Malaysian corporate tax rate and revenue: the application of Ibn Khaldun tax theory

Hairul Azlan Annuar and Khadijah Isa
Department of Accounting, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Salihu Aramide Ibrahim
Department of Accounting, Universiti Teknologi Brunei, Gadong, Brunei Darussalam, and

Sakiru Adsebola Solarin
Multimedia University, Melaka, Malaysia

Abstract

Purpose – The present study aims to investigate the impact of the reduction of the corporate tax rate on corporate tax revenue. The study adopts the theory of taxation by Ibn Khaldun, depicted as the Laffer curve.

Design/methodology/approach – The paper analyses time series data for the period 1996 to 2014 using the autoregressive distributed lag (ARDL) approach.

Findings – The paper finds that the corporate tax rate has a dual effect on corporate tax revenue over the study period. It shows an inverted U-shape relationship between the corporate tax rate and corporate tax revenue and reveals that the optimal tax rate is 25.5156 per cent. Inferentially, a positive relationship exists between the two variables prior to the optimal tax rate, and a negative relationship prevails afterwards. A further test of causality shows a long-run unidirectional causality between corporate tax rate and corporate tax revenue.

Research limitations/implications – First, it should be noted that the policy was not implemented in isolation. Several other tax incentives were given to corporate tax payers, and therefore, such incentives should be controlled for to have a more insightful evaluation of the policy. Second and most important, there is a need to investigate whether the increased cash flow available to firms as a result of the reduction in the corporate tax rate adds value to firms. It is also necessary to investigate whether firms' stakeholders benefited from the increased cash flow or was there managerial diversion of firms' resources.

Practical implications – The policy of gradual reduction of the corporate tax rate in Malaysia is suspected to have a positive impact on the productivity of Malaysian companies, which has contributed to an increase in corporate tax revenue. It also has a positive impact on the economic growth of the country. It means that the lower corporate tax rate has actually reduced the cost of doing business in the country.

Originality/value – The benefit of increased corporate tax revenue needs to be investigated empirically for insightful policy evaluation. In Malaysia, however, such investigation is close to non-existent to the best

knowledge of the researchers. Thus, the present study aims at investigating the impact of the policy of gradual reduction of the corporate tax rate on corporate tax revenue over an 18-year period from 1996 to 2014.

Introduction

The Malaysian Government's budget for 2014 stated that the corporate income tax rate in Malaysia would be reduced to 24 per cent in 2016 from the rate of 25 per cent that had prevailed since 2009. The reduction aimed at reducing the cost of doing business in Malaysia and in turn encouraging more investment in the country by attracting foreign investors. This was also in line with the policy of gradual reduction in corporate income tax rates that started in 1988.

Besides the reduction of the corporate income tax rate, several other tax incentives were also announced in the budget. The incentives were in five major areas. These included incentives for the tourism sector; for implementation of the minimum wage policy; for flexible work arrangements; and for research and development for the bio-economy and other sectors such as green technology and small and medium enterprises (SMEs). The fifth was for anchor companies under the vendor development programme, which was initiated by the government to stimulate economic growth through the SMEs sector in co-operation with large firms. These were presented as part of government's efforts to make the nation prosper and promote the well-being of its citizens.

It should be noted that the biggest incentives were given to corporate taxpayers as they contribute the highest portion of direct income tax revenue. On average, corporate income tax contributed almost 50 per cent of direct income taxes over the 10-year period 2003-2012 (Salihu, 2015). This shows the importance of these companies in attaining the nation's economic goals as contained in Vision 2020 (Rahman, 1993). This also justifies the various tax incentives given to this group of taxpayers and the policy of gradually reducing the corporate tax rate.

One of the long-run benefits of these tax incentives should be seen in increased tax revenue to the government according to Ibn Khaldun's theory on taxation. A similar idea was famously advocated in recent times by Arthur Laffer, which he depicted in his Laffer curve. This benefit of increased corporate tax revenue needs to be investigated empirically for insightful policy evaluation. It is however noted that such investigation, in the Malaysian context, is close to non-existent to the best knowledge of the researchers. Thus, the present study aims at investigating the impact of the policy of gradual reduction of the corporate tax rate on corporate tax revenue over an 18-year period from 1996 to 2014. The investigation was carried out by examining the relationship between the corporate tax rate and corporate tax revenue over the period under study.

The remaining parts of the paper are organized thus: first, the paper discusses Ibn Khaldun's theory on taxation, known today as the Laffer curve; second, it reviews the related literature on the relationship between the corporate tax rate and corporate tax revenue; third, it presents the research methodology adopted and explains the data set used; fourth, it discusses the empirical results; fifth, it concludes the study and analyses the policy implications.

Ibn Khaldun's theory on taxation – the Laffer curve

The Laffer curve, based on the economic theory developed by Arthur Laffer, depicts the relationship between the rates of taxes and the amount of tax revenue accruing to the

government in a given economy. The term "Laffer curve" was coined by Jude Wanniski, an associate editor with The Wall Street Journal, in 1974 after a meeting with Arthur Laffer wherein issues related to USA's tax rates were discussed (Laffer, 2004). Arthur Laffer argued that "there are always two tax rates that yield the same revenues" (Wanniski, 1978). Thus, the curve is designed to depict two extreme ends when the level of tax revenue for the government will be zero. These are when the tax rates are 0 and 100 per cent. Therefore, the government must find an appropriate tax rate at which the level of tax revenue is at its maximum. This is called the optimal tax rate. While the actual shape of the curve is still a mystery (Irvin, 2013), it is generally believed to have an inverted U-shape with each tail end representing the two extreme ends.

It should be noted that Arthur Laffer did not claim the novelty of the idea behind this curve. For instance, he acknowledged that the idea has been around since the fourteenth century:

> The Laffer curve, by the way, was not invented by me. For example, Ibn Khaldun, a 14th-century Muslim philosopher, wrote in his work *The Muqaddimah*: "It should be known that at the beginning of the dynasty, taxation yields a large revenue from small assessments. At the end of the dynasty, taxation yields a small revenue from large assessments" (Laffer, 2004).

Thus, the idea of the inverse relationship between the rate of tax and tax revenue was well known among the earlier scholars of Islam. Ibn Khaldun (1377a, p. 231) also wrote:

> To lower as much as possible the amounts of individual imposts levied upon persons capable of undertaking cultural enterprises. In this manner, such persons will be psychologically disposed to undertake them, because they can be confident of making a profit from them.

He further described the merit of lower rates of taxes as follows:

> When the tax assessments and imposts upon subjects are low, the latter have energy and desire to do things. Cultural enterprises grow and increase, because the low taxes bring satisfaction. When cultural enterprises grow, the number of individual imposts and assessments mounts. In consequence, the tax revenue, which is the sum total of (the individual assessments), increases (Ibn Khaldun, 1377a).

The idea illustrated by Ibn Khaldun, put in a simplistic form, was based on his study of the historical antecedents of the rise and fall of dynasties, as noted by Arthur Laffer above. The idea has been applauded by many in determining the optimal rate of taxes. For instance, Chapra (2000) wrote: "The effect of taxation on incentives and productivity was so clearly visualized by Ibn Khaldun that he seems to have grasped the concept of optimum taxation."

Thus, the idea is found to be relevant even in the present world (Islahi, 2006; Ismail and Jaafar, 2013). Meanwhile, Arthur Laffer put this idea in conventional terms as follows:

> The basic behind the relationship between tax rates and tax revenues is that changes in tax rates have two effects on revenues: the arithmetic effect and the economic effect. The arithmetic effect is simply that if tax rates are lowered, tax revenues (per dollar of tax base) will be lowered by the amount of the decrease in the rate. The reverse is true for an increase in tax rates. The economic effect, however, recognizes the positive impact that lower tax rates have on work, output, and employment-and thereby the tax base-by providing incentives to increase these activities. Raising tax rates has the opposite economic effect by penalizing participation in the taxed activities (Laffer, 2004).

Arthur Laffer further emphasized the relevance of the curve in corporate taxation while saying "historical evidence and macroeconomic modelling suggest that in the case of corporate income taxes this may not just be possible, but even likely" (Laffer *et al.*, 2012).

Subsequent to the conceptualization of the Laffer curve, several studies have investigated the relevance of the curve in understanding many economic phenomena. The concept has been employed, for instance, in understanding the optimal level of public debts (Tatu, 2014; Tsuchiya, 2016) and determining the relationship between debt and growth (Ehrhart et al., 2014; Megersa, 2015; Fedeli, 2017). Most relevant here are the studies that used the concept in its original domain in determining the appropriate tax rate that maximises tax revenues. Some studies have also investigated the impact of such reduction in tax rates on other macroeconomic variables like employment, workers' income and productivity. Some of these studies are discussed in the next section.

Related literature

The negative relationship between tax rate and tax revenue has been well documented in the literature. For instance, Trabandt and Uhlig (2011) compared the tax structures of the USA, the European Union (EU-14) and individual European countries using the Laffer curve. Empirical evidence was documented for the relevance of the curve in understanding the tax structure and the possibility of its usefulness in the determination of optimal level of tax rates for these countries.

Similar studies on the Organisation for Economic Co-operation and Development (OECD) countries have shown the same empirical evidence for the curve. For example, Devereux (2006) examined the average corporate tax rate and corporate tax revenue as a percentage of gross domestic product (GDP) for 40 years among 20 OECD countries. He found that corporate tax revenue as a percentage of GDP was a function of the corporate tax rates among these countries, thus lending support to the Laffer curve.

A study by Clausing (2007) which examined 29 OECD countries for 23 years also found the same result and concluded that a lower tax rate would help increase tax revenue in the long run. The same results were documented by Brill and Hassett (2007) in their study of 29 OECD countries between 1980 and 2005.

In a more recent study, Akgun et al. (2017) investigated the impact of tax cuts in 34 OECD countries over a period of 36 years (1978-2014) using the Laffer curve. While strong evidence was found in line with the propositions of the curve, the responses of tax revenue to changes in tax rates varied among the countries. The variation in the responses was ascribed to the amount of resources at the disposal of the respective countries' tax authorities.

Further, Papp and Takat (2008) documented an increase in tax revenue in Russia following a small cut in tax rate in the country. The same results are documented in Nutahara (2015) in his study of the labour and capital tax rates in Japan. Similarly, Sanz-Sanz (2016) found support for the Laffer curve in understanding the relationship between tax revenue and personal tax rates among Spanish taxpayers. Singh and Jain (1999) also documented a similar finding in their study of corporate taxes in India. Using a real-life experiment in Austria, Sutter and Weck-Hannemann (2003) found that an individual responded positively to a decrease in the tax rate and vice versa.

However, some studies have found different results in some extreme situations. For instance, Uhlig and Yanagawa (1996) showed that in a few situations higher capital income tax rates could lead to faster economic growth. This is because of the presence of excess money gained from tax collection, enabling the government to provide more infrastructure facilities to support economic activity. It can then channel the surplus money to entrepreneurs to carry out productive economic activities. Such positive cycles and cash flows help in economic growth. Further, Aasness and Nygard (2014) found cross-border shopping, tax-free shopping and smuggling to be intervening factors to the effects of tax cuts on tax revenues in Norway. Schmitt-Grohe and Uribe (1999) also argued for a higher

capital income tax rate with substitution from labour taxes for balance in the annual budget in the USA. A similar argument for a high labour-income tax rate and a large labour supply response to wage changes is found in Krause (2009).

This shows that the Laffer curve must be applied with care given its dynamic nature (Oudheusden, 2016; Strulik and Trimborn, 2012; Tsuchiya, 2016). This was acknowledged in Novales and Ruiz (2002) where the authors proved that the Laffer curve could be dynamic such that welfare provisions will help in increasing the tax base during any tax reform. In the same vein, Spiegel and Templeman (2004) demonstrated the difference in the application of the Laffer curve to an individual and to the society. Also, Ireland (1994) used a model within the endogenous growth framework to show the dynamic nature of the Laffer curve. The same approach was used by Agell and Persson (2001) to understand the dynamic effects of tax cuts in OECD countries.

The recent application of the curve by Creedy and Gemmell (2017) to the understanding of the elasticity of taxable income among US corporate taxpayers further justified its dynamic nature. Previously, Creedy and Gemmell (2015) justified this dynamism by examining the elasticity of taxable income of individual taxpayers in New Zealand. A similar application is also found in Mattos and Terra (2016) wherein the authors used the Laffer curve in estimating the elasticity of taxable income of Brazilian taxpayers.

Besides these studies, empirical evidence has been documented for the relevance of Laffer curve in other research domains. For instance, Jonsson and Klein (2003) used the Laffer curve to compute the welfare costs of tax distortion in Sweden and the US and found that the costs were five times higher in Sweden than in the US. Also, Floden and Linde (2001) used the Laffer curve while examining the idiosyncratic risk for insurance agents in Sweden and the USA. Ayres (2016, p. 5123) applied the concept of Laffer curve in understanding people's attitudes to crime in relation to the likely penalty and argued for a "higher crime-higher penalty" equilibrium.

One conclusion from the review above is that the Laffer curve is still relevant in the present world. This is in line with the argument of Islahi (2006) that Ibn Khaldun's theory of taxation is relevant in today's economies holistically. A similar argument is found in Ismail and Jaafar (2013) wherein the authors documented evidence for the relevance of Ibn Khaldun's theory of taxation in today's economies by examining the relationship between tax increases and economic growth in 30 different countries (cutting across developed, developing and less developed economies).

As such, Ibn Khaldun's theory of taxation, depicted as the Laffer curve, will be used in the present study in understanding the impact of a gradual reduction in the corporate tax rate in Malaysia. This is in line with other studies that have used the theory in understanding tax issues in the country. For instance, Mohamed Nor et al. (2013) used the Laffer curve in the determination of optimal excise tax on cigarettes in Malaysia. Also, George (2013) used secondary data to estimate optimal tax rates for individuals and companies in Malaysia through the Laffer curve. They found the appropriate optimal tax rate to be 35 per cent for companies while ranging between 35 and 42 per cent for individuals. They also documented the relationship between the corporate tax rate and corporate tax revenue. However, their study failed to take into consideration the inverted U-shape nature of Laffer curve as they used a model with linear effect in the estimation.

The present study is unique in that it focuses on the resultant effects of economic growth in terms of tax revenue. While other studies have examined a series of economic growth variables, jointly or individually, it is believed that the acclaimed improved prosperity to a state is in terms of increases in employment, workers' income and productivity (Laffer et al., 2012). The Laffer theory (Laffer et al., 2012) could only

compensate for tax reduction when it is translated into increased economic activity that in turn increases tax revenue for the government. This is also the argument in the theory as presented by Ibn Khaldun (as quoted above). The study also takes into cognizance the inverse relationship between the corporate tax rate and corporate tax revenue. In addition, the autoregressive distributed lag (ARDL) approach provides better estimates for time series data relevant for such investigation.

Methodology and data

Time series data are highly recommended when it comes to investigating the effects of any change in tax rate. Laffer *et al.* (2012) noted, in agreement with Mankiw and Matthew (2006) and Matthews (2010), that selection of a meaningful time frame is critical, and ideally it would be one long enough for all effects of a tax change to work through the economy.

Consistent with the taxation theories of Ibn Khaldun (Laffer curve) and the empirical works of Brill and Hassett (2007), Clausing (2007) and Romer and Romer (2010), the following model was adopted in the paper:

$$REV_t = \alpha_1 + \alpha_2 RATE_t + \alpha_3 RATE_t^2 + \alpha_4 CRISIS_t + \upsilon_t \tag{1}$$

where:

REV = corporate tax revenue (the total corporate income tax collected for the 189-year period, in billions of ringgits)

RATE = corporate tax rate (corporate income tax rates in the respective years, as a percentage)

CRISIS = the dummy that captures the periods of crises that were experienced by the country including the Asian financial crisis (1997 and 1998) and the subprime mortgage crisis (2007, 2008, 2009).

Consistent data for many potential control variables are not available for the entire sample period. The data for REV is extracted from the economic reports available with the Ministry of Finance, while RATE is obtained from Lembaga Hasil Dalam Negeri Malaysia (Inland Revenue Board of Malaysia) in Jalan Duta.

To use the ARDL bound test approach, the following model is estimated:

$$\Delta REV_t = \alpha_1 + \alpha_2 \sum_{i=1}^{k} \Delta REV_{t-i} + \alpha_3 \sum_{i=0}^{l} \Delta RATE_{t-i} + \alpha_4 \sum_{i=0}^{l} \Delta RATE_{t-i}^2 + \alpha_5 REV_{t-1}$$
$$+ \alpha_6 RATE_{t-1} + \alpha_7 RATE_{t-1}^2 + \alpha_8 CRISIS + \upsilon_t \tag{2}$$

The null hypothesis of no cointegration ($\alpha_5 = \alpha_6 = \alpha_7 = 0$) is tested against the alternative hypothesis ($\alpha_4 \neq \alpha_5 \neq \alpha_6 \neq 0$). To examine the Granger causality, equation (2) was extended for the three variables in a Vector Error Correction Model (VECM). Because of space constraint, this paper only shows one equation for corporate tax revenue as follows:

$$\Delta REV_t = \alpha_1 + \alpha_2 \sum_{i=1}^{k} \Delta REV_{t-i} + \alpha_3 \sum_{i=I}^{l} \Delta RATE_{t-i} + \alpha_4 \sum_{i=I}^{l} \Delta RATE_{t-i}^2 + \alpha_5 CRISIS$$
$$+ \alpha_6 ECM_{t-1} + \upsilon_t \tag{3}$$

The joint F-test of the lagged terms is used for testing the short-run Granger causality. The t-test for lagged Error Correction Term (ECT) coefficient provides the long-run Granger causality result. A significant lagged ECT coefficient implies that past equilibrium errors play roles in determining current outcomes. If the coefficient is significant, then the corporate tax rate and the square of the corporate tax rate affect corporate tax revenue in the long run.

Empirical results and discussion

The examination of the unit root properties of the series is the first part of the empirical analysis. The traditional unit root tests – including the Said and Dickey (1984) or Augmented Dickey–Fuller (ADF) and Phillips and Perron (1988) or PP – were applied to examine the non-stationarity of the four series. The results which are reported in Table I reveal that the null of non-stationarity cannot be rejected when the variables are in level. However, the null hypothesis can be rejected once the series are in the first differences. Having ascertained that the variables are integrated of order equation (1), the cointegration test was performed.

By using the ARDL approach, it is observed that there is a long-run relationship between the two variables. The cointegration is presented in Table II and shows that the F-statistic (4.054) is above the upper bounds critical values at 5 per cent significance level (3.87), when

Variables	ADF unit root test T-statistic	PP unit root test T-statistic
REV_t	3.095 (2)	3.167 (2)
ΔREV_t	−3.126** (0)	−3.126** (1)
$RATE_t$	−1.261 (0)	−1.268 (1)
$\Delta RATE_t$	−3.518** (0)	−3.518** (0)
$RATE_t^2$	−1.377 (0)	−1.379 (1)
$\Delta RATE_t^2$	−3.621** (0)	−3.621** (0)

Notes: ** indicates significance at 5% level. With maximum lag set at 2, the optimal lags in ADF are selected based on Schwarz Information Criterion, whereas the Bartlett with Newey-West bandwidth is used for PP. Due to the short sample size, we provide for intercept only in the estimation process

Table I.
Unit root tests, Malaysia

Estimated models	Bounds testing to cointegration		Diagnostic tests		
	Lag length	F-statistics	χ^2_{SERIAL}	χ^2_{ARCH}	χ^2_{NORMAL}
$F_{REV_t}\left(REV_t/RATE_t, RATE_t^2, CRISIS\right)$	1,2,0	4.054**	0.144 [1]	0.345 [1]	0.958 [1]
Significance level	Critical values (T= 19)$^{\#}$				
	Lower bounds $I(0)$	Upper bounds $I(1)$			
1 per cent level	4.13	5.00			
5 per cent level	3.10	3.87			
10 per cent level	2.63	3.35			

Notes: ** denote significance at 5%. The optimal lag length is determined by on Schwarz Information Criterion. [ ] is the order of diagnostic tests. Critical values for the bounds test: case II: restricted intercept and no trend

Table II.
ARDL Cointegration analysis

the corporate tax revenue is the dependent variable. This is a confirmation that there is a long-run relationship in the series, when corporate tax revenue is entered as the dependent variable. Having established the existence of a long-run relationship between the two variables, the subsequent phase is to evaluate the effect of the corporate tax rate on corporate tax revenue and also the relevance of the Laffer curve in Table III.

The results show that there is positive impact of the corporate tax rate on corporate tax revenue at 1 per cent significance level. However, the square of the corporate tax rate has a negative impact on corporate tax revenue at 1 per cent significance level, which implies an inverted U-shape relationship between corporate tax rate and corporate tax revenue. The result suggests a dual impact of corporate tax rate on corporate tax revenue over the study period. It means that corporate tax rate has a positive relationship with corporate tax revenue at the lower rates of taxes and a negative relationship subsequent to an optimal level of the tax rate. This result is in line with propositions in Ibn Khaldun's theory of taxation and the idea in the Laffer curve discussed above. The result is also similar to those of Trabandt and Uhlig (2011), Devereux (2006), Clausing (2007), Brill and Hassett (2007) and George (2013).

A closer look at the results suggests that the optimal tax rate is 25.5156 per cent. It could, therefore, be inferred that an increase of the corporate tax rate above 25.5156 per cent will lead to a decrease in corporate tax revenue. The optimal corporate tax rate documented in this study is in sharp contrast to the findings of George (2013) that documented the optimal tax rate of 35 per cent. It further justifies the need for further study given fundamental flaws in their study. The results of the present study further show that the financial crises had a negative impact on tax revenue in the country.

Next, the causal relationship between corporate tax rate and corporate tax revenue in Malaysia was investigated. The results depicted in Table IV show that there is unidirectional causality from corporate tax rate to corporate tax revenue in the country.

The documented causality between corporate tax rate and corporate tax revenue substantiates an established relationship between the two variables, and it is also an

	Long-run coefficients			
Dependent variable	REV_t			
Independent variable	$RATE_t$	$RATE_t^2$	CRISIS	CONSTANT
	397.022*** (4.493)	−7.780*** (−4.528)	−26.526*** (−3.852)	−5.364.262*** (−4.472)

Table III.
Long-run analysis

Notes: *** is the significance level at 1%. The *t*-statistics are in the parenthesis

		Direction of causality	
		Short run	Long run
Dependent variable	ΔREV_{t-i}	$\Delta RATE_{t-i}$ $\Delta RATE_{t-i}^2$	ECT_{t-1}
ΔREV_{t-i}		4.255* [0.0597]	−0.001*** (−3.527)
$\Delta RATE_{t-i}$	1.344 [0.295]		0.001 (2.201)
$\Delta RATE_{t-i}^2$			

Table IV.
The VECM Granger causality analysis in Malaysia

Notes: ***, and * are the significance level at 1, and 10%, respectively. The probability values are reported in the brackets, while the t-statistics are in the parenthesis

important contribution of this study. It also means that the inverted U-shape relationship between the two variables coined in the theory of taxation by Ibn Khaldun and depicted in the Laffer curve is justified.

Conclusion and policy implications

The positive relationship between corporate tax rate and corporate tax revenue and the determination of the optimal corporate tax rate show that the policy of gradual reduction in the corporate tax rate had a positive impact on the economic growth of Malaysia. It means that the lower corporate tax rate actually reduced the cost of doing business in the country. However, lowering the corporate tax rate further from the optimal level may also lead to decreases in corporate tax revenue. While this result has valuable policy implications, care must be taken in its generalization for a number of reasons. First, it should be noted that the policy was not implemented in isolation. Several other tax incentives were also given to corporate taxpayers, and therefore such incentives should be controlled for to have more insightful evaluation of the policy. Second and most important, there is a need to investigate whether the increased cash flow available to firms through the reduction in corporate tax rate adds value to the firms. It will be necessary to investigate whether the firms' stakeholders benefited from the increased cash flow or whether there was managerial diversion of firms' resources.

The result of the examination, using the ARDL approach, shows a significant negative relationship between the corporate tax rate and corporate tax revenue for the 18-year period examined. This finding is in accordance with the theory of taxation by Ibn Khaldun depicted as the Laffer curve. It therefore suggests that the reduction in the corporate tax rate has translated to increased productivity among firms and it has expanded the tax base. A further analysis of the causality between the two variables, after controlling for financial crises, also shows a significant result. It means that a reduction in corporate tax rate could bring increases in corporate tax revenue in the long run.

It will be worthwhile for the Malaysian government not to charge corporate taxes at any rate lower than the identified optimal rate of 25.5156 per cent. This might lead to reduction in corporate tax revenue. Thus, it is suggested that further reduction in corporate tax rate planned by the government should be implemented in a holistic manner in the light of other incentives and there should be more stringent tax enforcement strategies to ensure better compliance. The granting of other incentives will motivate corporate tax payers' voluntary compliance. Further, tax enforcement strategies, such as tax audit, will help in achieving the same.

References

Aasness, J. and Nygard, O.E. (2014), "Revenue functions and Dupuit curves for indirect taxes with cross-border shopping", *International Tax and Public Finance*, Vol. 21 No. 2, pp. 272-297.

Agell, J. and Persson, M. (2001), "On the analytics of the dynamic Laffer curve", *Journal of Monetary Economics*, Vol. 48 No. 2, pp. 397-414.

Akgun, O., Bartolini, D. and Cournede, B. (2017), "The capacity of governments to raise taxes", OECD Economics Department Working Paper No. 1407, OECD Publishing, Paris, 11 September, available at: http://dx.doi.org/10.1787/6bee2df9-en (accessed 30 September 2015).

Ayres, I. (2016), "Contracting for privacy precaution (and a Laffer curve crime)", *The Journal of Legal Studies*, Vol. 45 No. S2, pp. S123-S136.

Brill, A. and Hassett, K.A. (2007), "Revenue-maximizing corporate income taxes: the Laffer Curve in OECD countries", AEI Working Paper No. 137, 31 July.

Chapra, M.U. (2000), *The Future of Economics: An Islamic Perspective*, The Islamic Foundation, Leicester.

Clausing, K.A. (2007), "Corporate tax revenues in OECD countries", *International Tax and Public Finance*, Vol. 14 No. 2, pp. 115-133.

Creedy, J. and Gemmell, N. (2015), "Revenue-maximising tax rates and elasticities of taxable income in New Zealand", *New Zealand Economic Papers*, Vol. 49 No. 2, pp. 189-206.

Creedy, J. and Gemmell, N. (2017), "Measuring revenue-maximizing elasticities of taxable income: evidence for the US income tax", *Public Finance Review*, Vol. 45 No. 2, pp. 174-204.

Devereux, M. (2006), "Developments in the taxation of corporate profit in the OECD since 1965: rates, bases and revenues", working paper 07/04, December, available at: www.sbs.ox.ac.uk/sites/default/files/Business_Taxation/Docs/Publications/Working_Papers/Series_07/WP0704.pdf (accessed 15 August 2015).

Ehrhart, H., Minea, A. and Villieu, P. (2014), "Debt, seigniorage and the growth Laffer curve in developing countries", *Journal of Macroeconomics*, Vol. 42, pp. 199-210.

Fedeli, S. (2017), "Taxation and Laffer effects on employment and growth", *International Advances in Economic Research*, Vol. 23 No. 1, pp. 1-7.

Floden, M. and Linde, J. (2001), "Idiosyncratic risk in the United States and Sweden: is there a role for government insurance?", *Review of Economic Dynamics*, Vol. 4 No. 2, pp. 406-437.

George, S. (2013), "The effects of tax rates on its revenue and growth: a case study of Malaysia", *Journal of Global Business and Economics*, Vol. 6 No. 1, pp. 18-48.

Ibn Khaldun (1377a), *The Muqaddimah: An Introduction to History-Abridged Edition*, translated by F. Rosenthal, 1969, Princeton/Bollingen, Princeton, NJ.

Ireland, P.N. (1994), "Supply-side economics and endogenous growth", *Journal of Monetary Economics*, Vol. 33 No. 3, pp. 559-571.

Irvin, B.T. (2013), *Survey of Economics*, 8th ed., Cengage Learning, Boston.

Islahi, A.A. (2006), "Ibn Khaldun's theory of taxation and its relevance today", paper presented at Encuentro Internacional Sobre Tradición y Modernidad en el Pensamiento Económico Árabe-Musulmán, La Contribución de Ibn Jaldún, 3-5 November, Madrid.

Ismail, A.G. and Jaafar, A.B. (2013), "Tax rate and its determinations: an opinion from Ibn Khaldun", working paper 1435-1, Islamic Research and Training Institute, Islamic Development Bank, Jeddah, 6 November.

Jonsson, M. and Klein, P. (2003), "Tax distortions in Sweden and the United States", *European Economic Review*, Vol. 47 No. 4, pp. 711-729.

Krause, A. (2009), "A general equilibrium analysis of the Laffer argument", *Social Choice and Welfare*, Vol. 33 No. 4, pp. 601-615.

Laffer, A.B. (2004), "The Laffer curve: past, present, and future", available at www.heritage.org/taxes/report/the-laffer-curve-past-present-and-future (accessed 28 June 2016).

Laffer, A.B. Martilla, J.A. and Watkinson, W.G. (2012), "Corporate income tax elasticity: how republicans can have lower tax rates and democrats can collect more tax revenue!", available at: www.pacificresearch.org/corporate-income-tax-elasticity-how-republicans-can-have-lower-tax-rates-and-democrats-can-collect-more-tax-revenue/ (accessed 15 July 2016).

Mankiw, N.G. and Matthew, W. (2006), "Dynamic scoring: a back-of-the-envelope guide", *Journal of Public Economics*, Vol. 90 Nos 8/9, pp. 1415-1433.

Matthews, D. (2010), "Where does the Laffer curve bend?", *The Washington Post*, 9 August, available at: http://voices.washingtonpost.com/ezra-klein/2010/08/where_does_the_laffer_curve_be.html (accessed 20 August 2015).

Mattos, E. and Terra, R. (2016), "Nature of transfers, income tax function and empirical estimation of elasticity of taxable income for Brazil", *Applied Economics*, Vol. 48 No. 53, pp. 5201-5220.

Megersa, K.A. (2015), "The Laffer curve and the debt-growth link in low-income Sub-Saharan African economies", *Journal of Economic Studies*, Vol. 42 No. 5, pp. 878-892.

Mohamed Nor, N., Raja Abdullah, N.M., Rampal, L. and Mohd Noor, Z. (2013), "An optimal cigarette tax in Malaysia", *International Journal of Economics and Management*, Vol. 7 No. 2, pp. 205-220.

Novales, A. and Ruiz, J. (2002), "Dynamic Laffer curves", *Journal of Economic Dynamics and Control*, Vol. 27 No. 2, pp. 181-206.

Nutahara, K. (2015), "Laffer curves in Japan", *Journal of the Japanese and International Economies*, Vol. 36, pp. 56-72.

Oudheusden, P.V. (2016), "Fiscal policy reforms and dynamic Laffer effects", *International Tax and Pubic Finance*, Vol. 23 No. 3, pp. 490-521.

Papp, T.K. and Takat, E. (2008), "Tax rate cuts and tax compliance—the Laffer curve revisited", IMF Working Paper/08/07, International Monetary Fund, Washington, DC.

Phillips, P.C.B. and Perron, P. (1988), "Testing for a unit root in time series regression", *Biometrika*, Vol. 75 No. 2, pp. 335-346.

Rahman, O.A. (1993), "Industrial targets of vision 2020: the science and technology perspective", in Abdul Hamid, A.S. (Ed.), *Malaysia's Vision 2020: Understanding the Concept, Implications and Challenges*, Pelanduk Publications, Kuala Lumpur, pp. 271-299.

Romer, C.D. and Romer, D.H. (2010), "The macroeconomic effects of tax changes: estimates based on a new measure of fiscal shocks", *American Economic Review*, Vol. 100 No. 3, pp. 763-801.

Said, S.E. and Dickey, D.A. (1984), "Testing for unit roots in autoregressive moving average models of unknown order", *Biometrika*, Vol. 71 No. 3, pp. 599-607.

Salihu, A.I. (2015), "Determinants of corporate tax avoidance among Malaysian public listed companies", doctoral dissertation, International Islamic University Malaysia, Selangor.

Sanz-Sanz, J.F. (2016), "The Laffer curve in schedular multi-rate income taxes with non-genuine allowances: an application to Spain", *Economic Modelling*, Vol. 55, pp. 42-56.

Schmitt-Grohe, S. and Uribe, M. (1999), "Balanced-budget rules, distortionary taxes, and aggregate instability", *Journal of Political Economy*, Vol. 105 No. 5, pp. 976-1000.

Singh, T. and Jain, A.K. (1999), "The corporation tax in India: empirical validity of Laffer curve", *The Indian Economic Journal*, Vol. 47 No. 2, pp. 109-118.

Spiegel, U. and Templeman, J. (2004), "A non-singular peaked Laffer curve: debunking the traditional Laffer curve", *The American Economist*, Vol. 48 No. 2, pp. 61-66.

Strulik, H. and Trimborn, T. (2012), "Laffer strikes again: dynamic scoring of Capital taxes", *European Economic Review*, Vol. 56 No. 6, pp. 1180-1199.

Sutter, M. and Weck-Hannemann, H. (2003), "Taxation and the veil of ignorance – a real effort experiment on the Laffer curve", *Public Choice*, Vol. 115 Nos 1/2, pp. 217-240.

Tatu, S. (2014), "An application of debt Laffer curve: empirical evidence for Romania's case", *Romanian Journal of Fiscal Policy*, Vol. 5 No. 1, pp. 29-38.

Trabandt, M. and Uhlig, H. (2011), "The Laffer curve revisited", *Journal of Monetary Economics*, Vol. 58 No. 4, pp. 305-327.

Tsuchiya, Y. (2016), "Dynamic Laffer curves, population growth and public debt overhangs", *International Review of Economics and Finance*, Vol. 41, pp. 40-52.

Uhlig, H. and Yanagawa, N. (1996), "Increasing the capital income tax may lead to faster growth", *European Economic Review*, Vol. 40 No. 8, pp. 1521-1540.

Wanniski, J. (1978), "Taxes, revenues, and the 'Laffer curve". *The Public Interest*, Vol. 50, pp. 3-16.

Further reading

BNM (2005), *National SME Development Blueprint 2006*, Bank Negara Malaysia, Kuala Lumpur.

Ibn Khaldun (1377b), *Muqaddimah of Ibn Khaldun: An Introduction to History*, translated by F. Rosenthal, Princeton University Press, Princeton, NJ.

Ministry of Finance Malaysia (2005/2006), Economic Report 2005/2006.

Ministry of Finance Malaysia (2009/2010), Economic Report 2009/2010.

Ministry of Finance Malaysia (2010/2011), Economic Report 2010/2011.

Ministry of Finance Malaysia (2011/2012), Economic Report 2011/2012.

Ministry of Finance Malaysia (2012/2013), Economic Report 2012/2013.

Narayan, P.K. (2005), "The saving and investment nexus for China: Evidence from cointegration tests", *Applied Economics*, Vol. 37 No. 17, pp. 1979-1990.

About the authors

Hairul Azlan Annuar, PhD, is an Associate Professor in the Department of Accounting, the International Islamic University Malaysia (IIUM). He teaches undergraduate courses in corporate governance and management accounting, as well as managerial accounting at the master's level. He received his BA (Hons) degree in accounting and finance from the University of East London and his MBA with a specialization in Islamic Banking and Finance from IIUM. He received his PhD from Cardiff University, UK. His research interests lie in corporate governance and microfinance. Hairul Azlan Annuar is the corresponding author and can be contacted at: hazalan@iium.edu.my

Khadijah Isa, PhD, has been an Assistant Professor at the Department of Accounting, IIUM, since 2001. She holds a PhD (Taxation) from Curtin University (2012). Her research interests are tax compliance, tax administration, Goods and Services Tax (GST) and graduate employability.

Salihu Aramide Ibrahim, PhD, is presently a Contract Lecturer in the Accounting Area at the School of Business, Universiti Teknologi Brunei. He earned his PhD in accounting from IIUM. His research interests are in corporate governance, corporate taxation, Islamic accounting and managerial accounting.

Sakiru Adsebola Solarin, PhD, is a Senior Lecturer in Economics at the Faculty of Business, Multimedia University, Malaysia. He earned his PhD in Economics from University Utara Malaysia. He has conducted research in the areas of tourism economics, Islamic banking and finance, energy economics, defense economics and applied econometrics.