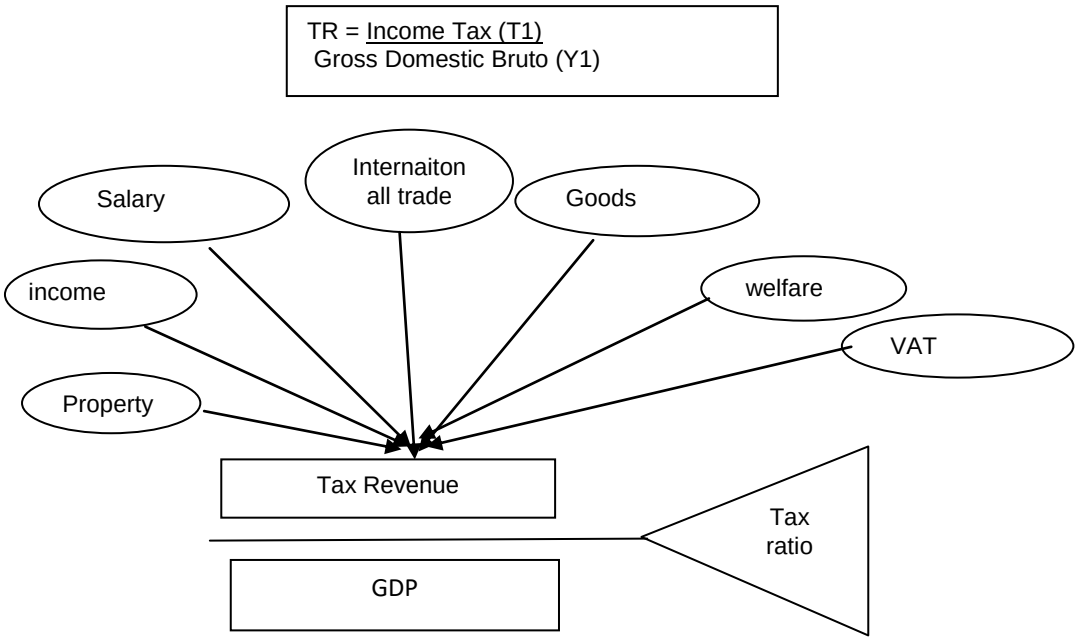

Figure 4 – Tax Ratio according to OECD

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Since the tax ratio is the ratio between GDP and tax revenue, it can be said that the more GDP increases, the tax ratio should tend to increase. In reality, in fact, not all of this is the case, for example if GDP is 1,000 and tax revenue is 100, it can be said that the tax ratio is 10% (100/1000). If GDP rises to 1,500 and tax revenue is 150, the tax ratio will remain 10%! 50/1500). However, if the tax revenue becomes 200, it means that the tax ratio will increase to 13.33% (200/1500). In contrast, if GDP rises to 1,500 and tax revenue increases to 120, the tax ratio will be 8% (20/1500). This is what is meant by tax elasticity.

Tax Elasticity and Tax Buoyancy

In tax buoyancy (Leuthold, 1986) or known as tax buoyancy, it is a measure of the response of tax revenue to economic growth. Floating tax is a tax whose income increases by more than one percent (> 1%) for a one percent (1%) increase in national income or output. In measuring buoyancy, no attempt is made to control policy changes in the tax system or administration. As a result, buoyancy reflects changes in automatic income growth. Meanwhile, tax elasticity is a measure that takes into account changes caused by government policy on tax revenues caused by changes in taxation structures. To perform the calculation, the formula is used to calculate tax elasticity, (Mansfield, 1972):

$$ETtY = \frac{T1}{Tt}\left(\frac{\Delta T1}{\Delta Y}\frac{Y}{T1}\right) + \cdots \frac{Tk}{Tt}\left(\frac{\Delta Tk}{\Delta Y}\frac{Y}{Tk}\right) + \cdots \frac{Tn}{Tt}\left(\frac{\Delta Tn}{\Delta Y}\frac{Y}{Tn}\right)$$

Where:

ETtY: tax increase to the GDP;
T: Amount of tax in year-1;
Y: GDP.
While the coefficient of Government Policy is calculated using the formula:

$$r = \beta - Ed$$

Where:

r: The value of the Elasticity Coefficient;
β: Buoyance Coefficient Value;
Ed: Policy coefficient value.

It is said to be elastic, (E> 1) means that if the percentage change in GDP changes by 1%, it will have an effect on changes in tax revenue sources greater than 1%. It is said to be inelastic (E <1) if the percentage change in GDP changes by 1%, then the effect of changes in the source of state revenue from taxes is <1%. It is said to be elastic unit (E = 1), if the percentage change in GDP changes by 1% then the effect on income is 1%.

According to research (Ul-Isalm,2017: 28), the results of an empirical study found the relationship between taxes and GDP shows that the tax-to-GDP ratio has a strong relationship with trade transactions, capital flows, tax base, corruption and per capita income. The findings showed that trade openness, capital inflows and per capita income have a positive and significant impact on the tax-to-GDP ratio. The study found that the tax base is positively related to the tax to GDP ratio, when the tax base widens, the tax-to-GDP ratio increases. In Tax Buoyancy vs Elasticity in a Developing Economy (Leuthold, 1986: 1), it is argued that Tax Buoyancy is a measure of the response of tax revenue to economic growth. A buoyancy tax is a tax whose income increases by more than one percent for a one percent increase in national income or output. If tax elasticity is used to measure changes in tax revenue to changes in the tax base, tax buoyancy is used to measure changes in tax revenue to changes in national income (GDP). If the tax buoyancy calculation is greater than the tax elasticity, it can be said that policy changes are relatively effective to increase tax revenue. However, the situation is the opposite, if the calculation of tax elasticity exceeds the tax buoyancy, the tax policy issued by the government will actually reduce the tax revenue ratio. The following are the findings of several studies related to tax elasticity and buoyancy

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Previous studies

Table 1 – Results of previous studies

No	Title of research & author	Method	Result
1	Tax Elasticity, Buoyancy And Stability In Zimbabwe , 2014 Bonga Wellington Garikai	Regression	Buoyancy was 1.013, where the tax system was responsive to national income / GDP growth. Tax revenue would be faster than GDP increase
2	Tax Buoyancy And Elasticity In Nigeria: The Case of Aggregate Tax 2016, Ojonago Daniel Musa, Andenyangtso Bulus, Christopher Chukwudi Nwokolo and Denis Nfor Yuni	Regression	Tax revenue was elastic to economic growth, with an elasticity coefficient of 1.124
3	Elasticity and Buoyancy of Taxation in Nepal: A Revisit of the Empirical Evidence, 2017. Nepal Rastra Bank Research Department	Auto regression	Buoyancy coefficient was > 1 except for import duties while the elasticity coefficient was <1 except for VAT
4	Buoyancy And Elasticity of Tax: Evidence From Ghana, 2010, Daniel Kwabena Twerefou, Abel Fumey, Eric Osei Assibey And Emmanuel Ekow Asmah	Dummy variable technique	In the long run, the taxation system is elastic but in the short term, it is inelastic. Overall elasticity was 1.03.
5	Effects of Tax Reforms on Buoyancy and Elasticity of the Tax System in Kenya: 2014, Ochieng V. Omondi, Nelson H. W. Wawire1, Emmanuel O. Manyasa & Gideon KiguruThuku	Regression	The taxation system is buoyancy in which changes in budgets increase responsiveness to revenue changes in income, but it is not elastic where tax revenues are not responsive (E <1) to changes in the income
6	Revenue Productivity of the Tax System in Namibia: Tax Buoyancy Estimation Approach, April 2019 Johannes Peyavali Sheefeni Sheefeni University of Namibia,	Approach of Engle - Granger	Overall the tax system is inelastic and buoyant because the result was 0.036, the economy does not get an effective income and has an effect on taxes

Source: data compiled and analyzed.

From several studies conducted in several countries, as shown in table 1 several results were found, including the following: The buoyancy tax is > 1, including Zimbawwe, Nepal, Kenya and Namimbia, while the non-buoyant means <1 found in Namimbia. Countries with elasticity> 1 are Nigeria and Ghana, while those which are not elastic are Namimbia and Kenya.

METHODS of RESEARCH

This research was quantitative descriptive. The data used were secondary data, namely statistical data on tax revenue submitted by the Directorate General of Taxes and statistical data on State revenue (GDP) issued by the Central Bureau of Statistics for the period 2011 to 2019.

To determine the amount of the tax ratio, related data were used, namely in the form of central tax revenue, natural resource revenue and local tax revenue to provide an actual picture of how much the tax ratio was. Meanwhile, to assess tax elasticity and buoyancy, a regression formula is used. While the data analysis method used regression.

RESULTS AND DISCUSSION

Analysis of Tax Ratio Calculation

First, to increase Indonesia's tax ratio, there must be an adjustment to the calculation and composition of tax revenue. The condition of tax revenue in Indonesia excluding local taxes and tax elements that should be combined, such as tax revenue on CSR (Customer Social Responsibility) issued by the company is 5% of the cost (PP No. 47 of 2012). Therefore, tax revenue must be added first to local taxes. If the local tax data can be found from the Central Bureau of Statistics, CSR data is still not obtained so that only local taxes are entered

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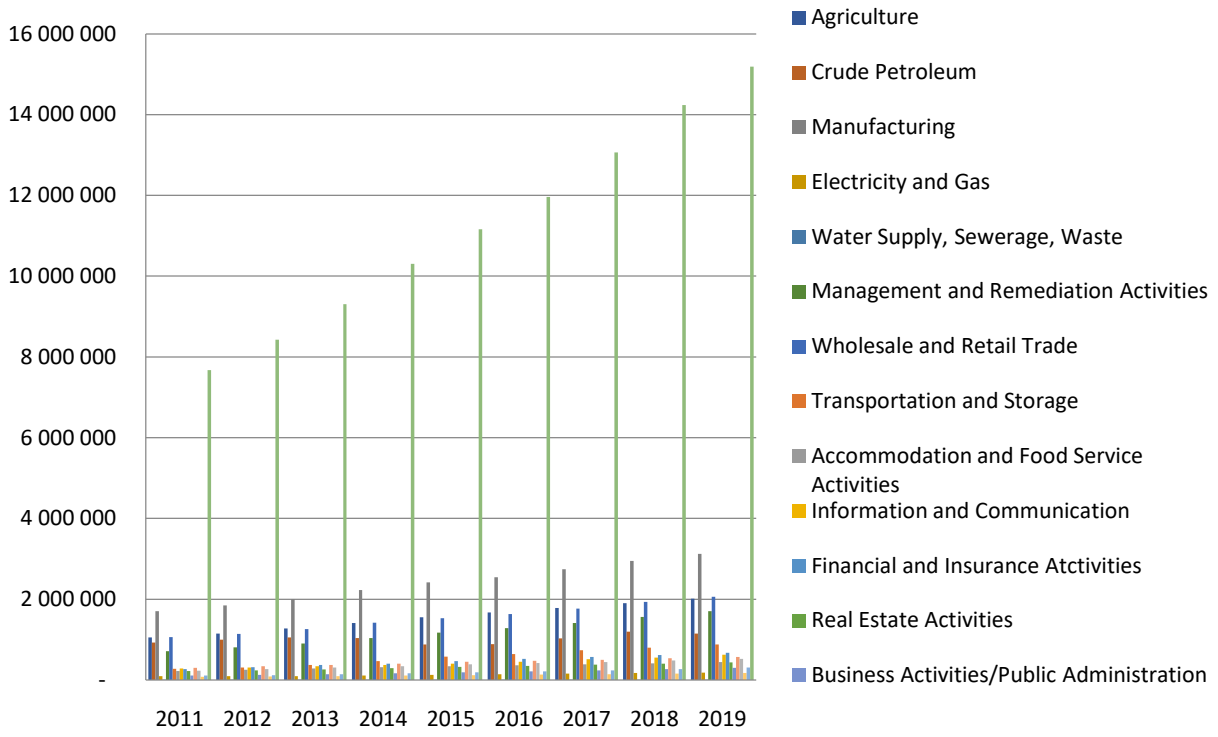

Figure 5 – Graph of GDP Based On the Business Sector

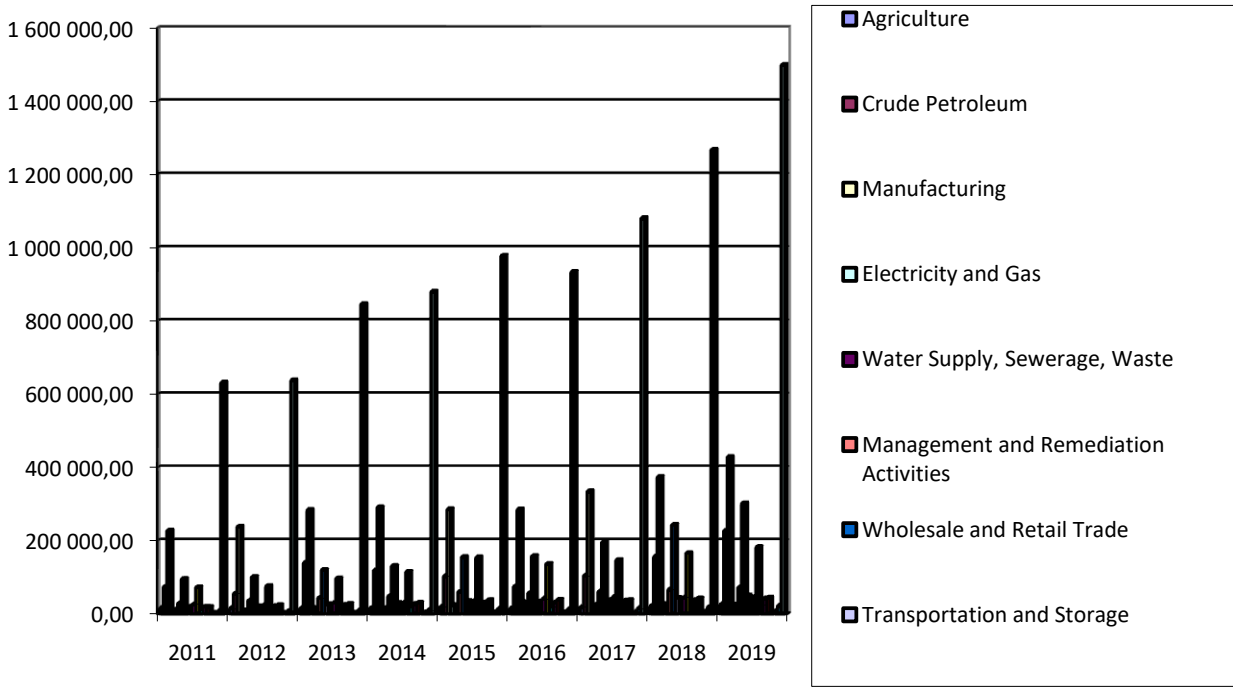

Figure 6 – Graph of Tax Revenue Based on Business Sector

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The Calculation of Tax Ratio

1. The calculation of the tax ratio carried out in Indonesia is only to include central taxes and natural resources. However, if we include local tax elements, the result will be seen in the following Indonesian tax ratio:

Table 2 – Calculation of tax ratio in Indonesia

	YEARS								
	2019	2018	2017	2016	2015	2014	2013	2012	2011
GDP on current basic price (triliun Rp)	15.833.94	14.837.40	13,588.80	12,406.77	11,526.33	10,569.71	9,546.13	8,234.48	7,427.09
A. Federal tax (triliun Rp)	1.546,14	1.518.79	1,343.53	1,284.97	1,240.42	1,146.87	1,074.55	1,016.24	873.87
B. Revenue of natural resources (triliun Rp)	154.90	173.10	105.61	64.90	100.97	240.85	222.25	217.16	213.82
C. Local tax (trilyun Rp)	143.55	136.09	125.80	112.69	107.89	103.49	86.97	64.21	62.10
Tax Ratio (%)									
A + B + C (GDP + federal tax + SDA + Pjk Daerah)	11.65	12,32	11.59	12.17	12.92	14.44	14.39	15.76	15.48
A + B (GDP to federal tax + SDA)	10.70	11,40	10.66	10.88	11.64	13.13	13.58	14.98	14.64
A+C (GDP to federal and local tax)	9.16	11,15	10.81	11.64	12.04	12.16	12.26	13.12	12.60
A (GDP to federal tax)	9.76	10,23	9.89	10.36	10.76	10.85	11.26	12.34	11.77
Source									

2. If we want to be bigger, we must also include state revenue that must be issued by private companies, namely in the form of CSR;
3. In general, when compared with the components of tax revenue according to the OECD and GFSM, it can be seen in the following:

Table 3 – Comparison of tax component calculation

INDONESIA	OECD	GFSM
1. Various Federal Tax - Income tax - Corporate tax - Value added tax 2. Natural resources	- Income tax from companies - Personal income tax Taxes on wealth, such as taxes on the sale of property and taxes on the conveyancing of both vehicles (BBNKB) and houses (BPHTB) - Taxes on goods and services, such as taxes on rent - Taxes on international trade - Other taxes, such as taxes on sales, including sales of luxury goods	- OCCD + - Contribution of social assurance as one main component in tax revenue pajak (Customer Social Responsibility/ CSR)

The Analysis of Elasticity and Buoyancy Calculation

Table 4 – Testing of regression model

Regression Model	Regression coefficient	Standard Error	Value of R-Quadrant	Value of probability Dist-t
Federal tax	0.6762	0.0516	0.9717	0.0000*
federal and local tax	0.7178	0.0452	0.9805	0.0000*
federal, local and SDA tax	0.4469	0.0752	0.8761	0.0019*
*Notes: * model significant*				

Table 5 - Result of assumption model testing

Regression model	Normality test	Autocorrelation test	Heteroscedasticity test
federal tax	0.9399	0.1772	0.1816
federal and local tax	0.9593	0.2869	0.2222
federal, local and SDA tax	0.8010	0.7094	0.6354

Source: data analyzed.

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Table 6 – Result of Regression Buoyancy and tax elasticity calculation

Regression model	Buoyancy	Elasticity	Policy Coefficient
Federal tax	0.6762	0.5914	1.2676
Federal and local tax	0.7178	0.5215	1.2393
Federal, local and SD	0.4469	0.9387	1.3856

Source: data analyzed.

From the results above, it can be explained as follows. The estimation results of the tax revenue buoyancy show the ß coefficient is 0.676, meaning that every 1% change in GDP will cause a change in tax revenue that ranges from 0.676%. The estimation results of the tax revenue buoyancy show the ß coefficient is 0.718, meaning that every 1% change in GDP will cause a change in tax revenue that ranges from 0.718%. The estimation results of the tax revenue buoyancy show the ß coefficient is 0.447, meaning that every 1% change in GDP will cause a change in tax revenue that ranges from 0.447%.

Table 7 – Buoyancy calculation results and tax revenue elasticity of GDP based on business sector

Sector		Buoyancy	Elasticity	Coefficient of policy
A	Agriculture, forestry and fishery	0.1941	0.7941	0.9882
B	Addition and conversion	0.6045	0.0889	0.5156
C	Process industry	0.5554	0.8500	1.4054
D	Procurement of electricity, gas, steam, spring, cold air	1.9429	1.3535	0.5894
E	Water supply, garbage processing and recycling, Waste disposal and cleaning	-.1.4272	2.005	0.5733
F	Construction	1.2647	0.3853	0.8794
G	Wholesale and retail business, repair and service of cars and motorcycles.	1.1788	0.1530	1.0258
H	Transportasion and warehouse	1.2230	0.2699	0.9531
I	Provision of accommodation, food and drink	1.2517	0,4097	0.8420
J	Information and communication	1.0924	0.1983	0.8941
K	Finance and insurance services	1.3692	0.5042	0.8650
L	Real Estate	0.9735	0.1460	0.8275
M	Professional, scientific and technical services	1.0147	0.0871	1.1018
N	Government administration and compulsory social assurance	1.2353	0.1711	1.0642
O	Education services	1.1980	0.0121	1.2101
P	Health services and social activities	1.7425	0.9051	0.8374

Source: data analyzed.

By looking at the value of tax elasticity and tax buoyancy, the government will be able to determine which sector of the buoyancy is above elasticity and the value is more than 1, which means that every increase in GDP / GDP will have a good effect or will increase the ratio of tax revenues.

Buoyancy and elasticity that have the most impact on the tax ratio are the electricity, gas, steam / hot water and cold air procurement sector followed by the health and social services sector; however, there are overall sectors that have an impact on the tax ratio increase seen from the buoyancy, which are:

- Procurement of electricity, gas, steam / hot water and cold air;
- Construction;
- Wholesale and Retail Trade, Repair and Maintenance of Cars and Motorcycles;
- Transportation and Warehousing;
- Provision of Accommodation and Provision of Food and Beverages;
- Information and communication;
- Finance and insurance;
- Professional, Scientific and Technical Services;
- Compulsory Government Administration and Social Security;
- Education services;
- Health Services and Social Activities.

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Therefore, the government must pay attention to the aforementioned sectors in order to increase the tax ratio. By looking at the data on the composition of tax revenues and the value of buoyancy and tax elasticity, there are several alternatives that can be done to increase the tax ratio.

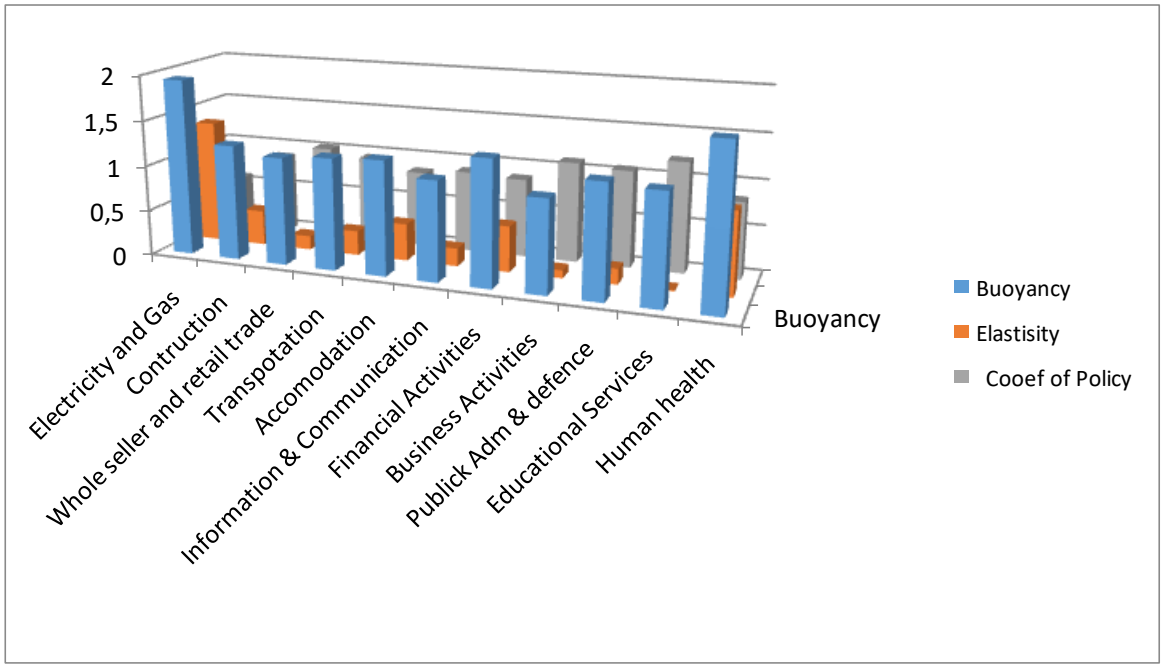

Figure 7 – Result of elasticity buoyancy > 1

In terms of tax revenue (T)

In order that the calculation of tax revenue is more reflective of the real income in calculating the amount of the tax ratio, it is better to add an element of local taxes. By adding a local tax component, it will increase the numerator element (Tax) so that it will increase the distribution result.

Y = Tax (+ Local Tax) / GDP

This is also in line with the calculation of the tax ratio according to the OECD and GSMF where more elements of tax revenue are included. Increase the multiplier effect, namely by increasing state revenue which will create tax revenue. For example, if the 10% Tax Ratio is obtained from 10/100 (tax revenue / GDP), then what must be done is to increase the tax where the increase exceeds the increase in GDP. This means that it has a buoyant and elastic effect with a value above 1. More specifically in terms of tax revenue, there will be several things to be done as an alternative:

1. Increase the intensification of tax revenues, namely from existing taxpayers by conducting a study on how much potential tax is actually acceptable for the taxpayer's business;
2. Increase intensification by being more active in obtaining payable taxes and conducting tax audits;
3. Increase the extensiveness of Taxpayers (WP), namely capturing taxpayers who have not registered their NPWP (registration number of tax payer) so they can fulfill their tax obligations;
4. Increase tax objects that have not previously been taxed, such as taxes on online transactions;
5. Increase extensiveness by further increasing the excavation of tax sources from MSMEs (micro -small enterprise) as has been done through government regulation/PP no. 46 which was improved into PP 23.

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In terms of increasing GDP

To increase public income / GDP on condition that it will have a multiplier effect on increasing public opinion. Such as lowering tax rates, with the hope of increasing business opportunities that will increase GDP but which are inelastic in nature (the opposite of tax revenue which must be elastic), lowering bank interest rates in the hope of improving the business climate which will result in increased income

CONCLUSION

From the study above, it can be conclude:

1. Indonesia's Tax Ratio
   To be able to calculate the exact amount of Indonesia's tax ratio, the local tax element should be included in the calculation. If the elements of local taxes are included, the percentage of Indonesia's tax ratio will be better, which is 11.66 from the previous 10.33 but it has not moved from the order of the tax ratio of countries in the region of ASEAN countries.
2. Tax Elasticity and Buoyancy
   In general, the buoyancy effect still exceeds the elasticity value for both federal tax and federal tax plus natural resources, which means that GDP revenue increases tax revenue, although it is inelastic in nature because the value is <1
3. Potential Income Tax
   Another factor is the potential income that can be received to increase the tax ratio such as taxes on online transactions, taxes on previously untouched MSMEs which are hidden forms of potential tax revenues and social security. In accordance with the criteria issued by the OECD, the type of State revenue in the form of CSR of 5% which has been declared in the Law of companies and Government Regulation must be followed up with sanctions
4. Informal Transactions
   There is an informal transaction of 57.6% which is a hidden economy that can be immediately included in financial transactions through cashless transactions so that it is easy to monitor the amount of turnover and monitor the potential tax collected
5. Tax Arrears
   Even though the amount is not large, tax revenue as a component of tax revenue should also be included in order to get a more definite picture of the amount of potential tax that should be received so that the tax ratio will increase.
6. Tax Planning
   It is necessary to emphasize the existence of moral sanctions against companies that carry out tax planning. This is because tax planning is an effort to find loopholes to avoid tax problems by taking advantage of the weaknesses of taxation regulations which sometimes lose quickly to the progress of business transactions such as online trading.
7. Income Outflow / Escape Income Abroad
   By signing the AEOI, it is time for the government to use the agreement to be able to obtain transaction data on potential tax revenues from income on assets still placed abroad.

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