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Michael Devereux
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Michael Devereux is Professor of Business Taxation at Oxford University and Research Director of the Oxford University Centre for Business Taxation. He is also Research Director of the European Tax Policy Forum and Honorary President of the International Institute of Public Finance. Previously he held professorships at the University of Warwick and the University of Keele. He received his Ph.D. in economics from University College London.

Summary

This paper summarises the extensive literature on the optimal tax treatment of international investment, drawing out implications for the optimal taxation of the profit of multinational companies. The aim of taxing

multinational profit is taken as given. The considerations in the literature focus on economic efficiency.

The traditional approach has favoured residence-based taxation on the grounds that this would not distort the allocation of investment between countries. A more recent approach favours source-based taxation on the grounds that it would not distort the ownership of capital.

However, neither of these simple approaches convincingly survives translation into a world of multinational companies with economic rent, international portfolio investment, acquisitions and international trade. Aiming to tax solely economic rent offers the possibility of a tax on outbound investment which would be efficient. But in a more complex world, the notions of “residence” and “source” become less well-defined; and when applied to the location of the parent company, or productive activities of affiliates, they are also mobile. This casts doubt on attempting to tax the worldwide income of a parent company, or the local income of an affiliate.

Instead, efficiency requires the tax base to be relatively immobile. This suggests that an efficient tax on profit

could be levied in the country in which a company's goods and services are ultimately sold to a third party.

1. Traditional approach

The traditional question in the normative economic analysis of the international taxation of investment income has been the determination of the optimal rate of tax on the returns to cross-border investment - and in particular, the tax treatment in the "residence" country of the investor.

To investigate this question, the economics literature has considered a simple model of two countries. One country is the "residence" country – call it R – where a representative investor resides; the investor is assumed to be immobile. The other is the "source" country – call it S - where some economic activity takes place.[1] The literature considers a standard income tax on the returns to an investment, which reduces the rate of return earned by the investor. In this context, the literature has primarily considered two polar cases.

Allocation of capital between locations

[1] The terms "residence" and "source" are discussed further below.

First, suppose that the representative investor has a fixed sum to invest, which can be divided between productive opportunities in R and S. Assume that the rate of return earned at the margin in each country falls as the amount of capital invested there increases. Then the investor would maximise her overall return by allocating her investment between the two countries to the point at which her post-tax rate of return from investments in the countries were equal. If this were not true, she could increase her overall return by switching investment from the low-yielding country to the high-yielding country. Since the investor is interested in post-tax rates of return, then if the total tax rates – charged by either or both countries – on these two forms of investment differed, then the allocation of investment to each country would be affected.[2]

[2] This is the setting explored by Richman (1963) and more formally by Feldstein and Hartmann (1979), in which investment decisions are implicitly made by households who rent or sell capital to firms who are already established in each country: there are no multinationals. There are many extensions. For example, Horst (1980) allows the supply of capital to be elastic. Keen and Piekkola (1997) extend the Horst framework to allow for a government budget constraint, and also allow home and foreign governments to set domestic distorting taxes and also lump-sum taxes.

Within this context, three main normative approaches have been considered. The first seeks to identify the tax regime that would maximise global welfare (in this case the welfare of residents in R and S together). The second asks what tax regime implemented in R would maximise national welfare in R. The third asks what tax regime in S would maximise national welfare in S. We discuss these in turn.

First, maximising global welfare would require the overall effective tax rate on domestic investment in R and outbound investment from R to be equal. This can be achieved by R taxing the worldwide income of the investor, and giving a full credit for any taxes paid in S (even if the tax rate in S exceeds that in R).[3] That is because maximising global welfare requires the pre-tax rates of return in the two countries to be the same. If this were the case, then it would not be possible to increase total output for a given set of inputs, a

[3] Note that this is not the system currently used in the USA, for example, for two reasons. First, the USA limits the credit for foreign taxes. Second, it applies tax to worldwide income only when it is repatriated. This creates an incentive to defer dividend repatriations, either because US companies believe that the tax rate may be lower in the future, or because earnings can be manipulated if the earnings are "permanently reinvested"; see, Krull (2004).

condition known as production efficiency.[4] Given that investors aim to equate post-tax rates of return, then maximising global welfare in this setting requires that the effective total tax rate on all forms of outbound investment is equal to the effective tax rate on domestic investment – a condition known as "capital export neutrality".[5] Given this, investment flows would not be affected by tax, and so there would be no distortion to the location of capital. Note that the allocation of revenues between the two countries is irrelevant for this condition.

Second, from the purely national perspective of country R, the traditional prescription has been that R should again tax the worldwide income of the investor, but in

[4] A key theorem in optimal tax theory is that in a "second-best" world in which there is some distortion due to taxes, the economy should exhibit production efficiency; Diamond and Mirrlees (1971). This theorem depends on strong assumptions: that markets are efficient in the absence of tax, that businesses either do not earn economic rents or that they are taxed at a rate of 100%, that governments are free to deploy any tax instrument, and administration and compliance costs are not an issue. Further, in an open economy Keen and Wildasin (2004) show that the principle continues to hold only if there can be transfers of wealth between countries. However, while it is possible to identify conditions under which the theorem does not hold, such conditions do not give a clear prescription for what is the optimal form of production inefficiency.

[5] See Richman (1963).

this case allow taxes in S only to be deducted from the tax base in R – effectively treating them like a cost. This is because from a national perspective, R should equate the social rate of return to residents of R from the two types of investment. This should exclude any taxes paid in S, as long as such taxes benefit only residents of S. Thus, the government in R should aim to equate the pre-tax rate of return on investment in R with the rate of return in S after tax imposed by S. This condition is sometimes known as “national neutrality”.

Third, the optimal approach from the purely national perspective of S depends on a number of factors, including the size of the country. However, in one important special case, the literature has a clear prescription. That is if S is a small open economy and R represents the rest of the world, so that S is too small to have any impact on the equilibrium “world” rate of return, denoted *r*. The investor in R requires a post-tax rate of return of *r* on her investment in S. Any taxes levied in S will therefore raise the expected pre-tax rate of return required by the investor, and induce the investor to switch investment back to R. As a result, the capital stock and hence economic activity in S will fall. This has no impact on the wealth of the investor, who continues to earn *r* on all her investment. But the lower capital in S will reduce the size of income captured by residents in S. In this setting, welfare in S would be

higher if some other less-distorting tax instrument could be used instead of the tax on capital located there.[6]

Allocation of capital between owners

A polar opposite model holds the size of the capital stock located in each country – R and S - fixed, but allows the rate of return on that capital to depend on the skills of the owner, or manager of the capital. In this case, it is possible that taxes could affect the ownership of capital, though not its location.

Suppose for example, that the owner of an existing target company (or other asset) located in S was willing to sell. Suppose also that there are two possible buyers, one located in R and one in S; both could generate a surplus from buying the target company, but suppose that the buyer in R could create a higher surplus. In the absence of taxes, the buyer in R would be willing to offer a higher price for the company, would gain control and create the higher surplus. However, if R charged a higher tax rate on that surplus than S charged, then it is possible that after tax the surplus generated by the

[6] See Gordon (1986). A modification to this policy prescription concerns the case where R operates a credit system, so that the investor's overall tax rate does not depend on the tax rate in S; in this case, it would be optimal for S to set a tax rate equal to the tax rate in R; see Gordon (1992).

buyer in S could be higher. In that case, the buyer in S would be willing to offer the higher price, and she would gain control. But in this case, the tax would have reduced the pre-tax surplus – which is inconsistent with production efficiency, since total output would be lower. Desai and Hines (2003) used the term "capital ownership neutrality" to describe a tax system that exhibited the property that it did not affect the ownership of assets.

Desai and Hines (2003) also considered the welfare of each individual country, using the term "national ownership neutrality" to describe the optimal tax treatment from the perspective of country R in this setting. Since the surplus generated by the acquisition in S would accrue to the investor in R only if the target company were acquired by the investor in R, "national ownership neutrality" would in principle require R to set a tax system that maximises the probability that the investor in R would succeed in acquiring the target company. Desai and Hines describe this as requiring R to exempt income earned abroad from tax in R. However, if the surplus is positive, then it could be the case that R should even subsidise its own investor to induce her to purchase the target company. We discuss this possibility further below.

Further comments

It seems clear that in the setting just described it is not generally possible to achieve both capital export neutrality and capital ownership neutrality. In seeking optimal policy, one response might be to try to choose between distortions by estimating the relative size of each form of non-neutrality; for example, is productivity more sensitive to location or ownership?

However, rather than address this issue, we consider various extensions of this framework. First, we consider the possibility of distinguishing between taxes on the total return to an investment, and taxes only on economic rent. Then we analyse in more detail the notions of residence and source, in the context of international portfolio investment and international trade.

2. Taxing total income or economic rent?

The traditional model assumes that capital flows between countries to equalise the post-tax rate of return at the margin. Tax is levied on the marginal return and so the post-tax rate of return differs from the pre-tax rate of return. But that approach leaves two related issues to one side.

The first is whether the tax system can be designed as a tax solely on economic rent – that is any profit over and above that required for an investment to take place. Such a tax would not affect marginal rates of return, and so should not affect decisions as to the scale of investment. If sufficient revenue can be generated from taxes on economic rent, then taxes on the remaining return to capital would not be needed, and in the context of the model described above there would be no distortion due to taxation. There is a large literature on the design of taxes on economic rent which will not be described here; broadly there are two forms, a cash flow tax, and a tax that gives relief for the opportunity cost of finance.[7]

However, having introduced that possibility, we should also make the model more realistic. In particular, in considering firm investment decisions, we can distinguish two types of decision: a location decision and a scale decision. There is considerable evidence that multinational companies make discrete choices about where to locate their activities. And the choice between two mutually exclusive alternatives will depend on the total tax levied in each jurisdiction – including taxes on

[7] See, amongst others, Meade et al (1978), IFS Capital Taxes Group (1991), and Bond and Devereux (1995, 2003).

economic rent.[8] Having chosen a location, firms must decide on the scale of their activities, which should depend on the marginal tax rate as used in the model above.

Building on Becker and Fuest (2010, 2011), Devereux et al (2015) extend the framework above to take account of the location choice of multinational firms, as well as the choice of tax base – whether the tax is levied only on economic rent or on the whole return to capital.[9] In this context, they pose the first two questions discussed above: what is the optimal choice of tax for country R, both from a global perspective and a national perspective? They show that when only taxes on economic rent are used, the apparent dichotomy between the policy prescriptions described above disappear.

Specifically, they first confirm earlier results that the optimal tax base is a tax on economic rent, since that achieves the optimal scale of investment conditional on location. For outbound investment, that implies that country R should levy a cash flow tax on net inflows

[8] See Devereux and Griffith (1998).

[9] Becker and Fuest (2010, 2011) are the first papers to model formally the normative role of tax in international acquisitions. Devereux et al (2015) generalise their model to allow for greenfield investment and an acquisition.

from abroad – ie. in each period taxing all inflows less all outflows associated with outbound investment.[10] That leaves the question of what rate should be charged on this cash flow tax. They find that the classical results above continue to hold. That is, to achieve global optimality, the tax rate should be equal to the domestic rate with a full credit for foreign taxes paid, and to achieve national optimality, a deduction should be given for foreign taxes paid.

In addition, though, in the context of a cash flow tax on outbound investment, they find that this combination of tax base and tax rate also satisfies capital ownership neutrality. That is because cash flow taxes would not distort the outcome of two rivals bidding for a single asset or company, even if the two rivals faced different tax rates. Since a cash flow tax gives full relief for the cost of acquisition of an asset, as well as taxing any returns from it, the tax falls only on economic rent. Assuming each buyer seeks to maximise economic rent, then that implies that the price any potential buyer would be willing to pay for an asset would not be affected by a cash flow tax. Since prices would not be affected, then neither would ownership.

[10] Shown first by Keen (1993), and also by Becker and Fuest (2010).

In sum, in this context a cash flow tax on the net inflows from outbound investment would be consistent with both capital export neutrality and capital ownership neutrality.

Taxing location-specific rent

A different approach to the consideration of taxing economic rent is to return to the initial question of the location of investment rather than its ownership, and to ask whether it is possible to tax rent that is location-specific and therefore immobile. In principle, if the source of the rent is immobile, then the government of that country could tax the rent without inducing the activity to move elsewhere. The most obvious source of location-specific rent is a natural resource. In this case, there is a persuasive case for a separate tax on the rent generated by the resource; this can be separate from, and additional to, a general tax on the profits of multinational companies. Other potential sources of location-specific rent may be associated with other factors – such as an agglomeration of firms within an industry that locate near to each other or local demand for a particular good or service. In general, though, it is difficult to design a general tax which would fall only on location-specific rent.

3. International portfolio investment and "residence"

Next we turn to two other fundamentals of the traditional model – the notions of residence and source. We take each in turn.

The traditional model is really one of households allocating their saving between two different countries. It is not a model of multinational companies. That is an important distinction in interpreting the implications as a guide to taxing multinational companies. We might reasonably suppose that individuals have a fixed place of residence and are relatively immobile. For them, it then makes sense to ask the question of how the government of their place of residence might tax their worldwide income.

But although corporations are legally resident in a particular country, they are not resident in the same sense. Individuals can set up and own companies in other countries, so the residence of the owners of companies may be different from the residence of the companies they own. So is it reasonable to tax the worldwide income of a company in its place of residence? It is not clear on what grounds we would do so. Suppose a British company owned by, say, German individuals received income from subsidiaries around

the world. It might be natural for the UK to tax a share of that profit to the extent that it was generated from activities taking place in the UK. It might also be natural for Germany to tax the worldwide income of its residents. But it is hard to see a good reason why the UK should tax the parent company's worldwide income simply on the basis that the company is resident in the UK. Of course, if the UK tried to do so, then the parent company would be able to change its residence.[11]

Beyond these general points, however, these considerations also raise concerns about the interpretation of the model set out above. The basic model is one in which a fixed stock of saving, or capital, is allocated between countries. But if we allow for international portfolio investment, then that does not seem appropriate. If instead we assume that multinationals have access to a world capital market, then profitable outbound investment ought not to be constrained by the funds used to undertake domestic investment.

[11] The introduction of ever more stringent anti-inversion rules in the USA seem like an attempt to trap companies that in the past have chosen US residence. If the rationale is that they may be owned by American citizens, then the rules could discriminate between companies on those grounds. But to do so would in effect be preventing Americans owning shares in some, though not all, foreign companies.

We could then consider the opposite extreme, in which the two forms of investment are completely independent of each other. In this case, the required rate of return on both forms of investment will be determined by the world capital market. Individuals can invest in foreign activities in two ways: by buying shares directly in a foreign company or by buying shares in a domestic company that undertakes international direct investment.[12] Devereux et al (2015) show that, if the two forms of investment are independent, then a cash flow tax on outbound investment would remain efficient at any tax rate.

More generally, we could still allow for other ways in which domestic and outbound investments are substitutes. For example, they may be alternative means of creating the same output, or there may be a constraint on the availability of management. In these cases, where there is some substitutability between investment at home and abroad, then the previous results are again relevant.

4. International trade and "source"

[12] Desai and Dharmapala (2011) investigate the impact of dividend taxes on this choice.

Finally, let us consider the notion of source, particularly in the context of international trade. The model we started with implicitly assumed that all economic activity associated with outbound investment takes place in the source country, S. But in practice, multinational companies have elements of their activity – management, production, finance, marketing, research - in many countries. And they sell their goods and services to third parties in many other countries. One of the issues that most undermines the existing structure of the international tax of corporate profit is the difficulty in identifying the "source" of a profit for the purposes of where it should be taxed.[13] In addition, the mobility of the economic activity of multinationals creates distortions to location, and also drives tax competition between governments to trying to attract that activity.

But there is an additional problem of economic efficiency here. Suppose two multinational companies have production activities in different countries – say France and Italy. But suppose they both export their product to London, and hence compete in the UK. If taxes are levied in the place of production, then it is

[13] For discussion, see for example, Kleinbard (2011) and OECD (2013).

possible that if one company faces a lower overall tax rate than the other then it will gain a competitive advantage from that difference in tax. This is now a common complaint about corporation tax systems: for example, domestic retailers complain that they are undercut by web-based sales by multinationals that face a much lower tax burden.[14]

A distortion to competition in the UK market may be avoided in principle if all countries rely on a cash flow tax on economic rent. However, in the presence of a tax which falls on corporate income as well as rent, competition will generally be distorted. In turn, this may lead to a second form of tax competition; each country may have an incentive to benefit companies resident in its jurisdiction in the hope that this will give that company a competitive advantage and result in higher profits accruing to domestic residents.[15]

If we rule out imposing tax on profit in the place in which goods and services are sold, then it is hard to see how this potential distortion to competition could be avoided. Short of general agreement between countries

[14] This problem has been labelled as "market neutrality" by Devereux (2008).

[15] See, for example, Davies (2003), Devereux and Hubbard (2003) and Becker (2014) for analyses of the optimal treatment of outbound investment in such circumstances.

on a cash flow tax, or harmonisation of tax rates, such distortion seems inevitable.

For these and other reasons, there have been recent proposals to move the taxation of international profit to a destination basis – that is for the tax on profit to be levied in the place in which a sale is made to a third party. This could be broadly similar to an apportionment system, as used between states in the USA and as proposed for the EU by the European Commission, with the apportionment factor based on the destination of sales. But a more efficient approach would be a system similar to VAT, where exports are zero-rated and imports are taxed.[16] The main difference in principle from a VAT would be that labour costs would be deductible, thereby turning the VAT into a cash flow tax on economic rent. As long as consumers were relatively immobile, such a tax would deal with the three distortions identified in this paper, to the location of economic activity, the ownership of assets, and competition between companies. Consequently, it would also deal with tax competition between governments.

[16] See, for example, Auerbach et al (2010), Auerbach and Devereux (2015).

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