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Does financial system activity affect tax revenue in Malaysia? Bounds testing and causality approach

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ABSTRACT

We provide new empirical evidence on the relationship among direct tax revenue and banking and non-banking activities in Malaysia's financial system, utilising monthly data for the period 1997–2008. The existence of the long run equilibrium relationship between tax revenue and the financial system was investigated using the autoregressive distributive lag (ARDL) bounds testing approach to cointegration. We find a long-run equilibrium relationship between the financial system and tax revenue in Malaysia. The short-run dynamic relationship between direct tax revenue and financial system was investigated using the vector error correction model (VECM). The estimated ECT_{t-1} coefficient indicates a relatively fast speed of adjustment from short-run disequilibrium to long-run equilibrium. The Granger causality tests reveal unidirectional causality running from stock market towards direct tax revenue, indicating that an increase in stock market activities is likely to improve the collection of direct tax revenue. Overall, we show that the impact of the financial system on direct tax revenue is more profound in the short run than in the long run.

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1. Introduction

'For a developing country such as Malaysia to progress well, the combination of a strong financial system and solid fiscal policy is necessary to promote economic growth. Despite the importance of these measures and voluminous literature on the topic, understanding of the relationship between the financial system and fiscal policy as well as their joint impact on economic growth is far from complete. Although it is generally accepted that this relationship exists in developed countries (Akitoby & Stratmann, 2008; Arin, Mamun, & Purushothman, 2009), studies do not agree on the direction of the causality or provide very little insight into the particular fiscal policy tools that could help a government to achieve a desired financial market response (Ardagna, 2009; Darrat, 1988, 1990; Laopodis, 2009). This is important because fiscal policy tools, especially taxation arrangements, may have an impact on both the competitiveness of a country's financial markets and banking and non-banking institutions operating in those markets. Moreover, in developing countries this relationship needs to be investigated, and the evidence of either no or negative causality between financial markets and taxation (e.g. a financial market does not contribute to taxation revenue) should be used to raise additional questions as to why these findings have occurred.

In addition, the causal effect of specific financial variables on a taxation system seems to be an under-investigated area, since previous studies have largely focused on a small portion of a financial system typically proxied by the stock market

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while neglecting the bonds market and banking sector activities. For instance, Bohn (1990), Demirguc-Kunt and Huizinga (2001), Tavares and Valkanov (2001), and Ardagna (2009), focus on either banking or non-banking activities in the financial system, but do not attempt to examine the impact of both types on tax revenue collection.

The main purpose of this paper is to examine the short-run and long-run linkages between taxation (direct tax revenue) and the financial system (both banking and non-banking financial activities) in Malaysia as a developing country, utilizing monthly data for the period 1997–2008. The existence of the long run equilibrium relationship between tax revenue and the financial system was investigated using the autoregressive distributive lag (ARDL) bounds testing approach to cointegration, which can be used regardless of whether the underlying variables are integrated of different orders or fractionally integrated. The short-run dynamic relationship between direct tax revenue and financial system was investigated using the vector error correction model (VECM).

This paper contributes to the literature on the relationship between taxation and the financial system in three ways. First, it focuses on a wide range of financial variables that represent both banking and non-banking financial activities. Second, to the best of our knowledge, this is the first paper to concurrently examine the relationship between tax and the financial system in developing Asia with particular attention to Malaysia. Third, unlike previous studies which examined the role of fiscal policy in Malaysia (e.g. the impact of tax rate changes on financial activities in that country), our aim is to investigate the effect of the financial system on the direct tax revenue collection, given that for the past two decades direct tax revenue has been the major contributor to government income in that country (Malaysia, 2008). Table 1 demonstrates that the share of direct tax revenue in the total government revenue increased from 39% in 1980 to more than 50% in 2008.

The structure of this paper is as follows: Section 2 surveys the literature while Section 3 presents the data used in the study and discusses the empirical methodology. The findings are presented in Section 4. The paper concludes with a brief summary, followed by a discussion of the implications of our findings in Section 5.

2. Literature on the relationship between the financial system and tax revenue

Many empirical studies have documented the relationship between financial activities and fiscal policy, with most extant literature suggesting that fiscal policy has a strong negative impact on the performance of financial system activities (typically stock and bond markets) in a developed country (Ardagna, 2009; Laopodis, 2009). Darrat (1988, 1990) find a strong relationship between fiscal policy and stock market returns, and advocates the existence of lags between fiscal measure implementation and a respective change in the stock market returns; while Tavares and Valkanov (2001) claim that an increase in taxes has an immediate statistically negative and significant effect on expected stock and bond returns. More recently, and by using panel data for OECD countries from 1960 to 2002, Ardagna (2009) suggests that fiscal contractions have a positive effect on the performance of the stock market, while fiscal expansions have a negative effect. Laopodis (2009) also reports that fiscal policy can affect the stock market in a negative and significant manner.

While other studies find an inverse relationship between taxation and financial system activities, Bohn (1990) presents a case for a positive relationship using tax revenue as a proxy of tax rate. Bohn emphasises that government intervention in financial activities through optimal policy may provide a hedge against shocks to the budget. Therefore, the nature of the relationship between the financial system and taxation might change due to government involvement in reducing the impact of distortionary tax.

More recently, literature suggests that the nature of the relationship between fiscal and financial variables might depend on the level of interaction with political institutions as well as approaches to investment (Akitoby & Stratmann, 2008) and types of taxes (Arin & Koray, 2006; Arin et al., 2009). For example, using a panel of emerging economies, Akitoby and Stratmann (2008) argue that interaction with political institutions matters because international investors prefer a taxation approach that reduces investment risk. After estimating a vector auto-regression (VAR) model with total taxes and the decomposition of tax in four groups (income tax, corporate tax, indirect tax and social security tax) for the Canadian economy, Arin and Koray (2006) find that different taxes will have different effects. Arin et al. (2009) find that indirect tax and labour tax have significant negative effects on excess market returns, but corporate taxes produce no significant response. This is due to the ability of firms to switch the investment mode from debt to equity financing. In addition, the magnitude of the effect of indirect taxes on stock returns is larger than the effect of labour tax.

Table 1
The components of the government revenue in Malaysia.

Year	Direct tax	Percentage of total revenue	Indirect tax	Percentage of total revenue	Non-tax revenue	Percentage of total revenue
1980	5495	39	6565	47	1675	12
1984	8445	41	8029	39	3790	18
1988	7509	34	7199	33	6623	30
1992	15,403	39	13,369	34	9603	24
1996	25,851	44	21,421	37	10,330	18
2000	29,156	47	18,017	29	14,093	23
2004	48,702	49	23,347	23	26,511	27
2008	82,138	51	30,760	19	45,911	29

Source: Compiled by authors based on data collected from Federal Government Revenue, Treasury Department Malaysia (http://www.treasury.gov.my).

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