



## Corporate effective tax rates in Asian countries



Masaaki Suzuki\*

Kyoto University, Institute of Economic Research, Yoshida-Honmachi, Sakyo-ku, Kyoto 606-8501, Japan

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### ABSTRACT

This paper aims to (a) calculate [Devereux and Griffith's \(2003\)](#) forward-looking effective tax rates for 12 Asian countries over a span of 30 years, (b) show the impact of tax holidays on the effective tax rate in Asian countries, and (c) empirically explore the possibility of tax competition among Asian countries. Through relevant analyses, I arrive at three key conclusions. First, while small countries with little rent in domestic markets set their effective tax rates at almost zero, large countries maintain much higher effective tax rates. Second, for countries that have generous capital allowance systems, tax holidays may lead to a rise in not only the effective marginal tax rates (EMTRs), but also the effective average tax rates (EATRs). Third, some Asian countries may engage in tax competition, at least over the EATR, for a limited period of time. However, while some countries have raised their effective tax rates in recent years, others have continued with tax reductions. These results indicate that the recent tax interactions among Asian countries differ from the simpler interactions seen among the European countries.

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### 1. Introduction

This paper aims to construct corporate effective tax rates for Asian countries and empirically examine the possibility of tax competition among these countries. Tax competition has become more important for policy makers as firms expand their business activities globally, particularly in integrated areas like the EU. Many studies have shown empirical evidence of tax competition among the European and OECD countries, and suggest that countries compete primarily on the statutory tax rates (STR). Another form of tax competition involves granting tax incentives such as tax holidays. [Klemm and Van Parys \(2012\)](#) examined tax competition via tax incentives in Latin American, Caribbean, and African countries, and found evidence of tax competition based on STR and tax holidays. However, their study did not include Asian countries. Since Asian countries have used tax incentives aggressively for decades, it may be apt to examine them in the context of tax competition via tax incentives. Moreover, Asian countries are at different stages of development. Hence, an investigation of their policy interactions may highlight a new feature of tax competition that is unseen among countries at similar stages of development.

One of the difficulties in analyzing Asian tax competition is that there is no ready data for effective tax rates of Asian countries. Therefore, this paper seeks to first create a dataset of effective tax

rates for Asian countries, and then empirically examine whether there is tax competition among them.

Based on these analyses, I arrive at three key conclusions. First, small Asian countries, like Singapore, set effective tax rates at almost zero in order to attract foreign capital. This finding is consistent with a simple theoretical model of tax competition in which the optimal behavior of small countries spurs a “race to the bottom” in source-based taxation ([Gordon, 1986](#); [Zodrow and Mieszkowski, 1986](#); etc.). I also found that India, Indonesia, and Japan maintain relatively high effective tax rates. This finding is consistent with the work related to asymmetric tax competition ([Bucovetsky, 1991](#); [Wilson, 1991](#)), and the “new trade theory” ([Haufler and Wooton, 1999](#); [Baldwin and Krugman, 2004](#); etc.). The theory of asymmetric tax competition suggests that because of the difference in elasticity of capital between large and small countries, the former set higher tax rates at equilibrium. The new trade theory argues that countries with large domestic markets can maintain higher tax rates vis-à-vis small countries because of agglomeration forces.

Second, this paper confirms the previous work by [Mintz \(1990\)](#) and [Klemm \(2010\)](#) that highlights that when countries have generous capital allowance schemes, tax holidays do not necessarily reduce the effective marginal tax rate (EMTR) because the capital allowance reductions outweigh the merits of tax holidays. My results demonstrate that in Asian countries, given generous capital allowance schemes, both the EMTR and the effective average tax rate (EATR) can rise due to a short tax holiday. I also find that while countries that have generous capital allowances grant long tax holidays, those that have less generous

\* Tel.: +81 757537173.

E-mail address: [suzuki@kier.kyoto-u.ac.jp](mailto:suzuki@kier.kyoto-u.ac.jp)

**Table 1**  
Research objectives of the three related literature.

	1. Calculation of the Devereux–Griffith effective tax rate	2. Impact of tax holidays on the effective tax rate	3. Empirical analysis of tax competition
<i>European or developed countries</i>			
Devereux et al. (2002)	16 EU and G7 countries from 1982 to 2001.		
Devereux et al. (2008)	21 OECD countries from 1982 to 1999.		21 OECD countries from 1982 to 1999.
Devereux et al. (2009)	28 EU countries from 1998 to 2009, and 7 other developed countries from 2005 to 2009.		
Overesch and Rincke (2011)	32 European countries from 1983 to 2006.		32 European countries from 1983 to 2006.
<i>Asian or developing countries</i>			
Mintz (1990)		Marginal effective tax rate for 5 developing countries.	
Botman et al. (2010)	6 Asian countries in a single year.	Devereux–Griffith's EATR and EMTR for 6 Asian countries.	
Klemm and Van Parys (2012)	40 Latin American, Caribbean, and African countries from 1985 to 2004.		40 Latin American, Caribbean, and African countries from 1985 to 2004.
Abbas and Klemm (2013)	50 countries in Asia, Africa, Latin America, and Developing European countries from 1996 to 2007.		
This paper	12 Asian countries from 1981 to 2012.	Devereux–Griffith's EATR and EMTR for 12 Asian countries.	12 Asian countries from 1985 to 2012.

capital allowances tend not to use tax holidays to attract firms. This suggests that governments may make rational decisions in order to avoid significant revenue losses from tax holidays.

Third, tax competition is observed in Asian countries after the 1990s. By restricting the estimation period to 1991–2012, I find a significant interaction, at least as far as the EATR is concerned. However, in recent years, there has been a considerable change in the way countries set their tax rates. While Japan, South Korea, Thailand, and Indonesia continued to reduce their effective tax rates, China and Taiwan have raised them. The recent evidence is, thus, in sharp contrast to the simple model of tax competition.

The rest of the paper is structured as follows. Section 2 describes the method used to calculate the Devereux–Griffith effective tax rates and the associated assumptions. Section 3 provides a comparison of the effective tax rates of 12 Asian countries. Section 4 discusses the impact of tax holidays on effective tax rates. Section 5 empirically examines whether there is tax competition among Asian countries. Section 6 provides the conclusion.

## 2. Previous studies

This paper involves three related literature. Previous studies for each literature are summarized in Table 1.

The first literature includes the studies on Devereux and Griffith's (2003) corporate effective tax rate. Using the Devereux–Griffith methodology, Devereux et al. (2002) examined the forward-looking EATRs and EMTRs for the OECD countries from 1982 to 2001.<sup>1</sup> Devereux et al. (2009) extended their earlier study by calculating the EATRs and EMTRs for the member nations of the European Union from 1998 to 2009, and for other developed countries from 2005 to 2009.

There are fewer studies related to the effective tax rate for developing countries as compared to that for developed countries. Botman et al. (2010) made the first attempt to calculate the EATRs and EMTRs from data collected for select Asian countries. However, their research utilized data for only seven countries (all of which have relatively similar tax systems) for a single year of observations. Major Asian economic powers, like China, South Korea, and Singapore were not included in their analysis. Abbas and Klemm (2013) presented the most comprehensive work related to effective tax rates for developing countries. Their work is based on data from

50 countries in Asia, Africa, Latin America, and developing European countries from 1996 to 2007. However, they did not report each country's effective tax rate, and their calculations were limited to the period of 1996–2007. I want to highlight that, so far, the data for analyzing governments' behaviors on corporate tax rate settings in Asian countries is inadequate. In order to take forward the previous work on this subject, I create a dataset of effective tax rates for 12 Asian countries from 1981 to 2012.

Second, other studies have examined the relationship between tax holidays and effective tax rates. Extant research has shown that this relationship is heavily contingent on a country's capital allowance system. Mintz (1990), for example, first indicated that tax holidays do not necessarily lead to a reduction in the effective marginal tax rates in countries with generous capital allowances. Klemm (2010) confirmed this conclusion using the Devereux–Griffith framework, arguing that the EMTR may rise with short tax holidays, while the EATR falls due to tax holidays. Botman et al. (2010) extended past research to explore the impact of tax holidays on the effective tax rates of seven Asian countries. They found an inverse relationship between the size of a country's capital allowance rates and the impact of tax holidays, and concluded that tax holidays were a greater incentive for FDI and new investments, rather than incremental investment. In this study, I seek to confirm the findings of Botman et al. (2010) using a larger and more heterogeneous sample of Asian countries.

Lastly, there are many empirical studies on tax competition. As a benchmark study, Devereux et al. (2008) demonstrated positive interactions on STRs and EMTRs for 21 OECD countries over 1982–1999. They also found that countries with high effective tax rates are more sensitive to tax rates in other countries. Overesch and Rincke (2011) reevaluated the tax competition among European countries for a sample period that covered recent years. Using tax data from 32 European countries for a 23-year period between 1983 and 2006 for their analyses, they concluded that tax competition leads to a decline in corporate tax rates in European countries. In their study of the effects of the EU expansion, Davies and Voget (2008) found that EU members react more strongly to each other's tax rates than non-EU members. Similarly, Crabbe and Vandebussche (2009) highlighted that a country's geographic distance from new, low-tax members is positively associated with its likelihood of maintaining higher tax rates. The neighboring countries of the new EU members, namely Germany, Italy, Sweden, and Denmark, reacted strongly to the tax rate settings of the new members.

<sup>1</sup> Data up to 2005 is provided by Alexander Klemm on the web page of the IFS.

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