



# Country size and tax policy for international joint ventures in an integrated market



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## ARTICLE INFO

### Article history:

Received 5 December 2011

Received in revised form 31 August 2012

Accepted 4 September 2012

Available online 11 September 2012

### JEL classification:

F23

H25

L24

### Keywords:

Joint ventures

Tax policy

Country size

Profit sharing

## ABSTRACT

We investigate international joint ventures in an integrated market using a two-country model with asymmetric sizes. We show that although the domestic firm in the small country is less efficient, it is possible that the government of the small country imposes a higher tax than that of the large country. Moreover, we show that even if the domestic firm in the large country is less efficient, a joint venture by this firm and the foreign firm could be more productive, and the foreign firm could prefer to form a joint venture partnership with the domestic firm in the large country.

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## 1. Introduction

With the globalization of economic activities in recent decades, multinational firms have penetrated into foreign markets by adopting a means of foreign direct investment (FDI), and many countries compete with each other to attract foreign firms.<sup>1</sup> The large proportion of FDI is in the form of joint ventures (JVs) (Al-Saadon & Das, 1996; Zhong & Lahiri, 2009), and, in developing and transition countries such as China, India, Indonesia, Thailand, Vietnam, and Russia, the formulation of international joint ventures (IJVs) between local firms and foreign firms is observed.

On the other hand, it is well known that the IJVs provide job creation and spillovers to the host countries. For example, the IJVs create technological spillovers from the foreign firms to the local firms in the host country, so there is a possibility that other local firms indirectly benefit from the IJVs. In a recent empirical study, Havranek and Irsova (2011) employ meta-analysis methodology to show that JVs of foreign and domestic firms have robust positive effects on other domestic firms in the host country.<sup>2</sup> Therefore, the formulation of IJV is mutually beneficial for the domestic firms in the host country and foreign firms, and we might not be able to understate the importance of IJVs as a mode for entering foreign markets (Zhong & Lahiri, 2010).

Reflecting these situations, in the literature on FDI, JVs between firms have received much interest in theoretical studies, and various issues regarding IJVs have been analyzed (e.g., Al-Saadon & Das, 1996; Lee, 2004; Leung, 1995, 1998; Marjit, Mukherjee, &

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<sup>1</sup> Empirical studies show that FDI has both positive and negative effects. For example, many papers suggest that productivity spillovers from the foreign firms have positive effects on the local firms of the host countries (e.g., Blomström & Sjöholm, 1999; Chuang & Lin, 1999; Driffield, 2001; Kokko, 1996; Liu, Siler, Wang, & Wei, 2000; Sjöholm, 1999a,b). However, other studies find that productivity spillovers have negative effects (e.g., Aitken & Harrison, 1999; Djankov & Hoekman, 2000; Kathuria, 2000).

<sup>2</sup> For other meta-analysis studies of international economics, see, e.g., Disdier and Head (2008), Cipollina and Salvatici (2010), and Havranek (2010).

Kabiraj, 2004; Müller & Schnitzer, 2006; Zhong & Lahiri, 2009, 2010). One of the most important issues concerning IJVs is the ownership distribution between the JV partners. For instance, Al-Saadon and Das (1996) investigate the ownership shares of an IJV by using a Nash bargaining approach. Zhong and Lahiri (2009, 2010) develop a simple three-stage model with a non-Nash bargaining approach and examine the determination of profit allocation between the partners in the IJV.

Zhong and Lahiri (2009) examine IJVs in an integrated market by using the two-country model with the same size and show that the foreign firm prefers to invest in the country with the more efficient firm and that the foreign firm provides more than half of the profits of the JV firm to its partner. The feature of their study is that the IJV in the integrated market has been examined, while the theoretical studies on the IJV in the integrated market are insufficient despite the progress of market integration (e.g., EU and NAFTA). In addition, in analyzing the IJVs in the integrated market, they assume that the potential host countries are the same size. However, the existing literature suggests that the investment location choices of the foreign firms are affected by both the effective tax rate imposed by the government of the host country and the market size (Hauffer & Wooton, 1999). Therefore, the influence of the difference in the market size between the host countries might be an important factor in investigating the IJV in the integrated market.

The purpose of this paper is to investigate IJVs in the integrated market by using the two-country model with asymmetric size. We focus on how the difference in country size between the two potential host countries affects the investment location choice of the foreign firm, the profit distribution between the JV partners, and the tax policy of the host countries.<sup>3</sup> We therefore adopt the approach of Zhong and Lahiri (2009) and take into consideration the production efficiency of the incumbent domestic firms in addition to the difference in market size between the host countries.<sup>4</sup> In our study, we show that both the difference in market size and the production efficiencies of the domestic firms in the host countries affect the tax policy of the host country and the foreign firm's location choice. In particular, we find that even though the domestic firm in the small country is less efficient, there exists the case that the government of the small country imposes a higher tax than that of the large country. Furthermore, we find that even if the domestic firm in the large country is less efficient, there exists the case that the JV by the domestic firm in the large country and the foreign firm is more productive, and the foreign firm prefers to form a JV partnership with the domestic firm in the large country.

This remainder of this paper is organized as follows. Section 2 presents the basic model and deals with the case in which only the government of the host country imposes the output tax on its JV firm, while the government of the non-host country does not impose any tax on its domestic firm. Section 3 derives the equilibrium outcomes in two cases: (i) the foreign firm forms a JV partnership with the domestic firm in the large country, and (ii) the foreign firm forms a JV partnership with the domestic firm in the small country. Section 4 investigates the equilibrium outcomes obtained in the two cases. Section 5 extends the basic model and discusses the case that the government of the non-host country imposes the output tax on its domestic firm, while the government of the host country imposes the tax on the JV firm. Section 6 concludes the paper.

## 2. Basic model

Consider a region comprising two countries,  $A$  and  $B$ , which have one incumbent domestic firm each. In this region, there exists an integrated duopolistic market, which consists of the markets of country  $A$  and country  $B$ . In this integrated market, firm  $a$ , which is the domestic firm in country  $A$ , competes with firm  $b$ , which is the domestic firm in country  $B$ , for a homogeneous commodity. Both firms wish to form an IJV with a foreign firm, denoted as firm  $f$ .

The size of the integrated market is normalized to one. The market size of country  $A$  is  $\theta$  and that of country  $B$  is  $1 - \theta$ . Here, we assume that the market size of country  $A$  is larger than that of country  $B$  and impose  $\theta \in [1/2, 1)$ .<sup>5</sup> Therefore, demand in country  $A$  is given by

$$Q_A = \theta(1 - p_A),$$

and that in country  $B$  is given by

$$Q_B = (1 - \theta)(1 - p_B),$$

where  $Q_i$  ( $i = A, B$ ) is the quantity demanded in country  $i$  and  $p_i$  is the market price in country  $i$ . Country  $A$ 's market and country  $B$ 's market are integrated, so the market prices of the two countries are given by a common price, i.e.,  $p_A = p_B = p$ . Hence, the total demand of the integrated market is given by

$$Q \equiv Q_A + Q_B = 1 - p. \quad (1)$$

When firm  $f$  forms a JV partnership with firm  $a$  of country  $A$ , the products are supplied by both the JV firm (comprising firm  $f$  and firm  $a$ ) and firm  $b$  of country  $B$  in the integrated market. Conversely, the products are supplied by both the JV firm (comprising firm  $f$

<sup>3</sup> In the literature on tax competition for FDI, many papers analyze the investment location choice of the foreign firm by using a two-country model (e.g., Barros & Cabral, 2000; BJORVATN & ECKEL, 2006; HAUFLE & WOOTON, 1999, 2006; MITTERMAIER, 2009; SANJO, 2012).

<sup>4</sup> In the present paper, we often refer to country size as market size.

<sup>5</sup> Note that if  $\theta$  approaches 1, the difference in the market size between countries  $A$  and  $B$  becomes large, but, if  $\theta$  approaches 1/2, it becomes small.

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