Regional Science and Urban Economics 41 (2011) 59–66

Contents lists available at ScienceDirect

Regional Science and Urban Economics

journal homepage: www.elsevier.com/locate/regec

The gains from preferential tax regimes reconsidered[☆]

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ARTICLE INFO

Article history:
Received 19 February 2009
Received in revised form 30 July 2010
Accepted 10 August 2010
Available online 14 August 2010

JEL classification:
H87
F12

Keywords:
Preferential tax regimes
Tax competition
Imperfect competition
Trade costs

ABSTRACT

The EU policy against harmful tax competition aims at eliminating tax policies targeted at attracting the internationally mobile tax base. We construct an imperfectly competitive model of costly trade between two countries. In setting their corporate taxes, governments non-cooperatively decide whether to discriminate between internationally mobile and immobile firms. We find the Nash equilibrium tax regimes. When trade costs are high countries impose a uniform tax on all firms while nations will discriminate between mobile and immobile firms when costs are low. At some trade costs, fiscal competition results in tax discrimination despite uniform taxation being socially preferable.

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1. Introduction

The process of economic integration among major industrialised countries and the increasing mobility of capital have recently raised the question of the desirability of preferential tax regimes. Indeed, some national governments have adopted tax policies that discriminate across sectors according to the degree of international mobility of firms. Such strategies may allow countries to maximise their tax revenues from operations that cannot escape to other tax jurisdictions while offering more competitive tax rates in order to attract (or retain) more "footloose" activities. Ireland is a well-known example. This country levied a 10% tax rate on corporate income in the manufacturing and financial services sectors compared to 24% in other sectors. This measure was largely to encourage investment by multinational firms, major players in these two sectors. The OECD (1998) and the European Union (European Commission, 1997) have argued that giving preferential tax treatment to non-residents, or to activities that do not impinge on domestic markets, constitutes a harmful tax regime. The OECD (2004) identified 47 preferential tax regimes within OECD member states in 2000. OECD (2010) reports that all but one of these regimes has been abolished, amended or found not to be harmful, with the remaining regime due to be abolished by the end of 2010.[1]

It is, however, less than obvious that shifting to a non-discriminatory corporate tax policy would be beneficial. Indeed, a transition from a preferential regime to a uniform tax policy would seem to result in lower taxes on the relatively immobile base with an increase in taxes on the more mobile base. In other words, the negative effects of tax competition are spread over the entire tax base, as opposed to the fraction of the base that is internationally mobile. Consequently, a uniform tax policy enables governments to raise revenues from more mobile tax bases while revenues from more immobile bases increase when preferential regimes are applied.

This explains why the academic literature does not deliver a clear message on the efficiency of tax discrimination. For example, according to Janeba and Peters (1999), a uniform tax regime is preferred to tax discrimination because this tax regime allows governments to exploit the mobile tax base. On the other hand, according to Keen (2001, p 762), "preferential regimes may serve a useful purpose in limiting the scope of tax competition".

[☆] We are grateful to two anonymous referees for their criticism and suggestions. We would also like to thank participants in seminars at ETH Zurich, Hitotsubashi University, and the Asia-Pacific Trade Seminar in Osaka for their comments.

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[1] In addition, many European countries have recently increased the sophistication of their policies to attract foreign firms. According to Charlton (2003), all the major western European nations offer grants or tax incentives to attract foreign firms. Charlton (2003) lists different cases where investment subsidies are substantial, accounting for 10–30% of the value of the investment.

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doi:10.1016/j.regsciurbeco.2010.08.002

Clearly, the relative merits of a regime based on tax discrimination depend crucially on the assumptions that are made. In Janeba and Peters (1999), one of the tax bases is perfectly mobile with respect to differences in taxation while the other is completely immobile. In addition, they assume that the size of tax bases depends on the level of tax rates. Keen's (2001) approach is based on two mobile tax bases which differ in their degrees of international mobility and on the assumption of an aggregate tax base that is fixed. Janeba and Smart (2003) reconcile the apparently conflicting results of Janeba and Peters (1999) and Keen (2001). The desirability of tax discrimination depends on the elasticities of the aggregate bases according to Janeba and Smart (2003). The authors provide a general condition which encompasses the conditions provided by Janeba and Peters (1999) and Keen (2001). Tax discrimination is preferable when aggregate base elasticities are sufficiently low. In addition, when the tax base with the higher tax rate in the absence of restrictions on tax preferences is the less internationally mobile, differences in tax rates lead to a fall in tax revenues. In the extreme case, where one base is perfectly immobile as in Janeba and Peters (1999), a uniform tax policy in each country is required.[2]

All of these previous contributions assume that the degree to which a given tax base is internationally mobile is exogenously given and that all mobile factors locate in the country with the lower taxation. However, decisions on the location of production are not simply driven by tax factors but by other economic considerations such as increasing returns, trade costs, and market structure (Head and Mayer, 2004).

In this paper, we assume that the market is characterized by imperfect competition and increasing returns to scale and that trade between countries is costly, as in models of economic geography with tax competition (Andersson and Forslid, 2003; Baldwin and Krugman, 2004; Kind et al., 2000; Ludema and Wooton, 2000; Ottaviano and van Ypersele, 2005). In our model, the stock of capital is split into two: one part that is fixed in its location, unable to respond to international differences in rates of return, and one that is internationally mobile, for which the location choice is endogenous.[3] As a result, the mobile tax base's response to the international difference in tax rates will depend upon market conditions in the economy, such as trade costs and the share of mobile firms. This raises the question whether this competition for mobile firms in the presence of imperfectly competitive markets and trade costs makes tax discrimination wasteful.

In contrast to other models of trade and location with tax competition, we use a game-theoretic approach where the governments non-cooperatively choose their tax regimes (discrimination or uniform) prior to setting their tax rates. In contrast to Janeba and Peters (1999), we consider a third stage in which each mobile firm chooses its location, taking as given the governments' tax policies. We show that trade integration favours the implementation of discriminatory tax regimes because of the high elasticity of the mobile tax base when trade costs are low. In addition, uniform tax policies are more likely to emerge when internationally mobile firms account for a large share of the firms in the economy. In this situation, mobile firms are less inclined to agglomerate in the country with the lower tax rate because price competition among firms would be very fierce. We further find that, in some equilibria where tax discrimination is adopted, this tax regime yields lower welfare compared to one where the governments had set uniform taxes.

In Section 2, the structure of the 2-country, 2-sector model of production and consumption is presented. Section 3 examines the spatial allocation of mobile firms and equilibrium choices of tax rates, given the tax regime, while the choice of tax regime itself is analysed in Section 4. In the last section, we conclude.

2. The model

We consider a regional economy with two countries, labelled a and b, that compete for the investment of foreign-owned firms in a modern sector. These firms produce a homogeneous good, x, in an oligopolistic industry. In addition, a traditional sector produces good z under perfect competition.[4]

The two countries are identical and there are n workers in each. The residents of countries a and b earn only wage income, while (after-tax) profit income in the modern sector accrues to capital owners that reside in a third (outside) country. Every household in the region supplies a single unit of labour. The wage rate in each country is determined in the traditional, numeraire industry, which uses labour as the only input and is assumed to be always active in both countries. Free trade in the numeraire good therefore equalises the wage across the countries as w.

2.1. Consumers

Consumers in both countries have identical preferences for the goods, given by

$$u_i = \alpha x_i - \frac{\beta}{2} x_i^2 + z_i, \quad i \in \{a, b\}. \tag{1}$$

The budget constraint for a representative consumer in country i is

$$w = z_i + p_i x_i, \quad i \in \{a, b\}. \tag{2}$$

where p_i is the price of good x in country i. Utility maximisation yields inverse demand curves

$$\alpha - \beta x_i = p_i, \quad i \in \{a, b\}.$$

Aggregating over the n consumers in each country yields market demand curves

$$X_i = \frac{n(\alpha - p_i)}{\beta}, \quad i \in \{a, b\}. \tag{3}$$

2.2. Firms

We assume that there are k firms in the modern sector, each based in a third country and prepared to invest in the region.[5] Each firm possesses one unit of "knowledge capital" (such as a license or franchise to produce) that can be profitably employed in the imperfectly competitive industry x. This factor is indispensable for the production of good x but limited in availability such that only k firms can engage in production. Each firm sets up a single production plant in the region and serves the regional market from either country a or country b.[6]

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[2] A similar result is also obtained by Haupt and Peters (2005) who extended Keen's approach by assuming that tax bases have regional preferences. This home bias reflects the fact that investment abroad involves higher information, monitoring, and transaction costs and implies greater uncertainty than investments at home. Haupt and Peters (2005) conclude that preferential regimes may make tax competition more harmful, even if the aggregate tax bases are exogenously fixed. Recall that, in Keen (2001), a transition from a preferential regime to a uniform tax policy implies a lower tax on the relatively immobile base to which fierce inter-jurisdictional competition is redirected. This negative impact is mitigated by the existence of a home bias.

[3] Ludema and Wooton (1999) use a variant of Krugman's (1991) model of economic geography in order analyse the effects of differences amongst workers with regard to their willingness to move between international markets. They do not, however, consider tax policy.

[4] Our modelling approach is closely related to that of Haufler and Wooton (2010) whose interest is in the number and spatial allocation of modern firms in an asymmetric region as trade barriers are lowered, whereas our interest lies in the tax regime choices made by identical countries. A Cournot oligopoly structure provides similar, but slightly more tractable, results to those from monopolistic competition framework, such as Ottaviano and van Ypersele (2005) or Gaigné and Riou (2007).

[5] We rule out the possibility of domestic ownership of some share of the firms in the modern sector. This is in order to simplify the analysis, otherwise we would have to keep track of the firm ownership and deduct tax revenues from domestic shareholders from our objective function.

[6] Each license holder is assumed to be limited to establishing a single production facility.

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