



# Tax Buoyancy, Imports, And The Service Sector: How Does Regulatory Quality Moderate These Relationships?

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## ARTICLE INFO

## ABSTRACT

One way to measure the effectiveness of the tax system is through tax buoyancy, which refers to the total response of tax revenue to changes in national income. Therefore, this research aims to determine the simultaneous and partial effects of the service sector and imports on tax buoyancy in Asia-Pacific countries, using Regulatory Quality as a moderator. The study adopts a quantitative descriptive method with panel data regression analysis. The econometric model is estimated using the Random Effect Model (REM). The research findings indicate that the service sector and imports, as well as the moderated interaction between the service sector and imports, have a significant influence on tax buoyancy in the Asia-Pacific region. Partially, the study reveals that the service sector has a positive and significant impact on tax buoyancy, while Regulatory Quality and the import sector do not affect tax buoyancy. Moreover, Regulatory Quality weakens the positive relationship between the service sector and tax buoyancy and it also weakens the negative relationship between the import sector and tax buoyancy. Based on these findings, governments should formulate comprehensive economic and fiscal policies that integrate various sectors to enhance tax buoyancy and strengthen the tax base in Asia-Pacific countries.

**Keywords:** Asia-Pacific, Import Sector, Regulatory Quality, Service Sector, Tax Buoyancy

## INTRODUCTION

A stable and advanced economic growth is the ultimate goal that a nation aspires to achieve. In many countries, particularly those in the developing world, constraints in optimizing resources and fiscal imbalances commonly hinder the attainment of stable economic growth. In addressing this situation, developing nations tend to rely on foreign aid and external debt from other countries. This practice gained significant popularity during the 1970s and 1980s (Audi et al., 2021). Several other countries opt to reduce government spending in areas such as healthcare, education, and infrastructure. This decision has its own implications in terms of the reduced services provided by the government to the populace. Nations must develop alternative approaches to address fiscal imbalances in order to stimulate economic growth. One viable alternative is to augment revenue from the taxation sector. This underscores the importance of formulating and implementing tax regulations that can generate optimal revenue for a country's economic development. Over the years, the government has been implementing reforms in tax policies and tax administration aimed at enhancing revenue performance. Tax revenue collection has become a crucial issue as each country possesses a distinct tax structure irrespective of their economic conditions. When economies operate with continuous fiscal deficits, tax income proves insufficient to generate adequate resources. The efficiency of the tax system and the achievement of stable economic growth come into question, thus making tax buoyancy an essential instrument in reviewing tax systems and fiscal policies.

Tax buoyancy is a term employed to measure and indicate the degree of tax responsiveness to an increase in a country's GDP, i.e., the extent to which tax revenue and tax collection increase as a result of rising national income (Tanchev & Todorov, 2019). To advance development, the government is required to augment

expenditure on public services, and this can be accomplished by enhancing the utilization of tax revenue, ensuring that tax receipts are capable of keeping pace with the country's GDP growth. (Feger & Asafu-Adjaye, 2014). A high degree of tax buoyancy represents an advantageous characteristic within the tax system. This is because, apart from boosting revenue efficiency, it fosters comprehensive fiscal stability by alleviating undesirable cyclical variations. Similar to many other developing countries, several nations in the Asia-Pacific region have seen their public finance sector at the center of various conflicts and challenges during the course of their economic development. These challenges significantly affect the obligation to collect domestic resources in order to enhance the government's functions of redistribution, allocation, and stabilization (Jalles, 2021).

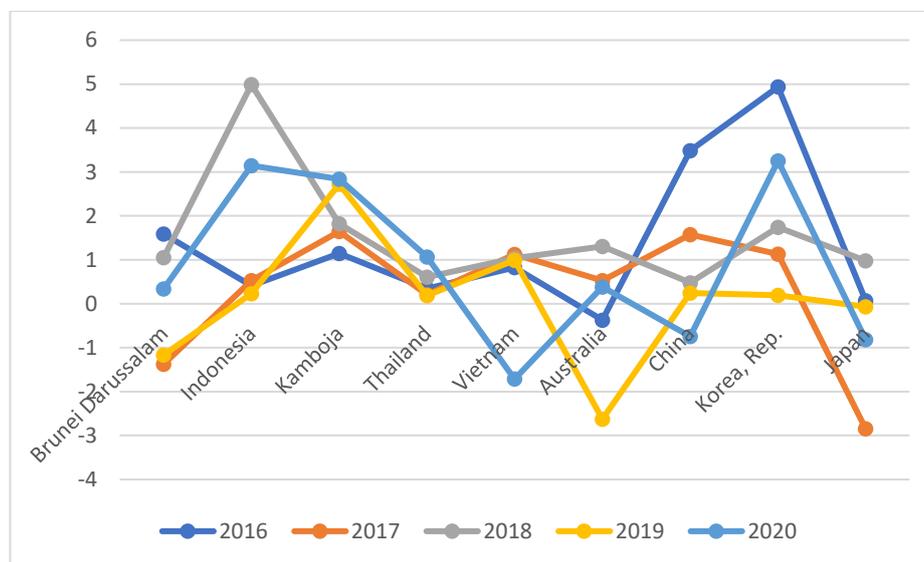


Figure 1. Tax Buoyancy in Asia-Pacific Countries 2016-2020

#### Sumber: World Bank (2023) (Processed Data)

The tax buoyancy values in the Asia-Pacific region tend to exhibit non-patterned fluctuations on an annual basis. The majority of countries in the Asia-Pacific region have experienced tax buoyancy values exceeding 1 (one). A tax buoyancy value exceeding one is considered favorable because it signifies that for a one percent increase in GDP, tax revenue increases by more than one percent. A tax buoyancy exceeding one indicates that the tax system in a country is sufficiently responsive to cope with changes and economic fluctuations. However, on the other hand, in Figure 1, it can be observed that fluctuations in tax buoyancy values sometimes fall below one. When the economy grows, taxpayers' income also increases in line with it, as does the demand for public services. However, if the growth in tax revenue does not align with the overall economic growth, where tax revenue tends to progress at a slower pace, the public sector will struggle to meet the increasing demand for improved public facilities. Therefore, it is essential for a country to study the factors influencing the high or low tax buoyancy of a nation in order to identify strategies for increasing tax revenue and allocating funds for public expenditures because a country's tax revenue cannot be divorced from how the government shapes its regulations.

Several previous studies have been conducted to examine the determinants of a country's tax buoyancy. A prior study by Ahmed & Muhammad (2010) investigated the determinants of tax buoyancy in developing countries and found that the import and services sectors each had a positive and significant influence on tax buoyancy. These findings were corroborated by similar results from Setyoningrum & Purwanti (2020) who asserted that the import sector had a positive and significant impact on tax buoyancy in ASEAN-5 countries. Conversely, these findings contradict those of Morrissey et al. (2016) who stated that imports had a very small and insignificant effect on national tax revenue. Contrasting results regarding the services sector were also presented by Mawejje & Francis (2016) whose research revealed that the services sector had no influence on tax revenue in a country. Salman et al. (2022) conducted research on the impact of a country's regulatory quality on tax revenue performance and found that regulatory quality did not affect the tax revenue of West African countries. This finding aligns with Mohammed & Sanusi (2020) who argued that regulatory quality did not have significance in influencing tax revenue. Conversely, contrasting results were shown by Syadullah (2015) whose research indicated that regulatory quality had a positive impact on tax revenue.

Due to the variability in previous research findings regarding the impact of the services and import sectors on tax buoyancy in a country, this study aims to build upon and complement prior studies while filling a research gap by introducing a moderating variable in the form of a country's regulatory quality. Analyzing determinant factors provides guidance to policymakers on areas requiring greater attention. Therefore, there is a need for more empirical data and guidance for making rational and beneficial economic decisions. To formulate strategies for achieving sustainable improvements in taxation, relevant information is crucial. Consequently,

investigating the determinants of tax buoyancy is an appropriate way to identify focal points that government policies should target accurately. By using examples of countries with similar geographical locations and levels of development, this research is expected to yield more relevant and reliable results. Moreover, there is currently limited research that combines these variables when examining tax revenue in the Asia-Pacific region. Hence, this study is expected to contribute to theory development and enhance the references and perspectives of readers regarding the extent of these factors' influence on tax buoyancy in a country.

## LITERATURE REVIEW

### Tax Buoyancy

Tax revenue pertains to the obligatory funds directed to the central government for financing public needs, subject to specific exemptions like fines, penalties, and a significant portion of social security contributions (World Bank, 2023). On the other hand, refunds or corrections for errors in tax revenue collection are considered negative revenue. Conversely, Gross Domestic Product (GDP) is defined as an aggregate measure of production that equals the sum of the gross value added by all resident institutional units engaged in production (Mankiw, 2016). The growth rate of GDP is a central indicator of economic health. If GDP expands, so too will businesses, employment, and personal income. The increase in GDP, which is the market value of all products and services produced within a country in a given year, contributes to economic growth (Azer et al., 2016). A country with a high rate of economic growth requires funding sources to match this growth. This is where the term tax buoyancy comes into play.

Tax buoyancy is a measure of tax revenue's responsiveness to economic growth. Tax buoyancy gauges the effect of a one percent change in economic activity (such as GDP or the relevant macroeconomic base) on the corresponding category of tax revenue. Tax buoyancy is a straightforward metric that does not differentiate between adjusted (discretionary) and automatic income growth (Sheikh et al., 2018). The formula for tax buoyancy is provided as follows:

$$\text{Tax Buoyancy} = \frac{\% \text{ change in Tax Revenue}}{\% \text{ change in GDP}} \times 100$$

A country is said to have a buoyant tax system when its tax revenue increases by more than one percent for every one percent increase in national income or output. Audi et al. (2021) argue that if a country's tax collection system is proportional, then the tax system is considered an effective automatic stabilizer capable of adapting well. Conversely, if the tax collection system is non-proportional, the tax system is regarded as less effective as an automatic stabilizer to maintain economic stability. The use of tax buoyancy can provide insights into the extent to which taxes play a role as an economic stabilization tool, not just as an indicator of fiscal sustainability (Lagravinese et al., 2020). Although this stabilizing function is typically insufficient to create stable income and employment growth, it is more suitable for helping to navigate periods of recession or controlling excessive economic upswings with inflationary pressures.

### Import Sector

In a closed economy, all output is sold within the domestic sphere, and expenditures are divided into three components: consumption, investment, and government spending. Net exports are not accounted for because, in a closed economy, their value is always zero. This means that there are no economic transactions between buyers and sellers in the international market. However, such closed economies are rarely found in the real world. Generally, countries worldwide adopt an open economy, which means they export goods and services abroad, import goods and services from foreign sources, and participate in borrowing and lending in the global financial markets. There are three advantages of international trade. First, a country can acquire goods and services that cannot be produced domestically. Second, the country can benefit from specialization in production. Third, by expanding its product market and increasing national income, a country can enhance output and overall economic growth (Salvatore, 2014).

According to the World Bank (2022) imports of goods and services encompass the value of all other marketable goods and services received from all over the world. This includes the value of merchandise, freight shipments, insurance, transportation, travel, royalties, licensing fees, and various services such as communication, construction, finance, information, business, personal, and government services. A study conducted by Ahmed & Muhammad (2010) found that the import sector has a positive and significant impact on a country's tax buoyancy. These findings are consistent with research by Setyoningrum & Purwanti (2020) which states that imports have a positive effect on tax buoyancy among ASEAN-5 member countries.

### Service Sector

Broadly, economic growth stems from the accumulation of productive factors. The Cobb-Douglas production function theory suggests that when assessing the expansion of potential output, one should consider diverse origins of economic productivity, including the inputs of labor, capital, and total factor productivity (Hajkova & Hurník, 2007; Mankiw, 2016). The allocation of national income between capital and labor has

demonstrated a persistent stability over an extended duration. To put it differently, as time progresses and economies evolve, the overall earnings of labor and capital proprietors typically experience growth at relatively comparable rates or velocities. In the present day, the service sector has emerged as a dominant and dynamic force in the economy, with its share in GDP continuously increasing over time. The service sector encompasses value-added activities in wholesale and retail trade (including hotels and restaurants), transportation, government services, finance, professional services, and personal services such as education, healthcare, and real estate services. This category also includes imputed bank service charges, import duties, as well as statistical discrepancies recorded by national data collectors and discrepancies arising from rescaling. Compared to manufactured goods, services are generally less tradable and more oriented toward domestic demand. Eichengreen & Gupta (2011) stated that in the classification of the service sector, there are two identifiable phases of service sector expansion. The initial phase takes place in the "traditional" service sector during the early developmental stages, characterized by relatively modest income levels. In contrast, the second phase occurs during later stages of development when income levels are higher, notably in sectors such as communication, computer technology, technical services, and business services that are closely linked to information technology utilization and offer greater potential for cross-border trade.

### **Regulatory Quality**

The notion that historical, cultural, and institutional factors can play a significant role in conditioning and directing the economic fortunes of nations, regions, and individual companies has been widely considered in the literature (Agostino et al., 2020). It is widely acknowledged that institutions play a crucial role in determining the outcomes of policy reform initiatives. According to Teorell & Rothstein (2008), the concept of governance encompasses all aspects involved in the exercise of authority through formal and informal institutions in managing a country's resources. Kaufmann et al. (2010) then proposed the use of the World Governance Indicator (WGI) as a tool to gauge the quality of governance in a country. The WGI consists of six indicators: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Regulatory Quality assesses perceptions of a government's ability to formulate and implement sound policies and legislation that enable and support private sector growth. Research conducted by Anderson & Marcouille, (2022) indicates that strong institutions, particularly a legal system capable of enforcing commercial contracts and formulating and implementing impartial government economic policies, contribute to trade growth. This finding is further reinforced by the discoveries of Wiseman & Young (2013) which suggest that regulations promoting economic freedom enhance regional economic development. On the other hand, this contrasts with Sarwar & Ashraf (2016) who argue that regulatory quality has a negative impact on a country's tax performance, wherein tax revenue is also an indicator of a nation's economic well-being or distress.

### **Hypotheses**

The hypotheses proposed in the research are as follow:

- H1: There is a positive influence of the service sector on tax buoyancy.
- H2: There is a positive influence of the agricultural sector on tax buoyancy.
- H3: There is a positive influence of Regulatory Quality on tax buoyancy.
- H4: Regulatory Quality strengthens the relationship between the service sector and tax buoyancy.
- H5: Regulatory Quality strengthens the relationship between the import sector and tax buoyancy.

## **RESEARCH METHOD**

### **Research Type**

In this study, a descriptive research method with a quantitative approach is employed. Sugiyono (2017) describes that descriptive research is a type of research aimed at understanding the values of independent variables, whether it's one or more variables, without making comparisons or linking them to other variables. Meanwhile, according to Arikunto (2006), a quantitative approach is used because it emphasizes the use of numerical data throughout the research process, from data collection and interpretation to presenting the results. The research data takes the form of panel data with a sample consisting of 14 countries in the Asia-Pacific region, namely Indonesia, Malaysia, Singapore, Thailand, the Philippines, Vietnam, Brunei Darussalam, Cambodia, Australia, China, Japan, South Korea, New Zealand, and Timor-Leste, covering the period from 2011 to 2020. The data used in this study are secondary data sourced from the World Bank and OECD.

## Variable Identification

**Table 1.** Research Variables

Variable	Variable Definition	Scale	Unit
Tax Buoyancy	Percentage growth ratio of tax revenue to the percentage growth of the country's GDP	Ratio	Percentage (%)
Import	Percentage growth ratio of the import sector to the percentage growth of the country's GDP	Ratio	Percentage (%)
Service Sector	Percentage growth ratio of the service sector to the percentage growth of the country's GDP	Ratio	Percentage (%)
Regulatory Quality	An index ranging from -2.5 to 2.5 used to evaluate the government's capacity to formulate regulations that facilitate the growth of the private sector	Ratio	Without Units

### 1. Regression Model

The author utilized the assistance of STATA 17 software for data analysis in this study. The panel data regression model employed in this research is as follows:

$$tb = \beta_0 + \beta_1serv_{it} + \beta_2imp_{it} + \beta_3reg_{it} + \beta_4servreg_{it} + \beta_5impreg_{it} + \varepsilon_{it}$$

with:

tb= Percentage growth ratio of tax revenue to GDP growth percentage

$\beta_0$ = Constant Parameter (Constant)

$\beta_1$  to  $\beta_5$  = Regression Coefficients

serv = Percentage growth ratio of the service sector to GDP growth percentage

imp = Percentage growth ratio of the import sector to GDP growth percentage

reg = Regulatory quality

servreg = Percentage growth ratio of the service sector to GDP growth percentage moderated by regulatory quality

impreg = Percentage growth ratio of the import sector to GDP growth percentage moderated by regulatory quality

## RESULT AND DISCUSSION

### Descriptive Analysis

**Table 2.** Descriptive Analysis

Variable	Mean	Std. Dev.	Min	Max
tb	-1.772417	23.07583	-259.8587	15.96934
serv	-1.071039	20.85097	-243.7376	3.048953
imp	3.36966	15.50637	-27.18723	139.003
reg	0.4926864	1.049107	-1.33521	2.334091
servreg	-3.549253	44.58386	-526.5008	3.331349
impreg	3.935058	28.7347	-17.19787	300.2621

**Source:** Processed by STATA 17, 2023

The results of the testing in Table 2 present a descriptive analysis of the variables used in the study. On average, the tax buoyancy in the Asia-Pacific region countries stands at approximately -1.772417. This indicates that, in general, the responsiveness of the tax system in these countries remains relatively weak compared to the economic development reflected in the growth of their national income. The average value of the percentage growth ratio of the service sector to GDP growth is -1.071039%, with Singapore having the lowest value in 2019 and China occupying the highest position in 2016. The average value for the percentage growth ratio of the import sector to GDP growth is 3.36966%, with Brunei Darussalam having the lowest share in 2019 and Singapore having the highest percentage in the same year. The average regulatory quality index in the Asia-Pacific region countries is 0.4926864, with Cambodia having the lowest regulation quality score in 2018, while Thailand exhibits the highest score in 2014.

### Model Selection Test Result

**Table 3.** Model Selection Test

Ujian	Nilai Uji	Prob. Nilai	Kesimpulan
Chow Test	3.12	0.0005	Fixed Effect Model is better than Common Effect Model / Pooled Least Square
LM BP Test	17.56	0.0000	Random Effect Model is better than Common Effect Model / Pooled Least Square
Hausman Test	0.13	0.9997	Random Effect Model is better than Fixed Effect Model

**Source:** Processed by STATA 17, 2023

Based on the model selection tests conducted, it was determined that the most appropriate model for use in this study is the Random Effect Model. Following the selection of the panel data model, the analysis proceeds to the classical assumption tests.

## Classical Assumption Test Result

**Table 4.** Classical Assumption Test

Test	Prob. Value	Conclusion
Normality Test	0.0000	There are indications of non-normally distributed data.
Multicollinearity Test	148.91	There are symptoms of multicollinearity.
Heteroscedasticity Test	0.4655	There are no signs of heteroskedasticity.
Autocorrelation Test	0.9921	There are no indications of autocorrelation.

**Source:** Processed by STATA 17, 2023

Based on the results of the classical assumption tests in the table above, it is known that the data passes the heteroskedasticity and autocorrelation tests. This is indicated by the Prob values being greater than  $\alpha=0.05$ . Conversely, there are indications of non-normal distribution in the tested data. This is indicated by the Prob values not exceeding  $\alpha=0.05$ . However, the Central Limit Theorem states that the sample mean distribution will always be normally distributed as long as the sample size is sufficiently large, regardless of whether the population has a normal, Poisson, binomial, or other distribution (Anderson, 2010; Bluman, 2012; Turney, 2023). The number of data points used in this study is 140 samples, so it can be concluded that the sample size is large enough to be considered normally distributed according to the Central Limit Theorem. Furthermore, the data also shows symptoms of multicollinearity, indicated by Variance Inflation Factor (VIF) values exceeding 10. In general, data is considered free from multicollinearity if the VIF values are below 10. This study uses panel data, which is a combination of cross-sectional and time series data and is one of the rules of thumb approaches where multicollinearity issues can be overlooked (Gujarati, 2004). Gujarati et al. (2012) also state that in panel data analysis, classical assumption tests are not always required because panel data can naturally mitigate biases that may arise in the analysis results, while providing more information, variation, and degrees of freedom.

## Hypotheses Test Result

**Table 5.** Random Effect Model Regression Analysis

tb	Coefficient	Std. err.	z	P> z  (Two-tailed)	P> z  (One-tailed)	[95% conf. interval]	
serv	2.06057	0.2605508	0.91	0.000	0.000	1.549899	2.57124
imp	-0.1162112	0.0864682	-1.34	0.179	0.0895	-0.2856857	0.0532633
servreg	-0.4007185	0.1234176	-3.25	0.001	0.0005	-0.6426125	-0.1588245
impreg	0.160549	0.0494865	3.24	0.001	0.0005	0.0635572	0.2575408
reg	0.7957496	0.5916343	1.35	0.179	0.0895	-0.3638324	1.955332
_cons	-1.61995	0.7517819	-2.15	0.031	0.0155	-3.093416	-0.1464848

**Source:** Processed by STATA 17, 2023

## Simultaneous Test (F-Test)

Based on the test results, it is evident that simultaneously, the variables of imports, the service sector, and the variables of imports and the service sector moderated by Regulatory Quality have a significant impact on Tax Buoyancy in the Asia-Pacific region. This can be observed from the Prob > chi2 value of 0.0000 (less than the alpha of 5 percent).

## Partial Test (t-test)

Partial tests can be observed from the P>|z| values in Table 5. If the P>|z| value is less than  $\alpha=0.05$ , then the variable is considered to significantly influence the tax buoyancy in the Asia-Pacific countries. The service sector variable has a positive and significant influence on tax buoyancy. The import sector variable does not influence the tax buoyancy of the Asia-Pacific countries. On the other hand, the import sector variable becomes positive and significant in its impact on tax buoyancy after being moderated by Regulatory Quality. Meanwhile, the moderated service sector variable, i.e., Regulatory Quality, is found to have a negative and significant impact on tax buoyancy. Furthermore, it is evident that the moderation variable, Regulatory Quality, does not have an influence on tax buoyancy in the Asia-Pacific countries.

## Coefficient of Determination (R<sup>2</sup>)

The coefficient of determination (R<sup>2</sup>) has a value of 0.9764 or 97.64 percent. This implies that the variables of imports, the service sector, and the variables of imports and the service sector moderated by Regulatory Quality can collectively influence the dependent variable, Tax Buoyancy, in the Asia-Pacific region, by 97.64 percent. The remaining 2.36 percent is influenced by other variables that were not included in the analysis. The regression results for the panel data are presented in the following model:

$$Y = -1.61995 + 2.06057X_1 - 0.1162112X_2 + 0.7957496Z - 0.4007185X_1Z + 0.160549X_2Z$$

In the model above, the constant value of -1.61995 can be interpreted as follows: in the absence of the variables of the service sector, the import sector, and Regulatory Quality, the Tax Buoyancy ratio would reach -1.61995. The service sector variable has a constant of 2.06057, with a positive sign indicating a positive relationship

between the service sector and Tax Buoyancy in the Asia-Pacific countries. This means that when the percentage ratio of the service sector's growth to GDP growth increases by 1%, Tax Buoyancy will increase by 2.06057%. On the other hand, there is a negative relationship between the import sector and Tax Buoyancy. For every 1% increase in the percentage ratio of import sector growth to GDP growth, Tax Buoyancy decreases by 0.1162112%. The Regulatory Quality variable, with a positive coefficient, indicates that a 1% increase in the Index will lead to a 0.7957496% increase in Tax Revenue. The coefficient value of the interaction between the service sector and Regulatory Quality is negative at -0.4007185, indicating that a 1% increase in the interaction between the service sector and Regulatory Quality will decrease Tax Buoyancy by 0.4007185%. Conversely, the coefficient of the import sector moderated by Regulatory Quality is positive. This can be interpreted as a 1% increase in the interaction between the import sector and the Regulatory Quality will increase Tax Buoyancy by 0.160549%.

### **The Impact of Service Sector on Tax Buoyancy in Asia-Pacific Countries**

Research on the relationship between the service sector and tax buoyancy has been conducted previously, including studies by Bayu (2015), Piancastelli (2001), and Setyoningrum & Purwanti (2020). Based on the tests conducted in this research, it is evident that the service sector has a positive and significant influence on tax buoyancy in Asia-Pacific countries. Therefore, the findings of this study align with the aforementioned research. Conversely, this research presents results that contrast with the findings of Mawejje & Francis (2016) who stated that the service sector has no impact on tax revenue in countries. The service sector has experienced rapid growth in Asia. Kim & Wood (2020) reported a consistent increase in the share of the service sector from 2013 to 2020 in Asia-Pacific countries. In East Asian countries like South Korea, the service sector accounts for up to 60 percent of the total GDP. The service sector is divided into several subsectors, including wholesale and retail trade (including hotels and restaurants), transportation, government, finance, professional services, and personal services such as education, health, and real estate. The breadth of this sector leads to numerous spill over effects that affect other sectors. Additionally, it contributes to job growth, international trade, and foreign direct investment. Economies are moving toward a service-dominated economy (Kitessa & Jewaria, 2018). Hansda (2002) conducted a detailed input-output analysis and found a strong linkage from the service sector to industries. The input-output coefficients in this framework reflect the use of inputs from the service sector in industries, which can further drive the country's economy.

Furthermore, the expanding service sector increases the tax base in the country, which can boost tax collection performance, especially through goods and service taxes. The service sector is a key driver of employment in this region. This is because when the income of a sector increases due to improved productivity, the taxable income derived from that sector also rises. This domino effect ultimately leads to increased tax revenues for the country. The growing trend of the service sector in the Asia-Pacific region also contributes to an increased number of workers in the industry. A larger market requires more labor and resources. A significant portion of Asia's workforce engaged in the service sector has grown rapidly, reaching approximately 34 percent of the total workforce. If there is an increase in the number of workers in the service sector, it will also affect personal income taxes collected from those employees, which will have a positive impact on a country's tax buoyancy.

### **The Impact of Import Sector on Tax Buoyancy in Asia-Pacific Countries**

The research results indicate that imports do not impact on tax buoyancy in Asia-Pacific countries. This finding is noteworthy as the majority of previous research has suggested a positive and significant relationship between imports and tax revenue in a country, as demonstrated in studies by Bayu (2015). However, this aligns with the findings of Suliman (2005) and Morrissey et al (2016) who both asserted that imports have a minimal impact on a country's tax revenue. Ali et al. (2021) argue that imports can lead to the outflow of local currency and weaken the trade balance, potentially hampering economic growth. In economic theory, it is known that one component contributing to a country's GDP is the trade balance, which is derived from the difference between exports and imports. A country is said to have a trade surplus when the value of exports exceeds imports and a trade deficit when the opposite is true. If a country's imports increase, assuming exports remain constant, the trade balance will deteriorate, leading to a trade deficit.

However, on the other hand, imports are considered a source of economic growth (Bakari & Mabrouki, 2017). A country can import certain products or goods that, in the long run, result in output worth more than the imported items. For instance, imports involving hardware and electronics can aid and enhance investment. Imports of raw materials and technology needed for faster economic growth are currently trending in the market and playing a significant role in economic expansion. Çetintaş & Barişik (2009) argue that the unavailability and shortage of imported raw materials needed for the industrialization process can have a negative impact on a country's economic growth. When a country increases the imports of raw materials used in production, there is an increase in production. This, in turn, leads to increased income for these countries. This increased production and income are critical stages for countries developing their industrialization. Furthermore, a trade deficit does not always indicate an economic ailment. When less developed rural economies transition into modern industrial economies, they often finance high levels of investment with foreign loans. In such cases, a trade deficit can be a sign of economic development. For example, South Korea experienced significant trade deficits throughout the 1970s and early 1980s, and it has now become one of the success stories in terms of economic growth.

On the flip side, some regulations governing imports offer incentives in the form of tax reductions or exemptions related to imported goods. For example, Indonesia implements a policy where Value Added Tax (VAT) is not levied on the import of goods used for upstream oil and gas exploration and exploitation activities as well as geothermal exploration and exploitation. Additionally, Indonesia also grants duty-free importation for goods used in upstream oil and gas activities as well as geothermal operations. Meanwhile, other countries like the Philippines have the Export Development Act, which includes incentives such as duty-free importation of machinery, equipment, and spare parts, as well as exemptions from upfront payment of import duties for goods imported for use in export production (PWC, 2023). The implication of these regulations is that, despite imports occurring for specific items, they do not have an impact on a country's tax revenue.

### **The Impact of Regulatory Quality on Tax Buoyancy in Asia-Pacific Countries**

The test results indicate that Regulatory Quality does not have an impact on tax buoyancy in the countries of the Asia-Pacific region. This finding is consistent with the research conducted by Anwar & Wijaya (2023) and Yaru & Raji (2022). On the other hand, this finding contradicts the research conducted by Wiseman & Young (2013). To guard against opportunism and reduce uncertainty, regulatory quality needs to be implemented by a country's government and reinforced by the state's coercive power to enforce rules. Therefore, regulatory quality is an essential aspect of institutions that enhance growth. However, it should be emphasized that not all government regulations aim to increase tax revenue (Anwar & Wijaya, 2023). For instance, Vietnam enacted the Tax Administration Law in 2019, which focuses on how to obtain a tax identification number for the first time. This regulation is relevant to the field of taxation, but its creation was not intended to boost the state's revenue; rather, it was solely meant to provide guidance and direction to prospective taxpayers. On the other hand, Indonesia also has regulations regarding imports outlined in the Peraturan Menteri Perdagangan Nomor 70/M-DAG/PER/9/2015 Tahun 2015 tentang Angka Pengenal Importir (2015) This regulation specifies the types of Importer Identification Numbers, who is obliged to have an Importer Identification Number, and how to obtain it. Regulations like these have always aimed at streamlining and standardizing the administrative system for businesses. Therefore, these regulations have no impact on a country's tax buoyancy.

On the other hand, for a regulation to yield the expected results, time is required. Good regulatory quality in a country can enhance its economy, ultimately having a positive impact on increasing the state's tax revenue. However, the issue at hand is that many developing countries lack the capacity to generate strong regulations, particularly in terms of human resources and the supervisory ability needed to maintain the commitment and credibility of regulations. Research conducted by Cariño (2004) asserts that national regulatory bodies in the Philippines perform poorly due to inadequate skills, internal management issues, and the prevalence of political influence. The ineffectiveness of regulations in a country can also stem from the mismatch between the regulations adopted by that country. Domah, et al (2023) reveal that small-sized offices, inadequate human resources relative to the workload, and higher implementation costs in comparison to advanced countries based on gross domestic product also contribute to the ineffectiveness of resulting regulations. In line with these findings, the implementation process of regulations also incurs significant costs (Guasch & Hahn, 1999). Formal institutions cannot prevent high transaction costs, and if they cannot support private activities, market exchanges, or investments, then no matter how well-intentioned a regulation's primary idea is, it will not be effectively realized. Similarly, if the government is unwilling to allocate funds for supervision, there will still be individuals exploiting regulatory loopholes to engage in tax avoidance for personal gain. Consequently, the primary goals of regulations oriented towards increasing tax revenue and a country's GDP remain unattainable.

### **The Impact of Interaction Between Service Sector and Regulatory Quality on Tax Buoyancy in Asia-Pacific Countries**

The test results indicate that, after moderation, the service sector exhibits a negative and significant influence on tax buoyancy in the Asia-Pacific countries. This implies that the quality of regulation as a moderating variable weakens the positive impact of the service sector on tax buoyancy. This finding aligns with the research conducted by Chaudhry & Munir (2010). In many countries, especially in developing nations, the service sector largely consists of the informal sector. Therefore, despite the rapid growth of the service sector and the broadening of the tax base, the increase in tax revenue cannot keep pace because this sector is predominantly informal, leading to numerous undetected potential losses. Due to its unique nature, informal economic activities are challenging to identify and even more difficult to measure. The informal sector is also associated with widespread tax avoidance practices (Danopoulos & Znidaric, 2007). An economic activity might be legal, but entrepreneurs may find ways to evade taxes, either through legal loopholes or by intentionally underreporting sales. This is known as tax avoidance and tax evasion. Consequently, a country cannot maximize its taxation potential from the service sector, even if it has implemented good regulations.

On the other hand, regulations such as tax incentives or exemptions applied to the service sector also leads to a negative impact of the interaction between the service sector and the regulatory quality on the tax buoyancy of a country. Education services are one of the services exempted from or not subject to Value Added Tax (VAT) in Indonesia, Malaysia, and Thailand. Besides education services, several other service sectors are also not subject to VAT in Indonesia, including hotel services, arts and entertainment services, and food or catering services. In contrast, countries like Vietnam exempt health and telecommunications services from taxation,

and Singapore does not impose VAT on financial services. Furthermore, countries in the Asia-Pacific region have been actively providing numerous tax incentives to the service sector as a stimulus in response to the COVID-19 pandemic. Domestic tax policies across various countries related to these taxations have resulted in no increase in state tax revenue despite the growth in economic activity.

### **The Impact of Interaction Between Service Sector and Regulatory Quality on Tax Buoyancy in Asia-Pacific Countries**

The moderated import sector, under the influence of regulatory quality, demonstrates a positive and significant impact on tax buoyancy in the Asia-Pacific countries. This implies that regulatory quality, as a moderating variable, mitigates the negative impact of the import sector. This finding aligns with research conducted by Ahmed & Muhammad (2010). Conversely, this study contradicts the results of Morrissey et al. (2016). In general, the purpose of economic regulation is to rectify market failures and enhance market competition. Governments may intervene to stabilize prices, provide a minimum income to producers, prevent excessive pricing for socially important goods, or reduce harmful goods in favor of beneficial ones. Therefore, the effectiveness of the regulatory institutional framework in promoting competition and controlling anti-competitive behavior of dominant firms is crucial for the success of regulatory reforms (Kirkpatrick & Parker, 2007). Tax regulations regarding imports are also critical for policymakers to regulate.

Essentially, certain features of international trade make it easier to tax compared to domestic activities, and in many developing countries, the international trade sector is usually the most monetized sector because imports and exports occur at specific locations (Chaudhry & Munir, 2010). Generally, countries levy taxes on both individual and corporate import activities. The tax imposition varies from one country to another, depending on the tax system adopted. Indonesia imposes Income Tax Article 22, Value Added Tax (VAT), and import duties on import activities. Research conducted by Masyitah (2019) suggests that imports have a positive and significant impact on VAT and Luxury Goods Sales Tax (PPnBM) revenue in Indonesia. Furthermore, the Philippines imposes customs duties, which include average import duty rates based on the value of imported goods, and Value Added Tax (VAT) or Sales Tax, which is 12 percent of the total landing cost. Conversely, Australia enforces a 10 percent Goods and Services Tax (GST) on all eligible imported commodities unless specific duty exemptions or GST waivers apply under the framework of Australian legislative regulations. The import sector has a positive correlation with tax revenue, primarily because developing nations, particularly the most economically challenged among them, tend to heavily rely on revenue generated from import-related taxes. Additionally, from a regulatory oversight standpoint, monitoring import activities is comparatively more straightforward due to goods entering the country via designated ports, airports, or specified locations. This streamlined entry process facilitates efficient monitoring and tracking by authorities, including customs officials. As part of the importation process, goods undergo customs procedures, enabling customs authorities to evaluate and collect import duties and other associated taxes. Moreover, imports typically include comprehensive documentation, such as invoices and bills of lading, furnishing intricate details about the imported items and their valuation. This documentation aids tax authorities in determining the applicable tariff rates and the corresponding tax amounts more accurately. Mohammed & Sanusi (2020) state that policy breakthroughs in the form of digital transformation in the tax system also facilitate supervision and act as an early detection of indications of errors or fraud in the tax compliance process. This policy also contributes to increased revenue collection.

### **CONCLUSIONS AND SUGGESTIONS**

This study aims to examine the simultaneous and partial effects of the service sector and the import sector on tax buoyancy in Asia-Pacific countries, using Regulatory Quality as a moderator. Simultaneously, the variables of imports, the service sector, as well as the interaction between imports and the service sector moderated by Regulatory Quality, have a significant influence on Tax Buoyancy in Asia-Pacific countries. Based on the testing conducted in this study, it is evident that the service sector has a positive and significant impact on the tax buoyancy of countries in the Asia-Pacific region. The service sector can boost tax revenue by expanding the tax base in the country, subsequently stimulating improved tax collection performance, especially through goods and service taxes.

The import sector does not affect tax buoyancy in Asia-Pacific countries. Imports can lead to the outflow of local currency and weaken the trade balance. However, on the flip side, this can be interpreted as a long-term investment in the country since importing raw materials can enhance a nation's productivity. Moreover, the abundance of tax incentives related to import activities also contributes to the relatively low tax revenue generated from this sector.

Regulatory Quality does not impact tax buoyancy in Asia-Pacific countries. This is because it takes time for regulations to yield desired effects, and there needs to be an effort on the government's part to provide adequate oversight. Furthermore, not all regulations related to taxation influence a country's tax revenue. Administrative regulations, in particular, tend to streamline business processes and do not significantly affect the total tax revenue in a country.

The moderating variable, Regulatory Quality, weakens the positive influence of the service sector on tax buoyancy in Asia-Pacific countries. The service sector predominantly comprises the informal sector, making it

challenging to detect potential tax evasion comprehensively. Additionally, the informal sector tends to engage in tax avoidance. The plethora of regulations offering tax incentives and exemptions for the service sector also leads to reduced tax revenue from this sector. While these regulations are intended to stimulate the service sector, they simultaneously result in a trade-off by diminishing the country's tax revenue from this sector.

Regulatory Quality as a moderating variable weakens the negative impact of the import sector on tax buoyancy in Asia-Pacific countries. This is primarily due to the ease with which the import sector can be taxed. Moreover, from a supervisory standpoint, import activities are relatively easy to monitor, as goods enter the country through designated locations. This facilitates efficient monitoring and tracking by authorities.

In addition to the variables used in this study, it is important to consider other factors that influence tax buoyancy in Asia-Pacific countries. Future research can incorporate additional macroeconomic variables such as exchange rates, inflation rates, and money supply to provide a broader perspective. From a government policy perspective, active assessment of regulations governing the service sector and import provisions in each country is essential to ensure the creation of regulations that benefit tax buoyancy in the respective nations.

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