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International joint ventures and tax competition in an integrated market

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ABSTRACT

The purpose of this paper is two-fold. First, it develops a theoretical model of international joint ventures to suggest a new approach to the determination of profit allocation between the partners in the joint venture. Second, we examine the issue of tax competition between two countries for an international joint venture. We find that even in the absence of any bargaining power for the domestic firms, the foreign firm would like to give up more than half of profits to its partner. Furthermore, the foreign firm would like to locate in a country in which the partner firm is more efficient. We also find, with numerical simulations, that the domestic firm will accept the joint venture if the foreign firm's technology is significantly more superior than its own.

1. Introduction

The popularity of international joint venture (JV) as a form of business organization is apparent from the large number of JVs formed between firms across national borders. Particularly, in the developing countries like China and India, JV is a major channel to enter these booming markets for the multinational firms. Before 1998, over 70% of foreign investment in China took the form of joint ventures (People's Daily Online, 2001). According to Luo (1998), the international joint venture is the major mode for foreign entry, accounting for 70.45% in 1995 and 68.96% in 1996, respectively. Although the growth of international joint ventures has been slowing down in recent years, accounting for 51.7% in 2000, 47.6% in 2001, 38% in 2002 and 35.8% in 2003 (Folta, 2005), international joint ventures still play a big role in supporting high growth in China.

The high incidence of JVs is also reflected in academic interests in JVs. The existing literature has investigated many aspects of JVs. The most interesting and important issues in JVs are possibly how profit is shared between the partners and how production decisions are made. As for the first issue, the dominant approach is a bargaining one, i.e., the division of profits is decided by a bargaining game between the multinational corporation and whether the domestic firm or the domestic (host) government (see, for example, Al-Saadon & Das, 1996; Asiedu & Esfahani, 2001; Darrough & Stoughton, 1989; Harrigan, 1984; Svejnar & Smith, 1984). As for production decision, it is typically assumed that each partner is responsible for deciding on the level of a factor of production that is specific to it (see, for example, Asiedu & Esfahani, 2001).[1]

Although the existing approach may be reasonable for some types of joint ventures, it is possibly not so for some others. For example, if the multinational firm is a very well established and large one while the host country or firm is a relatively small one, the bargaining power of the host firm or country may be very limited and the only option for the domestic firm is to either take

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[1] Welfare implications of, and government policies toward, JVs are analyzed in, for example, Farge and Wells (1982), Katrak (1983), Al-Saadon and Das (1996), Roy Chowdhury and Roy Chowdhury (2002), Das and Katayama (2003), and Tomoda and Kurata (2004).

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or leave offers made by the foreign firm. Similarly, production decisions may also be taken jointly with a shared technology. In this paper, we provide an alternative approach to the determination of profit share and output. We do so by developing a three-stage game, in the first stage of which the multinational firm commits itself to proving a particular share of profits to the domestic partner. Given this commitment, the host government decides on the level of tax for the JV. A joint decision on production is taken in the third stage. In this framework, as we shall show later, the multinational firm would offer on its own to the domestic partner a share of profits that is larger than 50%. This way, it is able to extract a favorable tax treatment from the host government.

This paper also contributes to the literature tax competition by extending our framework for JV to a two-country model, in which the two countries are integrated by foreign trade. The foreign firm has to choose between domestic firms in the two competing host countries, and these firms compete in the oligopolistic market of a homogeneous good.[2] We find that the foreign firm would form a partnership of the more efficient of the two competing firms.

The paper is organized as follows. Section 2 develops the theoretical framework. Section 3 examines the multinational firm's choice of location. Concluding remarks are made in Section 4.

2. The model

There are two potential host countries, A and B, with one domestic firm in each country. The two firms compete in the integrated duopolistic market for a homogeneous good. The domestic firms have units (marginal) costs c_A and c_B respectively.

A foreign firm, labelled F, which we shall sometimes refer to as 'the multinational corporation' wishes to form a joint venture (JV) with one of the two firms of the two countries, producing the same good that the two domestic firms produce, though the technology of the JV would be different from that of the partner firm. The technology that the foreign firm brings in is assumed to have a marginal cost of production level of c_F with $c_A > c_F$ and $c_B > c_F$.

We shall now describe our model, assuming in turn that the JV takes place respectively in country A and country B. The choice between the countries will be discussed in Section 3.

First we assume that the multinational corporation has decided to establish a JV with the firm in country A. Given this assumption, we shall examine how the tax rate, profit share, and output level are determined. For this, we consider a three-stage game. In stage 1, the multinational firm decides what proportion of joint profits will be given to its domestic partner (subject to the latter accepting the offer). Given this commitment from the multinational firm, the host-country's government decides the level of output tax on the JV. Finally in stage three the JV and the firm in country B decide on their output levels in a Cournot duopoly equilibrium. The model works with backward induction in order to achieve a sub-game perfect equilibrium.

We assume that the marginal cost of the JV is a convex combination of the two partner firms. That is,

$$c_{J1} = \theta c_A + (1-\theta)c_F, \tag{1}$$

where $0 \le \theta \le 1$.

Production of firm JV is x_{J1}, production of firm B is x_{B1}. Assuming identical and quasi-linear preferences in the two host countries, demands for the homogeneous good in country A and country B are given by

$$D_{A1} = \alpha - \beta P_1,$$

$$D_{B1} = \alpha - \beta P_1,$$

where P_1 is the common price. The subscript 1 refers to case 1 (the present case).

Since the market is assumed to be integrated, we must have

$$D_{A1} + D_{B1} = x_{J1} + x_{B1},$$

where x_{J1} and x_{B1} are respectively the output levels of the JV and the firm in country B.

Thus, the inverse demand function is given by:

$$P_1 = \frac{\alpha}{\beta} - \frac{x_{J1} + x_{B1}}{2\beta}. \tag{2}$$

Profits by the JV and the firm in country B are respectively:

$$\pi_{J1} = (P_1 - c_{J1} - t_1)x_{J1},$$

$$\pi_{B1} = (P_1 - c_B)x_{B1},$$

where t_1 is the output tax rate imposed by country A.

[2] For an analysis of tax competition in oligopolistic models see, for example, Haufler and Wooton (1999) and Haufler (2001).