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Destination-Based Cash Flow Taxation

This chapter[1] presents, analyses, and further develops the idea of a Destination-Based Cash Flow Tax (DBCFT).[2] The DBCFT has several highly attractive properties: in principle it does not distort the scale or location of investment, it assures neutral treatment of debt and equity as sources of finance, is robust against avoidance through within-business transactions, and provides long-term stability due to its incentive compatibility combined with a resistance to tax competition amongst countries. The DBCFT thus addresses many of the ailments afflicting current tax regimes in both purely domestic and international settings.

On the other hand, the DBCFT raises a number of significant implementation issues—both administrative and legal—and requires substantial changes, both conceptually and in application, from current practice in the taxation of business profit. Neither of its two principal design features, a cash flow tax base and taxation on a destination basis, are currently commonplace amongst existing business taxes.[3]

The purpose of this chapter is to describe the DBCFT, how it might work, what its effects would be, and the main challenges its implementation would face. We start in Section 1 by outlining how a DBCFT would work, and elaborating on its key elements, including the nature and role of border tax adjustments. We show that a tax reform with equivalent economic effects would be to introduce a broad-based, uniform-rate Value Added Tax (VAT)—or to raise the rate of an existing broad-based VAT—and making a corresponding reduction in taxes on wages and salaries. Section 2 then evaluates the DBCFT against our five criteria: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility. As with our analysis of the Residual Profit Allocation by Income (RPAI) in Chapter 6, in doing so we deal in turn with two settings: that in which all countries adopt a DBCFT (or its VAT-based equivalent) and that in which adoption

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is unilateral. Section 3 then considers the treatment of financial flows, from both conceptual and practical perspectives. This is an important issue that has not previously been considered in detail. Section 4 takes up a range of implementation issues, though the chapter does not attempt a full treatment of all the issues that are likely to arise in practice (many of which are likely to be country-specific). The chapter concludes in Section 5.

1. The DBCFT in outline

The DBCFT has two distinct attributes: a cash flow tax base and a destination basis. A destination basis could be applied to a variety of tax bases, and arguments for cash flow taxation originally arose in a purely domestic setting. But there are advantages to combining the cash flow tax base and the destination basis. This section recalls the features of a cash flow tax operating in a single economy, explains what a destination basis would mean, and shows the economic equivalence of a DBCFT to the combination of a VAT and an offsetting subsidy to labour costs.

1.1 Cash flow taxation

Cash flow taxation in a single economy has been studied at length, and we have introduced the idea, and discussed its properties, in Chapter 2.[4] As its name implies, a cash flow tax applies to net receipts arising in the business. Receipts are included in the tax base when payment is received, and expenses are recognized when payment is paid.[5] The tax base in any given period is the former less the latter. The most significant difference in the timing of the inclusion of receipts and expenses in the base, compared to most existing taxes on business profit, is that under cash flow taxation even capital assets that are typically depreciated over time are instead immediately expensed (i.e. deducted in full upon purchase). There is therefore no need for complex depreciation rules that are typically found under current systems, and no need to differentiate between different types of assets. This also introduces a significant difference between the cash flow tax base and measures of profit in financial statements.

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[4] The idea of the cash flow tax dates back to Brown (1948) and has since been the subject of an extensive literature including Kaldor (1955); Andrews (1974); US Treasury (1977); Meade Committee (1978); and Graetz (1979). Elements of cash flow taxation, including immediate expensing of capital goods, have been introduced in several countries, including the US and in a limited form in the UK.

[5] More precisely, the tax would naturally be based on an accruals basis so that, for example, receipts are recorded when the obligation to pay is incurred, rather than when cash is actually received. The accruals basis would also apply to purchases, including of capital assets. Similar arrangements are standard under the VAT.

In the terminology of the Meade Committee (1978), a cash flow tax could be levied on a business on an R (real) base or an R+F (real plus financial) base. Under the R base, transactions involving financial assets and liabilities are ignored—so, for example, interest receipts would not be taxed, and interest expenses would not be deductible. The R base is thus limited to the difference between real inflows (from the sale of products, services, and real assets) and real outflows (from the purchase of materials, products, services—including labour—and real assets). By contrast, under the R+F base, all cash inflows, including borrowing and the receipt of interest, would be taxable; all cash outflows, including lending, repaying borrowing, and interest payments, would be subtracted in calculating the tax base. That is, the tax would apply to all net financial inflows related to borrowing, including principal amounts, as well as to net real inflows.[6] The choice between an R and an R+F base is discussed in detail below.

The properties of the cash flow tax have been set out in Chapter 2, so we will review them only briefly here. The starting point for understanding them is the usual assumption that an investor seeks to maximize the net present value (NPV) of an investment, defined as the sum of all discounted cash flows associated with it.[7] In principle, if the discount rate is set at the investor's opportunity cost of funds (which is also the minimum required rate of return) then it is worth undertaking any project with a NPV greater than zero; and it is not worth undertaking any project with a NPV less than zero. The pre-tax NPV for any project—calculated over all periods in which any cash flow arises—is also a measure of the economic rent that it generates. Any tax that falls only on economic rent (and has a rate between zero and 100%) has the property that the post-tax NPV of an investment has the same sign (i.e. positive or negative) as the pre-tax NPV. In this case, any investment worth undertaking in the absence of tax remains worth undertaking in the presence of tax, and vice versa. Hence the investment decision is independent of a tax on economic rent.

Intuitively, cash flow taxation is neutral with respect to decisions about the scale of investment because, in effect, the state contributes a proportion of all costs of the business (through giving tax relief for all costs when they are incurred) and takes the same proportion of all receipts. In effect, this is akin to the state becoming a shareholder in the business. Like other cases in which the ownership of shares in a business changes, this in itself has no effect on the profitability of the business,

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[6] The Meade committee discussed a third form: the 'S' base cash flow tax, levied on net distributions to shareholders. As a consequence of the identity between a firm's sources and uses of funds, in a domestic context an S-base tax is equivalent to an R+F-based tax, except in terms of implementation.

[7] The discounting effectively adjusts for interest that might otherwise have been earned during the intervening period. For instance, in the example below, assuming a discount rate of 10%, a cash flow of 110 in one year's time has a present value of 100. Since the discounting approach adjusts for a required rate of return on an investment, the NPV is a measure of the economic rent of an investment.

or on marginal investment and financial decisions. By taxing all cash flows at the same rate, the state captures that same proportion of economic rent.[8]

The neutrality of cash flow taxation applies also to financial decision making. As seen in Chapters 2 and 3, the favourable treatment of debt provided by most existing taxes on business profit distorts the choice of financing between debt and equity financing, leading to leverage ratios that are higher than they would otherwise be.[9] This is a significant concern: socially excessive levels of debt, especially in the financial sector, are widely seen as having played a role in triggering and deepening the financial crisis of 2007–08.

By contrast, cash flow taxes, with either an R or an R+F base, do not distort the choice between debt and equity. This is easily seen in the case of an R base, since all financial flows are simply ignored, be they associated with debt or equity. But the same applies to the R+F base. We return to this issue in more detail below.

There are caveats to this general analysis. One is that cash flow taxes lose their neutrality if the tax rate is expected to change over time: a falling rate will encourage investment, for instance, since the cost is deducted at a higher rate than its subsequent income is taxed.[10] Second, and of particular importance to the concerns of this book, even cash flow taxes may distort the choice between mutually exclusive projects which face different tax rates; the classic case in which this could occur is in location choices among countries, as we discuss below, but it could also happen in a purely domestic context. Third, the analysis is based on the assumption that a business will aim to maximize its value, summarized by the NPV. This may not necessarily be the case. One possibility, for example, is that managers with a short-term horizon will seek to maximize current profit as recorded in financial statements; this is more likely, of course, if managers' own remuneration depends on current financial earnings. In some cases, this may not be consistent with maximizing the NPV of the business. At various points in the discussion below we consider this possibility.

It should also be recalled from Chapter 2 that cash flow taxation is not the only way to achieve neutrality in business taxation. The same economic effects can in principle be achieved by giving relief for the cost of depreciation of assets, instead of an immediate write-off, and in addition giving relief for the cost of finance. In the case of debt finance, this cost is normally the interest payments that the business must make on its borrowing. For equity finance, it is an opportunity cost, reflecting

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[8] Complications may arise in practice. For example, this simple characterization assumes a symmetric tax system, in which the state collects tax when cash flows are positive, but effectively makes a tax rebate when cash flows are negative. The appropriate treatment of losses is discussed below in a number of different settings.

[9] For a survey on the impact of the tax incentive to use debt, see Graham (2003). More recent evidence is provided by, amongst others, Devereux et al (2019); Doidge and Dyck (2015); Heider and Ljungqvist (2015); and, with a focus on distortions to bank leverage, de Mooij et al (2014) and de Mooij and Keen (2016).

[10] See Sandmo (1979).

the return that the shareholder would have earned on some alternative asset of equivalent risk. These financial costs can be seen as reflecting a minimum rate of return that the providers of finance require on their investments in the business. Naturally, then, giving relief for these costs implies that only economic rent—that is, profit over and above the minimum required rate of return—is subject to tax.

Comparing this approach to cash flow treatment, relief for the opportunity cost of finance can also be seen as compensating for the lack of immediate expensing in the system. Giving relief only for the depreciation of capital assets in effect defers tax relief on capital expenditure relative to a cash flow tax. Relief for the opportunity cost of capital compensates for this deferral. In fact, as the IFS Capital Taxes Group (1991) first showed, it is possible for a tax to fall on economic rent with any schedule of depreciation allowances, as long as relief for the opportunity cost of capital is based on the difference between the initial cost of the asset and its tax-depreciated value. The IFS Capital Taxes Group proposed an 'Allowance for Corporate Equity' (ACE) based on this principle, which would be a relief for the cost of equity finance in addition to relief for the cost of interest payments.[11]

The approach using an ACE has the advantage, relative to cash flow treatment, of being more similar to existing business taxes, in that it simply adds one additional relief and leaves features like interest deductibility and capital allowances unaffected. It has the disadvantage of adding some complexity relative to the cash flow tax, since it requires the specification of a rate at which the allowance is applied, although this has been applied in practice in the context of ACE reliefs introduced in several countries.[12]

1.2 Destination basis

The international setting introduces the second dimension of the DBCFT, relating to how a country determines the component of the taxable profit of a multinational business which falls within its particular jurisdiction. A DBCFT would be based on sales of goods and services in the country less expenses incurred in the country: so receipts from exports are not included in taxable revenues and imports are taxed.[13] This 'border adjustment' is essentially the same treatment as is common under

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[11] The equivalence of expensing and a rate of return allowance was first shown by Boadway and Bruce (1984). Kleinbard (2007) proposed a related form of cost of capital allowance, with the same notional rate applied to debt as well as equity finance. Fane (1987) and Bond and Devereux (1995, 2003) analysed the properties of various such rate of return allowances in the presence of risk.

[12] For example, in Austria, Belgium, Brazil, Croatia, and Italy. Experience with the ACE is reviewed by Hebous and Klemm (2018); see also de Mooij (2012); Zangari (2014); IMF (2016a); and Devereux and Vella (2020). Something akin to a notional return would also need to be specified under cash flow taxation, however, if losses were not instantly refunded but the same effect in present value terms were to be achieved by instead carrying them forward.

[13] More precisely (and as discussed later): imports by businesses liable to a DBCFT could either be taxed, with a deduction then available, or untaxed but not deductible; imports by final consumers would be taxed.

Table 7.1 Illustration of application of the DBCFT

	Country A	Country B	Total
Tax rate	*20%*	*30%*	
Labour costs	60	0	60
Other costs	40	0	40
Sales	150	150	300
DBCFT tax base	50	150	200
DBCFT charge	**10**	**45**	**55**
VAT tax base	110	150	260
VAT charge	22	45	67
Relief for labour costs	−12	0	−12
VAT + relief for labour costs	**10**	**45**	**55**

VAT; we explore differences from, and similarities with, VAT below. In a sense, the DBCFT would tax inflows and outflows asymmetrically—since income from sales are subject to tax in the place of the sale (the destination, or market, country), while expenses, including for labour, receive tax relief where they are incurred (the origin country). It thus combines both destination and origin elements.[14] We stick, however, with the established terminology, with the term 'destination'—taken from the literature on VAT—highlighting the role of border adjustment on payments and receipts.

A simple example makes the workings of the DBCFT clear (Table 7.1). Suppose a business produces goods in country A, employing labour at a cost of 60 and with costs of 40 on other domestic purchases. It sells goods to domestic consumers in A for 150, and also has exports of goods to country B of 150. It therefore has a total profit, in cash flow terms, of 200.

The DBCFT tax base in A is calculated as domestic sales of 150 less domestic cost of 100: a total of 50. The DBCFT tax base in B is simply the value of the imports into B: 150. If the tax rate in A is 20% and that in B is 30%, then the business' tax liabilities are 10 in A and 45 in B.

The relevant 'destination' for the calculation of tax, it should be emphasized, is the location of the immediate purchaser, not (necessarily) that of the final consumer. For example, if a US manufacturer sells steel to a French automobile producer which uses the steel to produce automobiles sold back to the US, US application of

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[14] Note that if both sales and expenses were included on a destination basis, this would be equivalent to sales-based formulary apportionment.

the DBCFT would not tax the sale of steel but would tax the automobile imports. And in France, the imports of steel would either be taxed at entry but treated, along with labour and other costs incurred there, as a deductible cost or simply excluded from tax (a choice we return to later). The export would not be taxed in France.

It is, however, the location of the final customer upon which the impact of the DBCFT ultimately turns. As will be seen more clearly below, the DBCFT is built on the intuition that taxing profit on the basis of something that is relatively immobile—which, by and large, we take customers to be—limits the scope for the gaming that—as seen in Chapter 3—has caused such difficulties within the existing international tax framework.

It should be noted too that forms of economic rent tax other than cash flow taxes could also be destination-based. One could also implement border adjustments under an ACE, for example, though this would raise additional considerations.[15]

1.3 Equivalence between the DBCFT and a VAT with matching reduction in wage taxes

Before turning to an evaluation of the DBCFT, it is useful to compare the DBCFT with the combination of a VAT and reduced taxation of wages. In Chapter 2 we set out the equivalence of the combination of an R-based cash flow tax plus a tax on labour income with a VAT (if all were levied at the same rate, and the VAT was a broad-based tax). This equivalence continues to hold if both the cash flow tax and VAT are levied on a destination basis. In the example in Table 7.1, under the usual invoice–credit method, at a tax rate of 20%, the business would remit VAT on the value of the domestic sale (30) net of the VAT already paid on the non-labour input (8).[16] The total VAT payment by the business in A would thus be 22. The VAT due in B, where there are only sales,[17] would be the same as the DBCFT charge, 45.

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[15] For a discussion of this option, see Hebous and Klemm (2018). A key issue in an international context, as noted above, is that a pure destination-based ACE would not allow imports by businesses to be ignored for tax purposes. However, it would be possible to consider a hybrid, with an ACE used for domestic purchases of capital goods, and cash flow treatment being used for imports.

[16] The standard invoice-credit method of collecting VAT keeps track of VAT on every transaction. A VAT-registered business remits tax on its sales less a credit for the VAT it has already paid on its inputs. A subtraction-method VAT is more akin to a corporation tax—and the DBCFT—in its operation with annual accounting of the sales less non-labour costs made by the company. In this case, rather than a tax on sales less a credit for the tax paid on inputs, we can think of a tax on a base equal to sales less a deduction for the cost of the inputs. In the simple case in which there is a single VAT rate, these approaches result in the same tax base.

[17] Imports of 150 from the entity in country A would be subject to VAT, but a credit of exactly the same amount would be available against the VAT due on sales.

The only difference in principle between the DBCFT and a VAT is in the treatment of labour costs. In B, where no wage costs are incurred, the liability is the same under the DBCFT as under the VAT. In A, the difference in the DBCFT base and the VAT base is the 60 of labour costs incurred in A. The DBCFT is intended to tax profit—or more accurately, economic rent, given that the tax base is net cash inflows—and so gives relief for labour costs. The VAT is intended to tax value added; this is equivalent to the sum of profit— again, more accurately, economic rent—and the amount paid to labour, and so VAT does not give relief for labour costs. It follows that introducing a VAT (or increasing its rate)—having in mind here an idealized VAT, levied at a single rate on a broad base[18]—and reducing labour income taxes at the same rate would have equivalent economic effects to those of the DBCFT. This is shown in the last two lines of the table: giving relief for labour costs in A reduces the tax in A by 12, and the combination of the VAT and relief for labour costs yields the same tax base as the DBCFT.

Below we discuss in some detail the two options of (a) implementing a DBCFT as a reform to the taxation of business profit, and (b) an economically equivalent reform of introducing a VAT (or applying an increased rate to the generality of transactions under an existing VAT) combined with a matching reduction in taxes on wages and salaries.

1.4 Border adjustments

A key element for understanding both the incentive effects of a DBCFT and the incidence of a DBCFT is the role played by the border tax adjustment (BTA).[19] By this is meant that exports would not be subject to the tax, but imports would be. The impact of BTA has been extensively studied in the literature on VAT, in particular the effects of shifting from an origin-based system (exports taxed, imports untaxed) to a destination-based system that is the norm (exports untaxed, imports taxed); we draw on that literature here.

The adoption of border adjustments might appear to make a country more competitive in international trade. But any such effect is at most a temporary one.

To see this, consider first the hypothetical case in which there are no domestic taxes and in which the country has a freely floating exchange rate. Now consider the impact of the introduction of a DBCFT in that country only.[20] Goods and services that are produced domestically but exported would receive the benefit of a

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[18] This is a major qualification that, for brevity, we shall often omit below.

[19] See Auerbach and Holtz-Eakin (2016) for an elaboration of, and examples illustrating, the arguments in this subsection.

[20] If the DBFCT were introduced in several countries at once, then the effects identified would be replicated in each country. The extent of price and/or exchange rate adjustments would depend on relative tax rates in the countries undertaking the reform.

tax deduction for costs incurred (in the pure DBCFT, at least), but the income from sales would not be taxed. The reduction in net costs would allow the business to sell the good or service more cheaply on world markets; this would create a stimulus to exports. By contrast, the domestic cost of imports purchased by final consumers would increase with the tax on imports; this would discourage imports. Both of these effects would result in an increase in demand for the domestic currency, causing it to appreciate on world markets. This appreciation would counteract the initial effects of the tax by dampening the demand for exports, and stimulating the demand for imports. This effect on the exchange rate could occur quickly—indeed, immediately on the introduction of the tax, or even in anticipation of its introduction.

In principle at least, a new equilibrium would be established only when the currency had appreciated far enough to restore the initial position. In this case, there would be no impact on trade or investment.[21] There would be no adjustment to the nominal price level or wage rates in the domestic country, and so the domestic workforce would be unaffected. The government would collect revenue on an aggregate tax base equal to the value of domestic sales less the costs of domestic production. This tax base has two components: the economic rent earned by domestic businesses on their domestic production, plus net imports. Alternatively, the tax base could be seen as the value of domestic consumption out of non-wage income. We discuss these issues further below.

What about the case in which there is a single common currency, or a fixed exchange rate? Introducing a DBCFT would again stimulate the demand for exports and reduce the demand for imports. With a fixed exchange rate, and sticky wages, both effects would induce a stimulus to domestic activity. This corresponds to the well-known effect of such border adjustments, having the same impact as a currency devaluation—that is, in making exports cheaper to non-domestic consumers, and imports more expensive for domestic consumers. In the short run, this would generate a stimulus to domestic production relative to foreign production.

Over the longer run, however, we would expect prices to adjust. Expansion of domestic production would lead to an increase in the demand for labour. This would in turn push up the wage rate, and in consequence, push up the price of domestically produced goods and services. The effect of this rise in prices and wages would be to raise again the price of exports on the world market, and to raise the price of domestically produced goods relative to imports. When domestic prices and wages had risen far enough, the initial real equilibrium would again be

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re-established. In this long run, there would again be no overall impact on trade, due to the price and wage adjustments.

The nature of the adjustment—as between changes in domestic prices and wages, in the nominal exchange rate, and in the level of activity—will thus depend in practice on which of these can adjust more rapidly. There is, it may be helpful to note, an important difference here between the adoption of a DBCFT and the adoption of a VAT. Under the latter, consumer prices rise relative to wages, an effect that cannot be accomplished simply by a change in the nominal exchange rate; with wages sticky, the expectation is that the effect will come largely through an increase in consumer prices. The DBCFT, however, leaves that relative price unchanged, and so can be transmitted entirely through the exchange rate.

It should be noted too that whilst in the simplest models it is immaterial whether it is domestic prices or the nominal exchange rate that adjusts, this does matter for precisely who is affected by the BTA. For example, nominal exchange rate changes will have balance sheet effects for non-residents with assets or liabilities (or contracts) with prices fixed in the currency of the DBCFT-adopter, which in some cases would be significant;[22] domestic price changes, on the other hand, have no such effect. The incidence of the DBCFT is discussed more fully below.

All these (and other) qualifications mean that the adjustment to the introduction of a DBCFT in practice may well not be as simple—even in the long run and leaving aside potentially significant short-run effects—as some combination of a rescaling of domestic prices and appreciation of the nominal exchange rate. The considerations raised by the basic features of the BTA just discussed are, nonetheless, likely to be the dominant ones in assessing the impact of practical reforms.

One might hope to be able to draw on past experiences to gauge the likely impact of destination-basis taxation. But there is, unfortunately, very little empirical evidence on the effects of BTA (or of significant tax changes more generally) on exchange rates—largely because these are rarely fundamental enough, relative to all the other factors that buffet exchange rates, to create a reasonable prospect of being found in the data. There are, however, signs of effects along the lines just described in the work of de Mooij and Keen (2013) on 'fiscal devaluations'. These are tax changes that combine an increase in VAT and a reduction in the employers' social contributions[23] on labour—which is much the same thing as an increase in the rate of a DBCFT. This was advocated by some as a way to stimulate activity in the Eurozone, mimicking the effects of the devaluation that was unavailable to them, until offset by upward movements of prices and wages as described above.

[22] For example, non-residents with borrowing denominated in the currency of the DBCFT adopter could see a very significant increase in the local-currency value of their debt. For estimates of the size of these effects if the US had introduced a DBCFT in 2017, see Greene (2017).
[23] The reason for focusing on the employers' contribution is that wage stickiness is most likely to apply to the wage net of those contributions, so that a cut translates immediately into reduced employment costs.

Considering thirty OECD countries between 1965 and 2009, what emerges is that tax shifts of this kind in Eurozone countries did indeed tend to boost net exports, at least in the short term. Outside the Eurozone, however, with exchange rates to some degree flexible, there was, as one might expect, no effect—suggesting that adjustment to what resembles a DBCFT comes very quickly when the exchange rate is allowed to react. Where the exchange rate is fixed, recent evidence that increases in the standard rate of VAT are fully passed on to consumers fairly quickly—in about six months[24]—suggest that it is rigidity in nominal wages that is most likely to account for extended adjustment periods.

So far, we have analysed the case of a DBCFT being introduced unilaterally in a world without other taxation, or at least without any other changes to taxation. The point of this analysis is to argue that the DBCFT itself would have no impact on trade and investment—at least in the long run in the case of a fixed exchange rate or common currency area. But in practice the DBCFT would be likely to replace existing taxes on business profit. To identify the impact of a switch to a border adjustment, consider the likely impact of switching from an origin-based cash flow tax (where there is no border tax adjustment) to a DBCFT. Now there is an additional effect in our analysis—we also have to account for the effects of the abolition of the origin-based tax.

There are conditions under which the shift from an origin to a destination basis will have no impact on the real equilibrium. These conditions have been extensively studied in the VAT literature.[25] And, since wages are deductible in both the origin- and destination-based cash flow taxes, the results for switching from an origin-based VAT to a destination-based VAT also apply directly to the comparison between an origin- and destination-based cash flow tax.

The conditions required for such an equivalence between a destination- and origin-based cash flow tax, it should be stressed, are demanding. One necessary condition is that a uniform tax rate applies to all sectors: without this, adjusting only the exchange rate or simply rescaling prices by some common factor cannot re-establish the pre-reform pattern of relative prices. Equivalence is unlikely to hold, for instance, if there is a large untaxed sector, or significant variation in business tax rates across sectors, or in respect of real-world VATs for which rate differentiation is commonly extensive.[26] Nor does the equivalence result hold with imperfect competition.[27]

[24] Benedek et al (2020).

[25] A comprehensive analysis is provided by Lockwood (2001), synthesizing a number of earlier contributions, including de Meza et al (1994) and Lockwood (1993).

[26] Feldstein and Krugman (1990) stress and explore the trade implications of departures from uniformity of the VAT. There is, however, little work on the quantitative extent to which plausible violations of uniformity are likely to cause departures from equivalence.

[27] The implications of imperfect competition for the comparison between origin and destination principles for indirect taxation are considered in Keen and Lahiri (1998).

In general, then, the conditions required for equivalence do not generally hold in practice, and consequently we can expect that the abolition of an origin-based cash flow tax would have real economic effects. As we have noted throughout, and especially in Chapters 2 and 3, existing taxes affect real business location decisions. This would be true of an origin-based cash flow tax, but the abolition of existing origin-based taxes would be likely to have an even greater impact, because such taxes apply not only to rents, but to normal returns to capital as well. Thus a switch from existing systems to a DBCFT would have real effects on location and investment. But these would generally be beneficial for the country introducing the DBCFT, since they would stem not from the introduction of the DBCFT, but from the abolition of existing, distorting, taxes.

Account also needs to be taken of the impact of BTA on revenue. For countries running a trade deficit—imports exceeding exports—the shift to a destination basis will generally increase tax revenue. If trade is balanced in the long run, however, and the tax rate is expected to remain unchanged, the revenue impact in present value terms is zero, except to the extent of net imbalances prior to enactment. If consumers are sufficiently forward-looking to recognize this, there will then be no real impact from this revenue effect. More generally (and plausibly), however, there may be an impact. Governments that are credit-constrained, for example, will not be indifferent to the timing of their tax revenues; and consumers may not be—though the nature of this effect is imponderable, depending, for instance, on the use made of the revenue and on consumers' preferences. Perhaps more importantly, if a country earns a higher rate of return on its investments abroad than foreigners earn on their investments within the country itself, then that country can run a persistent trade deficit.[28] One potentially important explanation for such a pattern is that the profits of a country's foreign subsidiaries may be inflated by the use of transfer pricing manipulation. Again, even if such behaviour is eliminated by the adoption of border adjustments, the revenue gain relative to the current system will relate to the projected path of trade deficits under the current system.[29]

There is one other important respect in which origin and destination taxation fundamentally differ. This is that origin-based taxation, but not destination-based taxation, is vulnerable to transfer pricing abuse, since the prices charged on cross-border intermediate transactions affect the overall tax liability under the former but not under the latter.[30] Under origin-based taxation, the seller is charged tax at the rate of the exporting country but the buyer deducts the cost at the tax rate of

[28]   See, for example, Blanchard and Furman (2017).
[29]   See Auerbach (2017).
[30]   The point is stressed by Auerbach and Devereux (2018) in the context of cash flow taxation; see also Genser and Schulze (1997) in the VAT context.

the importing country; so if, for example, the rate charged on sales exceeds that on purchases, there is an incentive in transactions between related parties to set an artificially low price. Under destination-based taxation, in contrast, neither country charges tax on such sales. And so, as will be explained in more detail later, the BTA removes a wide range of avoidance possibilities.

2. Evaluating the DBCFT

As with the RPAI in Chapter 6, we evaluate the properties of the DBCFT in two settings. The first is that in which the DBCFT is adopted by all countries, although not necessarily at the same rate. The second is that in which it is adopted by just one country, or a small group of countries. Our main discussion relates to the former case. Considering the properties of the DBCFT if introduced in a single country, or a small group of countries, is critical, however, for the issue of whether individual countries might find it in their own interest to adopt the DBCFT, or whether it could only be introduced by significant agreement between countries. This issue is important for its stability; for example, is there an incentive for an individual country to introduce the DBCFT if other countries have already adopted it; or are countries that have already adopted it likely to undermine it through some form of tax competition?

   As throughout the book, we evaluate the DBCFT against our five criteria: economic efficiency, fairness, robustness to avoidance, ease of administration, and incentive compatibility.

2.1 Universal adoption

2.1.1 Economic efficiency
In principle, the DBCFT has remarkable properties in terms of economic efficiency. In particular, it should not distort the scale or location of investment, nor forms of financing choices. We discuss each of these in turn.

2.1.1.1 Location of investment
Whilst taxes on economic rent should not distort marginal investment decisions in a domestic setting, once we move to an international setting such taxes can distort decisions as to the location of investment if imposed on an origin basis—that is, broadly, where the economic activity or production, defined very widely, takes place. This decision would be distorted, for example, if the countries operating a tax on economic rents on an origin basis offer different tax rates on projects that can be implemented in any of them. Faced with the decision as

to where to locate their investment, the difference in tax rates may be so large as to induce multinationals to locate in the location which is less advantageous from a non-tax perspective. More generally, a difference in average tax rates on different mutually exclusive options may induce distortions, even if the tax base is economic rent.[31]

That distortion does not arise, however, if taxes on economic rent are levied on a destination basis, as long as the ultimate consumer is immobile. To see this, we have to consider the tax levied on the income generated from sales and the tax relief available for expenses. A key factor in choosing a destination basis is that consumers are relatively immobile; they are unlikely to move in response to a higher rate of DBCFT. But it might be thought that there would be an advantage to locating expenses in a country with a high tax rate. By doing so firms would be able to deduct expenses from profits which would otherwise be taxed at a high rate of tax (or, if in loss positions, they would receive relief at this high rate of tax). This is true—but the effect is negated by the impact of the border adjustments described above.

To see this, consider the example in Table 7.2. In Panel A, sales and costs in the two countries are the same as in Table 7.1, with the exchange rate between the two countries taken to be one-for-one. Initially, the two countries levy their DBCFTs at the same rate, 10%, which leaves the business with after-tax profits of 180. From the point of view of the business, the situation is just as if it operated in a single economy with a single DBCFT of 10%. This means that the business' investment (and financing) decisions should be wholly unaffected by the presence of the two taxes.

Suppose now that country B raises the rate of its DBCFT to 25%. If nothing else changes, this, as seen in Panel B, increases the business' total tax charge by 22.5 (i.e. an additional 15% of the base of 150 in country B), leaving it after-tax profits of 157.5.

But, still assuming no other changes, the increased tax rate in B gives the business an incentive to shift its production there from A to B, since that higher tax rate means a larger deduction for costs. As shown in Panel C, shifting production in this way reduces the firm's total tax liability, and so increases its total after-tax profit, by 15 (i.e. the difference in tax rates, 15%, multiplied by production costs of 100).

If the tax rate change applied only to this business, which was just one among many, that would be the end of the story. But if it applies to the generality of

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[31] This assumes that the rent at issue is not specific to a particular location, as discussed in Chapter 2. See Devereux and Griffith (1998) for empirical evidence on the role of effective average tax rates on location decisions, and Auerbach and Devereux (2018) for a theoretical analysis.

Table 7.2 Investment neutrality of the DBCFT with universal adoption

	Country A	Country B	Total
Panel A			
Tax rate	*10%*	*10%*	
Labour costs	60	0	60
Other costs	40	0	40
Sales	150	150	300
DBCFT tax base	50	150	200
DBCFT charge	5	15	20
Net profit	45	135	180
Panel B			
Tax rate	*10%*	*25%*	
Labour costs	60	0	60
Other costs	40	0	40
Sales	150	150	300
DBCFT tax base	50	150	200
DBCFT charge	5	37.5	42.5
Net profit	45	112.5	157.5
Panel C			
Tax rate	*10%*	*25%*	
Labour costs	0	60	60
Other costs	0	40	40
Sales	150	150	300
DBCFT tax base	150	50	200
DBCFT charge	15	12.5	27.5
Net profit	135	37.5	172.5
Panel D			
Tax rate	*10%*	*25%*	
Labour costs	0	72	72
Other costs	0	48	48
Sales	150	180	330
DBCFT tax base	150	60	210
DBCFT charge	15	15	30
Net profit	135	45	180
Panel E			
Tax rate	*10%*	*25%*	
Labour costs	60	0	60

(continued)

Table 7.2 Continued

	Country A	Country B	Total
Other costs	40	0	40
Sales	150	180	330
DBCFT tax base	50	180	230
DBCFT charge	5	45	50
Net profit	45	135	180

businesses, things will change, along the lines discussed in Section 1.4. Following the rise in the tax rate in B, the demand of residents of B for imports from A will fall and the demand of residents of A for exports from B will rise. Both of these effects create upward pressure—as described above—on the value of B's currency[32] (or on wages and prices in B, if A and B have a fixed exchange rate). This has the effect, shown in Panel D, of increasing the value of profits earned in B expressed in A's currency, and rising by a factor (of 1.2 in this example)[33] that reflects the difference in tax rates. Profit in B, expressed in A's currency, rises to 60, which, after tax at 25%, exactly restores total after-tax profit to the level before the tax change and when all production was in A. Moreover, as shown in Panel E, the rise in B's prices also eliminates the business's incentive to shift production to B, as maintaining production in A also results in total after-tax profits of 180, rather than the 157.5 shown in Panel C.

The idea that prices and/or the exchange rate will adjust so as to exactly neutralize differences in rates of DBCFT across countries, it should be stressed, is not fanciful or arbitrary. The point, as is clear from the earlier discussion of the border tax adjustment, is that if the initial situation is an equilibrium—that is, a set of prices and allocation of activity such that no businesses or consumers wish to change their behaviour—then so is that in which prices and/or the exchange rate have adjusted as described.[34]

If the exchange rate is fixed or managed, however, or if wages or prices are sticky, this adjustment may not come about instantaneously. Without the appreciation of

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[32] One can also think of the incipient capital inflow into B described in the previous paragraph and the incipient net export surplus of B described here as implying an excess demand for B's currency in the foreign exchange market that is eliminated by a nominal appreciation of B's currency.

[33] Denoting the tax rate in country i by T_i, the adjustment required is $(1-T_A)/(1-T_B)$, which in this example is $(1-0.1)/(1-0.25) = 1.2$. Note that this adjustment does not depend on the firm's costs, sales, or any other characteristics—and hence offsets the tax change for all firms. What is required for neutrality, however, is that the same rate applies to all businesses within each country.

[34] Indeed unless there are some other equilibria, the adjustment must be of exactly this form.

B's exchange rate or an increase in prices and wages there, B's exports will be cheap abroad and its imports expensive at home. Its net exports, and the level of activity, will therefore tend to rise. As the pressures on wages and prices this creates build up, however, the effect should be temporary. Eventually, wages and prices must rise in B to restore the equilibrium.

Note that this example also illustrates the incidence of the DBCFT. Due to the effect on the exchange rate—or on prices and wages in B—the business resident in A and exporting to B does not suffer any reduction in post-tax profit (in A's currency) as a result of the increase in the tax rate in B. The tax is instead borne by domestic residents of B. However, since wages in B also rise by the same proportion as prices, it is not borne by those of B's residents that consume out of labour income, but (in this example) only by those whose consumption is financed from economic rent. We discuss this further in Section 2.1.2.1.

2.1.1.2 Scale of investment
That the level of investment is also undistorted when all countries apply a DBCFT, at whatever rate, follows from the arguments just given. We have just seen that the presence of a DBCFT in country B, at whatever rate, left the firm's after-tax profit exactly as it was when it faced a 10% DBCFT everywhere. But when it faces such a tax, then, by the general property of cash flow taxation set out in Chapter 2, its investment decision is entirely undistorted.

2.1.1.3 Form of financing
Under an R-based cash flow tax, whether origin- or destination-based, financial flows simply do not enter the tax calculation and so are evidently left undistorted. The impact on financial flows under an R+F base is set out in detail in Section 3. Broadly, however, treating the location of the borrower as the 'destination' implies that a tax using the R+F base tax would be neutral with respect to financial flows and the location of lending and borrowing.

2.1.2 Fairness
What ultimately matters for the fairness of any tax system, of course, is how it affects individuals. How we tax business profit has implications for the fairness with which the tax burden is shared, both within and across countries. This section looks at the DBCFT in this light, and at the particular question of the suitability, or not, of the DBCFT for developing countries.

2.1.2.1 Incidence of the DBCFT
The effective incidence of the DBCFT—who bears the burden of this tax—can be most easily understood by recalling from Section 1.2 that the DBCFT is equivalent to a VAT plus a matching subsidy for wages and salaries. So the incidence of the

DBCFT will be the same as that of a tax on domestic consumption combined with a subsidy, at the same rate, to domestic wages. The effect of the subsidy would be to exactly offset the impact of the tax on consumption out of domestic wages, or more generally, labour income. As a result, the DBCFT is equivalent to a tax on domestic consumption financed by resources *other than* domestic wage and salary income. These resources will have two main components.

First, in a transitional period they will include returns to previous investments. Second, on an ongoing basis and in present value terms, they will reflect economic rent: the return on investments in excess of that needed to cover the normal return to capital. Note though, that the incidence is on consumption financed largely by economic rent accruing to domestic residents. As noted in the example in Table 7.2 above, the tax is *not* borne by foreign owners of businesses that sell goods and services in the jurisdiction of the DBCFT. Instead, the effects of the DBCFT on either exchange rate or on prices and wages have the consequence that the tax is borne by domestic residents.

In addition, these effects on the exchange rate or wages and prices will involve shifts in the tax burden through changes in asset values.[35] In the context of a country with a fixed exchange rate, introducing a DBCFT would tend to push up prices and wages. So domestic individuals holding assets fixed in nominal values, such as domestic bonds, will lose at the expense of issuers of the liabilities. Similarly, in this case, those earning an unadjusted minimum wage or in receipt of government transfer payments, would also lose. Neutralizing some of the possible adverse distributional effects may require indexing such payments, and any minimum wage, to consumer prices.

By contrast, in a country with a flexible exchange rate, nominal domestic prices would be less likely to be affected; their value would change relative to world prices through an appreciation of the exchange rate. In this case, residents holding domestic assets fixed in nominal values would be unaffected, while non-residents holding these assets would benefit and residents holding foreign assets would lose.

In general, a tax on consumption not financed by labour earnings would be expected to fall on the affected consumers, except to the extent that these consumers are able to avoid a tax on their consumption from non-labour income by changing their behaviour.

For the DBCFT, however, there are few possible ways in which behaviour will change. In particular, because the cash flow tax base excludes the normal return to saving, there would be no incentive to save less. In addition, because of the destination basis used for the DBCFT, there would be no incentive for capital or business activity to move to other jurisdictions, as already discussed.

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[35] See Viard (2017) for further discussion.

One possible shift away from taxation that remains under the DBCFT would be through cross-border shopping, if other nearby or accessible countries impose tax at a zero or lower rate.[36] With few exceptions, however, significant cross-border shopping has tended to be confined in practice to excisable goods: it has tended to be modest in response to general differences in rates of VAT. However, to the extent that cross-border shopping reduces domestic demand, we would expect some of the tax to be borne on the supply side, for example by factors entering the production process, regardless of their location, such as the intangible assets a business owns.[37]

This analysis indicates an important point regarding the incidence of the DBCFT: it falls primarily on domestic residents receiving (and spending) economic rent—and since they tend to be in the upper part of the income distribution, the tax would be likely to be progressive. It would certainly be considerably more progressive than a broad-based VAT, which falls on all domestic residents.[38] The comparison with a conventional tax on business profit is more complex, because a conventional tax is not only levied on an origin basis, but also falls on the normal return as well as on economic rent. As we discussed in Chapter 2 such a conventional tax is at least to some extent passed on in higher prices to consumers and in lower wages to workers. By removing the normal return to capital from tax, a DBCFT is therefore likely to be more progressive (though not necessarily so).[39,40]

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[36] This depends on how the place of the sale is defined. In principle, we are searching for the least mobile tax base—which is probably the normal place of residence of the consumer, rather than the place of purchase. This would imply that a consumer that shops abroad should still be taxed at her domestic tax rate. But in practice this is unlikely to be feasible, certainly in all circumstances. See the discussion in de la Feria and Devereux (2014).

[37] An alternative approach to understanding the incidence of the DBCFT is to start with an origin-based cash flow tax, which would impose a tax on the cash flows of firms' domestic operations. In general, such a tax would fall on the owners of the business. The border adjustment included in the DBCFT would in effect convert the tax base from a tax on the cash flows received by owners of domestic firms to a tax on the cash flows received by domestic owners of firms worldwide. See Auerbach and Devereux (2018).

[38] VATs in practice of course often include reduced rates on some items precisely in order to improve their progressivity. As is widely recognized, however, this is an extremely inefficient way in which to pursue distributional objectives, especially in advanced economies that have quite finely targeted income support measures available to them. The implication is that distributional impact can be improved by moving to a single rate VAT while strengthening income support (see e.g. Crawford et al, 2010).

[39] The same would be true of any form of rent taxation.

[40] As we discuss in Chapter 2, a tax on the normal return to capital could be levied at a personal level, in the country of residence of the owner of the business. This is the approach, for instance, of the Business Enterprise Income Tax proposed by Kleinbard (2007), which combines a rent tax at the corporate level with a tax on the normal return at the personal level.

2.1.2.2 Inter-nation equity

Taxing sales on a destination basis but giving relief for expenses on an origin basis can produce an allocation of profit amongst countries which might be considered to be inequitable. If a business produces goods in country A and exports to country B, then, under a DBCFT, A would not receive any tax on the business's profit. A system under which a government that potentially contributes significantly to the success of business operations by providing infrastructure, legal protection, and other goods and services, but receives no tax revenue—while governments that contributed nothing happily pick up a cheque—might be considered to be unfair, or at least inappropriate, violating a view of taxation as in part payment for the benefits provided by governments.

Recall, however, as argued in Chapter 2, that current taxes on business profit do not satisfy the prescriptions of the benefit principle either, as they can result in high taxation for businesses which derive very little value from publicly provided goods and services and no taxation for businesses which derive a great value. In other words, there is no necessary connection under current arrangements between benefits derived and taxes paid. Concern for the benefit principle would thus be better addressed through the adoption of fees based on a business' footprint in a particular country. Such fees could be introduced alongside a DBCFT by countries wishing to do so, although, of course, this could affect the attractiveness of the country as a location for investment.

But this issue should in any case be viewed at a national rather than at an individual business level. Under a DBCFT there will certainly be instances in which little or no tax is collected by countries from businesses which export a high percentage of their products or services. However, such countries will tax the profits of businesses which incurred their production costs in a different country. Viewed at a national level then, zero-rating of exports and taxation of imports would net out in the aggregate tax base to the extent that there was a balance of trade, with exports equal to imports. Of course, net exporting states would find themselves on the wrong side of this balance. However, two factors militate against the conclusion that the DBCFT would not be right for such countries. First, net trade positions change over time, albeit extremely slowly in some cases, and net exporting states might find themselves closer to a balance of trade or even net importers in years to come. Second, countries which seek to tax on an origin basis because of the benefit principle might in time find themselves simply unable to do so. Competitive forces will continue driving down corporate tax rates under the current system and businesses will respond by moving their real activity.

More generally, apart from the shift to a destination basis, there would be several effects on the revenue generated from the DBCFT, relative to the revenue generated from the conventional tax. First, as noted above and elaborated on further below, the DBCFT should make it considerably harder to shift profit to low tax

jurisdictions. Second, the pressure to have a low rate of tax in order to compete with neighbouring countries disappears with the adoption of the DBCFT, since, as seen above, location decisions by business should be independent of the rate at which any country levies its DBCFT. Any country could therefore raise its tax rate without fearing an exodus of either real economic activity or taxable profit. On the other hand, moving to a cash flow tax might reduce the tax base relative to a conventional tax, since the cash flow tax provides immediate expensing rather than traditional depreciation deductions; in the other direction, the conventional tax allows interest payments to be deducted, while the DBCFT would not. The net impact of these two offsetting effects on the tax base is unclear and would depend on the initial circumstances in a particular country with respect to the generosity of existing depreciation schedules and the extent of leverage in business capital structure. While one cannot say for certain that these offsetting changes in the tax base, combined with less profit shifting, would lead to an overall broadening of the tax base, the opportunity to increase the tax rate without concern about cross-border shifting at least offers the possibility of recovering any revenue lost even if these effects reduce the tax base.[41]

Hebous et al (2019) estimate the impact on government revenues of the hypothetical use of the DBCFT. Using data primarily on forty-eight countries over the period 2002–11, they estimate the size of the DBCFT tax base using country level national accounts data, as non-financial corporate gross operating surplus, less corporate investment, plus imports less exports. They apply the existing corporation tax rate to this tax base and compare the resulting revenue estimates with actual corporation tax collections in that period. Clearly, this can only be a rough approximation of the true DBCFT base in any country, and the authors acknowledge a number of caveats in their estimation. Nevertheless, this approach can give a broad guide to the likely impact of using the DBCFT, subject to two important assumptions—that business behaviour does not change and that the tax rate applied is that of the existing corporation tax.

In their main results they find that, on average across the sample, estimated revenues from the DBCFT would be close to those actually obtained from current corporation taxes. However, this result hides considerable variation across countries: mostly depending on whether the trade balance is significantly negative or

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[41] Patel and McClelland (2017) examined some of the revenue consequences of introducing a DBCFT in the US, on the assumption of unchanged behaviour of businesses. They find that, over the period 2004–13, if the US had had an origin-based cash flow tax in place, the total tax base would have been almost the same as under the actual tax system in place at the time. Also the number of firms with tax losses, both unweighted and weighted by assets, would have been almost identical to that under the actual tax system. Because the US had a trade deficit during this period, moving from this to a DBCFT would have significantly increased the aggregate US tax base. The proportion of firms with tax losses would again have been barely unchanged on an unweighted basis, but would have been higher weighted by assets, reflecting the fact that firms which participate in cross-border transactions tend to be larger.

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positive. Around a third of the sample would see a substantial gain in tax revenue, whilst another third would see a substantial reduction.

They find that, on average, developing countries that are not resource-rich would be beneficiaries of a switch to the DBCFT. Natural resources are often largely exported, a major source of government revenue (especially in many low income countries) and a national asset. Governments of resource-rich countries are unlikely to be content to receive, as they would under a DBCFT, no revenue from their exploitation—and even finding themselves paying large amounts to foreign extractive businesses.[42] Moreover, while the DBCFT looks to the immobility of consumers, this is a case in which there is an immobility of the underlying asset—giving rise to rents that are specific to their location—that can be exploited. As explained in Chapter 2, in such circumstances, there are powerful forces pointing to the retention of some element of origin-based taxation of natural resources both as a political reality and a potentially efficient form of taxation.[43]

To take into account such special treatment of natural resources in estimating the impact of the introduction of a DBCFT on revenue, suppose a country currently has both a tax on natural resources and a conventional corporation tax, which applies both to natural resources and all other activities. Now suppose that the country continues to tax its natural resources at the same level—including *both* existing sources of taxation. But for non-resources, it border-adjusts its corporate tax. Then, in aggregate, and abstracting from other factors affecting the tax base, the country would see a fall in its taxable income if its total imports were less than its exports from the non-resource sector.

We are able to analyse the position of a large number of countries using data on balance of payments statistics from UNCTAD, with information on exports of natural resources from UNComtrade. We identify seventeen countries out of 181 analysed for whom, over the period 1996–2014, imports were less than exports excluding natural resources. These include Japan, China, Germany, Switzerland, and Sweden. Only one low income country (Nepal) and four lower middle income countries (East Timor, Uzbekistan, Bangladesh, and Philippines) were in this position. If these countries continued to have such an imbalance of trade then moving to a destination basis would tend to reduce their tax base. However, for all other countries, if they maintained similar taxes on their natural resources, then these calculations suggest that moving to a DBCFT for non-resource trade would tend to increase their tax base.

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[42] Businesses that are primarily exporters could be in a permanent loss position.

[43] Efficiency would call for some form of resource rent taxation, though administrative considerations may imply balancing this with royalties (charges on the volume or, more commonly, the value of output) which, though more distortionary, may be less vulnerable to avoidance through the manipulation of costs: see Boadway and Keen (2010). Similar considerations would apply to other cases in which there are location specific rents that derive largely from exportation.

2.1.2.3 Developing countries

Business tax reform is a high stakes game for developing countries—perhaps even more so than for advanced countries. They are in many cases heavily reliant on tax revenues from extractive industries, derive a somewhat larger proportion of their total revenue from taxes on business profit from the non-resource sector than do higher income countries, and have fewer realistic alternative sources of revenue. While the results of Hebous et al (2019) provide some comfort for developing countries on average, a switch to a DBCFT may be especially important for such countries. There are four main issues.

The first is the treatment of natural resources, which are an especially important source of revenue for many of them. As argued above, there is a strong case to retain origin-based taxes on these.

The second is the impact on the tax base. Broadly, moving from a traditional origin-based tax to a DBCFT means—assuming no change in behaviour—losing revenue to the extent that exports exceed imports, and to the extent that the origin-based tax is levied on the normal return to capital.[44] The likely extent of the latter, however, is hard to assess. While one could argue that this could in any event be recouped, at least in relation to domestic owners, by levying the tax at a personal level, experience on the taxation of capital income in low income countries is not encouraging.

A third consideration that is common to all countries but applies with particular force to many developing countries is non-compliance. If (as seems plausible) the untaxed sector viewed on its own tends to have a trade deficit—importing more than it exports—then the view of the likely revenue impact set out above would be over-optimistic. There is cause for more optimism, perhaps, on the impact of movement towards the DBCFT on compliance: all else being equal, remission of the tax on the normal return would make registration for this form of business taxation more attractive, while the wage deduction should also make the DBCFT more attractive to comply with than the VAT.

A fourth consideration is the greater weakness of tax administrations in developing countries. Here the heightened need to refund losses is a major concern. This remains a major issue under the VAT, and—in whichever form adopted—would be amplified under a DBCFT or the equivalent VAT combined with a payroll subsidy. Cross-crediting of DBCFT losses against other positive tax liabilities (which we discuss further in Section 4.2.2) is more difficult in such countries, both because of the administrative challenges this implies and because there are fewer taxes against which credit might be taken: there are commonly no payroll contributions and only modest personal income taxes. Corruption and fraud are obvious concerns in the processing of refund claims (indeed credits more

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[44] There could also be some loss from the removal of withholding taxes on payments to non-residents, to the extent that these are not already undermined by treaty shopping.

generally). But the greater difficulty with VAT refunds has commonly been not too many, but too few, as administrations either adopt strong safeguards or lack access to the funds to pay them.[45]

Against all this, however, one must weigh the weaknesses of current international tax arrangements. These, in many respects, have not served developing countries well: the evidence is that, relative to their GDP or total revenues, they lose more from BEPS-type avoidance than do advanced economies.[46] And they are exposed too to the rigours of aggressive international tax competition. The gains from escaping those (except in relation to natural resources) could, over the long haul, outweigh quite considerable shorter-term difficulties.

2.1.3 Robustness to avoidance

No tax system is perfectly robust to avoidance. However, when adopted universally, the DBCFT closes the most significant avoidance channels found under existing tax systems, cutting through the swathe of issues taken on in the OECD/G20 BEPS project described in Chapter 3.

When adopted in all countries, the DBCFT eliminates the shifting of profits to low tax countries through the three most important current channels: lending from a low tax country to a high tax country, manipulating transfer prices, and locating intangible assets that earn a royalty or licence payment in a low tax country.[47]

The most straightforward of these to explain is debt shifting. Under an R-based cash flow tax, there is no tax relief for interest payments and there is no tax on interest received. So the debt shifting channel simply would not exist. Lending among affiliates of a multinational located in different countries would simply have no tax consequences. As we set out in Section 3, this channel would not exist under the R+F base either.

Profit shifting through the manipulation of intra-group prices is also precluded by the DBCFT. To see this, consider the effect of a sale of a good by subsidiary A to another member of the same multinational group, subsidiary B, with the two subsidiaries located in different countries. Under current arrangements, A pays tax on the sale of the good to B, but B receives tax relief on the purchase of the good as an input into its own activity. If A's country has a higher tax rate, then there is an incentive to understate the true price of the good, shifting taxable profit from A to B, and reducing the overall tax liability. If A's country has a lower tax rate, then the incentive is reversed; overall tax is lowered if the price is overstated.

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[45] On the difficulties of managing VAT refunds in developing countries, see for instance IMF (2019).
[46] See, for example, Crivelli et al (2016) and Johannesen et al (2021).
[47] These effects are discussed in more detail in Auerbach et al (2017b). For a more comprehensive assessment of the DBCFT's robustness to avoidance see Devereux and Vella (2018c).

Table 7.3 DBCFT liabilities in importing country, with different prices for imports

	Price	Tax liability: Method (a)	Tax liability: Method (b)
Import	100	25	0
Sale to domestic consumer	120	5	30
Total tax liability	–	*30*	*30*
Import	0	0	0
Sale to domestic consumer	120	30	30
Total tax liability	–	*30*	*30*
Import	120	30	0
Sale to domestic consumer	120	0	30
Total tax liability	–	*30*	*30*

But under a DBCFT, A faces no domestic tax on its export. B does face a tax on its import,[48] but as an input into whatever activity B is undertaking the cost of the good will also be deducted from B's tax base. These two effects exactly cancel out, making the value of the import irrelevant for tax purposes.

An alternative approach to implementing this treatment of imports, as discussed in Auerbach (2010) and further below, would be simply to exclude imports by taxable businesses from the tax base altogether—so that for them there is neither a tax on imports,[49] nor a deduction for the cost of the imported good. In this case, the transaction between A and B is entirely free of tax. Under this alternative approach, it is particularly easy to see how the destination basis eliminates tax avoidance opportunities based on mispricing of within-group cross-border transactions. Because cross-border transactions would simply no longer affect the tax base for either of the parties to the transaction, a business could not influence its domestic tax liability by misstating revenues or expenses associated with cross-border transactions.

Table 7.3 illustrates this key point that—given universal adoption of a DBCFT, even at different rates in different countries—understating or overstating intra-group prices makes no difference to the overall tax liability under the DBCFT. The business imports the good from an affiliate in the same multinational group, and

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[48] There is a need to define an 'import'. The key issue here is that all goods and services sold domestically should be subject to the tax. Broadly, in this case, an import would be a good or service purchased from an entity not subject to the domestic DBCFT (and also not a domestic entity excluded from it by virtue of size, as we discuss below in the context of the scope of the tax).

[49] Imports by final consumers would remain taxable.

then sells it to a domestic third party—for example, a final consumer or an unrelated party—for a price of 120. Both countries operate a DBCFT, and so there is no tax on the export in the exporting country. The tax in the importing country—assumed to be at 25%—can be thought of in two ways, as described above. In column (a) the import is taxed, and the cost of the import set against the tax charge on the sale to the final consumer. In column (b), the import is ignored for both purposes.

Suppose that the price at which the good is imported is 100. Then under method (a), there is a tax charge on the import of 25. In addition, there is a tax charge on the profit of the importing business at 25% of sales less imports—a tax liability of 5. Total tax is therefore 30. Under method (b), the import is simply ignored, and there is a tax charge on the total value of the sale to the domestic consumer, which also generates a total tax liability of 30. This shows the irrelevance of the import price of the import for the total tax charge. As the other panels demonstrate, even if the price of the import were set to zero, or 120, the total tax charge would remain 30.

It is important to note that the netting out of business-to-business transactions through BTAs also makes the DBCFT robust to avoidance strategies used in the context of formulary apportionment systems which are based on the destination of sales.[50] Under a formulary apportionment system, a highly profitable business could sell its products in a fully arm's length transaction to a much less profitable retail distributor in a low tax jurisdiction. As a result, only the low rate of tax would be applied to the profitable business's profits. The retail distributor could sell on the goods into a high tax country and face tax at a higher rate, but this would only apply to its relatively low profit. The overall tax liability may then be considerably lower than if the original business had sold directly into the high tax country. This could not happen under a DBCFT. In that case, the full value of imports into the final country of destination would be subject to tax in that country.

A third common strategy for profit shifting under the existing system is to place highly valuable intangibles in low tax jurisdictions. Other entities within the multinational group that are located in high tax countries may then pay royalties or licence fees to the business that owned the intangible asset in return for their use. Broadly, under the existing system, these payments receive tax relief at the high rate of tax and are liable to tax on the receipt at the low rate of tax. Again, this would not happen under a DBCFT.

The reason is the same as that given above. The purchase or sale of the right to make use of the intangible asset would naturally be treated in the same way as the purchase or sale of a good or service. This is, then, an import into a destination

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[50] By this is meant a system under which the consolidated profits of a multinational are allocated for taxation across jurisdictions according to the share of each in its total sales. As discussed in Chapter 6, this problem applies to the RPAI system.

country, and as such, would be liable to tax in that country. If A (located in a high tax country) acquires a licence from B (located in low tax country) to use its IP, this would give rise to a tax liability in the high tax country. But the tax paid on that import would also be deductible as a cost for A. Just as above, these two elements would exactly balance out. An alternative arrangement, as with other imports by taxed businesses, would be simply to disregard the import and the payment for it. In any case, since there are no real tax consequences of the transaction, the incentive to locate intangible assets in a low tax jurisdiction would disappear under the DBCFT.

Finally, note that the DBCFT puts considerably less pressure on the notion of corporate residence than does the existing system, though at the cost of introducing a different notion of nexus to that under the current regime. The tax base is essentially domestic sales less domestic expenses. There is no requirement for corporate residence to identify either sales or expenses. Sales are taxed in the country of the consumer, irrespective of corporate residence. And expenses are allowed in the country in which they are incurred, also irrespective of corporate residence.

Many other issues arise in tax avoidance and planning beyond those discussed so far; and—in the context of the 2016/17 debate in the US as to whether to implement a form of DBCFT—some commentators have suggested that new forms of avoidance and planning might become available.[51] Devereux and Vella (2018c) considered the key strategies proposed, distinguishing between the 'pure' form of the DBCFT set out here, and other reform proposals that incorporated only some elements of the DBCFT.[52] They also distinguished between strategies aimed at the cash flow element of the tax and those aimed at the destination basis of the tax.

In the context of the former, it is important also to distinguish between strategies that confer a real economic benefit in present value terms from strategies that only defer tax payment. Beyond that, however, a key element of the former set of strategies is the existence of transactions with tax-exempt businesses or individuals. Domestic transactions between businesses subject to the DBCFT usually net out; a payment by A to B typically generates relief for A and is taxed in the hands of B. But that does not apply to transactions with one party not subject to the tax. Suppose B is tax exempt, for example. Then under an R-based approach, A has an incentive to structure the payment as a real, rather than financial, transaction since it will receive greater relief, at no additional cost to B. We discuss this issue at length in Section 3 in the context of taxing financial flows.

In the context of the destination-based element of the tax, there is a need to distinguish different possible responses to the tax, including a real effect from

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[51] See, for example, Hariton (2017) and Miller (2017).
[52] More specifically, the proposal by the United States House Ways and Means Committee in its June 2016 Blueprint, Ways and Means Committee (2016).

a tax avoidance effect. For example, a country unilaterally replacing its existing origin-based tax with a DBCFT would attract inward flows of capital; this would be a real, and intended, effect of the reform; it does not constitute tax avoidance. Many proposed strategies aim to exploit the differences between countries that introduce a DBCFT from those that do not; these strategies either fail, benefit the country unilaterally introducing the DBCFT, cannot reasonably be labelled 'avoidance', or are in any case consistent with the aims of the DBCFT. We discuss these further below.

However, the DBCFT is not perfectly robust to avoidance, nor evasion. Indeed, certain forms of evasion commonly found in the VAT sphere, such as fraudulently disguising domestic sales as exports, can be expected. But if adopted in all countries the DBCFT would be robust to the most significant and widespread avoidance mechanisms under the existing regime. Their elimination is a major strength of the DBCFT.

2.1.4 Ease of administration

We examine issues of implementation in some detail in Section 4. Here we simply outline the main specific features that differentiate the DBCFT. Broadly, since the DBCFT eliminates the need for existing swathes of complex legislation which burdens the current tax regime and increases compliance costs on taxpayers and revenue authorities alike, then it should be rather simpler to administer.

Under the R-based cash flow tax, since debt and equity are treated in a neutral fashion, there is also no need for complex rules that police the border between the two. Further, due to the immediate expensing of all asset purchases under a cash flow tax, no rules are required to distinguish between assets that are expensed and those that are capitalized. It follows that there is also no need for complex depreciation schedules or to keep track of individual assets and their bases.

The destination basis also brings extensive simplifying benefits. It eliminates the need for some of the most significant, yet complex and lengthy, extant anti-avoidance rules. These include rules on transfer pricing, thin capitalization, Controlled Foreign Company, and anti-inversion, as well as exit taxes. These rules require constant updating to meet new planning strategies and their application is notoriously costly and burdensome. Their elimination thus provides significant benefits of simplification to both governments and businesses.

On the other hand, the DBCFT does raise some significant administrative challenges which are new to business taxes, although well known in VAT. One is the need to distinguish between real and financial flows; this is addressed in Section 3. Others include the challenges posed by potentially persistently negative tax liabilities of exporters and the need to levy a tax in the place of sale, a particularly difficult problem for services and digital products; these are addressed in Section 4.

2.1.5 Incentive compatibility

In Chapter 3 we explored how the existing system for taxing profit has been destabilized by competitive forces which drive countries to cut their tax rates. In Chapter 4 we explained that the same would be true for alternatives such as a residence-based tax on the parent company or a multi-factor formulary apportionment system. The DBCFT, in contrast, would not be subject to competitive forces of this kind, since reducing the tax rate of a DBCFT would not help attract inward investment, headquarters, or business activity, nor would it be necessary to combat tax avoidance. Countries can thus set their DBCFT rates in accordance with their own preferences, without concern about the rates set by other countries. By neutralizing these competitive forces, the DBCFT would provide long-term stability in the tax system and enable countries to protect their revenue; this is one of its principal strengths.

2.2 Unilateral adoption

So far we have considered the properties of the DBCFT if it were introduced in all countries, possibly at different rates. But, of course, it is unlikely to be introduced simultaneously by general agreement in many countries. An important issue is therefore what the properties of the DBCFT would be if it were introduced in only one country, or a small group of countries. For considerations of incentive compatibility, we are interested both in the effects on countries which introduce it, and on those that do not. In particular, we are interested in the incentives of the first group as to whether to continue to use a DBCFT, and in the spillover effects on those that do not, including their incentive to respond by adopting a similar system—and including, for both, the implications for the likely extent and nature of tax competition. We address our usual five criteria in turn.

2.2.1 Economic efficiency

A DBCFT adopted unilaterally by one country would have the same efficiency properties in terms of the scale of investment in that country as a DBCFT adopted universally. For the case of purely domestic activity, or equivalently for an origin-based cash flow tax, this is demonstrated in Chapter 2. Adding border adjustments, when some of the cash flows associated with the investment represent either imports or exports, does not affect this neutrality property. Consider, for example, the case in which a domestic firm exports, and thus does not pay tax on its sales. In this case, the exchange rate appreciation arising from the introduction of the border adjustment offsets the benefit of the zero-rating of exports. This leaves the scale of any investment decision in the country unaffected by the domestic DBCFT. The DBCFT is also neutral with respect to borrowing from domestic sources, as we discuss in detail below; we discuss incentives to shift borrowing amongst countries in Section 3.

However, the location of investment decisions would be distorted under the unilateral adoption of a DBCFT. Suppose country A used a DBCFT but other countries maintained a conventional origin-based tax on business profit. Then, in effect, A would not levy tax on the returns to economic activity taking place in A other than that generating domestic sales. This would clearly create an incentive for businesses to locate economic activities such as production of goods and services in A, no matter how low the origin-based tax in other countries. The incentive to locate in A comes from the origin-based tax levied in other countries. The advantage of locating such activity in the DBCFT country would not vary with the rate at which it is charged. This is because, as we argued above, relief for costs incurred on that economic activity would be offset by a rise in relative prices, so the net impact of the DBCFT would be tantamount to reducing its origin-based tax on business income to zero. And this would be true whatever the tax rate in the DBCFT country.

In effect, replacing an origin-based tax on profit with a DBCFT could be seen as an aggressive move in the existing tax competition game. Origin-based taxes on business income would continue in other countries, giving businesses an incentive to locate, or relocate, their activities to countries adopting the DBCFT. This would be true irrespective of where the product was destined to be sold.

2.2.2 Fairness

Broadly, the considerations of fairness are the same as if the tax were introduced globally. The tax would continue to be equivalent to a tax on domestic consumption financed by resources other than wage and salary income. The issues of inter-nation equity are also similar as well, though with the additional twist of the likely impact of increased profit shifting out of non-adopters, discussed next.

The factors influencing revenue (other than through avoidance) would again be similar. However, in the case of unilateral adoption of the DBCFT, the behavioural response of multinationals would be different, and this could affect revenue and welfare in the country that introduced the tax. For example, suppose that country A introduced a DBCFT and country B did not. Then a business that produced in A and exported to B would face no tax on its profit. But a business that produced in B and sold in A would be taxed on its profit in B, and on its import to A. This might be considered unfair but is simply the result of the two countries having a different basis for taxation.

2.2.3 Robustness to avoidance

The unilateral adoption of a DBCFT would leave existing avoidance opportunities in place; however, they would now operate, potentially strongly, to the detriment of the rest of the world and to the advantage of the adopting country.[53] Consider,

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[53] For a more detailed consideration of these issues, including numerical examples, see Auerbach et al (2017b).

for example, incentives for transfer mispricing. In the previous section, we argued that if two countries adopted the DBCFT, a business could not shift profits from one to the other by mispricing intra-group transactions. But what would happen if country A adopted a DBCFT, but country B maintained its existing conventional origin-based tax?

As we have seen above, cross-border intra-group transactions would not appear in the tax base in country A. Exports would be excluded from the tax base. Imports could be treated in two ways: they could be taxed, but with this tax then exactly netting against the relief for the cost of the input; or they could be just ignored. In either case there would be no tax consequences in country A. But the declared prices used for intra-group cross-border transactions would still affect the tax base in country B. If the business was exporting from the non-DBCFT country B, there would be an incentive to under-price the export. If the business was importing into B, there would be an incentive to over-price the import. These incentives are greater the higher is the origin-based tax rate in B.

A similar analysis applies to the strategic location of intangible assets. Under the existing system, there is an incentive for businesses to locate intangible assets in low tax jurisdictions and to pay royalties and licence fees from high tax countries to where the assets are owned. As we argued above, this incentive would not be present if the high tax country had a DBCFT, however high the rate. That is because the use in the DBCFT country of the benefits of the intangible asset would be treated as an import. The tax on the import would again net out with tax relief on the purchase of that import; or the import could be ignored entirely. In either case, there is no net deduction for the cost of using the imported service from the intangible asset.

If other countries maintained existing origin-based systems, however, then there would be an incentive to locate intangible assets in the DBCFT country, since—being akin to an export—there would be no tax on the receipt of royalty or licence fees. To this extent, the DBCFT country would again be operating in a way akin to a low tax jurisdiction under an origin-based tax system. Royalty payments to the DBCFT country would generally be deductible in other countries; this would facilitate a reduction in taxable income in those countries.

As will be seen in Section 3, the preferred treatment of financial flows under a DBCFT can also worsen base erosion in non-adopters, since interest payments may be deducted in the non-adopting countries but would not be taxed in the DBCFT country.

The adoption of the DBCFT by a single country is thus likely to aggravate the problems of base erosion and profit shifting in countries that did not implement a DBCFT, whilst rendering the adopter immune from such activity, and even conveying some benefit on it. This is, or should be, a significant concern with unilateral adoption. The quantitative impact of additional profit shifting opportunities

on other countries is hard to gauge: multinationals already have many opportunities to shift profits to low tax jurisdictions. And the impact will depend on the particular circumstances, being greater, for instance, if the adopter is a large and initially high tax country.

The likelihood is, in any case, of increased pressure on the devices that non-adopters have at their disposal to limit profit shifting: thin capitalization rules, withholding taxes, and the like. While such direct responses are in the hands of the non-adopters, the adopter may also wish to cooperate in protecting foreign tax bases from being undermined through artificial transactions and pricing. Participation in the county by country reporting that is a minimum standard under the OECD/G20 BEPS project, for instance, may yield little direct benefit to the adopter, but can be helpful for others in addressing transfer pricing issues. Beyond such measures, non-adopters would clearly have an incentive to follow suit by introducing a DBCFT. However, this is likely to take some time, during which the adverse impact on non-adopters might be significant.

2.2.4 Ease of administration

For the country adopting it, the main administrative benefits and costs of adopting a DBCFT—prominent among the former being that opportunities for shifting profit to low tax jurisdictions are considerably diminished, if not extinguished—are much the same whether adopted unilaterally or universally.

Two additional issues would arise if the DBCFT were introduced unilaterally, however. First, as we discuss in Section 4 on implementation below, there would be benefits in tax collection if countries cooperated with each other. These benefits would presumably be much less likely to occur if a country introduced the DBCFT unilaterally. Second, from the perspective of taxpaying multinationals, there may be an additional compliance cost in dealing with a DBCFT in one country, and existing business-level taxes on profit in other countries, although, of course, businesses must already cope with quite significant differences in existing national tax regimes.

2.2.5 Incentive compatibility

The attractiveness of moving from a traditional origin-based business tax from the perspective of a single country, acting on its own, involves a trade-off between advantages and disadvantages. These include, as discussed in Auerbach and Devereux (2018), the benefits of attracting capital and profits from other jurisdictions on the one hand, and the potential costs of a reduced ability to 'export' taxes to the residents of other countries on the other. A country unilaterally introducing a DBCFT would in effect be reducing its origin-based tax on business income to zero. As discussed, this would attract real activity and profit from other countries where that origin-based income would be liable to tax. But, on the other hand, an origin-based cash flow tax would fall on the owners of the business being taxed, including

non-resident owners. By contrast, as discussed above, a DBCFT would ultimately fall only on domestic residents. A move to a DBCFT from an origin-based cash flow tax would therefore have a cost in reducing the ability of the country to levy a tax the incidence of which is partly on non-residents. This second factor may be relatively more important for a large country.

However, existing business taxes are less likely to be exported to non-residents than origin-based cash flow taxes. That is because existing taxes do not generally fall solely on economic rent; consequently, they create incentives for businesses to distort their behaviour and prices in ways that pass on the burden of the tax to others, particularly residents. Thus, while there is a clear trade-off between origin- and destination-based cash flow taxes, the benefit of a conventional origin-based tax in exporting tax to non-residents is weaker than with an origin-based cash flow tax.

In addition to removing tax on domestic origin income, the treatment of borrowing and interest under the DBCFT (discussed in the next section) would introduce a powerful incentive for adoption elsewhere, for it would shift borrowing and interest deductions to other countries where interest is still deductible (at least as long as the other jurisdictions did not combat this incentive by the use of anti-avoidance rules). Similarly, as the adoption of the DBCFT by one country safeguards it against a number of profit shifting techniques whilst providing opportunities for multinationals to shift profits from countries operating an origin-based business tax to it, it also gives other countries an incentive to adopt the DBCFT.

For non-adopters, as seen above, despite such possible defences as mentioned there—and to an extent that again depends on circumstances—the replacement of a traditional business income tax by a DBCFT in another country may place substantial pressures in the forms of both reduced investment and heightened profit shifting. They are likely to respond. This may take the form of either reduced statutory rates or base narrowing measures while retaining a traditional business-level tax on profit, or a movement to a DBCFT. The former response provides no lasting solution to continued tax competition. Subject to important caveats—notably those in relation to developing countries discussed in Section 2.1.2.3 —the latter may well have more attractions than the continued undermining of the international tax systems that is all too clear under current arrangements.

How the incentives for adoption would change in response to other countries' adoption is a complex question.[54] However, it seems likely that the attractiveness of adopting the DBCFT would be enhanced by other countries already having done so. That is because countries that kept an origin-based tax would be at a competitive disadvantage since in effect they would be competing for real economic activity

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[54] Empirical evidence suggests that countries respond to a reduction in the tax rate in other countries by reducing their own tax rate; for references, see Chapter 2.

and profit with countries that have no origin-based taxation. As investment and profit shifted to the countries that had unilaterally introduced the DBCFT, there would be a powerful incentive for other countries to follow suit.

A unilateral move to the DBCFT can therefore be seen as the ultimate move in a tax competitive game being played out in origin-based business-level taxes on profit, as it results in an origin-based tax rate of zero. The adopting country would not be susceptible to tax competitive forces on the tax rate it selects. In that sense the result is long-term stability for the adopting country, freed from destabilizing tax competitive forces.

3.   Taxing financial flows

The growing importance of financial businesses and activities increases the attractiveness of taxing the economic rent accruing to financial businesses.[55] This section considers how this can be achieved, first under a DBCFT and then under a VAT-based equivalent.

3.1   The choice between an R base and an R+F base

As described briefly in Section 1.1, there are two basic approaches to the treatment of financial flows under a cash flow tax, including the DBCFT. These were set out by the Meade Committee (1978), and we use their terminology here. The first option is simply to ignore, or exempt them, in that no tax is levied on financial inflows, but equally no relief is given for tax levied on financial outflows. This is the route taken by most VATs. This is equivalent to a tax only on 'real' net inflows, which Meade calls the R base. The second option is to tax also all net financial inflows other than equity transactions with the business' owners, which Meade calls the R+F base. Table 7.4, which is adapted from Meade Committee (1978), shows which flows would be subject to tax under an R and an R+F base.

In the table, 'real' inflows are denoted as R and 'real' outflows are denoted as R^*. The R base is therefore simply net real inflows, $R\text{-}R^*$. The key elements of each flow are shown in the Table.

The 'financial' element is also straightforward, although perhaps less intuitive. The 'financial' tax base would be inflows, F—including new borrowing, interest received, and reductions in cash holdings—less outflows, F^*—including repayment of borrowing, interest payments, and new lending. The 'R+F' base

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[55]   See, for example, the statistics for the UK and the US in Auerbach et al (2010).

Table 7.4 Elements of R and R+F base taxation

Inflows	Outflows
Real Items	
R1 Sales of goods	*R*1* Purchases of materials and services
R2 Sales of services	*R*2* Wages and salaries
R3 Sales of assets	*R*3* Purchase of fixed assets
R	*R**
Financial Items	
F1 Increase in any forms of borrowing	*F*1* Decrease in any form of borrowing
F2 Decrease in any form of lending	*F*2* Increase in any form of lending
F3 Decrease in cash	*F*3* Increase in cash
F4 Interest received	*F*4* Interest paid
F5 Decrease in holding of shares in foreign companies	*F*5* Increase in holding of shares in foreign companies
F	*F**

would include both real and financial flows, that is, in the notation of the Table, *R+F-R*- F**.

Note that, in a domestic corporate setting as noted by the Meade Committee, an R+F base is equal to net distributions to shareholders—that is, distributions from the company to shareholders net of new equity issues. Thus, a tax on the R+F base could be implemented alternatively as a tax on net distributions to shareholders (the 'S base', in Meade's terminology). This could in principle be imposed at either the company level or the shareholder level, the latter opening up the possibility of rooting cash flow taxation in the residence of the shareholder, rather than the location of consumption.[56] However, we do not consider the S base any further here.

We initially focus instead on the interaction between the financial and non-financial sectors, starting with the domestic case so as to leave aside for the moment the issue of the location of tax.

3.2 Transactions between taxable entities

Consider first the application of the R+F base to both the financial and non-financial sectors. When a bank lends to a non-financial business, the outflow of

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[56] A possibility stressed for instance by Cui (2017).

Table 7.5 Treatment of financial flows under the R+F base

	Pre-tax flows		Tax flows		Total
	Bank	Borrower	Bank	Borrower	
Period 1: Lending	−100	+100	-30	+30	0
Period 2: Repayment with interest	+110	−110	+33	−33	0

funds receives tax relief in the hands of the bank. But the business is taxed on its financial inflow. As long as the lender and borrower face the same tax rate, the net tax on the transaction is zero. The same applies when the business repays the bank with interest. The repayment of principal and interest by the business reduces the business' taxable income, but the receipts to the bank are taxed. Again, if the tax rates are the same, then the net tax is zero.

Table 7.5 demonstrates this. In this example the bank lends 100 to a non-financial business at a 10% interest rate. The business tax rate is 30%. Taking only these financial flows into account, the taxes on the borrower and lender net out in each period, with the result that no net tax is paid.

An economically equivalent system would be one in which the financial flows between the financial and non-financial sectors are ignored for the purposes of tax. And that is exactly what the R base does. So in effect there is no economic difference between the R base and the R+F base with respect to financial flows between entities that are liable to the same tax regime.

To compare the R and R+F base in more detail, we will expand the example, as shown in Tables 7.6 and 7.7, to include the depositor who is the origin of the funds. Now suppose that the bank receives deposits of 100 from an individual (or another entity) who is not subject to the cash flow tax, on which it pays interest of 5%. It lends the 100 to the business at a rate of 10%. The bank therefore makes a pre-tax profit of 5. The business invests 100, financed by borrowing, and earns a return of 20%, so that it has a value of 120 in period 2. It repays 110 to the bank and therefore earns a pre-tax profit of 10. Given that there are no other costs, these measures of pre-tax profit are actually economic rent (measured in period 2 terms). The total rent is therefore 15, with the business earning 10, and the bank earning 5.

The position under the R+F base is as shown in Table 7.6. All real and financial flows are taxed. In period 1, all flows net to zero. The bank borrows and lends 100, with no net tax consequence. The business borrows 100 and invests 100 also with no net tax consequence: the tax due on its receipt of the loan is exactly matched by the value of the deduction for its investment.

Table 7.6 Treatment of financial flows under the R+F base

	Pre-tax flows		Tax flows	
	Bank	Borrower	Bank	Borrower
Period 1				
Bank receives deposit	100		30	
Bank lends	−100	100	−30	30
Investment by borrower		−100		−30
Total period 1 flows	**0**	**0**	**0**	**0**
Period 2				
Return earned by borrower		120		36
Repayment with interest	110	−110	33	−33
Repayment to depositor	−105		−31.5	
Total (net) period 2 flows	**5**	**10**	**1.5**	**3**

Table 7.7 Treatment of financial flows under the R base

	Pre-tax flows		Tax Flows	
	Bank	Borrower	Bank	Borrower
Period 1				
Bank receives deposit	70			
Bank lends	−70	70		
Investment by borrower		−100		−30
Total period 1 flows	**0**	**−30**	**0**	**−30**
Period 2				
Return earned by borrower		120		36
Repayment with interest	77	−77		
Repayment to depositor	−73.5			
Total period 2 flows	**3.5**	**43**	**0**	**36**

In period 2, the business pays tax on the value of its investment but receives tax relief on its repayment to the bank. The bank pays tax on the receipts from its lending but receives tax relief on its repayment to its depositors. In sum, the bank pays tax of 1.5 and the business pays tax of 3. In both cases, this represents 30% of the pre-tax economic rent earned by each party (5 for the bank, 10 for the borrower).

Now consider the R base, as shown in Table 7.7. In this case, financial flows are simply disregarded. Let us start by assuming that the business still wants to make its investment of 100. It receives tax relief on that investment of 30. Consequently, it need borrow only 70 from the bank. Since no taxes are levied on the financial flows of the bank, the bank only has to raise 70 from its depositors. In period 2, the business earns 120 and pays tax on that of 36. It repays 77 to the bank, including 10% interest, and the bank repays 73.5 to the depositors, including 5% interest. There are no other taxes.

There are clearly differences in cash flows in these two examples. Under the R base approach the bank only borrows and lends 70. And the business receives tax relief of 30 in period 1, and pays tax of 36 in period 2. But exactly the same real investment is undertaken, and both the bank and the business are exactly as well off as they were under the R+F base. The bank has a post-tax economic rent of 3.5, and the business has a post-tax economic rent of 7 (43–36). Further, if we gross up the 30 of tax relief from period 1 at the 'normal' (deposit) interest rate of 5%, this is equivalent to tax relief of 31.5 in period 2. The overall tax liability in period 2 terms is then 4.5, exactly as under the R+F base.[57]

If under the R base the bank is not being taxed on its return from lending, then it may appear that it can earn an economic rent without tax. But in this case, any economic rent it earns is effectively being taxed in the hands of the borrower. Under the R+F base, the business and the bank each pay tax on their share of the overall economic rent earned. Under the R base the business would get no tax relief for repaying its debt with interest. In effect, it is therefore taxed on the entire economic rent, while the bank is not taxed at all. Thus, the netting procedure under the R base effectively transfers part of the tax base from financial businesses to non-financial businesses.

But, as the example makes clear, this does not mean that the bank gains at the expense of the business. This is because the amount of lending is lower under the R base. At the same interest rate, then, the bank earns a lower pre-tax economic rent. We noted above that a main weakness of the R base is thought to be its inability to tax economic rents earned by the financial sector. However, these examples show that this is not true in the case of lending and borrowing between two businesses subject to the R-based tax.

Four other important issues arise in comparing the R and R+F bases for transactions between entities liable to the tax.

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[57] Note that this equivalence depends on grossing up the tax relief in period 1 by 5% to transform it into a period 2 value. This is based on the deposit rate paid by the bank in the example. Note though, that if the discount rate were 6%, but the bank earned rent on its borrowing by paying only 5% to its depositors, then the overall tax liability in period 2 terms would be lower than under the R+F base. In effect, the rent earned by the bank on its borrowing would be untaxed, illustrating the need in general to include financial transactions with non-taxable entities and individuals in the tax base, as described below.

The first concerns any other expenses incurred by the bank. Suppose in our example, the bank has additional costs of 5 in period 2—say employment costs. Under the R+F base analysis, this would extinguish the bank's economic rent; in effect the bank would not earn a rent. That would be dealt with easily by the R+F base: the additional 5 of costs would be set against net income of 5 in period 2, and the bank's R+F tax liability would fall to zero. The total tax paid would then be only the 3 paid by the borrower on its economic rent of 10.

Under the R base, however, the bank has no taxable income, since all of its income is in the form of financial flows. Yet the R base would still give tax relief for this additional real cost. In effect, the bank's R base taxable income should be negative, at -5, and under a symmetric tax system, it should receive a tax credit of 1.5. Given that the value in period 2 terms of the tax paid by the business is 4.5, then that tax credit is required to make the R and R+F bases comparable in this case, reducing total tax paid to 3. The taxable loss arises for the bank under the R base because its taxable income has in effect been transferred to the business, as explained above. It is true that there may be a problem of perception, as people may find it difficult to understand why banks should apparently be subsidized despite the fact that they may be earning economic rent.[58] But this is indeed a problem only of perception, since, as set out here, the underlying economic rent is being taxed in the hands of the borrower.

That raises issues of how a credit would be paid, and in what circumstances. The bank has not made a loss, yet under the R base it may have a negative tax base. Dealing with the tax loss by carrying it forwards, even with interest, would be inadequate as financial firms with underlying profitability could easily be in permanent tax loss positions. One option would be simply to give a tax rebate to the bank. A second would be to allow the bank to offset the negative taxable profit against its liabilities for other taxes. We discuss the issue of losses more generally in Section 4.2.2.

A second issue which arises under the R+F base is that businesses are able to defer their tax payment, possibly indefinitely, through the simple expedient of not paying the profit to their shareholders. For example, consider the borrower in the example above. Under the R+F base it has a pre-tax profit in period 2 of 10, which is implicitly assumed to be paid as a dividend to its shareholders. But suppose instead that it simply saved the money in a financial account: either cash in a bank, or buying government bonds, for example. Either form of such saving would be treated as a financial outflow (of the form F*2 or F*3 in Table 7.4) and would therefore reduce the R+F base of the business to zero.

One possible response to this is that it is not a problem. The R+F base is in effect a tax on net distributions to shareholders. So if no net distribution is made, then

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[58] This problem of perception may arise even if the bank appears to be paying low or no tax under the R base.

there is no tax. If the business buys bonds in one period, for example, and earns interest on those bonds, then the dividend paid in the following period would be higher by the amount of the interest, and hence the tax liability at that point would also be higher. If the interest rate earned is the same as the shareholder's discount rate, then the net present value of the post-tax return to the shareholder would be unaffected.[59]

However, this argument does not take account of the fact that there could be advantages in deferring tax from the perspective of financial reporting. Executives may be evaluated on the basis of the profit declared in their financial statement; this is particularly true for listed companies. If the deferred tax is not included in the profit and loss statement (which may happen if the deferral is expected to be for a long enough period) then the reported post-tax profit would be boosted. Such an incentive to keep cash within the business may reinforce agency problems as directors seek to avoid the discipline of raising finance from the debt markets, and potentially giving rise to business over-investment. The susceptibility of the R+F base to the timing of tax payments provides a strong reason to prefer the R base,[60] at least for transactions between financial and non-financial businesses that face the same tax system and tax rate.[61]

A third issue is that banks may charge their borrowers in ways other than through interest—for example, through fees. Under an R base, the fee could be deductible for the borrowing business, and taxable for the bank. As with other flows between the bank and the borrower, these taxes net out. In the case where both parties are liable to tax at the same rate, it should not matter whether the flows are included in the tax base or not. But if one of the parties has a taxable loss which does not receive an effective rebate then this is not true. For example, if the bank is in a permanent taxable loss position, for which it does not receive full relief, it may have an incentive to charge fees instead of interest, in order to generate higher taxable income against which its expenses could be offset. This raises the question of how non-financial flows between the two parties should be treated. On the one hand, it may be beneficial to include non-financial flows, so as to allocate the bank a higher taxable income to reduce the problem of taxable losses in the bank. But it may also be more straightforward not to discriminate between flows, and to leave all financial and non-financial flows between the two parties outside the tax base.

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[59] Note that the value of a business to its owners would be zero unless distributions are expected to be made at some point.

[60] On using deferral for planning purposes in cash flow taxes more generally, see Devereux and Vella (2018c).

[61] The problem remains to some extent if, as discussed below, financial transactions with tax exempt entities and individuals are taxed. Then in principle, tax could be deferred by lending to these groups. If this problem were serious enough, it might in practice be counteracted by requiring there to be a deemed dividend in place of the additional lending.

A fourth issue concerns implementation. The R base taxes only 'real' flows, and so requires a distinction in the tax law between 'real' and 'financial' flows. This is required to counter incentives to disguise R flows as F flows, thus keeping them outside the R base. (Note though, that this only applies in cases where one of the two parties to a transaction is subject to tax at a different rate, or not subject to the tax, being for example a tax exempt entity or an individual subject to an income tax; otherwise the taxes levied on both sides of the real transaction would net out.) On the other hand, under the R+F base, but not under the R base, the border between debt and equity requires policing. That is, as equity is not part of the tax base under an R+F base, businesses have an incentive to disguise inflows of debt as equity, and outflows of equity as debt. To counter this, rules must be introduced to prevent investors using hybrid financial instruments for tax planning—for example, having the main characteristics of equity, but disguised as debt for tax purposes, or vice versa. Both of these implementation issues are discussed further below.

3.3 Transactions with individuals and tax exempt entities

A difference between the R base and the R+F base arises where a financial business engages in financial transactions with an individual, or another entity that is not subject to the tax. Applying the R base to a bank would result in there being no tax at all if the bank engages in only financial transactions which would not be subject to tax, and the tax exempt borrower would not be subject to this tax either. To the extent that the bank may earn an economic rent from such transactions, an R base would therefore leave this economic rent untaxed. This would be similar to the case in Table 7.7, but with the borrower paying no tax.

This suggests that, even if an R base is used for transactions between taxable entities, financial businesses should be subject to tax on their financial flows with any entities that are not subject to the same tax, and where the 'F' transactions do not therefore net out.[62] An example of this is shown in Table 7.8. This is the same as in the R+F example above, except that the borrower is here assumed to be exempt from tax. In this case, in period 1 the bank receives deposits of 100 and lends 100, with a net tax liability of zero. The borrower invests 100 in period 1 and earns 120 in period 2, but is not subject to tax. But in period 2 the bank pays tax on its profit, or economic rent in this case, measured as the difference between the 110 it receives and the 105 it pays out. The bank's economic rent of 5 is therefore taxed at 30%, but the tax exempt's economic rent of 10 is untaxed.

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[62] The combination of R base treatment for B2B transactions and a form of R+F treatment for B2C transactions was proposed in the context of VAT by Huizinga (2002).

Table 7.8 Treatment of financial flows under the R+F base: tax exempt borrower

| | Pre-tax flows | | R+F base tax |
	Bank	Borrower	Bank only
Period 1			
Bank receives deposit	100		30
Bank lends	−100	100	−30
Investment by borrower		−100	
Total period 1 flows	**0**	**0**	**0**
Period 2			
Return earned by borrower		120	
Repayment with interest	110	−110	33
Repayment to depositor	−105		−31.5
Total period 2 flows	**5**	**10**	**1.5**

Applying the R base for transactions between taxed entities, and applying the R+F base to financial businesses in their financial transactions with individuals or entities which are not subject to the tax therefore has the advantages of (a) excluding non-financial businesses from the complications of implementing an R+F base; while (b) taxing all of the economic rents of financial businesses—either directly through the F base applied to transactions with tax exempt entities, or indirectly by shifting the tax base to taxed borrowers.

Such a system would to some extent also lessen the problem of financial businesses having a negative tax base, discussed above. Suppose again that the bank in the example above has labour costs of 5. This reduces its economic rent to zero. In this case, the 5 of labour costs can be offset against the rent generated from lending to the tax exempt entity, implying that the bank does not have a negative tax base. Of course, it is still possible that the bank has a negative tax base; if, in the example, it has labour costs in excess of 5.

Note that the financial business should be taxed on its net financial inflows from non-taxable entities, less *all* real costs (e.g. for purchases of labour and other inputs) that it incurs. That is, it is not necessary to allocate its real costs to the activities in which it is directly taxed. That is because, as we have seen above, the financial business should get relief for its real costs even when it is transacting with taxable entities. As noted above, the problem of dealing with a negative R base is a matter of perception as in aggregate the tax base in each period is equivalent to that under an R+F for both financial and non-financial firms. If costs were fully allowed under the R base, then exactly the same tax would be generated as if all

taxable businesses faced the R+F base, and all entities would earn the same post-tax economic rent.

Applying the R+F base to financial businesses for transactions with individuals and tax exempt entities requires drawing a line between financial and non-financial businesses. But many non-financial businesses also engage in transactions with households that incorporate financial components, such as loans implicit in deferred payment arrangements. If the non-financial business were subject to the R-based tax, it may have an incentive to explicitly separate the real and financial components, as the latter would not be taxable, and also to misstate the magnitudes of real and financial prices, for example by overstating the interest rate charged on deferred payments and understating the initial purchase price. Non-financial businesses may then be earning an economic rent on their financial transactions with tax exempt customers; to match the treatment of financial businesses we would therefore want to tax them on such transactions. The easiest way to do so would be to include all expenditures and receipts from transactions of non-financial businesses with tax exempt entities (such as individual customers) in an expanded R base—even if they relate to charges for deferred receipt or payment, such as through leasing and hire purchase. In that case, there would be no need to extend formally the R+F approach to such businesses.

In cases where real and financial activities are segregated, businesses may already have separate operating units, which would allow the financial unit to be included in the financial regime. This separation would be possible for 'non-financial' businesses with significant levels of financial transactions. Such businesses could then either treat the financial flows as if they were real (and include them under an expanded R base), or they could treat them as financial, and include them under an R+F base that applied to transactions with non-taxable entities and individuals. These two approaches would have the same tax consequences.

3.4 International considerations

We now turn to the taxation of financial flows in an international context.

First, consider the effects of implementing a full R+F base on all taxed entities, and applied on a traditional origin basis. Suppose that a bank in country A lends to a business in country B, and both countries operate an origin-based R+F system. Then the bank would receive tax relief at A's tax rate on its lending, while the business would be taxed at B's tax rate. Similarly, the business would receive tax relief on its repayment of debt with interest at B's tax rate, and the bank would be taxed on the receipt at A's tax rate. Clearly then, extending the tax base to all financial cash flows does not eliminate the incentive to lend from a low tax country to a high

tax country, nor, for transactions between related parties, does it eliminate the incentive to overstate the interest in such cases.[63]

If an R+F tax were implemented in both countries, then it would instead be natural to have border adjustments for financial flows as well as real ones, in order to eliminate these incentives for profit shifting. In the case of financial flows, we treat the country of the borrower as being the place of 'destination'. An intuition for this approach is that the bank is essentially providing a service to the borrower, of the provision of funds for a period. This service is being 'consumed' by the borrower, and so it is natural under the destination-based approach to apply the relevant taxes on financial flows in the location of the borrower.

An example of how the R+F base would work if used in two countries is given in Table 7.9, which extends the previous example above by assuming that a bank in country A lends to a business in country B. Assume that country A has a 20% tax rate and country B has a 30% tax rate. Under an R+F tax base in both countries, country A would not give relief on the lending by the bank, nor would it tax the return that the bank earns, since it is not the destination country for those transactions. Instead, all the tax effects from the cross-border lending itself would arise in country B.

Suppose, as in the example above, that the business in B wants to invest 100, on which it expects to earn a return of 20%. The bank in A is willing to lend 100 at an interest rate of 10. Country B would give tax relief of 30 to the bank in A on its lending of 100 to the business in B. The net cost to the bank of making the loan is therefore only 70. In order to raise 70, it must issue 87.5 in gross deposits in A. That is, since the bank receives deposits in A, these will be taxed in A at the rate of 20%; so the bank must pay tax of 17.5 on the deposits of 87.5, leaving it with 70 to lend to the business in B.

The business in B receives a loan of 100 from the bank on which it must pay tax of 30. But it also invests 100, for which it receives immediate expensing, also of 30. For the business, these two elements of the tax net out, so that the business does not pay any tax in period 1. In period 1, then, net cash flows are zero for both the bank and the business. The overall value of the investment to the bank and the business therefore depends only on net cash flows in period 2. But country A will have raised 17.5 in tax revenue in period 1 (from the bank deposit of 87.5), while country B would have a net 30 reduction in tax revenue in period 1 (from the relief given to the bank on its lending). So the overall value of tax revenue to each government requires an aggregation of period 1 and period 2 flows.

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[63] The same would be true under the Tax Calculation Account (TCA) base, discussed below.

Table 7.9 Treatment of international financial flows under the R+F base

	Pre-tax flows		Tax in A (20%)		Tax in B (30%)	
	Bank in A	Borrower in B	Bank in A	Borrower in B	Bank in A	Borrower in B
Period 1						
Bank in A receives deposit	87.5		17.5			
Bank lends	−100	100			−30	30
Investment by borrower		−100		–		−30
Total period 1 flows	**−12.5**	**0**	**17.5**	**0**	**−30**	**0**
Period 2						
Return earned by borrower		120				36
Repayment with interest	110	−110			33	−33
Repayment to depositor	−91.9		−18.4			
Total period 2 flows	**18.1**	**10**	**−18.4**	**0**	**33**	**3**
Net values (in period 2 values)	*5*	*10*	*0*	*0*	*1.5*	*3*

In period 2, the business earns a gross return of 120—on which it pays tax of 36. It repays 110 to the bank and receives tax relief of 33 on the repayment. The net tax paid by the business is therefore 3. Country B levies a tax of 33 on the receipt by the bank. The bank then repays its depositor at 5% on the initial deposit (91.9) and receives tax relief on that repayment at 20% in country A (18.4). Given that the bank and the business both have zero net cash flows in period 1, the net effect is that the bank again earns a net economic rent of 3.5, made up of pre-tax net cash flow of 18.1 plus the tax rebate in A of 18.4 less the tax paid in B of 33). The business again earns a net economic rent of 7, made up of pre-tax net cash flow of 10 less tax of 3.

This is the same as in the previous example of a single country with a tax rate of 30%. To identify the period 2 values of net tax receipts, we gross up the period 1 taxes at 5% and add them to the period 2 values. The total value in period 2 terms of tax levied is again 4.5. However, in this case, this tax is collected entirely in country B—the destination country. The two tax effects in country A—taxing the deposit in

period 1 and giving relief for the repayment of the deposit with interest in period 2—net to zero.

Shifting the tax base of the financial business to the place of destination has two consequences. First, the incentive to lend from a low tax country to a high tax country is eliminated, so that it is not possible to shift profits using flows of debt and interest. For example, even if the bank were located in a zero-rated country it would make no difference to the tax liability of either party.

Second, since the taxes on financial flows net out in each period, this is equivalent to implementing an R base for these financial transactions. This is exactly the same as in the case of purely domestic transactions; the R base example above would also apply to a foreign bank lending to a domestic business, with border adjustments and hence a destination basis. Intuitively this also mirrors the case of imports of goods and services; for these we noted that since the taxation of imports netted out with the deduction for the cost of the input, it would be possible to ignore imports purchased by taxable entities altogether. The R base can be seen as the equivalent for financial transactions. Since the tax flows in the R+F destination base cancel out when the financial transactions are between taxable entities, then again they can simply be ignored. For financial transactions, this again returns us to the R base.

That is, for all financial transactions between taxable entities, border adjustments could be implemented by simply excluding cross-border financial flows from the tax system. Therefore the conclusion reached for financial flows between financial and non-financial firms in a domestic setting—to simply use the R base—also holds in an international setting. The example can be used to consider the case of an R base, shown in Table 7.10. In this case, there would be no net tax levied in country A, since in that example there are only financial flows.[64] In country B, there would be tax relief of 30 for the investment undertaken there in period 1, and a tax of 36 on the total return to that investment in period 2. All the financial flows would be untaxed. In order to finance that investment, the business has to borrow 70 from the bank. As under the R+F base in Table 7.9, the period 2 value of the tax liability (evaluated at a mark-up rate of 5%) would be 4.5, the business would earn an economic rent of 7 (from a pre-tax net cash flow of 43 less tax of 36), and the bank would earn an economic rent of 3.5.

Applying the R base for financial transactions with non-financial businesses would require financial businesses to determine whether their financial transactions were with taxable entities or not. However, it would alleviate their need to distinguish between domestic and foreign businesses in their transactions, as all such

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[64] In the example, there would be no net tax revenue even if there were also a tax on financial flows with tax exempt depositors since depositors are assumed to be paid a rate of interest equal to the bank's discount rate.

Table 7.10 Treatment of international financial flows under the R base

	Pre-tax flows		Tax in B (30%)	
	Bank in A	Borrower in B	Bank in A	Borrower in B
Period 1				
Bank in A receives deposit	70			
Bank lends	–70	70		
Investment by borrower		–100		–30
Total period 1 flows	**0**	**–30**	**0**	**–30**
Period 2				
Return earned by borrower		120		36
Repayment with interest	77	–77		
Repayment to depositor	73.5			
Total period 2 flows	**3.5**	**43**	**0**	**36**
Net values (in period 2 values)	*3.5*	*11.5*	*0*	*4.5*

financial transactions would now be excluded from the tax base, not just those with foreign businesses.

Note that the application of a DBCFT in an international setting brings to the fore another reason for adopting an R base for domestic transactions. If financial flows are ignored in an international context but not in a purely domestic context, this would cause difficulties with respect to the treatment of cross-border sales of existing debt securities in secondary markets, where the original issuer need not be aware of the change in ownership. Suppose, for example, that domestic business A borrowed from domestic business B, which subsequently sold the loan to foreign business C; in this case C would pay B the value of the loan and B would pass on to C all interest and principal received from A. Since the initial loan was within the same domestic country, under an R+F base the amount lent would be taxable for A and deductible for B, and interest payments would be deductible for A and taxable for B. All of B's dealings with C (the proceeds from selling the loan to C and delivery of the subsequent interest and principal payments to C) would be untaxed in the domestic country because of border adjustments. That is, B would continue to pay tax on the loan's interest even after selling the loan to C, just as in the case where B borrowed separately from C and kept the loan to A rather than selling the original loan to C. On the other hand, if A borrowed from foreign lender D, which subsequently sold the loan to domestic business E, border adjustments would exclude all flows from the domestic tax base, including those between A and D and those between D and E. This discussion suggests that there would be considerable benefits in leaving both domestic and cross-border

financial flows between tax-paying businesses out of the tax base altogether, as would happen if the R base were applied.

A final issue is that also faced in a domestic setting—how to tax cross-border lending by a financial business to individuals or entities which are not subject to the tax. To align their treatment when borrowing from either domestic or foreign banks, it would be necessary to apply border adjustments in these cases too. That is, we would need to tax flows from and to the foreign bank at the domestic tax rate, with a deduction on lending and a tax on the repayment of principal and interest. As in the purely domestic case, these financial flows between financial businesses and tax exempt borrowers do not net out. In effect, then, in an international setting a destination-based R+F base would need to be applied for financial flows between financial businesses and these taxpayers.

We discuss further implementation issues below. In practice, cross-border loans by individuals should not be a major issue for most households, most of whose financial transactions are with domestic businesses, although it could be more important for wealthy households.

3.4.1 Unilateral adoption

So far we have considered the treatment of financial flows in a setting where the DBCFT is adopted by all the countries concerned. But suppose that only one country—country A—adopted the DBCFT with an R base for transactions between taxed entities, and with an R+F base for transactions with non-taxed entities.[65] Suppose that all other countries maintained a traditional approach, taxing interest received and giving relief for interest paid, both on an origin basis. What would be the incentives for borrowing and lending, and the location of each?

First, suppose that an affiliate of a multinational in country A lent to another affiliate located in country B. Then, irrespective of the identity of the borrower, there would be no tax levied in A, even under the R+F base, since A would not be the destination country in this case. In country B, relief would be given in the usual way on the interest paid to A on the loan. Relative to the existing system, this makes A appear like a zero-tax country: interest paid from B to A receives tax relief in B, but would not be taxed in A. This would clearly give an incentive for multinationals to locate outbound lending in a country operating a DBCFT, whether an R base or R+F base applied to such financial flows.[66]

What of the reverse position? Suppose that the multinational instead lent from an affiliate in B to an affiliate in A? Then under the R base treatment in A,

[65] A question arises in this case as to whether and how to differentiate borrowing from foreign 'taxable' and 'non-taxable' entities, neither of which would be subject to a DBCFT in their home countries. The consequences of each are discussed in the context of R+F treatment.

[66] This may spur country B to use CFC rules to combat profit shifting out of B.

the financial flows would be ignored in country A. The treatment under an R+F base in A would depend on how the entity in B is treated by the tax authority in A. Assuming it is treated as 'taxable' under the DBCFT, then the entity in B would receive tax relief in A on the loan that it made, and the entity in A would be taxed on the receipt of the loan. These two tax flows would cancel out. Similarly, the repayment of the loan with interest by the entity in A would receive tax relief from A, but the receipt by B would also be taxed by A. Again these two flows cancel out. Since all these tax effects would exactly cancel out, then in this case the R base and R+F base would be equivalent, with no net tax effects in country A. In country B, however, the interest on the loan would be taxable. This situation would be akin to lending to a zero tax country under the existing system; there would be no net tax in A, but B would impose a tax on the receipt of the interest. In this case, there would clearly be an incentive for multinational businesses to avoid lending from an affiliate in a non-DBCFT country to an affiliate in a DBCFT country.

Overall, then, if a DBCFT were adopted in only one country, that would introduce a strong incentive for businesses to shift their borrowing to other countries that continue to impose a traditional origin-based income tax. Any borrowing, domestic or international, by a business located in a country operating a DBCFT would be ignored; whilst borrowing by a business in a country operating a traditional origin-based income tax would benefit from interest deductibility. As with the incentives for profit shifting discussed earlier, this incentive is present even with respect to foreign jurisdictions with low origin-based tax rates.

3.4.2 Treatment of financial services under the VAT plus payroll subsidy approach

The equivalence between a DBCFT and an appropriate VAT combined with a corresponding payroll subsidy can be readily extended to the treatment of financial services. To see this, since the treatment of labour costs is the same for the R and R+F bases, it suffices to focus only on the financial flows themselves.

In practice, financial services (other than those explicitly charged for as a fee) are commonly exempt under the VAT:[67] that is, there is no charge on services provided but nor is there any credit or refund of VAT charged on inputs. This has been a long-standing source of dissatisfaction, as it implies some cascading of taxes on financial services used by registered businesses—and hence a risk of production inefficiency—and excludes from the tax base the value of services provided to final consumers.

The conceptual difficulty perceived in this area has been that of allocating the margin embedded in the pricing of financial services between the two sides of the

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[67] Though not always: see for instance Crawford et al (2010).

transaction, and hence to ensure the smooth functioning of the VAT invoice-credit mechanism—something that, importantly, is needed only in relation to final consumers: for services provided to registered businesses, the spilt is immaterial, since any VAT charged by the seller will be creditable for the buyer.

One solution to this problem, developed by Poddar and English (1997), is R+F-type cash flow treatment of exactly the kind discussed above. And the reason it allocates the margin appropriately is analogous to that in which the R+F treatment allocates rents across businesses: taxing and crediting all flows between registered businesses means that the only revenue that remains reflects the margin earned from transactions with non-registered individuals and tax exempt entities.

For financial transactions between businesses, this netting of payments is exactly as under the DBCFT described above—and so, just as an R base was seen there to be adequate for the treatment of financial flows under a DBCFT, so under a VAT they might equally well be ignored. This would mean 'zero-rating' such transactions: that is, charging no tax on provision (as at present) but also providing full refund for input taxes allocable to transactions with registered businesses. Some countries already do something approaching this.

In an international context, the argument above suggested that R base treatment would also be appropriate for transactions with taxable entities abroad. This corresponds in VAT terms to zero-rating. And that, indeed, is already the norm: financial services provided to non-residents are generally zero-rated. The primary difference between current international VAT arrangements and those required to replicate the DBCFT as described above is thus the need for cash flow treatment of transactions with non-registered individuals and tax exempt entities.

Consideration of the cash flow approach in the context of the VAT led to the development of one means of implementation that does not require immediate taxation of principal amounts. Somewhat analogous to the ACE relief described above, this is the 'tax calculation account' (TCA), the basic idea of which is to defer tax liabilities on financial inflows until the deductions for the corresponding outflows arise.[68] To compensate for the difference in timing, it would be necessary to mark-up the deferred tax period by period. Briefly, the reasons for keeping the cash flow approach mirror those for not choosing the ACE approach for real flows. First, it may be administratively simpler to net out the tax on lending and on borrowing, which would only occur under the full cash flow treatment. Second, it would be necessary to specify the appropriate rate of mark-up for the TCA. In principle, setting the wrong mark-up rate could lead to distortions to financial flows, although the size of such distortions is likely to be small if the error in setting the mark-up rate were also small.

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[68]   Poddar and English (1997).

4. Implementation

Each country contemplating the policy choices described above will have its own concerns and circumstances. These include not only the initial state of its tax administration and wider tax system, but its policy objectives in terms of such issues as the treatment of smaller enterprises, not-for-profits, and pass-through entities. There are, however, several generic issues to be faced. Two of these have been discussed at some length in Chapter 5 since they are broadly common to both the RPAI and the DBCFT: the scope of the tax; and the identity of the 'destination' country and problems that may arise in that country collecting the tax. Here we focus on issues that are more pertinent to the DBCFT.

4.1 Two economically equivalent reforms

Most of the discussion so far in this chapter has concerned the possibility of implementing a DBCFT as a form of business tax. However, we have also emphasized that an economically equivalent reform would be to raise the rate of VAT, or introduce a VAT—here in either case having in mind an idealized VAT levied at a single rate on a broad base—and reduce taxes on labour income by that same rate. We set out these two approaches first, and then discuss some of the details of each.

Starting with the first of these, the key elements needed to transform a typical corporation tax into an R-based DBCFT would be to:

- abolish relief for interest payments;
- allow immediate expensing for all business expenses;
- ignore the proceeds of exports in the country of export;
- ignore imports purchased by taxable entities (or tax them but include them in deductible costs);
- introduce a tax on imports purchased by non-taxable entities, including individual consumers; and
- for financial businesses, tax net financial inflows resulting from transactions with non-taxable entities and individuals.

VATs observed in practice differ in two important ways from the idealized VAT envisaged in the equivalence relationship with the DBCFT: they are typically not levied at a uniform rate on all goods and services, and they do not tax financial flows between financial businesses and tax exempt entities or individuals. Bearing that in mind, the reforms needed to transform a traditional

corporate tax into the equivalent of a DBCFT through a VAT-based approach
are to:

- abolish corporation tax;
- raise the rate of VAT—and, for close equivalence to a DBCFT, abolish multiple
  VAT rates and exemptions where they exist;
- reduce the tax rate on labour income by the same rate: we refer to this as a
  'payroll subsidy' to identify its net effect relative to existing taxes; this would
  not amount to a tax rebate unless the rate of subsidy exceeded existing tax
  rates on labour income; and
- to tax the returns to financial businesses, introduce a cash flow tax on trans-
  actions between financial businesses and both non-taxable entities and
  individuals.

While these two approaches are economically equivalent and would yield the same
revenue, their implementation would obviously be different. Consequently, there
are advantages and disadvantages of each of the two approaches, which we address
in the final part of this section. For the vast majority of countries that already have a
VAT, its existence can be both an advantage and a disadvantage.

It can be an advantage because raising the rate of an existing tax, even substan-
tially, does not generally amount to a radical rewriting of the tax system. Further,
many of the design questions that arise in introducing a DBCFT have already been
addressed in the implementation of VATs. But it can be a disadvantage, because
most existing VAT systems do not cope as well as one would prefer with all of the
issues that we discuss here—for example, in the treatment of financial flows. Also,
most VATs are marked by widespread exemptions and/or the application of dif-
ferential rates. Raising only the standard rate of VAT and combining that with a
payroll subsidy may then seem a relatively easy option, but it would not be eco-
nomically equivalent to introducing a DBCFT. The DBCFT route may then (sub-
ject to various caveats below) be more appealing.

It is important to recognize, in any case, that many of the design problems and
implementation problems to be faced are much the same for the DBCFT and
the VAT-based approach. We have already seen this in relation to the treatment
of financial services and will see the point again below when discussing how to
define 'destination'. Nor do all the administrative issues associated with a trad-
itional corporation tax disappear. It remains necessary under both the DBCFT
and VAT-based approach, for example, to distinguish between business and (non-
deductible) personal expenditures.

Either direction of reform could be introduced gradually, potentially reducing
the transition costs of moving to a new system. Clearly, in the case of the VAT plus
payroll subsidy, it would be possible to adjust gradually the rates of the three taxes
concerned. And for the DBCFT itself, it would be possible, for example, to extend

gradually the proportion of exports and imports to which border adjustment applies, thereby gradually introducing the destination basis; we describe this further below. Such gradual adjustment may reduce the transition costs of moving to a new system, although the period of time of transition would clearly be longer.

4.2 Practical issues

Any new tax raises practical challenges and creating a DBCFT by reforming the corporation tax is no different. Many issues, however, are familiar. Some are familiar because they relate to the cash flow element of the tax and have been discussed, together with potential solutions, over many years. Others are familiar because they relate to the destination element of the tax and thus also arise in the context of existing VATs. A third group of issues are common to existing systems of business taxation. And fourth, there are some issues that are specific to this particular reform; these require more extensive consideration here.

The difficulties in implementing the alternative approach, through increasing the rate of VAT and reducing the rate of payroll taxes, depends on whether a country already has experience of a VAT and payroll taxes. For countries which do not have a VAT, notably the US, many issues arise in the choice of determining the way in which the VAT is implemented—with the opportunity to learn from the best practices of others, for instance in maintaining a simple rate structure, minimizing exemptions, and in the treatment of the financial sector.[69] For countries that already have a VAT, it is technically straightforward to raise the standard rate, the difficulty with this being that the existing VAT may well not match the broad-based tax we have in mind here. On the payroll subsidy element, for developed countries it would be relatively straightforward to simply reduce their extensive payroll taxes. (Where payment of such taxes is linked to entitlement to future benefit, arrangements would need to be made to secure those rights; but this has proved straightforward to do, for example in the case of payroll tax holidays.) Most developing countries, however, do not have extensive payroll taxes, and the reach of taxes on wage income is often limited. Outright wage subsidies would then be needed, posing significant administrative issues. For such countries, the most practicable route is likely to be to adopt the DBCFT itself.

Against this background, we discuss practical issues under several headings: the need to distinguish real from financial flows, and flows of debt from flows of equity; the treatment of taxable losses; methods of collection in the destination country; possible legal constraints arising from tax treaties and the WTO; transition issues;

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[69] Conversely, of course, introducing a DBCFT while raising labour taxes can be a way of effectively introducing a VAT; and perhaps with more chance of achieving these desirable ends than through the reform of an existing VAT.

and other issues which arise in comparing the two possible approaches described above. In each case, we begin by analysing the case of a DBCFT and then consider how things would be different if the reform were instead shaped as a VAT with payroll subsidy. Note again that we have already discussed in Chapter 5 issues concerning the scope of the tax, and the nature of 'destination'.

4.2.1   Real versus financial flows under an R base, and debt versus equity under an R+F base

As set out in Section 3, a DBCFT would have symmetric treatment for transactions between businesses subject to the tax, which generally results in a total of zero tax being levied on a transaction, as one party is taxed and the other receives an identical relief. This would be true of real flows under an R base and real and financial flows under an R+F base. For example, under an R base, the vendor's incentive to disguise R flows as F flows would be countered by the purchaser's incentive to treat the whole price as an R flow. Whilst the portion of the R disguised as an F would not be included in a vendor's inflows, it would also not be included in a purchaser's outflows meaning the latter would not obtain the corresponding relief.

However, special rules to counter avoidance would be needed where one of the two parties to a transaction is not subject to the tax (being a tax exempt entity, for example, or an individual subject to an income tax), where the two parties are subject to the tax at different tax rates, or if full loss relief is not available and one of the parties has a taxable loss. Where transactions take place between a financial business and non-taxable entities, including individuals, rules to counter avoidance by disguising R (real) flows as F (financial) flows would be needed, since disguising a real inflow as a financial inflow (or a financial outflow as a real outflow) would result in a lower tax base.

Rules to differentiate real and financial flows in these cases would need to be supplemented by rules to differentiate between flows related to debt and equity in the case of applying the R+F base to transactions with tax exempt entities and individuals. As equity flows are not part of the tax base under an R+F base, businesses would have an incentive to disguise debt as equity—for example, through the use of hybrid financial instruments—thus keeping financial payments out of the base entirely. But if the R+F base is limited to transactions of financial businesses with tax exempt entities and individuals, the importance of this distinction is more limited than under existing regimes.[70]

Turning to the alternative VAT-based strategy, as discussed above the starting point is that financial businesses are typically exempt from VAT; this means that they do not charge VAT on lending or other financial transactions, but neither are

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[70] For further discussion on these issues, see Devereux and Vella (2018c).

they permitted to reclaim VAT paid on inputs. It is generally recognized that this treatment is not ideal. The analysis above suggests that—as proposed for instance by Huizinga (2002)—business-to-business financial transactions be zero-rated, while cash flow treatment (along R+F lines) be applied for transactions with individuals or other non-taxable entities. In respect of financial transactions too, the VAT plus payroll subsidy approach could therefore be used to implement a reform which is economically equivalent to a DBCFT; but this would require a significant reform of commonly applied systems of VAT.

4.2.2   Losses

The issue of losses and negative tax bases arises in three contexts under the DBCFT: domestic investment, international transactions, and financial transactions. We discuss them in turn.

4.2.2.1 Domestic

Because of immediate expensing, negative tax bases can arise under a cash flow tax even for successful businesses operating in a purely domestic setting. Take for instance a rapidly growing business engaging in substantial capital investment in a particular year: immediate expensing of those investments could easily lead to a negative tax base, even if the business is projected to increase its revenue streams substantially in the near future as a result of its investment. If a cash flow tax is to be neutral with respect to marginal investment decisions, full relief, or some equivalent alternative, should be given. Box 7.1 illustrates this key point.

Box 7.1   The treatment of losses in a domestic context

The Table below illustrates the simple case of a business that makes an investment of 100 in period 1 and earns a total return of 120 in period 2. Suppose that the rate of interest is 5%, and that the business uses this rate of return to compare cash flows in the two periods. In this case, the 100 of investment in period 1 is equivalent to an outflow of cash in period 2 of 105. The economic rent earned by the investment in period 2 terms is therefore 15: the inflow of 120 less the marked-up outflow of 105.

Now consider alternative ways of taxing this investment, with a tax rate of 30%. Under a classic R base cash flow tax, the initial investment would be immediately expensed, and so the tax payable in period 1 would be -30. If necessary, this could take the form of a payment of 30 to the business by the state. The period 2 value of this to the business, given the 5% interest rate, would be 31.5. The tax in period 2 would be 36. The period 2 value of the two elements of the

tax combined is therefore 4.5. This is 30% of the economic rent, as is intended under a cash flow tax.

Now suppose that no rebate is available for the first period tax loss, but that it is instead simply carried forward to set against second period income. In this case, the tax base in period 2 would be 20—the return of 120 less the carried forward loss of 100—and so the tax would be 6. This tax base (20) exceeds the economic rent earned (15). The investment will still be attractive to the investor, since after-tax profit is positive; but this would not have been the case, for instance, had the project been only marginally profitable in the absence of tax. This effect can be removed by marking up the loss by the interest rate as it is carried forward. In this case, the loss brought forward into period 2 would be 105, and the period 2 value of the tax would revert to 4.5.[71] Note that this is similar in effect to the case where an allowance is given for the cost of finance, as under an allowance for corporate equity (ACE). For suppose that relief for the cost of the investment is not available until the return is made, but that there is relief in period 2 for the opportunity cost of finance; this is the foregone interest of 5. In this case, the tax in period 2 is again 4.5, 30% of the economic rent.

Illustration of properties of alternative treatment of losses

	Period 1 cash flows	Period 2 cash flows	Period 2 value of investment/tax
Capital investment, and total return on investment	−100	+120	15
R base tax with immediate expensing, and full refund	−30	36	4.5
R base tax with immediate expensing, and loss carried forward	0	6	6
R base tax with immediate expensing, and loss carried forward with interest mark-up at 5%	0	4.5	4.5

As this example highlights, providing relief for losses is critical to attaining one of key attractions of cash flow taxation. However, relief in the form of an

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[71] This treatment has been proposed by, among others, the President's Advisory Panel (2005) and Carroll and Viard (2012).

immediate refund could prove politically unattractive. Permitting the taxable loss to be carried forward indefinitely with an interest mark-up[72] significantly alleviates the problem of not giving immediate refunds but does not perfectly replicate it, for two reasons. First, there is a possibility of business insolvency before the loss carried forward is actually used (assuming that it cannot be used at the point of insolvency). Second, an immediate refund provides a net cash injection to the business, which may be significant for financially constrained businesses. Other possible solutions include: allowing the marketing of un-used tax benefits associated with these activities, although this is not without its pitfalls, as the US experience with 'safe harbor leasing' from the early 1980s illustrates;[73] allowing taxable losses to be used in the context of mergers with profitable businesses; or allowing taxable losses to be set against other taxes paid by the business, such as payroll taxes.

The example in Box 7.1 does not include labour costs, so the position under a VAT would be exactly as the first row in the Table, with an immediate rebate of expenses. An analogous problem thus arises, as is very familiar, under a VAT. It may seem rather different in kind, since the VAT rebate is as a refund of VAT paid on capital inputs purchased. If the firm purchasing the capital equip-ment had no sales in that period, then it can generally reclaim the VAT paid on that input. Combining this with a reduction in the tax on wages and salaries would yield exactly the same outcome as permitting a rebate for the negative tax charge under a cash flow tax. It may appear different because the negative VAT charge can be seen as a rebate of VAT already paid. However, the same broad principle also applies to a DBCFT, since the supplier would also be sub-ject to the DBCFT.

4.2.2.2 International

The issue of losses becomes more pronounced in an international setting, be-cause the DBCFT taxes domestic sales less domestic expenses. So if a business produces in country A and sells all its products in country B, then it would have a negative tax base in country A. That is because the expenditure incurred to pro-vide goods and services both domestically and for export is set against revenues from domestic sales and not exports. The tax bases of businesses that export a high percentage of their goods or services can thus easily be negative. This could be a permanent state of affairs for such businesses, in which case they would not be helped by carrying losses back or forward with interest. In such situations, the

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[72] Building on Fane (1987), Bond and Devereux (1995, 2003) address the question of what interest rate is needed in the presence of risk; they show that a mark-up at the risk-free rate is sufficient as long as the amount carried forward is certain to be paid to the business. Where it is not, then a higher rate would be required that covered that specific risk.

[73] See Warren and Auerbach (1982).

Table 7.11 Illustration of effects of not receiving relief for expenditure

	Produce in A	Produce in B
Expenses in A	−100	–
Expenses in B	–	−100
Sales in A	120	120
Tax base in A	20	120
Tax base in B with full offset	–	−100
Tax base in B with no offset	–	0
Total tax base with full offset	20	20
Total tax base with no offset	20	120

options of allowing refunds in respect of negative tax bases or cross-crediting against other taxes, such as payroll taxes, become more important.[74]

If full relief were not provided the DBCFT would be likely to distort location decisions, losing an important aspect of its efficiency properties. To see this, consider the simple example in Table 7.11. Suppose that there are two countries, both operating a DBCFT, and both at the same tax rate, 30%. A business has expenditure of 100 and sales of 120. (For simplicity, in this example assume that these flows happen in the same period.) Its sales are in country A, but it can choose whether to produce in A or B. If it chooses to produce in A then its tax base will be 20 and it will pay tax of 6. If it chooses to produce in B it will have a taxable loss in B of 100, and a taxable income in A of 120. If it receives a full refund in respect of the 100 of expenditure in B then its location decision will not depend on tax; it will continue to pay tax of 6. But if it receives no relief for the cost in B, then its tax base effectively becomes 120, with a tax liability of 40. Thus the treatment of losses in this case can be highly important for location decisions.[75]

There may be some doubt as to the willingness of countries to provide relief for expenditure incurred to produce revenue which they will not tax. However, three considerations should be kept in mind.

First, some countries have been willing to accept similar situations under the existing corporate tax system. For example, they have allowed relief for interest

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[74] Under this latter approach, it is of course conceivable that credit due on losses may exceed the amount of other taxes remitted. And where tax administration is weak, reliable cross-crediting may be difficult to achieve.

[75] Note that the distortion does not come from differences in the treatment of losses: as in this example, a common but imperfect treatment distorts because some location choices imply taxable losses while others do not. The symmetric treatment of losses is also important for the effects on exchange rates, or prices under a fixed exchange rate regime, which, as discussed in Section 1.4, are important for the economic efficiency properties of the DBCFT.

expenses on domestic loans used to equity finance the activities of foreign subsidiaries even when they exempt the dividends paid back from the foreign subsidiaries. For example, the UK has previously presented such generous treatment of interest expense as a competitive advantage.[76]

Second, under a DBCFT countries would also tax domestic sales by foreign firms. So while countries may find themselves giving relief for expenditure incurred to produce revenue they will not tax, they will also collect tax revenues reflecting business expenditure for which they did not provide relief. From the country's perspective, the revenue consequences should be seen at an aggregate level, where an element of quid pro quo is at play, and not at the level of an individual business. In aggregate the net effect on the tax base hinges on the relative magnitude of exports and imports; this question was addressed in Section 2.1.2.2.

Third, competitive forces provide countries with a powerful incentive to provide full relief under a DBCFT. Failure to do so would place them at a competitive disadvantage in attracting business activities relative to countries which give full relief. To take the example in Table 7.11, if B did not provide relief for the expenditure, the business would have an incentive to locate its activities in A. This would be true for most businesses that aimed to supply an export market. In fact, the opposite problem might arise in that countries which are particularly keen on attracting certain activities, such as manufacturing, would have an incentive to compete by going beyond full relief through overly generous expensing rules or interest rates on losses carried forward.

Note that the same issues arise if reform takes the form of a VAT plus a payroll subsidy. A domestic business that exports all of its output is generally permitted to reclaim any VAT that it has paid on inputs. In general, this rebate would be less than that required under a DBCFT since the VAT does not give relief for labour costs. But combining the VAT with a payroll subsidy would automatically also give the same relief for labour costs as under the DBCFT. Under normal VAT rules then, the VAT plus payroll subsidy approach would be equivalent to giving a full rebate for the taxable loss described above. There is perhaps a difference in perception here, in that the VAT rebate itself would be separate, and is generally seen as a repayment of VAT paid at an earlier stage of production. But, given the matching reduction in taxes on (or subsidy to) wages and salaries, the VAT plus payroll subsidy approach would be equivalent to giving a full rebate under the DBCFT.

4.2.2.3 Financial businesses
We saw merit above in applying an R base for financial businesses when transacting with non-financial businesses subject to tax at the same rate, and an R+F

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[76] HM Treasury (2010).

base when transacting with non-taxable entities, including individuals.[77] That is, financial businesses would be taxed on their net financial inflows from non-taxable entities, less all real costs (e.g. for purchases of labour and other inputs) that they incur. As described at length above, *all* real costs should be allowable against tax, since in effect the economic rent generated from lending to taxed businesses is taxed in the hands of the borrower. An advantage of this approach is that non-financial businesses do not need to keep track of their financial flows for tax purposes (although they do need to distinguish between real and financial flows). But, if a financial business does not have a sufficient positive net cash flow from tax exempt entities and individuals, then it may be left with a negative tax base. This does not mean that it is not profitable, nor that tax has not been levied on the total profit generated; it simply means that some important income will be taxed in the hands of the borrower, not the lender. At an aggregate level, total tax collected will be the same as under an R+F base applied to all businesses.

Just as above, economic efficiency requires financial businesses that find themselves in this position to be refunded in respect of their negative position. From an implementation perspective this raises some concerns. In particular, again, it is possible that countries may be unwilling to pay tax refunds to financial businesses in a taxable loss position. As with the problem of international flows in the previous subsection, this taxable loss may be permanent, and so cannot be dealt with through carrying the loss backwards or forwards, even with an interest mark-up.

A different solution to dealing with the taxable losses of financial businesses therefore needs to be found. While the problem mirrors that of dealing with the taxable losses of exporters discussed above, it is amplified by the non-taxation of some domestic transactions by financial businesses. One approach might be to allow taxable losses of financial businesses to be transferred to non-financial businesses that are in a taxpaying position. This could in principle be achieved, in effect, by making the netting of business-to-business financial transactions optional, although introducing this option would complicate the system and could introduce distortions if transferability still left financial businesses in loss positions.[78] Another approach would again be that of allowing financial businesses to offset their taxable losses under this cash flow tax against other taxes to which they are subject, for example, payroll taxes or special taxes levied on the financial sector.

In an international setting, with banks lending to non-domestic tax exempt entities, the position is the same as for other exporters; relief should be given for costs incurred domestically, even though there may be no taxable income to match

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[77]   Under the R-based approach, taxes on economic rent are collected only from non-financial businesses. Transactions between two financial businesses could also be subject to R-based tax, which would imply that financial transactions between them would be effectively untaxed.

[78]   In that case, financial businesses would have an incentive to net flows that would have increased taxes on non-financial businesses (e.g. payments by them to non-financial businesses) and not to net flows that reduce taxes on non-financial businesses (e.g. payments to them by non-financial businesses), as there would be immediate tax consequences of these choices only for the non-financial businesses involved.

those costs. This would be true if the R+F base were applied generally, as well as under the mixed R and R+F approach discussed in Section 3. Once again, it is necessary to find a way to reimburse the loss, in order to preserve economic efficiency. Again, this could be done by crediting the taxable loss against other taxes, such as payroll taxes or special taxes levied on the financial sector.

As noted above, VAT is generally levied only on real flows, and not financial flows. The combination, however, of a VAT reformed along the lines described above—zero-rating B2B (business-to-business) and applying cash flow treatment to B2C (business-to-consumer) transactions—and a payroll subsidy would be equivalent to giving an immediate tax rebate under the DBCFT.

4.2.3 Collection on a destination basis

The collection of the DBCFT in the market country clearly raises some challenges. Some of these relate to defining the place of destination, and some to collecting tax in that country. We have already explored these issues at in Chapter 5. Here we focus on issues that arise particularly in the context of the DBCFT.

A DBCFT could leave B2B transactions between entities taxed in distinct countries out of the tax base entirely. Exports would be zero-rated, and as discussed above, imports purchased by businesses could be ignored (either taxed but with relief, or neither). So the challenges for collecting revenue under a DBCFT relate primarily to cross-border B2C transactions. (And, of course, one issue is to be able to identify whether a transaction is B2B or B2C.) As noted in Chapter 5, countries have become more confident in collecting taxes in such a setting, as evidenced by the adoption of digital services taxes and the OECD's Pillar I proposal.

In the context of the DBCFT, one innovation in the EU that could be applied amongst cooperating countries is a 'one stop shop', as proposed by de la Feria and Devereux (2014) and the Gaspar Committee (2014). Under such a system a business selling into several separate countries would need to register in only one; in many cases that is likely to be the origin country from which the business exports. The tax authority in that country would administer the DBCFT at the rate of the country to which the good or service is exported. Going beyond what has yet been achieved in Europe, one could envisage a clearing arrangement at the aggregate level, where payments are made between tax authorities in recognition of the appropriate recipient of the tax. Such cooperation would clearly create a significant administrative simplicity relative to the case in which the exporter is required to register and pay tax in each country into which it exports.

It is worth noting that the one-stop-shop approach makes the need to deal with a negative tax base in a specific business less likely. Suppose, for example, that a business in A exports to a consumer in B. In the absence of the one-stop-shop approach, the business would have a taxable loss in A and a taxable profit in B, even if it were profitable overall. That leaves the question of how to deal with the taxable

loss in A that we have considered above in Section 4.2.2.2. But with a one-stop-shop approach, the tax authority in A can charge tax on sales in B at B's tax rate, net of relief for expenses incurred in A at A's tax rate. As long as the business is profitable overall, and tax rates are not too different, then it is likely that in these circumstances the business will have a positive tax base in A. The implicit taxable loss in A would in effect be given full relief. The cost of this to the government in A would be reflected in the payment that A makes to B to reflect the tax that A has collected on B's behalf. There would be no need for any repayment to the business itself. Assuming that there are similar businesses in B exporting to A, then there would be a similar effect for implicit taxable losses in B. In effect the negative tax bases in A and B would be netted against each other and cleared at an aggregate level.

The implementation of collecting a tax on imports by individuals is broadly similar whether the DBCFT is introduced in its corporation tax form, or as a VAT plus payroll subsidy. However, if the reform took the form of an increase in the rate of an existing VAT combined with a payroll subsidy, then it would appear to be more straightforward simply to use the existing VAT law, rather than to introduce reforms to the definition of 'destination'. For countries that do not currently have a VAT, such as the US, then there is no such easy route to increasing the use of the destination principle.

4.2.4 Bilateral double tax conventions and the WTO

There are two important sets of international obligations which may conflict with the introduction of a DBCFT: bilateral double tax conventions (DTC), and commitments under the World Trade Organisation (WTO).

Given that the form of DTCs is based on the assumption that both contracting states operate a traditional income tax system,[79] it is not surprising that DTCs are poorly equipped to accommodate a DBCFT. With respect to treaties, a key issue is whether a DBCFT lies within the scope of the taxes normally covered by DTCs—that is, whether it is a tax on income. Article 2 of the OECD Model Convention defines taxes covered by the model as 'taxes on income and on capital . . . irrespective of the manner in which they are levied'.[80] But the OECD Model and its accompanying guidance is far from clear what is meant by a tax on income.[81] As a result, no definitive answer is available to the question whether the DBCFT amounts to a tax on 'income' for this purpose.[82]

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[79] This is of course reflected in the title of the OECD Model—Model Convention with Respect to Taxes on *Income* and on Capital (OECD, 2019e)—and in DTCs enacted by reference to that model, such as the US–UK double tax convention 'For the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on *Income* and on Capital Gains' (emphasis added).

[80] Article 2(1) of the OECD Model Tax Convention on Income and Capital.

[81] Although the Commentary to the OECD Model makes it clear that this scope is intended to be as wide as possible; see Model Commentary to Art. 2, para. 1.

[82] See the discussion of the compatibility of the DBCFT with DTCs in Collier and Devereux (2017) and Ismer and Jescheck (2017).

As a practical matter, the scope of tax treaties as regards taxes covered is left to the countries entering into the treaty concerned in any particular case. If the DBCFT did fall within the scope of the treaty, then it would clearly be in violation of a number of typical provisions. In this case, the two parties to the treaty may be able to renegotiate the treaty provisions, but if that were not possible, the treaty might need to be terminated. Of course proposals such as the Unified Approach under Pillar I, that currently are being considered by the Inclusive Framework, would also require amendment to DTCs.

As a result, it seems likely that countries enacting a DBCFT would have a clear goal in excluding the DBCFT from the scope of existing treaties in order to avoid the treaty frustrating its intended operation. This suggests that they are likely to reflect this goal in their choice of design options in implementing the DBCFT. If the DBCFT was considered not to fall within the ambit of the treaty, then the treaty could continue, but the non-DBCFT country would not be obliged to give any credit against tax levied by the DBCFT country.

There is also a question as to whether the DBCFT would be consistent with WTO rules.[83] The primary concern with the DBCFT under WTO rules relates to the deduction for labour costs. Compare the purchase of an imported good with that of an identical domestically produced good. The labour costs of the latter are allowed as a deduction in the country of sale—since in this case it is also the country of origin. But no comparable relief is given in the country of sale for the labour costs incurred in producing the imported good. It is argued that this makes the DBCFT incompatible with WTO rules.[84]

In contrast, a credit-invoice VAT on a destination basis is unambiguously WTO compliant since it does not give relief for either form of labour costs. So too, of course, is reducing payroll taxes, or even instituting a general wage subsidy. The VAT plus payroll subsidy equivalent to the DBCFT would thus face no prospect of legal challenge in the WTO or any need for re-negotiation of trade agreements.[85]

To economists, of course, this legal distinction between two equivalent tax structures makes no sense. The only difference in practical terms is that the relief for labour costs is given internally in the DBCFT, but is a standalone measure under the VAT plus payroll subsidy approach.

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[83] See, for example, Schön (2016).

[84] Of course, this is also true of a conventional corporation tax on profit. However, a conventional tax does not tax imports, so the issue does not arise in this case.

[85] See President's Advisory Panel (2005); Hufbauer and Gabyzon (1996); and Schön (2016). Grinberg (2017) argues that it is possible to restructure the DBCFT to make it more clearly compatible with the WTO rules. He proposes to define the base of the tax as domestic consumption, and then treat foreign importers and other sellers equivalently, rather than imposing a deduction disallowance or an import tax. Alternatively, he suggests adopting a business activities tax, and then enacting a business level incentive for encouraging employment that is a separate legal issue. Grinberg argues that either approach would avoid the key WTO concerns.

Furthermore, as we have argued above in Section 2.1, due to exchange rate movements or wage and price adjustments under a fixed exchange rate, neither reform option actually creates any discrimination in favour of domestically produced goods. A reduction in payroll taxes does encourage domestic production to the extent that it lowers domestic production costs; but this is true of any reduction in origin-based tax rates.

The fact remains, however, that WTO compliance is determined by interpretation of existing legal agreements and not by virtue of economic equivalences. That implies that a straightforward DBCFT drafted with an integrated wage subsidy, as set out here, seems unlikely, if challenged, to be held to be WTO compliant.[86] That suggests that either WTO agreements would need to be renegotiated or the DBCFT would need to be constructed with the WTO legal framework in mind; probably, either in the form of a VAT plus payroll subsidy, or in one of the forms proposed by Grinberg (2017).

4.2.5 Transitional issues

Moving to a cash flow tax base would introduce well-known transitional issues of implementation. For example, there is a question of how to treat the pre-enactment basis in existing assets, including plant, equipment, and inventory. Proponents of cash flow taxes have typically recommended deductions over time for a business pre-enactment basis.[87] Similar issues arise in how to treat pre-enactment debt, pre-enactment loss carry-forwards and unused business tax credits. We do not explore these here, though none seems unmanageable.

Consideration also needs to be given to the possible announcement effects of reform. In a fixed exchange rate regime context, for example, one might expect forward purchasing, particularly of durables, in advance of the expected increase in consumer prices[88] (which may then itself be brought forward to some degree). With a flexible exchange rate, the nominal appreciation from BTA would be expected to start in advance of implementation, bringing forward balance sheet and wealth effects and influencing trade as well. Indeed, anticipated adoption could worsen a country's international competitiveness in the short run to the extent that exchange rate appreciation occurs prior to implementation.

As noted above, either the DBCFT or the VAT plus payroll subsidy approach could be introduced gradually. Perhaps the easiest path, for countries that have a VAT, is a gradual increase in the rate of VAT (although this would be subject to concerns about multiple rates), a gradual reduction in the payroll tax, and a gradual reduction in the rate of existing corporation tax. Indeed, in the absence of any fundamental reform, it

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[86] Pirlot (2019) has argued that the case for it being inconsistent is not conclusive.
[87] See President's Advisory Panel (2005) (who proposed a five-year period for deduction of basis) and Carroll and Viard (2012) (who proposed a ten-year period).
[88] Evidence of such effects can be found in Danninger and Carare (2008) and Büttner and Madzharova (2019).

seems likely that trends in this direction—similar to the fiscal devaluation discussed in Section 1.4—will continue, prompted by strong underlying economic forces of competition between countries. While this process continues, VATs and business-level taxes on profit could co-exist. For countries that wish to maintain business-level taxes on profit—perhaps because they would like to continue to tax domestic production—then increasing VAT and reducing business income taxes and payroll taxes may be an attractive alternative to the full implementation of a DBCFT.

4.2.6 Other issues in comparing the two approaches

A variety of other issues also arise in choosing between the introduction of a DBCFT and the alternative approach of increasing the rate of an idealized VAT (or introducing a new one) and introducing a wage subsidy.

The invoice-credit method generally used for VAT collection has an advantage over the DBCFT approach—presuming that the DBCFT is implemented in a similar form to that of a subtraction-method VAT—since the invoice-credit method has now been put in place in more than 160 countries worldwide.[89] There is therefore considerable experience of how it works best. By contrast, there is little experience with a subtraction-method VAT.[90]

One difference between the invoice-credit method and the subtraction method is in the effective treatment of small businesses, non-profit organizations, and state and local governments which are exempt from the tax. Under the invoice-credit method, purchases by registered businesses from these organizations are not subject to VAT, and so these businesses remit VAT as a proportion of their sales. By contrast, under the subtraction method, as long as the purchases are deductible, the business remits VAT only as a proportion of its own value added. Together with the payroll subsidy, the latter treatment ensures that the tax base of the purchasing business is its own economic rent, and so this does not create any distortion in the choice of supplier. However, it also implies that the total VAT paid in the supply chain is lower as a result of the exemption.

It would be possible to address this by increasing the tax on the purchasing business to compensate for the lack of tax on the economic rent earned by the tax exempt organization. Disallowing a deduction for the purchase would be equivalent to the invoice-credit approach, but would in effect be a tax on the sale, and so would be higher than the tax foregone. In principle, the deduction should be limited to the costs of the tax exempt organization, though this would have practical difficulties. In any case, this approach would create an incentive to purchase from registered businesses. If the deduction is allowed, this implies that there is an

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[89] As briefly described in Chapter 2, Section 1.1.2, under the invoice credit method, tax is assessed each time a business supplies a good or service, and the business is permitted to reduce its VAT liability on its sales by a credit equal to the amount of VAT paid on inputs.

[90] Many analysts have described the Japanese VAT as a subtraction-method tax. See, for example, Bartlett (2009) and Grieco and Hufbauer (2005). Schenk and Oldman (2007) more accurately describe it as a 'credit-subtraction' VAT, as opposed to the 'sales-subtraction' VAT.

incentive for the business to overstate the cost of its purchase from the tax exempt organization, implying a lower recorded value added and a lower VAT charge. This incentive does not exist under the invoice-credit approach, since in that case the VAT due depends only on the value of sales.[91]

The invoice-credit approach also has an advantage where it is desired to have more than one rate, although in general, the presumption would be that the DBCFT should apply at the same rate for all goods and services. Indeed, one problem with relying on existing VATs is that they generally exclude many goods and services from the tax base. This would suggest that the VAT approach would be more attractive in countries which have a broader VAT base or no VAT at all.

For a country without an existing VAT that wants to continue to tax production and so does not wish to eliminate its origin-based business-level tax on profit, adopting a DBCFT would seem to require two business tax regimes, which could be administratively burdensome. However, if the country were willing to convert its existing business tax to a cash flow tax that is only partially destination-based, administrative burdens would be minimized. For example, if a country adopted a cash flow tax system generally with a 25% tax rate and provided that exports were 40% zero-rated for the tax and imports were 40% non-deductible, then the system would be equivalent to a DBCFT at 10% plus an origin-based cash flow tax on production at 15%. Indeed one could envisage this as a structure for gradual movement towards a full DBCFT, gradually increasing the proportion of exports that are zero-rated and imports that are non-deductible. The cash flow feature of the origin-based element would avoid the distortions created by debt financing and depreciation deductions under current regimes.

A VAT, unlike the DBCFT, taxes consumption out of all wage income, including high wage income, as well as out of rents from capital. In some countries, political barriers may limit high tax rates on wage income. In such instances, coupling a VAT with payroll tax relief for low and moderate wage earners may achieve more progressivity overall than a DBCFT with wages taxed only at the individual level.

Unlike a VAT, a DBCFT—and a payroll subsidy or tax reduction—must identify and give relief for wages. As noted above, this is generally problematic for all taxes on the income derived by closely held businesses, in that wages must be distinguished from non-deductible payments to the business's suppliers of capital. In general, this problem cannot be solved completely without rules that distinguish between returns to capital and returns to the labour of capital providers. In the US, for example, the Internal Revenue Service (IRS) has tried to limit wages to 'reasonable compensation'. Since partnerships and other flow-through entities are typically taxed on their capital and labour income together, this problem has not arisen for such entities. But where

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[91] See, for example, Grinberg (2010); Weisbach (2000); and McLure (1997, 1987). Grinberg points out that the invoice requirements under the invoice-credit method aim to ensure that the credit that the purchasing business can claim is matched to the VAT paid by the selling business.

business income is taxed at substantially different rates than wage income, rules distinguishing the two are necessary. This is true regardless of whether a country adopts a DBCFT or VAT with payroll subsidy; rather it is a function of whether after either form of tax is adopted, wages are taxed at different rates.

One further issue is how the two alternative approaches would be treated in financial accounting. The treatment of credit-invoice VATs is well settled: the tax has no effect on earnings reported to shareholders. But the financial accounting of the DBCFT is uncertain. It could be treated as an operating expense. Alternatively, it could be treated as an income tax. The latter treatment could lead to distortions if behaviour is driven by profits as reported in the financial accounts, due to the innumerable timing differences between a cash flow tax and an income tax.

5.   Conclusions

This chapter has set out what would undoubtedly be a radical reform of the taxation of business-level profit. The potential benefits from moving to a DBCFT are very substantial. There should be considerable gains in terms of four of our criteria. The DBCFT would wipe away most forms of economic inefficiency seen under the existing system; for example, the scale and location of investment, and the choice of form of finance, should all be unaffected by a DBCFT. As a result, the system should become incentive compatible, and the pressure of competition amongst governments to reduce their taxes on profit should be eliminated. The main routes of tax avoidance under the existing system should also disappear, which should enable a very significant simplification of existing rules. As for our fifth criterion, it is hard to see the outcome of a DBCFT as being any less fair than the existing system.

Both elements of the DBCFT—the cash flow element and the destination-based element—are unfamiliar concepts to many. The economic consequences that are claimed on its behalf—especially the impact of the border tax adjustment on exchange rates and prices—are difficult both to explain and to understand. Yet the destination element of the DBCFT is taken from the VAT, which was also once unfamiliar—and may continue to be in countries that have not yet adopted one.

We believe that there is a need for clear, dispassionate analysis of the complex issues involved in discussing international tax and its potential reform; that is what this chapter, and the book more widely, has tried to provide.