Revenue and Tax Effort Analysis in ASEAN Countries, 2010-2019*

I. INTRODUCTION

The ability of a country to generate robust revenue helps sustain its economy and allows its national government (NG) to provide public goods and services. Thus, as economic development demands higher expenditure on public infrastructure, education, health, and social protection, many countries all over the world exert efforts in raising government revenue by relying mainly on taxation, apart from non-tax sources. In view thereof, these countries continuously pursue improving the productivity of their tax system through tax policy reforms and efficient tax administration.

This paper analyzes the performance of member countries of the Association of Southeast Asian Nations (ASEAN) in terms of tax and revenue efforts or the ratios of tax and total revenues to gross domestic product (GDP)[1] from 2010 to 2019. The ASEAN, of which member-countries are perceived to have relatively comparable patterns of public finance and system of taxation, includes the Philippines, Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic (PDR), Malaysia, Myanmar, Singapore, Thailand, and Vietnam.

This study presents statistics on government revenues of each ASEAN-member country to give insights mainly on the similarity and diversity of the tax revenue sources of these countries. The results of this study would be useful to fiscal policymakers, tax administrators, researchers, and other interested parties in their respective undertakings.

II. REVENUE STRUCTURE AND PERFORMANCE OF INDIVIDUAL COUNTRIES

This study employed the revenue classification of the Government Finance Statistics (GFS) framework developed by the International Monetary Fund (IMF). In the GFS, revenue is comprised of taxes, social contributions, grants, and other revenues. For this study, the data

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[1] The tax and revenue efforts are based on the GDP rather than the gross national income (GNI). The preference of GDP over GNI, as the basis of the ratio, was deemed appropriate since the GDP excludes the "net factor income from abroad", which is generally not taxable in the receiving countries.

gathered focuses on tax revenue and non-tax revenue, excluding grants and social contributions.

In the GFS, taxes are classified into six major categories: (1) taxes on income, profits, and capital gains; (2) taxes on payroll and workforce; (3) taxes on property; (4) taxes on goods and services; (5) taxes on international trade and transactions; and (6) other taxes. Other taxes include revenue from taxes levied predominantly on a base or bases not elsewhere classified and unidentified taxes. Taxes on payroll and workforce were also excluded since no ASEAN member country recorded such data.

Indonesia, Myanmar, Singapore, and Thailand reported revenue data from the general government while the Philippines, Cambodia, Lao PDR, and Malaysia, from the central budgetary government. Data on the general government is usually identified as best suited to macroeconomic perspectives since this aggregate covers the overall magnitude of government operations. Data on Brunei Darussalam was sourced directly from its Ministry of Finance and Economy while data on Vietnam was sourced from the Asian Development Bank since the two lacked GFS data from the IMF.

A. Philippines

The NG revenue of the Philippines showed a consistently increasing trend from 2010 to 2019, registering an annual average revenue of P2.04 trillion. Of this amount, 90% (P1.84 trillion) came from taxes, while 10% (P205 billion) came from non-tax sources, indicating that the country relies heavily on taxes for its revenue requirements.

Among the components of tax revenue, taxes on income, profits, and capital gains contributed the biggest average share of about 40% annually; followed by taxes on goods and services, 26%; taxes on international trade and transactions, 19%; other taxes, 4%; and taxes on property, less than 1%.

The tax effort of the Philippines has steadily increased from 12% in 2010 to 15% in 2019, averaging 13% during the period. Likewise, its revenue effort also showed a consistently increasing trend from 13% in 2010 to 16% in 2019, recording an average of 14%.

Among the components of tax revenue, taxes on property recorded the highest growth averaging 18% during the period covered. It is followed by taxes on goods and services with an average growth rate of 13%, which can be attributed to the remarkable increase in excise tax collection in 2013 with the first-year implementation of the Sin Tax Reform Act of 2012[2] that imposed higher excise taxes on tobacco and alcohol products. In addition, the passage of TRAIN Law[3] in 2018, which imposed additional excise taxes on petroleum products, also contributed to growth in excise tax collection. Meanwhile, taxes on income, profits,

[2] Republic Act No. 10351, also known as the "Sin Tax Law of 2010", (January 1, 2013).

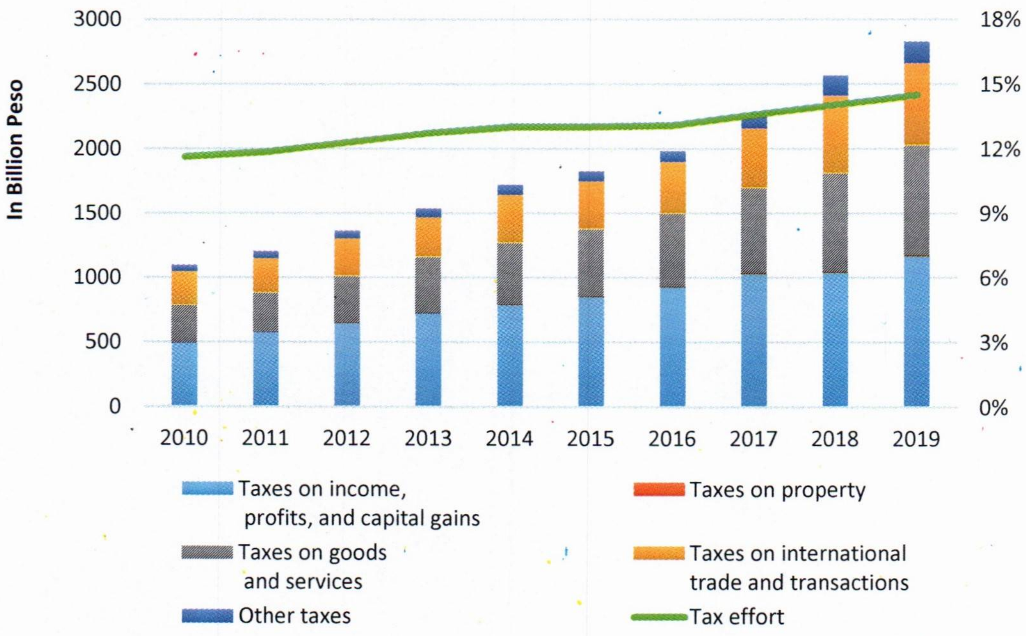
[3] Republic Act No. 10963, also known as the "Tax Reform for Acceleration and Inclusion (TRAIN)" law, (January 1, 2018).

and capital gains grew at an average of 10%. A slight decrease in the tax collection from individuals in 2018 can also be seen as an aftermath of the TRAIN Law, which exempts individuals from paying taxes whose annual income falls below P250,000. Taxes on international trade and transactions grew at an average of 11%, and lastly, other taxes grew at an average of 16%. (See Figure 1 and Table 1.)

The growth in the Philippines' tax revenues can be seen as a positive impact of reforms in the tax structure such as the recent TRAIN law and the Sin Tax Reform law, among others; enhancement of the tax payment system; and stricter implementation of administrative measures like Run After Tax Evaders (RATE)[4] and Run After the Smugglers (RATS).[5]

Figure 1

Tax effort and tax revenue of Philippines by type, CY 2010-2019



[4] On March 15, 2010, the Bureau of Internal Revenue released the Revenue Memorandum Order No. 27-2010 which aimed to re-invigorate the RATE Program.

[5] On October 6, 2011, the Bureau of Customs announced the implementation of the RATS Program to battle the smuggling of counterfeit items.

Table 1

National Government Revenues of the Philippines, 2010-2019 (In Billion Peso)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	1,208	1,359	1,527	1,713	1,906	2,047	2,196	2,472	2,834	3,136	2,040	100.0	14.6
Tax revenue	1,094	1,202	1,361	1,536	1,719	1,815	1,980	2,251	2,566	2,828	1,835	90.0	13.2
1. Taxes on income, profits, and capital gains	489	572	643	718	785	846	921	1,025	1,035	1,165	820	40.2	5.9
a. Individual	167	194	222	247	284	309	344	391	386	478	302	14.8	2.2
b. Corporate	280	337	371	424	455	490	534	588	592	591	466	22.9	3.3
c. Others	42	41	50	47	46	47	43	46	57	96	52	2.5	0.4
2. Taxes on property	2	2	4	3	5	6	7	7	7	7	5	0.2	0.0[1/]
3. Taxes on goods and services	294	308	365	441	482	527	572	666	773	860	529	25.9	3.8
a. General taxes on goods and services	172	183	230	250	279	296	326	361	348	386	283	13.9	2.0
b. Excise	67	68	72	119	135	158	164	209	291	317	160	7.8	1.1
c. Others	55	57	63	72	68	74	82	97	135	157	86	4.2	0.6
4. Taxes on international trade and transactions	259	265	290	305	369	368	396	458	593	630	393	19.3	2.8
5. Other taxes	49	54	60	68	77	77	85	93	157	165	89	4.3	0.6
Non-tax revenue*	114	157	166	177	188	231	215	222	269	309	205	10.0	1.5
GDP (at current prices)	9,399	10,145	11,061	12,051	13,207	19,944	15,132	16,557	18,265	19,516	13,928	-	-
Ratio of (%):													
Total revenue to GDP (Revenue Effort)	12.8	13.4	13.8	14.2	14.4	14.7	14.5	14.9	15.5	16.1	14.4	-	-
Tax Revenue to GDP (Tax Effort)	11.6	11.8	12.3	12.7	13.0	13.0	13.1	13.6	14.0	14.5	13.0	-	-

*Social contribution and grants not included

1/ Less than 0.05%

Source: International Monetary Fund, Budgetary Central Government Revenue Statistics

B. Brunei Darussalam

In general, Brunei Darussalam has a different revenue structure from the rest of the ASEAN member countries since its system focuses mainly on the oil and gas sector. In fact, the bulk (85.7%) of its total revenue from 2010 to 2019, on average, came from this sector which consists of corporate income taxes for oil and gas production companies and property income. On the other hand, 13% of its revenues came from government operations composed of taxes, fees, charges and rent, and other operations, while the remaining 2% came from returns from investment and savings.

From 2010 to 2012, the total revenue of Brunei Darussalam accounts for almost half of its GDP. However, from 2013 to 2019, its total revenue started to decline with a significant drop of 48% in 2015. The cause for such a drastic decline can be traced to oil prices in the global market. Beginning in the second half of 2014, the supply of crude oil from non-OPEC countries, including Brunei Darussalam, increased. The demand, however, failed to meet the excessive supply, which led to the collapse of crude oil prices in the world market (Prusak, 2016). Since its economy relies heavily on oil and gas revenue, its total revenue suffered an average contraction of 2% over the decade.

The revenue effort of Brunei Darussalam was pegged at an average of 35%. Growth-wise, it exhibited a majority decline in revenue effort (-4.31%) as its revenue failed to grow at the same pace as its GDP. With the continuous fall of global energy prices, the downtrend of revenue effort was already expected. With the prices of oil at record lows, the country launched a number of economic reforms in 2016 which aimed to attract new foreign direct investment, develop high-technology in the agricultural and manufacturing industries, support small and medium-sized enterprises, and encourage private sector growth (Oxford Business Group, 2016). These reforms led to a bounce of 56% in the country's total revenue in 2018. (See Figure 2 and Table 2.)

Figure 2

Revenue effort and revenue of Brunei Darussalam by type, CY 2010-2019

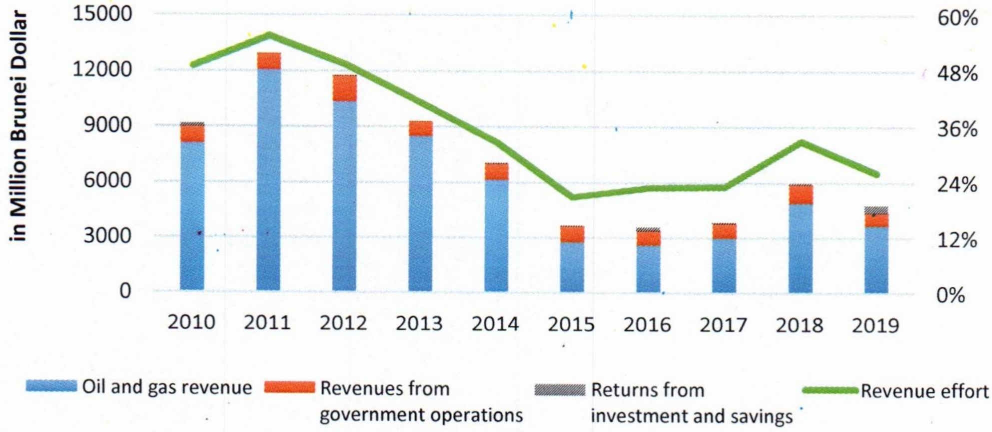


Table 2

National Government Revenues of the Brunei, 2010-2019 (In Million Brunei Dollars)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total Revenue	9,166	12,936	11,765	9,318	7,076	3,709	3,616	3,872	6,027	4,796	7,228	100.0	36.7
Oil and gas revenue*	8,089	12,020	10,330	8,498	6,146	2,757	2,584	2,976	4,873	3,646	6,192	85.7	31.4
Revenues from government operations	886	903	1,403	775	868	884	812	809	1,043	716	910	12.6	4.6
a. Taxes	532	406	584	403	412	427	346	309	348	351	412	5.7	2.1
b. Fees, charges, and rent	302	330	330	338	423	404	417	358	610	325	384	5.3	1.9
c. Others	53	167	488	34	33	53	50	142	85	40	114	1.6	0.6
Returns from investment and savings	190	13	33	45	64	69	221	87	111	434	127	1.8	0.6
GDP (at current prices)	18,690	23,303	23,802	22,639	21,664	17,778	15,748	16,747	18,301	18,375	19,705	-	-
Ratio of:													
Total revenue to GDP (Revenue Effort)	49.0	55.5	49.4	41.2	32.7	20.9	23.0	23.1	32.9	26.1	35.4	-	-

*Includes corporate taxes for oil and gas production companies and property income (non-tax) for the oil sector.
Source: Ministry of Finance and Economy, Brunei Darussal

C. Cambodia

From 2010 to 2019, the national government of Cambodia generated annual average revenue of KHR12.60 trillion, of which 87% (KHR10.92 trillion) came from taxes, and the other 13% (KHR1.40 trillion) were from non-tax revenues. It relied heavily on taxes on goods and services as a revenue source, which contributes, on average, a little over half (51.7%) of its total annual revenue. Moreover, taxes on income, profits, and capital gains accounted for 18%, taxes on international trade and transactions at 15%, and other taxes at less than 1% of the country's total revenue.

Similar to its GDP, Cambodia's tax and total revenues showed upward trends and positive growths during the decade. These were attributed to the constant increases in tax revenues due to revenue collection improvements and public financial management reforms. In December 2008, the second phase of the Public Financial Management Reform Program of Cambodia was introduced with the focus on broadening the revenue base, strengthening the coverage of revenue reforms in the taxation departments, and developing oil/gas/mining revenue policy, as well as establishing mechanisms for the management of related revenue flows (Cambodia Ministry of Finance, 2008). It also implemented its medium-term revenue mobilization strategy 2014-2018 that focuses on the transmission of tax returning culture, strengthening tax revenue collection, especially on immovable property and means of transportation, and modernization of custom and tax administrations (Cambodia Ministry of Finance, 2014). These policies led to the impressive average growth of Cambodia's total revenue and tax revenue by 19%, way higher than the average growth of its GDP at only 10%.

The tax effort of Cambodia doubled from 10% in 2010 to 20% in 2019. Likewise, the revenue effort showed an increasing trend from 11% in 2010 to 23% in 2019. On average, while tax effort was pegged at 14%, revenue effort was at 16%. (See Figure 3 and Table 3.)

Figure 3

Tax effort and tax revenue of Cambodia by type, CY 2010-2019

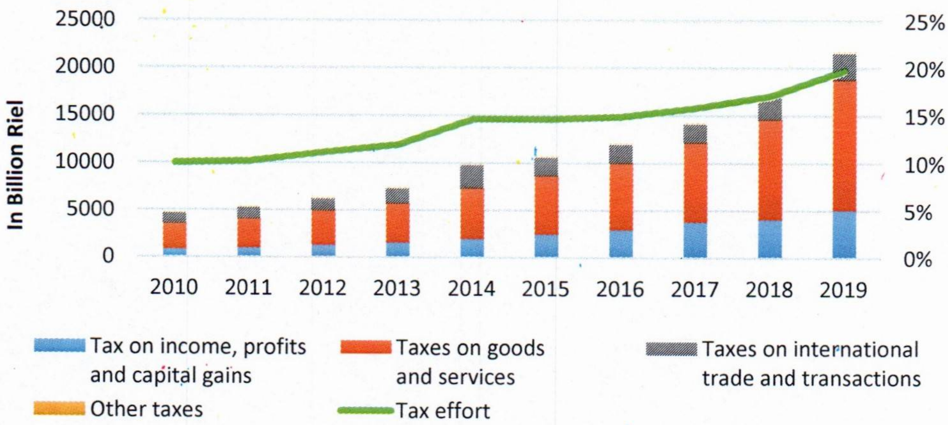


Table 3

National Government Revenues of the Cambodia, 2010-2019 (In Billion Riel)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	5,397	6,015	7,163	8,429	11,180	12,172	14,109	16,671	19,829	25,076	12,604	100.0	18.8
Tax revenue	4,706	5,287	6,282	7,408	9,864	10,707	12,045	14,183	16,974	21,708	10,916	86.6	14.8
1. Taxes on income, profits, and capital gains	800	960	1,266	1,561	1,965	2,472	2,953	3,798	4,059	5,045	2,488	19.7	3.4
a. Individual	198	236	296	377	485	754	836	1,032	867	990	607	4.8	0.8
b. Corporate	603	724	970	1,184	1,480	1,718	2,117	2,767	3,192	4,055	1,881	14.9	2.5
2. Taxes on property	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3. Taxes on goods and services	2,742	3,093	3,681	4,174	5,426	6,238	7,096	8,411	10,550	13,750	6,516	51.7	8.8
a. General taxes on goods and services	1,689	1,913	2,269	2,670	3,391	3,640	4,143	4,735	5,581	7,272	3,730	29.6	5.0
b. Excise	902	1,035	1,261	1,339	1,857	2,432	2,955	3,676	4,969	6,478	2,690	21.3	3.6
c. Others	151	145	151	166	179	167	-	-	-	-	96	0.8	0.1
4. Taxes on international trade and transactions	1,160	1,231	1,332	1,667	2,466	1,989	1,988	1,966	2,355	2,897	1,905	15.1	2.6
5. Other taxes	3	4	4	5	6	8	6	8	10	16	7	0.1	0.0[1/]
Non-tax revenue*	691	728	882	1,022	1,317	1,465	2,064	2,488	2,854	3,368	1,688	13.4	2.3
GDP (at current prices)	47,048	52,069	56,617	62,220	67,740	73,423	81,242	89,831	99,544	110,014	73,975	-	-
Ratio of (%):													
Total revenue to GDP (Revenue effort)	11.5	11.6	12.7	13.5	16.5	16.6	17.4	18.6	19.9	22.8	16.1	-	-
Tax revenue to GDP (Tax effort)	10.0	10.2	11.1	11.9	14.6	14.6	14.8	15.8	17.1	19.7	14.0	-	-

*Social contributions and grants not included

1/ Less than 0.05%

Source: International Monetary Fund, Budgetary Central Government Revenue Statistics

D. Indonesia

From 2010 to 2019, the total revenue of Indonesia registered an annual average of Rp1,712 trillion. Of this amount, 77% came from taxes, while the remaining 23% came from non-tax sources. Major contributors were taxes on goods and services (38.1%) and taxes on income, profits, and capital gains (33.5%). The rest of the revenue was shared by taxes on international trade and transactions (2.4%), taxes on property (2.2%), and other taxes (0.3%).

Growth-wise, tax revenue exhibited sustained increases during the period under study. Although total revenue registered an increasing trend from 2010 to 2014, it recorded a decrease in 2015 due to a huge decline in taxes in international trade and transactions and non-tax revenue. In 2016, the economy recovered and posted a 4% increase in total revenue through a growth-friendly revenue strategy and administration reforms (IMF, 2015). The average growth rate of GDP (9.8%) was seen as higher than that of total revenue (8.8%) and tax revenue (9.6%). The slower growth of total revenue to GDP was attributed to the 29% decrease in non-tax revenue in 2015.

The country's tax effort showed a decrease from 2014 until 2017. It recorded an annual average of 12%. The trend was considered the effect of the unchanged structure of the tax system and almost insignificant modifications to tax policies (IMF, 2013). Consequently, the revenue effort showed an increasing trend but declined from2013 until 2017. The decreases were attributed to the decline in oil production in 2013 and the weakening of oil prices in 2015, which greatly affected non-tax revenue with a drop of 29%. On average, its revenue effort was pegged at 16% while its tax effort at 12%. (See Figure 4 and Table 4.)

Figure 4

Tax effort and tax revenue of Indonesia by type, CY 2010-2019

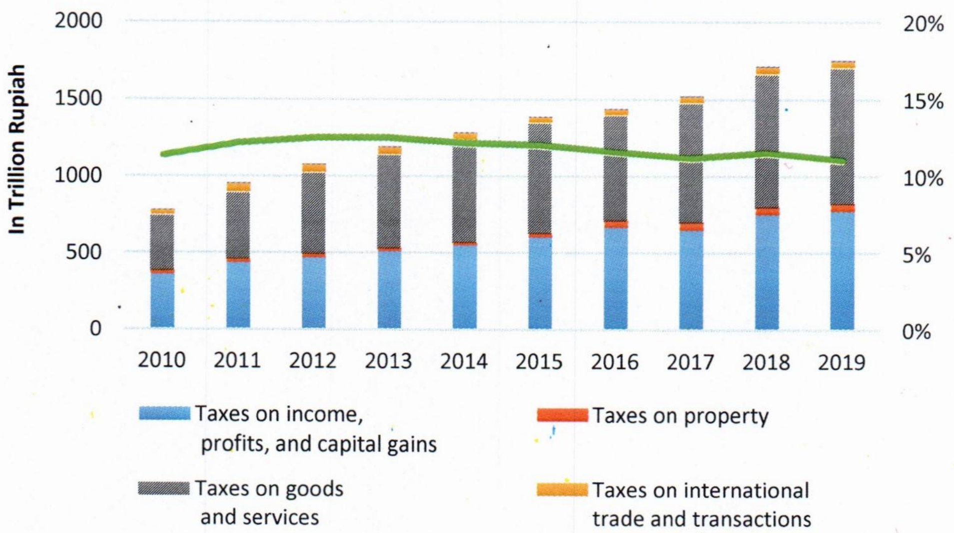


Table 4

National Government Revenues of the Indonesia, 2010-2019 (In Trillion Rupiah)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	1,073	1,315	1,464	1,604	1,761	1,728	1,789	1,941	2,190	2,257	1,712	100.0	15.3
Tax revenue	779	953	1,076	1,193	1,284	1,387	1,439	1,522	1,715	1,753	1,310	76.5	11.7
1. Taxes on income, profits, and capital gains	357	431	465	506	546	602	666	647	750	772	574	33.5	5.1
a. Individual	119	70	68	95	110	123	115	126	144	160	113	6.6	1.0
b. Corporate	238	361	397	412	436	480	551	521	606	613	461	26.9	4.1
2. Taxes on property	29	30	29	25	23	29	48	57	53	54	38	2.2	0.3
3. Taxes on goods and services	361	434	528	609	666	717	686	775	861	881	652	38.1	5.8
a. General taxes on goods and services	226	264	319	366	437	453	436	511	573	568	415	24.3	3.7
b. Excise	79	90	114	127	118	145	145	154	160	173	131	7.6	1.2
c. Others	56	79	95	116	111	118	105	109	128	140	106	6.2	0.9
4. Taxes on international trade and transactions	29	54	50	47	43	34	35	39	46	40	42	2.4	0.4
5. Other taxes	4	4	4	5	5	5	5	5	5	6	5	0.3	0.0[1/]
Non-tax revenue*	294	362	389	411	477	341	350	419	475	504	402	23.5	3.6
GDP (at current prices)	6,864	7,832	8,616	9,546	10,570	11,526	12,402	13,590	14,838	15,834	11,162	..	..
Ratio of (%):													
Total revenue to GDP (Revenue Effort)	15.6	16.8	17.0	16.8	16.7	15.0	14.4	14.3	14.8	14.3	15.6	..	..
Tax revenue to GDP (Tax Effort)	11.4	12.2	12.5	12.5	12.1	12.0	11.6	11.2	11.6	11.1	11.8	..	..

*Social contributions and grants not included

[1/] Less than 0.05 %

Source: International Monetary Fund, General Government Revenue Statistics

E. Lao PDR

The majority of the total revenues collected by the national government of Lao PDR from 2010 to 2019 came from taxes with a share of 86%, while non-tax revenues accounted for only 14%. Its reliance greatly focused on taxes on goods and services which, on average, covered more than half (58.8%) of the total revenue. Taxes on income, profits, and capital gains; taxes on international trade and transactions; and taxes on property contributed about 18%, 8%, and 1%, respectively.

During the decade, Lao PDR's tax revenue and total revenue both exhibited increasing behavior, similar to its GDP. While GDP and tax revenue grew at an average rate of 11% annually, total revenue grew faster at an annual average of 12%. The overall revenue performance could be explained by the continued growth of tax revenue along with non-tax revenue. Contributory to this growth are several amendments to the tax law of Lao PDR, mainly the 2011 amended tax law that reduced profit tax from 28 to 24% and also introduced new direct taxes such as environmental tax and presumptive tax to small- and medium-sized businesses not registered under the VAT regime (World Trade Organization, 2011). In addition, a new tax on the value of real estate transactions has also taken effect in 2013 significantly increased the collection of property taxes on its first year of implementation, which can be seen in the growth rate of property taxes in 2013 at 229%.

The tax effort of Lao PDR continuously increased from 12% in 2010 to 14% in 2014, while revenue effort also grew from 14% to 16% for the same period. The slower growth of total revenue and tax collection to GDP from 2015 to 2019 caused a decreasing tax and revenue effort for the last decade. On average, the tax effort of Lao PDR was pegged at 13%, while its revenue effort was at 15%. Growth-wise, as its tax collection failed to grow with that of the GDP, the country's tax effort contracted during the study period. (See Figure 5 and Table 5.)

Figure 5

Tax Effort and tax revenue of Lao PDR by type, CY 2010-2019

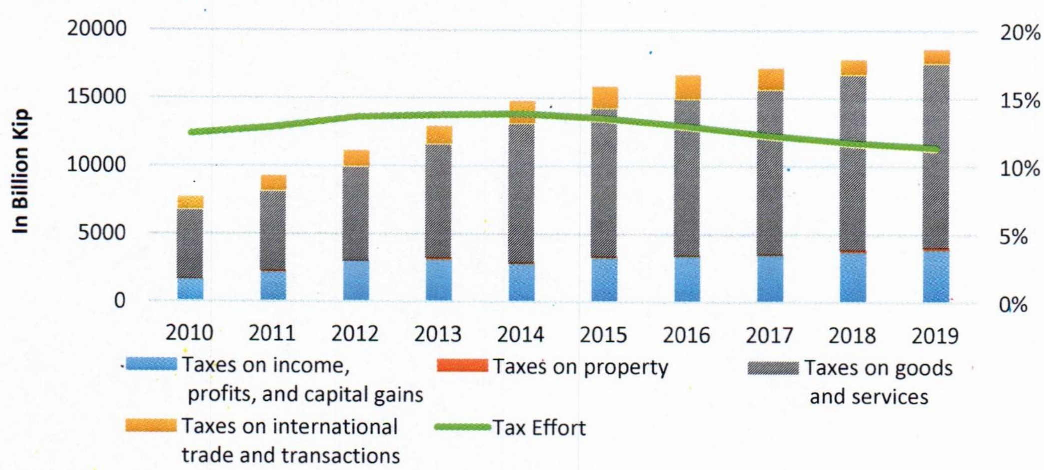


Table 5

National Government Revenues of the Lao PDR, 2010-2019 (In Billion Kip)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total Revenue	8,538	10,181	12,428	14,674	17,187	18,534	19,000	20,418	21,829	22,673	16,546	100.0	14.8
Tax Revenue	7,669	9,236	11,103	12,896	14,770	15,836	16,733	17,227	17,864	18,614	14,195	85.8	12.7
1. Taxes on income, profits, and capital gains	1,621	2,177	2,990	3,082	2,784	3,232	3,346	3,444	3,692	3,856	3,022	18.3	2.7
2. Taxes on property	78	98	55	181	114	131	105	111	188	201	126	0.8	0.1
3. Taxes on goods and services	5,080	5,881	6,906	8,336	10,214	10,887	11,488	12,099	12,886	13,545	9,732	58.8	8.7
a. General taxes on goods and services	1,869	2,403	2,827	3,412	3,747	4,728	4,815	5,150	5,201	5,389	3,954	23.9	3.5
b. Excise	1,687	1,948	2,344	2,734	3,270	3,363	3,734	3,789	4,743	4,972	3,258	19.7	2.9
c. Others	1,524	1,530	1,735	2,190	3,197	2,796	2,939	3,161	2,942	3,184	2,520	15.2	2.3
4. Taxes on international trade and transactions	891	1,080	1,152	1,297	1,658	1,568	1,794	1,572	1,097	1,012	1,314	7.9	1.2
Non-tax Revenue*	870	945	1,324	1,778	2,416	2,698	2,267	3,192	3,965	4,059	2,351	14.2	2.1
GDP (at current prices)	61,997	71,692	81,610	93,868	106,797	117,252	129,279	140,698	152,414	163,568	111,944	-	-
Ratio of:													
Total revenue to GDP (Revenue effort)	13.8	14.1	15.2	15.6	16.1	15.8	14.7	14.5	14.3	13.9	14.8	..	..
Tax revenue to GDP (Tax effort)	12.4	12.8	13.6	13.7	13.8	13.5	12.9	12.2	11.7	11.4	12.8	..	..

*Social contributions and grants not included

Sources: International Monetary Fund, General Government Revenue Statistics and Asian Development Bank

F. Malaysia

From 2010 to 2019, the total revenue collected by the Malaysian government was averaging RM210 billion annually, of which 74% was constituted from tax revenue and 26% from non-tax sources. Generally, half (50.0%) of its revenue was generated from taxes on income, profits, and capital gains, primarily from corporate taxes (37.6%). Moreover, taxes on goods and services share were 20%; taxes on international trade and transactions were, 2% and other taxes were 4%.

In terms of growth, the tax revenue registered continuous increases, along with its GDP, during the ten-year period. This was attributed to the government's initiatives to improve tax administration and compliance, both direct and indirect taxes (Economic Transform Programme, 2014). On the other hand, the total revenue registered negative growth in 2015 and 2016 due to a decrease in the collection of tax on income, profits, and capital gains and as well from non-tax sources. Contributory to this negative growth was a decline in oil revenues due to the weakening of international oil prices beginning in 2014 that negatively affected the collection of petroleum income taxes.

Malaysia underwent several changes in its tax system, such as reducing corporate income tax in 2016. The temporary reduction of corporate income tax from 25% to 24% was to support the smooth implementation of the Goods and Services Tax (GST). A single-tiered 6% GST replaced the sales and services tax of between 5% to 15% in 2015, which aimed to further enhance the competitiveness of the Malaysian economy in pursuance of the Malaysian Budget 2014 (Ernest & Young, 2018). In the year of GST implementation, the collection of taxes on goods and services showed an impressive increase of 52%. Specifically, collection on the general taxes on goods and services posted a record high growth of 195% in the same year.

Malaysia's tax and revenue efforts showed a downward trend from 2010 to 2019. The declining trend can be explained by the faster growth of its GDP compared to total and tax revenue. In general, the tax effort of Malaysia was posted at 13%, while revenue effort was at 18%. (See Figure 6 and Table 6.)

Figure 6

Tax effort and tax revenue of Malaysia by type, CY 2010-2019

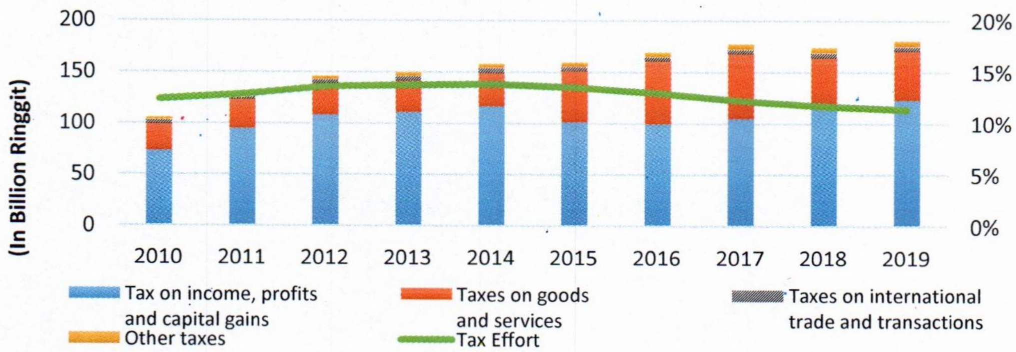


Table 6

National Government Revenues of the Malaysia, 2010-2019 (In Billion Ringgit)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total Revenue	155	180	202	207	214	213	212	220	233	264	210	100.0	18.0
Tax Revenue	105	130	146	150	158	159	169	178	174	181	155	73.7	13.3
1. Taxes on income, profits, and capital gains	73	95	108	111	117	102	100	105	119	123	105	50.0	9.0
a. Individual	18	20	23	23	24	26	28	29	33	39	26	12.5	2.3
b. Corporate	55	75	85	88	92	75	72	76	87	85	79	37.6	6.8
2. Taxes on property	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3. Taxes on goods and services	27	29	30	31	33	50	62	63	45	48	42	19.9	3.6
a. General taxes on goods and services	8	9	9	10	11	32	47	50	30	22	23	10.9	2.0
b. Excise	12	12	12	12	13	12	12	10	11	11	12	5.5	1.0
c. Others	7	8	9	9	9	6	3	3	4	16	7	3.5	0.6
4. Taxes on international trade and transactions	4	4	4	4	5	4	4	4	5	4	4	2.0	0.4
5. Other taxes	2	2	3	3	4	4	4	5	5	5	4	1.8	0.3
Non-tax revenue*	50	51	56	57	56	54	43	43	59	84	55	26.3	4.7
GDP (at current prices)	833	925	985	1,033	1,122	1,177	1,250	1,372	1,447	1,511	1,166	-	-
Ratio of (%):													
Total revenue to GDP (Revenue effort)	18.7	19.5	20.5	20.0	19.1	18.1	17.0	16.1	16.1	17.5	18.3	-	-
Tax revenue to GDP (Tax effort)	12.6	14.1	14.8	15.1	14.1	13.5	13.6	12.9	12.0	12.0	13.5	-	-

*Social contributions and grants not included

Sources: International Monetary Fund, Budgetary Central Government Revenue Statistics, and Asian Development Bank

G. Myanmar

The total revenue of the Myanmar government showed an upward trend from 2012 to 2019, with a drop in 2015 and 2018. It registered an annual average of K13 trillion for the eight-year period. Of this amount, 66% were derived from tax sources, while the remaining 34% came from non-tax revenue. This sharing scheme was due to Myanmar's very accommodating fiscal regime, with low corporate income tax, progressive but low personal income tax, light commercial tax, and strong incentives, which aims to attract companies and investors in boosting the newly opened economy (ASEAN Up, 2018).

Myanmar's tax effort exhibited continuous increases from 2012 (4.8%) to 2016 (7.8%) but decreased thereafter, recording an annual average tax effort of 6% during the period. Meanwhile, its revenue effort recorded a three-year increase from 22% in 2012 to 25% in 2014 but experienced a continuous decrease in the succeeding years, which ended at 16% in 2019. On average, its revenue effort was at 19%. The low ratio of taxes to the GDP of Myanmar can be attributed to Myanmar getting the majority of its revenue from non-tax sources.

In terms of growth, tax revenue and total revenue posted average annual growth rates of 28% and 17%, respectively, which were seen higher than the GDP growth rate of only 12%. Instrumental to these exceptional growths were constructive changes through amendments to the Income Tax Law (ITL), Commercial Tax Law (CTL), Stamp Duty Act and Court Fee Stamp Act; and introduction of the Union Taxation Law (UTL), among others (Oxford Business Group, 2017). Specific Goods Tax Law was also introduced in 2016, which imposed excise taxes on specific goods in addition to the standard commercial tax (Myanmar Ministry of Finance, 2016). The drop in total revenues of Myanmar from 2015 to 2016 was due to weak natural gas prices and other natural risks to its economy demonstrated by the massive floods in 2015 and the earthquake earlier in 2016 (International Monetary Fund, 2016). Meanwhile, the remarkable drop in total revenues of Myanmar in 2018 was driven by a significant decline in state economic enterprise revenue. Non-tax revenues also decreased in 2018 caused by base erosion from declined profitability and tax exemptions of the oil and gas sector. Disappointing income tax collections despite tax reform efforts also contributed to the stagnation of tax revenues (World Bank, 2018). (See Table 7 and Figure 7.)

Table 7

National Government Revenues of the Myanmar, 2012-2019 (In Billion Kyat)

Particulars	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	10,518	12,130	15,272	13,817	13,717	14,645	7,219	16,664	12,998	100.0	17.7
Tax revenue	2,349	3,242	3,856	4,425	5,818	5,544	2,823	6,912	4,371	33.6	5.9
1. Taxes on income, profits, and capital gains	766	1,220	1,461	1,656	1,906	1,935	775	2,198	1,490	11.5	2.0
2. Taxes on property	10	11	12	13	37	40	13	37	22	0.2	0.0[1/]
3. Taxes on goods and services	1,154	1,605	1,811	2,150	3,339	3,003	1,740	4,154	2,370	18.2	3.2
4. Taxes on international trade and transactions	368	363	496	467	480	490	266	464	424	3.3	0.6
5. Other taxes	51	42	76	139	56	75	29	59	66	0.5	0.1
Non-tax revenue*	8,169	8,888	11,416	9,392	7,899	9,102	4,396	9,752	8,627	66.4	11.7
GDP (at current prices)	48,784	54,635	61,637	68,988	74,216	82,700	92,789	105,012	73,595	-	-
Ratio of (%):											
Total revenue to GDP (Revenue effort)	21.6	22.2	24.8	20.0	18.5	17.7	7.8	15.9	18.6	-	-
Tax revenue to GDP (Tax effort)	4.8	5.9	6.3	6.4	7.8	6.7	3.0	6.6	5.9	-	-

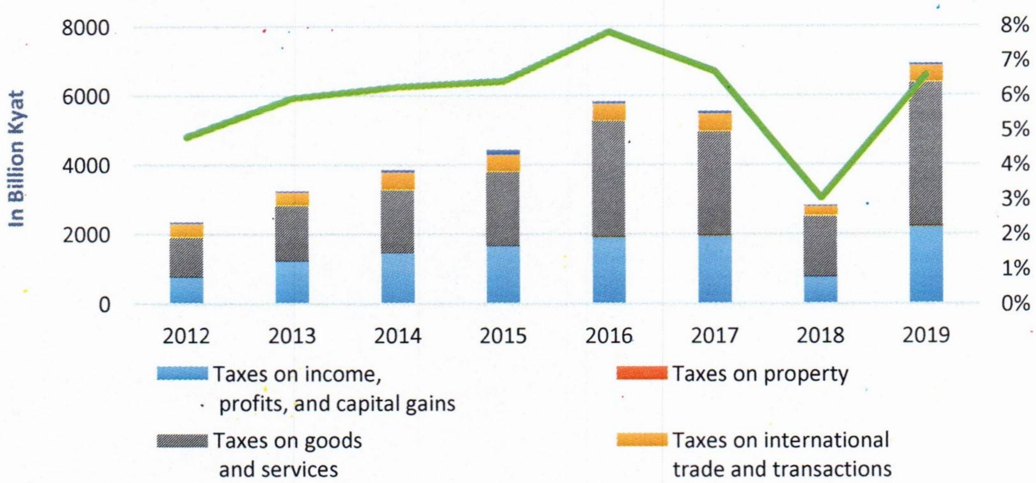
*Social contribution and grants not included

1/ Less than 0.05 %

Source: International Monetary Fund, General Government Revenue Statistics

Figure 7

Tax effort and tax revenue of Myanmar by type, CY 2012-2019



H. Singapore

The national government of Singapore generated average annual revenue of S$77 billion from 2010 to 2019. The majority (72.3%) of this amount was derived from taxes, whereas non-tax sources contributed around 28%. Among the tax sources, taxes on income, profits, and capital gains contributed, on average, about 33% annually; taxes on goods and services, 22%; taxes on property, 5%; and other taxes, 12%.

During the decade, Singapore's tax effort and revenue effort posted annual averages of 13% and 18%, respectively. On an annual basis, both experienced a slight decrease in 2013 as a consequence of rebates in corporate and individual income tax, lower collections from withholding tax, and a lower volume of property transactions (Inland Revenue of Singapore, 2014). Both recovered in 2014 and continuously increased until 2016 due to improved corporate profits, higher individual earnings, the cessation of the one-off individual income tax rebates given in 2013, and upward revision of betting duty rate (Inland Revenue of Singapore, 2015).

The tax revenue and total revenue of Singapore both registered increasing trends from 2010 to 2019. Percentage-wise, tax revenue and total revenue respectively posted annual average growth rates of 6 and 8%, higher than its GDP growth of 5%. These remarkable performances resulted from proactive reviews on tax policies and tax treatment, initiatives to lower taxpayers' compliance costs, execution of timely tax educational programs, and deterrence of non-compliance through tax audits and investigations (Inland Revenue of Singapore, 2016). (See Table 8 and Figure 8.)

Table 8

National Government Revenues of the Singapore, 2010-2019 (In Billion Singapore Dollar)

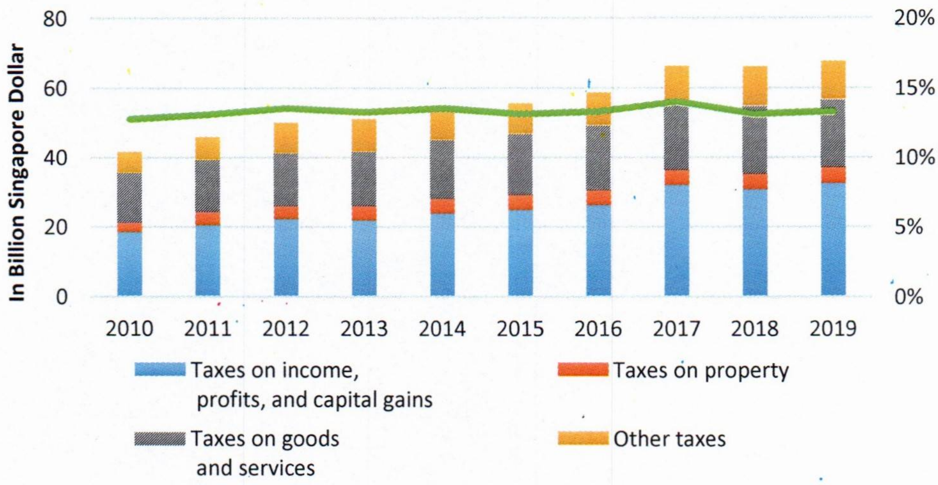
Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	55	60	64	66	72	76	81	96	92	107	77	100.0	18.4
Tax revenue	42	46	50	51	54	56	59	66	66	68	56	72.3	13.3
1. Taxes on income, profits, and capital gains	19	21	22	22	24	25	26	32	31	33	25	33.0	6.1
a. Individual	6	7	8	8	9	9	11	11	12	12	9	12.0	2.2
b. Corporate	12	14	15	14	15	16	16	21	19	20	16	21.0	3.9
2. Taxes on property	3	4	4	4	4	4	4	4	5	5	4	5.4	1.0
3. Taxes on goods and services	14	15	15	16	17	18	19	19	19	19	17	22.3	4.1
a. General taxes on goods and services	8	9	9	10	10	10	11	11	11	11	10	13.0	2.4
b. Excise	2	2	2	2	3	3	3	3	3	3	3	3.4	0.6
c. Others	4	4	1	4	4	4	5	5	5	5	4	5.5	1.0
4. Taxes on international trade and transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5. Other taxes	6	6	9	9	9	9	9	11	11	11	9	11.7	2.2
Non-tax revenue*	13	14	14	15	18	21	23	29	26	39	21	27.7	5.1
GDP (at current prices)	327	351	367	385	399	423	440	472	503	508	415	-	-
Ratio of (%):													
Total revenue to GDP (Revenue effort)	16.8	17.0	17.5	17.2	18.0	18.0	18.5	20.3	18.4	21.2	18.3	-	-
Tax revenue to GDP (Tax effort)	12.8	13.1	13.6	13.3	13.6	13.1	13.3	14.0	13.1	13.3	13.3	-	-

*Social contributions and grants not included

Source: International Monetary Fund, General Government Revenue Statistics

Figure 8

Tax effort and tax revenue of Singapore by type, CY 2010-2019



I. Thailand

From 2010 to 2019, Thailand relied heavily on taxes as a source of government revenue. For the period covered, around 84% (THB2.32 trillion) of its total revenue came from taxes, while the remaining 16% (THB457 billion) came from non-tax sources. Its reliance on taxes was focused on taxes on goods and services, sharing about 46%, and taxes on income, profits, and capital gains, about 32%. Taxes on international trade and transactions contributed an average of 4%, while taxes on property and other taxes contributed only 1% each.

Thailand's total revenue and tax revenue posted an average growth of 6% and 5%, respectively. The only decrease recorded in the growth rate of Thailand's total revenue and tax revenue of Thailand was in 2014, triggered by the reduced rates on personal and corporate income tax and VAT. Moreover, domestic traveling stimulation measures were also issued in 2014, allowing personal income tax exemption and corporate income tax deduction. The said measures aim to promote investment in the country and stimulate the power of consumers in the long run (Revenue Department of Thailand, 2015). The GDP of Thailand experienced faster growth at an average of 7% compared to its total revenue and tax revenue.

In general, Thailand's tax and revenue effort were around 17 and 20%, respectively, during the study period. Both exhibited inconsistent growth but still managed a positive average growth rate during the decade. (See Table 9 and Figure 9.)

Table 9

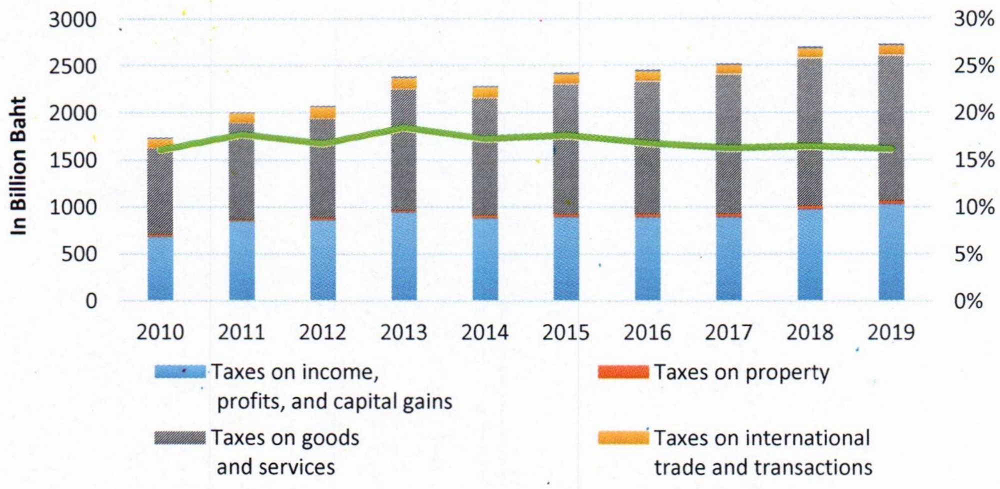
National Government Revenues of the Thailand, 2010-2019 (In Billion Baht)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	2,089	2,311	2,414	2,756	2,688	2,906	2,974	3,060	3,308	3,355	2,789	100.0	20.2
Tax revenue	1,738	2,006	2,071	2,381	2,282	2,423	2,450	2,520	2,696	2,726	2,329	83.6	16.9
1. Taxes on income, profits, and capital gains	683	853	863	943	882	895	894	894	975	1,032	891	32.0	6.5
a. Individual	188	214	241	268	237	268	283	276	281	298	255	9.2	1.9
b. Corporate	495	638	622	675	644	627	611	618	694	733	636	22.8	4.6
2. Taxes on property	25	17	22	24	32	34	34	38	38	38	30	1.1	0.1
3. Taxes on goods and services	924	1,023	1,057	1,288	1,247	1,377	1,406	1,479	1,568	1,539	1,291	46.3	9.4
a. General taxes on goods and services	389	466	528	544	558	570	585	620	674	637	557	20.0	4.0
b. Excise	478	488	451	554	480	559	589	643	662	684	559	20.1	4.1
c. Others	57	69	78	190	209	247	232	216	232				
4. Taxes on international trade and transactions	93	99	116	110	106	100	98	91	94	98	100	3.6	0.7
5. Other taxes	14	13	13	16	15	18	18	19	21	19	17	0.6	0.1
Non-tax revenue*	351	305	343	375	406	483	524	541	612	629	457	16.4	3.3
GDP (at current prices)	10,808	11,307	12,357	12,915	13,230	13,743	14,593	15,487	16,366	16,876	13,768	-	-
Ratio of (%):													
Total revenue to GDP (Revenue effort)	19.3	20.4	19.5	21.3	20.3	21.1	20.4	19.8	20.2	19.9	20.2	-	-
Tax revenue to GDP (Tax effort)	16.1	17.7	16.8	18.4	17.3	17.6	16.8	16.3	16.5	16.2	17.0	-	-

*Social contributions and grants not included
Source: International Monetary Fund, General Government Revenue Statistics

Figure 9

Tax effort and tax revenue of Thailand by type, CY 2010-2019



J. Vietnam[6]

During the decade, the average annual revenue Vietnam generated was around VD918 trillion. Taxes dominated Vietnam's sources of revenue as its share was around 85%, whereas non-tax sources contributed around 14% only. While the GDP of Vietnam grew with an average rate of 12% annually, its total revenue and tax revenue grew at a slower rate (11.6% and 10.2%, respectively)

The tax and revenue effort of Vietnam was generally decreasing, starting both at their peak in 2010 at 22.4% and 24.3%, respectively, and their lowest at 17.9% (2016) and 20.8% (2014), on average, revenue effort was pegged at 22% while tax effort was at 19%. (See Table 10 and Figure 10.)

[6] In 2013, the World Bank assisted Vietnam to launch Treasury and Budget Management Information System (TABMIS). From 2003 to 2013, GFS data were produced from the State Budget Balances (SBB). Although TABMIS became the primary source of data for the published SBB, the data in TABMIS does not reflect all changes in the final audit data identified in the audit review. The difference between the two impedes the use of economic classification to produce GFS data from TABMIS. Hence, the latest GFS revenue data of Vietnam was up to 2013 only. Due to the lack of GFS data, Vietnam Key Indicators published by the Asian Development Bank were used instead.

Table 10

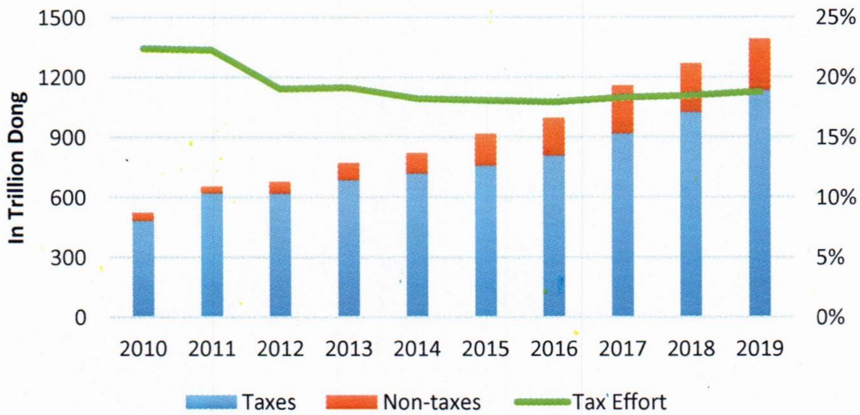
National Government Revenues of the Vietnam, 2010-2019 (In Trillion Dong)

Particulars	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave	% Dist.	Ratio to GDP (%)
Total revenue	525	655	678	771	820	912	997	1,158	1,267	1,390	918	100.0	22.4
Tax revenue	483	619	617	685	717	756	807	916	1,023	1,133	776	84.5	18.9
Non-tax revenue*	42	37	61	86	103	159	190	243	244	257	142	15.5	3.5
GDP (at current prices)	2,158	2,780	3,245	3,584	3,938	4,193	4,503	5,006	5,542	6,037	4,099	-	-
Ratio of (%):													
Total revenue to GDP (Revenue effort)	24.3	23.6	20.9	21.5	20.8	21.8	22.1	23.1	22.9	23.0	22.4	-	-
Tax revenue to GDP (Tax effort)	22.4	22.3	19.0	19.1	18.2	18.0	17.9	18.3	18.5	18.8	19.2	-	-

*Social contributions and grants not included
Source: Asian Development Bank

Figure 10

Tax effort and revenues of Vietnam, CY 2010-2019



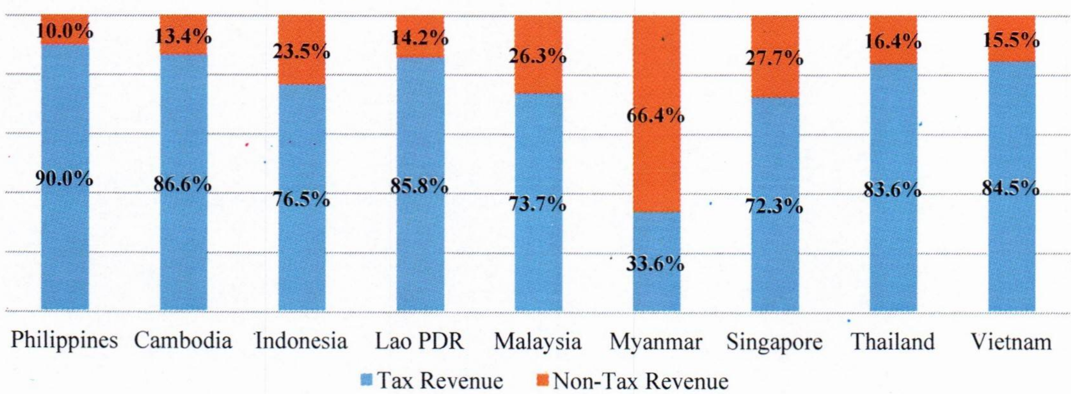
III. CROSS-COUNTRY ANALYSIS OF SELECTED ASEAN COUNTRIES[7]

A. Distribution of Total and Tax Revenues

The principal source of revenue for the eight ASEAN countries during the decade came from taxes, with more than 70% of its total revenue sourced from tax collection. Only Myanmar relied on non-tax revenue with its share to total revenue comprising 66%. This shows the importance of tax as a bloodline of the national government for its revenue needs. (See Figure 11.)

Figure 11

Comparative Average % Distribution of Tax and Non-Tax Revenue of ASEAN Countries 2010-2019



[7] The nine ASEAN countries with comparable data were the Philippines, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, and Vietnam. The exclusion of Brunei Darussalam in comparative analysis was due to its unique revenue structure than the rest of ASEAN member countries. Furthermore, Vietnam was also excluded in other analyses due to lack of statistics in tax revenue composition.

B. Average Growth Rates of Revenue and Nominal GDP

The average growth in the total revenue, tax revenue, non-tax revenue, and GDP of the nine selected ASEAN countries displayed positive growths for 2010 to 2019. In terms of total revenue, Cambodia leads the nine countries recording an average growth of 19%, followed by Myanmar at 17% and Vietnam at 12%. In terms of tax revenue, Myanmar took the lead with annual average growth in tax collection of around 28%, followed by Cambodia at 19%. For non-tax revenues, Vietnam experienced the highest average growth rate at around 25%, followed by Cambodia and Lao PDR, both with 20%. In terms of GDP, Vietnam (12.3%) also exhibited the highest growth during the decade, followed by Myanmar (11.6%) and Lao PDR (11.4%). Malaysia and Thailand both recorded the slowest growth in all aspects. (See Table 11.)

Table 11

Comparative Average Growth Rate of Revenue and Nominal GDP of Selected ASEAN Countries, 2010-2019 (In %)

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai	Viet
Total revenue	11.2	18.8	8.8	11.7	6.2	16.8	7.9	5.5	11.6
Tax revenue	11.2	18.7	9.6	10.6	6.4	27.7	5.6	5.3	10.2
Non-tax revenue	12.4	19.6	7.3	20.2	7.5	12.7	14.3	7.1	24.6
Nominal GDP	8.5	9.9	9.8	11.4	6.9	11.6	5.0	5.1	12.3

*Nominal GDP is gross domestic product (GDP) evaluated at current market prices.
[1/] Data for Myanmar is from 2012 to 2019 only

Among the major sources of tax revenues, the most significant were taxes on income, profit, and capital gains; and taxes on goods and services. Countries that depended heavily on taxes on income, profit, and capital gains were Malaysia, with the said tax representing an average of 68% of the total tax revenue; Singapore, 46%; and the Philippines, 45%. On the other hand, Lao PDR, Cambodia, and Thailand relied more on taxes on goods and services, with average contributions of more than half of their total revenue from taxes. In the case of Indonesia and Myanmar, their national government depended heavily on both taxes on goods and services and taxes on income, profit, and capital gains for their tax revenue needs. It can also be noted that taxes on property were the least productive among tax sources in the Philippines, Indonesia, Lao PDR, Singapore, and Thailand. (See Table 12.)

Table 12

Comparative Average % Distribution of Tax Revenue of Selected ASEAN Countries, 2010-2019 (In %)

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Taxes on income, profit, and capital gains	44.7	22.8	43.8	21.3	67.9	34.1	45.6	38.3
Taxes on property	0.3	n.a.	2.9	0.9	n.a.	0.5	7.5	1.3
Taxes on goods and services	28.8	59.7	49.7	68.6	27.0	54.2	30.8	55.4
Taxes on international trade and transactions	21.4	17.5	3.2	9.3	2.7	9.7	n.a.	4.3
Other taxes	4.8	0.1	0.4	n.a.	2.5	1.5	16.2	0.7

n.a. – not applicable

C. Tax Effort and Revenue Effort

The average values present the general picture of tax efforts across the countries under observation. Vietnam realized the highest average tax effort at 19% among the nine ASEAN member-countries and the highest average revenue effort at 22%. In contrast, Myanmar posted the lowest average tax effort, equivalent to 6%, while the Philippines had the lowest average revenue effort at 14%. (See Table 13.)

Table 13

Comparative Average Tax and Revenue Effort of Selected ASEAN Countries, 2010-2019 (In %)

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai	Viet
Tax Effort	13.0	14.0	11.8	12.8	13.5	5.9	13.3	17.0	19.2
Revenue Effort	14.4	16.1	15.6	14.8	18.3	18.6	18.3	20.2	22.4

In terms of growth in tax effort, Myanmar led the nine countries with the highest average growth of 14%, followed by Cambodia at 8%. On the other hand, Cambodia exhibited the highest average growth in revenue effort of about 8%, followed by Myanmar at 5%. Lao PDR recorded negative average growth in tax efforts while Indonesia, Malaysia, and Vietnam experienced a contraction in their tax and revenue efforts during the decade. (See Table 14.)

Table 14

Comparative Average Growth Rate of Tax and Revenue Effort of Selected ASEAN Countries, 2010-2019 (In %)

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai	Viet
Tax effort	2.5	8.0	-0.2	-0.9	-0.5	14.4	0.5	0.2	-1.8
Revenue effort	2.5	8.1	-0.9	0.2	-0.6	4.5	2.8	0.4	-0.5

D. Comparative Productivity of VAT and Corporate Income Taxes

The traditional measure of the effectiveness of the VAT in raising revenues is through the VAT efficiency ratio, which is the ratio between the actual VAT collection in terms of the GDP and a VAT standard statutory rate. For the purpose of this study, it is assumed that the VAT rates do not frequently change in practice, and the latest rate of each country under observation was utilized. Of the eight countries, the statutory VAT rate of the Philippines is relatively the highest at 12%, while Myanmar recorded the lowest rate at 5%. Cambodia, Indonesia, and Lao PDR have the same rate of 10%; Singapore and Thailand, 7%; and Malaysia, only 6%. Despite the Philippines having the highest VAT rate, it yielded the lowest VAT productivity ratio of 0.17. Meanwhile, Thailand was the highest with a 0.58 VAT efficiency ratio, followed by Cambodia 0.50; Indonesia 0.37; Lao PDR 0.35; Singapore 0.34; and Malaysia 0.33. The low VAT efficiency ratio of the Philippines can be traced from the number of goods and services exempted from VAT. (See Table 15.)

Table 15

Comparative Average VAT Efficiency Ratio of Selected ASEAN Countries, 2010-2019

Particulars	Phil	Cam	Indo	Lao	Mal	Sing	Thai
VAT collection (In billion local currency)	283	3,730	415,332	3,954	23	10	557
GDP (At current prices, in billion local currency)	13,928	73,975	11,161,754	111,944	1,166	418	13,768
Tax rate	12%	10%	10%	10%	6%	7%	7%
VAT efficiency ratio	0.17	0.50	0.37	0.35	0.33	0.34	0.58

Corporate income tax (CIT) productivity is calculated as the ratio between CIT collection shares in GDP and the standard statutory rate. It is also assumed that CIT rates did not change over the decade. Likewise, the Philippines has the highest rate at 30% for CIT, while Singapore with the lowest at 17%. Malaysia outperformed the rest of the countries with the highest efficiency ratio of 0.28 at a statutory CIT rate of 24%. The CIT efficiency ratio of the Philippines was amongst the lowest at 0.11, not far behind Cambodia, with an efficiency ratio of 0.13 at the CIT statutory rate of 20%. This implies significant erosion of the tax base on the CIT in the Philippines. (See Table 16.)

Table 16

Comparative Average CIT Efficiency Ratio of Selected ASEAN Countries, 2010-2019

Particulars	Phil	Cam	Indo	Mal	Sing	Thai
CIT collection (In billion local currency)	466	1,881	461,382	79	16	636
GDP at current prices (In billion local currency)	13,928	73,975	11,161,754	1,166	418	13,768
Tax rate (%)	30	20	25	24	17	20
CIT efficiency ratio	0.11	0.13	0.17	0.28	0.23	0.23

E. Buoyancy of Tax Revenue

One way to measure the revenue productivity of a tax system is through tax buoyancy estimates. Tax buoyancy is used to determine whether the tax structure ensures that revenue grows faster than national income. Tax buoyancy measures the percentage change in tax revenue, including discretionary tax changes, due to a 1% change in the base (GDP, in aggregate level).

The buoyancy estimates revealed that among the seven countries, Cambodia's tax revenue was the most responsive (1.8) to changes in GDP during the observation period, i.e., for every 1% increase in GDP, total taxes grew by 1.80%. This was followed by the Philippines with a buoyancy coefficient of 1.28 and Singapore with 1.07. On the other hand, Malaysia's total tax revenue was the least buoyant, with a coefficient of 0.78.

The estimation also disclosed that among the major components of tax revenue, taxes on income, profits, and capital gains were the most buoyant in Cambodia (2.22) and Singapore (1.25). Taxes on the property was considered the most buoyant tax in the Philippines (1.84), Thailand (1.57), and Myanmar (1.57). Moreover, taxes on goods and services were the most buoyant component of tax revenue in Malaysia (1.36), Lao PDR (1.10), and Indonesia (1.02). (See Table 17.)

Statistical indicators to measure the goodness of fit of the buoyancy estimate, such as the coefficient of determination statistics or R^2 and test of significance or the p-value, are presented in Annex A.

Table 17

Buoyancy of Tax Revenue of Selected ASEAN Countries by Type of Tax, 2012-2019

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai
Total tax revenue	1.28	1.79	0.92	0.90	0.78	0.92	1.07	0.89
Taxes on income, profit, and capital gains	1.12	2.22	0.89	0.73	0.55	0.69	1.25	0.59
Taxes on property	1.84	n.a.	0.96	0.84	n.a.	1.57	0.86	1.58
Taxes on goods and services	1.49	1.88	1.02	1.10	1.36	1.26	0.75	1.18
Taxes on international trade and transactions	1.25	0.97	-0.02	0.29	0.04	0.02	n.a.	-0.16
Other taxes	1.59	1.69	0.42	n.a.	1.59	-0.15	1.29	1.03

n.a. – not applicable

[1/] Estimation from 2012 to 2019 only since no figure recorded from 2010 and 2011.

IV. CONCLUSION

The total revenue of the ASEAN member-countries registered positive average growth rates from 2010-2019. Except for Brunei Darussalam, whose revenue structure focused on the oil and gas sector, all of the other ASEAN member-countries clearly showed heavy reliance on taxes as their main source of revenue, with taxes on income, profits, and capital gains; and taxes on goods and services as the most significant sources of revenue. With the rapid changes in each country's economy, it is imperative that the country continuously prepare and implement necessary actions that could address probable changes in revenue sources composition and effectively boost the country's revenue collection.

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Annex A. Statistical Results

Table 18

R-Square Regression Statistics Result

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai
Total tax revenue	0.99	0.99	0.98	0.96	0.87	0.41	0.98	0.91
Taxes on income, profit, and capital gains	0.98	0.99	0.98	0.82	0.52	0.20	0.96	0.65
Taxes on property	0.89	n.a.	0.60	0.45	n.a.	0.47	0.71	0.75
Taxes on goods and services	0.99	0.99	0.95	0.96	0.69	0.59	0.96	0.93
Taxes on international trade and transactions	0.96	0.79	0.00	0.15	0.01	0.00	n.a.	0.10
Other taxes	0.92	0.91	0.86	n.a.	0.95	0.01	0.85	0.88

Table 19

P-Value Regression Statistics Result

Particulars	Phil	Cam	Indo	Lao	Mal	Mya[1/]	Sing	Thai
Total tax revenue	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
Taxes on income, profit, and capital gains	0.00	0.00	0.00	0.00	0.02	0.27	0.00	0.00
Taxes on property	0.00	n.a.	0.01	0.03	n.a.	0.06	0.00	0.00
Taxes on goods and services	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
Taxes on international trade and transactions	0.00	0.00	0.94	0.26	0.76	0.97	n.a.	0.38
Other taxes	0.00	0.00	0.00	n.a.	0.00	0.85	0.00	0.00