Fiscal Decentralisation and Economic Growth Across States: New Evidence from Malaysia

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ABSTRACT

The link between fiscal decentralisation and state-level economic growth has often been overlooked, particularly in Malaysia, with its highly centralised federal fiscal system. Thus, using data from all 13 Malaysian states from 2006 to 2018, this study evaluated the degree of fiscal decentralisation and examined its effects on state economic growth. This study employed a new proxy for fiscal decentralisation (FD), a composite variable FD comprising two components: fiscal autonomy (FA) and fiscal importance (FI). The model was examined using the fixed effects technique with robust standard error panel analysis. The empirical results demonstrated that FI and FD were significant and positively impacted economic growth across states. The results also showed the significant and negative impact of budget balances resulting from persistent fiscal deficits on state economic growth, signalling states' heavy reliance on intergovernmental grants and borrowings (soft budget constraints). Thus, fiscal decentralisation has enabled the state governments to alleviate the soft budget constraint problem and reduce the negative impact of deficits on local economic growth. Overall, the results supported prior findings that fiscal decentralisation had a significant positive effect on state economic growth.

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INTRODUCTION

The division of fiscal revenues and expenditures between central and local lower governments is called fiscal decentralisation. Fiscal decentralisation has become a global trend in recent decades. Decentralisation has been common in developed and developing countries (Xu, 2006). Since the 1980's fiscal decentralisation has been implemented, even in nations with histories of centralisation, such as France, such reforms have also commonly been applied during transitions from planned to market economies.

Decentralisation has become the subject of numerous research efforts as decentralisation initiatives have been experimented with and implemented to varying degrees in different countries. However, empirical evidence of its effects on local development and economic progress has remained ambiguous (Lin and Liu, 2000; Oates, 1972; Thiessen, 2005; Thornton, 2007; Woller and Phillips, 1998; Zhang and Zou, 1998). As a result, numerous measures to analyse and quantify the degree of fiscal decentralisation have been established. The composite fiscal decentralisation ratio, for example, has been developed to account for the many characteristics of fiscal decentralisation. Martinez-Vazquez and Timofeev (2009) and Gu (2012) were among the first researchers to use such measures in their studies, and their results were mixed.

By adopting similar measures in Malaysia, Ghani *et al.* (2019) found that the degree of fiscal decentralisation had been a positive and significant determinant of states' economic growth. Vo (2009) and Nguyen (2019) modified the measure of the composite fiscal decentralisation index by considering two essential elements: fiscal autonomy and fiscal importance, which were regarded as the primary standard indicators to measure the degree of fiscal decentralisation (Nguyen *et al.*, 2019; Vo, 2009; DeMello, 2000). Relatedly, fiscal importance may take in the form of fiscal activities, such as spending or financial capacity. Consequently, this study has thoroughly examined the degree of fiscal decentralisation of Malaysia's state governments through the FD, reflecting fiscal autonomy and fiscal importance in affecting the states' economic growth.

This study has contributed to the existing literature in three important aspects. First, this study used a newly available panel dataset for Malaysia covering 2006 to 2018, which until now had not received adequate attention in empirical analysis. Second, a new version of Vo (2009) and Nguyen (2017)'s composite measures of fiscal decentralisation (FD) was utilised in the analysis. Third, this would substantially impact policy and the present literature on fiscal decentralisation. In Malaysia, there remains a shortage of literature concerning this issue. Ghani *et al.* (2019) has been the only researcher to focus on fiscal decentralisation and its potential impacts on states' economic growth from the market preserving federalism perspective by using a panel dataset covering 1990-2010. Yusof *et al.* (2019) looked at the impact of fiscal policies on economic growth sustainability at the state level in Malaysia. However, their focus was on the long-run relationship between two primary variables, with only a crude measure of fiscal decentralisation.

On the other hand, Abd Jalil *et al.* (2012) focused on Malaysia's macroeconomic instability and fiscal decentralisation. Hence, this study is distinct and different from earlier studies. It has attempted to determine the best measure of the degree of fiscal decentralisation in Malaysia, including testing features, such as fiscal tax autonomy and hard budget constraints.

Malaysia's Fiscal Federalism- An Overview

Malaysia is a country that practices federalism, which means different levels of government have authority over their jurisdictions. As a federal constitutional monarchy that comprises 13 states and three federal territories, its federal elements have been incorporated into its legal and constitutional framework. They have even been stated in the Federal Agreement since the Federation of Malaya was established in 1948 (Ghani *et al.*, 2019).

Despite the principle of federalism, Malaysia has maintained an essentially unitary system in practice, with the federal government becoming increasingly centralised over time (Yeoh, 2019). As a result, Malaysia has a strong federal government with broad administrative authority, policymaking authority, and fiscal resource control. Decisions concerning fiscal problems, in particular, are mostly made at the federal level rather than at the state level. Aside from managing the states' share of expenditure allocation, the federal government earns far more revenue than the combined states' revenue by keeping all key revenue sources and borrowing authorities.

According to the Federal Constitution, state governments can only get the lion's share of their revenue from limited sources, including; land, agriculture, and forestry. The federal government is a significant source of funding for states. Figure 1, in particular, highlights the significant revenue disparity between the federal

and state governments. In reality, since 1963, federal government revenue has increased from 77% to 91% of total government revenue (Jomo and Wee, 2002). It climbed from four times to seven times the aggregated state-level government revenues between 1985 and 1999. (Ministry of Finance, various years). Indeed, the federal government's monopoly on revenue provides an essential foundation for its considerable political authority and encourages state governments to rely on the central government for development budgets and transfers.
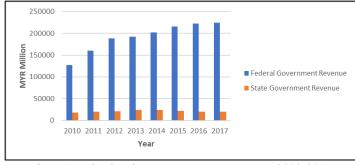

Figure 1 Federal and State Government revenue 2010-2017

State governments have limited authority over setting their objectives and needs, especially in growth sectors, such as; infrastructure, education, innovation, and research. Their development priorities have been confined to providing public services. As a result, state development is mainly at the federal government's discretion.

Malaysia has been among upper-middle-income countries grouping for many years (since at least 1996). It is regarded as having fallen into the 'middle-income trap'. Concerns about this development have motivated a widening policy discussion about ensuring that economic growth is improved. A critical channel for addressing these concerns is through intergovernmental fiscal relations. Thus, the link between fiscal decentralisation and economic growth is critical for Malaysia, a country known for having a highly centralised federal fiscal system.

Considering fiscal performance, Malaysia's public debt level in 2018 had increased from 55.6% of the country's Gross Domestic Product (GDP) to approximately 67.9% in 2020 (Ministry of Finance, Malaysia, 2020). In terms of composition, the federal government's debt has always accounted for a more significant percentage compared to the state's debts. This trend has negatively impacted the country's macroeconomic stability and economic growth. Moreover, the fiscal deficit level was around 2.8% of the GDP after reaching a peak of 6.7% in 2009. Although the government has conducted fiscal reform initiatives to enhance its revenue base over the past few years, no reform has been called for concerning the intergovernmental fiscal relationship. The evidence shows that most of the resources for investment and development are held by Ministries at the federal level and then partially allocated to the states. In 2018, only two (Terengganu and Negeri Sembilan) out of 13 states in Malaysia had achieved a budget balance (The National Audit Department Report, 2018). Despite being the most developed state, Selangor has still faced difficulties in balancing its budget, while other states have still heavily relied on provisions from the federal government.

By enabling stronger accountability and transparency and reducing administrative bottlenecks, fiscal decentralisation reforms have become an urgent need. There is evidence that, on the whole, more fiscally decentralised countries enjoy higher income and other benefits, such as improving the technical efficiency and quality of public services, support as a means to achieving more significant equity and participation, state legitimacy and so on (Nixon and Joelene, 2014). Thus, the question about the potential contribution of fiscal decentralisation to its economic performance warrants attention.

This question is even more interesting in the context of Malaysia's federal structure. The country had a single political party forming the ruling government for 61 years (until 2018) since independence in 1957, which facilitated robust centralised federalism but made it susceptible to some of the adverse aspects of decentralisation. Using a panel dataset covering 13 states in Malaysia between 2006-2018, this study examined the degree of fiscal decentralisation, including; fiscal autonomy and fiscal importance levels and their effects on individual states' economic growth in Malaysia. A credible answer to address this question would have significant implications not only for policymakers in Malaysia but may also impart valuable lessons that can be applied to other developing countries

Following this introduction, the study continues as follows. Section 2 reviews related existing literature, Section 3 discusses the fiscal decentralisation metric, and Section 4 describes the research methodology. Section 5 discusses the empirical results, followed by conclusions and policy recommendations in Section 6.

LITERATURE REVIEW

Theoretical Background

Fiscal decentralisation is frequently touted as a strategy to boost economic growth. Decentralisation encourages policymakers to be more sensitive to people's needs, resulting in a tighter match between people's choices and government policies (Oates, 1999). Because local governments are less significant than central governments, they can provide an appropriate scale of; education, health care, and infrastructure while lowering administrative costs and increasing efficiency (Vo, 2019). Furthermore, as Zhang and Zou (1998) pointed out, political restrictions typically limit central governments' ability to deliver disparate amounts of public services in different areas. Decentralisation of revenue sources and expenditure obligations to subnational governments aids in improving the efficiency of public sector investment, lowers fiscal deficits, and boosts the economy.

According to Tiebout (1956), decentralisation can encourage competitiveness among local governments. Local governments compete as public service providers attempting to attract mobile individuals with the freedom to choose where they live. This rivalry among local governments may increase the quantity and quality of public services provided across jurisdictions in the future. The pressure to re-select local leadership, for example, will encourage improved productivity and less wasteful spending, resulting in a boost to the local economy.

Fiscal decentralisation has also been one of the critically important conditions in the market preserving theory. Its proponents advocate that this approach is particularly appropriate to be adopted in developing economies (Ghani *et al.*, 2019). Decentralisation promotes inter-jurisdictional competition for greater economic efficiency, creates incentives to reduce soft budget constraint (financial assistance) problems, and limits the scope for state predation on private businesses (Weingast, 2009). The soft budget constraints can also become a source of problems for the central government, contributing to massive deficits in the central government account.

Prud'homme (1995) emphasised that fiscal decentralisation can be risky in some situations. Excessive decentralisation, for example, renders macroeconomic stability and wealth redistribution practically impossible to achieve. Macroeconomic stabilisation is complex in times of crisis because the central government lacks sufficient resources to stabilise the economy, and influential local governments may have divergent and frequently contradictory fiscal policy agendas. Under complete decentralisation, income redistribution is not functioning, and resources are frequently dispersed unevenly among areas. As a result, the absence of a centralised equalisation strategy may result in the bankruptcy of poor regions (Thiessen, 2003). Furthermore, excessive horizontal fiscal competition may increase regional inequality and horizontal fiscal imbalances.

Furthermore, the quality of governance at the regional and local levels in some nations may be questioned (due to a lack of competence, corruption, and weak institutions); hence, it is debatable whether subnational authorities can attain high efficiency in public production. Another issue with decentralisation is subnational governments' incapacity to internalise cross-regional externalities properly. This situation has cast doubt on the theoretical conclusions reached in traditional fiscal federalism studies (Oates, 1972).

The theoretical literature is ambiguous about fiscal decentralisation's contribution to economic growth. Despite a higher level of fiscal autonomy, which does not automatically imply faster economic growth, the emerging countries appear to have a negative relationship. In contrast, the developed countries appeared to have a positive relationship (Fang, 2017). Most empirical investigations concerning this link have used panel data from various regions within a country or across countries. For example, Zhang and Zou (1998) analysed panel data from 28 provinces in China from 1986 to 1992 and concluded that the degree of fiscal decentralisation had negatively impacted economic growth.

On the other hand, Lin and Liu (2000) analysed panel data from Chinese provincial governments from 1970 to 1993 and found that fiscal decentralisation had a beneficial influence on growth. Davoodi and Zou (1998) showed a negative association between fiscal decentralisation and growth in developing countries, but none in developed economies. According to Zhang and Zhou (1998), fiscal centralisation was more favourable

to economic development, particularly in its early phases. The main reason for this viewpoint is that in developing economies, the national government can commit to building a considerable quantity of infrastructure (Fang, 2017).

Between 2008 and 2011, Adrian and Petronela (2015) studied the relationship between fiscal autonomy and regional development at the district level in Romania. Increased fiscal autonomy for provinces tended to boost development in such provinces. These findings suggested that the greater the level of provincial fiscal autonomy, the greater the ability of provincial public bodies to meet the demands of local populations, resulting in improved local economic growth.

Empirical Studies

Many previous studies (Ghani *et al.*, 2019; Nguyen, 2017; Ma, 1997; Lin and Liu, 2000) have found positive results in developing countries like Vietnam, China, and Malaysia. Other scholars (Nguyen *et al.*, 2019; Gu, 2012; Martinez-Vazquez and Timofeev, 2009) have used different measures to estimate fiscal decentralisation, known as the composite ratio of fiscal decentralisation. In the case of the cross country studies, many authors have used a formula based on the local share of overall government spending to calculate fiscal decentralisation. (Davoodi and Zou, 1998; Limi, 2005; Martinez-Vazquez and McNab, 2003).

Lin and Liu (2000) and Thiessen (2003) stated that econometric analysis of the relationship between decentralisation and growth had been developed based on the augmented Solow model (Mankiw *et al.*, 1992). Thiessen (2003) used additional decentralisation measures and other conditioning factors as explanatory variables in the empirical specification and standard determinants of economic growth derived from the Solow model (physical and human capital accumulation, initial output value and labour force growth). A potential relationship between fiscal decentralisation and economic growth has been examined using modified growth models such as the Solow model, Diamond's overlapping generations model, and Barro's endogenous growth model (Brueckner, 2006; Thiessen, 2003; Davoodi and Zou, 1998,). Davoodi and Zou (1998), for example, produced a modified version of Barro's model (Barro, 1990), which has been the most commonly used analytical framework to relate expenditure decentralisation and economic growth. They concluded that if government spending was overly centralised, decentralisation could help the economy to flourish.

In general, studies concerning the relationship between fiscal decentralisation and economic growth, both regionally and between countries, have produced mixed results. Some have found a favourable association between decentralisation and growth (Baskaran and Feld, 2013, Davoodi and Zou, 1998, Rodriguez-Pose and Ezcurra, 2011), while others found no significant relationship (Asatryan and Feld, 2013; Thornton, 2007). Indeed, when fiscal decentralisation corresponded to spending obligations, and the subnational government lacked competency and accountability, fiscal decentralisation could negatively impact economic growth (Prud'Homme, 1995; Tanzi and Schuknech, 1996).

Martinez-Vazquez and McNab (2006) used national panel data from 66 developed and developing countries between 1997 and 2002. They employed the Ordinary Least Squares (OLS) technique to analyse the relationships between fiscal decentralisation, macroeconomic stability and economic growth. They concluded that fiscal decentralisation had an unclear impact on developing countries economic growth while it was negative in developed countries. Fiscal decentralisation also negatively impacted the economic growth of the 21 OECD countries in Central and Eastern Europe from 1990 to 2005 (Ezcurra and Rodríguez-Pose, 2013). This finding was supported by Baskaran and Feld (2013) in their study on 23 OECD countries between 1975 and 2008 using a fixed-effect model.

There has been a new development in the literature concerning fiscal decentralisation in Vietnam. Based on the endogenous economic growth theory, the fiscal theory, and the relationship model between economic growth and fiscal decentralisation, Nguyen *et al.* (2019) examined the relationship between fiscal decentralisation and economic growth in 64 Vietnamese provinces from 1997 to 2001 and 2002 to 2007. Su *et al.* (2014) used panel data from 62 provinces between 2000 and 2011 to empirically analyse the relationship between fiscal policies and economic growth in Vietnam, using the Difference Generalized Method of Moments (DGMM) technique developed by Arellano and Bond (1991) and the Pooled Mean Group (PMG) estimator. The study concluded that fiscal decentralisation and economic growth were positively associated in the long term. However, when the economy draws away from the long-term equilibrium, government efforts in adjusting fiscal policies have little effectiveness; and expenditure decentralisation negatively correlates with economic growth in the long run, while revenue decentralisation is positively associated with economic growth.

METHODOLOGY

Fiscal decentralisation measurement

There are several ways to measure fiscal decentralisation in empirical research. Scholars have primarily assessed the extent of decentralisation and the features of each country or region for constructing a measurement of fiscal decentralisation based on the two main indicators: (i) the revenue ratio and (ii) the expenditure ratio (Rodriguez-Pose *et al.*, 2009; Rodriguez-Pose and Kroijer, 2009). The ratios of total state revenue to total public revenue and total state expenditure to total public expenditure have been considered as the fiscal decentralisation metrics.

The local share of total national expenditure (revenue) as a measure of expenditure (revenue) decentralisation has been widely utilised by cross-country and within-country studies. However, this measure represents the relative scale of resource allocation to subnational jurisdictions. Specifically, what has been measured has been the magnitude of public expenditure or tax revenue at the subnational levels rather than the real degree of autonomy in fiscal matters for subnational governments (Nguyen, 2017).

In cross-country studies, the most common measure has been the one used by Nguyen and Anwar (2011), which is the provincial share of total provincial revenue (revenue decentralisation) and total provincial expenditure (expenditure decentralisation). However, it was inappropriate to simply use a subnational share of total subnational expenditure for single country research. The focus was on the relative size of areas, not necessarily their various degrees of decentralisation. Thus, the appropriateness of such proxies is questionable.

Several previous studies have measured the extent of fiscal decentralisation from the spending dimension (Law *et al.*, 2014; Rodríguez-Pose *et al.*, 2009; Zhang and Zou, 1998). For example, the total expenditure by the state government excludes the additional spending financed by the federal government for assigned programmes and missions. As a result, total fiscal spending is equal to the total spending by state governments, after excluding additional spending made by the federal government to the state government. The Expenditure Ratio (ER) is calculated as follows:

$$ER = \frac{Total\ Spending\ by\ State\ Government}{Total\ Fiscal\ Spending} \qquad (1)$$

Other scholars have measured fiscal decentralisation from the revenue dimension (Lin and Liu, 2000; Thornton, 2007). The revenue ratio was calculated as the total revenue by the state government over total fiscal revenue. Total state revenue incorporates the revenue that the state receives in full and the portion of revenue between the state and the federal government after excluding additional provisions from the federal budget. The Revenue Ratio (RR) is calculated as follows:

$$RR = \frac{Total\ Revenue\ by\ State\ Government}{Total\ Fiscal\ Revenue} \qquad (2)$$

The closer ER and RR come to 1 indicates more revenue decentralisation. Su *et al.* (2014) looked at a variety of fiscal strategies. Still, they calculated fiscal decentralisation as a simple ratio of state fiscal spending or revenue to total fiscal expenditure or revenue. In any event, it was argued that they concentrated on the impact of fiscal policy on growth rather than the impact of fiscal decentralisation on growth.

Vo *et al.* (2009) proposed a composite fiscal decentralisation index (FD) that was equal to the geometric mean of fiscal importance (FI) and fiscal autonomy (FA) of subnational governments. In other words, the ratio of own-source revenue to provincial spending, which reflects fiscal autonomy, was multiplied by the ratio of provincial spending to overall provincial spending, which represented fiscal importance. This indicator (composite FD) combines the expenditure and revenue ratio information.

A study by Vo (2009b) in Asia focused on the degree of fiscal autonomy of provincial governments in Vietnam, which was the lowest among the ASEAN members, such as; Thailand, Indonesia and the Philippines, as well as China. To increase fiscal autonomy, the Vietnamese government has enacted fiscal decentralisation reforms allowing provincial governments to determine appropriate fees in the local context while also lowering the tax remittance rate to the central government. In his research, Vo (2009a) used a strong foundation of theories and historical fiscal data to compare fiscal decentralisation in Vietnam and other Asian countries. However, he took a different approach in his article by using a quantitative technique to identify the impact of fiscal decentralisation on economic growth (Nguyen, 2019).

Based on the indicators proposed by Gu (2012) and Martinez-Vazquez and Timofeev (2009), Ghani *et al.* (2019) conducted a similar study for Malaysia using the composite ratio to represent the degree of fiscal decentralisation. The information acquired by the expenditure and revenue ratios was essentially combined in this indicator. The results indicated a positive association with the revenue and spending ratios, with the former being the strongest (Martinez-Vazquez and Timofeev, 2009). Notably, expenditure and revenue were symmetric and weighted for/against fiscal gaps and imbalances, implying that expenditure and revenue decentralisation complemented one another (Iqbal *et al.*, 2013). Even though the federal system was more centralised, the results showed that a fiscal decentralisation variable (i.e. composite ratio FD) had a significant coefficient and a positive association with state economic growth, proving the market preserving federalism theory.

Following Nguyen *et al.* (2019) and Nguyen (2017), who adopted the approach proposed by Vo (2008, 2009a), this study employed the composite ratio of fiscal decentralisation comprising the degree of fiscal autonomy and fiscal importance, which represented financial capacity in Malaysia. It also helped to address the common concern that the concept of decentralisation has not been treated adequately in most existing studies despite its intrinsic multi-dimensionality.

Fiscal autonomy (FA) refers to the devolution of taxation powers and the assignment of responsibility for delivering public goods and services that are subject to rules governing fiscal transfers between the federal and state governments and state borrowing. (Vo, 2008, 2009a).

$$FA = \frac{\sum_{i=1}^{p} OR_i}{\sum_{i=1}^{p} E_i} \quad (3)$$

where OR_i was the own-sourced revenue (consisting of tax revenue and non-tax revenue) and E_i was the expenditure of the state i, and p was the number of states. The FA had a minimum value of 0 and a maximum of 1. If the FA value was 1, the state was considered to have sufficient revenue to cover its budgetary expenditures. This outcome meant that states had a great degree of autonomy and independence from the federal budget, allowing them to be proactive and innovative in boosting their economies. According to decentralisation legislation, fiscal autonomy means that a state government has the flexibility to balance its revenue sources by limiting its tax bases to cover the costs of supplying public goods and services. Due to fiscal problems, the state is virtually totally reliant on the federal budget and intergovernmental grants if the value is low or close to 0.

The relative importance of a state's fiscal operations compared to the federal government is fiscal importance (FI). In Vo (2008, 2009a), financial capacity, which represented fiscal activities, was calculated as follows:

$$FI = \frac{R_i}{GR} \quad (4)$$

For the computation of fiscal importance (FI), R_i was the total revenue of state i, while GR was the total revenue by all levels of government in the country. In a similar vein, the state value of FI was within the (0,1) range. The closer the value got to 1, the higher the percentage of the total financial capacity of the country accounted for by the state's revenue, implying the state's significant standing. If FI got close to 0, the state's financial capacity was lower relative to the country, indicating its minor role in national economic development. Therefore, by combining those two indicators, FA and FI, Vo (2008, 2009a) proposed the composite Fiscal Decentralisation Index (FD), which is calculated as follows:

$$FDI = \sqrt{FA * FI} = \sqrt{\frac{\sum_{i=1}^{p} OR_i}{\sum_{i=1}^{p} E_i} * \frac{R_i}{GR}} \quad (5)$$

In calculating the composite ratio of fiscal decentralisation, it should be noted that differences exist among scholars related to the fiscal importance indicator (FI). Nguyen (2017) referred to financial capacity or revenue component, while Nguyen (2019) and Fang (2017) referred to fiscal activities, such as the expenditure components for total public sector expenditure for their studies in Vietnam.

Based on Nguyen *et al.* (2019), in brief, the FDI of the state governments was capped at unity (1.0) and was classified in into four degrees of measurement:

    i.   *FD = 0 : Perfect fiscal centralisation*
    ii.   *0 < FD < 0.5: Relative fiscal centralisation*
    iii.   *iii, 0.5 < FD < 1: Relative fiscal decentralisation*
    iv.   *FD = 1: Perfect fiscal decentralisation*

Data

The real growth rate of state GDP (Gross Domestic Product) per capita is a dependent variable that represents the value of all final goods and services produced in a given state for a given period. The three indicators mentioned above measured the degree of fiscal decentralisation: Fiscal autonomy (FA) indicates the degree of fiscal autonomy of state governments (Vo, 2008 and 2009a). The higher the ratio, the higher the autonomy of the state government (Psycharis *et al.*, 2016). At the same time, fiscal importance (FI) represents all the state's fiscal activities or financial capacity, and lastly, Fiscal decentralisation index (FD) consists of FA and FI.

The selected control variables were; (i) the ratio of investment capital in the state (CAPOUT), which measures the investment function of a state's investment capital, as the investment rate is an essential variable in the standard growth estimation specification; (ii) the labour force growth rate (LAB); (iii) the ratio of federal grants to the total revenue of a state (GRANTS), which is a measure of how easily the federal government intervenes in a state's fiscal system by providing grants, thus giving an estimate of the hardness of the budget constraints faced by a state; (iv) the budget balance (BUD) was used to measure macroeconomic stability of economic growth instead of using inflation due to the unavailability of the data; and (v) the ratio of tax revenue of each state to the state's total revenue (OWNTAX), which also measured each state's autonomy by relating the tax revenue, which generated by itself to the total generation of revenue. The tax rate reflected the strength of the government's financial capacity. All the state-level data were obtained from reports issued by Malaysia's National Audit Department, the State Treasury, the Economic Planning Unit, the Prime Minister's Department and the Ministry of Finance.

Hypotheses

The hypothesis tested was that the composite indicator for fiscal decentralisation, represented by the fiscal decentralisation index (FD), contributed positively to state economic growth in Malaysia. This hypothesis reflected the extent to which states' own-source revenue (tax and non-tax revenues) derived as a share of their expenditure would contribute to higher economic growth in a jurisdiction. A positive result would indicate that the states enjoying a higher degree of decentralisation granted by the federal government would be incentivised to become more dynamic and effective in allocating resources to promote local development. On the other hand, a negative result of FD would mean that greater autonomy had given rise to less responsible actions, with states becoming less efficient and ineffective in making growth-enhancing policies. For example, corruption and ineffective allocations.

There were two other hypotheses, which are individual components of the FD. The level of fiscal autonomy (FA), which indicates the degree of fiscal autonomy granted by the federal government and the level of fiscal importance (FI) in terms of financial capacity, had positive impacts on the local economic growth.

Research model

Similarly to Nguyen *et al.* (2019), the following empirical model is used to express the state's economy:

$$Y_{it} = B_0 + B_1 FD_{it} + B_2 CON_{it} + \varepsilon_{it} \tag{6}$$

Economic growth was proxied by the growth of the states' GDP per capita (SGDP) at a constant price: FD_{it} was the degree of fiscal decentralisation and CON_{it} was the control variable. Per Vo (2008, 2009a), the degree of fiscal decentralisation was measured by the three indicators: (i) Fiscal Autonomy (FA), (ii) Fiscal Importance (FI), and (iii) Fiscal Decentralisation Index (FD). The selected control variables were (i) ratio of state capital outlay to the states' GDP (CAPOUT), (ii) ratio of federal grants to the total revenue of the states

(GRANTS), (iii) ratio of the states' own tax revenue to total tax revenue (OWNTAX) (iv) the labour force growth rate (LAB), and (v) Budget balance of the state (BUD).

The model was analysed using the Fixed effects with robust standard errors method. This model has advantages in terms of the unobserved heterogeneity, i.e., the entire set of state-invariant factors is implicitly controlled through fixed effects (Yushkov, 2019).

RESULTS AND DISCUSSION

The sample was developed from data covering 13 states in Malaysia from 2006 to 2018, with 169 observations. Table 1 presents the summary statistics of the variables, showing that the range of growth of state GDP per capita or SGDP variable fluctuated from -9% to as high as 110%, with a mean value of 8.5%. Similarly to the SGDP, the difference in labour growth between states was reasonable; the state with the highest labour growth was 21.2%, and the lowest was -6.2%. While other variables, such as capital ratio (CAPOUT), and grant ratio (GRANTS), except for tax ratio (OWNTAX) and budget balance (BUD), were also found relatively large with mean values of 5.6% and 2.8%, respectively. The result of the summary statistics also revealed that there were considerable differences in the fiscal autonomy (FA), fiscal importance (FI) and fiscal decentralisation index (FD) between states with mean values of 0.53%, 0.087% and 0.079%, respectively.

Table 1 Descriptive statistics of variables

	SGGDP	FA	FI	FD	OwnTAX	LABG	GRANTS	LNCAPEX	BUD
Mean	8.48	0.526	0.008	0.079	0.258	2.816	0.296	5.599	-0.01
Median	5.82	0.568	0.004	0.064	0.271	2.582	0.217	5.288	-0.005
Maximum	110.54	0.9700	0.058	0.241	0.458	21.216	1.088	9.027	0.052
Minimum	-9.99	0.050	0.0004	0.021	0.016	-6.163	0.017	3.627	-0.063
Std. Dev.	10.51	0.206	0.0111	0.049	0.111	2.963	0.229	1.222	0.016
Skewness	5.97	-0.525	2.157	1.269	-0.43	1.957	1.445	0.496	-0.794
Kurtosis	55.64	2.711	7.48	3.924	2.623	13.322	4.679	2.390	6.243
Jarque-Bera	20401.17	8.34	272.459	51.419	6.227	858.175	78.560	9.544	91.726
Proba	0.00	0.015	0	0	0.045	0.00	0.00	0.008	0.000
Sum	1425.32	89.008	1.474	13.485	43.651	475.97	50.094	946.266	-1.763
SumSq. Dev.	18454.24	7.16	0.021	0.397	2.069	1475.134	8.866	250.741	0.046
Observations	169	169	169	169	169	169	169	169	169

Fiscal Autonomy (FA)

Table 2 shows that, on average, most states had fiscal autonomy ratios above 50%. The relatively more developed states, such as; Selangor, Johor and Penang, and the two oil-producing states of Sabah and Sarawak, enjoyed high fiscal autonomy relative to other states. In particular, the states with relatively developed industries and higher state GDP per capita, local taxes and other non-tax revenues formed a significant portion of the consolidated state governments financial position. Sarawak had the highest ratio at 92% in 2009, followed by Sabah, 76% in 2011, indicating significant revenues supporting their fiscal autonomy. On the other hand, Terengganu had the lowest average FA ratio of 9%, despite being among the wealthiest states in Malaysia. In particular, oil royalty payments, which have contributed significantly to Terengganu's total revenue, were classified under non-revenue receipts. Thus, they were not considered the states' own revenue source (their own revenue consists of tax and non-tax revenues) used to measure the FA ratio. This situation also explained Terengganu's heavy dependency on oil revenue income and intergovernmental grants, implying the presence of soft budget constraints in the fiscal system. The less developed states of Perlis and Kelantan enjoyed average FA ratios of 29% and 37%, respectively.

Table 2 Fiscal Autonomy ratio (%) of states in Malaysia between 2006-2018

Year	2006	2008	2010	2012	2014	2016	2018	Average
Johor	53.3	53.3	70.9	71.1	86.3	63.5	59.5	65.4
Kedah	28.5	35.5	21.2	35.8	37.5	35.4	48.9	34.7
Kelantan	19.5	40.9	38.6	26.0	37.9	48.0	67.0	39.7
Melaka	50.4	37.6	54.2	65.4	52.7	76.1	71.9	58.3
Neg.Sembilan	68.5	46.4	73.2	68.9	66.5	69.2	85.8	68.4
Pahang	88.9	72.9	65.0	71.8	53.4	62.4	63.4	68.3
Perak	57.4	63.1	75.3	62.3	56.5	58.7	60.7	62.0
Perlis	34.7	32.6	32.2	26.7	31.8	23.5	20.0	28.8
Penang	59.7	68.2	52.1	73.9	70.8	56.8	69.6	64.4
Selangor	61.0	43.8	59.8	72.8	68.5	56.6	42.4	57.8
Teregganu	7.2	5.0	5.7	6.4	8.5	8.2	16.1	8.2
Sabah	66.8	65.3	61.6	74.1	56.5	69.3	75.6	67.0
Sarawak	90.0	90.0	90.0	91.5	91.4	60.8	45.0	79.8

Fiscal Importance (FI)

Table 3 reveals that Sarawak had the highest fiscal importance ratio in Malaysia, rising from 2.79% in 2018 to 5.8% in 2008, while Perlis was the lowest, rising from 0.05% in 2018 to 0.09% in 2014. Selangor and the three oil-producing states, Sabah, Sarawak and Terengganu, had high financial capacity, contributing highly to their economic growth. Most Malaysian states had quite similar values of the FI ratio at around 0.087%, indicating the relatively small financial capacity of the individual states compared to the federal government. This outcome reflected the dominant position of the federal government in all functions as stipulated in the Federal Constitution.

Table 3 Fiscal Importance ratio (%) of states in Malaysia between 2006-2018

Year	2006	2008	2010	2012	2014	2016	2018
Johor	0.68	0.51	0.80	0.58	0.76	0.74	0.55
Kedah	0.18	0.16	0.19	0.20	0.18	0.17	0.15
Kelantan	0.24	0.17	0.30	0.20	0.20	0.22	0.21
Melaka	0.27	0.29	0.22	0.20	0.13	0.17	0.14
Neg. Sembilan	0.36	0.23	0.22	0.20	0.19	0.18	0.16
Pahang	0.46	0.43	0.32	0.39	0.28	0.29	0.25
Perak	0.51	0.57	0.49	0.54	0.48	0.48	0.41
Perlis	0.08	0.07	0.07	0.08	0.09	0.05	0.05
Penang	0.30	0.33	0.25	0.41	0.40	0.49	0.38
Selangor	1.22	1.36	0.97	1.22	1.16	1.18	0.76
Terengganu	1.64	1.47	1.17	1.54	1.35	0.76	0.68
Sabah	2.38	3.00	2.59	2.72	2.37	1.62	1.58
Sarawak	4.18	5.79	3.46	4.47	4.65	2.79	2.74

Fiscal Decentralisation Index (FD)

Table 4 indicates the heterogeneity of Malaysian states regarding the composite degree of fiscal decentralisation. On average, all states in Malaysia had FD values of 2.08% (0.021) to 24.07% (0.247) and can be classified under Relative Fiscal Centralisation (0 < FD < 0.5) (Vo, 2009). The varying degrees of fiscal decentralisation were due to states' general economic heterogeneity (e.g., differences in their natural resource endowments and the level of development). Perlis, Kedah and Kelantan were among the relatively less developed states and had the lowest FD values of 22%, 3.8% and 5.14%, respectively, in 2018. In particular, they lack advantageous factors to attract businesses and potential investors. Hence, they received low revenue and could not cover their expenditure needs and had to rely almost entirely on intergovernmental grants from the federal government. Richer states, such as; Selangor, Terengganu, Sabah and Sarawak, had FD values of 11.2%, 11.54%, 15.74% and 20.4%, respectively. Meanwhile, their average FD values were between 5 % to 6% for the other states. Overall, the average degree of fiscal decentralisation values for states in Malaysian was too low, representing the highly centralised fiscal federalism system of Malaysia.

Table 4 The value of the fiscal decentralisation index (FD) for 13 states in Malaysia between 2006-2018

Year	2006	2008	2010	2012	2009	2014	2016	2018
Johor	8.23	7.13	8.97	7.63	6.80	8.74	8.61	7.41
Kedah	4.27	3.97	4.41	4.47	4.01	4.19	4.13	3.84
Kelantan	4.87	4.16	5.46	4.45	4.55	4.46	4.71	4.57
Melaka	5.19	5.43	4.69	4.43	4.31	3.66	4.18	3.74
Neg. Semb	5.99	4.84	4.67	4.52	3.94	4.41	4.24	4.00
Pahang	6.77	6.57	5.70	6.24	5.55	5.28	5.39	4.96
Perak	7.17	7.57	6.99	7.35	6.34	6.96	6.91	6.38
Perlis	2.89	2.64	2.68	2.82	2.44	2.96	2.28	2.21
Penang	5.43	5.77	5.03	6.38	4.85	6.30	6.97	6.13
Selangor	11.05	11.66	9.85	11.03	10.51	10.78	10.86	8.72
Terengganu	12.82	12.14	10.81	12.40	9.72	11.62	8.70	8.26
Sabah	15.43	17.31	16.10	16.48	13.82	15.40	12.74	12.57
Sarawak	20.46	24.07	18.60	21.15	16.90	21.55	16.70	16.55

Regression Results

The variables of interest: FA, FI and FD, were strongly correlated. Thus, the explanatory variables were separately used in three different estimations, as shown in Tables 5, 6, and 7, respectively. The estimation results of the main variables of fiscal decentralisation, FA, FI and FD, were based on the degree of measurement mentioned in the methodology section. The fixed effect regression estimation results revealed that FA had a negative and insignificant relationship with state economic growth. This outcome was inconsistent with the findings of Adrian and Petronela (2015), Fang (2017), and Nguyen *et al.* (2019), which indicated that the degree of fiscal autonomy contributed to the economic growth of the state. This situation results from the centralised nature of Malaysia's federal fiscal system, where expenditure and revenue functions are primarily under the federal government's purview.

Table 5 Results of Fixed Effects with Robust Standard Error for Fiscal Autonomy (FA)

Dependent Variable: Economic Growth (SGDP GROWTH)				
Variable:	Coefficient	Std. Error	T-Statistic	p-value
Fiscal autonomy *(FA)*	-9.0275	10.4374	-0.8649	0.3885
Ratio of state own tax revenue to total tax revenue *(OWNTAX)*	5.4796	8.4404	0.6492	0.5172
Labour force growth rate *(LAB)*	0.1126	0.2139	0.5267	0.5992
Ratio of federal grants to states' total revenue *(GRANTS)*	-2.1698	10.8182	-0.2005	0.8413
Ratio of state capital outlay to the state GDP (CAPOUT)	-0.2448	2.7198	-0.0900	0.9284
Budget balance (BUD)	-69.579	42.4514	-1.6390	0.1033
C	12.794	23.7095	0.5396	0.5902

On the other hand, the results suggested that fiscal importance (FI) appeared significant at the 10% level and was positively associated with local economic growth. A 0.01 unit increase in FI would increase the state's GDP growth by 6.33%. The states should improve their financial capacity to enjoy higher economic growth. As for the fiscal decentralisation index, FD had a positive and significant (at the 5% level) relationship with the states economic growth. The coefficient of FD had a value of 203, meaning that a 0.01 unit increase in FD (with the maximum index value of 1) would lead the state GDP growth to increase by 2.3%.

Table 6 Results of Fixed Effects with Robust Standard Error for Fiscal Importance (FI)

Dependent Variable: Economic Growth (SGDP GROWTH)				
Variable:	Coefficient	Std. Error	T-Statistic	p-value
Fiscal importance (FI)	633.1955	400.7546	1.5800	0.0954
Ratio of state own tax revenue to total tax revenue *(OWNTAX)*	13.4675	8.9174	1.5102	0.1331
Labour force growth rate *(LAB)*	0.0879	0.2323	0.3787	0.7054
Ratio of federal grants to states' total revenue *(GRANTS)*	2.4085	8.6406	0.2787	0.7808
Ratio of state capital outlay to the state GDP (CAPOUT)	0.2572	1.9582	0.1313	0.8957
Budget balance (BUD)	-93.8950	43.5416	-2.1564	0.0327
C	-3.9439	11.6648	-0.3381	0.7358

Ghani *et al.* (2019) 's findings supported this study's hypothesis that the composite indicator of fiscal decentralisation (represented in this study by the fiscal decentralisation index) had a significant positive correlation with state economic growth. More importantly, it implied that fiscal decentralisation was an effective system for improving Malaysian states' economic performance. Indeed, these findings were in line with the

claims of the pro-federalism theories proposed by Tiebout (1956), Oates (1972), and other studies that have used the traditional panel regression method in developing countries, such as Iqbal *et al.* (2013) in Pakistan and Lin and Liu (2000) for China. However, the findings seemed inconsistent with the majority of the literature covered developing countries, such as; Nguyen (2017), Martinez-Vazquez and McNab (2006), Zhang and Zou (1998), Baskaran and Feld (2013), and Ezcurra and Rodríguez-Pose (2013), which found that the degree of fiscal decentralisation negatively impacted economic growth.

Table 7 Results of Fixed Effects with Robust Standard Error for Fiscal Decentralisation (FD)

Dependent Variable: Economic Growth (SGDP GROWTH)				
Variable:	Coefficient	Std. Error	T-Statistic	p-value
Fiscal decentralisation (FD)	203.3174	106.1527	1.9153	0.0494
Ratio of state own tax revenue to total tax revenue *(OWNTAX)*	18.7467	9.3047	2.0147	0.0457
Labour force growth rate *(LAB)*	0.0824	0.2346	0.3514	0.7257
Ratio of federal grants to states' total revenue *(GRANTS)*	1.8913	8.2409	0.2295	0.8188
Ratio of state capital outlay to the state GDP (CAPOUT)	-0.2081	1.9011	-0.1094	0.9130
Budget balance (BUD)	-97.7375	43.5025	-2.2467	0.0261
Constant	-13.3068	11.8136	-1.1263	0.2618

The earlier estimation results showed that the fiscal autonomy (FA) coefficient was insignificant, meaning that fiscal importance (FI) had strongly affected the FD in influencing the GDP growth of states in Malaysia. The financial capacity factor seemed to have played an essential role in boosting states' economies. In other words, the more a state is generating by itself, the better the result for the state's economic growth rate. However, the states still need to continuously improve their tax collection, tax efforts and utilisation mechanisms, with the federal government closely supervising their resource utilisation.

The majority of the control variables were found to have the expected signs, which confirmed the adequacy of the model. The OWNTAX coefficient was positively associated with local economic growth and was only significant when FD represented fiscal decentralisation. It was evident that giving states the autonomy to generate revenue would increase local economic growth. While the budget balance (BUD) was statistically significant at the 5% level when FD and FI represented the fiscal decentralisation variable, which was consistent with the study conducted by Ghani *et al.* (2019). Unlike Ghani (2014), this variable showed a negative sign in all estimations. This result implied that the continuous deficits in the states could be detrimental to local economic growth in the long run, as they reduced the pace of productivity-enhancing private-sector investment, crowded out private borrowing and distorted the marketplace. Indeed, this continuous shortfall in the state's revenue would increase their debts and collectively reduce the country's growth potential. (Ghani *et al.*, 2014). Indeed, Jalil *et al.* (2012) highlighted views indicating that state governments had been irresponsible when managing their finances.

Interestingly, in all models, the states' high dependency on intergovernmental grants (GRANTS) was correlated insignificantly with their economic growth. The signs were positive when the FI and FD indicators represented the fiscal decentralisation variable. The results were consistent with Yushkov (2015) and Zubarevich (2015) 's findings in Russia. They argued that regions reliant on grants could mitigate economic crises but also showed that grants or financial resources may be spent inefficiently or irresponsibly by unqualified state officials. Budget balances negatively impacted budget balances due to continuous revenue shortfalls on local growth, signalling higher debt and heavy reliance on grants. Therefore, implementing fiscal decentralisation would enable the central government to alleviate this soft budget constraint problem, reducing the negative impact of fiscal deficits on local economic growth.

POLICY IMPLICATIONS AND CONCLUSION

This study empirically examined the degree of fiscal decentralisation in 13 Malaysian states between 2006 and 2018 and its effects on their economic growth. The empirical findings were consistent with the results of previous studies, which found that from the perspective of market preserving federalism, there was a positive correlation between fiscal decentralisation and economic growth.

Since the finding showed a positive and significant relationship between fiscal importance (FI) and economic growth, the state governments in Malaysia should focus on improving their financial capacity, primarily through finding additional revenue sources. Currently, they have only been authorised to set specific fees and rates within the current legal framework. While another component of FD, fiscal autonomy, was found to have a negative and insignificant impact on the states' economic growth, validating that Malaysia currently has a highly centralised federal fiscal system. In other words, the federal government maintains a dominant position in determining the country's expenditure and creating revenue sources. In contrast, the state governments have minimal control over the revenue collected and no incentive to investigate prospective revenue sources. Most taxation power lies with the federal government, including tax rates and tax bases, leaving limited space for state autonomy, leading to continuous fiscal deficits at the state level. These continuous deficits indicate that most states in Malaysia have had difficulty meeting their financial needs, thus, increasing their debts and, in the long run, negatively affecting the state's economic growth and the country at large. At the same time, it was found that central government interference in the states' economies through grants had negatively impacted their growth. The presence of this soft budget constraint shows that states have been highly dependent on the federal government to fund their spending. As a result, the federal government should strengthen its hard budget constraint policy. It is the most effective way of disciplining state governments' fiscal management and encouraging them to become more fiscally efficient and less reliant on grants. In particular, it is only effective if fiscal decentralisation is implemented. This outcome demonstrates that decentralisation, even with minor changes, is an effective method for supporting states' economic growth.

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REFERENCES

————, Malaysia. (2005) *Economic Report 2005/2006*. Kuala Lumpur: Government Printer.

————, Malaysia. (2008) *Economic Report 2008/2007*. Kuala Lumpur: Government Printer.

————, Malaysia. (2010) *Economic Report 2010/2009*. Kuala Lumpur: Government Printer.

————, Malaysia. (2010) *General Audit Report 2010*. Kuala Lumpur: Malaysia.

————, Malaysia. (2013) *General Audit Report 2013*. Kuala Lumpur: Malaysia.

————, Malaysia. (2015) *Economic Report 2015/2016*. Kuala Lumpur: Government Printer.

————, Malaysia. (2017) *General Audit Report* 2017. Kuala Lumpur: Malaysia.

————, Malaysia. (2018) *Economic Report 1998/1999*. Kuala Lumpur: Government Printer.

————, Malaysia. (2018) *General Audit Report* 2018. Kuala Lumpur: Malaysia.

————, Malaysia. (2020) *Economic Report 2020/1999*. Kuala Lumpur: Government Printer.

————, Malaysia.(2007) *General Audit Report 2007*. Kuala Lumpur: Malaysia.

Abdul, J., Ahmad, Z. H., Mukaramahand, C. M. and Siti, H. (2012) "Macroeconomic instability and fiscal decentralization: An empirical analysis", *Prague economic papers*, *2012*(2). pp. 150-165.

Bakar, I. H. (2004) *Fiscal federalism: The study of federal-state fiscal relations in Malaysia.* Department of politics and international studies, the University of Hull, Great Britain.

Bardhan, P. (2002) "Decentralization of Governance and Development", *Journal of Economic Perspectives*, *16*(4), pp. 185–205.

Baskaran, Thushyanthan and Lars P. Feld (2013) "Fiscal Decentralization And Economic Growth In The OECD Countries: Is There A Relationship?", *Public Finance Review*, *41*, pp. 421–45.

Bird, R. M., Robert D. E. and Christine, I. (1993) *Decentralization of Socialist State a Regional and Sectoral Study*. Washington, DC: World Bank. Ezcurra, Roberto, and Andrés.

Davoodi, H. and Zou, H. F. (1998) "Fiscal Decentralization and Economic Growth", *Journal of Urban Economics, 43*, pp. 244–257.

De Mello, L. R. (2000) *Fiscal Decentralization and Intergovernmental Fiscal Relations.*

Ding, S. and Knight, J. (2009) "Can the Augmented Solow Model Explain China's Remarkable Economic Growth? A Cross-Country Panel Data Analysis", *Journal of Comparative Economics*, *37*(3), pp. 432–452

Faguet, J. -P. and Sánchez, F. (2008) "Decentralization's Effects on Educational Outcomes in Bolivia and Colombia", *World Development*, *36*(7), pp.1294–1316.

Fang Y. (2017) *An Empirical Study on the Relationship between Fiscal Autonomy and Economic Growth - The Case of China*, A Thesis Presented to the Faculty of Architecture and Planning, Columbia University.

Ghani, J. A., Grewal B., Ahmed A. D. and Nor N. M (2019) "Fiscal Decentralisation And Economic Growth In Malaysia: A Market Preserving Federalism Perspective", *Jurnal Ekonomi Malaysia*, *53*(1), pp. 153-170

Ghani, J. A., Grewal B., Ahmed A., and Noor. M. N. (2017) "Efficiency Analysis of State Governments in The Malaysian Fiscal Federalism", *Int. Journal of Economics and Management*, *11*(2), pp. 449 – 466.

Gu, G. C (2012) "Developing Composite Indicators for Fiscal Decentralisation: Which Is The Best Measure For Whom?". (Accessed on January 2018) http://mpra.ub.uni-muenchen.de/43032/2012

Gujarati, Damodar N. and Porter D. C. (2009) *Basic Econometrics, 5th ed*. Singapore: Mc Graw Hill.

Imran H., Chaudhry I. S, and Wallace S. (2014) "Fiscal Autonomy and Economic Growth Nexus: Empirical Evidence from Pakistan", *Pakistan Journal of Social Sciences*, *34*, pp. 767–80.

Inman, R. P. (1998) "Federal Assistance And Local Services In The United States: The Evolution Of A New Federalist Fiscal Order", In *Fiscal Federalism*, Edited By H. Rosen. Chicago: University Of Chicago Press.

Iqbal, N., M. ud Din, and E. Ghani. (2013) *Fiscal And Economic Growth: Role Of Democratic Institutions: Pakistan Institute Of Development Economics*.

Jomo, K. and Wee. C. Hui (2002) "The Political Economy of Malaysian Federalism", *Journal of International Development*, *15*(4), pp. 441-456.

Lin, J. and Liu, Z. (2000) "Fiscal Decentralization and Economic Growth in China", *Economic Development and Cultural Change*, *49*(1), pp. 1–21.

Liu, Y., Martinez-Vazquez, J. and Wu, A. M. (2016) "Fiscal decentralization, equalization, and intra-provincial inequality in China", *International Tax and Public Finance*, *24*(2), pp. 248–281.

Martinez-Vazquez, J. and Timofeev A. (2009) "A fiscal perspective of state rescaling", *Cambridge Journal of Regions, Economy and Society*, *2*(1), pp. 85-105.

Martinez-Vazquez, J., and McNab R. M. (2006) "Fiscal Decentralization, Macrostability, and Growth", *Hacienda Pública Española/Revista de Economía Pública*, *179*, pp. 25–49.

Martinez-Vazquez, J., Lago-Peñas S. and Sacchi A. (2016) "The Impact of Fiscal Decentralisation: A Survey", *Journal of Economic Surveys*, *31*, pp. 1095–129.

Ministry of Finance, Malaysia. (1991) *Economic Report 1991/1992*. Kuala Lumpur: Government Printer.

Nguyen, L. P. (2009) "Fiscal Decentralisation and Economic Growth at Provincial Levels in Vietnam. Hanoi: Department of Economics", Monetary Statistics, State Bank of Vietnam.

Nguyen, L. P. and Anwar S (2011) "Fiscal decentralisation and economic growth in Vietnam", *Journal of the Asia Pacific Economy*, *16*, pp. 3–14.

Nguyen, P. N., Vo, D. H., Hồ, C. M. and Vo, A. T. (2019) "Fiscal Decentralisation and Economic Growth across Provinces: New Evidence from Vietnam Using a Novel Measurement and Approach", *Journal of Risk and Financial Management*.

Nguyen, T. (2017) "Fiscal Decentralisation and Economic Growth: Evidence from Vietnam," in. Cooray, N. S. and Abeyratne, Sirimal (eds.) *Decentralization and Development of Sri Lanka Within a Unitary State,* Singapore, Springer, pp. 287-309.

Nixon, H. and Joelene, C. (2014) "Fiscal Decentralization in Myanmar: Towards a Roadmap for Reform", Subnational Governance in Myanmar Discussion Paper Series No. 5, Centre for Economic and Social Development, Myanmar Development Resource Institute and The Asia Foundation, Yangon.

Oates, W. E. (1972) "Fiscal Federalism", New York: Harcourt Brace Jovanovich.

Oates, W. E. (1993) "Fiscal Decentralization and Economic Development", *National Tax Journal*, *46*(2), pp. 237–243.

Oates, W. E. (1999) "An essay on fiscal federalism", *Journal of Economic Literature*, *37*, pp, 1120–1121.

Prud'homme, R. (1995) "The dangers of decentralization", *The World Bank Research Observer*, *10*(2), pp. 201–220.

Rodríguez-Pose, A (2013) "Political Decentralization, Economic Growth and Regional Disparities in the OECD", *Regional Studies*, *47*, pp. 388–401.

Rodríguez-Pose, A, Tijmstra S. A. R. and Bwire A (2009) "Fiscal Decentralisation, Efficiency, and Growth", *Environment and Planning A*, *41*, pp. 2041–62.

Rodríguez-pose, A. and Krøijer, A. (2009) "Fiscal Decentralization and Economic Growth in Central and Eastern Europe", *Growth and Change*, *40*(3), pp. 387–417.

Scutariu, A. L. and Scutariu, P. (2015) "The Link between Financial Autonomy and Local Development. The Case of Romania", *Procedia Economics and Finance*, *32*, pp. 542–549.

Su, D. T., Hoai B. Thi B. and Lam D. M. (2014) "The Nexus between Fiscal Policy and Sustained Economic Growth over the 2011–2020", *Journal of Economic Development*, *280*, pp. 2–21.

Tanzi V. and Schuknech L. (1996) "Reforming Government in Industrial Countries", *The Journal of Finance and Development*, *33*, pp. 2–5.

The National Audit Department Malaysia (1991) *General Audit Report 1990*. Kuala Lumpur: Malaysia.

Thiessen, U. (2005) "Fiscal Decentralisation and Economic Growth in High-Income OECD Countries", *Fiscal Studies*, *24*, pp. 237–74.

Thornton, J. (2007) "Fiscal Decentralization And Economic Growth Reconsidered", *Journal of Urban Economics*, *61*, pp. 64–70.

Tiebout, C. (1956) "A Pure Theory of Local Expenditures", *Journal of Political Economy*, *64*, pp. 416–424.

Vo, D. H (2008) "Fiscal Decentralisation Indices: A Comparison of Two Approaches", *International Journal of Economics and Law*, *2*, pp. 1–29.

Vo, D. H. (2009a) "Fiscal Federalism", *International Encyclopedia of Public Policy*, *2*, pp. 230–40.

Vo, D. H. (2009b) "Fiscal decentralisation in Vietnam: Lessons from selected Asian nations", *Journal of Asia Pacific Economy*, *14*, pp. 399–419.

Vo, D. H. (2010) "The economics of fiscal decentralisation", *Journal of Economic Survey*, *24*, pp. 657–79.

Vo, D. H. (2019) "Information Theory and an Entropic Approach to an Analysis of Fiscal Inequality", *Entropy*, *21*, p. 643.

Vo, D. H., Nguyen, T., Thi-Thieu, H. D. and Tran N. P. (2019) "The Disparity of Revenue and Expenditure among Subnational Governments in Vietnam", *Emerging Markets Finance and Trade*, pp. 1–12.

Weingast, B. R. (2009) "Second generation fiscal federalism: The Implication of fiscal Incentives", *Journal of Urban Economics*, *65*(3), pp. 279-293.

Woller, Gary M. and Phillips K. (1998) "Fiscal Decentralisation and IDC Economic Growth: An Empirical Investigation", *Journal of Development Studies*, *34*, pp. 139–48.

Wu, A. M. and Wang, W. (2013) "Determinants of Expenditure Decentralization: Evidence from China", *World Development*, *46*, pp. 176–184

Xie, D., Zou, H. and Davoodi, H. (1999) "Fiscal Decentralisation And Economic Growth In The United States", *Journal of Urban Economics*, *45*, pp. 228-239.

Yeoh, Tricia (2019) *Policy Paper No.59: Reviving the Spirit of Federalism: Decentralisation Policy Options for a New Malaysia*. Kuala Lumpur: The Institute for Democracy and Economic Affairs

Yilmaz, S. (2000) *The Impact of Fiscal Decentralisation on Macroeconomic Performance*, in Proceedings of the 92nd Paper read at The 92nd Annual Conference on Taxation, at Washington DC.X

Yushkov, A. (2015) "Fiscal decentralization and regional economic growth: Theory, empiric, and the Russian experience", *Russian Journal of Economics*, *1*(14), pp. 404-418.

Yusof, Yusniliyana, Kalirajan, K. and Mohamad, A. (2020) "Fiscal decentralization and convergence in government spending in Malaysia", *International Journal of Finance and Economics*.

Zhang, T. and Zou H. F. (1998) "Fiscal Decentralization, Public Spending and Economic Growth In China", *Journal of Public Economics*, *67*, pp. 221–40.

Zhang, T. and Zou, H.-F. (2001) "The Growth Impact Of Intersectoral And Intergovernmental Allocation Of Public Expenditure: With Applications To China And India", *China Economic Review*, *12*, pp. 58-81.

Zubarevich, N. (2015) "Regional dimensions of the new Russian crisis", *Vaprosy Ekonomiki*, *4*, pp. 37-52.