

# Fiscal Decentralisation and Economic Growth in Malaysia: A Market Preserving Federalism Perspective

*(Disentralisasi Fiskal dan Pertumbuhan Ekonomi di Malaysia: Perspektif Market Preserving Federalism)*

**Judhiana Abd. Ghani**  
Universiti Putra Malaysia

**Bhajan Grewal**  
Victoria University

**Abdullahi D. Ahmed**  
RMIT University

**Norashidah Mohamed Nor**  
Universiti Putra Malaysia

## ABSTRACT

By using fiscal datasets from 1990 to 2010 in Malaysia, a panel Dynamic-OLS (DOLS) is employed to investigate the extent to which fiscal decentralisation can support state level economic growth as proposed in the Market preserving federalism (MPF) theory. Despite having a more centralised federalism system, the result strongly shows that a fiscal decentralisation variable, (i.e. a composite ratio of decentralisation) has significant coefficient and positive relationship with state economic growth. This implies that a certain degree of fiscal decentralisation in Malaysia is able to contribute to states' economic performance by adopting fiscal decentralisation simultaneously on both dimensions of revenue and expenditure. This validates the view that decentralisation is a multi dimensional measure. The study shows that Malaysia also would be able to benefit from a system of federalism which empowers state governments to make policies for their jurisdictions and to compete with one another for better services and higher investment. Hence, competition is the mechanism that creates incentives that result from satisfying the MPF conditions and subsequently leading to the achievement of higher state economic performance.

*Key Words:* fiscal decentralisation; Market preserving federalism; federalism

## ABSTRAK

Dengan menggunakan satu set data fiskal dari 1990-2009, kaedah DOLS digunakan untuk menyiasat sejauhmana disentralisasi fiskal boleh menyokong sebuah ekonomi pasaran dan pertumbuhan ekonomi negeri-negeri di Malaysia seperti yang dicadangkan oleh teori Market preserving federalism (MPF). Meskipun Malaysia mempunyai sistem federalisme yang cenderung berpusat, dapatan kajian masih menunjukkan pembolehubah disentralisasi fiskal iaitu nisbah komposit disentralisasi merupakan satu pekali yang signifikan dan mempunyai hubungan yang positif dengan pertumbuhan ekonomi negeri. Ini membuktikan bahawa darjah disentralisasi fiskal di Malaysia berupaya untuk menyumbang peningkatan prestasi ekonomi di negeri-negeri dengan menggunakan disentralisasi fiskal secara serentak bagi kedua-dua dimensi iaitu hasil dan perbelanjaan. Ini membenarkan pandangan bahawa disentralisasi fiskal merupakan ukuran yang terdiri dari pelbagai dimensi yang berupaya memperkasakan kerajaan negeri untuk membuat dasar di dalam jurisdiksi mereka sendiri serta mempunyai daya saing bagi menghasilkan perkhidmatan yang lebih baik dan meransang pelaburan. Oleh itu persaingan merupakan mekanisme yang mencipta insentif yang terhasil dari pematuhan syarat-syarat MPF yang akhirnya membawa kepada peningkatan prestasi ekonomi negeri yang lebih baik.

*Kata Kunci:* disentralisasi fiskal; Market preserving federalism; federalisme

## INTRODUCTION

In the Malaysian federal system, the central government is in a dominant position and the states depend heavily

on fiscal transfers from the centre to meet their budgetary needs. This model of fiscal federalism is widely regarded to have a negative impact on states' fiscal performance, in turn, affecting the overall performance of the



economy. Thus, there is a major debate on whether the implementation of fiscal decentralisation has a negative or positive effect on economic growth. Further, many developing countries face the task of determining the extent of decentralisation needed to generate incentive structures that support a market economy in light of the key factors associated with their economic growth. Qian and Weingast (1997) have developed the so-called market preserving federalism (MPF) theory considering fiscal decentralisation as an effective way to constrain the expansion of government and preserve private markets to generate higher economic growth, and advocate this approach as being particularly useful for developing economies (Qian & Roland 1998; McKinnon 1997; Qian & Weingast 1997; Wildasin 1997; Weingast 1995).

In the context of MPF, decentralisation means giving more authority to the states to counterbalance the dominating behaviour of the central government in fiscal matters. Here, decentralisation uses a bottom-up approach to economic development that rests on local autonomy and accountability in decision making. State governments are faced with the challenge of providing a business-friendly atmosphere to attract businesses that can provide much-needed jobs for citizens and effectively create an increase in the levels of economic activity. For this to occur, it is necessary to have a supportive system of governance in place that will allow the subnational governments to have a major role in the process of development (Tirtosuharto 2009). MPF proponents claim that through appropriate decentralisation, particularly in regard to information and state power, federalism can establish conditions for creating incentives that can reduce soft budget constraint problems, promote interjurisdictional competition for greater economic efficiency and for limiting the scope for state predation on private businesses (Qian & Weingast 1997). Due to

the pre-eminence of fiscal decentralisation in the MPF theory, this study examines the effects of implementing fiscal decentralisation on the economic performance of Malaysian states.

FISCAL FEDERALISM IN MALAYSIA:  
AN OVERVIEW

Malaysia is a federation of thirteen states with three levels of government, federal, state and local. The Ninth Schedule of the Federation Constitution delineates that, in the Malaysian federal system, the central government is in a dominant position and collects relatively more revenue than the consolidated state revenues by retaining all major revenue sources and powers of borrowing. This feature provides a fundamental basis for the strong political power of the federal government and fosters a permanent dependency of the state governments on the federal government for development funds/transfers. This means that the centralised federal system in Malaysia empowers the federal government not only in regulating the development and location of industries but also in controlling the state's share of expenditure allocation. The federal government incurs larger shares of total government expenditure, including all important functions such as education, health, transport and communication. This leaves development of the states to be very much at the discretion of the centre. This is different from most other federations where the states are constitutionally responsible for the major areas of spending, particularly in the education and health arenas. This mismatch between limited revenue and continuous increase in expenditure has led the state governments to experience widening deficit in their fiscal balances and also levels of inflation (macroeconomic instability).

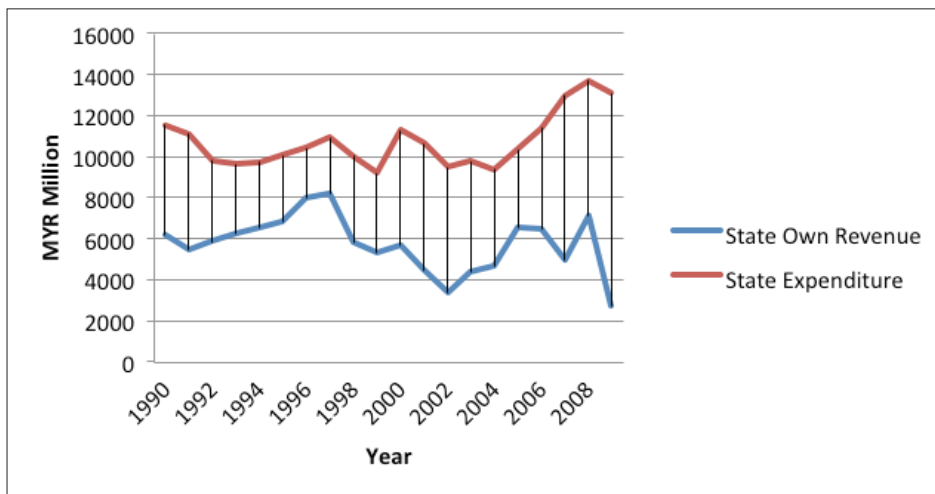


FIGURE 1. State government finances 1990- 2009

Source: States Financial Statements (various issues).

Figure 1 demonstrates that the Constitutional assignment of taxes and divisions of functions has resulted in persistent overall deficits in the state government's finance. The average annual growth rates during the twenty years were 6% for state receipts compared to 4% for state expenditures with decline in state receipts mainly attributable to decrease in state's own revenue sources (Table 1, see Appendix 1). In fact, total receipts shrank by 16.8% in real terms from MYR 8,042 million in 1990 to MYR 6,692 million in 2009, whereas total expenditures increased by 13% in real terms from MYR 11,542 million in 1990 to MYR 13,085 in 2009 on account of higher operating and development expenditure. From 1997 onwards, the states have always had a deficit that have gradually increased in size, indicating that even with federal grants most states find it difficult to finance their expenditure and states still need additional revenue sources to finance this gap.

This situation was further worsened when Malaysian federal government consistently provided loans to finance the shortfalls at state level and state governments operate with an expectation of bailouts by the federal government. In most situations, the states borrowed under very favourable loan conditions, sometimes even interest free for some types of development expenditure (Ariff & Lim 2001; Ariff 1991) and states without the capacity to repay their loans were often financially dependent in the future (Rosly 2006). The accumulated debt resulting in large annual interest payments hinder the development of state's infrastructure and provisions to the people. The soft budget constraint currently practised in Malaysia poses risks that can undermine the public finance management as well as economic well-being of the whole country at large. This model of fiscal federalism is widely regarded to have a negative impact on states' fiscal performance, in turn, affecting the overall performance of the economy and would further exacerbate the vertical fiscal and horizontal fiscal imbalances in Malaysia. As a result, a question arises whether each state with its particular local receipts generate and boost the economy.

Consistently, Malaysia has been practising the fiscal federalism system with a certain degree of fiscal decentralisation. Since there has never been any amendment made on the Federal Constitution (9<sup>th</sup> Schedule), the selected panel data set of ten years from 2000 to 2009 is sufficient to examine the impact of fiscal decentralisation on the states' economic performance. Although the country was formed as a federalism, it has increasingly become highly centralised in its administrative and fiscal practices (Abd Ghani 2014; Jalil 2008; Nambiar 2007). The highly centralised of Malaysian fiscal federalism system has never been challenged by subnational governments and it has been in place since the start of federation. By using a multidimensional measure of decentralisation, ie. composite ratio. To the best of our knowledge, no study

to date has investigated the role of fiscal decentralisation from the perspective of MPF in explaining the regional growth in Malaysia. The proposals put forth under the MPF model have been considered by some economists as the best model for fostering fiscal decentralisation and promoting economic growth at regional and national levels (Rodden & Ackerman 1997; Weingast 1995). MPF may provide an appropriate framework for Malaysia in its attempts to achieve the goals outlined in the New Economic Model (NEM) that seek to transform Malaysia into a high income economy based on competitive markets and create a new model of governance that empowers the private sector.

The paper is structured as follows. The next section provides a review of the relevant literature on MPF, fiscal decentralisation and growth. Section 3 lays out our empirical approach and discusses the data used in our regression analysis. Section 4 presents the regression results. The last section provides our concluding remarks and policy recommendations.

## LITERATURE REVIEW

Qian and Weingast (1997) specifically labelled the second generation theories of fiscal federalism (SGFF) approach to decentralised public organisation as market-preserving federalism (MPF). The theory of MPF emphasises the importance of decentralisation and incentives for governments (Brennan & Buchanan, 1980; Epple & Zelenitz, 1981; Inman 1988; Inman & Rubinfeld 1997). A cornerstone of MPF theory is its belief in the value of competition as the most stable means of economic growth and that such competition can be created through the promotion of markets. According to Weingast (2006), control over markets is one of the most powerful tools for shaping the economic destiny of a country. This power is inherently political. Thus, the proposals put forth under the MPF model have been considered by some economists as the best model for fostering fiscal decentralisation and promoting economic growth at regional and national levels (Rodden & Ackerman 1997; Weingast 1995). In the context of MPF, decentralisation means giving more authority to the states to counterbalance the dominating behaviour of the central government in fiscal matters. Similar to the Public Choice approach, fiscal competition is important for minimising the extent of government interventions, thus maintaining market efficiency (Weingast 1995). Put another way, interjurisdictional competition provides political officials with strong fiscal incentives to pursue policies that provide a healthy local economy. Reducing conditions of competition among the states would result in the absence of state policy experimentation and innovation.

The MPF theory repackages many of the insights of FGFF with inputs from the SGFF paradigm into a set of five conditions (Sinha 2005). These conditions stipulate

a normative model for the design of federal systems and those federal systems that diverge from the MPF criteria are found to be unlikely to foster thriving markets. The second condition indicates the importance of fiscal autonomy which are protected from encroachments of the federal government. However, a formalised decentralisation alone is insufficient for preserving markets, rather a system must have further conditions to enforce the allocations of authorities and responsibilities between different level of governments. However, most fiscal decentralisation systems in the last twenty years have been designed without attention to these conditions (Weingast 2009). This gives rise to the question of to what extent of the degree of fiscal decentralisation affects the Malaysian states economic performance from the perspective of MPF.

In line with the earlier works of Tiebout (1956) and Oates (1972), Decentralisation Theorem has been accepted as the starting point for empirical and theoretical research into the effects of fiscal decentralisation on economic growth since the mid-1990s (Jin & Zou 2005; Iimi 2005; Desai et al. 2003; Akai & Sakata 2002; Yilmaz 2000; Lin & Liu 2000; Woller & Phillips 1998). Based on empirical and theoretical justifications for the relationship between the degree of decentralisation and economic growth, fiscal decentralisation is found to be the most easily measured quantitative indicator of economic development.

The augmented Solow model (Mankiw et al. 1992) provides the basis for econometric analysis of the relationship between decentralisation and growth (Thiessen 2003, Lin & Liu 2000). In addition to standard determinants of economic growth that are derived from the Solow model (initial output value, physical and human capital accumulation, and labour force growth), in the empirical specification, Thiessen (2003) has used additional decentralisation measures and other conditioning factors as independent variables. Those modified growth models like Solow model, Barro's endogenous growth model, and Diamond's overlapping generations model have been incorporated into a potential relationship between fiscal decentralisation and economic growth (Brueckner 2006, Davoodi & Zou 1998, Thiessen 2003). For example, Davoodi and Zou (1998) developed the most common analytical framework that links expenditure decentralisation to growth which is a modified version of Barro's model (Barro 1990). Such model is also able to calculate growth-maximising shares of public spending. They also concluded that if public expenditure is excessively centralised, decentralisation can be conducive to economic growth.

In general, the results of numerous studies on the relationship between fiscal decentralisation and economic growth, both from a cross-country and regional perspective, have been very inconsistent. Akai and Sakata (2002), Buser (2011), Iimi (2005), Thiessen (2003) found a positive relationship whereas others

showed that decentralisation and growth were either negatively correlated (Baskaran & Feld 2013, Davoodi & Zou 1998, Rodriguez-Pose & Ezcurra 2011) or not correlated at all (Asatryan & Feld 2013; Thornton 2007). In contemporary studies, researchers have also focused on the multidimensional nature of decentralisation and found that expenditure decentralisation has a negative effect on growth, while revenue decentralisation is positively related to the long-run growth prospects (in cases when expenditures are more decentralised than revenues). This means, the convergence hypothesis is confirmed: achieving a balance between revenue and expenditure at regional and local levels is positively related to economic growth (Cantarero et al. 2009; Gemmel et al. 2013, Rodriguez-Pose & Kroijer 2009) and creates positive incentives for subnational authorities to preserve market institutions (Jin et al. 2005). While a study in Spain in 1985–2004, revealed a strong positive relationship between revenue decentralisation and economic growth and no link between expenditure decentralisation and growth (Cantarero & Perez Gonzalez 2009). Such diversity of results between fiscal decentralisation and economic growth may have been caused by differing economic or time scenarios analysed in each case, or methodological problems in specification of the equation being estimated. According to Martinez-Vazquez and McNab (2003), indicators used for fiscal decentralisation as well as the source of data would influence the results. In other words, choice of fiscal decentralisation measures (revenue and expenditure decentralisations, fiscal autonomy variables, integral indices of decentralisation) as well as control variables included in the econometric model. More specifically, the effectiveness of decentralisation depends on the economic situation, the degree of decentralisation or type of public services involved. They also found that different types of expenditures have different effects on economic growth, with results depending on the level of government (Yushkov 2015).

The main gap identified from numerous empirical studies discussed above are multidimensional nature of decentralisation, comprising the revenue and expenditure dimensions. These dimensions together with the determinants of economic growth should be included in the econometric model to prevent omission of variable biasness. Moreover, fiscal decentralisation should be evaluated in terms of the particular characteristics of each developing nation in order to improve their political and economic institutions. This is the first study that attempts to analyse how Malaysia may be able to reform its model of fiscal federalism by adopting the insights gained from the MPF literature. Specifically, this study considers fiscal decentralisation as one of the ways in which the prescriptions of MPF may need to be modified in the light of Malaysia's federal-state relation in fostering markets and spurring economic growth at the states.



## EMPIRICAL MODEL AND DATA

Fiscal decentralisation which is the focus of this study refers to the devolution of policy responsibilities for public spending and revenue collection from the central to the lower levels of governments. Davoodi and Zou (1998) used the endogenous growth framework to analyse the growth effects of fiscal decentralisation. Later on, various studies have use this analytical framework to quantify the impact of fiscal decentralisation on economic growth (see e.g. Xie et al. 1999; Iimi 2005). In Malaysia, there are three levels of government: the federal, state and local, thus, this study assumes that public spending/total government spending is carried out by three levels of government: federal, state, and local.

Following Ismail and Hamzah (2006) and McNab (2001), the theoretical model adopted in this paper is based on Production Function-based estimation framework developed by Lucas (1988), Barro (1990) and Mankiw et al. (1992), who derived it from an augmented version of Solow's (1956) model of economic growth. The Cobb-Douglas production function of an economy at time  $t$  can be described as:

$$Y(t) = K(t)^\alpha A(t)\varphi^{1-\alpha} \quad (1)$$

Where  $Y$  denotes the output per capita,  $K$  is the capital per capita (stock of private and public capital),  $A_t$  is the level of technology and other institutional factors,  $\varphi$  is the fraction (assumed to be constant) of the population or labour force ( $L$ ) where  $0 < \alpha < 1$ . While using equation (1), we can express the growth rate of output per capita (income) by taking the first order differentiation with respect to time and assuming the logarithm of the function such that:

$$g(t) = y(t) = \alpha\hat{K}(t) + \hat{A}(t) \quad (2)$$

In equation (2), the growth rate of output per capita relies on two factors, the growth rate of capital per capita  $K(t)$ , and the level of technology and other institutional factors. Specifically, the term  $K(t)$  represents capital per capita and differences in resource endowments and institutions across states and over time, as well as other observable state-specific characteristics (Ismail and Hamzah, 2006). While  $A(t)$  is the product of the level of technology and other institutional factors at time  $t$ , McNab (2001) derives a formula, such that :

$$A_t = T_t FD_t MS_t \quad (3)$$

Where  $T$  is technology,  $FD$  is fiscal decentralisation ( $FD_t$ ) and  $MS$  is the level of macroeconomic stability (McNab 2001), represented by budget balance ( $BUD$ ).

Unlike McNab (2001) and Martinez-Vazquez and McNab (2003) who investigated the direct and indirect effect of fiscal decentralisation on economic growth, this study will only examine the direct effect of fiscal decentralisation on growth, where it is first determined by the state level contribution of physical inputs in the

production function. By assuming that  $K(t)$  depends on a set of variables;  $K(t)$  equals to investment ( $INV$ ) consisting of domestic private investment ( $DPI$ ) and public fixed investment ( $FIXIE$ ). Both variables are financed by savings from the private sector ( $Sp$ ) and the government ( $Sg$ ). Hence, the saving- investment identity can be written as:

$$Sp + Sg = DPI + FIXIE \quad (4)$$

From equation (4), if savings minus domestic private investment ( $DPI$ ) and public fixed investment ( $FIXIE$ ) are negative, foreign investment ( $FDI$ ) can be used to finance the deficits or:

$$(Sp + Sg) - DPI + FIXIE = FDI \quad (5)$$

Even though,  $FDI$  is not the only source of financing for either fiscal deficit or current account deficits, the stable long term capital inflow from  $FDI$  is preferable to short term flow or debt financing to reduce macroeconomic instability (Krkoska 2001). Therefore, equation (2) can be re-expressed as:

$$Y_t = \beta_1 A_t + \beta_2 DPI_t + \beta_3 FDI_t + \beta_4 FIXIE_t + \varepsilon_t \quad (6)$$

Where  $t$  denotes time,  $Y_t$  is the growth rate of state's GDP per capita (SGDP per capita) and  $\varepsilon_t$  is the unobservable individual effect (it refers to heterogeneity or differences across the units being studied).

From equation (1), (2) and (6), it can be deduced that the output of an economy depends on fiscal decentralisation and accumulation of reproducible capital (private and public capital) as well as other determinants (control variables) that can influence economic growth. As Mankiw et al. (1992) state, labour can be expected to grow exogenously at specific rates, and all other types of reproducible capital are assumed to depreciate at a uniform rate (Lee 2003).

As  $A_t$  represents institutional factors, fiscal decentralisation ( $FD_t$ ) and budget balance ( $BUD_t$ ) for macroeconomic stability are only adopted in equation (6) and it can be rewritten as follows:

$$Y_t = \beta_1 FD_t + \beta_2 DPI_t + \beta_3 FDI_t + \beta_4 FIXIE_t + \beta_5 BUD_t + \beta_6 LF_t + \varepsilon_t \quad (7)$$

Based on equation (7), it is hypothesised that fiscal decentralisation has a positive relationship with regional growth. This hypothesis assumes that fiscal decentralisation will improve the efficiency of the states in terms of fiscal spending and revenue allocation and lead to higher economic growth. The coefficients of other variables like  $DPI$ ,  $FIXIE$ ,  $FDI$  and  $LF$  are expected to be positive and significant (Huang & Chang 2005; Lin & Liu 2000; Zhang & Zou 1998).

Panel time series data estimation techniques, comprising panel unit roots test, panel cointegration estimation and panel DOLS, are used to investigate the impact of fiscal decentralisation on regional growth. It is believed that the use of panel data is more appropriate for investigating the influence of fiscal decentralisation

because decentralisation is a diffused process that occurs over time whereas cross-sectional analysis may result in incorrect inferences as to the nature of fiscal decentralisation (McNab 2001). Based on the hypothesis, the following is the estimated model for this study.

$$Y_t = \alpha_0 + \beta_1 FD_t + \beta_2 DPI_t + \beta_3 FDI_t + \beta_4 FIXIE_t + \beta_5 BUD_t + \beta_6 LF_t + \varepsilon_t \quad (8)$$

All variables are expressed in natural logarithmic form. The dependent variable,  $Y_t$  is the real growth rate of state income per capita (state's GDP per capita growth or  $\Delta$ SGDPPC). The independent variables are –  $FD_t$  representing the fiscal decentralisation,  $DPI$  is the amount of domestic private investment,  $FDI$  is the foreign direct investment (FDI),  $FIXIE$  is fixed public investment,  $BUD$  is the budget balance, and  $LF$  is the labor force. In estimating equation (8), fiscal decentralisation is used as the key variable, while other variables are designed as control variables. The growth model is fitted to these state-level data as given by the equation (8) and this can be expressed in the panel version and logarithmic form as:

$$\ln Y_{it} = \beta_{i0} + \beta_1 \ln FD_{it} + \beta_2 \ln DPI_{it} + \beta_3 \ln FDI_{it} + \beta_4 \ln FIXIE_{it} + \beta_5 \ln BUD_{it} + \beta_6 \ln LF_{it} + \varepsilon_{it} \quad (9)$$

Where  $i$  and  $t$  indicate cross section units and time period respectively. This also applies to other sets of specification described in other subsections. The theoretical model suggests that growth in an economy's output is a function of physical capital, growth of labour force, fiscal decentralisation and macroeconomic stability, hence equation (9) is consistent with the theoretical model.

$$Y_t = \beta_1 FD_t + \beta_2 DPI_t + \beta_3 FDI_t + \beta_4 FIXIE_t + \beta_5 BUD_t + \beta_6 LF_t + \varepsilon_t \quad (10)$$

Based on equation (10), we aim to empirically examine the hypothesis that fiscal decentralisation positively influences the regional growth. Thus, panel time series data estimation techniques comprising panel unit roots test, panel cointegration estimation and panel DOLS are used to investigate the impact of fiscal decentralisation on regional growth. Based on the hypothesis, the following is the estimated model for this study.

$$Y_t = \alpha_0 + \beta_1 FD_t + \beta_2 DPI_t + \beta_3 FDI_t + \beta_4 FIXIE_t + \beta_5 BUD_t + \beta_6 LF_t + \varepsilon_t \quad (11)$$

All variables are expressed in natural logarithmic form. The dependent variable,  $Y_t$  is the real growth rate of state income per capita (state's GDP per capita growth or  $\Delta$ SGDPPC). The independent variables are;  $FD_t$  which represents the fiscal decentralisation,  $DPI$  is the amount of domestic private investment,  $FDI$  is the foreign direct investment (FDI),  $FIXIE$  is fixed public investment,  $BUD$  is the budget balance and  $LF$  is the labour

force. In estimating equation (11) fiscal decentralisation is used as the key variable, while other variables are designed as control variables. The growth model is fitted to these state-level data as given by the equation (11) and this can be expressed in the panel version and logarithm form as:

$$\ln Y_{it} = \beta_{i0} + \beta_1 \ln FD_{it} + \beta_2 \ln DPI_{it} + \beta_3 \ln FDI_{it} + \beta_4 \ln FIXIE_{it} + \beta_5 \ln BUD_{it} + \beta_6 \ln LF_{it} + \varepsilon_{it} \quad (12)$$

Where,  $i$  and  $t$  indicate cross section units and time period respectively. This also applies to other sets of specification described in other subsections. The theoretical model suggests that growth in economy's output is a function of physical capital, the growth of labour force, fiscal decentralisation and macroeconomic stability, hence equation (12) is consistent with the theoretical model.

## DATA AND ECONOMETRIC ISSUES

Our empirical analysis is based on cross-state panel data (13 states) covering the period of 2000-2009. Data on fiscal decentralisation variables are calculated based on the data collected from the Annual General Audit Report of the National Audit Department, the Malaysia's Economic Report of the Ministry of Finance and various annual reports published by the Department of Statistics (DOS). Data on other economic variables are mainly taken from the reports/websites of the Economic Planning Unit (EPU), Prime Minister's Department and the Department of Statistics.

The key explanatory variable in this model is fiscal decentralisation. Scholars have noted the critical importance as well as difficulty in selecting an appropriate measure of fiscal decentralisation in empirical analyses of fiscal federalism (Bodman et al. 2009). Many previous researchers have advanced and used different measures to estimate fiscal decentralisation. There are two widely used measures of FD, namely the revenue decentralisation (RD) and the expenditure decentralisation (ED). As RD is measured as a ratio of the sub-national government revenue to the total government revenue (national plus sub-national) and ED is measured as a ratio of subnational government expenditures to the total government expenditures (national plus sub-national). While, Oates (1972) defined expenditure centralisation as the share of the central government spending in the total public spending and revenue centralisation as the share of central government revenue in the total revenue. Woller and Phillips (1998) redefined FD measures after making a few adjustments. In measuring RD, they subtracted the grant-in-aid given to sub-national government from the total revenue and treat it as an expense to avoid double counting and for ED, they excluded social security and

defence spending from the total public spending as these are considered to be the main part of the national government spending. These standard indicators have been used in a number of studies to quantify the impact of FD.

However, the approaches to measure degree of FD and the reliability of the data have been long debated in theoretical as well as in empirical literature. For example, many authors measured FD using a formula based on the local share of expenditure to total government expenditure in the case of cross-country data (Iimi 2005; Davoodi & Zou 1998; Martinez-Vazquez & McNab 2003). Following this formula, Zhang and Zou (1998) measured fiscal decentralisation by the ratio of provincial spending to total central spending. In fact, Canfei (2006) claimed that the standard measurement for fiscal decentralisation most commonly used in the literature was the ratio of provincial fiscal expenditure per capita to central government expenditure per capita. In this study, expenditure decentralisation (ED) is measured by the ratio of subnational government spending to central government spending with federal transfers counted as federal expenditure. This assumption is based on the fact that the size and utilisation of federal fiscal transfers are directly or indirectly determined by the federal government in Malaysia. This indicator corresponds to the best approximate measure of the allocation of authority when subnational government has the authority associated with its expenditure.

The revenue dimension (revenue decentralisation or RD) is also used in the literature and has the advantage of incorporating the aspect of tax collection in fiscal decentralisation. Davoodi and Zou (1998) and (Fisman & Gatti 2000) used this indicator to study fiscal decentralisation and economic growth in several countries. Ebel and Yilmaz (2003) looked at fiscal autonomy by considering the principal aspects of revenue dimension, including tax administration, attribution of tax receipts, and legislative competencies to determine tax rate and tax base. Fiscal autonomy is measured as the subnational share of own revenue in total local government revenue (Yamoah 2007). This indicator focuses on the most approximate measure of revenue raising authority (Ismail & Hamzah 2006). Autonomy is the key growth-enhancing characteristic of fiscal decentralisation since some local revenues/ expenditures are typically controlled or mandated by the central government (Gammel et al. 2009).

However, it must also be recognised that high subnational spending and revenue shares do not necessarily reflect higher activity in the local economy. The data for FD measures are mainly obtained from the Government Finance Statistics (GFS) of the International Monetary Fund (IMF) ignore the degree of control of the national government over the revenues and expenditure of the sub-national governments (Ebel & Yilmaz 2003). For example Ebel and Yilmaz (2003) identify three

major issues with GFS data; i) it is impossible to identify the degree of local expenditure autonomy because the expenditures are reported at the level of government that receives the amount meaning that the local spending that is directed by the central government is added in the sub-national spending; ii) it is impossible to identify the main source of revenues of the subnational government, whether these are collected through shared taxes, own taxes or piggybacked taxes; iii) there are different types of intergovernmental transfer, but the GFS does not distinguish whether these are conditional or distributed through any criteria. These shortcomings considerably overestimate the degree of FD (Stegarescu 2005). However, these measures are defined on the basis of a single dimension of FD, in which expenditures going through the subnational budgets or revenue generated by the subnational governments.

As Martinez-Vazquez and McNab (2003) argued that FD is a multidimensional phenomenon, thus a true picture of decentralisation can only be represented by the multidimensional measures. Martinez-Vazquez and Timofeev (2010) developed a composite indicator of FD, known as 'the composite ratio' that captures the multidimensionality nature of FD process. This measure essentially combines the information contained in expenditure and revenue ratios. There is no consensus in the literature on any one 'true' measure of fiscal decentralisation. Some of the common measures used are expenditure decentralisation (ED), revenue decentralisation (RD), or fiscal autonomy. Conventional fiscal decentralisation theory holds that matching revenue and expenditure responsibilities is conducive for better fiscal management for decentralisation to promote economic growth. The common approach used in the measures of fiscal decentralisation by the World Bank and IMF are:

- i) Subnational expenditures (% of total expenditure) which can be represented as ED.

$$\frac{\text{Total Expenditure of SGs} - \text{Transfers from other levels of government}}{\text{Total Expenditure of SGs} - \text{Transfers from other levels of government} + (\text{total Expenditure of FG})} \times 100$$

- ii) Subnational revenue (% of total revenue) which can be represented as RD.

$$\frac{\text{Total Revenue of SGs} \times 100}{\text{Total Revenue of SGs} - \text{Total Revenue of FG}} \times 100$$

*Note:* SG indicates state government and FG indicates federal government

Taking into account the existing literature, shortcomings as argued above which could affect the

soundness of the results and availability of data, this study will use the composite ratio as a measure of fiscal decentralisation advanced by Martinez-Vazquez and Timofeev (2009) and Gu (2012). This indicator essentially combines the information captured by expenditure and revenue ratio. It is positively related with both expenditure ratio and revenue ratio, with the latter relationship being the strongest (Martinez-Vazquez & Timofeev 2009). Feld et al. (2008) showed that the expenditure share of subnational governments or closely related measures is used as the fiscal decentralisation variable in about 35% of models, the revenue share is used in about 10% of models, and the weighted average of expenditure and revenue decentralisation on the effects of fiscal decentralisation on economic growth. Indeed, the dimensions of revenue and expenditure are symmetric and they are also weighted for/ against fiscal gaps and imbalances at the same time (Gu 2012). This means that revenue and expenditure decentralisation reinforce each other (Iqbal et al. 2013).

The above indicators for expenditure decentralisation and revenue decentralisation variables are used for the purpose of constructing the composite variable of fiscal decentralisation as follows:

$$\text{Composite Decentralisation} = \frac{\text{Revenue Decentralisation}}{1 - \text{Expenditure Decentralisation}}$$

It has been acknowledged that economic growth is subject to many other influences beyond the immediate dimensions of revenue and expenditure decentralisation. In order to incorporate the effect of other influences on regional growth, a set of control variables has been introduced in the panel data model. A number of empirical analyses have validated the positive role of domestic private investment on economic growth. Zhang and Zou (1998), Lin and Liu (2000) and Huang and Cheng (2005) regarded investment as an important variable. The level of domestic private investment (DPI) (as a share of SGDP) is also affected by the state policies with regard to investment in capital projects related to public service deliveries including the availability of infrastructure, such as transportation networks, telecommunication and electricity. The positive effect of this private investment has also been proven more significant than that of public fixed investment in developing countries (Khan & Reinhart 1990). As a measure of state private capital, the gross state investment in manufacturing industries is used because sufficient information on state private investment is not available for the entire study period. Both domestic private investment (DPI) and foreign direct investments (both are measured as a share of SGDP) are argued to have significant effects on economic growth, supporting the origin of the growth theory from a perspective. The role of foreign direct investment (FDI) has been widely recognised as a growth-enhancing factor in the developing countries.

As a measure for state public fixed investment (FIXIE), we use the state government investment expenditure as the proxy of state development expenditure which is measured as a share of SGDP. One of the most important contributions of the 'new' growth theory (endogenous growth theory) is the insight into the role of fiscal policy in long run growth. Barro (1990) argued that when the private rate of return of capital is lower than its social rate, optimal allocation calls for further capital allocation to public fixed investment as a source of long run growth. The argument for incorporating this variable as a determinant of growth states that, more investment leads to more employment opportunities, for example an increase of economic overhead capital will lead more growth (Bivens 2012; Faridi 2011). However, the effect of state public fixed investment is uncertain (Lee 2003). While a higher level of public investment would make the economy more productive by constructing new roads, bridges and transit systems, an increase in public investment may harm economic development if the opportunity cost of public investment is high relative to current expenditure.

The variable for budget balance (BUD) is used to measure macroeconomic stability of economic growth. According to the World Bank, macroeconomic environment can be described as stable when inflation is low and predictable, real interest rates are appropriate, fiscal policy is stable and sustainable, real exchange rate is competitive and predictable and balance of payments is viable (Lee 2003). Given that the basic indicators of macroeconomic stability described above exist, the budget balance is used in the regression. In the case of Malaysia, inflation data at state level are available only for two states, Sabah and Sarawak, thus using national inflation rates in the panel data study set up will not be feasible (realistic). Due to this limitation, budget balance (BUD) is a more appropriate indicator for macroeconomic stability in this study. Lastly, apart from all reproducible capitals, labour force growth (LF) generally corresponds to population growth is a factor of production which can be the driver of economic growth in states *ceteris paribus* (Tirtosuharto 2009). The increase in the magnitude of output depends on the marginal product of labour in any economy; therefore, labour force should have positive influence on the growth of aggregate income but not (necessarily) on the growth of income per capita.

In addition to these variables, the quantity of money supply, saving rate, openness to international trade, average tax rate and strength of the financial sector proxied as bank deposits or loans appear to be important determinants of inflation in the literature (Fornasari et al. 2000; Treisman 2000; Xie et al. 1999). However, these are not included in the estimation equation because the money supply and openness to international trade are the same for all states (region-invariant), and detailed information for tax is only available for eleven states excluding Sabah and Sarawak.



TABLE 2. Descriptive statistics: Panel data variables for fiscal decentralisation and economic growth models (N\*T=260)

Variable	Mean	Std. Deviation	Min	Max	Unit of Measurement
SGDPPC (Real SGDP per capita)	14183.32	6339.09	3727.81	33217.87	MYR
FD (Fiscal Decentralisation)	1.63	2.65	0.27	1.23	Percentage
FDI (Foreign Direct Investment)	8.31	17.79	0.06	198.68	MYR (million)
DPI (Domestic Private Investment)	6.05	12.35	0.01	122.90	MYR (million)
BUD (Budget Balance)	-264.94	754.57	-2865.34	8695.34	MYR (million)
FIXIE (Public Investment)	352.87	942.83	9.30	13431	MYR (million)
LF (Labour Force)	0.65	0.43	0.06	2.17	Million

Table 2 provides the descriptive statistics of the variables used in panel data estimations. In order to incorporate the effect of other influences on regional growth, other variables have been introduced in the panel data model. As a measure of state economic growth, the growth rate of real gross state domestic product per capita ( $\Delta$ SGDPPC) is used as a dependent variable for this model and referred to as Y.

On average, the SGDP per capita for Malaysian states is relatively high at MYR 14,183.32, with the value ranging from MYR 3,728 to MYR 33,218. This is supported by the high standard deviation of MYR 6,339 indicating that there are wide regional disparities across Malaysian states. However, as the variable of fiscal decentralisation (FD) has a mean value of around 1.63%, the degree of fiscal decentralisation is relatively small. Such a highly centralised fiscal federalism not only affects the performance of state governments but also the direction of other variables attributable to the wide disparities. All other variables show the wide gaps between maximum and minimum values with domestic private investment (DPI) ranges from 0.01% to 123%, foreign direct investment (FDI) ranges from 0.06% to 199%, budget balance (BUD) ranges from -MYR 2,865.34 million to MYR 8,695.802 million and public fixed investment (FIXIE) from MYR 9.3 million to MYR 13,431 million. Lastly, for the variable of labour force (LF), the value ranges from 0.059 million to 2.173 million with the smallest standard deviation recorded at 0.43 million.

From our evidence, most economic variables are non-stationary in level as they tend to drift over time. This means that they will not return to a specific value or behave in a deterministic trend, which makes it important to ascertain if the drift is a non-random process with a cointegrating relationship. The identification of cointegrating relationship and common trends is undertaken with the modelling of the 'long run' determination of the variables, and the panel method developed by Kao and Chiang (2000) was applied for this purpose. The panel DOLS has been acceptable as the most suitable model for estimating cointegrated panel regression, as it accounts for both endogeneity and serial correlation in the regressors (that result from the existence

of a cointegrating relationship), and also corrects nuisance parameters including lead and lag terms (Kao & Chiang 1999). The estimated coefficients of the independent variables obtained from the DOLS models constitute the long-run estimation results. Before further estimation of the first two models, it is necessary to employ panel unit root tests to examine whether all the investigated variables of these estimated equations are stationary.

In order to explore the panel time series properties of the data, Levin et al. (LLC), Augmented Dickey Fuller-Fisher (ADF-Fisher) and Phillips, Perron and Fisher (PP-Fisher) panel unit root tests have been employed. All these tests were performed on the variables at level and first difference, with the optimal lag lengths for each test determined automatically by the E-Views 7 software. A series is stationary if the null hypothesis is rejected in LLC test, ADF tests and PP-Fisher test. For estimating long-run parameters, the DOLS is employed to ensure that the condition of a cointegrating relation between a set of  $I(1)$  is fulfilled. Table 3 reports the empirical results of LLC, ADF-Fisher and PP-Fisher panel unit root results with variables  $\ln Y$ ,  $\ln FD$ ,  $\ln DPI$ ,  $\ln FDI$ ,  $\ln BUD$ ,  $\ln FIXIE$  and  $\ln LF$ .

Table 2 suggests that most of the variables are non-stationary at level especially in ADF-Fisher test and PP-Fisher test. However, the test fails to strongly reject the  $I(0)$  null at 5% significance level of the PP-Fisher test for  $\ln FD$ ,  $\ln DPI$  and  $\ln FDI$  and LLC test for  $\ln FD$ ,  $\ln DPI$  and  $\ln FDI$ . Hence, the series of the first difference of the variables are further examined. All tests strongly reject the existence of unit roots at 5% significance level for all variables, and the overall combined results from all the tests for all variables appear to be  $I(1)$  process. This means that the analysis can proceed to further estimate the long-run elasticity of the models including cointegration as well as the panel DOLS.

Next, the Pedroni (1999) technique was applied to analyse cointegration relationship among the variables in the estimation equations of the fiscal decentralisation model considering the variables  $\ln Y$ ,  $\ln FD$ ,  $\ln DPI$ ,  $\ln FDI$ ,  $\ln BUD$ ,  $\ln FIXIE$  and  $\ln LF$ . The tests include no deterministic intercept or trend (none) following from the panel unit root tests. As shown in Table 4, four test statistics of the seven Pedroni panel and group test

TABLE 3. Panel Unit Root Tests (No deterministic intercept or trend)

VARIABLES	LLC		ADF-Fisher		PP-Fisher	
	Level	Difference	Level	Difference	Level	Difference
lnY	8.12	10.80**	1.02	147.99**	1.07	146.59**
lnFD	-3.62**	-6.76	26.89	51.89**	72.17**	288.59**
lnFDI	-2.69**	-7.97**	28.38	58.64**	92.71**	286.58**
lnDPI	-3.75**	-9.98**	28.17	70.02**	91.40**	260.56**
lnLF	8.04	-15.09**	0.61	190.11**	0.47	248.72**
lnFIXIE	-0.57	-16.14**	21.73	229.19**	26.05	229.19**
lnBUD	-1.11	-38.34**	22.58	245.64**	31.43	252.54**

Note: \*\* denotes significance at 5% level.

TABLE 4. Pedroni Panel Cointegration Tests with No Deterministic Intercept or Trend (none) for Growth of SGDP per capita (Y) Equation

Panel $v$ -Statistic	-1.019
Panel rho-Statistic	1.835
Panel PP-Statistic	-10.122*
Panel ADF-Statistic	-5.676*
Group rho-Statistic	3.203
Group PP-Statistic	-12.965*
Group ADF-Statistic	-8.056*

Note: \*\*\* denotes significance at 1% level, \*\* for 5% level and \* or 10% level, N\*T=260.

statistics have significantly rejected the null hypothesis of no cointegration at 1% significance level. Evidences of no cointegration were found from the panel  $v$ -statistic, panel  $\rho$ -statistic, and group  $\rho$ -statistic tests. This evidence proves that most of the variables are cointegrated or have long-run equilibriums.

## RESULTS AND DISCUSSION

This section presents the empirical findings from the econometric analyses conducted on the fiscal performance of the federal system in Malaysia to provide evidence for the need of fiscal decentralisation following market preserving federalism (MPF) guidelines.

A measure of autonomy for state governments for expenditure and revenue is crucial to realise efficiency gains and support the macro-economic stability under a decentralised government (Dabla-Norris 2006). The DOLS estimation by Kao and Chiang (2000) was performed to estimate the long run relationship of the model specified in the above section. The panel cointegration results indicate the existence of cointegration relation between a set of  $I(1)$  variable satisfying the DOLS estimation. For robustness, the estimation requires the inclusion of leads and lags in order to avoid the problem of

autocorrelation and to capture the endogeneity of the independent variables. This is supported by the evidence from the correlation matrix implying that there is no multicollinearity problem. Table 5 reports the DOLS estimations of equation (9) based on three sets of leads and lags – one-year lag and one-year lead (DOLS (1,1)), one-year lag and two-year leads (DOLS (1,2)), and two-year lags and one-year lead (DOLS(2,1)) – separately on the three estimated models of fiscal decentralisation and regional growth. As shown in Table 5, the results are robust across specifications meaning that all results are also very similar to those obtained from ‘by default’ DOLS estimates in Model 3. Hence, the estimated impact of fiscal decentralisation on regional economic growth remains positive and significant. This positive association indicates that higher levels of fiscal decentralisation on both dimensions (composite decentralisation) will result in higher growth of regional GDP per capita (SGDP per capita).

The estimation of this model shows that the coefficient of fiscal decentralisation (FD) is positive and statistically significant at 1% for the full specification of Y (the growth of real SGDP per capita or regional growth) indicating that fiscal decentralisation has a positive relationship with regional growth in the long run. Specifically, for Model 3, on average, a 1% increase in fiscal decentralisation increases regional growth by 0.01%, implying that fiscal decentralisation is an effective system for improving the economic performance of the states, which is consistent with the claims of pro-federalism theories proposed by Tiebout (1956), Musgrave (1959), Oates (1972) and other MPF proponents. Indeed, this finding parallels other studies using traditional panel regression method in developing countries, such as Iqbal et al. (2013), Ismail and Hamzah (2006) for Indonesia, Jin et al. (2005, 1999), Lin and Liu (2000) for China, and Zhuravskaya (2000) for Russia. This result, however, contradicts Zhang and Zou (1998) and Davoodi and Zou (1998), who conclude that fiscal decentralisation is negatively correlated to economic growth in developing countries and has no significance in developed countries.

TABLE 5. Estimation and Inference Using panel Dynamic-OLS (DOLS) Method

Dependent Variable: ln Y									
Variables:	Model 1 (Lag=1, Lead=1)			Model 2 (Lag=1, Lead=2)			Model 3 (Lag=2, Lead=1)		
	Coefficient	S.E	t-Statistic	Coefficient	S.E	t-Statistic	Coefficient	S.E	t-Statistic
lnFD	0.010	0.09	6.31*	0.010	0.09	6.92*	0.010	0.09	5.88*
lnDPI	0.006	0.13	2.77**	0.010	0.13	2.07**	0.005	0.13	2.04**
lnFDI	-0.003	0.12	-1.34	0.001	0.12	0.01	-0.004	0.12	-1.57
lnBUD	0.125	2.19	3.29*	0.050	2.19	1.17***	0.140	2.19	3.45*
lnFIXIE	0.008	0.14	3.31*	0.010	0.13	4.00*	0.006	0.14	0.01*
lnLF	0.012	2.18	0.33	-0.24	2.18	-5.89*	-0.017	2.18	-0.42
R-Squared	0.439			0.488			0.494		

Note: \*\*\* denotes significance at the 1% level, \*\* for 5% level and \* for 10% level, N\*T=260 and S.E indicates Standard Error.

Other determinants are also important for justifying the relationship between fiscal decentralisation and regional growth in Malaysia. In this model, all variables are significant except for labour force (LF) and foreign direct investment (FDI) with negative growth, making it difficult to draw any predictions or conclusions with respect to the signs or magnitudes of this estimation. Overall these two coefficients have neutral impact on regional growth.

The statistically insignificant FDI means that the role of investment has changed due to changes in external environment where domestic private investment is unable to deliver equivalent returns. As a result, Malaysia needs to attract efficiency enhancing investment by increasing productivity instead of labour intensive FDI to benefit the economy in the long run. This has prompted Malaysia Industrial Authority (MIDA) to become more selective in its approval of FDI. In other words, the assumption of FDI as a stimulant for economic growth has been questioned with the understanding that quality is more important than quantity of FDI, where quality high technology, capital intensive and productivity base industries are prioritized (Abdul Rahim 2012).

Consistent with the theory, public fixed investment (FIXIE) is positively significant at 1% level. The result shows that every 1% increase in the fixed public investment (FIXIE) increases regional growth by 0.006% in the long run. Public investment made by any level of government builds the nation's capital stock by devoting resources to basic physical infrastructures, innovative activity (basic research), green investments (clean power sources and weatherisation), and education (both primary and advanced, as well as job training) that leads to higher productivity and/or higher living standards. While private actors like domestic private investment (DPI) and FDI also invest in these areas, they do so to a much smaller degree, whereas fixed public investment delivers greater growth as its benefits accrue not just to those undertaking the investment but to a wide range of people and businesses (Bivens 2012; Faridi 2011; Lee

2003). Similarly, for domestic investment, a 1% increase in domestic investment (DPI), on average, increases regional growth by 0.005% in the long run. Overall, the results validate the positive role of domestic private investment and public fixed investment as discussed in the literature (Huang & Chang 2005; Lin & Liu, 2000; Zhang & Zou 1998).

Next, instead of inflation rate, budget balance (BUD) has been chosen as an indicator to measure macroeconomic stability. This coefficient also has a growth-stimulating feature as a 1% increase in budget balance increases regional growth by 0.14%. This positive growth effect is consistent with the theory of public finance, which argues that a current surplus will finance future deficits through cuts in distortionary taxation or increases in productive spending, which causes an increase in the expected returns to current investment and growth (Kneller et al. 1999). In particular, returns are increased if the current surplus is used to finance extra capital spending that leads to an increase in the stock of national assets. For example, state governments may spend more on transport and infrastructure facilities which improve the supply-side capacity of the economy, thus, promoting long-term economic growth. Thus, it is reasonable to assume that a large budget surplus can significantly increase the level of national savings and private investment leading to the achievement of higher economic growth (Bivens & Irons 2010).

The findings show that fiscal decentralisation (FD) has positively impacted on regional growth, where, regional growth has increased by 0.01% with a 1% increase in fiscal decentralisation in the long run. This positive relationship is consistent with the view of decentralisation advanced by FGFF and MPF proponents of SGFF. Indeed, this finding parallels other studies using traditional panel regression method in developing countries, such as Iqbal et al. (2013), Ismail and Hamzah (2006) for Indonesia, Jin et al. (2005, 1999), and Lin and Liu (2000) for China, and Zhuravskaya (2000) for Russia. This result, however,

contradicts Zhang and Zou (1998) and Davoodi and Zou (1998), who conclude that fiscal decentralisation is negatively correlated to economic growth in developing countries and has no significance in developed countries. There are several justifications for the positive association of fiscal decentralisation with economic growth in Malaysian states. Fiscal decentralisation contributes to regional growth through actions that decrease the size of the government, improve resource allocation within the public sector and increase competition among subnational governments (Jooste & Marinkov 2012). In other words, the basic argument in favour of fiscal decentralisation is that it improves the efficiency of the public sector and promotes long-term economic development (Oates 1972). The incentives derived from fiscal decentralisation which promotes growth as hypothesised by both FGFF, and SGFF were observable in both the expenditure and revenue dimensions of fiscal decentralisation. However, the extent of fiscal decentralisation depends on the ability of lower tiers of government to make independent revenue and expenditure decision within a geographic domain without interference from the federal government (Martinez-Vazquez & McNab 2003). The results show that the implementation of fiscal decentralisation stimulates regional growth. This proves that decentralisation is a potent strategy to support regional growth as even a minimal change in the direction of fiscal decentralisation is shown to have discernible effects. This implies that Malaysia also would be able to benefit from a system of federalism which empowers state governments to make policies for their jurisdictions and to compete with one another for better services and higher investment, as advocated by many economists (Brennan & Buchanan 1980; Oates 1972; Tiebout 1956). Competition among state governments is regarded as a potent source of efficiency and innovation to stay competitive (Dawkins & Grewal 2011). Hence, competition is the mechanism that creates incentives that result from satisfying the MPF conditions and subsequently leading to the achievement of higher regional economic performance.

In general, fiscal decentralisation affects growth positively by transferring spending power to the local levels of government that are best equipped to meet local demands adequately, as their proximity enables them to increase the efficiency of service delivery and reduce operating cost. The implementation of fiscal decentralisation allows state governments to have greater budgetary flexibility in deciding their expenditure priorities due to their physical and institutional proximity with the citizenry. Devolving greater policy powers to state governments may enable them to implement policies suited to local conditions better than a centrally designed one-size-fits-all system. In Malaysia, different states have different demographic compositions and spatial disparities, particularly in states like Sabah and Sarawak, which have more rural areas compared to the peninsular states.

For oil-producing states like Sabah, Terengganu and Sarawak, which are rich in resources but are economically less-developed, decentralisation can provide the impetus to pursue economic growth at par with developed states. With the availability of more funds and autonomy in the decision-making process, these states are compelled into mobilising the available resources in their own jurisdictions, rather than waiting for the solutions to their problems or the provision of public goods and services from the federal government.

MPF believes that greater economic activity enables state governments to capture a large portion of the increased tax revenue, and also gives them incentives to provide market enhancing public goods. Improving the state's capacity to spend on market-promoting goods would contribute to higher productivity and economic growth, and in turn, such economic progress tends to enhance incentives for more effective governance. Such incentives would encourage Malaysian state governments to adopt pro-business policies that would make them a competitive destination for domestic as well as foreign investors. When states are able to undertake revenue generation and mobilisation, they become less dependent on federal government for fiscal transfers particularly in terms of ratio of the total size of public sector. More importantly, decentralisation encourages the states to become more careful with their use of resources as they will bear the political burden of having to raise revenue for their services. In addition, restrictions on the types and sources of revenues will prompt state governments to consider other means to balance their budget. When state governments are not permitted to introduce new taxes, charges or fees other than those determined by law, they are forced to increase current tax rates, charges and fees in order to raise revenues and close fiscal gaps. Consequently, tax distortions may excessively raise costs and burden the private sectors, thus, limiting their ability to compete in the market economy.

The main point here is that state governments must have the power to make sure that the economic growth experienced by the country translates into more revenues for them by investing more efforts in their tax collection system. In Malaysia, the gap-filling nature of fiscal transfers compensates for low levels of local governments own tax revenue, and fiscal transfers can, in effect, create negative incentives for state government to mobilise their own revenues. This model of centralisation and soft budget constraints in the current fiscal system makes the states habitually dependent on transfers from the federal government as these states can simply claim, with some justifications, that they are not responsible for their fiscal woes.

Next, as emphasised in the Public Choice approach, another aspect of fiscal decentralisation is that it can create competition between state governments with regard to taxation and other policies. This competition can be beneficial when states compete to reduce red



tape or improve social services. More importantly, it forces discipline upon public officials who tend to pursue their own interests and seek to maximize their revenues. Similarly, fiscal competition among different levels of government can minimize the extent of government interventions, and maintain market efficiency (Weingast 1995). In terms of government accountability, it creates a yardstick for competition in which local residents evaluate the performance of their state governments by comparing the achievements in neighbourhood jurisdictions (Besley and Case 1995). This is especially important for Malaysia as the political landscape has changed since the last three elections and at least three states are under the rule of opposition parties.

Viewed in this light, Malaysia needs an efficient fiscal federalism to implement fiscal decentralisation in both expenditure and revenue, therefore, this finding supports the hypothesis formulated on basis of the SGFF literature that fiscal decentralisation has a positive effect on regional economic growth. Hence it strengthens the support for the adoption of MPF in Malaysia. Here, our findings echo the main argument of MPF theory that states become more efficient if more power was devolved to them whilst ensuring that they spend within their fiscal capacity. When the federal government loosen the constraints on states, states have the incentive to become innovative and competitive, and fiscal independence and economic growth can be improved significantly. More importantly, the importance of grants will be diminished but fiscal responsibility and fiscal accountability will be increased. Malaysia needs to take rigorous steps to improve state government's efficiency level through the system of fiscal decentralisation and incentives proposed by the MPF theory.

Although, decentralisation is an effective growth enhancing mechanism as evident from the results, there is also the risk that this can also take a 'race-to-the-bottom' approach if states compete in wasteful ways to attract investments, such as offering larger subsidies or relaxing environmental regulations. This would reduce the state governments' revenue and leads them to deficit problems, subsequently jeopardizing the country's fiscal performance at large. Withdrawal of central government supervision under decentralisation can also result in insufficient provision of federal public goods, in larger overall public expenditures and taxes, or in macroeconomic instability. In this situation, states can become prone to excessive expenditure when they undertake compensating actions to avoid macroeconomic instability, excessive reductions in federal spending or excessive overall tax levels. Viewed in this light, Malaysia needs an efficient fiscal federalism to implement fiscal decentralisation in both expenditure and revenue particularly to induce a sense of responsibility, otherwise it would further deteriorate state governments' deficit problems.

However, decentralisation tends to benefit the leading states (developed states) more than the lagging states, because the former states are more prepared and capable of exploiting the advantages of larger fiscal capacities. Less-developed states with weak fiscal capacity to compete may have to bear the risk of falling land values and the loss of capital and labour. In this situation, less-developed states with low taxable capacity, like Kelantan, Perlis and Kedah, fall behind and further deteriorate the horizontal imbalance problem in Malaysia. The horizontal fiscal imbalance does not only affect the economic performance of state governments but will also affect the whole country at large leading to greater interference from the federal government. Therefore, decentralisation must be accompanied by the condition that the lagging states are helped, for an initial period at least, by a system of fiscal equalisation. Otherwise the lagging states will not be able to compete with the leading states and competition will only make regional inequalities worse (Grewal 2008b).

#### CONCLUSION AND POLICY RECOMMENDATIONS

In summary, fiscal decentralisation has the potential to drive up long term regional growth if the states are given the incentives and ability to determine their budgetary priorities according to their local resources and needs. The competition derived from decentralisation generates efficiency in policy choice in terms of fiscal decisions as well as service provision and subsequently creating healthy local economy or market supporting environment. The findings in this study leads to the conclusion that Malaysia needs to adopt fiscal decentralisation simultaneously on both dimensions of decentralisation (expenditure and revenue) as this will be helpful in enhancing the economic growth and delivering significant advantages over the fiscal system currently in place.

Malaysian states should be given more fiscal autonomy in terms of revenue generation as well as determining expenditure priorities, especially in critical sectors like education, health and infrastructure to support regional productivity and development. MPF model emphasises the importance of local taxation authority for creating both greater accountability and fiscal incentives for local governments to foster local economic growth. If fiscal is to be a reality, state government must control their own revenues to finance the services that they provide (McLure 1997). This means that some reforms in the taxations systems are required that enable state governments to have their own sources of tax revenue and have more effective tax collecting mechanisms. If this were done, the states would be able to implement MPF in regenerating the state's economy and subsequently, states' revenue could benefit from national GDP growth.

Strengthening fiscal capacities is found to be an important way for implementing the MPF. By appropriate reassignment of federally controlled taxes to states, states would be guaranteed a stable revenue inflow. Certain taxes, particularly those taxes that are localised in nature, are better assigned to the states as states can manage and collect them more efficiently. Limited revenue capacity of the state governments leads them to rely perpetually on federal fiscal transfers, diminishing over time fiscal responsibility at the state level. This situation subsequently leads to worsening of country's overall growth prospects and regional disparities among the states which strongly require the implementation of fiscal equalisation.

Improvement states' tax collection system is important for ability to collect revenue so that the states' absorptive capacity as well tax effort can be increased. In Malaysia different states have different tax collection system and there is no standardised mechanism or structure of tax collection. Poor management skills pave the way for federal interference in state fiscal affairs for the sake of efficiency. Therefore, state governments should explore the potential of land tax as a major source of revenue in future and efficiency of land office administration should be improved by taking steps to ensure constant collection of land revenue and following up on arrears. If the states continuously fail to improve their tax collection system and revenue performance, more and more functions will be usurped by the centre. The absence of proper tax planning, state governments will be forever dependent on the federal government for funds (Bakar 2004).

A carefully planned approach would be required to bring about Constitutional change in the legal framework and strengthen government mechanisms for the fiscal reforms. The economic reforms suggested above need to be supported by reforms in governmental institutions that are better able to align the interests of businessmen, citizens and government officials.

Reforms should also be aimed at a detailed revision of the system of revenue allocation from the federal to states, based on objective criteria that take into account the particular difficulties of states. Here, possible amendments should be carefully considered after reviewing the advantages and disadvantages of having a centralised fiscal federalism system in Malaysia particularly from the aspect of distribution. The reform should be taken to limit the authority of federal government by increasing the degree of decentralisation: the devolution of economic policymaking and fiscal authority including the hard budget constraint to the states.

Institutional clarity and transparency should be promoted in the budget-making process such that spending matches revenue at the state government level especially new budgetary rights and responsibilities are assigned to state governments. Malaysia will only be able

to sustain its economic growth if government institutions, including local councils to Parliament, are transparent and possess greater governance accountability. The Malaysian public sector needs to become more efficient and responsive rather than being driven by the central bureaucracy.

However, some form of fiscal equalisation is imperative for implementing an effective fiscal decentralisation so that regional disparities could be alleviated in Malaysia. Clearly, fiscal decentralisation is important with the condition that some form of fiscal equalisation, such as capacity and categorical equalisation should also effectively have implemented. In particular, the calculations are based on the principle of horizontal fiscal equalisation (HFE) which is aimed at reducing inequality in the ability of subnational governments to provide comparable public services at comparable tax rates (Dawkins & Grewal 2011).

#### ACKNOWLEDGEMENT

This research received support from the grant FRGS 2013-2, awarded to the Faculty of Economics and Management, University Putra Malaysia by the Ministry of Higher Education, Malaysia.

#### REFERENCES

- Abd Ghani, Judhiana. 2014. *Market Preserving Federalism: Implications for Malaysia*. Unpublished doctoral dissertation. VISES, Victoria University, Melbourne, Australia
- Abdul Rahim, A. S. 2012. The Changing role of FDI in the Malaysian economy - An assessment. <http://economics.dstcentre.com>: Dynamic Speaker Training Centre. (accessed on July 2017)
- Akai, N. M. Hosoi, & Y. Nishimura. 2009. Fiscal decentralization and economic volatility: Evidence from state-level cross-section data of the USA. *Japanese Economic Review* 60(2): 223-235
- Akai, N., & M. Sakata. 2002. Fiscal decentralization contributes to economic growth: Evidence from state-level cross section data for the United States. *Journal of Urban Economics* 52:93-108
- Adelberger, K. 2001. Federalism and its discontents: Fiscal and legislative power-sharing in Germany, 1948-99. *Regional and Federal Studies* 11(2): 43-68.
- 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.
- Barro, R.J. 1990. Government spending in a simple model of endogenous growth. *Journal of Political Economy* 98(5): 103-125
- Barro, R. J. 2003. Determinants of economic growth in a panel of countries. *Annals of Economics and Finance* 4: 231-274
- Baskaran, L. Feld. 2013. Fiscal decentralization and economic growth in OECD countries: Is there a relationship? *Public Finance Review* 41(4): 421-445
- Besley, T. & A. Case. 1995. Does electoral accountability affect economic policy choices? Evidence from gubernatorial

- term limits. *The Quarterly Journal of Economics* 110(3): 769-798.
- Bivens, J. 2012. Public investment: The next 'new thing' for powering economic growth. *Economic Policy Institute, Briefing Paper* (338).
- Bivens, J., & J. Irons. 2010. Government debt and economic growth. In *EPI Briefing Paper*. Washington, DC: Economic Policy Institute.
- Bodman, P., H. Campbell, K. Heaton, & A. Hodge. 2009. Fiscal Decentralization, macroeconomic conditions and economic growth in Australia. In *MRG@UQ discussion paper no.26*. Queensland, Australia: School of Economics University of Queensland.
- Brennan, G., & J. Buchanan. 1980. *The Power to Tax: Analytical Federalism of a Fiscal Constitution*. New York: Cambridge University Press.
- Brueckner, J. 2006. Fiscal federalism and economic growth. *Journal of Public Economics* 90(10-11): 2107-2120.
- Buser, W. 2011. The impact of fiscal decentralization on economics performance in high-income OECD nations: An institutional approach. *Public Choice* 149(1): 31-48.
- D. Cantarero, & P. Perez Gonzalez. 2009. Fiscal decentralization and economic growth: Evidence from Spanish regions. *Public Budgeting & Finance* 29(4): 24-44.
- Davoodi, & Zou, H. 1998. Fiscal decentralization and economic growth: A cross-country study. *Journal of Urban Economics* 43(2): 244-257.
- Desai, R. M., L. M. Freinkman, & I. G. Goldberg. 2003. Fiscal federalism and regional growth: Evidence from the Russian Federation in the 1990s. In *Policy Research Working Paper* World Bank.
- Desai, R. 2005. Fiscal federalism in rentier regions: Evidence from Russia. *Journal of Comparative Economics* 33(4): 814-834.
- Diamond, J. 2003. Budget system reform in transitional economies: The experience of Russia. *Emerging Markets Finance & Trade* 39(1): 8-23.
- Ebel, R.D & Yilmaz, S. 2003. On the measurement and impact of fiscal decentralization. In Jorge M. V & James A. (eds.). *Public Finance in Developing and Transition Countries: Essays in Honor of Richard M. Bird*. Cheltenham, U.K: Edward Elgar
- Epple, D. & A. Zelenitz. 1981. The implications of competition among jurisdiction: Does Tiebout need politics? *The Journal of Political Economy* 89(6): 1197-1217.
- Faridi, M. Z. 2011. Contribution of fiscal decentralisation to economic growth: Evidence from Pakistan. *Pakistan Journal of Social Sciences (PJSS)* 31(1).
- Gemmel, N., Kneller, R. & Sanz, I. 2003. Fiscal decentralization and economic growth: Spending versus revenue decentralization. *Economic Inquiry* 51(4): 1915-1931.
- Grewal, B. S. 2008. Symposium on china's public finances: Part I development strategy, revenues and fiscal transfers. *Public Finance & Management* 8(4).
- Gu, G. C. 2012. Developing Composite Indicators for Fiscal Decentralisation: Which Is The Best Measure For Whom? <http://mpa.ub.uni-muenchen.de/43032/2012> (accessed on January 2018)
- Huang, J., & T. Chang. 2005. The Role of Fiscal Decentralisation in Regional Economic Growth in China', Taipei. In *Theory, Policy, and Administration at the Institute of Economics*, Academia Sinica, Taipei, National Chengchi University, Taipei, Taiwan.
- Huther, J., & A. Shah. 1996. *A Simple Measure of Good Governance and Its Application to the Debate on the Appropriate Level of Decentralization*. Washington D.C: World Bank.
- Inman, R. P., & D. L. Rubinfeld. 1997a. Rethinking Federalism. *Journal of Economics Perspectives* 11(4): 43-64.
- Inman, R.P., & Rubinfeld (eds.). 1997b. *The Political Economy of Federalism*. edited by D. C. Muelle. New York: Cambridge University Press.
- Iimi, A. 2005. Decentralization and economic growth revisited: An empirical note. *Journal of Urban Economics* 3(57): 449-461.
- Inman, R. P. 1998. Federal assistance and local services in the United States: The evolution of a new federalist fiscal order. In Rosen, H.(eds.). *Fiscal Federalism* Chicago: University of Chicago Press.
- Iqbal, N., M. ud Din & E. Ghani. 2013. *Fiscal and Economic Growth: Role of Democratic Institutions*. Pakistan Institute of Development Economics.
- Ismail, A. G. B., & M. Z. Hamzah. 2006. Fiscal decentralisation and economic growth nexus: Evidence from province-level cross-section data for Indonesia. *Review of Islamic Economics* 10(2):133.
- Jalil, A. Z. A. 2008. Decentralization, Subnational Governments' Behavior and Macroeconomic Instability: The Case of Malaysia, Centre d' Etudes de Recherches sur le De'veloppement International, Universite' d' Aurvegne, Clermont- Ferrand I.
- Jalil, A. Z. A. 2011. Measuring forest-based revenue capacity and revenue effort of the state governments in Peninsular Malaysia: A representative revenue system (RRS) approach. *International Review of Business Research Papers* 7 (4): 59-69.
- Jin, J. & H-F. Zou. 2005. Fiscal decentralisation, revenue and expenditure assignments, and growth in China. *Journal of Asian Economics* 16(6): 1047-1064.
- Jin, H., Y. Qian & Weingast, B. R. 1999. *Regional Decentralisation and Fiscal Incentives: Federalism, Chinese Style*. Mimeo, Stanford University.
- Jin, H., Y. Qian & Weingast, B. R. 2005. Regional decentralisation and fiscal incentives: Federalism, Chinese style. *Journal of Public Economics* 89(9): 1719-1742.
- Jooste, C., & M. Marinkov. 2012. South Africa's transition to a consolidated budget. *South African Journal of Economics* 80(2): 181-199.
- Kao, C., & Chiang, M. 1999. Spurious regressions and residuals based tests for cointegration in panel data. *Econometric Review* 90: 1-44.
- Kao, C., & M. Chiang. 2000. On the estimation and inference of a cointegrated regression in Panel Data *Advances in Econometrics* 15: 179-222.
- Kim, S. L. 1995. Fiscal decentralization, fiscal structure, and economic performance: Three empirical studies, University of Maryland.
- Krkoska, L. 2001. Assessing macroeconomic vulnerability in central Europe. *Post-Communist Economies* 13(1): 41-55.
- Lalvani, M. 2003. Market preserving federalism, where does the Indian Federation stand. Department of Economics, Centre of Advanced Study in Economics, University of Mumbai.
- Lee, Y. 2003. *Fiscal Decentralisation, Institutional Arrangements, and Economic Performance in Korea*. New York University, Robert F. Wagner Graduate School of Public Service.



- Levin, A., & Lin, C. F. 1993. *Unit Root Tests in Panel Data: New Results*. Department of Economics, University of California, San Diego.
- Levine, R. & Renelt, D. 1992. A sensitivity analysis of cross-country growth regressions. *American Economic Review* 82(4): 942-963
- Lin, J. Y., & Z. Liu. 2000. Fiscal decentralisation and economic growth in China. *Economic development and cultural change* 49(1): 1-21.
- Lockwood, B. 2004. Decentralisation via federal and unitary referenda. *Journal of Public Economic Theory* 6(1): 79-108.
- Malaysia. Department of Statistic. <http://www.statistics.gov.my/portal/index.php?> (accessed on June 2018)
- Ministry of Finance, Malaysia. 1991. *Economic Report 1991/1992*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 1993. *Economic Report 1993/1994*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 1995. *Economic Report 1995/1996*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 1996. *Economic Report 1996/1997*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 1997. *Economic Report 1997/1998*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 1998. *Economic Report 1998/1999*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 1999. *Economic Report 1999/2000*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 2000. *Economic Report 2000/2001*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 2001. *Economic Report 2001/2002*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 2003. *Economic Report 2002/2003*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 2011. *Economic Report 2010/2011*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 2012. *Economic Report 2011/2012*. Kuala Lumpur: Government Printer.
- Ministry of Finance, Malaysia. 2013. *Economic Report 2012/2013*. Kuala Lumpur: Government Printer.
- Mankiw, N. G., D. Romer, & D. Weil. 1992. A contribution to the empirics of economic growth. *Quarterly Journal of Economics* 107: 407-437.
- Martinez-Vazquez, J., & R. McNab. 1997. Fiscal Decentralisation, Economic Growth, and Democratic Governance. In *International Center for Public Policy Working Paper Series, at AYSPS, GSU paper970* Atlanta: International Center for Public Policy, Andrew Young School of Policy Studies, Georgia State University.
- Martinez-Vazquez, J., & R. McNab. 1998. Tax systems in transition economies. In W.B.Ha.J.R. (eds.). Vol. 911-963. New York: Dekker Publishing.
- Martinez-Vazquez, J., & R. McNab. 2003. Fiscal decentralisation and economic growth. *World Development* 9(31): 1597-1616.
- Martinez-Vazquez, J., & A. Timofeev. 2009. A fiscal perspective of state rescaling. *Cambridge Journal of Regions, Economy and Society* 2(1): 85-105.
- McLure, C. 1997. *Topics in the Theory of Revenue Assignment*. In Blejer, M & Minassian, T.T. (eds.). London: Routledge.
- McLure, C. 1998. The revenue assignment problem: Ends, means, and constraints. *Journal of Public Budgeting, Accounting and Financial Management* 9(4): 652-683.
- McKinnon, R. I. 1997. The Logic of Market Preserving Federalism. *Virginia Law Review*: 1573-1580.
- McNab, R. M. 2001. An Empirical Examination of the Outcomes of Fiscal , Andrew Young School of Policy Studies, Georgia State University.
- Musgrave, R. A. 1959. *The Theory of Public Finance*. New York: McGraw-Hill New York.
- Nambiar, Shankaran. 2007. Malaysia. In J. K. Anwar Shah (ed.). *A Global Dialogue on Federalism, Volume 4: The Practice of Fiscal Federalism: Comparative Perspectives*. Montreal: McGill-Queen's University Press.
- Oates, W. E. 1972. *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.
- Oates, W. E. 2005. Property taxation and local public spending: the renter effect. *Journal of Urban Economics* 57(3): 419-431.
- Parikh, S., & B. R. Weingast. 1997. A comparative theory of federalism: India. *Virginia Law Review* 83 (7): 1593-1615.
- Pedroni, P. 1999. Critical Values for Cointegration Tests in Heterogenous Regressions. *Oxford Bulletin of Economics* 61: 653-670.
- Phillips, P., & H. R. Moon. 2000. Non stationary panel data analysis: An overview of some recent developments. *Econometric Review* 19: 263-286.
- Phillips, P., & S. Ouliaris. 1990. Asymptotic properties of residual based test for cointegration. *Econometrics* 58: (165-193).
- Qian, Y., & B. R. Weingast. 1997. Federalism as a commitment to perserving market incentives. *The Journal of Economic Perspectives*: 83-92.
- Qian, Y. & G. Roland. 1998. Federalism and the soft budget constraint. *American Economic Review*: 1143-1162.
- Rodden, J. & S.R. Ackerman. 1997. Does federalist preserve markets? *Virginia Law Review* 83(7): 1521-1572 and *the Challenge of Hard Budget Constraints*. Cambridge: MIT Press, Cambridge.
- Rodríguez-Pose, A. & R. Ezcurra. 2010. Does decentralisation matter for regional disparities? A cross-country analysis. *Journal of Economic Geography* 10(5): 619-644.
- Rodríguez-Pose, A. Kroijer. 2009. Fiscal decentralization and economic growth in central and eastern Europe. *Growth and Change* 40(3): 387-417.
- Saez, L. 2003. Market preserving federalism, globalization, and subnational economic growth: evidence from China and India. In *Indian Federalism in the New Millenium*, edited by B. M. P. S. Dua: Ajay Kumar Jain for Manohar Publisher & Distributors.
- Shah, A. & Shah, S. 2006. The new vision of local governance and the evolving roles of local governments. In A. Shah (eds.). *Local Governance in Developing Countries*. Washington, D.C: World Bank.
- Sinha, A. 2005. Political foundations of market-enhancing federalism: Theoretical lessons from India and China. *Comparative Politic*: 337-356.
- The National Audit Department Malaysia. 1991. *General Audit Report 1990*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 1993. *General Audit Report 1992*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 1995. *General Audit Report 1994*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 1997. *General Audit Report 1996*. Kuala Lumpur: Malaysia.



- The National Audit Department Malaysia. 1999. *General Audit Report 1998*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 2001. *General Audit Report 2000*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 2003. *General Audit Report 2002*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 2005. *General Audit Report 2004*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 2007. *General Audit Report 2006*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 2009. *General Audit Report 2008*. Kuala Lumpur: Malaysia.
- The National Audit Department Malaysia. 2010. *General Audit Report 2009*. Kuala Lumpur: Malaysia.
- Thiessen, U. 2003. Fiscal decentralisation and economic growth in high-income OECD countries. In *Fiscal Studies* 24: OECD.
- Thornton, J. 2007. Fiscal decentralization and economic growth reconsidered. *Journal of Urban Economics* 61(1): 64-70.
- Tiebout, C. 1956. A pure theory of local public expenditure. *Journal of Political Economy* 64 (5).
- Tirtosuharto, D. 2009. Regional competitiveness in Indonesia: The incentives of fiscal decentralisation on state efficiency and economic growth, School of Public Policy, George Mason University, Ann Arbor.
- Weingast, B. R. 1995. The Economic Role of political Institutions: Market Preserving Federalism and Economic & Organization. *Journal of Law, Economics & Organization* 11: 1-31.
- Weingast, B. R. 1997. The political foundations of democracy and the rule of law. *American Political Science Review*: 245-263.
- Weingast, B. R. 2000. The comparative theory of federalism. WP, Hoover Institution, Stanford University.
- Weingast, B. R. 2006. Second Generation Fiscal Federalism: Implications for Decentralized Democratic Governance and Economic Development. Hoover Institution.
- Weingast, B. R. 2009. Second generation fiscal federalism: The Implication of fiscal Incentives. *Journal of Urban Economics* 65(3): 279-293.
- Wildasin, D. E. 1991. Income redistribution in a common labor market. *American Economic Review* 81 (Sept): 757-774.
- Woller, G., & K. Phillips. 1998. Fiscal and IDC economic growth: An empirical investigation. *The Journal of Development Studies, Taylor and Francis Journals* 34(4): 139-148.
- Xie, D., H. Zou & H. Davoodi. 1999. Fiscal decentralisation and economic growth in the United States *Journal of Urban Economics* 45: 228-239.
- 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.
- Yushkov, A. 2015. Fiscal decentralization and regional economic growth: Theory, empirics, and the Russian experience. *Russian Journal of Economics* 1: 404-418.
- Zhang, T. & H.-f. Zou. 2001. The growth impact of intersectoral and intergovernmental allocation of public expenditure: With applications to China and India. *China Economic Review* 12: 58-81.

Judhiana Abd. Ghani\*  
 Department of Economics  
 Faculty of Economics and Management  
 University Putra Malaysia  
 43400 Serdang Selangor  
 MALAYSIA  
 E-mail: judhiana@upm.edu.my

Bhajan Grewal  
 Victoria Institute for Strategic Economic Studies  
 Victoria University, 300, Flinders St, Melbourne, 3000 Victoria  
 AUSTRALIA  
 E-mail: bhajan.grewal@vu.edu.au

Abdullahi D. Ahmed  
 School of Accounting, College of Business,  
 RMIT University. 445 Swanston St, Melbourne, 3000, Victoria  
 AUSTRALIA  
 E-mail: abdullahidahir.ahmed@rmit.edu.au

Norashidah Mohamed Nor  
 Department of Economics  
 Faculty of Economics and Management,  
 University Putra Malaysia  
 43400, Serdang, Selangor  
 MALAYSIA  
 E-mail: norashidah@upm.edu.my

\*Corresponding author

## APPENDIX 1

TABLE 1. State governments consolidated finances, 1990- 2009 (MYR million, 2005=100)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	8042	7489	7645	8185	8477	8635	9786	10047	7787	7587	8457	6443	5437	6607	6894	9002	9119	8524	10788	6692
State Sources	6141	5406	5817	6240	6486	6778	7920	8156	5791	5303	5661	4435	3315	4346	4633	6502	6451	4919	7101	2000
Federal Grants	1813	1976	1725	1822	1893	1790	1781	1845	1953	2206	2714	1982	2093	2240	2225	2437	2568	3552	3655	3922
Federal Reimbursements	88	107	103	123	99	67	85	46	43	78	82	26	29	20	36	63	99	53	32	70
Expenditure	11542	11098	9789	9609	9751	10070	10429	10917	10034	9177	11275	10652	9479	9762	9363	10358	11392	12986	13680	13085
Operating	6595	6946	5660	5175	5329	4880	5403	5011	4982	4662	5640	5610	5281	5426	5664	6020	6310	6711	7216	6992
Current Surplus/Deficit	1446	543	1985	3009	3148	3756	4382	5036	2805	2925	2817	833	156	1181	1230	2982	2809	1813	3572	-300
Development Expenditure	4947	4152	4129	4434	4422	5191	5025	5906	5052	4515	5635	5042	4198	4336	3698	4338	5082	6274	6464	6093
Loan Recovery	223	312	436	386	1211	674	654	638	539	682	290	179	411	570	187	201	388	451	279	259
Net Development Expenditure	4724	3839	3693	4047	3211	4516	4371	5268	4513	3832	5345	4863	3787	3766	3511	4137	4694	5823	6185	5834
Overall	-3278	-3297	-1708	-1038	-63	-761	11	-232	-1708	-907	-2528	-4030	-3630	-2585	-2281	-1155	-1885	-4010	-2613	-6134
Sources of Financing	NIL	34	502	1664	NIL	812	1010	322	NIL	NIL	480	591	773	1080	647	1642	1056	1079	1795	-1611
Net Federal Loans	NIL	NIL	175	154	280	-1600	-2148	-1293	695	755	-456	1235	-222	-470	761	-3120	-2189	-1183	-3569	1109

Source: Ministry of Finance, Economic Report (various issues).