

TAXATION OF FOREIGN FIRMS: DISCRIMINATIVE AND ALLOCATIVE EFFECTS

ABSTRACT: This paper examines the effects of various systems of taxing foreign firms on the international movement of direct investment. The notions of tax equity and the neutrality of taxes on the location of investment are examined. It is shown that a tax system may be equitable in that (1) effective tax rates are equal in all countries and (2) only one country levies the tax, and yet such an equitable tax system may have nonneutral effects on the location of foreign investment as a result of different marginal efficiencies of investment. In short, tax equity does not guarantee tax neutrality. The criterion for tax neutrality is defined in detail in the text. Basically, it involves the percentage responsiveness of foreign investment to percentage changes in tax bases. The model, while applied to the specific question of tax equity and tax neutrality, can serve as a useful, general framework for analyzing the impact of taxes on the level of foreign investment.

In this article, we intend first to establish the conditions of horizontal tax equity of foreign firms and identify the types of tax discrimination which arise with various systems of taxing international profits. Our purpose is to show that tax inequities arise not only in systems leading to international multiple taxation, as is usually held, but also in systems involving only a single tax burden. When tax rates are substantially different in two countries, problems of equity in the tax treatment of foreign firms exist and call for a solution. It will implicitly be concluded, therefore, that the so-called prevention of double taxation is inevitably a step toward tax equity, but does not secure a complete elimination of tax discrimination. This is an interesting point. If countries wish to arrange their systems of taxing foreign firms in a way that the factor «taxation» would not discriminate against or in favor of foreign firms, they would have to provide

not only for the prevention of multiple taxation and tax evasion, but also for tax inequities arising from differences in the tax rates of the countries involved.

The article contains, furthermore, some notes on the effects of the various systems of taxing foreign firms on the international movement of investment. It seems *prima facie* that, by establishing the conditions of horizontal tax equity of foreign firms and eliminating in this way tax discrimination, we at the same time secure tax neutrality of foreign investment in the sense that taxation does not interfere with the interterritorial allocation of investment as being carried out in the market by the equilibrating process of the price mechanism. In the analysis which follows, however, we shall try to prove that this may be true in some cases, but it is not generally true. We may have a situation where horizontal tax equity has already been accomplished, and yet reallocations of investment owing to unintended interference of taxation with the market mechanism may still take place (for the relation between neutrality and equity in taxation, see Musgrave, 1959: 157). As we shall see later, this is because the allocative effects of the taxation of foreign firms depend not only on the relation of tax rates of the countries involved but also on the relation of the marginal efficiency curves of investment of these countries.

Needless to say, a deeper examination of the discriminative and allocative effects of the various systems of taxing foreign firms would be very helpful in formulating the tax harmonization policy of the broader economic communities as it is, for example, in the case of European Common Market.

The meaning of equity and neutrality in the taxation of foreign firms

There is a wide controversy in the theory of taxation as far as the concept

NOTE:

Professor Karageorgas is at present serving a life sentence in a Greek prison, where this article was written. As Karageorgas' sometime tutor, and a character witness at his trial, I have tried to keep in touch with him since his imprisonment. He was convicted of a criminal offence (though obviously politically motivated), and I have been able to do little of a practical kind to help him. (But pressure and interest from his academic colleagues is not pointless: the other chief defendant prisoner, Professor Mangakis, is now safely in Germany.)

Karageorgas is a sick man, requiring further operative treatment to a seriously damaged hand and eardrum. He has been unable to get proper treatment because the authorities refuse requests for transfer to an appropriate hospital environment. The article is published on its own merits, but readers may like to know of the circumstances in which it was produced.

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of tax equity is concerned. Many theoretical works on such topics as the benefit principle, the ability to pay approach, the voting theory, the equal treatment of equals doctrine, and so on try to establish an objective criterion of tax equity, and on the basis of such a criterion, to find an equitable tax form. Without intending, however, to get involved in the endless discussion on this problem, we shall accept for the purpose of the following analysis the concept of horizontal tax equity, which seems to be the most widely accepted principle of equity in taxation. This approach holds that people in equal positions should be treated equally. And if we succeed in choosing some index of tax equity (for the difficulties in choosing the proper index of horizontal tax equity, see Musgrave, 1959: 161-173), the application of this principle on a national level is not a very difficult task. Additional difficulties, however, arise if we start thinking of applying the principle of horizontal tax equity to foreign firms and generally to people having a relation with many national tax jurisdictions. The serious question which arises then runs as follows: To which people should we compare foreign firms in order to judge whether they are taxed equally? There are three alternatives here:

(a) to compare foreign firms to those of the country from which the former originates;

(b) to compare them to the firms of the country in which foreign firms are located; and

(c) to compare foreign firms to those of both the location and nationality countries.

If now we accept the first solution, we can of course establish tax equity by taxing foreign firms neither heavier nor lighter in relation to firms under similar conditions in the country of nationality, but in this case it is quite possible for foreign firms to be discriminated –in favor of or against– with relation to the firms in the country of location. The opposite result occurs if we accept the second solution. The first and second solutions, therefore, do not offer the necessary conditions for establishing complete horizontal tax equity for foreign firms. This suggests that if we wish to have complete horizontal tax equity we should tax foreign firms neither more heavily nor more lightly in relation to firms under similar conditions in the country of nationality as well as in the country of location. We can easily see from the above definition that horizontal tax equity for foreign enterprises can be secured only if the following conditions are fulfilled:

(1) introduction of equal effective tax rates in both countries¹;

1. Tax rates may be proportional or progressive. In the second case, however, the progressiveness of the tax formula should be the same in both countries. Equal lump-sum taxes in both countries, on the other hand, lead to serious tax inequities because they

(2) introduction of a system of taxing international profits by only one country.

These conditions must coexist; otherwise, tax treatment of foreign firms is discriminatory.

It should be noted, here, that, by «equal effective tax rates», we mean that the real tax burden is equal in both countries. This concept requires not only equality of the statutory tax rates in both countries but also similarity in the definition of taxable profits, the methods of calculation and estimation of depreciation allowances, the system of taxing corporate profits, the tax treatment of capital gains and losses, the tax deductions, and exemptions and so on –in other words, similarity in the tax base of both countries². The condition of «equal effective tax rates» requires, furthermore, correspondence in all the other kinds of taxes imposed on business activity in both countries. This requirement is necessary in order to exclude some cases where one of the two countries has valid reasons for preferring to cast the fiscal exaction on business profits in a form that does not correspond to income or profit tax. For instance, there may be a government royalty upon production or an export tax or various other types of fiscal levy in the location country instead of the income of profits tax.

It could easily be seen how the absence of one of the above conditions involves divergence from the position of horizontal tax equity in the treatment of foreign firms. If unequal effective tax rates on international profits were introduced, foreign firms would be discriminated against or in favor of with relation either to the firms under similar conditions in the country of nationality or to those in the country of location. This would happen even if international profits were taxed only by one country. We call this type of tax inequity «one-sided tax discrimination». Two main problems arise here as far as this kind of tax discrimination is concerned. The first one refers to the direction of tax inequity and requires knowledge of whether the discrimination –against or in favor of foreign firms– takes place in relation to the firms of the country of nationality or in relation to those of the country of location. As we shall see later, this depends primarily on whether foreign firms are taxed by the former or the latter country. The second problem is to find out when foreign firms are discriminated in favor of and when they are discriminated against in relation to other firms. We shall have the opportunity of seeing, in the analysis which

result in low tax rate for firms with high taxable profits and in high tax rates for firms with small taxable profits.

2. It should be noted that the term «effective tax rate» usually means the average tax rate in distinction from the marginal tax rate. The term is used here with a completely different meaning.

follows, that this depends on whether the tax rate is higher either in the country of location or in the country of nationality.

We have shown the importance of condition 1. The importance of condition 2 is easier to understand. The taxation of international profits by both countries means that foreign firms are taxed more heavily both with relation to the firms of the country of nationality and with relation to those of the country of location. The opposite result occurs if international profits are taxed by none of the countries involved. We can call this type of tax inequity «bilateral tax discrimination». It should be noted that this kind of tax discrimination occurs even if effective tax rates are equal in both countries.

Having established the conditions of horizontal tax equity, the next step is to see which of the systems used in practice for taxing foreign firms are discriminatory and to what extent and direction the discrimination takes place in each of them. Before entering this stage of analysis, however, we shall consider whether the conditions of tax equity, as established above, at the same time secure tax neutrality of foreign investment in the sense we have already defined. More generally, the problem which we face now is to discover the conditions, if any, under which taxation of foreign firms is neutral. It should be noted that the analytical tools which will be developed here, for this purpose, will be used also later for analyzing the reallocative effects of the various systems used in practice for taxing foreign firms.

For the purpose of this analysis, we shall construct a very simple model based on the following assumptions:

(1) We assume, first, that there are only two countries with economic relations to each other.

(2) We assume, second, that marginal efficiency of investment in the country of location is higher than in the country of nationality.

(3) We assume, third, that there is no cost of movement of investment from the one country to the other.

(4) Finally, to simplify our analysis, we assume perfect competitive conditions in the capital market and therefore constant cost of capital invested, the same in both countries.

Starting from the assumptions above we may set linear function³

$$Y_1 = a - bI_1 \quad [1]$$

for the marginal efficiency curve in the country of nationality, function

3. We get linear functions for reasons of simplifying the analysis. We face, however, the problem of considering functions of general form in a later stage of the analysis (see note 9).

$$Y_2 = a' - b'I_2 \tag{2}$$

for the marginal efficiency curve in the country of location, and function

$$S = c \tag{3}$$

for the cost of capital invested in a perfectly competitive market, the same in both countries.

It should be noted that functions 1 and 2 may have different parameters "a" and "b". Figure 1, for instance, corresponds to three different pairs of marginal efficiency curves with different parameters in the location and nationality countries.

Given the functions shown in Figure 1, the initial equilibrium amount of capital invested in the country of nationality is given by the condition

$$a - bI_1 = c \tag{1a}$$

which becomes⁴:

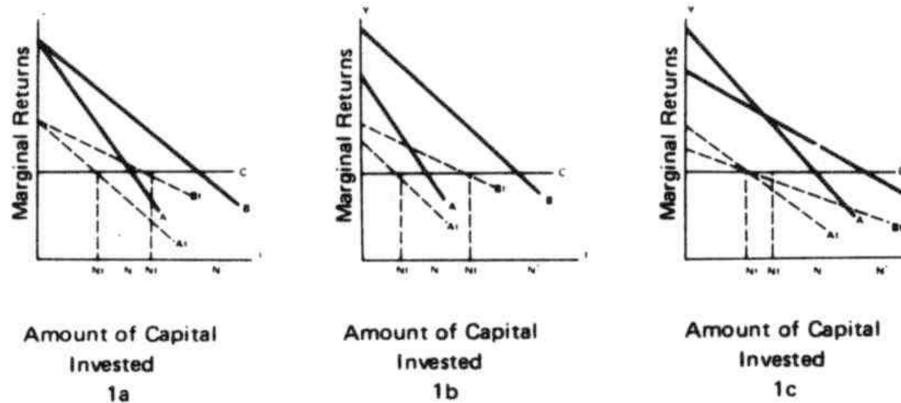
$$I_1 = \frac{a - c}{b} \tag{1b}$$

and, in the country of location, it is given by the condition

$$a' - b'I_2 = c \tag{2a}$$

which becomes⁵:

$$I_2 = \frac{a' - c}{b'} \tag{2b}$$



Where A stands for function 1, B for function 2, and C for function 3.^a

4. It is assumed, of course, that $a > c$.

5. See note 4.

a. It should be noted that the diagrams show the main and not all possible pairs of linear marginal efficiency functions of the two countries. We may have, for example, the case where A and B are coincident ($a=a'$ and $b=b'$), but such a case of parallel lines or, finally, the case where the marginal efficiency curves tend to intersect in the S.E. quadrant of the Kartesian coordinates. Which pair of marginal efficiency curves corresponds to the real world is, of course, a matter for empirical investigation to establish.

Figure 1.

I'_1 and I'_2 are the pretax equilibrium amounts of capital invested in the nationality and location country, respectively, which in diagrammatic terms correspond to ON and ON' (see Figure 1).

If we now wish to have neutral tax treatment of foreign investment, the introduction of taxation in the picture must not interfere with the investor's investment allocation plan as has been determined before taxation. This means that taxation of foreign investment is neutral if it reduces the amount of invested capital by the same proportion. Other situations are by definition nonneutral. In what follows, we shall describe a situation in which taxation reduces investment proportionately more in the one country than in the other as one in which there has been a «reallocation» of investment from the former to the latter. The reallocation in question concerns the relation between the actual effect of the tax and the effect that would be required by tax neutrality.

After the proportional tax rates $-t_1$ in the country of nationality and t_2 in the country of location— come into the picture, the equilibrium amount of capital invested in the nationality country is determined by the condition:

$$(a - bI_1)(1 - t_1) = c \quad [1c]$$

which gives:

$$I'_1 = \frac{a(1 - t_1) - c}{b(1 - t_1)} \quad [1d]$$

and in the location country by the condition

$$(a' - b'I_2)(1 - t_2) = c \quad [2c]$$

which gives:

$$I'_2 = \frac{a'(1 - t_2) - c}{b'(1 - t_2)} \quad [2d]$$

I'_1 and I'_2 are the equilibrium amounts of capital invested after the imposition of taxes in the nationality and the location country, respectively. Thus, if, for example, a 50% tax rate is imposed in both countries, the equilibrium amounts of capital invested are represented in diagrammatic terms by ON_t for the nationality country and ON'_t for the country of location (see Figure 1).

It is obvious that given the parameters a, a' and b, b' of expressions 1d and 2d, equilibrium amount of capital invested in each country is a decreasing function of the tax rates imposed by this country⁶. Differentiating 1d and 2d with respect to t_1 and t_2 , respectively, we obtain the reduction in the equilibrium amount of capital invested in the nationality and location countries. Thus we get:

$$\frac{dI'_1}{dt_1} = \frac{-c}{b(1-t_1)^2} \quad [1e]$$

for the country of nationality, and

$$\frac{dI'_2}{dt_2} = \frac{-c}{b'(1-t_2)^2} \quad [2e]$$

6. By applying successive tax rates to the various pairs of marginal efficiency curves (see Figure 1), we can obtain different equilibrium amounts of capital invested in each country corresponding to different tax rates. Plotting on diagrams these equilibrium amounts of capital invested at various tax rates, we can obtain for each pair of marginal efficiency curves a pair of curves showing the functional relationship between equilibrium amounts of capital invested and taxes. Thus, for instance, to the pairs of marginal efficiency curves of Figure 1 correspond the pairs of curves of the equilibrium amount of capital invested at different tax rates shown in Figure 2.

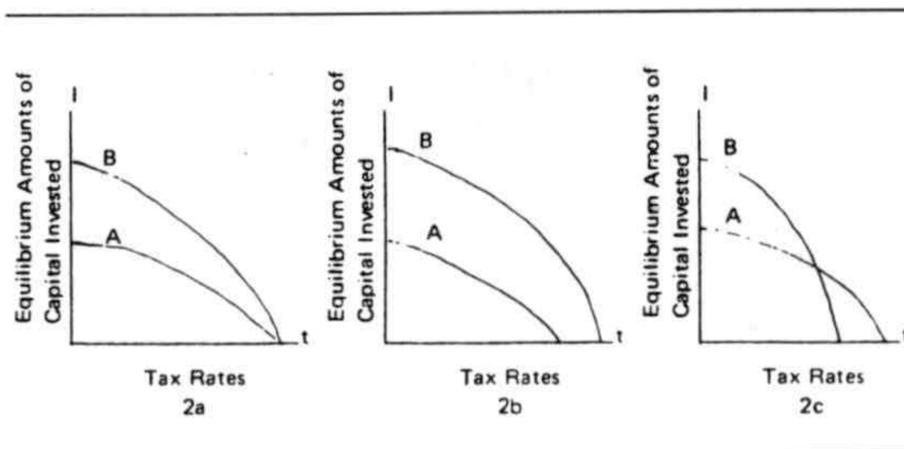


Figure 2.

for the country of location.

Expressing the above changes in percentage terms we get the elasticity of the equilibrium amount of capital invested with respect to tax in each country⁷. Thus, for the country of nationality we get:

$$E_a = \frac{dI'_1}{dt_1} \cdot \frac{t_1}{I'_1} = \frac{-c}{b(1-t_1)^2} \cdot \frac{t_1}{\frac{a(1-t_1)-c}{b(1-t_1)}}$$

which, after the necessary simplifications, becomes:

$$E_a = \frac{-ct_1}{(1-t_1)[a(1-t_1)-c]} \quad [1f]$$

and for the country of location we get:

$$E_b = \frac{dI'_2}{dt_2} \cdot \frac{t_2}{I'_2} = \frac{-c}{b'(1-t_2)^2} \cdot \frac{t_2}{\frac{a'(1-t_2)-c}{b'(1-t_2)}}$$

which, after the necessary simplifications, becomes:

$$E_b = \frac{-ct_2}{(1-t_2)[a'(1-t_2)-c]} \quad [2f]$$

Finally, comparing E_a to E_b , we can find whether the proportional reduction in the equilibrium amount of capital invested with respect to taxes is the same in both countries or not. The comparison of the tax elasticities of investment of the two countries is made by means of a ratio as follows:

$$\frac{E_b}{E_a} = \frac{t_2(1-t_1)[a(1-t_1)-c]}{t_1(1-t_2)[a'(1-t_2)-c]} \quad [4]$$

and if we substitute h for

7. It is obvious that elasticities refer to curves similar to those of Figure 2 (see note 6).

$$\frac{t_2(1 - t_1)}{t_1(1 - t_2)}$$

and k for

$$\frac{a(1 - t_1) - c}{a'(1 - t_2) - c}$$

in order to make simpler formula 4, we get⁸

$$\frac{E_b}{E_a} = h \cdot k \quad [4a]$$

Coefficient E_b / E_a indicates the reallocative effect of the taxation of foreign investment⁹. If $E_b/E_a = 1$, the percentage reduction of the equilibrium amount

8. It should be noted that t_1 and t_2 are not high as to make a and a' lower than c .

9. In the above analysis, we assumed that the marginal efficiencies of investment are linear functions. If we deal, however, with general forms of marginal efficiency curves, that analysis runs as follows:

Let us $Y_1 = Y_1(I_1)$ for the marginal efficiency curve in the nationality country, $Y_2 = Y_2(I_2)$ for the marginal efficiency curve in the country of location and, ex hypothesis, $s = c$ for the cost curves. After the imposition of t_1 and t_2 , the equilibrium amount of capital invested is determined by the condition:

$$Y_1(I_1)(1 - t_1) - c = 0 \quad [A]$$

In the country of nationality and by the condition:

$$Y_2(I_2)(1 - t_2) - c = 0$$

In the country of location:

Differentiating A and B for I_1 and I_2 in respect to t_1 and t_2 respectively we get:

$$\frac{dI_1}{dt_1} = \frac{c}{Y_1'(I_1)(1 - t_1)^2} \quad [A1]$$

for the country of nationality and

$$\frac{dI_2}{dt_2} = \frac{c}{Y_2'(I_2)(1 - t_2)^2} \quad [B1]$$

for the country of location:

of capital invested in respect to tax is the same in both countries and therefore taxation of foreign firms is neutral. But if $E_b/E_a > 1$, the proportional reduction of the equilibrium amount of capital invested with respect to tax is greater in the country of location than in the country of nationality, which means that taxation induces foreign investors to change the investment allocation plans by reducing investment in the country of location proportionately more than in the country of nationality. The opposite result occurs if $E_b/E_a < 1$.

Since "c" of expression 4 is constant and the same in both countries, ex hypothesis, the numerical value of E_b/E_a depends on two factors:

(a) The relation between the tax rates t_1 and t_2 which expresses the differences, if any, in the tax rates of the two countries.

(b) The relation between parameters "a" and "a'", which, in the last analysis, expresses the differences, if any, in the marginal-efficiency curves of the two countries.

Thus, if we assume that $a = a'$, any difference in the tax elasticities of investment of the two countries, and therefore any reallocative effect, is due

We find, next, the tax elasticities of the equilibrium amount of capital invested in each country in the following way:

$$E_a = \frac{c}{Y'_1(I_1)(1-t_1)^2} \cdot \frac{t_1}{I_1} \quad [B2]$$

for the country of nationality, and

$$E_b = \frac{c}{Y'_2(I_2)(1-t_2)^2} \cdot \frac{t_2}{I_2} \quad [A2]$$

for the country of location.

Finally, the ratio of the tax elasticities of investment is given as follows:

$$\frac{E_b}{E_a} = \frac{t_2 Y'_1(I_1)(1-t_1)^2 I_1}{t_1 Y'_2(I_2)(1-t_2)^2 I_2} \quad [C]$$

If in expression C we substitute $Y'_1(I_1) = b$, $Y'_2(I_2) = b'$, which are the derivatives of 1 and 2,

$$I_1 = \frac{a(1-t_1) - c}{b(1-t_1)}, \text{ and } I_2 = \frac{a'(1-t_2) - c}{b'(1-t_2)}$$

(see expressions 1d and 2d), we obtain the linear solution of 4.

exclusively to differences in the tax rates of the countries involved, t_1 and t_2 . As a result if $t_1 = t_2$, tax elasticities are equal in both countries, and taxation of foreign investment is neutral; if $t_1 > t_2$, tax elasticity is higher in the country of nationality, and the tendency is for a reallocation of investment to occur from this country to the country of location; and if, finally, $t_1 < t_2$ the reallocative effect works in the opposite direction. We may call the reallocative effects arising from differences in the tax rates of the countries involved «differential tax rates effect». If, now, we assume $t_1 = t_2$, any difference in the tax elasticities of investment of the two countries and therefore any reallocative effect is due exclusively to differences in the parameters "a" and "a'" of the marginal efficiency curves of the two countries. As a result, if $a = a'$, tax elasticities are the same in both countries and taxation of foreign investment is neutral; if $a < a'$, tax elasticity in the country of nationality is greater than that in the country of location, and the tendency for reallocation of investment is from the former country to the latter; and, finally, if $a > a'$ the reallocative effect works in the opposite direction. We may call the reallocative effects of the taxation of foreign firms arising from differences in the parameters "a" and "a'" differential marginal-efficiency effect».

It is apparent that when both $a \geq a'$ and $t_1 \geq t_2$, the numerical value of E_b/E_a , which, as we have said, indicates the reallocative effects of the taxation of foreign firms, is the result of the simultaneous operation of both the «differential tax rates effect» and the «differential marginal-efficiency effect». As we shall see later on, if these «effects» are both in operation, they work either in the same or in the opposite direction in reallocating investment from the one country to the other. The net effect, therefore, depends on the strength and the direction in which each of the above two effects works.

The above analysis is an answer to our initial question—namely, whether the conditions of horizontal tax equity of foreign firms do at the same time secure tax neutrality in the interterritorial movement of investment. If $t_1 = t_2$ and foreign firms are taxed only by one country, the differential tax rates effect does not work. However, reallocations owing to the operation of the differential marginal-efficiency effect may take place. Thus when $a \geq a'$, elasticity of investment in respect to taxes is different in the two countries, and equal tax rates in both countries reduce investment in different proportion in each of them. Only when $a = a'$ and $t_1 = t_2$, neither the differential tax rates effect nor the differential marginal-efficiency effect comes into operation, and taxation of foreign investment is both equitable and neutral. But this may be a very special case in the real world.

After all these preliminary remarks, let us now analyze the various systems used in practice for taxing foreign firms and try to identify the divergencies from horizontal tax equity which each separate system involves. In addition, by using the analytical tools we have already developed, we shall determine the reallocative effects of these systems.

For the purpose of this analysis, we shall divide business profits in each country into three categories, as shown in Table 1.

TABLE 1

Country A		Country B	
Ia	Profits gained within the country by firms of country B	re-patriated to B	Profits gained within the country by firms of country A
		re-invested	
Ila	Profits gained within the country by domestic firms		Iib
IIIa	Profits gained in country B by domestic firms	re-patriated from B	Profits gained in country A by domestic firms
		re-invested in B	
		re-patriated from A	IIIb
		re-invested in A	

Although Table 1 is self-explanatory, some further remarks are necessary. It is easy to see that profits Ila and Iib are not identical. On the other hand, profits Ia and Ib are the same, with profits IIIb and IIIa respectively¹⁰ (Ia \equiv IIIb and Ib \equiv IIIa).

The way Table 1 has been drawn illustrates two countries, each of them being both capital-importing and capital-exporting. This is, for example, the case of the economic relations between the United States and the United Kingdom or the United States and Germany; generally, such relations exist more or less between all advanced economies. It may also be the case where one of the countries –let us say, country A– is only capital-importing and the other –let us say, country B– is only capital exporting. This is, for example, the case of the economic relations between the United States and the countries of Latin America or the United Kingdom and India; generally, such relations exist between advanced and underdeveloped countries.

This latter case can be illustrated as shown in Table 2.

10. Throughout this analysis profits Ia \equiv IIIb and Ib \equiv IIIa will be referred to as «international profits».

TABLE 2

Country A		Country B	
Ia	Profits gained within the country by firms of country B	re-patriated to B	Ib
		re-invested	
IIa	Profits gained within the country by domestic firms	re-patriated from A	IIb
		re-invested in A	
		Profits gained in country A by domestic firms	
		Profits gained within the country by domestic firms	

Having finished with these prolegomena, let us now consider the various possible systems of taxing international profits, as well as their effects.

The narrow meaning of tax jurisdiction

Let us begin with the case where each country taxes only profits gained within the country by domestic firms – in Tables 1 and 2, countries A and B tax profits IIa and IIb, respectively. Since both countries apply the same system, profits IIa and IIb will be subject to a single tax, as they are not the same, and international profits (Ia = IIIb and Ib = IIIa) will escape taxation. On grounds of horizontal tax equity, this system involves a strong tax discrimination in favor of foreign firms with relation to the firms under similar conditions in the country of location as well as in the country of nationality. On grounds of tax neutrality also, the system involves extremely adverse reallocative effects. Since, for foreign firms $t_2 = 0$, ratio 4 becomes:

$$\frac{E_b}{E_a} = \frac{0}{t_1(a' - c)} \quad [5]$$

as far as foreign investors are concerned, and this happens independently of the relation between "a" and "a'" and the tax rates applicable to the rest of the firms in the location and nationality countries. Expression 5 means that the tax system in question makes foreign investors reallocate investment from the country of nationality to the country of location not because the natural profitability of investment is higher there, but mainly because taxes are not paid at all. This is exactly the case of the so-called «tax haven» countries.

It should be noted that, because this system results in severe horizontal tax inequity as well as a loss of a more or less considerable amount of tax revenue in both countries, it is not likely to be adapted by the fiscal authorities of either country for the tax treatment of foreign firms. Only reasons of administrative difficulty in both countries for taxing some peculiar kinds of foreign business and perhaps reasons of economic policy may call for the application of this principle. In conclusion, this extreme involves the most favorable tax treatment of foreign firms.

The principle of origin or location

According to another possibility, each country may tax all profits gained within its territory¹¹ either by domestic or by foreign firms. Thus, if each of the two countries is both capital-exporting and capital-importing (see Table 1), country A will tax profits Ia and IIa and country B, profits Ib and IIb: but if country A is only capital-importing and country B only capital-exporting (see Table 2), country A will tax profits Ia and IIa, and country B, only profits IIb. This principle is usually referred to as principle of «location» or «origin».

In considering the discriminative and reallocative effects of this system, we start from the simple case where the one country is only capital-importing and the other only capital-exporting. The basic remark, then, is that the system in question secures the second condition of tax equity in the treatment of foreign firms—namely, the taxation of international profits only by one country. International profits are taxed by the country of location only. Therefore, under this system, neither double taxation nor tax evasion occurs. By no means, however, does this system secure the first condition of tax equity—namely, equal effective tax rates between the two countries. If both countries introduce equal effective tax rates, of course, the system in question leads to complete tax equity. But if the tax rate introduced in the one country is higher or lower than that introduced in the other, tax discrimination arises. The important point, however, is that the above system localizes the tax discrimination arising from the difference in the tax rates between foreign firms and all the other firms located in the country of nationality only. Never does this system involve tax discrimination in favor of or against foreign firms with relation to all the other firms, foreign or domestic, in the country of location.

Let us consider in more detail, now, the discriminative and reallocative effects of this system. We start, first, from the assumption that both countries introduce equal effective tax rates. On grounds of tax equity the system is completely equitable. On grounds of tax neutrality, however, the reallocative

11. The definition of profits gained within a country is not an easy one. In many cases, there is keen disagreement as to which country profits have been gained in.

effects of the system depend exclusively on the operative influence of the differential marginal-efficiency effect. The differential tax rates effect never works here. Thus, if $a = a'$, the system is not only equitable, but neutral as well. If $a < a'$, differential marginal-efficiency effect tends to reallocate investment from the country of nationality to the country of location, and if $a > a'$, the tendency for reallocation is in the opposite direction.

We assume, second, that the country of location introduces a tax rate higher than that of the country of nationality. On grounds of tax equity, the system discriminates against foreign firms in relation to firms under similar conditions in the country of nationality. On grounds of tax neutrality, on the other hand, the «net» reallocative effect depends on the strength and direction toward which both the differential tax rates effect and the differential marginal-efficiency effect operate. In the majority of the cases, the tendency for reallocation is from the country of location to the country of nationality, and this is because $t_2 > t_1$, and h of expression 4a is always greater than unity, which means that the differential tax rates effect is the predominant one here and operates in reallocating investment in the direction mentioned above. The above reallocation arising from the operation of the differential tax rates effect remains unchanged in degree and direction if $a = a'$, since, in this case, the differential marginal-efficiency effect is inactive. The said effect continues to operate toward the same direction, but becomes more adverse if $a > a'$, since, in this case, the differential marginal-efficiency effect operating in the same direction with the differential tax rates effect enhances the operative influence of the latter. Only when $a < a'$, the net effect of the system is indeterminate, because the differential tax rates effect and the differential marginal-efficiency effect are likely to operate in opposite directions. In mathematical terms¹² when $t_2 > t_1$ and $a < a'$, then $h > 1$ but $k \geq 1$, which means that E_b/E_a may take all values equal to or greater than zero¹³. Even in this case, however, when a' is slightly higher than a or t_2 exceeds t_1 considerably, the possibility for k is to be higher than or at least equal to unity, and, therefore, the tendency in reallocating foreign investment is still from the country of location to the country of nationality. The probability that $k < 1$ (and consequently that there will be changes in the direction of the reallocative effect) becomes stronger when a' is very much higher than a or t_2 slightly exceeds t_1 . If we exclude this last extreme case, we can conclude that, if under the principle of «origin» $t_2 > t_1$, the tendency in reallocating investment is from the country of location to the country of nationality.

We assume, finally, that the location country introduces a tax rate lower than that of the country of nationality. On grounds of horizontal tax equity the system

12. See expressions 4 and 4a.

13. See note 8.

discriminates in favor of foreign firms with relation to other firms under similar conditions in the country of nationality. On grounds of tax neutrality, here again, the net reallocative effect depends on the strength and direction toward which both the differential tax rates effect and the differential marginal-efficiency effect operate. However, in the majority of cases, the tendency for reallocation here is from the country of nationality to the country of location, and this is because $t_1 > t_2$, which makes the differential tax rate effect predominant. This effect remains unchanged if $a = a'$ and becomes more adverse when $a' > a$. Only when $a > a'$ is the net effect indeterminate, because $k \geq 1$ which results in E_b/E_a taking all values equal to or greater than zero. But if we exclude the extreme of $k > 1$, we can conclude that if, under the principle of location, $t_1 > t_2$, the tendency in reallocating foreign investment is from the country of nationality to the country of location.

One final conclusion is that, apart from some rare cases, the reallocative effects of the principle of «origin» are more adverse under unequal effective tax rates than under equal ones, all other factors being equal. This is the result of the fact that, under equal effective tax rates, the differential tax rates effect never works, and the only reallocation, if any, comes from the operation of the differential marginal-efficiency effect. Under unequal effective tax rates, on the other hand, the differential tax rates effect always works and may be accentuated from the simultaneous operation of the differential marginal-efficiency effect.

The principle of nationality

Let us now consider, in brief, the case where each separate country taxes all profits of national firms, no matter whether they are located within or outside the country. Thus, if each country is both capital-importing and capital-exporting (see Table 1), country A will tax profits IIa and IIIa and country B profits IIb and IIIb; but if country A is only capital-importing and country B only capital-exporting (see Table 2) then A will tax only profits IIa, and B, profits Ib and Iib. This principle is usually referred to as principle of «nationality» or «fiscal domicile».

The above system of tax treatment of foreign enterprises secures the second condition of tax equity – that is, the taxation of international profits only by one country. Foreign firms bear the tax burden of the country of nationality only. Therefore, under this system, neither double taxation nor tax evasion occurs. However, this system does not necessarily secure the first condition of tax equity. Of course, the introduction of equal effective tax rates by both countries makes this system completely equitable. But if the effective tax rates introduced by the two countries differ, tax discrimination arises. The important point is that this system localizes the tax discrimination arising from differences

in the tax rates, between foreign enterprises and all the other firms in the country of location. Thus, if the tax rate of the country of location is higher than that of the country of nationality, foreign firms are favorably discriminated with relation to firms under similar conditions in the country of location. On the contrary, they are discriminated against with relation to these last firms if the tax rate of the country of location is lower than that of the country of nationality. It can be seen that never does this system involve tax discriminations in favor of or against foreign firms with relation to all the other firms of the same nationality.

Another type of tax discrimination, inherent in this system only, is the following. Even though there may be no tax discrimination for some group of foreign firms with relation to the local ones, because the effective tax rate of the country of their nationality is equal to that of the country of their location, such a discrimination may still exist with relation to some other groups of foreign firms located in the same country if there are differences in the tax rates of the countries of nationality of the various groups of foreign enterprises. It is likely, therefore, in the same country, for some foreign firms to be discriminated against and some others in favor of with relation either to the local firms or to some other foreign firms –or even both these categories.

Because of these last discriminations, the principle of nationality ranks lower in comparison to the principle of location on grounds of tax equity.

Let us now consider the reallocative effects of the system in question. Under this system, foreign firms are not subject any more to t_2 but to t_1 . Therefore, for foreign investors, expression 4 becomes:

$$\frac{E_b}{E_a} = \frac{t_1(1 - t_1)[a(1 - t_1) - c]}{t_1(1 - t_1)[a'(1 - t_1) - c]} \quad [6]$$

which, after the simplifications, becomes:

$$\frac{E_b}{E_a} = \frac{a(1 - t_1) - c}{a'(1 - t_1) - c} \quad [7]$$

The meaning of expression 7 is that, under that principle of nationality, the only effect in operation may be the «differential marginal-efficiency effect». The «differential tax rates effect» never works here, whatever is the relation between the tax rates in force in the location and nationality countries. In other words, reallocations of investment because of differences in the tax rates of the two countries do not appear under the principle of nationality. Thus, independently of whether $t_1 \geq t_2$, the system is completely neutral if $a = a'$, tends to reallocate investment from the country of location to the country of nationality if $a > a'$,

and the tendency for reallocation is in the opposite direction if $a' > a$. We can conclude, therefore, that on grounds of tax neutrality, the principle of nationality is superior to the principle of location because, when $t_1 \geq t_2$, it involves less adverse reallocative effects, all other factors, of course, being equal.

The above conclusion, however, needs some qualifications. Under the principle of nationality, unequal effective tax rates do not seem, of course, to exercise reallocative effects on foreign investment, but they discriminate against or in favor of foreign investors with relation to local ones under similar conditions. This last effect may improve or deteriorate the competitive position of foreign investors vis-à-vis the local ones. If, for instance, the effective tax rate is lower in the country of location than in the country of nationality, the investment yields after tax are greater for the local investors than for the foreign ones, all other factors being equal. This differential tax burden is likely to weaken the competitive position of foreign investors in comparison to local ones. It could not be concluded, a priori, however, that local investors being in a better competitive position would displace foreign firms from the country of location. Under perfect competitive conditions in the market of the location country, this is not likely to happen. Local investors would simply realize a differential (abnormal) profit owing to the preferential tax treatment by their own country –and this only in the short run. But, under oligopolistic conditions, local investors, having a leading position in the market owing to the differential tax burden, may start a price war against foreign enterprises aiming at the displacement of the latter from the market. Under such conditions, therefore, reallocative effect, owing to differences in the tax rates, are likely to appear.

The application of the principle of location by the one country and of the principle of nationality by the other

In the above two systems of tax treatment of foreign enterprises that we have considered so far, we can find a common characteristic; this is that the same principle –of location or nationality– is applied simultaneously by all countries which participate in international economic relations. The result is that international multiple taxation or tax evasion do not appear in these systems. This does not mean, however, that there are no other problems in these cases as far as the tax treatment of foreign enterprises is concerned. We have seen that, when the effective tax rates are substantially different in two countries, even if multiple taxation or tax evasion do not appear, the problem of tax discriminations still remains and calls for a solution. What should be stressed now is that systems in which both countries apply the same principle – location or nationality – are the exception and not the rule in economic reality. Factors such as the stage of economic development in each separate

country, the amount of government revenue that may be obtained by taxing international profits, the international position of each country as net creditor or net debtor, the adjustment of investment policy to its general economic conditions, and so forth, are important factors for making decisions as to which principle should be adopted by each country for the tax treatment of foreign firms. It is easier, therefore, for one to see two countries applying two principles instead of one.

Let us now consider the various systems of tax treatment of foreign firms in which each of the two countries applies different principles for taxing international profits.

We start with the most frequently applied (in practice) case where one country adopts the principle of nationality and the other the principle of location. For methodological reasons, we shall consider first the case where each country is both capital-importing and capital-exporting and second the case where only one country is capital-importing and the other capital-exporting.

On the basis of Table 1, we assume that country A applies the principle of location and, therefore, taxes profits Ia and IIa and country B applies the principle of nationality –that is, it taxes profits IIb and IIIb.

Since IIa is not the same as IIb, neither double taxation nor tax evasion occurs in these categories of profit. Since Ia = IIIb, profits gained in country A by firms coming from country B are subject to double taxation. Profits Ib = IIIa – that is, profits gained in country B by firms coming from country A – are not taxed either in country A or in country B, and thus escape taxation. Therefore, the above system of tax treatment of foreign firms, by its very nature, results in multiple taxation of foreign firms coming from the country applying the principle of nationality and tax evasion of those coming from the country applying the principle of location.

We now come to the reallocative effects of the system. Let us see first the case of multiple taxation. In this case, foreign firms are not subject any more either to t_1 or to t_2 as in the case of the principle of nationality or the principle of location. The tax rate on foreign firms is ($t_1 = t_2$). Therefore, for foreign investors, expression 4 becomes:

$$\frac{E_b}{E_a} = \frac{(t_1 + t_2)(1 - t_1)[a(1 - t_1) - c]}{t_1(1 - t_1 - t_2)[a'(1 - t_1 - t_2) - c]}$$

In terms of expression 4a, h is always higher than unity independently of whether $t_1 \gtrless t_2$. This is a very important fact. It shows that, under the system of multiple taxation the differential tax rates effect works always in the direction of reallocating investment from the country of location to the country of nationality even when $t_1 \gtrless t_2$. This implies also that, when $t_1 = t_2$ and $a = a'$, the system in

question is not neutral like the systems of location and nationality considered above, but it still involves adverse reallocative effects in favor of the country of nationality. The above reallocation of the differential tax rates effect is accentuated by the operative influence of the differential marginal efficiency effect when $a > a'$, but it is mitigated or it may be eliminated altogether when $a < a'$. As we have seen, these last results are possible only when the differential marginal-efficiency effect is strong enough to counterbalance the differential tax rates effect, and this may happen when a' is very much higher than a or $(t_1 + t_2)$ is very little higher than t_1 . If we exclude these extreme cases, we can conclude that, on grounds of tax neutrality, the system in question involves the most adverse reallocative effects in comparison to the principle of location as well as to the principle of nationality, all the other factors being equal, of course.

The case of tax evasion is fairly clear, and we have nothing to add. The reallocative effects here are exactly the same with those of the case where both countries apply the narrow meaning of tax jurisdiction. It should be noted, of course, that, in cases where undertaxation of foreign firms is not an intentional interference of the public authorities, but simply the accidental result of the overlapping of many tax jurisdictions, the uneconomic allocation of resources is of as much importance as in the case of double taxation.

We can close this article by comparing systems b, c and d, which are the most frequently used in practice for taxing foreign firms. System d—namely the application of different principles by each country—involves the most severe tax discriminations of foreign firms and the most adverse reallocative effects on foreign investment. Therefore this system ranks very low on grounds of tax equity and tax neutrality as well. As far as the comparison between the other two systems is concerned, we can say that the principle of location is superior to the principle of nationality on grounds of tax equity, but it ranks low with relation to this latter system on grounds of tax neutrality.

REFERENCE

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