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ASSESSING THE GROWTH AND REDISTRIBUTIVE IMPACTS OF FISCAL POLICY TOWARD AN INCLUSIVE ASEAN, 2000-2020

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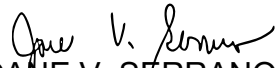
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Acceptance Page

This thesis titled **ASSESSING THE GROWTH AND REDISTRIBUTIVE IMPACTS OF FISCAL POLICY TOWARDS AN INCLUSIVE ASEAN, 2000-2020** is hereby accepted by the Faculty of Management and Development Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Master of ASEAN Studies.

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Joshua Bonne A. Consigna is a young professional whose experience mostly revolves around research, education, and project development. Mr. Consigna finished his undergraduate degree in Social Sciences (Economics-Political Science) at the University of the Philippines Baguio. After graduating in June 2016, Mr. Consigna served as a lecturer in Economics and Political Science at Cagayan State University, where he also worked as a project development officer. He held the same post at the Development Academy of the Philippines. He currently works as an Environmental, Social, and Governance professional in a financial services firm.

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Ad Majorem Dei Gloriam!

DEDICATION

For Papa, Mama, Rachelle, George, and Mario and for all the hardworking ASEAN People

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ABSTRACT

The goal of attaining a people-centered and people-oriented community is a key priority for ASEAN. The association characterized this community as a caring and sharing society that pursues growth in a vertical and horizontal manner–one which not only strives for increased national income but also alleviates socio-economic problems faced by many ASEAN peoples today. As with any socio-economic intervention, the first step to reinforcing ASEAN's capacity in attaining such a goal is understanding how its current strategies are faring. There should be data-backed benchmarks on which performance can be measured especially amid revenue-related concerns that ASEAN member countries face to date. Considering these fiscal-related issues and the ability of fiscal policy to achieve inclusive growth, the study developed econometric models to assess the impact of fiscal policy, specifically taxes and spending, on growth and income redistribution in selected ASEAN member countries. Consequently, given the seeming dearth of related literature on ASEAN, the study also provides insights into ASEAN's experience in the field of fiscal policy. Findings indicate that ASEAN is lagging in its goal of attaining a people-centered and people-oriented community in terms of the member states' implementation of taxes and spending. Data suggests that ASEAN's progress is one-sided in support of economic growth and that ASEAN member countries have not been leveraging their fiscal policies in achieving inclusive growth.

CHAPTER I

INTRODUCTION

Background of the Study

The longstanding clash between Keynesian economists and monetarists led to the relative downgrade of fiscal policy in the macroeconomic discourse. From being instrumental in fine-tuning the economy, fiscal policy, through tax adjustments and capital injections, was confined to some extent as an automatic stabilizer and stimulus during slowdowns. As observed during the 1997 Asian Financial Crisis (AFC), members of the Association of Southeast Asian Nations (ASEAN) particularly Thailand, Malaysia, and Indonesia raised tax rates and sterilized capital flows to temper the destructive currency devaluation in the region. The same states resorted to implementing fiscal exit strategies to get out of the recession during the 2008 Global Financial Crisis (GFC). While these prove fiscal policy as vital in stabilizing economies, these also spurred studies relating fiscal policy as an instrument for economic growth. These include those that assessed fiscal-related risks ASEAN could face following the deterioration of fiscal balances post-crises, fiscal and monetary spillovers given the increasing degree of economic integration, and post-crisis budgetary priorities to mitigate future risks (Makin, 2005; Dau and Sethapramote, 2019; Budina and Tuladhar, 2010). Despite this, however, there has not been a debate or a general agreement on the efficacy of fiscal stimuli on growth in developing Asia (Tang, Liu, and Cheung, 2010; Abdullah, Yien, and Khan, 2019). Although there were studies that assessed tax and government spending incidences in developing Asia,

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such as that of Claus, Martinez-Vazques, and Vulovic (2012), there appears to be a glaring lack of focus on ASEAN countries, especially on non-ASEAN-5 members (i.e., Brunei Darussalam and Cambodia, Lao PDR, Myanmar, Vietnam (CLMV)) and how tax and spending contributed to achieving their economic goals.

ASEAN highly relies on foreign direct investments (FDIs) and small and medium enterprises (SMEs); this underscores the association's need to develop and maintain a sound fiscal system. In 2018, FDI inflows rose almost fourfold to US$154.7 billion from US$41.9 billion in 2005 (ASEAN Secretariat, 2015). SMEs grew to represent around 97-99% of the enterprise population in the region (OECD/ERIA, 2018). With an average debt-to-GDP ratio of 44% in 2018 (Thepmongkol and Sethapramote, 2018), a sound fiscal system could also help in sustainably managing short- and long-term liabilities. Furthermore, a sound fiscal system could be key to addressing within- and inter-state income gaps, given the ability of fiscal policy to redistribute income and create fiscal space for primary social services such as health and education. However, due to variations in tax structures, spending schedules, and current levels of economic development, the impact of fiscal policy on growth and income redistribution varies across ASEAN economies. This unequal distribution of economic benefits is not an uncommon experience in ASEAN. To address this, ASEAN has continued to concretize its commitment to developing a people-oriented and people-centered community by improving the region's market access and capacity to respond to fluctuations. As the ASEAN Economic Community's (AEC) 2015 and 2025 Blueprints outline, this commitment aims to promote equitable economic development among member states. Generally, this commitment entails undertaking programs directed at achieving growth while narrowing the development

gap between the ASEAN-5 and CLMV. These programs include projects on SME development and other key priority areas such as infrastructure, human resource development, energy, and poverty reduction (ASEAN Secretariat, 2008). It also includes efforts to strengthen social protection measures, health and education cooperation, as well as initiatives to align tax structures and improve tax collection and monitoring.

Throughout the more than five decades of realizing this commitment, ASEAN was able to double its share in the world GDP (3.2% vs. 6.2%) and exponentially increase GDP per capita (122 vs. 4,021 USD at current prices) from 1967 to 2016 (ASEAN Secretariat, 2017). GDP per capita gap between CLMV and ASEAN-6 also significantly declined from nearly fivefold to around a threefold gap from 1999 to 2016 (ASEAN Secretariat, 2017). Further, ASEAN's poverty rate dropped from 47% in 1990 to 14% in 2015, exceeding the Millennium Development Goal (MDG) target of 23.5% (ASEAN Secretariat, 2017). Despite this, only Cambodia, Malaysia, Philippines, Singapore, and Thailand have recorded a decline in the Gini ratio during 2005-17 (ASEAN Secretariat, 2019). There is also an upward trend in debt-to-GDP and decreasing revenue-to-GDP ratios, which could pose potential concerns over the capacity of ASEAN member states to mitigate fiscal-related risks. From an average debt-to-GDP ratio of 40.52% in 1997 among the ASEAN-5, the ratio increased to 66.46% by 2001 (IMF, 2010). While CLMV witnessed an overall decrease in its average debt-to-GDP ratio from 118.42% in 1998 to 107.65% in 2001(IMF, 2010), values remain gigantic relative to ASEAN peers. A similar trend is observed in debt-to-GDP ratios post-2008 GFC: ASEAN-5 recorded a 9.36% increase in average ratio by 2012 (50.18% vs 55.36%), whereas CLMV and Brunei Darussalam recorded a

31.6% (35.87% vs 52.49%) (IMF, 2010). In 2018, ASEAN-5 had an average debt-to-GDP ratio of 56.06%, while data shows CLMV and Brunei Darussalam have reduced it to 36.43% (Plecher, 2020). While high levels of debt are not necessarily detrimental, the overall increase in debt-to-GDP ratios, coupled with a decreasing revenue-to-GDP ratio in ASEAN (16.63% in 1996 vs 12.87% in 2018), could pose concerns over fiscal risks. Moreover, government spending is perceived to rise in the next decades due to an increasingly aging population. A 2018 World Economic Forum article provided that the total healthcare spending of ASEAN 5 and Vietnam, which was approximately $420B in 2017 (15.16% of 2017 ASEAN GDP, $2.77T), is expected to increase by 70% over the next decades. Increased government spending in getting out of the recessionary impacts of the COVID-19 pandemic in 2020 could further bloat debt-to-GDP ratios among ASEAN countries.

These deteriorating fiscal balances may pose challenges in creating fiscal space to enhance ASEAN's capacity in attaining inclusive growth. To reinforce its approach toward inclusive development, ASEAN must first have an understanding of how fiscal policy affects growth and income inequality. In this way, ASEAN governments could effectively enhance their programs and strategies to create a more people-oriented and people-centered community.

Statement of the Problem

This study assessed the association's performance in attaining a people-centered and people-oriented ASEAN community by measuring the growth and redistributive impacts of fiscal policy (e.g., taxes and spending) across selected ASEAN economies (e.g., Cambodia, Lao PDR, Malaysia, Philippines, Singapore, and Thailand) from 2000 to 2020.

General Objective

This study assessed the growth and redistributive impacts of fiscal policy among selected ASEAN economies from 2000 to 2020.

Specific Objectives

This study primarily aimed to determine how selected ASEAN countries fared thus far in realizing their commitment toward a people-centered and people-oriented community in terms of their implementation of fiscal policy.

To achieve this, the study:

1. Presents and discusses selected taxes and government expenditures in selected ASEAN member countries;

2. Describes the trends of economic growth and income inequality across selected ASEAN member countries; and

3. Describes how selected taxes and government expenditures affected growth, as well as both within-state and interstate income inequality.

Significance of the Study

Deteriorating fiscal balances, coupled with a decreasing revenue-to-GDP ratio and an expected increase in government expenditures could pose challenges in creating fiscal space to enhance ASEAN's capacity to attain inclusive growth. With this backdrop, the study provides a general picture of how fiscal policy has contributed to reducing income inequality while achieving robust economic growth. This undertaking informs academicians and policymakers of the impacts of fiscal interventions, which could prove vital in mitigating fiscal risks that hamper its goal of inclusive growth. As the organization faces fiscal threats and underlying fiscal pressures, the study could help formulate effective fiscal policy for a greater people-oriented and people-centered ASEAN community in the future.

Scope and Delimitation

In response to the existing income gap within and among ASEAN member states, the study investigated the growth and redistributive impacts of fiscal policy from 2000 to 2020 in Cambodia, Lao PDR, Malaysia, the Philippines, Singapore, and Thailand. The study unraveled the relationship between growth and income distribution with selected types of taxes and components of government spending. These include personal income tax, corporate income tax, property tax, general taxes and excise taxes, excise tax, import (customs) tax, education, health, housing, and social protection. This configuration is primarily driven by data availability and uniformity of disclosure in terms of tax revenues and spending classification among

ASEAN member countries accessible in the United Nations University World Institute for Development Economics Research (UNU-WIDER) Government Revenue platform. As to the period, the selection considered the growth of ASEAN membership, considering that other states only became members in the late 1990s (i.e., Lao PDR in July 1997 and Cambodia in April 1999). This more recent period entails more diversity as this brings some focus on non-ASEAN-5 member countries. Given these boundaries, the study cannot provide a generalization on the overall contribution of fiscal policy to growth and income redistribution apart from the specified variables nor cater to questions related to wealth inequality.

Definition of Terms

Fiscal Policy – IMF defines fiscal policy as the "use of government spending and taxation to influence the economy...to promote strong and sustainable growth and reduce poverty."

Gross Domestic Product – OECD defines GDP as "the standard measure of the value added created through the production of goods and services in a country during a certain period."

Gini coefficient – IMF defines the Gini coefficient as "a typical measure of income inequality…The coefficient varies between 0 and 1, with 0 representing perfect equality and 1 perfect inequality."

CHAPTER II

REVIEW OF RELATED LITERATURE

Fiscal Policy, Growth, and Income Redistribution

The literature on the impact of fiscal policy on economic growth and income distribution has remained equivocal throughout the years. Like with other economic literature, it presents different discourses, which did not necessarily result in a consensus, both in theoretical and empirical terms. Although the link between these variables may be traced from discourses that tackled the role of the state in economic affairs, the literature remains uncertain on three issues. This three-level contrast involves the questions a) whether government interventions have a net-positive effect on the economy and if there is, up to which degree should the state intervene; b) whether fiscal policy should prioritize growth to achieve income redistribution in the long run; and c) how different tax types and components of government spending such as health and education affect growth and income distribution. Moreover, the literature shows that the failure to achieve uniform results regarding the impact of these components of fiscal policy boils down to the unique concerns and conditions of an economy.

The discourse on whether market interventions are beneficial dates back to the Great Depression in the 1930s when the United States witnessed a drastic fall in its real Gross Domestic Product and a colossal leap in unemployment. At the time, the classical assertion that the economy is capable of self-regulation and that market

interventions would negatively impact the economy's 'natural rates' suffered a huge blow. With the dominant economic regime shaken, the Great Depression significantly affected how economists and policymakers view the market. The crisis had not only shown the downside of the market system but also prompted discourses on how inherent risks of market failures should be addressed.

Keynes essentially argued that fiscal policy must have a role in stabilizing the extreme peaks and troughs of the business cycle. In case of economic slowdown or recessionary gaps, the government must fine-tune the economy by boosting aggregate demand through discretionary adjustments in the components of the national expenditure (i.e., managing government spending and tax rates). This would entail the government to take on expansionary fiscal policies by increasing overall levels of expenditures or reducing tax rates. In contrast, this demand stabilization approach would entail the government enforcing contractionary fiscal policies (i.e., decrease government spending or increase tax rates) when the aggregate demand overtakes an economy's productive capacity. As powerful as it seemed, the Keynesian school's aggregate demand-centered stabilization approach faced massive criticisms linking it to several economic concerns across developed and developing countries (e.g., stagflation, *taxploitation*, and budget deficit) (Atkan, 1989).

In defense of the market system, the Austrian and Chicago School argued that fiscal policy and state interventions, in general, are irrelevant not only in navigating economic slumps but also the market as a whole. For the Austrian School, economic slowdowns, even in the form of crisis, manifest the correcting mechanism of the market, and the Keynesian approach generally postpones the structural adjustment

process of the market. Relying on the assumption that the market should be left per se, the School believes that such interventions necessarily lead to the disequilibrium between the demand and supply for loanable funds, causing economic downturns. The Chicago School of Economics shared the same sentiment that market failure is caused by unsuccessful interventions specifically mismanaged monetary policy. The School explained that general price levels must be managed well to inform people on economic decisions better.

Rather than delve as to whether fiscal policy is beneficial in the workings of the market (i.e., boost economic growth, reduce income inequality, hedge the risk of economic downturn, etc.), more recent discourses did not challenge government intervention but proposed specifications of fiscal policy. Supply-Side Economics, for example, argued that tax cuts is the main driver for economic growth (as cited in Atkan, 1989, p. 192). As David Hume in 1955 (as mentioned in Atkan, 1989, p. 191) stated:

> Exorbitant taxes, like an extreme necessity, destroy industry by producing despair; and even before they reach this pitch, they raise the wages of the laborer and manufacturer, and heighten the price of all commodities.

J. B Say (1956) also claimed that "excessive taxation is a kind of suicide, whether upon objects of necessity, or these of luxury, it extinguishes both production and consumption and the taxpayer into the bargain" (as cited in Atkin, 1989, p. 192). Atkin (1989, p. 191) noted that "tight fiscal policy [such as levying high tax rates] decreases saving, investment and productivity levels in the economy … [and] accelerates the inflation process." Michael Evans in 1983 furthered that balanced supply-side programs should be composed of "tax cuts on both personal income tax

and corporate income tax, a reduction in the number of public expenditures appropriately with tax cuts, and deregulation" (cited in Atkin, 1989, p. 193).

Striking a balance between growth and redistributive objectives is also an area where contending perspectives occur. These conflicting theories tackle whether fiscal policy should prioritize promoting economic growth or redistributing income in an economy. On the one hand, the demand side perspective favors greater equality in income distribution to empower those from the middle- and lower-income groups and increase their domestic consumption. To meet the demand for goods and services, firms are likely to invest in more capital and hire more workers, which will eventually translate to growth. On the other hand, the supply side perspective favors some degree of income inequality to promote capital accumulation of higher-income groups who also have a higher propensity to save. This will enable higher-income groups to stimulate production and increase the overall level of income in society. For example, in a study conducted to assess whether the current distribution of income affects future income distribution and economic growth, Jha (1999) found a low level of income redistribution would mitigate disincentives and promote human and physical capital accumulation. This implies that while an economy may incur widened income inequality in the process of intensifying capital accumulation, this will eventually lead to higher growth rates and income levels in the long run. Citing Persson and Tabellini (1994), Jha (1999) noted this disincentive to accumulate capital is an illustration of the negative impact of income inequality on economic growth, which could be mitigated by transfers favorable to growth, such as education. However, as fiscal policy aims to address the unique and specific concerns of a single economy, the overall impact of prioritizing capital accumulation still depends on different factors such as the level of

development, existing income distribution, and the degree of a political franchise. In the long run, Jha (1999) furthered that long-term growth depends on the incentives to accumulate human and physical capital, the extent of redistribution, and how the government appropriates its resources received from taxes.

Despite the latter gaining support in the mid-1970s amid concerns over stagflation, studies conducted by the UN (2012) and Bastalgi, Coady, and Gupta (2012) indicated otherwise. The United Nations in 2012 found no evidence of significant improvements in growth rates and income redistribution among developed and developing countries. UN (2012) indicated the increasing regressivity of taxes and limited spending have not resulted in faster growth rates owing to the reduced propensity to consume among lower-income consumers. Further, the resulting lower demand for goods would hamper investment and economic growth in the long run. Bastalgi, Coady, and Gupta (2012) also suggested that while some degree of inequality is deemed necessary to incentivize capital accumulation, there is growing evidence that shows the negative impact of high inequality on economic growth. As a result of comparing pre-and post-imposition of tax and transfer policies, they found "progressive income taxes and highly redistributive transfers have decreased income inequality by about one third" for advanced economies in the 1990s. This decline in income inequality further intensified through in-kind transfers such as education and health spending. However, this trend weakened due to the "reduced generosity of redistributive social benefits and diminished progressivity in income taxes" (p. 22). To address this, Bastalgi, Coady, and Gupta (2012) proposed reducing cases of evasions and mitigating the disincentives associated with the transfers.

Growth and Redistributive Impacts of Fiscal Policy in Asia

Despite the considerable growth of studies related to fiscal policy in Asia, the majority seems to lack focus on fiscal risks and policy priorities. Studies on the growth and redistributive impact of fiscal policy also appear to lack focus on ASEAN. These studies include Makin's (2005) survey on fiscal risks that ASEAN might face in the future. Makin (2005) claimed that the increasing post-crisis deficits and financial restructuring might pose concerns over debt sustainability, considering the experience of emerging economies in Latin America and transition economies in Europe over the past decade. To mitigate these risks, Makin (2005) proposed the need for achieving surpluses through revenue-driving initiatives such as increased expenditures on health, education, and infrastructure. In another study, Budina and Tuladhar (2010) emphasized creating fiscal space for infrastructure as a post-crisis fiscal priority of the ASEAN-5. Following the 2008 Global Financial Crisis, Budina and Tuladhar (2010) found that while there is a significant variation in the countries' fiscal position (i.e., Singapore having an overall budget surplus pre-crisis), ASEAN-5 experienced an increase in their debt-to-GDP ratio by an average of 3% as compared to pre-crisis levels. And while there is a robust post-crisis outlook due to their implementation of fiscal stimuli, fiscal pressures posed by the crisis and underlying fiscal pressures (e.g., the perceived increase in health expenditure with an aging population, poverty, etc.) continue to raise potential concerns. Given these, Budina and Tuladhar (2010, p. 10) proposed that fiscal exit strategies should not be confined to the goal of getting out of the recession and driving debt-to-GDP ratios but also in stimulating future growth potential through "revenue-enhancing measures and reorientation of spending priorities."

As for revenue-enhancing measures, Budina and Tuladhar (2010) focused on reducing the underlying infrastructure gaps in the ASEAN-5. Given the post-crisis (2009 IMF WEF figures) debt-to-GDP ratios (Indonesia-26.7%; Malaysia- 55.1%; Philippines-46.3%; Singapore-100.4%; and Thailand-15.5%), leveraging the private sector efficiency through Public-Private Partnership schemes could prove vital in infrastructure development. Although, as Budina and Tuladhar (2010) noted, Indonesia and the Philippines still lag Asia Pacific peers in necessary infrastructure: out of 57 countries, Indonesia ranked 48th, and the Philippines ranked last based on the 2009 IMD-World Competitiveness Yearbook. In 2019, although with improvements, Indonesia and the Philippines remain in the bottom half among 63 countries, ranking 32nd and 46th respectively (Rappler News, 2019). Also, Budina and Tuladhar (2010) pointed out the importance of revenue reforms, such as broadening the tax base, with an emphasis on consumption and property taxes to temper distortionary impacts of corporate taxes and improve tax compliance. As revenue-based fiscal consolidation proves more appropriate for emerging and developed economies, Budina and Tuladhar (2010) also proposed a reorientation of spending priorities by reducing precautionary savings and using the revenues to strengthen social safety nets and private consumption. This would imply allocating funds to items that would improve quality of life, increase people's capacity to earn a living, or create employment opportunities. With the relatively lower public health expenditures of ASEAN-5 relative to other Asian countries (1.5% vs. 2%, 2005-06 values) and social expenditures (2.7% for Indonesia, Malaysia, and the Philippines vs. 5.1 in the rest of Asia, 2004-05 values) and the expected rise in pension and health spending due to the aging demographic trends, Budina and Tuladhar (2010) proposed an increase in

expenditure in health and education. They also saw the need to redirect spending on energy and universal food subsidies, particularly in Indonesia, Malaysia, and the Philippines, to targeted social transfers due to perceived inefficiencies.

Other studies concerning fiscal risks focused on the fiscal and monetary spillovers as ASEAN-5 became largely interconnected. In a study aimed at examining the fiscal and monetary policies spillovers to GDP and inflation, Dau (2019) found that external expansionary fiscal shocks lead to a substantial increase in ASEAN-5's GDP, but impacts on inflation are inconclusive. Also, fiscal spillovers from East Asia have a more significant effect than western players, indicating ASEAN-5's relatively tighter integration with the former. External monetary spillovers' impact on ASEAN-5's GDP and inflation appears inconclusive whereas internal financial spillovers seem to have more robust results relative to domestic fiscal spillovers. Dau (2019) found an overall negative effect of expansionary monetary spillovers on ASEAN-5's real GDP, indicating the importance of the exchange rate channel in ASEAN-5's policy coordination.

There also appear contrasting findings in the studies concerned with the growth impact of taxation in Asia. While research, including the works of Abdon et al. (2014), indicated an overall negative relationship between taxation and economic growth, studies including those conducted by Tang, Liu, and Cheung (2010) found otherwise. With the assumption of revenue neutrality and the endogenous relationship of taxation and growth (i.e., "government taxation may impact growth, high growth may also lead to higher taxes," p. 8), Abdon et al. (2014) found an overall negative impact of taxation in low-, middle, and high-income developing Asian economies. Results indicated that

the "overall level of taxes and government spending are substantially lower than those prevailing economies but showed a significant effect on growth" (p. i). Estimation shows that for every one percentage point increase in personal income tax, per capita GDP growth dropped by 0.207 and 0.327 percentage points for high-income and middle-income economies, respectively. They, however, indicated otherwise for low-income economies (i.e., 0.475 percentage increase). Abdon et al. (2014) also found that increasing property taxes would lead to economic growth in the long run (0.278 and 0.427 percentage points for high- and middle-income economies, respectively). In addition to finding that direct taxes have a more significant impact on growth than property taxes, they also found a sizable effect of education on growth.

Tang, Liu, and Cheung (2010), on the other hand, assessed whether or not the fiscal policy has been a useful macroeconomic stabilizing tool by measuring the fiscal multiplier. Unlike Abdon et al.'s (2014) study, Tang, Liu, and Cheung (2010) considered both taxation and government spending in assessing the growth impact of fiscal policy in selected ASEAN countries. Accordingly, while results found no statistically significant effect of government spending on GDP, Tang, Liu, and Cheung (2010) indicated a case of expansionary fiscal contraction among the countries but is only significant in Thailand and Indonesia. It implies that increases in taxes resulted in output growth in all the countries concerned. However, this result appears stronger during the Asian and Global Financial Crisis, especially in the Philippines.

As for the redistributive impact of fiscal packages in Asia, Claus et al. (2012) found that personal income tax revenue reduces income inequality more significantly in Asia compared to the rest of the world. They associated this observation with the

"larger number of people not paying income tax in Asia because their income is below a tax-free threshold." They found that for every percentage point increase in Asia's PIT, income inequality declines by approximately 0.573 percentage points as opposed to that of the rest of the world, with only 0.041 percentage point drop. They also found that while CIT's regressivity raises income inequality (0.598 percentage points decrease in income inequality for every one percentage point increase in CIT), "CIT interacted with globalization lowers inequality, which is the opposite of what is expected and what is observed in the rest of the world" (p. 19). Resuls also supports the existing hypothesis on the positive relationship between social security and payroll taxes and income inequality, as the burden would shift to the employees in the form of lower wages.

Claus et al. (2012) found that every percentage point increase in GTGS raises inequality by approximately 0.666 percentage points. They associated this regressivity as a result of lower tax compliance in Asia. Results also suggest about 0.609 and 0.174 percentage points for excises and customs duties, respectively. Unlike previous views on the equalizing effect of social protection and negative impact observed in the rest of the world (-0.276 percentage point change), Claus et al. (2012) found out that for every percentage point increase in social protection expenditure, income inequality increases by 0.49 percentage points in Asia. They also stated that this 'unexpected positive effect' might be caused by the unbalanced funding given to the research and development of social protection programs as opposed to their actual implementation. Also, they observed the same with housing suggesting that a one percentage point increase in housing expenditure increases income inequality by 2.162 percentage points as compared to -0.614 percentage points of the rest of the world. In contrast

with the positive relationship observed with social protection and housing to income inequality, results indicate otherwise for education and health expenditures. Claus et al. (2012) found that among the components of government spending included in the model, education has the most equalizing impact. Claus et al. (2012) suggested that for every percentage point increase in education expenditure, income inequality decreases by 0.486 percentage points. Similarly, a percentage point increase in Asia's health expenditure leads to a 0.241 percentage point decline in income inequality.

Related Studies

Similar to the findings of Abdon et al. (2014), the works of Skinner (1987) and Macek (2014) indicated the same overall negative relationship between taxes and growth. Skinner (1987) found a negative net impact of tax increases (i.e., increase in personal income and corporate tax rates) on the growth of Sub-Saharan countries, even after considering the effects of spending increases. Macek (2014), on the other hand, aimed at evaluating the impact of different types of taxes on economic growth in OECD countries from 2000 to 2011. Using the extended neoclassical growth model of Mankiw, Romer, and Weil (1992), Macek (2014) found that corporate taxation followed by personal income taxes and social security contribution is the most harmful for economic growth. The impact, however, of consumption taxes such as VAT as well as property taxes was not determined. The growth model, as seen below, measures the effect of taxes by looking at growth variables such as capital accumulation, investment, and human capital. Due to the peculiarities in the countries' tax systems, such as reliefs and exemptions, Macek (2014) did not use statutory tax rates levied as they may not represent tax systems as a whole and used the taxes approximated by

tax quota and World Tax Index instead. In view thereof, Macek (2014) recommended lowering the corporate taxation and personal income taxes, and increasing indirect tax revenues should compensate for the loss of tax revenues.

These findings and recommendations align with the study conducted by the Organization for Economic Cooperation and Development (OECD) in 2010. OECD (2010) also found that corporate income and personal income taxes are the most detrimental taxes to GDP per capita, while recurrent taxes on immovable property and consumption taxes as the least distortive. With the preference of OECD countries towards owner-occupied housing, OECD (2010) claimed that increases in recurrent taxes on immovable properties such as taxes on residential property would encourage and facilitate the flow of capital to high-return investments. However, because sub-national government units impose the taxes, its implementation might be limited. To address this, the government could raise revenues through increases in consumption taxes such as sales taxes and VAT. OECD (2010) argued that while consumption taxes may not facilitate the flow of capital towards high-return investments, these will not cause a severe impact on OECD countries' per capita GDP. In addition to not discouraging saving and investment, consumption taxes do not also impede the production of internationally traded goods. However, due to its less progressive nature, increases in consumption taxes may lead to increased income inequality. This progressive nature of personal income taxes makes it more detrimental to growth relative to consumption taxes because apart from discouraging growth more per unit of tax revenue, personal income taxes also negatively affect saving. Lastly, OECD (2010) found out that corporate income taxes are the most harmful to growth relative to other types of taxes due to their disruptive effect on capital investment and

productivity. OECD (2010) warns, however, the corporate tax rate should not be set below the top personal income tax rates to avoid risks of companies committing tax evasion.

Other studies concerning the redistributive impact of fiscal policy present varying results depending on the type of taxes and spending implemented. For example, the European Commission (2017), in their study on the direct and indirect effect (i.e., behavioral and macroeconomic feedback) of fiscal policy on income distribution, indicated that increases in redistribution size through the tax and benefits system have directly reduced income inequality by almost one-third in the European Union from 1980 to 2014. Using a panel data model which regressed the Gini index of disposable income on the lagged Gini index of disposable income and controlled fiscal variables such as labor market conditions, education, and technology, EC (2017) found some evidence of a reduction in income inequality due to select expenditure items such as education and health spending.

Inchauste et al. (2015), on the other hand, showed the progressivity and equalizing impact of taxes (direct and indirect) and social spending (cash transfers, e.g., old age non-contributory pension, the child support grant, disability grant, and other grants like the care dependency grant) in South Africa. In terms of taxes, Inchauste et al. (2015) found that the upper 20% of the society, which holds 81.4% share in total income, shoulders 97% of entire PIT collections. Indirect taxes, on the other hand, are found to be slightly progressive. Inchauste et al. (2015) indicated that VAT and Fuel Levy are progressive with the bottom deciles paying a lower share in such taxes than their share in disposable income. In contrast, excise taxes appear to

be regressive as the bottom deciles pay a substantially higher percentage of the total than their share of disposable income. In terms of government spending, child support programs appear to be the most progressive relative to other cash transfer schemes. Furthermore, they stated that expenditures on free essential services (e.g., water, electricity, sanitation, and refuse removal) would be more advantageous for the poor, primarily when distributed through direct transfers. In terms of education expenditures, They found that lower-income households benefit more from primary and secondary education spending relative to high-income households. However, higher-income families appear to benefit more from education spending on post-secondary education, as observed in the lower rates of enrollment by the poor (Inchauste, 2015, p. 24). Estimates also indicate the progressivity of health spending, with a larger share allocated for households at the bottom deciles of the income distribution. Inchauste et al.'s (2015) and Claus et al.'s (2012) findings on education were also consistent with the study conducted by Bose, Emraul, and Osborn (2007) when they found a strong correlation between education spending on economic growth."

Meanwhile, Enami et al. (2017) argued that due to the complexity of assessing the redistributive effect of taxes and transfers, tax and incidence measures should not only consider the progressivity and size of the fiscal intervention, as this could only provide a sound assessment on a case to case basis. Enami et al. (2017) claimed that single tax impositions are equalizing if the post-tax Lorenz curve is above the pre-tax income Lorenz curve, which will only happen if the concentration curve of taxes is below the pre-tax income Lorenz curve. This means that post-tax pay will be more equal if and only if the tax is distributed more unequally, and vice versa. While a tax is equalizing when the average tax rate is increasing *everywhere* along the concentration

curve, Enami et al. (2017) emphasized that an 'everywhere progressive tax' is not a necessary and sufficient condition for an equalized post-tax income, but for a tax to be *globally progressive.* This means that the concentration curve should lie below the Lorenz curve for all quantiles. However, in cases where the government imposes two taxes of different sizes, pre-and after-tax Lorenz curves for each of the tax interventions must be compared to assess the overall equalizing impact. In the case of transfers, Enami et al. (2017, p. 20-21) found that "incomes are less unequal after transfers than before if and only if transfers are distributed more equally than the income to which they apply…[but] equalizing transfer may not be pro-poor." They furthered that unless the absolute size of the transfer decreases with income, otherwise, "the share of a transfer going to the rich can be higher than the share going to the poor even if the transfer is equalizing (or progressive)" (p. 21). Also, Inchauste et al.'s (2015) in their study entitled "The Distributional Impact of Fiscal Policy in South Africa," stated that:

> … one knows that a tax or expenditure instrument could be progressive but not have significant impacts on equity if it is too small. One also knows that a tax could be regressive but still equalizing if analyzed in conjunction with other taxes and, especially, transfers. Furthermore, taxes and transfers could be equalizing, and yet poverty increasing because inequality depends on relative incomes in which poverty is affected by absolute income levels...Finally, taxes and transfers could introduce horizontal inequity. One typical form of horizontal inequity occurs when the ranking of individuals (i.e., the ordering of individuals in the before taxes and transfers income distribution) gets changed (individual swap positions) by the fiscal system. (p. 3)

CHAPTER III

CONCEPTUAL FRAMEWORK

The heightened capital accumulation allowed states across the globe to become interdependent with each other. To leverage the benefits of this economic landscape, ASEAN began instituting actions to achieve a "highly integrated and cohesive economy" and a Global ASEAN. However, the same environment of interdependency is responsible for the ripple-like spread of risks, particularly those concerning global flows. With great emphasis on this context, the study developed a fiscal policy response framework, representing the cyclical interaction between fiscal policy and emerging developments and risks that could potentially affect the growth and income distribution among ASEAN member states. This framework shows how this (1) environment of integration and interdependence affects (2) growth and income inequality. These movements in growth and income inequality signal a stimulus on ASEAN member countries to implement policies and programs (3) to achieve inclusive growth through designing tax and benefits systems. While the implementation of new fiscal policy provides solutions for growth and income inequality (4), new developments in the economic landscape (1) will again push for new externalities, which makes this a cyclical interaction.

Growth and Redistributive Impacts of Fiscal Policy

Figure 1. Cyclical Fiscal Policy Response Framework
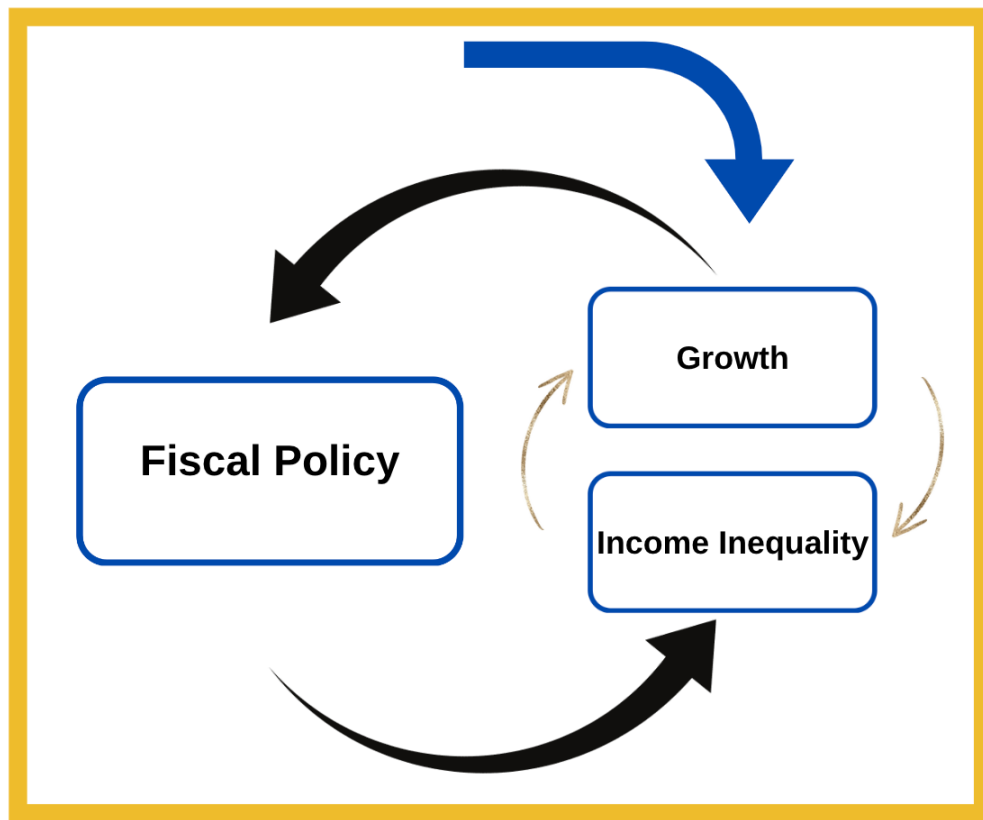
The study builds on the Demand Side Stabilization Framework proposed by Keynes. Central to this is the premise that while the economy is self-correcting, wages and resource prices do not adjust instantly. The government must, therefore, assume a critical role in stabilizing the extreme peaks and troughs in the business cycle to maintain growth sustainably. One discretionary mechanism that the government can utilize is fiscal policy. The government can make discretionary adjustments in the components of the national expenditure to mitigate economic slump and unemployment by increasing overall levels of expenditure or reducing tax rates. In contrast, the government could enforce contractionary fiscal policies (i.e., decrease government spending or increase tax rates) in the event of economic overheating, when aggregate demand overtakes an economy's productive capacity.

Figure 2. Demand Side Stabilization (Inflationary Gap; Recessionary Gap)
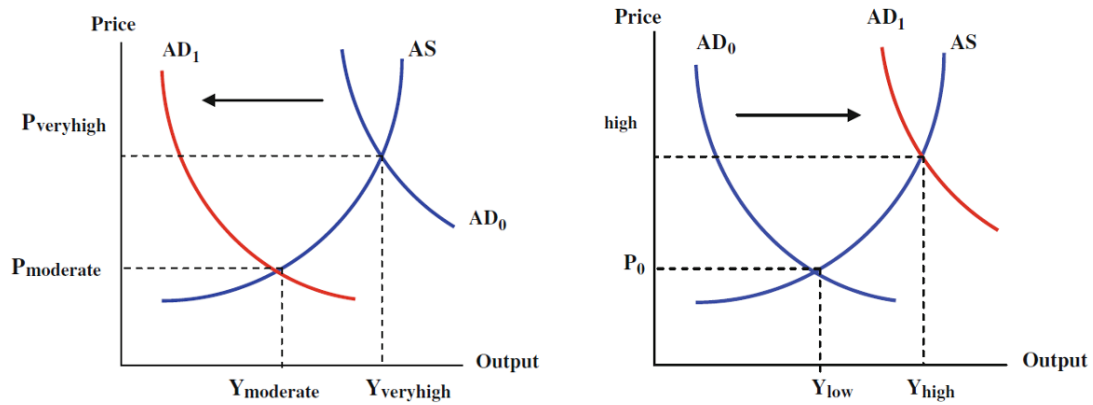
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SOURCE: Langdana (2016, p. 58-59)

Although the framework was generally thought of as a mechanism to close an inflationary or recessionary gap, both taxes and government spending could also play a critical role in redistributing income as the literature suggests. The growth and redistributive impacts of taxes and government spending present a measure to assess the performance of member states in pursuing inclusive development, which is the essence of a people-centered and people-oriented ASEAN community. Despite contrasting views, the literature indicates that progressive income taxes and redistributive transfers, particularly education and health spending, generally promote economic growth and income redistribution. Increases in corporate and personal income taxes appear to be the most harmful to economic growth. Imposing higher recurrent taxes, such as on immovable properties, proves to be beneficial in supporting growth as it redirects capital to income-generating investments. Further, general taxes on goods and services, excise taxes, and customs duties appear generally regressive. Surprisingly, spending on social protection appears harmful to income redistribution, which may be associated with the imbalance of funds allocated for social protection planning compared to actual implementation.

Figure 3. Growth and Redistributive Impact of Tax and Government Spending

Personal Income Tax (+/-)
Corporate Income Tax (-)
Property Tax (+)
General Taxes on Goods and Services (-)
Excise Tax (-)
Import (Customs) Tax (-)

Education (+)
Health (+)
Housing (-)
Social Protection (-)

Growth (GDP at constant prices, base year = 2015) and Income Distribution (Gini Coefficient)
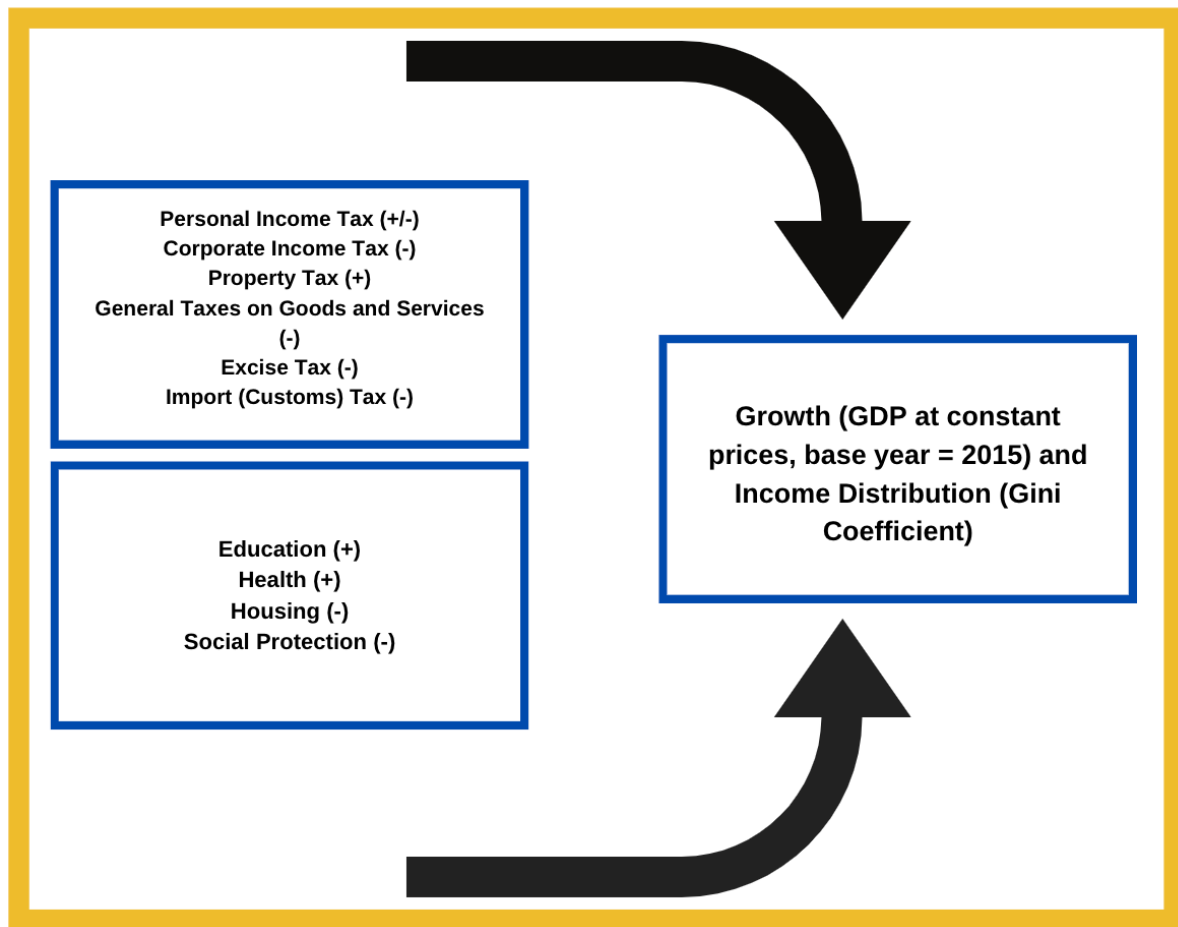
CHAPTER IV

METHODOLOGY

Research Design

The study determined how selected ASEAN member countries fared in realizing their commitment toward a people-centered community in terms of their implementation of fiscal policy. To measure this, the study assessed the growth and redistributive impacts of taxes and government spending from 2000 to 2020, which covers a period of increased debt-to-GDP ratio among ASEAN member countries following the 1997 Asian Financial Crisis and the 2008 Global Financial Crisis. Growth was represented by the Gross Domestic Product (at constant prices, base year = 2015) of individual ASEAN member countries and redistributive impact by their Gini coefficients. The study focused on selected types of taxes and components of government spending. Accordingly, the study considered personal income tax (PIT), corporate income tax (CIT), property taxes (PT), general taxes on goods and services (GTGS), excise tax (ET), and import (customs) tax (IT) on the taxation side and education, health, housing, and social protection on the government expenditure side. Considering the growth of the ASEAN membership and the availability of data, the study focused on Cambodia, Lao PDR, Malaysia, the Philippines, Singapore, and Thailand. To ensure the accuracy of data and subsequent interpretation, this study sourced tax data from the United Nations University World Institute for Development Economics Research (UNU-WIDER) Government Revenue Dataset (GRD). The GRD pools in data from several international sources under a standard classification

system. This should help reduce potential inconsistencies in data disclosure across countries. The study also sourced data from other databases, including the World Bank (WB) Databank, International Monetary Fund's Government Finance Statistics, ASEANstats, and the World Health Organization's Global Health Expenditure Database.

Research Instrument

To measure the growth and redistributive impacts of fiscal policy, the study formulated two multiple regression models for each dependent variable (i.e., growth and redistributive impact) using a similar set of independent variables (i.e., selected types of taxes and components of government expenditures). This study used STATA, which is a statistical software package, to compute the least squares-based estimators and generate the respective models.

Research Methodology

The study analyzed panel data of selected indicators using econometric models in the double-log specifications to measure the growth and redistributive impacts of the pre-identified types of taxes and government spending. To account for the individual differences in tax and government spending among select member states, the study provided two levels of analysis; one at the regional level and another at the country level. Considering the nature of the data set, the study also performed additional tests to arrive at the most appropriate model specification and accurate estimators. Such include the Hausman Test to assess the suitability of outputs derived

by the Fixed Effect Least Squares Dummy Variable (LSDV FEM) and Random Effect

Model (REM) and Modified Wald test for GroupWise heteroskedasticity.

Eq. 1. Growth Impact of Fiscal Policy

$$\ln Y_{it} = \alpha - \beta \ln T_{nit} \pm \beta \ln GE_{mit} + u_i + \varepsilon_{it}$$

Where i = country 1 … N

t = year 1 … T

n = PIT, CIT, PT, GTGS, ET, and IT

m = housing, education, health, and social protection

u_i = country fixed effects for country i

ε_{it} = idiosyncratic errors

Equation (1) posits that growth, measured by the GDP of ASEAN member states for country *i* in year t, is dependent on taxes T and government expenditure GE.

Eq. 2 Redistributive Impacts of Fiscal Policy

$$\ln Gini_{it} = \alpha \pm \beta \ln T_{nit} \pm \beta \ln GE_{mit} + u_i + \varepsilon_{it}$$

Where i = country 1 … N

t = year 1 … T

n = PIT, CIT, PT, GTGS, ET, and IT

m = housing, education, health, and social protection

u_i = country fixed effects for country i

ε_{it} = idiosyncratic errors

Equation (2) posits that redistributive impact, measured by the Gini coefficients of ASEAN member states for country *i* in year t, is dependent on taxes T and government expenditure GE. A breakdown of the regional panel data was used for the country-level analysis

CHAPTER V

RESULTS AND DISCUSSION

Selected Taxes and Government Expenditures in Some ASEAN Countries

Tax systems in ASEAN have been challenged with issues such as having low tax effort and high tax rates that could discourage investments and promote tax evasion, and the lack of responsiveness to economic activity. These issues were generally associated with member states' relatively narrow tax base and inefficient tax administration. Historical data suggests that ASEAN's tax effort, as computed by the ratio of tax revenues to Gross Domestic Product, has remained below 15% from 2000 to 2020, except during 2008 when its share reached 15.6%. For illustration purposes, the average tax effort of ASEAN during the 21-year period is 13%, which is only about half of that of the European Union and Organization for Economic Co-operation and Development; the EU and OECD recorded an average tax effort of 25% and 24% from 2000-2020, respectively. This level of tax effort at the regional level is also seen at the individual member level. As shown, tax efforts of selected member states are generally below the 15% ASEAN average, except for Thailand, which exceeded the ASEAN average for most of the 21-year period. On average, Thailand's tax effort is 16% but reached its highest at 18% in 2013. Despite this, it was Cambodia that recorded the highest tax effort (20% in 2019), which was a remarkable feat, especially given that it only started at 7% in 2000. In 2020, ASEAN's tax effort notably dropped

to 11% in 2020 (vs. 13% in 2019), which could be associated with the economic disruptions caused by the COVID-19 pandemic.

Figure 4.1. Tax Effort in ASEAN, EU, and OECD, 2000-2020
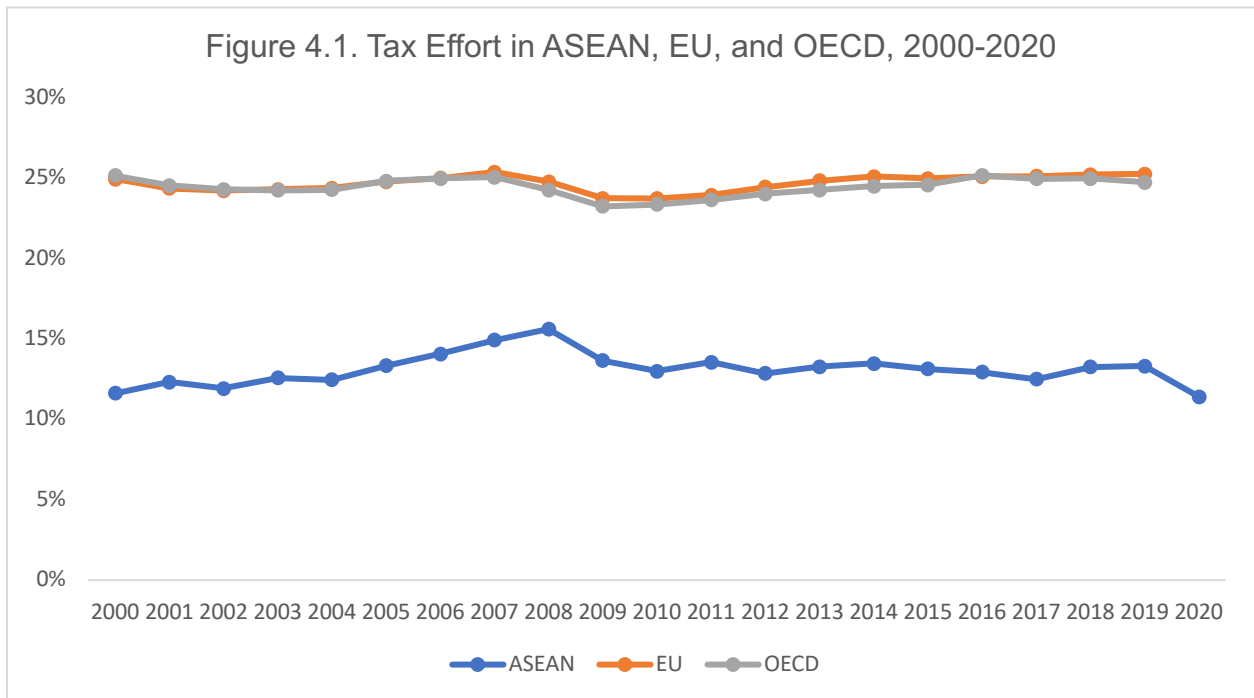
SOURCE: Computed using Tax revenues and GDP data (at constant prices, US$ 2015) from UNU-WIDER and World Bank Database

Figure 4.2. Tax Effort in Selected ASEAN Countries, 2000-2020

This greatly affected member states' revenues given that tax revenues represent most of ASEAN's revenues; tax revenues represented an average of 71% of total revenues in ASEAN from 2000 to 2020. Total revenues in ASEAN were down by 3% in 2020 (vs. 2019) as tax revenues dipped by 2%. Lower tax effort could pose the risk of increased budget deficits, especially with ASEAN member states whose revenues highly depend on tax revenues. The risk could be greater with the member states' relatively high average debt-to-GDP ratio (ASEAN-5: 56.06%; CLMV: 36.43% in 2018) (Plecher, 2020) and increased government expenditures in 2020, as shown in the upward trajectory of general government final consumption expenditures (GGFCE). GGFCE represents all current spending and most expenditures on national defense and security. Accordingly, the gap between tax revenues and general government final consumption expenditures, both represented as a ratio of GDP, in member states is glaring in 2020. Data suggests that member countries generally started with a higher tax effort, relative to spending, in 2000 but ended up having larger spending in 2020, except for Cambodia which maintained a 5% GGFCE-to-GDP ratio.

Table 1. Tax Effort and General Government Final Consumption Expenditures

Member-State	2000		2020	
	Tax Effort	GGFCE	Tax Effort	GGFCE
Cambodia	7%	5%	18%	5%
Lao PDR	8%	6%	9%	13%
Malaysia	12%	11%	11%	13%
Singapore	15%	11%	9%	12%
Philippines	12%	11%	14%	15%
Thailand	14%	14%	14%	18%

SOURCE: Computed using Tax revenues, GDP data (at constant prices, US$ 2015), and GFS data from UNU-WIDER, World Bank Database, and IMF

As the issue of low tax effort is not new in ASEAN, there has been a general trend among member countries when it comes to leveraging fiscal policy to meet their economic goals. During the course of the 21-year period, member states have had initiatives aimed at improving tax administration and broadening the tax base as well as expansionary programs that promote consumer and investor confidence. To cite a few, the Philippines, through the Comprehensive Tax Reform in 1997, attempted to attract investments by further lowering corporate income tax rates (i.e., from 35% in 1997 to 32% in 2000) and granting tax incentives (e.g., tax packages and holidays) to investors. Malaysia also introduced several expansionary fiscal packages throughout the past years. These include giving incentive packages to attract investors and

promoting import substitution strategy in 2002-03 through tax exemption to domestic companies in selected industries. During the same period, Malaysia, through a package reform, extended the period through which companies with the 'pioneer' status would enjoy a 100% tax exemption or a 100% investment tax allowance. During its implementation of Goods and Services Tax (GST) in 2015, Malaysia has not covered basic food and services to temper the risk of burdening the people with the shift. In 2017, Thailand amended its revenue code revising the country's personal income tax structure aiming to ease tax burden and boost consumption. Some member countries including the Philippines (2018) and Malaysia (2019) have also introduced excise tax on sugar-sweetened beverages to increase the tax base. Moreover, there were initiatives to direct revenues to support health spending among member countries such as sin taxes on selected products including tobacco and alcoholic beverages.

Figure 4.3. Tax Revenue Composition in ASEAN, 2000-2020

SOURCE: UNU-WIDER Database

Figure 4.4. Tax Revenue Share by Type in ASEAN, 2000-2019
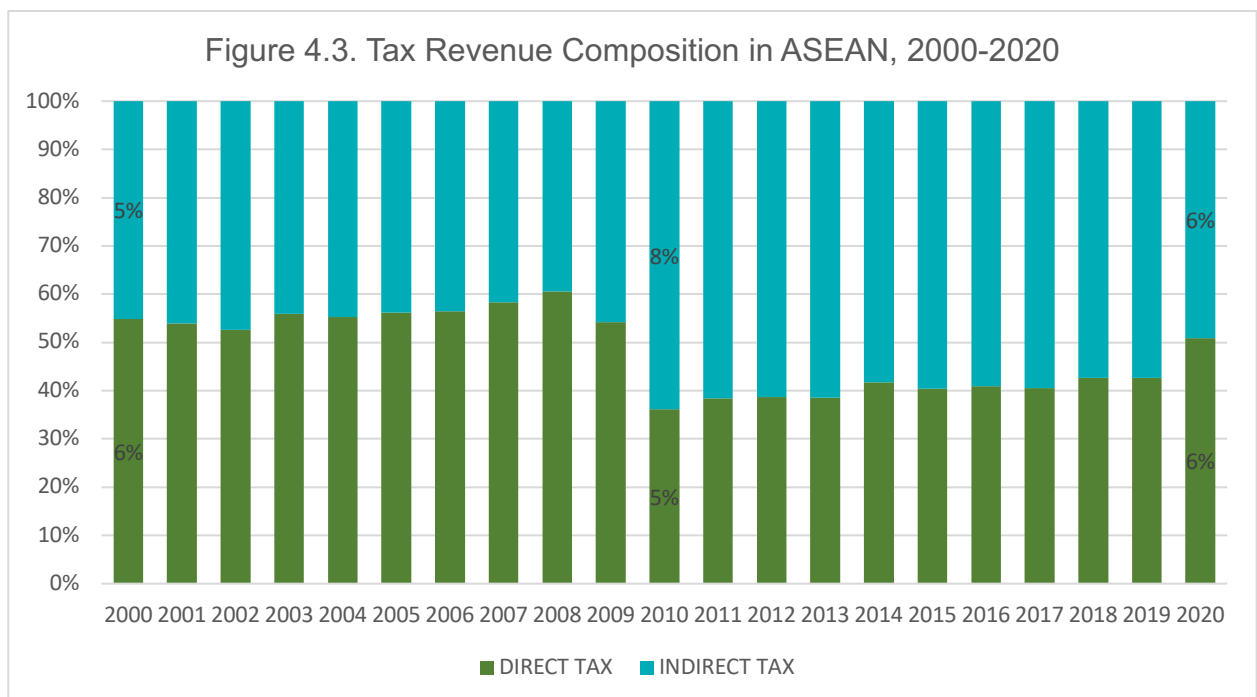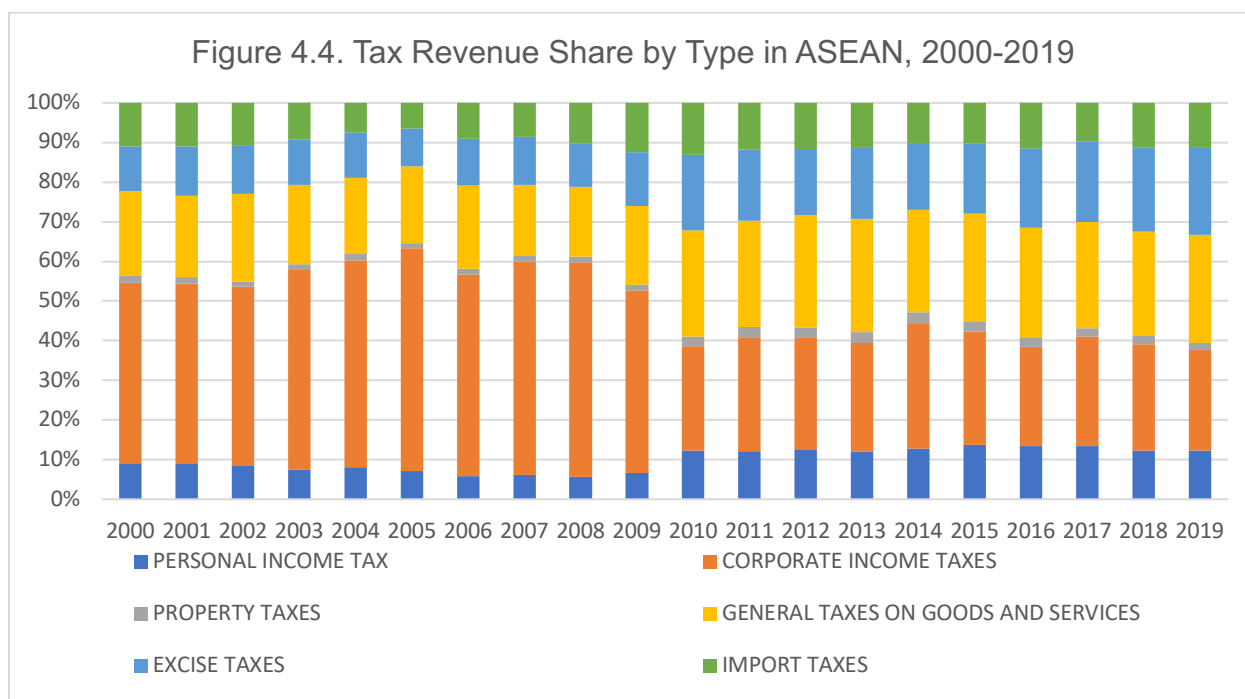
SOURCE: UNU-WIDER Database

From 2000-2009, the majority of tax revenues in ASEAN were from direct tax revenues with CIT as the main contributor. Data indicates that revenues from CIT grew from USD 59,045 million in 2000 to USD 158,484 million in 2008–representing growth in the share of CIT to ASEAN's total tax revenues from 43% to 58%. However, CIT revenues drastically dropped post-2008 following the economic crisis. From contributing 58% of total tax revenues in 2008, CIT's share decreased to 47% in 2009 and 22% in 2010. Since 2010, the share of CIT to ASEAN's total tax revenues remained below 35%, contributing an average share of 26%. This drop in CIT revenues is also seen in the reduced share of direct taxes to total tax revenues. Relative to the movements in CIT collections, revenues from PIT and PT have remained stable from 2000 to 2020. The share of revenues from PIT to ASEAN's total tax revenues rose from 9% in 2000 to 14% in 2020–representing modest growth of 5% during the 21-year period. The share of PT to ASEAN's total tax revenues

minimally increased from 1.6% in 2000 to 1.7% in 2020—making it the least contributor among the components of tax revenues. In contrast with direct taxes, the components of indirect taxes have remained relatively steady from 2000 to 2020. Revenues from GTGS continued to contribute the most among the selected components of indirect taxes: its average share in ASEAN's total tax revenues during the period is about 23%. The share of excise tax collections grew gradually from 11% in 2000 to 20% in 2020– representing an average growth of 15%. Lastly, revenues from import taxes remained stable contributing about 10% during the 21-year period.

Overall, revenues from CIT and GTGS contributed most to ASEAN's tax revenues while revenues from PT represented the least from 2000 to 2020. Collections throughout the period remained relatively stable with the exception of CIT whose revenues gradually declined, indicating ASEAN's continued efforts to encourage investments in the region. Despite this, member states continued to highly rely on revenues from corporate income taxes. Data indicates that among the six selected member countries, Malaysia, Philippines, Singapore, and Thailand–members of the ASEAN-5, continued to source the majority of their respective tax revenues from CIT collections. Lao PDR and Cambodia of the CLMV subgroup, on the other hand, highly relied on GTGS collections. Similar to ASEAN-level observation, member countries recorded a dip in their revenues from CIT, except for Cambodia. The overall decrease in CIT's share in total tax revenues and GDP at the ASEAN level is also consistent, to some extent, with most of the member countries except for Singapore and Cambodia; Singapore showed relatively stable revenues from CIT while Cambodia exhibited a steady growth throughout the period. Revenues from PT remained minimal across individual member countries. Singapore had the highest dependency on PT but it only

accounted for less than 1% of GDP on average from 2000 to 2020. With the exception of Thailand, ASEAN-5 members have a relatively low dependence on revenues from excise taxes. On the other hand, the Philippines is the only ASEAN-5 member which maintains high reliance on revenues from import taxes along with Cambodia and Lao PDR, indicating their continued dependence on imported goods.

Figure 4.5 Tax Revenues per Type in Cambodia (% of GDP), 2000-2020
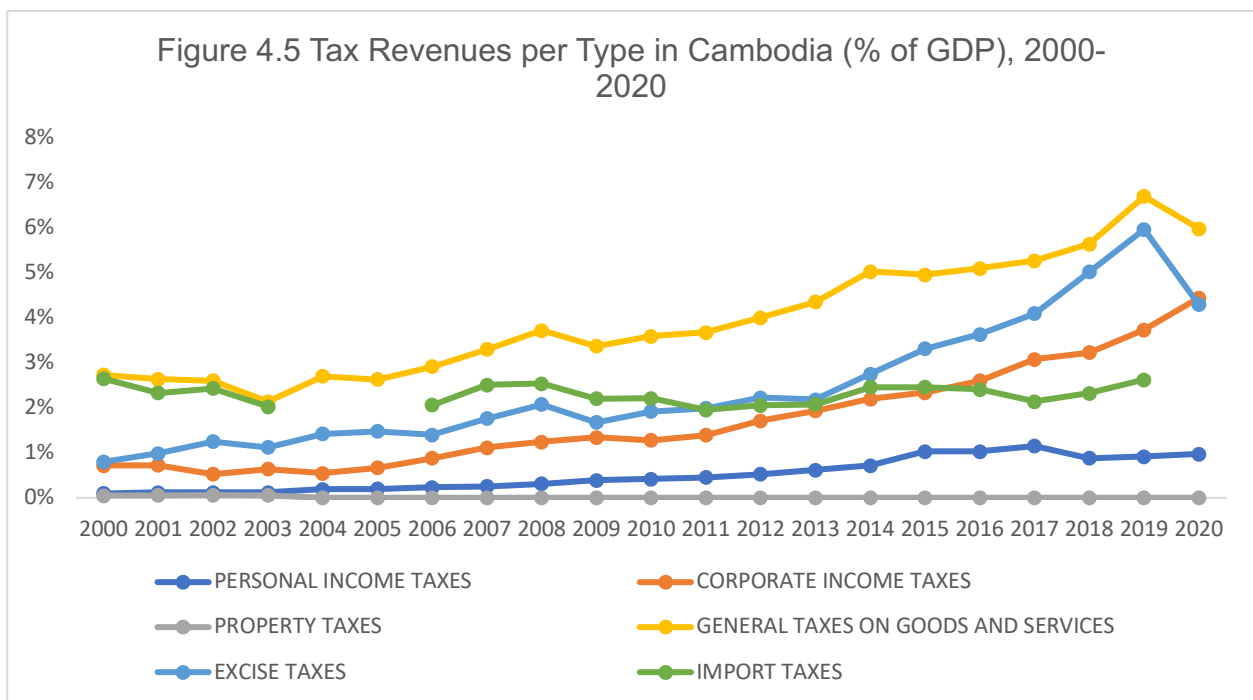
SOURCE: UNU-WIDER Database

Figure 4.6. Tax Revenues per Type in Lao PDR (% of GDP), 2000-2020
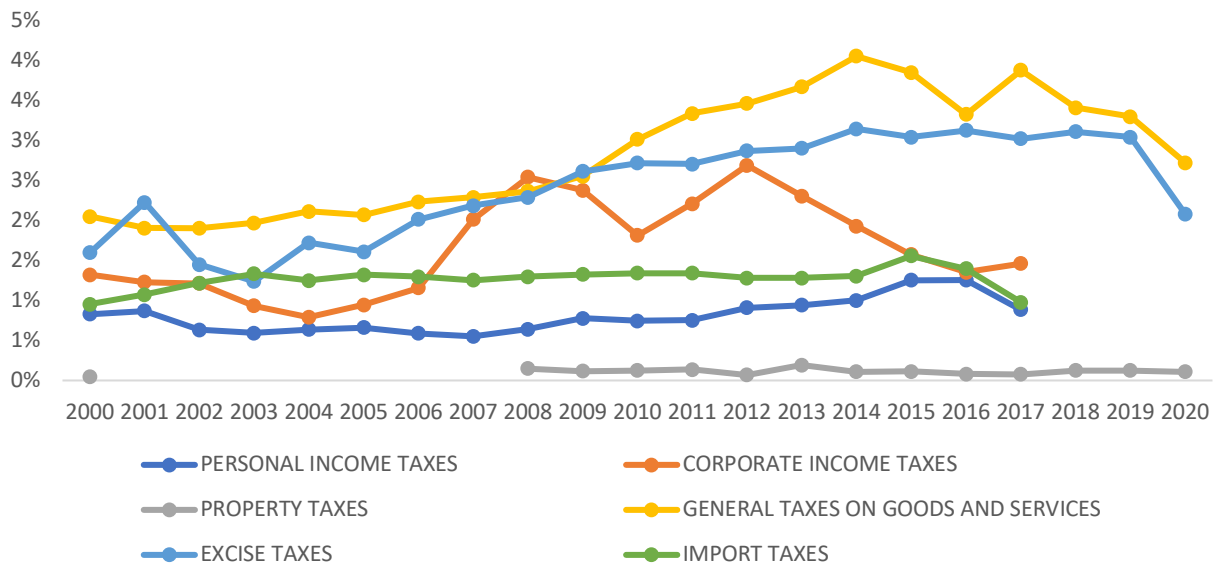
SOURCE: UNU-WIDER Database

Figure 4.7. Tax Revenues per Type in Malaysia (% of GDP), 2000-2020
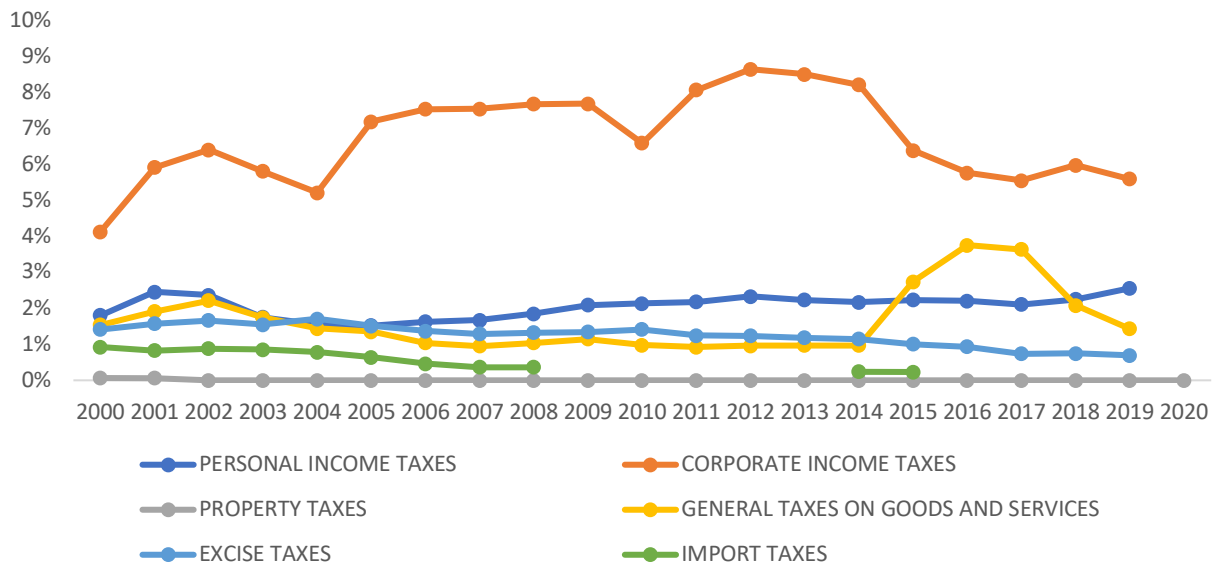
SOURCE: UNU-WIDER Database

Figure 4.8. Tax Revenues per Type in the Philippines (% of GDP), 2000-2020
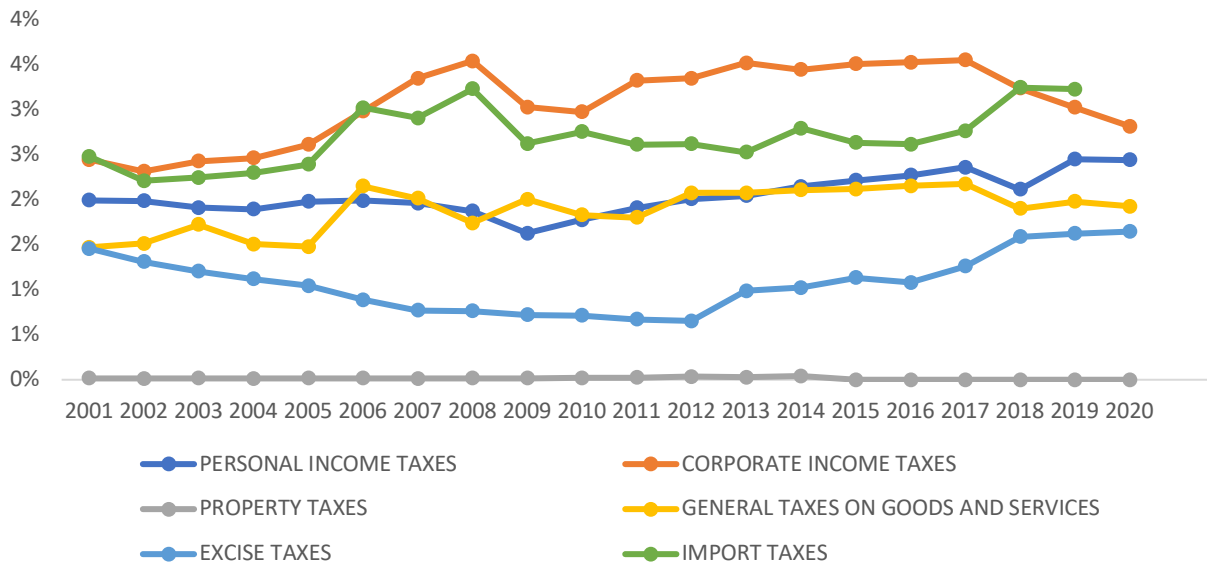
SOURCE: UNU-WIDER Database

Figure 4.9. Tax Revenues per Type in Singapore (% of GDP), 2000-2020

SOURCE: UNU-WIDER Database

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Figure 4.10. Tax Revenues per Type in Thailand (% of GDP), 2000-2020
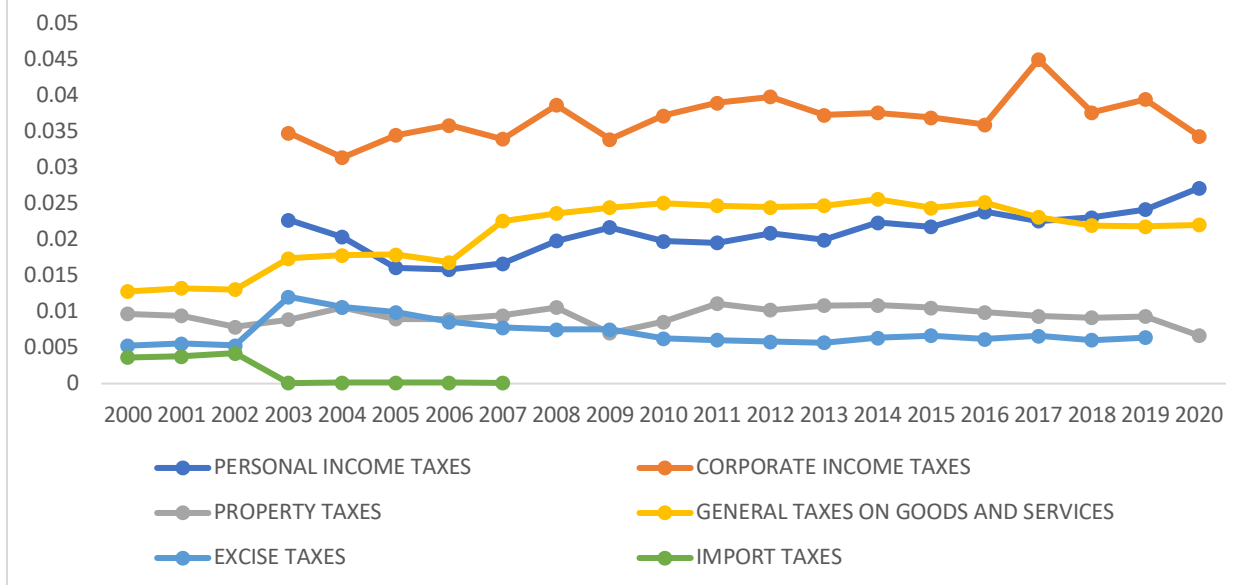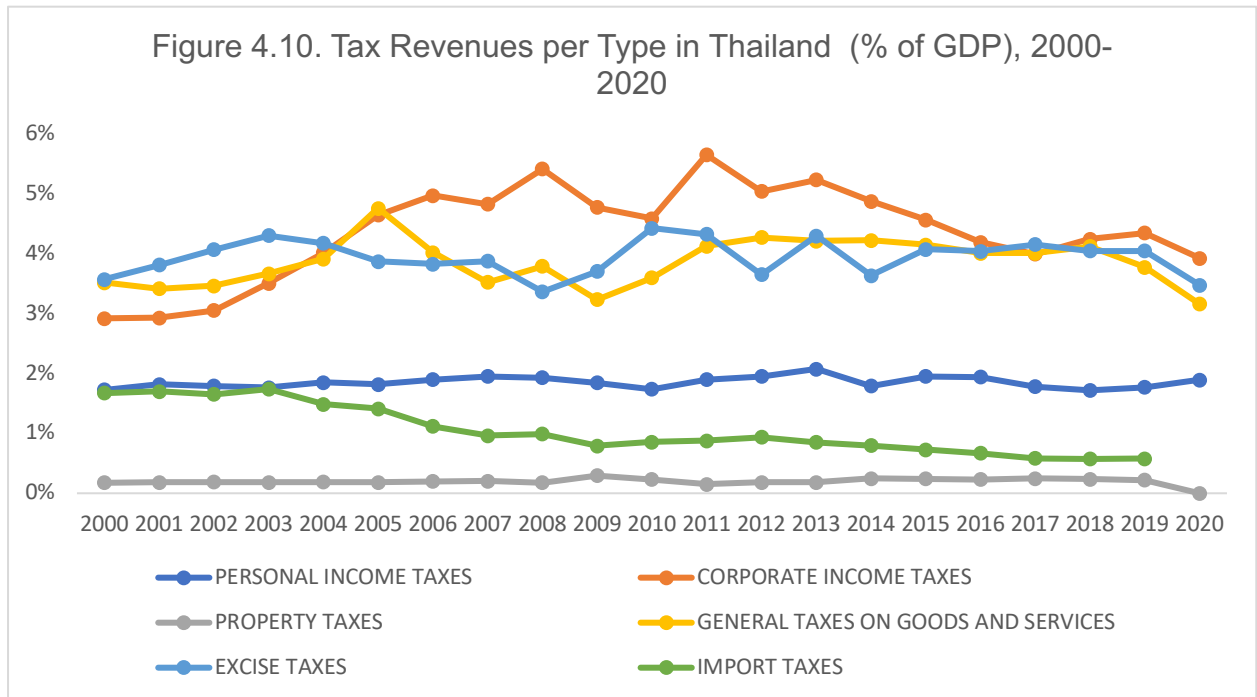
SOURCE: UNU-WIDER Database

Considered key drivers of social and economic development, health and education were identified by ASEAN as priority areas for cooperation to achieve a people-centered and people-oriented community. On health, the dialogue continues to focus on mitigating non-communicable and communicable diseases and emerging infectious diseases, especially with the COVID-19 outbreak in late 2019. Initiatives on education focus on improving basic and higher education as well as technical and vocational education. Despite this, ASEAN-level government expenditure on these fronts has remained stagnant throughout the years. Moreover, for illustration purposes, ASEAN's spending on education and health as a percentage of GDP has remained lower compared to the EU and OECD, similar to that of tax effort. Data indicates that ASEAN allocated an average of 3.62% of national income to health whereas the EU and OECD allotted an average of 8% from 2000 to 2020.

Figure 5.1. Current Health Expenditure (% of GDP), 2000-2020
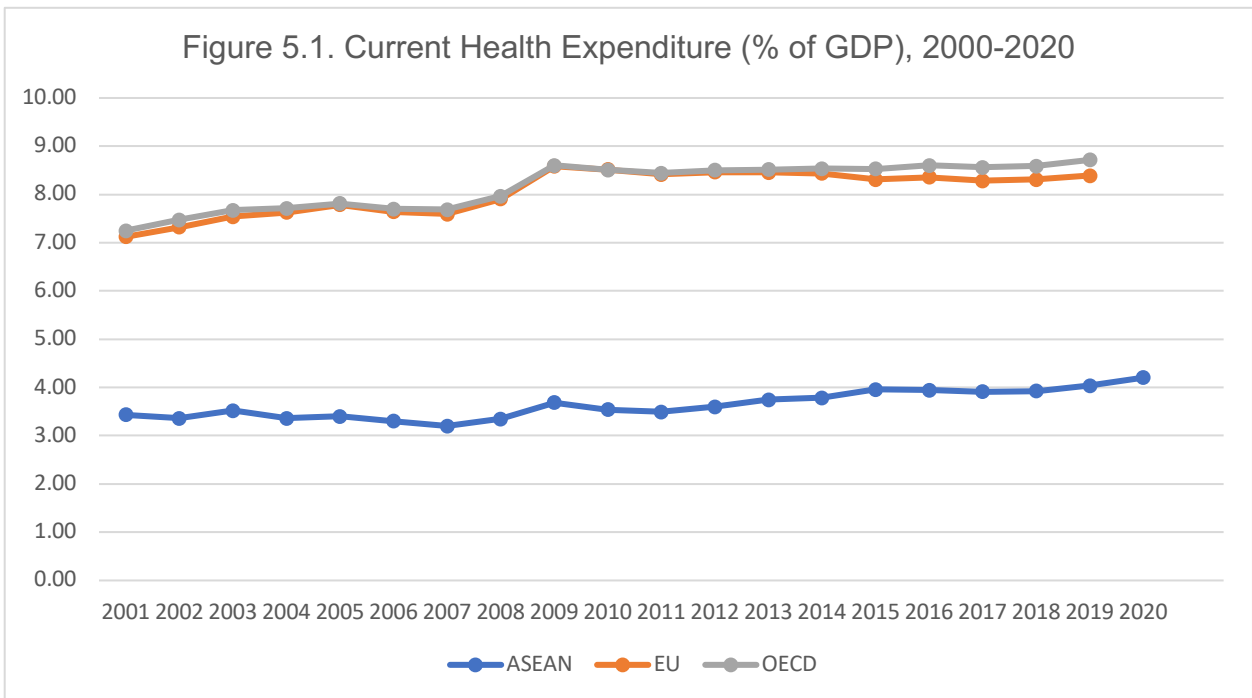
SOURCE: WHO's Global Health Expenditure Database

This gap is also shown in the current health expenditure per capita of these organizations; data suggests ASEAN's per capita health spending from 2000 to 2019 is USD 306 whereas the EU and OECD had USD 2,502 and 2,783 respectively. At the member-state level, current health expenditure as a percentage of GDP had fluctuated between 2% to 5% from 2000 to 2020, except for Cambodia which had generally allocated more than 5%. Singapore's per capita health expenditure continued to be far above those of other member states despite the USD 311 year-on-year drop in 2019-20. During the 21-year period, Singapore had an average per capita health spending of USD 1,615, exceeding ASEAN average, in contrast with that of the Philippines (USD 86), Cambodia (USD 54), and Lao PDR (USD 34).

Figure 5.2. Current Health Expenditure per Capita in US$, 2000-2019
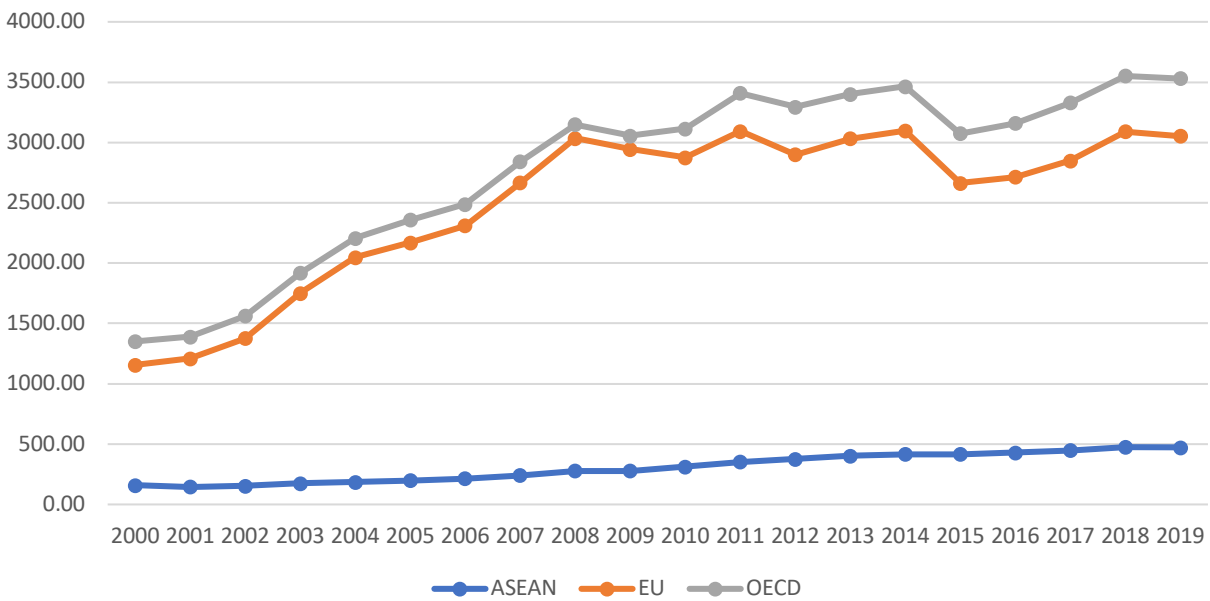
SOURCE: WHO's Global Health Expenditure Database

Figure 5.3. Current Health Expenditure (% of GDP) at selected ASEAN Member States

SOURCE: WHO's Global Health Expenditure Database

Figure 5.4. Government Expenditure on Education, total (% of GDP)
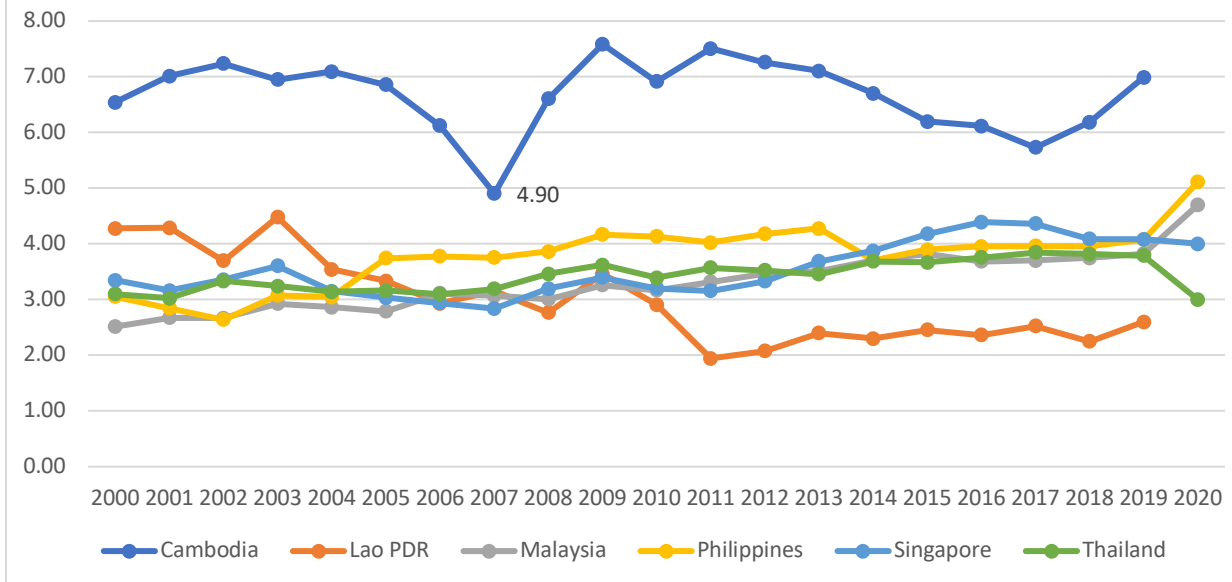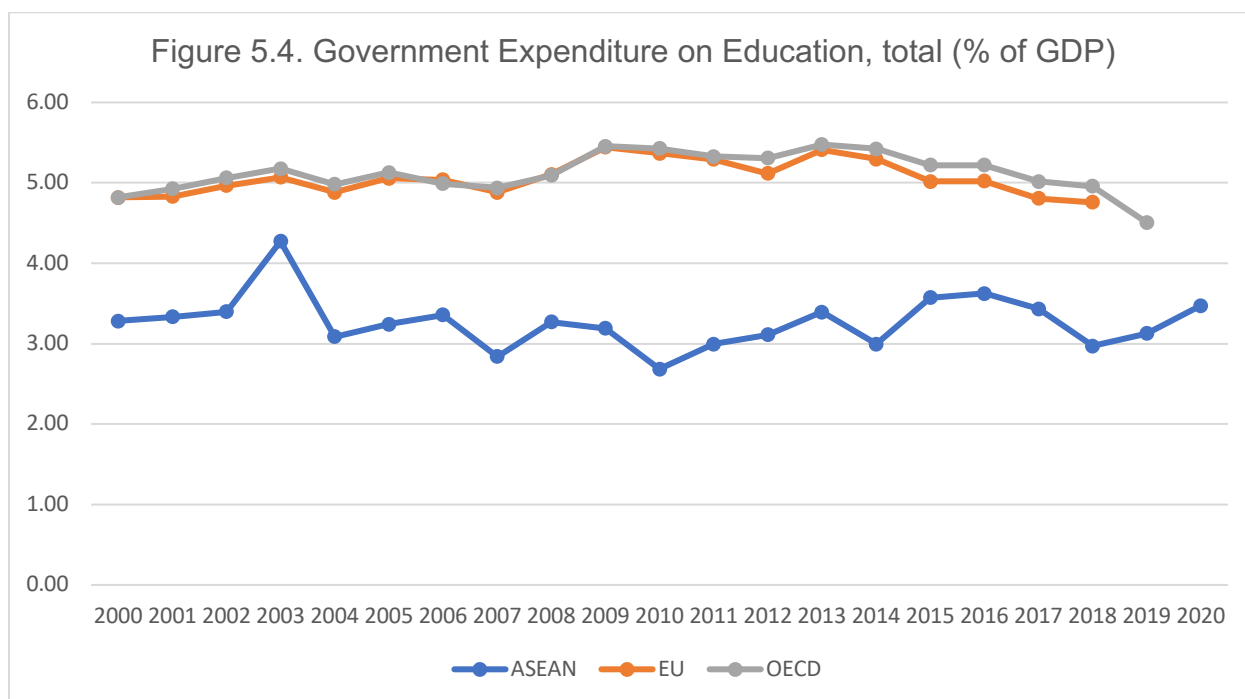
SOURCE: World Bank Database

On education expenditure, the gap between ASEAN and the EU and OECD is relatively insignificant compared to health spending, reflecting the association's strong focus on education. During the selected period, ASEAN had allocated an average of 3.27% of its GDP to education whereas the EU and OECD dispensed an average of 5.06% and 5.12%, respectively. Although education spending as a percentage of GDP was relatively stable among the selected member states with Malaysia converging starting in 2003, only Thailand (3.86%) and Malaysia (5.36%) exceeded ASEAN's average. Singapore and the Philippines recorded an average education expenditure-to-GDP ratio of 3.06% and 2.92%, respectively, whereas Cambodia and Lao only recorded 1.73% and 2.32% respectively. While member-state-level figures are significantly close, a further breakdown would indicate stark differences among

selected member states. For instance, during the period 2015-2020, data indicate priority areas for education in Singapore, Thailand, and the Philippines differ. Though about 60% of Singapore's education spending accounted for pre-primary and primary education from 2015 to 2016, succeeding years showed increased spending on tertiary education, which accounted for about 61% of the country's education expenditure. Pre-primary and primary education from 2015 to 2016 also accounted for the majority of education expenditure in Thailand. However, unlike Singapore, Thailand's education spending on tertiary education remained relatively stagnant with an average of 23%. Education expenditure for pre-primary and primary education continued to drop to 4% in 2020 whereas education expenditure for secondary education continued to grow, which represented 72% of education spending in 2020. Relative to Singapore and Thailand, the breakdown of education expenditure in the Philippines remained stable from 2015 to 2020: pre-primary and primary education and secondary education continued to account for more than 80% of education expenditure in the Philippines.

Figure 5.5. Government Expenditure on Education at Selected Member States (% of GDP)
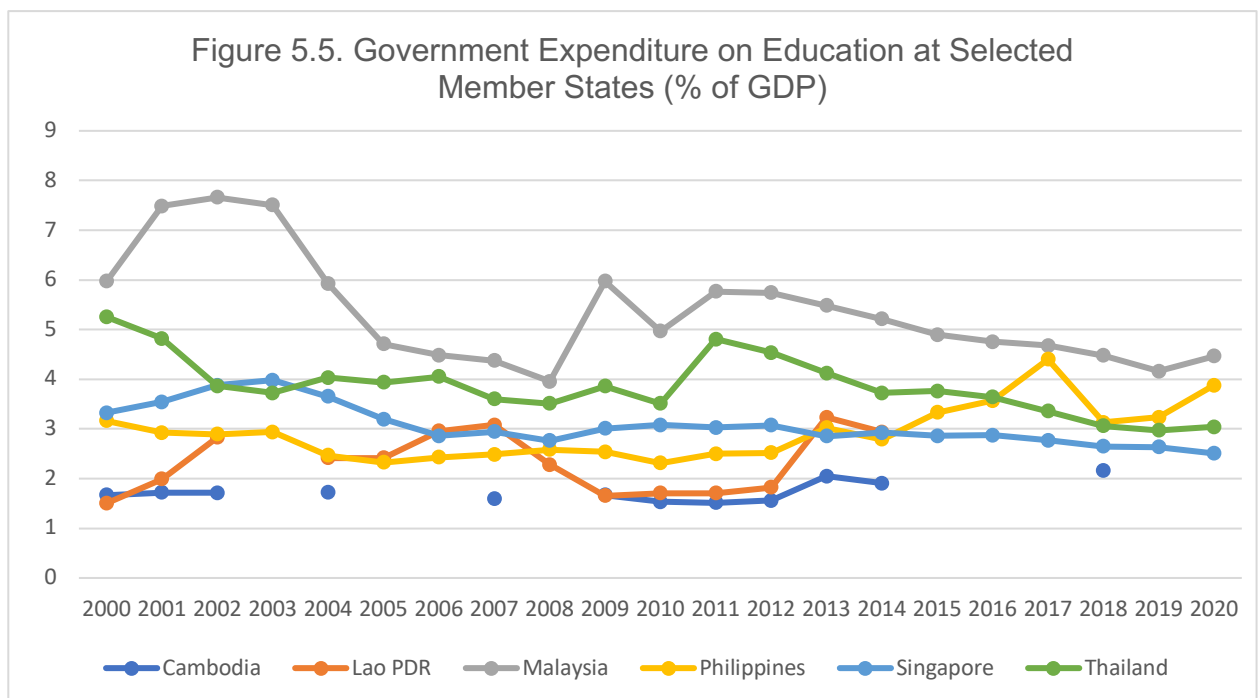
Figure 5.6. Government Expenditure on Education (% of GDP) in Singapore, 2015-2020
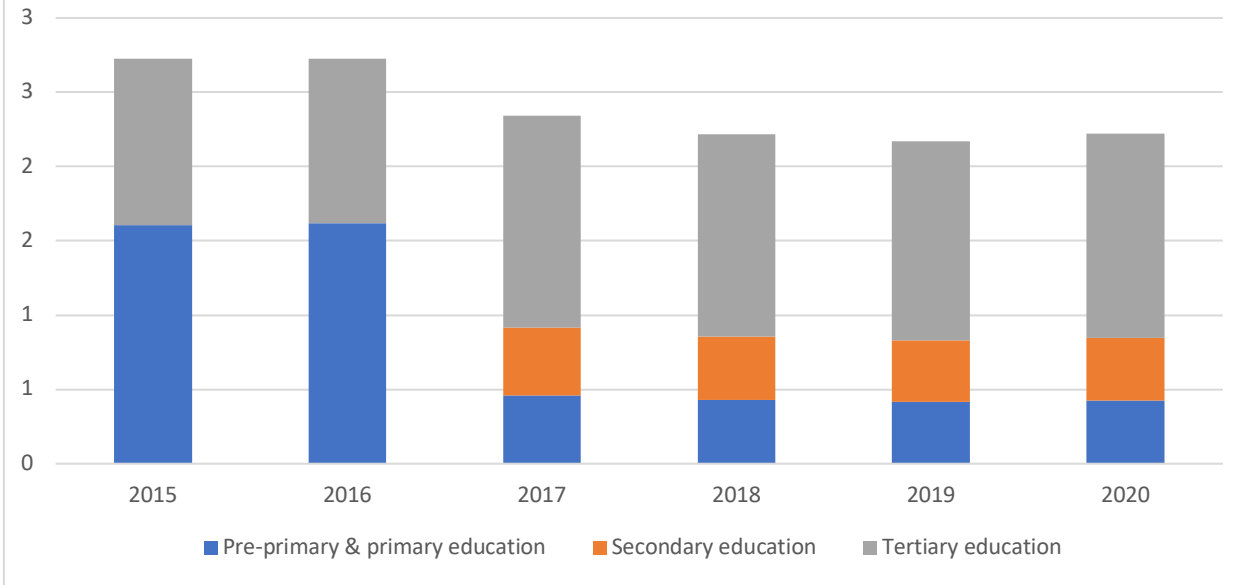
SOURCE: World Bank Database

Figure 5.7. Government Expenditure on Education (% of GDP) in the Philippines, 2015-2020

SOURCE: World Bank Database

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Figure 5.8. Government Expenditure on Education (% of GDP) in Thailand, 2015-2020
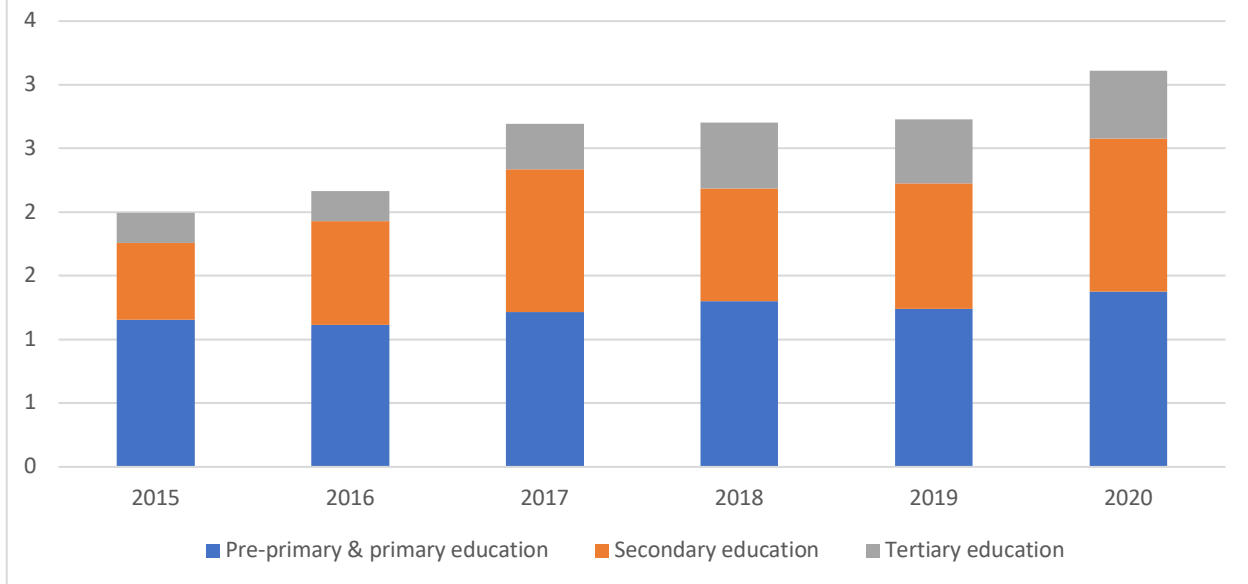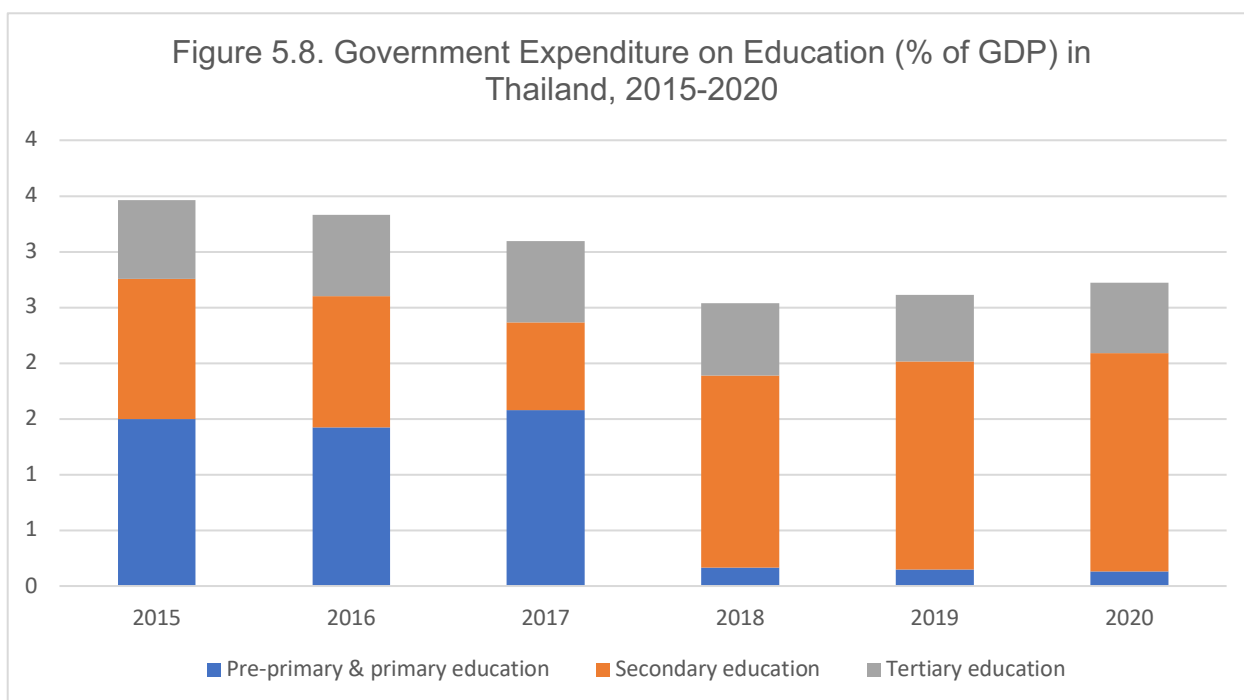
SOURCE: World Bank Database

Due to the unavailability of data, only ASEAN-5 member states were assessed on housing and social protection components of government expenditures. Relative to expenditures on education and health, spending on housing and community amenities appears to be on a lower rank in terms of priority. Compared to spending as a percentage of GDP ranging from 2% to 8% on education and health, housing spending had not even reached 3% during the 21-year period. Among these ASEAN-5 member states, housing spending as a percentage of GDP is less significant in Thailand and in the Philippines. Thailand and the Philippines allocated an average of 0.53% and 0.10%, respectively, though noticeable is the huge increase in Thailand's spending in 2012 (1.69%) which may be associated with the housing market picking up during the year and continuation of postponed residential housing projects in 2011. On the other hand, Malaysia and Singapore both allotted an average of 1.3% of their

GDP during the period and recorded an increase in 2020. Similar to housing expenditures, spending on social protection was lower than that of education and health for the most part of the period. However, social protection expenditures rose in 2020, which was seen as more significant in Singapore and Thailand, and is attributed to the COVID-19-related expenditures.

Figure 5.9. Expenditure on Housing and Community Amenities at Selected Member States (% of GDP), 2000-2020

SOURCE: IMF's Government Finance Statistics

Figure 5.10. Expenditure on Social Protection at Selected Member States (% of GDP), 2000-2020
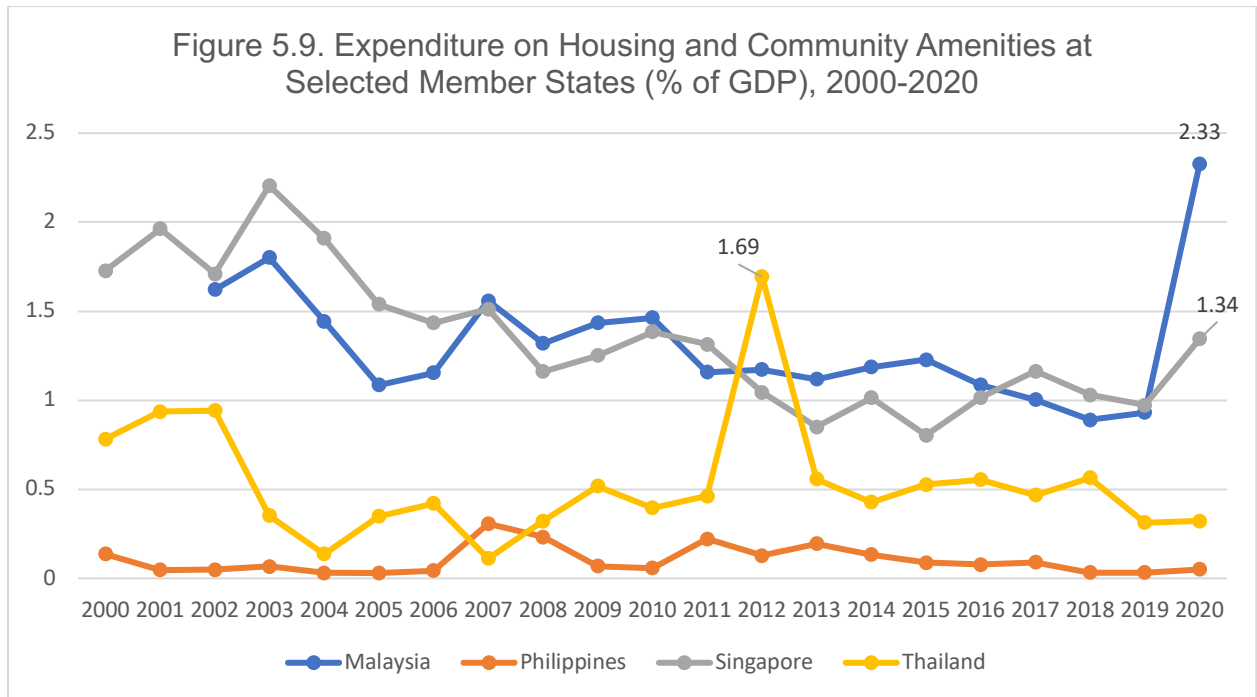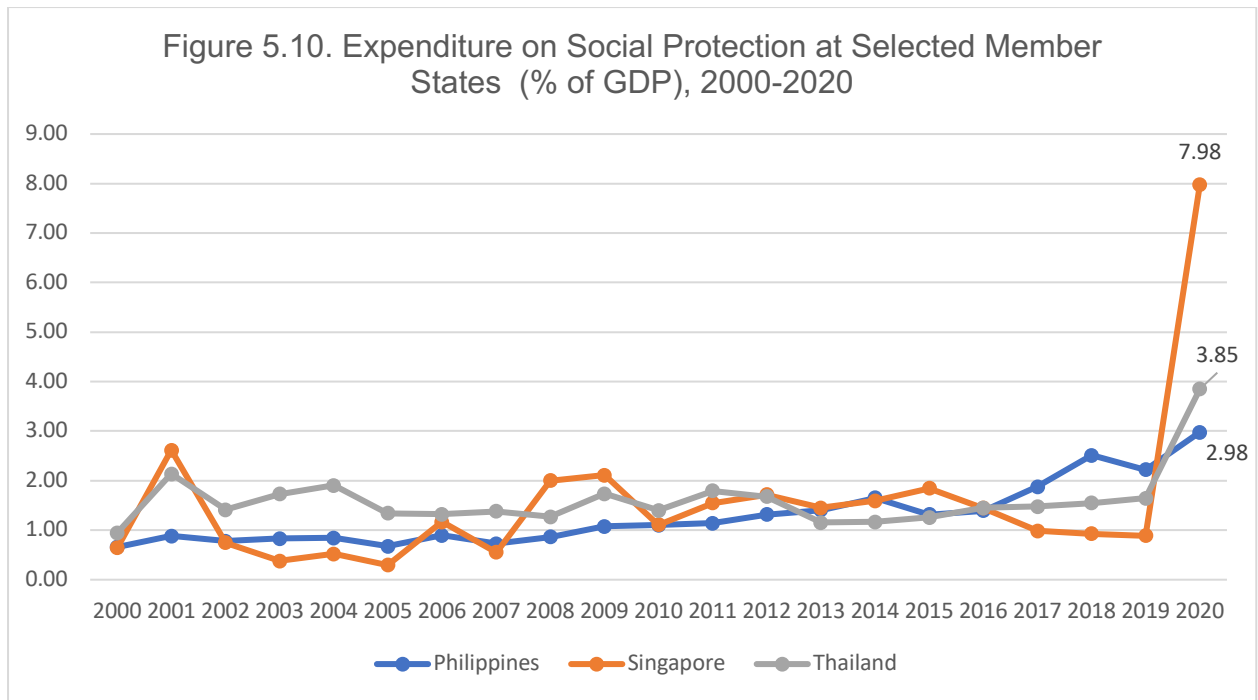
SOURCE: IMF's Government Finance Statistics

Economic Growth and Income Inequality across Selected ASEAN Countries

ASEAN generally continued to demonstrate a steady growth during the 21-year period. Data indicates ASEAN has more than doubled its GDP (constant, 2015 US$) from US$ 1.16 trillion in 2000 to US$ 2.89 trillion in 2020. This corresponds to an average year-on-year real GDP growth rate of 5%. ASEAN CLMV's Cambodia and Lao PDR demonstrated robust growth rates of 7.2% and 6.8%, respectively, as well as ASEAN-5's Malaysia (4.6), Thailand (3.5%), Singapore (4.6%), and the Philippines (4.8%). This growth is notwithstanding the negative growth rate by the majority of member states in 2020 due to the disruptive effects of COVID-19 that appeared to be most significant in the Philippines, which recorded a -9.6% growth rate in 2020, exceeding ASEAN's -3.3%. In addition to the robust growth, there is also a considerable increase in ASEAN's GDP per capita during the 21-year period (USD 1,159 vs USD 4,533).

Despite this, there is still a huge gap in the share of ASEAN-5 and CLMV to ASEAN's GDP–the subject of the association's Initiative for ASEAN Integration on narrowing the economic gap. Throughout the 21-year period, CLMV subgroup only accounted for an average of 11% of ASEAN's GDP. Cambodia and Lao PDR only accounted for less than 1%, respectively, whereas Thailand (17%), Singapore (12%), Philippines (12%), and Malaysia (12%) accounted for an average of 53%. This gap is also shown in terms of GDP per capita, although not specifically between ASEAN-6 and CLMV but between Singapore and other member states. Data indicates that Singapore had an average GDP per capita of USD 48,103 from 2000 to 2020 as opposed to that of other selected member states, which have not even reached USD 15,000.

Table 2. GDP Growth Rate of Selected ASEAN Member States, 2000-2020

ASEAN Member State	GDP Growth Rate (%)			y-o-y average (%)	Average GDP per capita (current US$)
	2000	2019	2020	2000-2020	2000-2020
Cambodia	8.4	7.1	-3.1	7.2	933
Lao PDR	5.8	5.5	3.3	6.8	1, 673
Malaysia	8.9	4.4	-5.6	4.6	8,571
Philippines	4.4	6.1	-9.6	4.8	2,556

Singapore	4.5	2.3	-6.1	4.6	48,103
Thailand	4.5	2.3	-6.1	3.5	5,114
ASEAN	6	4.7	-3.3	5	4,533

SOURCE: ASEANstats database

Figure 6.1. GDP and GDP per Capita of ASEAN, 2000-2020

SOURCE: World Bank Database

Figure 6.2. GDP per capita (constant 2015 US$), 2000-2020
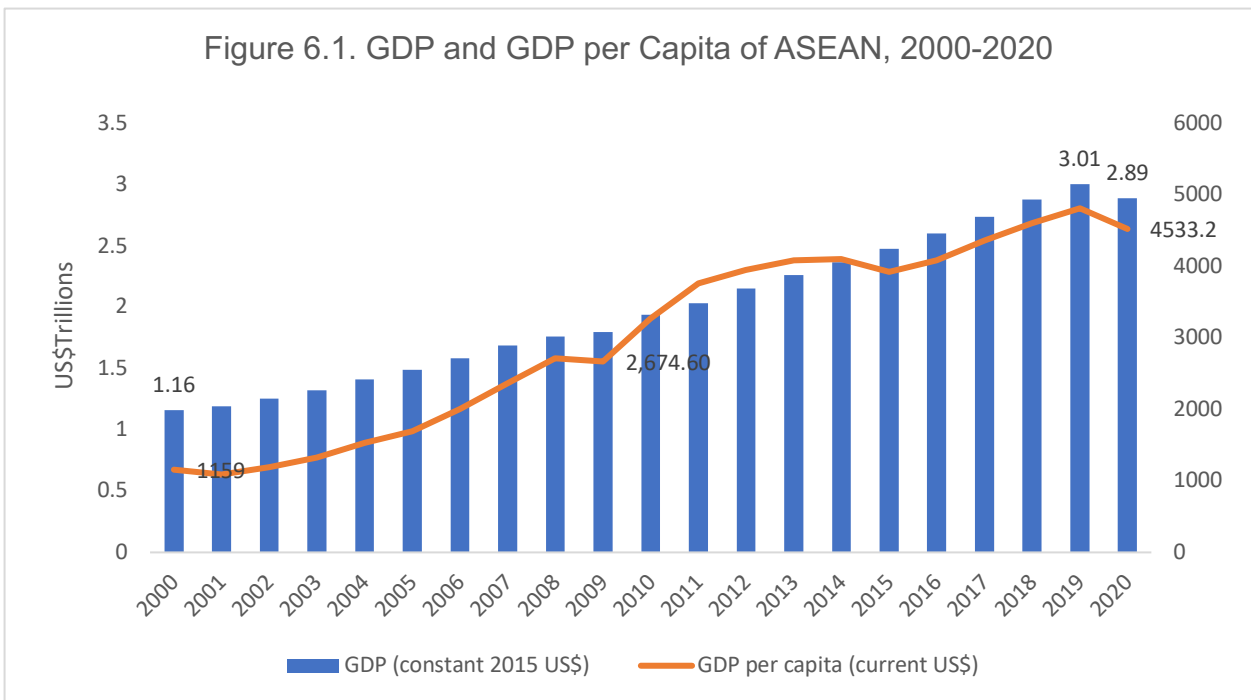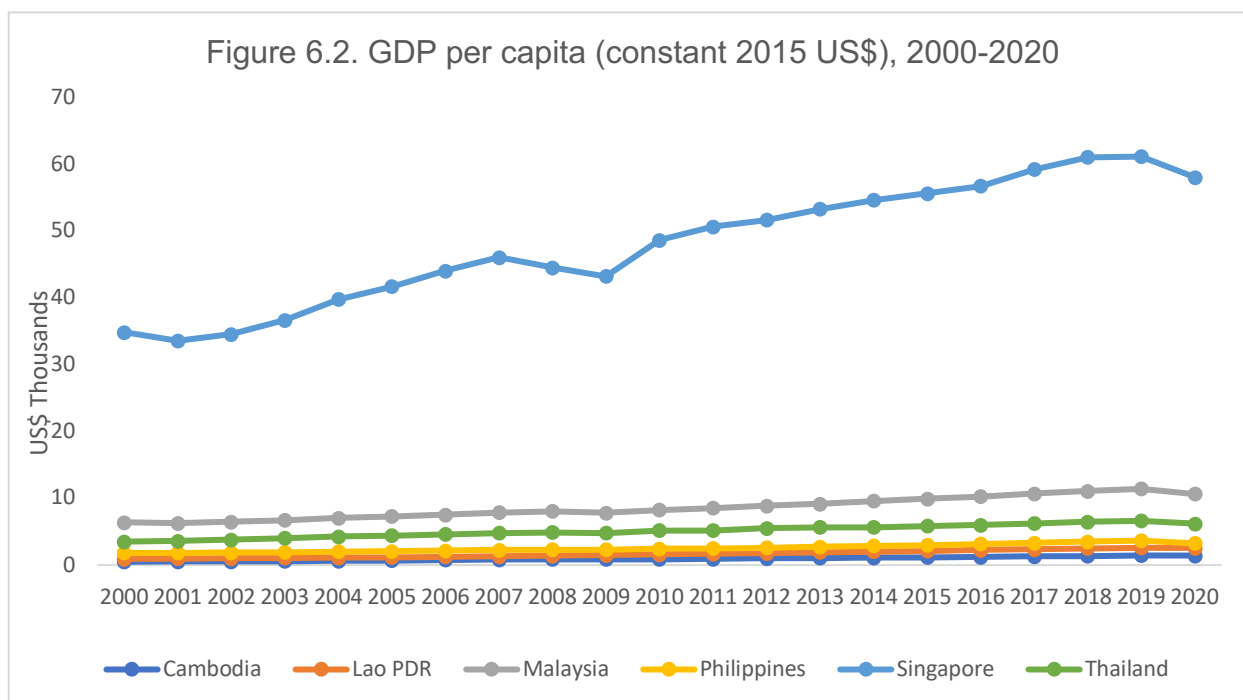
SOURCE: World Bank Database

In addition to the income gap among ASEAN member states, inequality is shown in income distribution within these member states. Although challenged by limitations, Gini measurement suggests the higher the Gini index, the greater the income inequality, with few richer households receiving a larger portion of the populations' total income. On this front, Gini coefficients among the selected member states have remained below 50%. Gini indices of between 30%-50% are relatively lower than those of some African economies such as Namibia, which recorded a 59.1% Gini index in 2015 (based on World Bank estimates). However, this figure was far higher than that of some EU members, including Norway and Sweden, which recorded the lowest indexes in 2018 (26% and 27.5%, respectively). Moreover, these figures did not demonstrate any robust improvements from 2000 to 2020. Data suggests that during the 21-year period, the upper 30% of the selected member states' population held more than half of their respective incomes.

Figure 6.3. Gini Coefficient (%) at Selected Member States, 2000-2020
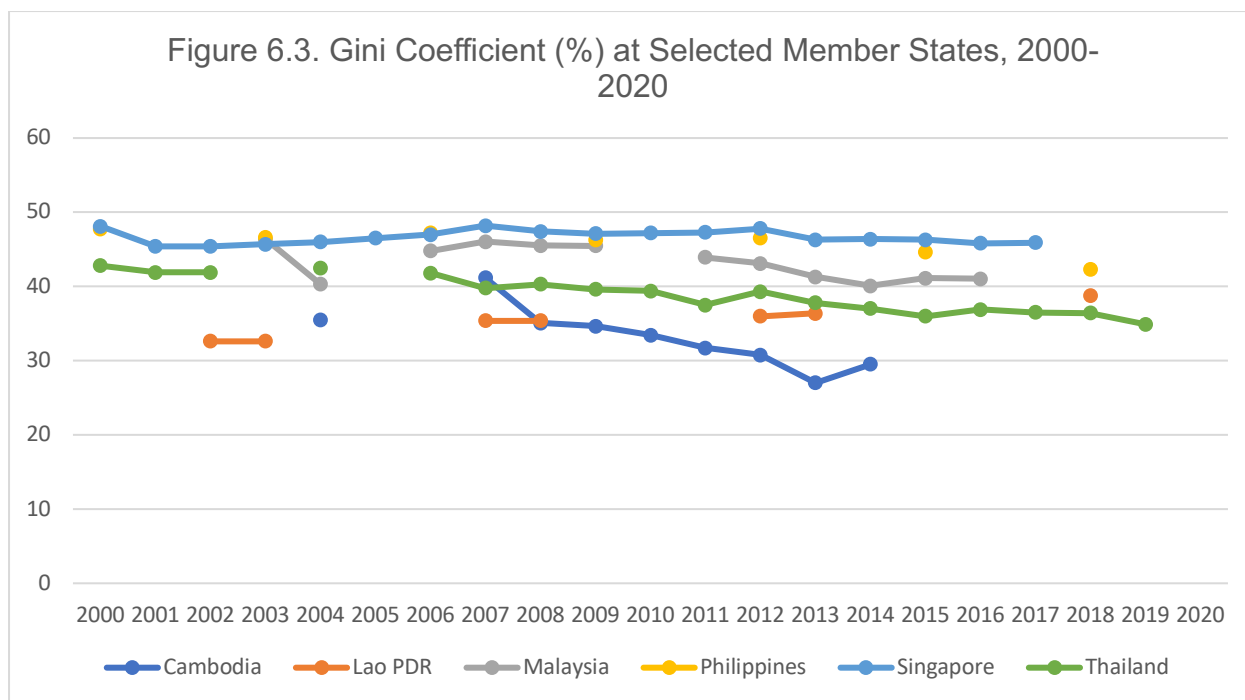
SOURCE: World Bank Database

Impacts of Selected Taxes and Government Expenditures on GDP and Income Redistribution

Using the Fixed Effects LSDV specification that accounts for unobserved heterogeneity among selected member countries such as economic structure, fiscal policy, and demographics across the period 2000 to 2020, selected types of taxes and components of government expenditures appear to impact growth and income inequality differently in ASEAN as opposed to previous studies outlined in the literature. In contrast with the generally negative impact of taxes on economic growth, most of the selected types of tax revenues demonstrated a positive relationship to GDP both at the regional (combined selected ASEAN member states) and member state level. Overall, property tax, which contributed the least tax revenues in ASEAN from 2000 to 2020, has the most positive impact on GDP followed by general taxes

on goods and services and excise tax. However, only property tax has a statistically significant impact. Based on the regression results, for every 1% increase in the revenues from property taxes, GDP at the regional level increases by 0.075%. This implies that for an economy with a GDP of US$ 100 billion and property tax revenues of US$ 1 billion, a US$ 10 million increase in property tax revenues would increase GDP by US$ 75 million. However, due to model specification changes (e.g., dropping of explanatory variables) to resolve issues of multicollinearity and heteroskedasticity and produce robust estimates, property tax was dropped for most Ordinary Least Squares (OLS) regression models at the member state-level. This prevented the study to assess the impact of property tax in the member state-level analysis.

Results using Ordinary Least Squares (OLS) regression for member state-level analysis indicate that import taxes have a statistically significant positive impact on GDP in Cambodia. Based on the regression results, a 1% increase in revenues from import taxes would lead to a 0.55% increase in Cambodia's national income *ceteris paribus*. As opposed to that of previous studies that found corporate income tax as the most detrimental to GDP, regression results for Malaysia indicate otherwise. Findings suggest that corporate income tax and general taxes on goods and services have a statistically significant positive impact on Malaysia's GDP; a 1% increase in corporate income tax revenues and revenues from general taxes on goods and services would lead to a 0.6% and 0.18% increase in GDP, respectively *ceteris paribus*. This also appears to be statistically probable in the case of Thailand; results indicate that a 1% increase in corporate income tax revenues would result in a 0.2% increase in the country's GDP *ceteris paribus*. The positive impact of excise tax on Thailand's GDP is also statistically significant; results suggest that a 1% increase in excise tax revenues

would increase GDP by 0.5% *ceteris paribus*. In the case of the Philippines, general taxes on goods and services and excise tax have a statistically significant positive impact on GDP. Such that, for every 1% increase in revenues derived from general taxes on goods and services and excise taxes, GDP would increase by 0.62% and 0.14% respectively *ceteris paribus*.

Overall, these types of taxes have a positive impact on the economic growth of the selected ASEAN member states. Only property tax has a statistically significant impact on GDP at the regional level; this is aligned with the findings of Macek (2014). Corporate income tax appears to boost growth in Malaysia and Thailand whereas general taxes on goods and services increase the GDP of Malaysia and the Philippines. Excise tax positively impacts growth in Thailand and the Philippines.

Among these taxes, data indicates that only corporate income tax and general taxes on goods and services have a redistributive impact at the regional level; for every 1% increase in these taxes' revenues, the Gini coefficient decreases by 0.87% and 2.78%, respectively *ceteris paribus*. On the other hand, personal income tax followed by excise tax and import tax appears to be most detrimental to income equality. However, based on the regression results, none of the taxes at the regional level has a statistically significant impact on income redistribution. On a member state-level analysis, only import and excise tax appear to have a statistically significant impact on income redistribution. On the one hand, a 1% increase in the revenues collected from excise tax would reduce Malaysia's Gini coefficient by 0.7%, *ceteris paribus*. On the other hand, a 1% increase in import tax revenues would reduce the Gini coefficient of the Philippines by 0.09% but would increase Thailand's by 0.2% *ceteris paribus*.

Results on the growth and redistributive impact of selected components of expenditure also present a different picture in the case of ASEAN countries. In contrast with previous findings indicating the overall positive impact of spending on health and education on growth, regression results suggest otherwise for the selected ASEAN member states. Of these components, only social protection appears to positively impact GDP at the regional. However, no statistically significant relationship between these indicators and growth was found.

On a member state-level analysis, only health spending has a statistically significant impact on GDP but only in Cambodia and Lao PDR; every 1% increase in health spending would lead to a 0.46% and 0.78% increase in GDP in these member states, respectively *ceteris paribus*. Of the spending components, regressions results reveal that only housing and social protection reduce income inequality at the regional level but no statistically significant relationship was found. At the member state level, only education has a statistically significant impact on income inequality in Cambodia. Based on regression results, every 1% increase in education spending would reduce Cambodia's Gini coefficient by 12% *ceteris paribus.* Due to issues of collinearity, the study found no evidence of significant impact of tax and government spending on within-state inequality.

Table 3. Summary Table for Indicators with Statistically Significant Impact on Growth

and Income Redistribution

	Growth			
	Member State	Coeffient	T-Ratio	P-Value
CIT	Malaysia	0.6070676	6.700	0.000
	Thailand	0.2011401	3.060	0.009
PT	Regional	0.0754399	3.180	0.013
IT	Cambodia	0.5476576	5.940	0.000
GTGS	Malaysia	0.1779184	3.38	0.004
	Philippines	0.6202446	13.030	0.000
ET	Philippines	0.140818	3.670	0.000
	Thailand	0.5047988	5.020	0.000
Health	Cambodia	0.456873	4.760	0.000
	Lao PDR	0.7847238	3.380	0.012
	Income Redistribution			
	Member State	Coeffient	T-Ratio	P-Value
ET	Malaysia	-0.7317284	-4.530	0.000
IT	Philippines	-0.0864451	-3.380	0.019
	Thailand	0.2085456	3.150	0.008
Education	Cambodia	-11.96052	-4.700	0.018

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

Conclusion

The first step to reinforcing ASEAN's capacity in attaining a truly people-centered and people-oriented community is understanding how current strategies are faring. There must be data-backed benchmarks on which performance can be measured especially amid revenue-related concerns that ASEAN member countries face to date. This knowledge gap in the performance of ASEAN against its goal of inclusive development is where this study and its models come in. The study offers insights into the ASEAN experience on how selected types of taxes and government spending affect growth and income redistribution, and consequently provides an answer as to whether ASEAN member countries have been leveraging these in attaining its goal.

Presentation and Discussion of Selected Taxes and Government Expenditures

Tax systems in ASEAN have been challenged with issues including having low tax effort, which was generally associated with member states' relatively narrow tax base and inefficient tax administration. ASEAN's tax effort has generally remained below 15% from 2000 to 2020. For illustration purposes, its average tax effort throughout the 21 years is 13%, which is only about half of that of the EU (25%) and

OECD (24%). Only Thailand has recorded an average tax effort above 15% at the member state level (16%). However, it was Cambodia that recorded the highest tax effort (20% in 2019), which was a remarkable feat, especially given that it only started at 7% in 2000. Selected ASEAN member countries generally started with a higher tax effort in 2000, but ended with larger spending in 2020, except for Cambodia.

Tax revenues represented an average of 71% of total revenues in ASEAN from 2000 to 2020. Overall, CIT and GTGS are the main tax revenue drivers, while PT consistently remained the least contributor (representing about 2% of ASEAN's total tax revenues) from 2000 to 2020. ASEAN-5 members sourced the majority of their tax revenues to CIT while CLMV members primarily relied on GTGS. Moreover, the Philippines, Cambodia, and Lao PDR maintained high dependence on import taxes. From 2000 to 2009, ASEAN's tax revenues were driven by direct taxes with CIT as the main contributor. The share of CIT and consequently of direct taxes to total tax revenues declined post-2008 following the crisis. From contributing 58% of total tax revenues in 2008, CIT's share has remained below 25% since 2010. In contrast, GTGS has consistently contributed the most in indirect tax revenues. GTGS' average share of ASEAN's total tax revenues is about 23% during the 21-year period. For illustration purposes, spending on education and health (as a percentage of GDP) of ASEAN member states appears comparable with that of the EU and OECD. On health, ASEAN's average health spending is 3.6%, whereas both the EU and OECD have about 8%. In terms of per capita health spending, ASEAN had USD 306, whereas the EU and OECD had USD 2,502 and USD 2,783 respectively. Among ASEAN member countries, only Singapore had an average per capita spending (USD 1,615) above the ASEAN average. On education, ASEAN had allocated an average of 3.27% of its GDP

to education whereas the EU and OECD dispensed an average of 5.06% and 5.12%, respectively. Spending on housing and social protection appears to be a lower priority relative to that on education and health.

Trends of Economic Growth and Income Inequality

ASEAN has more than doubled its GDP (constant, 2015 US$) from US$ 1.16 trillion in 2000 to US$ 2.89 trillion in 2020, corresponding to an average year-on-year real GDP growth rate of 5%. This is notwithstanding the negative growth rate by the majority of member states in 2020 due to the disruptive effects of COVID-19, which appeared to be most significant in the Philippines (-9.6% vs -3.3% ASEAN average). There is still a huge gap in the share of ASEAN-5 and CLMV to ASEAN's GDP. Throughout the 21-year period, CLMV subgroup only accounted for an average of 11% of ASEAN's GDP. In addition to the income gap among ASEAN member states, inequality is shown in income distribution within these member states. Gini coefficients among the selected member states have remained below 50% but did not demonstrate any robust improvements.

Growth and Redistributive Impact of Selected Taxes and Government Expenditures

In contrast with the generally negative impact of taxes on economic growth, most of the selected types of tax revenues demonstrated a positive relationship to GDP. At the regional level, estimation suggests property tax, which contributed the least tax revenues in ASEAN from 2000 to 2020, has the most positive impact on GDP followed by general taxes on goods and services and excise tax. However, only

property tax has a statistically significant impact. At the member state level, CIT, IT, GTGS, and ET were found to have a statistically significant impact on growth but only in selected member states. Of the spending components, only health spending has a significant impact on growth but only in Cambodia and Lao PDR. As opposed to the generally positive impact of selected spending components on income inequality, regression results indicate that only housing and social protection reduce income inequality at the regional level but no statistically significant relationship was found. Only education has a statistically significant positive impact on income inequality but only in Cambodia. Of the selected types of taxes, only ET and IT reduce income inequality but only in Malaysia and the Philippines.

These findings indicate that ASEAN is lagging in its goal of attaining a people-centered and oriented community in terms of its implementation of fiscal policy, specifically taxes and spending. The progress of ASEAN is rather one-sided in support of economic growth. Although there are indications that a number of taxes have a statistically significant impact on growth in selected ASEAN member countries, only a few taxes and education appear to reduce income inequality. Moreover, the study suggests that ASEAN has not been leveraging its taxes and spending to achieve inclusive growth. At the regional level, data indicates that despite being the most beneficial to economic growth, property tax continued to contribute the least in tax revenues during the 21 years. Although ASEAN-5 members sourced the majority of their tax revenues on CIT and CLMV members to GTGS, the study only found a statistically significant impact on growth in select ASEAN-5 members. Moreover, despite allocating a comparable budget (as a percentage of GDP) on education and

health spending in ASEAN relative to EU and OECD, the study indicates that health spending only promotes economic growth in Cambodia and Lao PDR.

Recommendations

Similar to any other policies, there is no one-size-fits-all policy recommendation that would apply across all member-states on the fiscal front. The researcher employed efforts to produce robust estimates at the regional level (i.e., a Fixed Effects LSDV Model that considers unobserved heterogeneity across time and space was used). Changes in the model specification were also made to arrive at robust estimates in the member state-level analysis. However, it is imperative to emphasize that while robust coefficients were produced, these only hold true with the assumption that every other variable is constant. Therefore, as with any policy-making procedure, context and policy review are crucial. At the regional level, regression analysis suggested that selected ASEAN member states have not been leveraging property taxes for economic growth and income redistribution. Despite being the most beneficial to economic growth, property tax revenues continued to contribute the least in all selected member states during the 21 years. Moreover, despite allocating a relatively comparable budget on spending on education and health in ASEAN, the researcher only found significant results for health spending in Cambodia and Lao PDR on economic growth. Significant results for education were only found in Cambodia on income redistribution.

These results necessitate a deeper assessment of the tax systems and spending patterns of ASEAN member countries to better leverage these for economic

development and income redistribution. As significant results for spending components were only found in the CLMV, further study on the potential diminishing positive effects on these could be key in further understanding their role on GDP and Gini coefficients. As limited data prevented the researcher from venturing into a whole ASEAN study, further research may be done to include more types of taxes and components of government spending. Moreover, further policy analysis may give more light on understanding the growth and redistributive impact of taxes and spending.

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ANNEXES

Annex 1.1. Growth Model Regression at the Regional Level

```
Fixed-effects (within) regression              Number of obs     =         40
Group variable: countrynum                     Number of groups  =          3

R-squared:                                     Obs per group:
     Within  = 0.9987                                      min =          5
     Between = 0.9992                                      avg =       13.3
     Overall = 0.9925                                      max =         20

                                               F(29,8)           =     212.23
corr(u_i, Xb) = 0.7363                          Prob > F          =     0.0000
```

gdp2	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
pit2	-.093892	.0839678	-1.12	0.296	-.287522	.099738
ct2	.0333833	.0736248	0.45	0.662	-.1363958	.2031624
pt2	.0754399	.0237052	3.18	0.013	.0207755	.1301042
gtgs2	.0669915	.0460938	1.45	0.184	-.0393011	.1732841
et2	.0588101	.0418349	1.41	0.197	-.0376614	.1552817
it2	.0501989	.0414868	1.21	0.261	-.0454699	.1458676
health2	-.0780437	.0749487	-1.04	0.328	-.2508757	.0947883
educ2	-.0219349	.0581187	-0.38	0.716	-.1559568	.112087
housing2	-.0027834	.0074005	-0.38	0.717	-.0198489	.0142821
socpro2	.0424797	.0189568	2.24	0.055	-.0012347	.0861942
year						
2001	-.0089314	.0202357	-0.44	0.671	-.0555951	.0377323
2002	.0516576	.0218767	2.36	0.046	.0012098	.1021055
2003	.08369	.0307015	2.73	0.026	.0128921	.1544879
2004	.1310152	.0342281	3.83	0.005	.052085	.2099454
2005	.1886882	.0458325	4.12	0.003	.0829982	.2943782
2006	.219167	.0566505	3.87	0.005	.0885306	.3498034
2007	.3049799	.0620998	4.91	0.001	.1617774	.4481824
2008	.3247917	.0709697	4.58	0.002	.1611353	.4884481
2009	.3055813	.0746259	4.09	0.003	.1334937	.4776689
2010	.3612209	.0724501	4.99	0.001	.1941506	.5282913
2011	.3936563	.0810531	4.86	0.001	.2067476	.5805649
2012	.4392183	.0840573	5.23	0.001	.2453817	.6330548
2013	.4813356	.0858528	5.61	0.001	.2833587	.6793126
2014	.4755166	.0865167	5.50	0.001	.2760088	.6750244
2015	.5041387	.0879914	5.73	0.000	.3012302	.7070473
2016	.5420664	.0913498	5.93	0.000	.3314134	.7527193
2017	.5708104	.1001013	5.70	0.000	.3399765	.8016444
2018	.6011356	.1073899	5.60	0.001	.3534941	.8487772
2019	.6262413	.1055433	5.93	0.000	.3828581	.8696245
_cons	23.35924	1.761406	13.26	0.000	19.29743	27.42105

```
    sigma_u |  .05473752
    sigma_e |  .0166936
        rho |  .91490464   (fraction of variance due to u_i)
---------------------------------------------------------------------------
F test that all u_i=0: F(2, 8) = 0.46                     Prob > F = 0.6495
```

Modified Wald test for GroupWise heteroskedasticity
in the fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

```
chi2 (3)  =        0.33
Prob>chi2 =       0.9540
```

Annex 1.2. Redistributive Impact Model Regression at the Regional Level

```
Random-effects GLS regression                 Number of obs    =         28
Group variable: countrynum                    Number of groups =          3

R-squared:                                    Obs per group:
     Within  = 0.2491                                     min =          5
     Between = 0.9996                                     avg =        9.3
     Overall = 0.8150                                     max =         18

                                              Wald chi2(10)    =      74.88
corr(u_i, X) = 0 (assumed)                    Prob > chi2      =     0.0000
```

gini2	Coefficient	Std. err.	z	P>|z|	[95% conf. interval]	
pit2	1.34523	2.458475	0.55	0.584	-3.473293	6.163753
ct2	-.8762135	1.50411	-0.58	0.560	-3.824215	2.071788
pt2	.0819233	.6685476	0.12	0.902	-1.228406	1.392252
gtgs2	-2.781323	1.881704	-1.48	0.139	-6.469396	.9067486
et2	.6422683	.7810268	0.82	0.411	-.8885161	2.173053
it2	.6395624	.5054254	1.27	0.206	-.3510532	1.630178
health2	2.031548	1.939301	1.05	0.295	-1.769412	5.832508
educ2	2.522746	2.332249	1.08	0.279	-2.048377	7.09387
housing2	-.2400153	.4154855	-0.58	0.563	-1.054352	.5743213
socpro2	-.611794	.6476641	-0.94	0.345	-1.881192	.6576043
_cons	-59.18775	30.42123	-1.95	0.052	-118.8123	.4367657
sigma_u	0					
sigma_e	.73176786					
rho	0	(fraction of variance due to u_i)				

Annex 2.1. Growth Model Regression for Cambodia

```
      Source |       SS           df       MS      Number of obs   =        18
-------------+----------------------------------   F(2, 15)        =    397.31
       Model |  3.13277846         2  1.56638923   Prob > F        =    0.0000
    Residual |  .059136893        15  .00394246    R-squared       =    0.9815
-------------+----------------------------------   Adj R-squared   =    0.9790
       Total |  3.19191535        17  .187759727   Root MSE        =    .06279

------------------------------------------------------------------------------
      ln_gdp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_it |   .5476576   .0921378     5.94   0.000     .3512706    .7440445
    ln_health |   .456873    .0959446     4.76   0.000     .2523719    .6613741
       _cons |   3.203021   .7364175     4.35   0.001     1.633384    4.772657
------------------------------------------------------------------------------


    Variable |       VIF       1/VIF
-------------+----------------------
    ln_health |      7.19    0.139095
       ln_it |      7.19    0.139095
-------------+----------------------
    Mean VIF |      7.19
```

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gdp

H0: Constant variance

```
    chi2(1) =    0.00
Prob > chi2 = 0.9752
```

Annex 2.2 Redistributive Impact Model Regression for Cambodia

```
      Source |       SS           df       MS      Number of obs   =          7
-------------+----------------------------------   F(3, 3)         =      34.91
       Model | 31.9982329          3  10.6660776   Prob > F        =     0.0078
    Residual | .916521678          3  .305507226   R-squared       =     0.9722
-------------+----------------------------------   Adj R-squared   =     0.9443
       Total | 32.9147545          6  5.48579242   Root MSE        =     .55273


------------------------------------------------------------------------------
     ln_gini | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_it |   .7596929   3.050866      0.25   0.819    -8.949524    10.46891
    ln_health |  2.826404   1.430876      1.98   0.143    -1.727281    7.380088
     ln_educ |  -11.96052   2.546535     -4.70   0.018    -20.06473   -3.856312
       _cons |   159.2737   36.75485      4.33   0.023     42.30341    276.2441
------------------------------------------------------------------------------
```

```
    Variable |       VIF       1/VIF
-------------+----------------------
     ln_educ |      7.29    0.137101
       ln_it |      4.49    0.222677
    ln_health |     2.50    0.399784
-------------+----------------------
    Mean VIF |      4.76
```

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gini

H0: Constant variance

```
    chi2(1) =    0.33
Prob > chi2 = 0.5637
```

Annex 3.1. Growth Model Regression for Lao PDR

```
    Source |       SS           df       MS      Number of obs   =        11
-----------+----------------------------------   F(3, 7)         =     15.13
     Model | .998495398          3  .332831799   Prob > F        =    0.0019
  Residual | .154017483          7  .022002498   R-squared       =    0.8664
-----------+----------------------------------   Adj R-squared   =    0.8091
     Total | 1.15251288         10  .115251288   Root MSE        =    .14833


------------------------------------------------------------------------------
    ln_gdp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------+------------------------------------------------------------------
     ln_ct |   .4487062   .2025576     2.22   0.062    -.0302663    .9276787
     ln_pt |   .0353834   .1532561     0.23   0.824    -.3270097    .3977766
 ln_health |   .7847238   .2324739     3.38   0.012     .2350103    1.334437
     _cons |  -1.335839   4.600374    -0.29   0.780    -12.21399    9.542316
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
       ln_pt |      3.56    0.281033
       ln_ct |      3.19    0.313766
   ln_health |      1.28    0.782074
-------------+----------------------
    Mean VIF |      2.67

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gdp

H0: Constant variance

    chi2(1) =    0.09
Prob > chi2 = 0.7584
```

Annex 3.2. Redistributive Impact Model Regression for Lao PDR

```
      Source |       SS           df       MS      Number of obs   =          4
-------------+----------------------------------   F(2, 1)         =       1.30
       Model |  .003537162         2  .001768581   Prob > F        =     0.5275
    Residual |  .001363776         1  .001363776   R-squared       =     0.7217
-------------+----------------------------------   Adj R-squared   =     0.1652
       Total |  .004900938         3  .001633646   Root MSE        =     .03693


------------------------------------------------------------------------------
     ln_gini | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_pt |   .0181095   .0458209     0.40   0.760    -.5640999    .6003188
     ln_gtgs |   .0624728   .0512405     1.22   0.437    -.5885993     .713545
       _cons |   2.065966   .9557376     2.16   0.276    -10.07783    14.20976
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
     ln_gtgs |      1.25    0.799656
       ln_pt |      1.25    0.799656
-------------+----------------------
    Mean VIF |      1.25

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gini

H0: Constant variance

    chi2(1) =   0.97
Prob > chi2 = 0.3249
```

Annex 4.1. Growth Model Regression for Malaysia

```
      Source |       SS           df       MS      Number of obs   =        20
-------------+----------------------------------   F(4, 15)        =     42.60
       Model |  1.44118235         4  .360295587   Prob > F        =    0.0000
    Residual |  .126866661        15  .008457777   R-squared       =    0.9191
-------------+----------------------------------   Adj R-squared   =    0.8975
       Total |  1.56804901        19  .082528895   Root MSE        =    .09197

------------------------------------------------------------------------------
      ln_gdp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_ct |   .6070676   .0906429     6.70   0.000     .4138669    .8002682
     ln_gtgs |   .1779184   .0527129     3.38   0.004     .0655635    .2902732
       ln_et |  -.2682403   .2563901    -1.05   0.312    -.8147229    .2782422
     ln_educ |   .0703274   .1512644     0.46   0.649    -.2520851    .3927398
       _cons |   12.22575   4.916335     2.49   0.025     1.746829    22.70467
------------------------------------------------------------------------------
```

. vif

```
    Variable |       VIF       1/VIF
-------------+----------------------
       ln_ct |      2.60    0.384799
     ln_educ |      2.52    0.397397
       ln_et |      2.13    0.469438
     ln_gtgs |      2.11    0.474553
-------------+----------------------
    Mean VIF |      2.34
```

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gdp

H0: Constant variance

```
    chi2(1) =   2.76
Prob > chi2 = 0.0968
```

Annex 4.2 Redistributive Impact Model Regression for Malaysia

```
    Source |       SS          df       MS            Number of obs   =        7
-----------+----------------------------------         F(3, 3)         =     9.03
     Model | .023345724          3  .007781908         Prob > F        =   0.0518
  Residual | .002585581          3   .00086186         R-squared       =   0.9003
-----------+----------------------------------         Adj R-squared   =   0.8006
     Total | .025931305          6  .004321884         Root MSE        =   .02936


------------------------------------------------------------------------------
    ln_gini | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
------------+-----------------------------------------------------------------
    ln_gtgs |  -.0280744   .0264176    -1.06   0.366    -.1121468    .0559981
      ln_et |  -.7317284   .1613668    -4.53   0.020     -1.24527   -.2181872
      ln_it |  -.0681455    .043776    -1.56   0.217    -.2074603    .0711694
      _cons |   21.72769   3.884058     5.59   0.011      9.36688    34.08849
------------------------------------------------------------------------------
```

. vif

```
    Variable |       VIF       1/VIF
-------------+----------------------
       ln_et |      1.36    0.736017
       ln_it |      1.27    0.784469
     ln_gtgs |      1.15    0.868170
-------------+----------------------
    Mean VIF |      1.26
```

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gini

H0: Constant variance

```
    chi2(1) =   0.52
Prob > chi2 = 0.4728
```

Annex 5.1 Growth Model Regression for the Philippines

```
      Source |       SS           df       MS          Number of obs   =        21
-------------+----------------------------------        F(3, 17)        =    240.18
       Model |  2.09511848         3  .698372826        Prob > F        =    0.0000
    Residual |  .049430078        17  .002907652        R-squared       =    0.9770
-------------+----------------------------------        Adj R-squared   =    0.9729
       Total |  2.14454856        20  .107227428        Root MSE        =    .05392


------------------------------------------------------------------------------
      ln_gdp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
     ln_gtgs |   .6202446   .0475957     13.03   0.000     .5198263    .7206628
       ln_et |    .140818   .0383278      3.67   0.002     .0599534    .2216825
  ln_housing |  -.0015714   .0200547     -0.08   0.938    -.0438832    .0407403
       _cons |   9.398929   .6399687     14.69   0.000     8.048713    10.74914
------------------------------------------------------------------------------
```

. vif

```
    Variable |       VIF       1/VIF
-------------+----------------------
     ln_gtgs |      3.06    0.326657
       ln_et |      2.34    0.426582
  ln_housing |      1.70    0.589448
-------------+----------------------
    Mean VIF |      2.37
```

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gdp

H0: Constant variance

```
    chi2(1) =    1.35
Prob > chi2 = 0.2452
```

Annex 5.2. Redistributive Impact Model Regression for the Philippines

```
      Source |       SS           df       MS       Number of obs   =         7
-------------+----------------------------------   F(2, 4)         =      7.34
       Model |  .008034289          2  .004017144   Prob > F        =    0.0458
    Residual |  .002187783          4  .000546946   R-squared       =    0.7860
-------------+----------------------------------   Adj R-squared   =    0.6790
       Total |  .010222072          6  .001703679   Root MSE        =    .02339


------------------------------------------------------------------------------
      ln_gini | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_it |  -.0864451   .0225626    -3.83   0.019     -.149089   -.0238012
   ln_housing |   .0098794   .0194418     0.51   0.638    -.0440997    .0638586
        _cons |   5.584892   .5777576     9.67   0.001      3.98078    7.189005
------------------------------------------------------------------------------
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
   ln_housing |      1.03    0.974822
        ln_it |      1.03    0.974822
-------------+----------------------
    Mean VIF |      1.03

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gini

H0: Constant variance

    chi2(1) =     0.00
Prob > chi2 = 0.9912
```

Annex 6.1. Growth Model Regression for Singapore

```
      Source |       SS           df       MS      Number of obs   =        8
-------------+----------------------------------   F(4, 3)         =     2.80
       Model |  .137452793         4  .034363198   Prob > F        =   0.2116
    Residual |  .036761253         3  .012253751   R-squared       =   0.7890
-------------+----------------------------------   Adj R-squared   =   0.5076
       Total |  .174214046         7  .024887721   Root MSE        =    .1107


-------------------------------------------------------------------------------
      ln_gdp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+-----------------------------------------------------------------
       ln_it | -.0993447    .046276     -2.15   0.121    -.2466156    .0479261
     ln_educ |  .7920489    .7530278     1.05   0.370    -1.604422    3.18852
  ln_housing | -.9441512    .668396     -1.41   0.253    -3.071285    1.182983
   ln_socpro |  .1072931    .0737794     1.45   0.242    -.127506     .3420922
       _cons |  28.15371    17.48154     1.61   0.206    -27.48036    83.78779
-------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
       ln_it |      3.71    0.269719
  ln_housing |      3.59    0.278175
     ln_educ |      3.36    0.297760
   ln_socpro |      1.34    0.746646
-------------+----------------------
    Mean VIF |      3.00

. hettest

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gdp

H0: Constant variance

    chi2(1) =   0.43
Prob > chi2 = 0.5119
```

Annex 6.2 Redistributive Impact Model Regression for Singapore

```
      Source |       SS           df       MS        Number of obs   =         8
-------------+----------------------------------      F(2, 5)         =      0.95
       Model |   8.8262362         2   4.4131181      Prob > F        =    0.4457
    Residual |  23.1309101         5  4.62618203      R-squared       =    0.2762
-------------+----------------------------------      Adj R-squared   =   -0.0133
       Total |  31.9571463         7  4.56530662      Root MSE        =    2.1509

------------------------------------------------------------------------------
     ln_gini | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
     ln_gtgs |    -6.1587   4.530207    -1.36   0.232    -17.80397    5.486569
      ln_it  |  -.9310901   .8995331    -1.04   0.348    -3.243414    1.381233
       _cons |   150.7977   112.4706     1.34   0.238    -138.3172    439.9126
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
     ln_gtgs |      3.71    0.269490
      ln_it  |      3.71    0.269490
-------------+----------------------
    Mean VIF |      3.71

. hettest

Breusch—Pagan/Cook—Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gini

H0: Constant variance

    chi2(1) =   0.35
Prob > chi2 = 0.5562
```

Annex 7.1. Growth Model Regression for Thailand

```
      Source |       SS           df       MS      Number of obs   =        20
-------------+----------------------------------   F(6, 13)        =     72.14
       Model |  .916357264          6  .152726211   Prob > F        =    0.0000
    Residual |  .027521117         13  .002117009   R-squared       =    0.9708
-------------+----------------------------------   Adj R-squared   =    0.9574
       Total |  .943878382         19   .04967781   Root MSE        =    .04601


------------------------------------------------------------------------------
      ln_gdp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_ct |   .2011401   .0658155     3.06   0.009     .0589545    .3433258
       ln_et |   .5047988   .1005336     5.02   0.000     .2876092    .7219884
       ln_it |  -.1955017   .0912161    -2.14   0.052    -.3925621    .0015587
     ln_educ |  -.0547953   .1232015    -0.44   0.664     -.320956    .2113654
  ln_housing |   .0337194   .0221094     1.53   0.151    -.0140451    .0814839
   ln_socpro |   .0030399   .0576116     0.05   0.959    -.1214223    .1275021
       _cons |   14.84108   3.548113     4.18   0.001     7.175848    22.50631
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
       ln_et |      5.61    0.178350
       ln_ct |      5.48    0.182452
     ln_educ |      4.03    0.247925
   ln_socpro |      2.48    0.403790
       ln_it |      2.30    0.434416
  ln_housing |      1.79    0.557709
-------------+----------------------
    Mean VIF |      3.62

. hettest

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gdp

H0: Constant variance
    chi2(1) =    1.73
Prob > chi2 = 0.1885
```

Annex 7.2. Redistributive Impact Model Regression for Thailand

```
      Source |       SS           df       MS      Number of obs   =        18
-------------+----------------------------------   F(4, 13)        =     12.63
       Model |  .055051055         4  .013762764   Prob > F        =    0.0002
    Residual |   .01416234        13  .001089411   R-squared       =    0.7954
-------------+----------------------------------   Adj R-squared   =    0.7324
       Total |  .069213394        17  .004071376   Root MSE        =    .03301

------------------------------------------------------------------------------
      ln_gini | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       ln_it |   .2085456   .0661428     3.15   0.008     .0656529    .3514384
      ln_educ |  -.1364387    .067676    -2.02   0.065    -.2826438    .0097663
   ln_housing |  -.0017657   .0141038    -0.13   0.902     -.032235    .0287037
    ln_socpro |   -.042463   .0355503    -1.19   0.254    -.1192647    .0343388
        _cons |   3.265044   2.467284     1.32   0.209       -2.0652    8.595288
------------------------------------------------------------------------------

. vif

    Variable |       VIF       1/VIF
-------------+----------------------
     ln_educ |      1.94    0.516479
   ln_socpro |      1.76    0.568019
       ln_it |      1.63    0.612306
   ln_housing |     1.33    0.750445
-------------+----------------------
    Mean VIF |      1.67

. hettest

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_gini

H0: Constant variance

    chi2(1) =   0.63
Prob > chi2 = 0.4281
```