The Economics of Corporate and Business Tax Reform

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Abstract

The reform of corporate and business taxation is central to current tax policy debates in the United States. This paper provides a framework for analyzing the economics of these reform proposals by describing the lessons from current economic research for business tax reform. In view of the importance of the international aspects of business taxation, the paper addresses both international and domestic reforms within a unified perspective. The paper begins by identifying ten potential inefficiencies created by the current corporate tax regime. The paper then discusses proposed reforms of US business taxation, focusing on three broad classes of reform proposals. The first is a "consensus" approach that involves a substantially lower corporate tax rate and dividend exemption, combined in some versions with a one-time levy on the foreign cash holdings of US multinational firms and with a minimum tax on the foreign income of these firms. The second is a formula apportionment system. The third category includes a value-added tax (which faces significant political obstacles, but is an important conceptual benchmark) and a destination-based cash flow tax. The paper evaluates each of these proposals in the light of the framework introduced earlier. The relatively modest "consensus" reforms would address only a few of the margins of inefficiency, whereas more fundamental reforms would eliminate all or most of the inefficiencies of corporate taxation. The paper also analyzes in more depth four important and distinctive issues that have arisen in the US debate – the one-time levy, the minimum tax on foreign income, the relationship between corporate tax reform and the taxation of pass-through entities via the personal income tax, and the role of a value-added tax.

1) Introduction

Discussion of business tax reform in the US has been growing over recent years, and has now reached a crescendo. An emerging consensus on the need for reform has been built around the apparently anomalous status of the US as the only remaining major economy that imposes worldwide taxation on its resident multinational corporations (MNCs) and by the acknowledgment that the US statutory corporate tax rate is very high in relation to that prevailing elsewhere. There also now appears to be a fairly broad consensus on the general shape of reforms of business taxation, though much uncertainty remains. The aim of this paper is to review the economic underpinnings of business taxation and to describe the lessons from current economic research for corporate tax reform. It develops a simple framework highlighting ten efficiency margins affected by corporate taxation that have been found to be important in economic research. It then assesses major current reform proposals in the light of this framework. Finally, it analyzes four features of the US reform debate that are somewhat distinctive in relation to business tax systems in the rest of the world.

This review is mindful of political constraints, but its focus is on the economics, not the politics, of tax reform. For instance, certain policy options are ruled out by the current consensus. An important policy document setting the stage for the current debate on business tax reform was produced by the Senate Finance Committee (US Senate, Committee on Finance, 2014; known as the Hatch Report). While providing a wide-ranging analysis of the problems of the current system, it bluntly labels certain potential reform options – such as a value-added tax (VAT) – as "bad" ideas.[1] In the television comedy series *Yes, Prime Minister*, the fictional senior civil servant Sir Humphrey Appleby explains that: ""Controversial" only means "this will lose you votes". "Courageous" means "this will lose you the election"". It is unclear precisely what the term "bad" means in the rather less subtle political lexicon of the Hatch Report. However, this paper reviews even these apparently unacceptable options to the extent that they provide useful benchmarks or insights.

In addition to not focusing excessively on political feasibility, the description here of specific policy proposals is very limited and selective. This is not simply because to an economist the political arena sometimes appears as "a darkling plain, swept with confused alarms of struggle

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[1] "[A]doption of a VAT is a bad idea. . . It would also effectively be a tax hike on every American, including those who currently pay no income tax." (US Senate, Committee on Finance, 2014, p. 55).

and flight, where ignorant armies clash by night"[2] (although the buffoonery on prominent display in the current Presidential season may reinforce this view). Rather, even the most thoughtful proposals by politicians who cannot reasonably be viewed as buffoons are likely to be ephemeral. The likelihood of the enactment of such proposals in their current form are very small, due to the political and constitutional structure of the US. Thus, the emphasis here is on presenting a more abstract set of principles that can guide policymaking over the longer term.

The scope of this review encompasses business taxation, including the taxation of both corporations and other business entities. As so much business activity takes place within pass-through form, some consideration of personal taxation and how it interacts with corporate taxation is essential. In view of the importance of the international aspects of business taxation, the paper addresses both international and domestic reforms within a unified perspective. Despite the current policy interest in income inequality, this paper focuses on issues of efficiency rather than distribution. This is because the incidence of the corporate income tax remains controversial, with some evidence that much of it is borne by workers (e.g. Arulampalam, Devereux and Maffini, 2012). Given the importance of the efficiency concerns and the uncertainty over its distributional consequences, it is widely agreed that corporate tax reform should not be viewed as an opportunity to achieve distributional goals (however laudable those goals may be).

The paper begins by identifying ten potential inefficiencies created by the current corporate tax regime. This framework is used primarily for expositional purposes; there is no attempt to count margins in order to evaluate proposals. These margins include distortions to the amount and location of investment by firms, to the use of external debt, to payout and repatriation decisions, to the organizational form chosen by firms, to the ownership of assets and the market for corporate control, and to patterns of global portfolio investment. Particularly relevant to international tax reform are the "lockout effect" (the retention of cash by US MNCs within foreign affiliates) and deadweight costs created by the expenditure of resources by firms on tax planning. This review aims to clarify the efficiency consequences at issue, and to briefly describe the empirical evidence regarding the magnitude of these distortions.

The paper then discusses proposed reforms of US business taxation, focusing on three broad classes of reform proposals. This review is necessarily selective and the aim is not to exhaustively catalog every reform proposal that has been suggested. The paper evaluates each of

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[2] Cite Matthew Arnold

these proposals in the light of the framework introduced earlier. The first category is a "consensus" approach that encompasses the proposals most widely discussed in the policy arena. This involves a corporate tax rate reduction (from current 35% rate to somewhere between 20% and 28%) combined with dividend exemption and possibly with various other elements, such as one-time levy on the foreign cash holdings of US MNCs and a minimum tax on their future foreign income. This type of reform would fully solve the lockout problem and mitigate several of the other distortions, but would leave many other inefficiencies in place.

The second type of reform is a formula apportionment system. This is not thought to be an immediate prospect, but represents a significant benchmark. It would address about half of the efficiency issues identified here, but may create new efficiency costs such as inefficient vertical integration and disintegration. Its most attractive feature is to move away from the traditional international tax law concepts of source and residence, and this is also a feature of many of the proposals within the third category. This includes a destination-based value-added tax (which faces significant political obstacles, but is a very important conceptual benchmark, notwithstanding the aspersions cast on it by the Hatch Report), a destination-based cash flow tax (Auerbach, 2010), and variants of a VAT such as the flat tax. We show how these types of reforms would solve virtually all of the inefficiencies associated with the corporate tax.

Finally, the paper considers in more depth four important issues that have arisen in the US policy debate, often in ways that are distinctive in relation to discussions and policies elsewhere in the world. These are the one-time levy on foreign cash holdings, the minimum tax on foreign income, the relationship between corporate tax reform and the taxation of pass-through entities via the personal income tax, and the role of a value-added tax. It describes some new evidence on the cognitive burdens of income tax filing (Benzarti, 2015) that arguably makes a pure VAT (as a replacement for the corporate and personal income tax) more attractive on both efficiency and distributional grounds than we might previously have thought.

2) A General Framework: The Efficiency Costs of Corporate Taxation

The US corporate tax is now over a century old. First imposed in 1909 as an excise tax on the privilege of doing business in corporate form, and subsequently in the form of an income tax (Shaviro, 2009), the corporate tax applies to business entities that are organized as corporations (in particular, what are known as "C corporations" after subchapter C of the tax code). Importantly,

it does not apply to other types of legal entities engaged in business activity. Due to space constraints, we will not describe its history or the various arguments for and against its existence (see e.g. Shaviro (2009)). However, we will briefly summarize the US international tax regime as it applies to MNCs.

Figure 1 depicts a simple scenario in which a US parent owns a controlling stake in a foreign affiliate, separately incorporated under the laws of a foreign country F. Suppose that the US tax rate is 35% and country F's tax rate is 20%. Assume that this foreign affiliate earns $100 of income, and therefore pays $20 of tax to the government of F. There are no immediate US tax consequences. However, when the affiliate pays a dividend to its US parent, the latter has $100 of income under US tax law, with a foreign tax credit for the tax paid to F. The payment of this dividend is often termed the "repatriation" of earnings. Because of the foreign tax credit, taxes due upon repatriation are generally equal to the difference between the foreign tax paid and the tax that would be due if earnings were taxed at the US rate. In our example, an additional $15 would be due in US tax when the earnings are repatriated. The deferral of US taxation until repatriation – as discussed below – creates distortions that many reform proposals seek to address.

What Figure 1 represents is the "worldwide" system of taxation used by the US. In our example, the US is the "residence" country (where the MNC parent is based) and F is the "source" country (where the affiliate's business operations are located). The distinction between "residence" (or "home") countries and "source" (or "host") countries is fundamental to international taxation. The income generated by normal business operations in the source country is referred to as "active" business income, whereas income received from other sources unconnected to normal business operations (such as interest income) is referred to as "passive" income. Residence countries with "worldwide" tax systems impose tax on the active foreign business income of resident MNCs (generally with a credit for taxes paid to the source country). It is more common, however, for residence countries to use "territorial" (or "dividend exemption") systems, in which the "active" foreign income derived by resident MNCs from foreign business operations is exempt from residence country taxation (so that this income is only taxed by the source country). Even territorial residence countries may, however, tax the passive foreign income earned by their resident MNCs in low-tax foreign jurisdictions.

In order to provide a framework for understanding the efficiency consequences of corporate and international taxation, we distinguish ten distinct efficiency margins. This is

primarily for expositional purposes; there is no suggestion here that counting the number of margins addressed by a reform proposal is sufficient to evaluate the proposal's impact. Rather, we use these margins as a heuristic guide, and begin by outlining them and briefly discussing empirical evidence regarding their magnitude.

2.1) *Distortions to the Location of Investment – Extensive and Intensive Margins*

Perhaps the most straightforward types of inefficiencies associated with corporate and international taxation relate to the location of economic activity. Locational decisions – whether and how much to invest in a given jurisdiction – are sometimes made at the margin (e.g. how large a factory to build), but when there are large fixed costs they may also be discrete in nature. Discrete real investment choices depend on the effective average tax rate (EATR) on the returns from the investment, taking account of depreciation allowances and other provisions that affect the tax base (Devereux and Griffith, 1998; 2003). On the other hand, how much real investment to undertake in a given location (conditional on operating in that location) depends on the effective marginal tax rate (EMTR) - the tax rate on an extra dollar of income generated by investment, taking into account depreciation allowances and other relevant tax provisions.

These extensive and intensive margins of investment constitute the first two of our ten potential distortions from corporate taxation. The efficiency cost from distortions to the location of economic activity can be illustrated as follows. Consider $100 of investment that can be undertaken in either country A (which has a pretax return of $10 and a tax rate of 10%) or country B (which has a pretax return of $15 and a tax rate of 45%). Country A will be preferred even though the pretax return is higher in country B. This inefficiency arises from a divergence between the social and private returns – the social return includes both the firm's after-tax return and the tax revenues, whereas the firm's private return includes only the after-tax return. As the firm is the decisionmaker, it is unsurprising that it maximizes the private rather than social return.

There is a large empirical literature studying the effects of taxes on the location of investment. Particularly voluminous is the literature at the country level on taxes and foreign direct investment (FDI), which generally combines the effects of discrete locational choices and of the amount of investment. A meta-study by de Mooij and Ederveen (2003) finds that: "The median value of the tax rate elasticity in the literature is around −3.3 (i.e. a 1%-point reduction in the host-country tax rate raises foreign direct investment in that country by 3.3%)" suggesting a quite substantial response of the location of investment to taxes. Devereux and Griffith (1998) are

unusual in isolating the separate effect of the EATR. They use a sample of US firms operating in Europe and analyze the probability of these firms choosing to produce in particular European countries. For instance, they find that a 1 percentage point increase in the UK's EATR reduces the probability of a US firm producing in the UK by 1.3 percentage points, indicating a sizeable effect on discrete location choices.

There is also a large literature analyzing the effect of the EMTR or the tax-adjusted user cost of capital on investment using data on firms within a single country. Hassett and Hubbard (2002) summarize this literature, which they view as having ". . . reached a consensus that the elasticity of investment with respect to the tax-adjusted user cost of capital is between − 0.5 and − 1.0." This indicates a substantial impact on investment. Overall, locational distortions clearly seem to be of some importance.

2.2) Income-Shifting

A particularly prominent issue relating to international taxation is the shifting of income by MNCs across jurisdictions in response to tax rate differentials. The OECD's Base Erosion and Profit Shifting (BEPS) initiative has directed global attention to this phenomenon (e.g. OECD, 2013). The term income-shifting generally encompasses both strategic transfer pricing (for instance, charging relatively low prices for goods and services transferred from high-tax to low-tax affiliates) and the strategic use of inter-affiliate debt (for instance, financing the activities of high-tax affiliates using debt issued by low-tax affiliates) – see Dharmapala (2008; 2014a) for a discussion.

It is important to emphasize that the efficiency cost of income-shifting is not directly related to the amount of income shifted within MNCs, but rather to the size of socially wasteful expenditures on tax planning. Suppose that a tax professional can generate $400,000 of tax savings for a firm. Assuming that the wage bargaining process gives the entire surplus to the worker, this tax professional's salary will be $400,000. This is not in itself a social cost, being merely a transfer from the fisc (which is to say, other taxpayers) to the firm and the tax professional. However, suppose that the tax professional could have generated $300,000 of (socially valuable) output in her (privately) next-best alternative career. Then, the social cost of tax planning would be $300,000 – i.e. the socially productive output foregone because this worker's efforts are directed towards

tax planning.[3] Thus, Dharmapala (2014b) suggests that the deadweight costs of tax planning "should be understood primarily as a misallocation of talent - for example, where someone who could have been another Mozart or could have found a cure for cancer instead toils away producing transfer pricing documentation."

There is a large body of empirical evidence on the magnitude of MNCs' income-shifting, as reviewed in Dharmapala (2014a). Among economists who have studied this topic, the most influential approach was developed by Hines and Rice (1994).[4] The more recent literature in this tradition uses commercial databases that provide unconsolidated (i.e. affiliate-level rather than consolidated worldwide MNC-level) financial and ownership information for multinational affiliates, such as the Amadeus database compiled by the Bureau van Dijk. The basic premise is that the observed pretax income of an affiliate represents the sum of "true" income and income that is shifted in or out. Measures of the capital and labor inputs used by the affiliate are used to predict the counterfactual "true" level of income. Shifted income is determined by the tax incentive to move income in or out of the affiliate, proxied by the tax rate difference across affiliates of the MNC. The source of identification is from changes in the statutory tax rates of countries that generate variation in the tax incentive to shift income to and from the affiliate. The consensus of the recent literature is a semi-elasticity of reported income with respect to the tax rate differential across countries of 0.8. For example, this entails that a 10 percentage point increase in the tax rate difference between an affiliate and its parent (e.g. because the tax rate in the affiliate's country falls from 35% to 25%) would increase the pretax income reported by the affiliate by 8% (for example, from $100,000 to $108,000).

This evidence pertains to the magnitude of income-shifting, rather than to its efficiency cost. Although there is a large and growing literature on corporate tax avoidance (e.g. Desai and Dharmapala, 2006; 2009a), there is very limited evidence on the costs of tax planning (and essentially no evidence on the foregone output that would have been produced by tax planners in a counterfactual world without tax planning). Mills, Erickson and Maydew (1998) use data from

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[3] This is generally true from a global welfare perspective. From a national welfare perspective, the tax planner's efforts at avoiding foreign taxes would be viewed as productive. For instance, if $200,000 of the tax savings are from foreign tax avoidance, then the deadweight cost from a national welfare perspective would only be $100,000 (the excess of the tax planner's output in the next-best occupation over the amount of foreign tax savings).

[4] Other approaches to the measurement of income-shifting have been developed in the accounting literature (as reviewed in Dharmapala, 2014a). In addition, Dharmapala and Riedel (2013) propose an alternative approach that relies not on variation in tax rates but on income shocks experienced by parents that are propagated differentially among low-tax and high-tax affiliates.

a confidential survey about the tax planning practices of 365 large US firms. They find that tax planning expenditures are decreasing (as a proportion) in firm size, which is consistent with the existence of fixed costs.[5] Fixed costs of tax planning imply that (at least relatively modest) reductions in the marginal tax rate may have only a limited impact on the deadweight costs from tax planning. For instance, the legal expertise and the number of personnel required to shift income from the US to a zero-tax haven will be very similar when the US has a 25% rate as when it has a 35% rate (even though the amount shifted may be significantly smaller under the lower tax rate because the marginal incentive to shift is less pronounced). More fundamental reform may be needed to eliminate tax planning.

2.3) *The Location of Intellectual Property*

In recent years, policymakers have become increasingly concerned with attracting income from patents and other forms of intellectual property to their jurisdictions. This is largely separate – as we note below - from the much more longstanding interest in promoting research and development (R&D) activity. In pursuit of the former aim, a number of European countries and China have adopted "patent box" regimes, involving favorable treatment of income derived from patents. There has been growing discussion as to whether the US should follow suit.

The existing evidence suggests that MNCs are highly responsive to tax differences in deciding which of their affiliates applies for a patent (and consequently where intellectual property is formally held). Using the Amadeus database, Dischinger and Riedel (2011) find that intangible asset holdings are disproportionately concentrated among affiliates in low-tax jurisdictions: a decrease in the average tax difference to other affiliates of 1 percentage point raises the subsidiary's level of intangible assets by 2.2%. Karkinsky and Riedel (2012) test whether patent applications are more likely to be made by lower-tax affiliates, and find a semi-elasticity of -3.5: at the sample mean, this implies that an increase in the corporate tax rate of 1 percentage point reduces the number of patent applications by 3.5%. A more recent study by Alstadsaeter et al. (2015) specifically examines patent boxes, isolating their impact from that of the general corporate tax rate, and finds a quantitatively large effect.

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[5] See also the discussion in Dharmapala (2014a). It is also reported in the literature that a quite large fraction of MNCs do not have tax haven affiliates (e.g. Desai, Foley and Hines, 2006; Dharmapala and Riedel, 2013). This is also consistent with the existence of significant fixed costs of tax planning, although there are other interpretations as well.

The efficiency cost of where patents are formally held is likely to be minimal, unless some real R&D activity is required in the jurisdictions where patents are held in order to enjoy the tax benefit. The latter provision may distort the location of R&D across countries. Of course, there is a general argument for subsidizing R&D activity because firms cannot appropriate the social returns from their investment. However, R&D is directly subsidized through tax credits, and patents are protected by intellectual property law, allowing patentholders to earn rents that incentivize innovation. Unless these instruments are for some reason not being used optimally, it is difficult to envisage any additional role for patent boxes in subsidizing R&D activity. The strongest argument for a patent box seems to be that this type of income is particularly highly mobile, and so countries should lower taxes on it as part of a process of tax competition. While tax competition may be a prisoner's dilemma game, it should not be forgotten that it is indeed privately optimal to "defect" in a prisoner's dilemma (assuming that there is no available multilateral process to constrain tax competition). The main efficiency cost (apart from the potential distortion to the location of R&D) is likely to be an increase in the deadweight cost of tax planning, as patent box regimes create additional complexity.

2.4) *Distortions to the Use of External Debt*

Among the best-known and most widely studied distortions due to corporate taxation is to firms' choice of financing. A corporation's interest payments on debt are deductible, unlike its payment of returns to equityholders. This tax preference arguably has its origins in the accounting treatment of interest payments as an expense associated with earning income. It therefore appears natural for interest payments to be deductible. Historically, this treatment of interest was imported into tax law from accounting. The asymmetric treatment of interest and equity returns appears to have its origins in the efforts of accounting rules to measure the income of a business from the perspective of the equityholders. This tax treatment gives rise to an incentive for corporations to use more debt finance than they would otherwise choose. It is important to note that this incentive pertains to *external* debt – that is, borrowing at arm's length from lenders external to the corporation or affiliated group of companies to which it belongs. This excessive use of external debt is in most respects an issue that is distinct from income-shifting via the use of inter-affiliate debt (discussed in Section 2.2 above). The latter does not entail the same type of "real" resource costs as external debt, though it does create deadweight costs of tax planning of the sort discussed in Section 2.2 above.

The efficiency cost of the tax-induced excessive use of external debt is generally framed in terms of the resource costs of insolvency and corporate reorganization (e.g. Dharmapala, 2009). When firms use more external debt than they otherwise would because of the tax deductibility of interest payments, the costs of insolvency and reorganization are incurred more frequently. These costs are not identical to the legal costs incurred in the bankruptcy process, which are primarily a transfer. Rather, deadweight costs arise because the returns to bankruptcy practice rise, drawing in more lawyers at the margin who would have produced more socially valuable output elsewhere (absent the tax incentive for firms to use too much debt): society's output is reduced due to a misallocation of labor. There may also be other real effects of higher debt ratios. When leverage is high and agency costs of debt exist, equityholders may seek to transfer wealth to themselves from bondholders through greater risk-taking. There may be additional deadweight costs due to this behavior because leverage is higher due the tax bias towards debt.

Framed in this way, the efficiency costs of debt bias seem somewhat attenuated. The consensus estimate of the literature on the magnitude of debt bias is that a 10 percentage point reduction in the corporate tax rate (e.g. from 35% to 25%) reduces the debt-to-asset ratio by 2.8 percentage points (e.g. from 50% to 47.2%) – see de Mooij (2012). The efficiency costs implied by the bankruptcy cost framework are very modest (Gordon, 2010), amounting to less than 1% of US corporate tax revenue. A recent estimate by Sorensen (2014) using parameters calibrated to the Norwegian economy yields a slightly larger estimate, but it is only about 0.1% of GDP.

While the traditional view has been that the efficiency costs of debt bias are small, since the financial crisis of 2008 there has emerged a new focus on the role of tax-induced debt bias in affecting the likelihood of financial crises. De Mooij, Keen and Orihara (2013) find that a higher degree of tax bias towards debt is associated with higher leverage among banks, which in turn is associated with a higher probability of a financial crisis among OECD countries. If the tax bias towards debt is indeed associated with financial instability, then its efficiency costs may be quite different in both nature and scale. For instance, they may include output losses from the effects of financial crises on the real economy. However, economists' understanding of the causes of the crisis and the role of taxation remain very much a work in progress.[6]

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[6] Desai and Dharmapala (2015) suggest that under some circumstances, the differential ability to deduct interest across MNCs may lead to distortions in the pattern of ownership, similar to those discussed in Section 2.7 below.

There are a number of alternative ways to eliminate the asymmetric tax treatment of debt and equity (see de Mooij (2012) and Desai and Dharmapala (2015) for a discussion). One (the "comprehensive business income tax" (CBIT) approach) is to end the deductibility of interest. Another is to retain interest deductibility while introducing a deduction for the normal rate of return to equity (an "allowance for corporate equity" or ACE). Perhaps because of the recent financial crisis, or for some other reason, eliminating debt bias is very much on the current political agenda both in the US and elsewhere.[7]

2.5) *Distortions to Payout and Repatriation Decisions*

Another longstanding concern related to business taxation is the distortion to the choice of payout. A corporation's choice of whether to pay dividends to its equityholders, to repurchase shares, or to retain cash are influenced by the personal tax treatment of dividends and capital gains. Historically, dividends were taxed more heavily than capital gains – for instance, prior to the 2003 tax reform (the Jobs and Growth Tax Relief Reconciliation Act, or JGTRRA) the top rate on dividend income was 38.6%, while the tax rate on long-term capital gains was 20%. The 2003 tax reform reduced these rates to 15%. The top rate on both dividends and capital gains has risen to 20% since 2013, but the rates have been equal to each other since 2003. This equality eliminates the tax advantage of repurchases over dividends; however, there is still some advantage to the retention of cash, as personal taxes are deferred until the realization of capital gains. Evidence from the 2003 tax reform suggests that dividend payments are quite sensitive to the tax rate on dividends – Chetty and Saez (2005) find a 20% increase in dividend payments following the 2003 reform, with the response being stronger among firms where agency costs appear to be lower.

To the extent that taxes induce firms to retain more cash, the primary efficiency cost is likely to be from agency costs of free cash flow. In particular, excessive retention may lead to negative-value investments by managers, with obvious adverse efficiency consequences. The bias towards retention also represents a distortion to the timing of payout (from the perspective of stockholders). In principle, this may distort stockholders' intertemporal pattern of consumption if they are credit-constrained or otherwise prone to consuming more out of dividend income (for instance, due to placing dividend income in a different "mental account"). However, given that

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[7] For instance, the Bush plan eliminates interest deductions, while there has also been increased interest in cash flow taxes (such as the Nunes plan), which would eliminate debt bias (as discussed in Section 3 below).

most stock is owned by households with higher incomes and reasonable access to financial markets, it is unlikely that this type of distortion is important.

The account above relates to the tax treatment of payout to common stockholders. The payment (or "repatriation") of dividends from foreign affiliates to their US parents raises a largely distinct set of issues. Recall the discussion of Figure 1, where the US tax is imposed only at the time of repatriation. By delaying repatriation, a US MNC can defer US taxes on "active" foreign income. This creates an incentive to delay repatriation by accumulating passive assets in low-tax affiliates, despite the Subpart F provisions that impose immediate US taxation of "passive" foreign income. Suppose that a foreign affiliate of a US MNC earns $100 of active income, delays repatriation, and invests in a portfolio of passive assets that earns 10% return. Each year, it will earn $10 but be subject to US tax at 35% immediately on this $10 (with a credit for any foreign tax paid). However, the US tax on the original $100 of active income is deferred until the time of repatriation (Weichenrieder, 1996) This creates an incentive to delay payment of dividends to the parent, which has become widely known as the "lockout" effect (because cash held abroad is said to be "locked out" of the US). This issue is one of great practical significance, as indicated by the large amounts of cash held by US MNCs in their foreign affiliates. In 2004, Congress enacted the American Job Creation Act (AJCA), which contained a provision (known as the Homeland Investment Act) that enabled US MNCs to repatriate foreign cash at a drastically reduced tax rate of 5.25% during 2005. This was ostensibly a one-time repatriation holiday, but Congress has on several occasions considered repeating this exercise and it remains to some degree part of policy debate today.

The efficiency cost of the lockout effect is the possibility of negative-value investments abroad by affiliates of US MNCs due to the tax costs of repatriating cash to the US.[8] For instance, Hanlon, Lester and Verdi (2015) analyze the market responses to announcements of acquisitions. They find that market reactions are less positive for the announcement of foreign acquisitions by US MNCs that have particularly large tax-induced foreign cash holdings. In particular, "a one-standard-deviation increase in our proxies for tax-induced foreign cash is associated with a lower

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[8] Common stockholders of the US parent experience a delay in receiving dividends due to lockout. While their intertemporal pattern of consumption may be distorted if they are credit-constrained, this is unlikely to be an important problem for the reasons described above.

acquirer's abnormal return of 0.32–0.38%, representing roughly 5–6% of the transaction value, or approximately $5–$6 million per deal."

In addition, there is a possibility of foregone profitable investments in the US if the parent is cash-constrained. This appears unlikely to be a significant problem, based on the results of studies of the AJCA. For instance, Dharmapala, Foley and Forbes (2011) analyze the uses to which repatriated funds under the AJCA were put. The law ostensibly required that repatriated funds were to be used to increase US investment and employment in order to qualify for the tax benefit. Dharmapala, Foley and Forbes (2011) use an instrumental variables strategy - based on ownership characteristics (such as the presence of tax haven affiliates and holding company structures) prior to the AJCA that increased the value of the tax holiday to firms – to identify the effects of exogenous increases in repatriations on a variety of outcome variables. They find no detectable impact on US investment or employment but find an effect on share repurchases, a pattern of responses that suggests that US MNC parents were not financially constrained.

2.6) *Distortions to the Choice of Organizational Form*

In the economic literature on taxation, the choice of "organizational form" refers primarily to the choice on the part of a business entity of whether to incorporate or to operate in one of a number of possible noncorporate forms. The tax significance derives from pass-through treatment of noncorporate entities – income is "passed through" to the individual owners and taxed at the applicable personal tax rate. The existence of an entity-level tax on corporations, combined with the preferential personal tax rates on dividend and capital gains income distributed by corporations, can create incentives for an entity to either incorporate or avoid incorporation for tax reasons. In the US today, the primary concern is with firms avoiding the corporate form: the US has an exceptionally large fraction of business activity that takes place outside the corporate form (Cooper et al., 2015). However, there is now some concern that business tax reform may lead to the corporate form becoming tax-favored (as discussed in Section 4.3 below).

There is a substantial literature that seeks to measure the sensitivity of organizational form choices to tax rates (e.g. Gordon and MacKie-Mason, 1994). For instance, Goolsbee (2004) uses cross-sectional data on the organizational form of firms across states with varying ratios of corporate to personal taxation. He finds that a 0.01 increase in the corporate income tax reduces the corporate share of firms by 0.025, indicating that these choices are quite responsive to the relative tax burden on corporations and pass-through entities. However, the efficiency cost is quite

difficult to quantify. Goolsbee (2004) finds no detectable impact of organizational form on a firm's business operations. Rather, the efficiency cost is likely to consist of higher transaction costs. For instance, the Delaware corporation is an entity that is well-known among lawyers, whereas other legal forms such as limited liability companies (LLCs) may be less familiar.

2.7) Distortions to Asset Ownership and the Market for Corporate Control

The modern theory of the MNC emphasizes the central importance of the advantages of the common ownership of assets across countries in inducing (some) firms to become multinational. In particular, the widely used OLI (ownership, location and internalization) framework stresses that the ownership of assets affects their productivity. When multinationality is viewed in this light, the importance of tax rules that do not distort the pattern of ownership of assets across locations – for instance, which affiliates are owned by which parents - becomes readily apparent (e.g. Desai and Hines, 2003). The US worldwide tax system, it is often argued, potentially distorts these patterns of ownership by placing an extra burden on US MNCs.

To illustrate, consider a scenario where a US MNC is competing with an MNC based in Country B to acquire an asset in a third country C. Suppose that B imposes a 35% tax rate and is territorial, the US imposes a 35% rate on worldwide basis, and C imposes a 20% tax. If the affiliate in C is owned by the MNC from country B, then it faces a 20% local tax rate and no additional home country tax. If that same affiliate is owned by the US MNC, it faces the 35% US tax (with a foreign tax credit) in addition to the local tax. For instance, if the affiliate earns $100 (pretax) under US ownership but only $85 (pretax) under B ownership, the after-tax return is $65 for the US MNC and $68 for the country-B MNC. The latter will acquire the asset even though it is the less productive owner.

The efficiency cost in this type of scenario is clearly the lower productivity of assets (in pretax terms) as a result of ownership distortions. Measuring the effects of ownership on productivity directly is not straightforward. However, the disadvantages of US residence for MNCs have increasingly been reflected in the market for corporate control. In particular, corporate inversions have become a major issue in recent years. These are acquisitions in which a US MNC is acquired by a foreign firm, with the combined entity subsequently establishing its tax domicile outside the US (thereafter escaping US taxation of its foreign income).[9]

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[9] Another potential response is for new US-based startups to begin life incorporated in a foreign tax haven jurisdiction in order to escape future US taxation of foreign income – see e.g. Desai and Dharmapala (2010).

A growing body of evidence has used data on mergers and acquisitions (M&A) to estimate the impact of taxes, and especially of residence-based taxes on foreign income, on the pattern and value of these transactions. For instance, Huizinga and Voget (2009) analyze a large sample of cross-border M&A transactions over 1985-2004. They estimate that eliminating the US worldwide tax would have increased the fraction of post-merger entities with US domiciles from 53% to 58%. Voget (2011) analyses instances in which MNCs relocated their headquarters or residence over the 1997-2007 period. He finds that a 10 percentage point increase in the repatriation tax increases such relocations by a third. Feld et al. (2013) estimate that a switch from the US worldwide system to a territorial system would increase the number of M&A transactions with US acquirers by 17%. Using data on foreign acquisitions of US firms over 1990-2010, Bird (2015) also finds large tax-induced distortions of the M&A market, and estimates substantial welfare losses. Overall, this body of evidence suggests strongly that patterns of ownership among MNCs are quite substantially distorted by the US international tax regime.

2.8) *Distortions to the Choices of Portfolio Investors*

The discussion above focused on the acquisition of assets by different potential MNC acquirers. When such acquisitions are equity-financed, the funds are ultimately provided by portfolio investors. These portfolio investors can choose the firms in which they buy shares, to an increasing degree across national borders. Thus, to the extent that US MNCs are disadvantaged by the US tax system, they will be disfavored as vehicles for investment by portfolio investors. Desai and Dharmapala (2009b) construct a simple model in which US portfolio investors can achieve international diversification goals by either investing in US MNCs that operate abroad (engaging in FDI) or by buying stock in firms in foreign countries (i.e. engaging in foreign portfolio investment, or FPI). In this setting, the additional US tax on foreign income induces US portfolio investors to supply less capital to the US MNC and to invest instead in foreign firms.

To illustrate this dynamic, consider a scenario in which US acquisition of a firm in foreign country F leads to a pretax return of $6, whereas the foreign firm earns $5 without US ownership. US portfolio investors face a choice between supplying capital to the US MNC to make this acquisition, or investing directly in the foreign firm. Assuming a 20% corporate tax in F, a 35% worldwide US corporate tax, and a 25% personal tax rate in the US, the former leads to a return of $4.8 after the local tax. This is then repatriated to the US parent, which faces an additional US corporate tax, yielding a dividend of $3.9 to the US individual. This individual faces a $0.975

personal tax, and is left with $2.925. In contrast, engaging in FPI leads to a $4 dividend from the foreign firm; after US personal taxes, this leaves the individual with $3 (as shown in Table 1). The US investor thus prefers to engage in FPI, even though in our example FDI is more productive.

Desai and Dharmapala (2009b) find evidence consistent with the importance of this phenomenon by combining data on US outbound FPI and US outbound FDI in 50 countries over 1994-2005. First, as shown in Figure 2, the ratio of FPI to aggregate US equity holdings (FPI plus FDI) is higher in countries with lower corporate tax rates (where the US residual tax is more burdensome). This pattern is confirmed in a regression analysis that controls for a variety of factors, including country-specific linear time trends. Their estimated coefficient of −0.033 implies an elasticity of FPI with respect to the local corporate tax rate of approximately −1. Thus, a 10% reduction in a country's corporate tax rate (e.g. from 35% to 31.5%) would be predicted to lead to a 10% increase in the value of equity held by US portfolio investors. This is another manifestation of the distortion of ownership patterns by worldwide taxation, albeit an ongoing process that is much less dramatic than corporate inversion transactions.

3) Assessing Proposals for Reform

In this section, we introduce three types of reform proposals for US business and corporate taxation that have attracted significant attention. These proposals are then assessed in the light of the framework developed in Section 2.

3.1) "Consensus" Reforms: Territorialism with a Reduction in the Corporate Tax Rate

There appears to be an emerging consensus in policy circles on the general outlines of business and corporate tax reform, although there remains much uncertainty about its precise shape and the likelihood and timeframe of its enactment. The aim here is to briefly sketch the major features of this consensus, and to discuss the efficiency consequences of this type of reform in the light of the framework in Section 2. The major impetus for reform appears to stem from various issues surrounding the lockout problem and from the (perhaps overdue) recognition that the US statutory corporate tax has for a long time been out of step with those of other comparable countries. This tax rate differential has become increasingly difficult to ignore, as has the accumulation of cash held by the foreign affiliates of US MNCs, and the growth of corporate inversions, among other symptoms of the lockout effect. Thus, the key elements of the emerging consensus are a reduction in the corporate tax rate to somewhere between 20% and 28% (we will

use 25% for concreteness in the discussion below) and a shift from a worldwide to a territorial system (i.e. the exemption from US tax of dividends paid by foreign affiliates to their US parents). Broadly speaking, this is the type of reform envisaged by the Hatch Report and embodied in a number of current legislative proposals.

However, there is greater disagreement and uncertainty about various other elements of a possible reform package, especially the anti-avoidance rules that may be introduced as part of a reform. In particular, two quite novel ideas (both of which are analyzed in more detail in Section 4 below) have been widely discussed: a one-time levy on the foreign cash holdings of US MNCs to be implemented at the time of the reform, and an alternative minimum tax on foreign income (AMTFI). The proposed AMTFI has many different variants (Altshuler and Grubert, 2013). For instance, the AMTFI may be applied on a uniform basis (to all foreign income) or on a per-country basis. It may contain a "cliff" (where foreign income not subject to a sufficiently high foreign tax rate is subject to the full US rate) or may be applied at a rate that is substantially lower than the regular US rate. It may in some versions include an exemption for active business income or an exemption for a normal return to capital. Here, we ignore these complexities, and focus on the most straightforward version of the AMTFI, assuming that it applies broadly to foreign-source income as that concept is currently defined.

Figure 3 provides a visual depiction of the range of possibilities that exist within the scope of the "consensus" approach to reform. It is assumed that the new (post-reform) corporate tax rate is 25%. The axis represents the AMTFI rate, applied uniformly to all foreign-source income (with appropriate credits for foreign taxes). This rate can potentially vary from zero to the (new) statutory corporate tax rate of 25%. If the AMTFI rate is set at zero, then the reform creates a pure territorial system. If the AMTFI rate is set at 25%, then the reform essentially creates a worldwide system with immediate taxation (i.e. with no deferral). Intermediate rates of AMTFI result in a reform that encompasses features of both these systems.[10] Figure 3 illustrates that the current consensus about business tax reform embraces quite a wide spectrum of choices.

Of the distortions catalogued in Section 2, only one – the lockout effect – is unambiguously and fully addressed by this type of "consensus" reform. This is because a dividend exemption

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[10] Note, however, that because its foundation lies in a dividend exemption system (onto which the AMTFI is grafted), the treatment of active versus passive foreign income and the availability of foreign tax credits may differ from a worldwide system.

system implies that there is no advantage to delaying repatriations (even with an AMTFI set at a high rate, as this would be applied on an immediate basis, without deferral). The evidence from two other major economies – the UK and Japan – that implemented territorial reforms in 2009 supports the idea that such a reform in the US will solve the lockout problem. For instance, Egger et al. (2015) find that repatriations by foreign affiliates of UK MNCs increased following the UK reform. Moreover, investment by these affiliates declined after the reform, suggesting that they had previously been engaging in negative-value investments. Moreover, these effects occurred even though (pre-reform) UK law allowed greater scope for UK MNCs to return cash to the parent via mechanisms that avoided the repatriation tax than is the case for US MNCs. Hasegawa and Kiyota (2014) find similarly that repatriations increased after the Japanese reform from foreign affiliates of Japanese MNCs when the affiliates had large amounts of retained earnings.

Ownership distortions relating to M&A activity, inversions and portfolio investment will be mitigated by a dividend exemption regime and by the lower corporate tax rate. Again, evidence from the UK and Japanese reforms is instructive. Liu (2015) finds that UK MNCs increased their activity in lower-tax foreign countries (where they were previously most burdened by the repatriation tax); this effect was not offset by reduced activity in higher-tax foreign countries or the UK. Feld et al. (2013) find that following the Japanese reform, the number of M&A transactions with a Japanese acquirer increased by about 32%. However, the extent to which these inefficiencies will be mitigated depends to a significant degree on the rate at which the AMTFI is set and on its nature and scope.

Incentives for income-shifting out of the US are likely to be mitigated by the lower corporate tax rate. On the other hand, it is often argued that moving to a territorial system may increase the gains from shifting income out of the US. In any event, as discussed in Section 2, the efficiency costs of income-shifting may be best viewed as having a large fixed component, and so may be fairly insensitive to changes in corporate tax rates. Thus, the types of reforms envisaged within the consensus approach are likely to have little impact on the efficiency cost of income-shifting. The AMTFI is also an important factor in shaping income-shifting incentives, as discussed further in Section 4 below.

Some of the purely domestic distortions would also be mitigated by a reduction in the corporate tax rate. For instance, the bias towards external debt would be less pronounced with a lower tax rate, though it would not by any means be eliminated. Distortions to organizational form

– namely, the bias against C corporations – would also be mitigated. Indeed, the concern has been expressed (e.g. Sanchirico, 2015) that this type of reform would go too far, in the sense of reducing the corporate rate so much that incorporation would become tax-favored; this issue is discussed in more detail in Section 4 below.

In summary, a "consensus" reform would mark a significant advance that would address the most glaring problems of the US corporate tax – the high statutory rate and the lockout problem – and would also mitigate a range of other distortions, both international and domestic. However, it would leave many of the inefficiencies of corporate taxation largely untouched.

3.2) *Formula Apportionment*

The current system of international taxation is based on separate accounting (SA) for each affiliate of a MNC. Proposals for formula apportionment (FA) are premised on the idea that it is impossible to separate out the activities of different legal entities within a common economic firm. The most straightforward approach to implementing FA is to first define a consolidated worldwide entity to which FA is to be applied. Its aggregate worldwide income is then apportioned based on a formula that weights various observable factors (the simplest formula being one that uses the fraction of its worldwide sales that take place in the relevant jurisdiction as the only factor). For instance, an MNC that generates $100 of worldwide income and generates 20% of its worldwide sales revenue in the US would be deemed to have taxable income of $20 in the US. Thus, FA dispenses with both of the traditional international tax law concepts of source and residence, and replaces them with a formula that allocates tax base among countries based on the location of consumers.

It is most natural to envisage FA being implemented on a multilateral basis, with some agreement among governments on the formula. However, in principle it is possible to imagine the unilateral implementation of FA, although this creates a possibility of double taxation or nontaxation. Indeed, the US would then become a haven for inward income-shifting – income reported in the US does not increase US tax liability while shifting income out of jurisdictions that continue to use the source principle would reduce tax liability there. It has been suggested that this effect would create pressure on foreign countries to follow suit and adopt FA themselves.

By abandoning the source and residence principles, FA would solve many of the international distortions associated with corporate taxation. There would no longer be any incentive to engage in the currently-prevalent forms of income-shifting, as tax liability would be

based on the location of sales and not the source of income. Repatriation decisions would have no tax consequences, so the lockout effect and ownership distortions due to the residual tax would disappear. However, distortions that are primarily domestic – such as the bias towards external debt, the bias towards retaining cash, and distortions to the choice of organizational form – would be essentially unaffected by FA.

Thus, FA can be expected to directly address about half of the distortions identified in Section 2, while doing very little to mitigate the remainder. Moreover, it is possible that FA may give rise to new kinds of income-shifting and ownership distortions that are unknown under the current SA system. While sales are much less mobile than income, MNCs may respond to an FA system by altering their patterns of asset ownership. For instance, MNCs would have an incentive to acquire businesses earning modest rates of return (such as restaurants) in low-tax countries, thereby increasing the fraction of their sales that are allocated to low-tax countries (e.g. Altshuler and Grubert, 2010). Conversely, routine activities would no longer be conducted in-house in high-tax countries. Such changes to ownership patterns may have significant efficiency costs. Altshuler and Grubert (2010) develop a model that analyzes the consequences of FA and SA systems in a unified framework, and conclude that FA offers little overall advantage once MNCs' strategic responses to the FA system are taken into account.

Avi Yonah, Clausing and Durst (2008) propose an FA system that would impute a fixed "normal" return to routine activities, and use a sales-based formula to allocate only the returns to nonroutine activities. [11]This would address the "restaurant' problem highlighted above to some extent (because the restaurant's returns would be classified as a "routine" activity and allocated fully to the low-tax country). However, it would place considerable pressure on the distinction between routine and nonroutine activities, a distinction that is far from self-evident. There are also a number of difficult issues of implementation of FA, such as determining unitary entities to tax, identifying the location of sales, look-through provisions to address stand-alone sales corporations, among many others.

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[11] This bears some resemblance to the "residual profit split" sometimes used in current and emerging transfer pricing practice. For example, for an MNC with $100 of worldwide income, a determination would first be made that some portion of this (e.g. $10) is a return (at some fixed rate determined in advance) on routine activities in the US, and that some other portion (e.g. $40) is a fixed return on routine activities elsewhere. Then, the remaining $50 would be allocated based on the location of sales (so that the US tax base would consist of $10 of normal returns and (0.2)*$50 = $10 of a sales-based share of super-normal returns).

FA is in many respects an attractive idea. Even in the rosiest scenario, however, it would only address about half of the distortions associated with the corporate tax, and may give rise to new distortions from which we are currently spared. In any event, it does not seem to currently be on the policy agenda. However, FA's most attractive feature - of moving away from the source and residence principles – also characterizes the destination-based corporate tax, to which we turn next.

3.3) *The Destination-based Cash Flow Tax and VAT-type Options*

A rather more fundamental type of reform than we have considered so far would involve moving from the income-type taxation of businesses towards a consumption-type tax system. Such consumption-type taxes include cash flow taxes and various forms or variants of a VAT, all of which share some fundamental and important commonalities. A cash flow tax takes as its base the net cash flows of a firm (its cash receipts minus its cash outlays). As investment is fully deductible at the time it is undertaken (i.e. fully "expensed"), a cash flow tax is a tax on economic rents, exempting the normal return to capital.[12]

The destination-based cash flow tax (DBCFT) is an idea that builds on this type of cash flow tax, while adding a destination principle that addresses many of the cross-jurisdictional distortions of corporate taxation. The account here is based on the exposition of this idea in Auerbach (2010) and Auerbach, Devereux and Simpson (2008); Devereux and de la Feria (2014) address issues relating to the implementation of a DBCFT. Moving to a DBCFT from the existing corporate income tax involves two major steps. The first is to transform the tax base from income to cash flow. This is accomplished by allowing deductions for all cash outflows (including the full cost of investment expenditures). The full expensing of investment eliminates distortions to the amount of investment. All cash receipts (apart from cash generated by the issuance of equity) are included in the tax base. Borrowed funds are included in the tax base, while interest payments are deductible as they constitute cash outflows. The symmetric treatment of borrowed funds and interest payments eliminates debt bias. The DBCFT proposal formulated by Auerbach (2010) also applies to financial as well as nonfinancial firms.

The second step is the introduction of the destination principle. A cash flow tax that uses a source principle may distort discrete investment and location choices, even though it fully

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[12] Cash flow taxes have not traditionally been central to political debates, but the Nunes plan proposed by Rep. Devin Nunes (R-CA) is essentially a cash flow tax, albeit not on a destination basis.

expenses investment, because the EATR may differ across locations. However, the destination principle is based on the location of consumption and not of economic activity. It is implemented by ensuring that the DBCFT does not apply to any form of cross-border activity. Income from abroad – whether earned by a foreign affiliate or from exports – is excluded. This exclusion of foreign-related cash receipts goes considerably beyond what territorial income tax systems seek to do, and its conceptual basis is quite different. For a territorial income tax system, the key principle is source, and foreign-source income is generally exempt under certain conditions (but cash receipts from abroad that are attributable to domestic economic activity are taxable). Under a DBCFT, the guiding principle is destination rather than source, and so what matters is the location of consumption, not the source of income. Thus, there is no deduction for the cost of purchases made abroad.

The DBCFT's stance of ignoring foreign transactions is essentially equivalent to the border adjustments made under a destination-based VAT, which ensure that the base of the VAT consists of domestic consumption. Indeed, the DBCFT is quite closely related to a VAT, and it is thus worth clarifying further the relationship between these types of taxes. VAT systems generally use either the subtraction method – which involves computing the value of sales, subtracting the costs of inputs, and then applying the VAT rate to the result – or the credit-invoice method, which involves computing the value of sales, applying the VAT rate to the result, and then subtracting the VAT paid on inputs (which are established using the invoices provided by suppliers). These approaches are fundamentally equivalent, and tax the same base (namely, consumption). However, the credit-invoice method predominates around the world and is thought to have various administrative advantages (Grinberg, 2009). The DBCFT is equivalent to a destination-based subtraction-method VAT with a deduction for payroll (Auerbach, Devereux and Simpson, 2008).

The DBCFT would solve virtually all distortions from the corporate tax. It was noted earlier that it would not affect the amount or location of investment and that it would eliminate debt bias. There is no gain from income shifting because the source principle has been jettisoned, and so there is no benefit to manipulating the source of income. In contrast to a reform that leaves the current income-type taxation of businesses intact while lowering rates, it is reasonable to expect that there would be a substantial efficiency gain from the elimination of the deadweight costs associated with the allocation of workers to tax planning activity. Under a DBCFT, there are no

tax consequences associated with repatriation. Thus, lockout will not be an issue, and there will be no ownership distortions of any kind.

The only possible exceptions to this rosy scenario relate to areas where the DBCFT interacts with the personal tax system. In particular, the distortion to payout depends on the personal tax treatment of dividends and capital gains, while the distortion to the choice of organizational form depends on the personal tax treatment of pass-through business income. The adoption of a DBCFT does not settle these issue by itself, and the consequences with respect to these margins depend on the personal tax system with which the DBCFT is paired. One possibility is that the current personal income tax system continues to operate. Then, some distortions, for instance to organizational form, may persist. Indeed, there would now be a fundamentally differential treatment of the corporate form (a cash flow tax with no burden on the normal return to capital) and noncorporate forms (income tax treatment that burdens the normal return), beyond simply any difference in tax rates.

To address issues of organizational form, Auerbach (2010) proposes extending the DBCFT to S corporations (pass-through entities that are close substitutes for C corporations), based on the number of shareholders rather on legal form. This would reduce the distortion, and while there may be some inefficiency at the margin (for instance, firms keeping the number of shareholders above or below the threshold for application of the DBCFT), it might reasonably be expected to be localized and small.

Alternatively, the DBCFT could be could be viewed as the business component of a subtraction-method VAT (with a deduction at the business level for wages). Value-added due to labor inputs could then be taxed at the individual level, with this individual tax replacing the current personal income tax. This would resemble other subtraction-method VAT-type proposals, such as the well-known Hall-Rabushka flat tax (Hall and Rabushka, 1995).

This discussion of VAT-type taxes circles around the issue of whether a (destination-based) VAT should also be mentioned as an option, notwithstanding its lack of political popularity.[13] With the DBCFT as our starting point, denying businesses the deduction for payroll, would result in a straightforward ("pure") subtraction-method VAT. A pure VAT, as a replacement for the corporate and personal income tax, would have all of the virtues of the DBCFT that we have

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[13] Although a VAT is thought to be politically infeasible, Senator Paul (R-KY) has proposed a tax system that includes what is essentially a VAT.

discussed above (though it could be implemented using the credit-invoice method, which is generally favored by most countries). It would eliminate all the distortions catalogued in Section 2. In particular, as there is no personal tax, there will be no payout distortion and no distortions to the choice of organizational form. Note, however, that while legal form as such does not matter for VAT liability, there may be a different distortion in terms of firm size around the VAT threshold. Most countries apply VAT only above a threshold, typically defined in terms of turnover (e.g. Liu and Lockwood, 2015), and firms may "bunch" below such a threshold, creating some localized distortions to the size of firms.

VAT-type systems such as the flat tax have been discussed for some time, but there are many unknowns with respect to their implementation (e.g. Weisbach, 2000). While the DBCFT is theoretically very attractive for the reasons discussed above, it would also raise new issues of administration and law. In contrast, the implementation of a pure VAT could draw on the extensive body of law and experience developed by over 130 countries over several decades. Thus, we explore the advantages of a pure VAT in more detail in Section 4.

4) An Analysis of Some Distinctive Features of the US Tax Reform Debate

In the US debate on business tax reform, a number of issues have emerged that are distinctive with respect to practices widely followed elsewhere, or that are otherwise worthy of further discussion and analysis. This section addresses four such issues – the one-time levy on foreign cash holdings, the AMTFI, how tax reform might affect the interaction between personal and corporate tax rates in relation to the choice of organizational form, and the role of a pure VAT in the US setting.

4.1) A One-Time Levy on Foreign Cash Holdings

A territorial reform will relieve US MNCs of the burden of future repatriation taxes. It might seem that a reasonable *quid pro quo* would be the payment of a one-time levy, calibrated to the effective tax burden of the pre-reform repatriation tax. This element of a potential tax reform has gained significant support. In addition to preventing a windfall gain from tax reform for MNCs, this one-time levy is also viewed as an efficient (i.e. nondistortionary) source of revenue. The latter claim raises a puzzle, however. If it is indeed true that this would (credibly) be a one-time levy, then on efficiency grounds it is not clear why it makes sense to stop at imposing a levy equal to the expected burden of the repatriation tax. It would actually be optimal from an efficiency

perspective to tax the foreign cash holdings of MNCs at 100% in order to reduce other distortionary taxes.

Of course, the efficiency of such a levy depends crucially on the credibility of the promise that the levy will not be repeated. Once the administrative apparatus for taxing foreign cash is established, it will be tempting for Congress to repeat the ostensibly "one-time" levy. Past experience with other "one-time" policies in the international tax arena may be instructive. As discussed earlier, in 2004 Congress enacted the AJCA, one component of which was a "one-time" repatriation tax holiday. In 2009 and 2011, members of Congress sought several times to repeat the "one-time" holiday, and came fairly close to succeeding on some occasions. Indeed, a repatriation tax holiday is still discussed as a possibility in some policy circles today. This experience engenders little confidence in the one-time nature of the levy on foreign cash.

If the "one-time" levy on foreign cash is anticipated to recur, it may lead to a new type of inefficiency: excessive future repatriations. Suppose that a US MNC generates $1 abroad (following a tax reform that eliminates taxation upon repatriation). Repatriating immediately ensures that this cash will escape any future US levy, whereas keeping the cash abroad entails some possibility of the recurrence of the "one-time" levy (implying a positive expected tax). Other things equal, this will encourage repatriation. In a frictionless world, this would not matter for efficiency, as cash can be borrowed as needed for profitable investment projects. Even in a situation where the MNC faces a higher cost of external relative to internal cash (and hence the use of internal capital markets is valuable), there would be no efficiency cost if the MNC can hold cash within the US parent and redeploy it to affiliates when profitable investment opportunities emerge. However, in the presence of agency costs among affiliates, repatriation to the US parent may create pressure to either use the funds for US investment or to pay out dividends to common stockholders, foregoing more valuable investment opportunities abroad. The expected burden of future levies may also create ownership distortions by adversely affecting the ability of US MNCs to compete for the purchase of foreign assets, relative to non-US MNCs that do not face the possibility of a levy on overseas cash holdings.

4.2) An Alternative Minimum Tax on Foreign Income

The notion of an AMTFI was introduced in Section 3. It has been widely discussed as a possible component of business tax reform. Grubert and Altshuler (2013) develop an extensive analysis of the idea, which has several different variants. In the discussion below, we largely ignore

these complexities, and focus on the most straightforward version of the AMTFI, assuming that it applies broadly to foreign-source income as that concept is currently defined. The main point that we make through a simple numerical example is that if the AMTFI rate is set relatively high, it will reduce foreign-to-foreign income shifting by US MNCs. While this is beneficial in efficiency terms because it reduces the deadweight costs of tax planning, it may reduce US national welfare by increasing the amount of foreign tax paid by US MNCs. On the other hand, if the AMTFI rate is low, then it will not have much impact on foreign-to-foreign income shifting. While US national welfare will not be reduced by increased payment of foreign taxes, the deadweight cost of tax planning will also not be addressed. To be sure, an AMTFI can generate a certain amount of additional US tax revenue. However, the aim of reform should arguably be to increase social welfare rather than to increase revenue.

To illustrate these points, consider a world with three countries (as illustrated in Figure 4) – the US, a high-tax foreign country F, and a zero-tax haven H. Suppose that the US has (after much debate) enacted a territorial tax reform that involves dividend exemption with a corporate tax rate of 20% (but potentially with an AMTFI). Suppose that country F also imposes a corporate tax of 20%. Assume that the US MNC earns $50 in the US and $50 in F. It can choose to engage in tax planning to shift all $50 from the US to H at a fixed cost of $2 (this tax planning cost is assumed to not be tax-deductible, though this is not crucial for the example). Similarly, the US MNC can choose to engage in tax planning to shift all $50 from F to H, also at a fixed cost of $2.

A natural characterization of US national welfare (denoted W_{US}) in this framework is that it is the sum of the after-tax profits (π_{USMNC}) of the US-resident MNC and US tax revenue (R_{US}):

$$W_{US} = \pi_{USMNC} + R_{US} \qquad (1)$$

The US government may care about its resident MNC's after-tax profits because the firm's ownership is primarily by domestic shareholders, consistent with the familiar "home bias" in equity holdings. For now, the weight placed by the government on revenue is assumed to be the same as that on the after-tax profits of the resident MNC. More generally, the government could place greater weight on tax revenue, as discussed below.

Suppose initially that there is no AMTFI (or that it is set at zero). Then, the US MNC can avoid $10 of tax in each of the US and F at a cost of $2 per country of undertaking tax planning. Thus, the US MNC will shift all income to H. Its payoff is then equal to its pretax worldwide income, minus its tax planning costs – i.e. $100 - $2 - $2 = $96. US national welfare is therefore

also $96. Now, suppose we introduce an AMTFI of 18%. If the US MNC shifts its income from the US and F to H, its payoff is now 50 – 2 – 9 + 50 – 2 – 9 = $78. That is, it incurs the $2 tax planning cost per country, and also pays a $9 AMTFI to the US as the tax rate in H is zero. If it were to refrain from tax planning, it would shift no income to H and would pay $10 of tax to the US and $10 of tax to the government of F, and its payoff would be 50 - 10 + 50 - 10 = $80. In this scenario with a relatively high AMTFI, US MNCs are deterred from income shifting. This implies that the deadweight cost of tax planning is saved, but US national welfare is now lower than without an AMTFI. Specifically, W_{US} = 80 + 10 = $90 < $96. Thus, the AMTFI (when set at a relatively high rate) can lower US national welfare by deterring foreign-to-foreign shifting and thereby increasing tax payments to foreign governments by US MNCs.[14]

The reduction in W_{US} will not happen when the AMTFI rate is set relatively low. For instance, suppose the AMTFI rate is 10%. Then, the US MNC faces an AMTFI of $5 if it shifts to H. It will thus be willing to incur the $2 per country tax planning cost. The US MNC's payoff = 50 – 2 – 5 + 50 – 2 – 5 = $86 from shifting income, whereas it would be $80 if it chose not to engage in income shifting. Therefore, the US MNC will shift all its income to H. US national welfare will again be $96. This is of course no lower than without an AMTFI, but also no higher, so it does nothing to enhance US national welfare. Of course, our specification of W_{US} may be too simple. Suppose that:

$$W_{US} = \pi_{USMNC} + \gamma R_{US} \tag{2}$$

where $\gamma > 1$, representing a situation in which tax revenue is socially valuable (i.e. money is worth more in the hands of the government than of the taxpayer). Then, an AMTFI at a 10% rate makes the US better off due to increased revenue. However, this effect is likely to be modest in magnitude. More importantly, even if additional tax revenue is socially desirable, it is not clear why the AMTFI is the best way to raise this revenue – that is, it is not at all clear that the foreign-source income of US MNCs is the least distortionary source of such revenue, when one could instead increase personal tax rates (or introduce a VAT).

Grubert and Altshuler (2013) carefully define alternative versions of the AMTFI and conduct numerical simulations of the impact on US and foreign tax revenues and other relevant

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[14] This type of outcome may be less likely if current income-shifting is primarily from the US to H, rather than from F to H. However, the (limited) existing evidence suggests that income-shifting out of the parent tends to smaller in magnitude than foreign-to-foreign shifting (Dischinger, Knoll and Riedel, 2014), possibly due to agency costs between the managers of the parent and managers of affiliates.

outcomes. Ultimately, they argue for a per-country minimum tax, adopting what is essentially a global welfare perspective. One of its virtues of the per-country minimum tax, in their view, is the ability to reduce the incentives for income–shifting. However, the reduced incentives for foreign-to-foreign shifting are precisely what lowers US national welfare in our 18% AMTFI scenario above. Grubert and Altshuler (2013) also claim that incentives to avoid foreign taxes can be retained to a significant extent under an AMTFI, as most foreign countries' tax rates are higher than commonly proposed AMTFI rates. US MNCs will prefer to shift income to havens and pay the minimum tax to the US rather than to pay the corporate tax of a high-tax foreign jurisdiction. This latter point resembles our scenario with 10% AMTFI, and seems reasonable under a low AMTFI. However, there would then be little or no reduction in the deadweight costs of tax planning that are incurred due to tax planning by US MNCs. Recall that the deadweight cost reflects the most socially productive alternative use of tax planners' time, and that tax planning costs seem to include a large fixed component. Under these circumstances, setting up tax planning structures and paying tax professionals may well cost essentially the same whether the AMTFI is zero (when the marginal incentive to shift income is the 20 percentage point difference between the US or F and H) and when the AMTFI is 10% (when the marginal incentive to shift income is the 10 percentage point difference between the 20% rate in the US or F and the AMTFI rate). It is thus unlikely that the deadweight costs associated with tax planning will be much affected by a low-rate AMTFI.

4.3) *Interactions between Business and Personal Taxation*

In Europe, corporate tax rates have fallen, but corporate tax revenues have remained robust. De Mooij and Nicodeme (2008) show that a substantial part of the explanation lies in the increased incentives for business entities to incorporate as a result of declining corporate tax rates, with the shifting of income from the personal to the corporate tax base accounting for a significant component of the increase in corporate tax revenue. In contrast, in the US there has of course been no decline in corporate tax rates. Rather, the US is characterized by an extraordinarily large fraction of business activity being undertaken through noncorporate vehicles – in 2011, 54.2% of US business income was earned in pass-through entities (Cooper et al., 2015) and the US is a global outlier in terms of the importance of noncorporate business activity.

This situation is often viewed through the lens of the organizational form distortion discussed in Section 2 – i.e. that the corporate tax (and especially its high rate) inefficiently

discourages incorporation. Corporate tax reform (and especially a lower rate) may be viewed as a solution. However, some commentators (e.g. Sanchirico, 2015) have expressed concern that corporate tax reform will reverse the current situation and create a tax advantage to incorporation. Sanchirico (2015) highlights the irony of lowering corporate tax rates to address the lockout problem created by the availability of deferral for MNCs while at the same time creating what he views as opportunities for the deferral of taxation by domestic entities and individuals via incorporation. In the policy arena, there has also been a certain amount of resistance to lowering the corporate tax on the grounds that it would not benefit (and may adversely affect the competitiveness of) noncorporate business entities.

In the literature on taxes and organizational form, the choice of organizational form is typically framed in the following terms. Let Y be the exogenous income that is expected to be generated by a business operating in a noncorporate legal form, and $Y(1 + c)$ the income of the same entity were it to be organized as a corporation. Here, c (which may be either positive or negative) reflects the nontax gain or loss from incorporation. Let t_m be the personal tax rate on ordinary income (including income that flows through to the individual from a noncorporate entity), and let t_e be the personal tax rate on corporate distributions to equityholders (in the form of dividends or realized capital gains). Denoting the corporate tax rate by τ, taxes will not distort the choice of organizational form if the following condition is satisfied:

$$Y(1 - t_m) = Y(1 + c)(1 - \tau)(1 - t_e) \tag{3}$$

Note that this formulation ignores the differing treatment of losses in corporate and noncorporate entities – losses are passed through immediately in the latter, but may become trapped in the latter if the corporation ends up never making enough positive income to use its losses. This possibility makes the corporate form less attractive than it would otherwise be, and should be taken account of in a full analysis. Here, we ignore losses in order to make some illustrative points.

Rearranging Equation (3) yields the following condition for a corporate tax rate that (taking personal tax rates as fixed) would be neutral with respect to the choice of organizational form:

$$\tau = \frac{t_m - t_e}{1 - t_e} \tag{4}$$

The current top personal tax rate is about 40%, while dividend tax rate is 15% and capital gains tax rate is 20% - to account for the deferral advantage of equity returns, it is common to use a rate that is one fourth of the nominal rate on equity returns (e.g. Poterba, 2004). Using $t_m = 40\%$ and $t_e = 4\%$ as rough approximations, it follows that the corporate tax rate that would dissuade tax-

motivated incorporation is about 37%. This calculation is purely illustrative, as it fails to take account of a number of additional relevant factors (such as the tax treatment of losses). However, it highlights the possibility (Sanchirico, 2015) that tax reform may create excessive incentives for incorporation, especially among smaller business entities that would be better served on nontax grounds by simpler organizational forms, and among individuals seeking to defer taxation of their labor income.

To illustrate this type of scenario, let $\tau = 25\%$ (which is a realistic post-reform corporate tax rate), $t_m = 40\%$, and $t_e = 15\%$ (at the time corporate distributions are made, so that we are not discounting here for the deferral advantage, but using the nominal rate; note also that this is not the current top rate on dividend and capital gain income, but applies to the bracket immediaytely below the top). Suppose that a taxpayer earns $100 in a noncorporate (pass-through) vehicle, pays $40 in personal tax, and invests the remaining $60 in a portfolio of assets that earn a pretax return of 10%. After a year, she has a return of $6 in the form of a corporate distribution taxed at 15%. She ends up with an after-tax amount of $65.10 (the principal amount of $60, plus the after-tax investment return of $5.10).

Suppose that the taxpayer earned the same $100 within a corporate vehicle. Her corporation pays $25 of corporate tax, and invests the remaining $75 in the same portfolio of assets. After a year, the corporation has an investment return of $7.50, which is subject to corporate tax at 25%. The corporation then makes a distribution to the individual of $80.62 (the $75 that was left within the corporation the previous year, plus the after-corporate-tax investment return of $5.62). This distribution is taxed at 15%, leaving the individual with an after-tax amount of $68.53. Thus, for realistic post-reform corporate tax rates and reasonable personal tax rates, the corporate form is tax-favored, despite the corporation having to pay corporate tax on the portfolio returns during the period of deferral.

Ultimately, it is not clear if the problem highlighted by Sanchirico (2015) will be serious in magnitude. For instance, Cooper et al (2015) find that a substantial fraction of pass-through income is taxed at a zero rate (as it is earned by tax-exempt entities) or at the long-term capital gains rate (a maximum of 20%). If we set $t_m = 20\%$, then the corporate tax rate that equates the terms in Equation (3) is about 17% (substantially lower than the rates discussed in current policy debates). However, if 37% is indeed a reasonable approximation to the corporate rate at which incentives to incorporate predominate, then what could be done if we expect that this would

become a serious issue following tax reform? The central problem can be characterized as one where the corporate tax rate is a single instrument that affects two very different kinds of behavior – the incorporation decisions of (typically small) business entities or individuals, and the location and investment decisions of large MNCs. Given the extensive array of inefficiencies attributable to the current corporate tax regime (see Section 2), it would seem inadvisable to not undertake reform merely to prevent excessive incorporation by small entities.

One alternative approach is to seek to decouple these decisions and to create two different instruments to address the two different behavioral margins. Currently, the US corporate tax has a graduated ("progressive") rate structure, with for instance a 15% rate on the first $50,000. This graduated structure applies only for quite low levels of income, however, with a 34% rate for income above $335,000 and a 35% rate above $10 million.[15] An alternative is to find the corporate tax rate that solves Equation (4) – such as 37% in our illustrative calculation – and use that as the rate on the first $$x$ million of income (where x is chosen appropriately to reflect the likely upper bound on the income of the individuals and small business entities whose excessive incorporation we are seeking to address). Suppose that $x = 5$; then, we might impose a 37% rate on the first $5 million, and a 25% rate on income above $5 million. In an admittedly rough way, this would subject the income of smaller corporations to a higher rate (which can be set to ensure neutrality with regard to organizational form) while giving larger corporations the benefit of a lower rate on most of their income (the higher rate on low levels of income increases the average tax rate faced by larger corporations, but will in most years not affect their marginal tax rate). A system of nominally "regressive" graduated rates would have some clear disadvantages, such as an incentive for firms to increase the volatility of their income stream to reduce their long-run average tax rate. However, if we view the Sanchirico (2015) problem as being serious, it may be worth exploring in more detail.

There are also a number of other alternatives. From Equation (4), it is clear that increasing the tax rate on equity returns (dividends and capital gains) would also be a way to dissuade inefficient incorporation. The tax on equity returns has been set at a relatively low level to address concerns about the burden on corporations' cost of capital of taxation at both the corporate and personal levels. However, with increasingly globalized capital markets, the personal tax on US residents plays less o fa role in determining the cost of capital for US firms, as in an after-tax

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CAPM framework (e.g. Desai and Dharmapala, 2011). However, there are some clear disadvantages of higher personal taxes - for instance, increasing the capital gains tax may exacerbate the lock-in problem. It may also be possible to create a special regime for closely-held corporations, where retained cash is deemed to have been paid as dividends to limit the deferral advantage. In the limit, one could simply treat closely-held firms as pass-through entities, as proposed by Yin (1998).

In summary, it is not clear whether the deferral-driven tax advantage to incorporation would be significant after corporate tax reform. Even if we expect that it is, then the solution should not be to abandon efforts at reform, but rather to try to decouple the tax instruments relevant for small firms on the margin of incorporation from those relevant for large MNCs. The discussion here offers some thoughts on various ways this might be achieved.

4.4) *Revisiting the Desirability of a Pure VAT*

The discussion in Section 3 emphasized that a pure VAT or any of a number of variants of a VAT (including a DBCFT) would be best able to solve the full range of inefficiencies created by corporate taxation. In the US political arena, a pure VAT is criticized primarily for two reasons – its "regressivity" (although a VAT would be a proportional tax on a lifetime basis, it may well be less progressive than the current personal income tax), and its reputation as a "money machine" that is "too" efficient at raising revenue. Sometimes both arguments are made simultaneously, VAT critics being apparently oblivious to the irony of those who are not otherwise known for their solicitude towards low-income people complaining about alleged "regressivity." Faced with such criticisms, advocates of consumption-type taxation have sought to modify the pure VAT in order to allow for a greater potential for redistribution. The Hall-Rabushka tax may be viewed in this light, as a subtraction-method VAT where value-added due to labor inputs is taxed at the individual level. Unlike a pure VAT, this requires tax filing by individuals (as under the current personal income tax) in order to facilitate more precise redistribution. In this subsection, we discuss some new evidence on the costs of tax filing that arguably highlights some neglected virtues of a pure VAT. This discussion admittedly strays into the area of personal tax reform, but is nonetheless of some relevance for business tax reform in view of the interactions between the corporate and personal taxation of business income that have been emphasized throughout the paper.

Anecdotally, many taxpayers will attest that income tax filing entails substantial cognitive burdens, but these have generally been neglected by economists. In a recent contribution, Benzarti

(2015) uses a large sample of individual US tax returns to analyze the cognitive costs of tax filing and in particular to measure the costs experienced by individual taxpayers. His analysis focuses on the choice of taking the standard deduction versus itemizing deductions: the latter involves a greater record-keeping burden and filling in an additional tax form (Schedule A of Form 1040). To illustrate a simplified version of Benzarti's (2015) empirical strategy, suppose that the standard deduction available to taxpayers is $12,000. The essential idea is that cognitive burdens of itemizing imply that we would observe an unusually small number of returns that itemize and claim a deduction just above $12,000. If we plot the distribution of tax returns over different levels of deductions, we would expect a large spike at the standard deduction, and then a "hole" to its right, until we reach a deduction of $(12,000 + x), as shown in Figure 5, where the cognitive burdens equal the tax benefit from an additional deduction of $$x$. Empirically estimating x (and appropriately adjusting for the tax benefit of deducting x) thus provides us with an estimate of the cognitive burden of itemizing.

The IRS already computes the number of hours it takes to complete tax forms However, the Benzarti (2015) approach has the potential to provide insight into the disutility of tax filing, including the burden of record-keeping and the anxiety associated with being subject to an extensive and notoriously complex body of law (beyond the costs of filling in tax forms *per se,* a task which in any event is often delegated to professional tax preparers or uses tax software). Benzarti (2015) finds that the burden of itemizing is large, amounting to 0.2% of US GDP. The IRS estimates of the time spent filling out forms enables a straightforward extrapolation from the cost of itemizing to the cost of filing Federal taxes more generally. This overall cost is 1.25% of GDP, or about 16% of the revenue collected by the Federal personal income tax.[16] Ultimately, Benzarti (2015) favors an interpretation that suggests that the actual costs of filing are not as large as these estimates imply, but that filing costs are magnified by the present-biased preferences of taxpayers. Under any interpretation, though, it appears that income tax filing imposes significant burdens, and does not seem well-designed for the cognitive capabilities of real human beings. The literature on defaults in pension plans (e.g. Beshears et al (2006) suggests that administrative costs or barriers that seem trivial to economists can have large and persistent effects on savings behavior and pension plan choices. The time is surely ripe for similar insights to be applied to the overall design of tax systems.

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[16] Cite

The cognitive costs of tax filing are likely to be, for the most part, fixed in two distinct but related senses – they are independent of income and of tax liability. Tax law complexity and hence cognitive burdens may increase with income, but even so there is likely to be a large fixed component to these costs. This fixed component represents a lump sum tax that generally raises no revenue,[17] a tax that should be a prime candidate to be viewed as a "bad" idea, in the terminology of the Hatch Report.

No single paper can, by itself, establish a body of evidence, but the approach in Benzarti (2015) holds out the promise that economists can now develop rigorous empirical techniques to estimate the cognitive burdens of tax filing. If these cognitive burdens are indeed large, this would potentially have some important implications for debates about the desirability of a pure VAT (which does not require ordinary individual taxpayers to file tax returns, to keep records, or to bear the burden of anxiety due to extensive and complex legal obligations). The existence of substantial filing costs would make a pure VAT more attractive (on both efficiency and equity grounds) than it would otherwise be, and conversely make the current personal income tax (or a consumption-type tax that entails individual filing) less attractive than we currently might believe.[18]

For example, imagine an income tax with progressive rates of 0% up to $50 of income, and 24% above $50 of income. Suppose there are two individuals: A (with income of $100) and B (with income of $20). If there are no filing costs, then A pays $12 tax and faces an average tax rate of 12%, while B pays zero and faces a zero average tax rate. This is an outcome that seems quite progressive in distributional terms. Social welfare is $120 (as the tax payment by A is simply a transfer to the fisc, and incomes are assumed to be exogenous) – see Table 2.

Now suppose that we discover that tax filing imposes a burden of $2 on each taxpayer. Note that even though B pays no tax, she must still keep records of her income, file a form to establish that her income is below the taxable threshold, and remains subject to the anxiety associated with being subject to income tax law. It then follows that social welfare is $116 (i.e. the social efficiency frontier shifts inward due to filing costs). Overall tax burdens (taking account of

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[17] Those who use the standard deduction rather than itemizing are paying more tax, so for these taxpayers there is a transfer to the fisc rather than a deadweight cost. However, this is not generally true. The aim of Benzarti's (2015) approach is to use the behavior of those who are close to the standard deduction notch to infer the costs borne by those far from the notch. For most taxpayers who itemize, the cost of itemizing is clearly a deadweight cost.

[18] It would also makes more attractive a simple income tax system, such as the UK system that is based on individual rather than household filing and on "exact withholding" so that most taxpayers do not need to file a return. See Gale (1997) for a description of the differences between the US and UK income tax systems.

the lump sum $2 "tax" caused by filing costs) are now $14 for A (who faces a 14% tax rate) and $2 for B (who faces a 10% tax rate). Not only is this income tax system less efficient than alternative systems that would not impose filing costs; it is also substantially less progressive than we might believe when we ignore filing costs. One of Shakespeare's characters describes "the quality of mercy" as being "twice blessed: It blesseth him that gives and him that takes." One might describe the redistribution of income via a complex income tax system in exactly the opposite terms – it harms both ". . . him that gives and him that takes" due to the cognitive burdens associated with tax filing, which are borne even by the beneficiaries of income redistribution.

Now suppose that we replace the income tax system with a VAT at 10%. Suppose that both A and B consume all of their income (this replicates the outcome where the VAT is proportional on a lifetime basis). There are no filing costs under a VAT, so A pays $10 and faces a 10% rate, while B pays $2 and faces a 10% rate. Revenue ($12) is unchanged. Social welfare increases from $116 to $120 – the social efficiency frontier shifts outward, as society no longer bears filing costs. Note that this efficiency gain from a VAT is distinct from (and in addition to) the efficiency gains highlighted in the past literature, such as its neutrality with respect to the timing of consumption (e.g. Bankman and Weisbach, 2006)). While the VAT is slightly less progressive than the income tax, note that in our example the switch to a VAT represents a Pareto-improvement.

In reality, it is unlikely that a revenue-neutral replacement of the income tax by a VAT would be a Pareto-improvement. Rather, the choice would be between a VAT – which eliminates filing costs for individuals – and an income tax that imposes deadweight filing costs, but can better target redistribution and provide Pigovian subsidies to favored activities (for instance, by correcting what would otherwise be a woeful shortfall in the debt-financed purchase of housing). However, redistribution and subsidization can be achieved on the expenditure side, so what we should focus on is the social gain from the extra redistribution and subsidization possible under an income tax and impossible under a VAT.

Slemrod et al. (1994) analyze the social gain from implementing a two-bracket piecewise linear optimal tax, relative to a linear (single-bracket) optimal tax (which approximates a VAT, at least on a lifetime basis). Their simulations of this optimal tax model show that the social gains from the two-bracket tax are modest (pp. 283-285). This result suggests that the value of a more precise targeting of tax rates to individual circumstances is of limited social value. Apps, Long, and Rees (2014) also analyze the two-bracket piecewise linear income tax, using a more recent

pattern of wages and a range of assumptions about elasticities in the simulations. Their results (p. 541) also seem to suggest modest welfare gains from moving from a single-bracket to a two-bracket system. Thus, this theoretical literature would seem to imply that the welfare gains from well-targeted redistribution – as enabled by the current personal income tax system – may be modest. Ultimately, these gains should be compared to the efficiency gains of a VAT, including the elimination of the cognitive burdens of tax filing for individual taxpayers. For this purpose, an analysis focused more specifically on the US income tax system – including the myriad deductions and credits that it features – would be helpful.

5) Conclusion [to be written]

References

Alstadsæter, A., Barrios, S., Nicodème, G. J., Skonieczna, A., & Vezzani, A. (2015). *Patent Boxes Design, Patents Location and Local R&D* (No. 5416). CESifo Working Paper.

Altshuler, R., & Grubert, H. (2010). Formula Apportionment: Is it better than the current system and are there better alternatives?. *National Tax Journal, December*, *63*(4), 1145-1184.

Apps, P., Long, N., & Rees, R. (2014). Optimal piecewise linear income taxation. *Journal of Public Economic Theory*, *16*(4), 523-545.

Arulampalam, W., M. Devereux and G. Maffini (2012) "The Direct Incidence of Corporate Income Tax on Wages" *European Economic Review* 56, 1038-1054.

Auerbach, A. J. (2010). *A Modern Corporate Tax*. Center for American Progress.

Auerbach, A. J., Devereux, M. P., & Simpson, H. (2008). *Taxing corporate income* (No. w14494). National Bureau of Economic Research.

Avi-Yonah, R. S., Clausing, K. A., & Durst, M. C. (2008). Allocating Business Profits for Tax Purposes: A Proposal to Adopt a Formulary Profit Split. *U of Michigan Law & Economics, Olin Working Paper*, (09-003).

Bankman, J., & Weisbach, D. A. (2005). The superiority of an ideal consumption tax over an ideal income tax.

Benzarti, Y. (2015) "How Taxing Is Tax Filing? Leaving Money on the Table Because of Hassle Costs" Working paper.

Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2009). The importance of default options

for retirement saving outcomes: Evidence from the United States. In *Social security policy in a changing environment* (pp. 167-195). University of Chicago Press.

Bird (2015) "Domestic Taxes and Inbound Acquisitions" Working paper.

Saez, E., & Chetty, R. (2005). Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut. *Quaterly journal of economics*, (3), 791-833.

Cooper et al. (2015) "Business in the United States: Who Owns it and How Much Tax Do They Pay?" *Tax Policy and the Economy*, forthcoming.

De Mooij, R. A. (2012). Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions*. *Fiscal Studies*, *33*(4), 489-512.

De Mooij, R. A., & Ederveen, S. (2003). Taxation and foreign direct investment: a synthesis of empirical research. *International tax and public finance*, *10*(6), 673-693.

De Mooij, R. A., Keen, M. M., & Orihara, M. M. (2013). *Taxation, bank leverage, and financial crises* (No. 13-48). International Monetary Fund.

Desai, M. A., C. F. Foley, and J. R. Hines, Jr., (2006) "The Demand for Tax Haven Operations" *Journal of Public Economics* 90, 513-531.

Desai, M. A., & Hines Jr, J. R. (2003). Evaluating international tax reform. *National Tax Journal*, 487-502.

Desai, M. A. and D. Dharmapala (2006) "Corporate Tax Avoidance and High-Powered Incentives" *Journal of Financial Economics* 79, 145-179.

Desai, M. A. and D. Dharmapala (2009a) "Corporate Tax Avoidance and Firm Value" *Review of Economics and Statistics*, 91, 537-546.

Desai, M. A., & Dharmapala, D. (2009b). Taxes, institutions and foreign diversification opportunities. *Journal of Public Economics*, *93*(5), 703-714.

Desai, M. A., & Dharmapala, D. (2010). Do Strong Fences make Strong Neighbors?. *National Tax Journal*, *63*(4), 723.

Desai, M. A., & Dharmapala, D. (2011). Dividend taxes and international portfolio choice. *The Review of Economics and Statistics*, *93*(1), 266-284.

Desai M. A., & Dharmapala, D. (2015) "Interest Deductions in a Multijurisdictional World" *National Tax Journal*, 68, 653-680.

Desai, M. A., Foley, C. F., & Hines, J. R. (2006). The demand for tax haven operations. *Journal of Public Economics*, *90*(3), 513-531.

Devereux, M., & de la Feria, R. (2013). Designing and implementing a destination-based corporate tax.

Devereux, M. P., & Griffith, R. (1998). Taxes and the Location of Production: Evidence from a Panel of US Multinationals. *Journal of public Economics*, *68*(3), 335-367.

Devereux, M. P., & Griffith, R. (2003). Evaluating tax policy for location decisions. *International Tax and Public Finance*, *10*(2), 107-126.

Dharmapala, D. (2008) "What Problems and Opportunities are Created by Tax Havens?" *Oxford Review of Economic Policy* 24, 661-679.

Dharmapala, D. (2009). The Impact of Taxes on Dividends and Corporate Financial Policy: Lessons from the 2000's. *Tax Policy Lessons from the 2000s*, 199-233.

Dharmapala, D. (2014). What do we know about base erosion and profit shifting? A review of the empirical literature. *Fiscal Studies*, *35*(4), 421-448.

Dharmapala, D. (2015). Base Erosion and Profit Shifting: A Simple Conceptual Framework. *CESifo DICE Report*, *12*(4), 08-14.

Dharmapala, D., C. F. Foley and K. J. Forbes (2011) "Watch What I Do, Not What I Say: The Unintended Consequences of the Homeland Investment Act" *Journal of Finance*, 66, 753-787.

Dharmapala, D. and N. Riedel (2013) "Earnings Shocks and Tax-Motivated Income shifting: Evidence from European Multinationals" *Journal of Public Economics* 97, 95-107.

Dischinger, M., B. Knoll and N. Riedel (2014) "The Role of Headquarters in Multinational Profit Shifting Strategies" *International Tax and Public Finance*, 21, 248-271.

Dischinger, M. and N. Riedel (2011) "Corporate Taxes and the Location of Intangible Assets within Multinational Firms" *Journal of Public Economics* 95, 691-707.

Egger, P., Merlo, V., Ruf, M., & Wamser, G. (2015). Consequences of the New UK Tax Exemption System: Evidence from Micro-level Data. *The Economic Journal*.

Feld, L. P., Ruf, M., Scheuering, U., Schreiber, U., & Voget, J. (2013). Effects of territorial and worldwide corporation tax systems on outbound M&As. *ZEW-Centre for European Economic Research Discussion Paper*, (13-088).

Goolsbee, A. (2004). The impact of the corporate income tax: evidence from state organizational form data. *Journal of Public Economics*, *88*(11), 2283-2299.

Gordon, R. H. (2010). Taxation and corporate use of debt: Implications for tax policy. *National*

Tax Journal, *63*(1), 151-174.

Gordon, R. H., & MacKie-Mason, J. K. (1994). Tax distortions to the choice of organizational form. *Journal of Public Economics*, *55*(2), 279-306.

Grinberg, I. (2009). Where Credit Is Due: Advantages of the Credit-Invoice Method for a Partial Replacement VAT. *Tax L. Rev.*, *63*, 309.

Grubert, H., & Altshuler, R. (2013). Fixing the System: An Analysis of Alternative Proposals for the Reform of International Tax. *National Tax Journal*, *66*(3), 671.

Hall, R. E., & Rabushka, A. (1995). *The flat tax* (Vol. 423). Stanford: Hoover Institution Press.

Hanlon, M., Lester, R., & Verdi, R. (2015). The effect of repatriation tax costs on US multinational investment. *Journal of Financial Economics*, *116*(1), 179-196.

Hasegawa and Kiyota (2014) "The E¤ect of Moving to a Territorial Tax System on Profit Repatriations: Evidence from Japan" Working paper.

Hassett, K. A., & Hubbard, R. G. (2002). Tax policy and business investment. *Handbook of public economics*, *3*, 1293-1343.

Hines, J. R., Jr. and E. M. Rice (1994) "Fiscal Paradise: Foreign Tax Havens and American Business" *Quarterly Journal of Economics* 109, 149-182.

Huizinga, H. P., & Voget, J. (2009). International Taxation and the Direction and Volume of Cross-Border M&As. *The Journal of Finance*, *64*(3), 1217-1249.

Karkinsky, T. and Riedel, N. (2012) "Corporate Taxation and the Choice of Patent Location within Multinational Firms" *Journal of International Economics*, 88, 176-185.

Liu, L. (2015) "International Taxation and MNE Investment: Evidence from the UK Change to Territoriality" Working paper.

Liu, L., & Lockwood, B. (2015). *VAT notches* (No. 1506).

Mills, L., Erickson, M. M., & Maydew, E. L. (1998). Investments in tax planning. *The Journal of the American Taxation Association*, *20*(1), 1.

OECD (2013), *Action Plan on Base Erosion and Profit Shifting*, Paris: OECD.

Sanchirico, C. W. (2015). Tax Inertia: A General Framework with Specific Application to Business Tax Reform. *U of Penn, Inst for Law & Econ Research Paper*, (15-20).

Shaviro, D. N. (2009). *Decoding the US Corporate Tax*. The Urban Insitute.

Slemrod, J., Yitzhaki, S., Mayshar, J., & Lundholm, M. (1994). The optimal two-bracket linear income tax. *Journal of Public Economics*, *53*(2), 269-290.

Sørensen, P. B. (2014). Taxation and the optimal constraint on corporate debt finance.

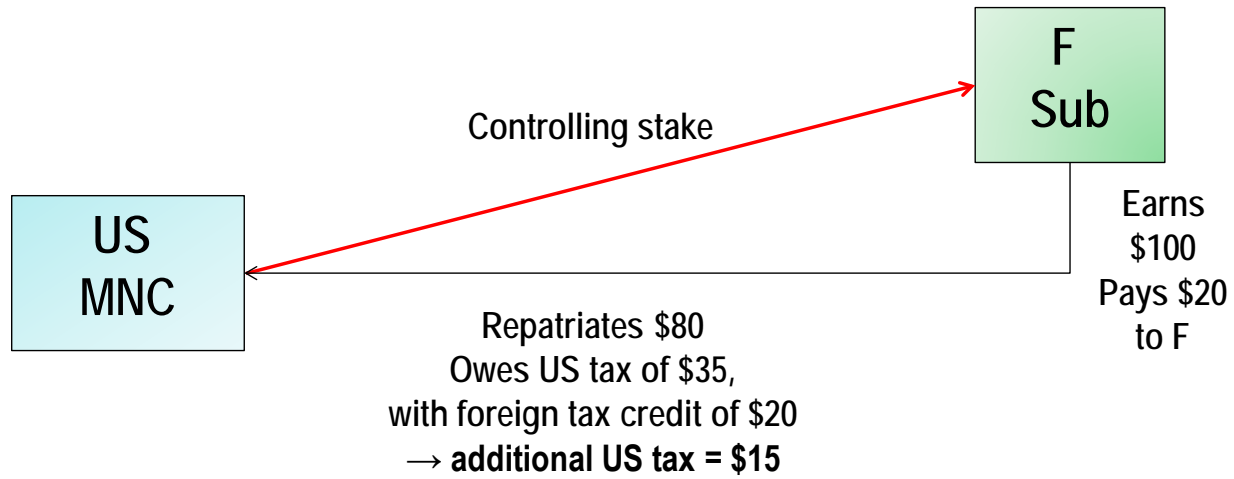US Senate, Committee on Finance (2014) *Comprehensive Tax Reform for 2015 and Beyond* Washington, DC.

Voget, J. (2011). Relocation of headquarters and international taxation. *Journal of Public Economics*, *95*(9), 1067-1081.

Weichenrieder, A. J. (1996). Anti-tax-avoidance provisions and the size of foreign direct investment. *International Tax and Public Finance*, *3*(1), 67-81.
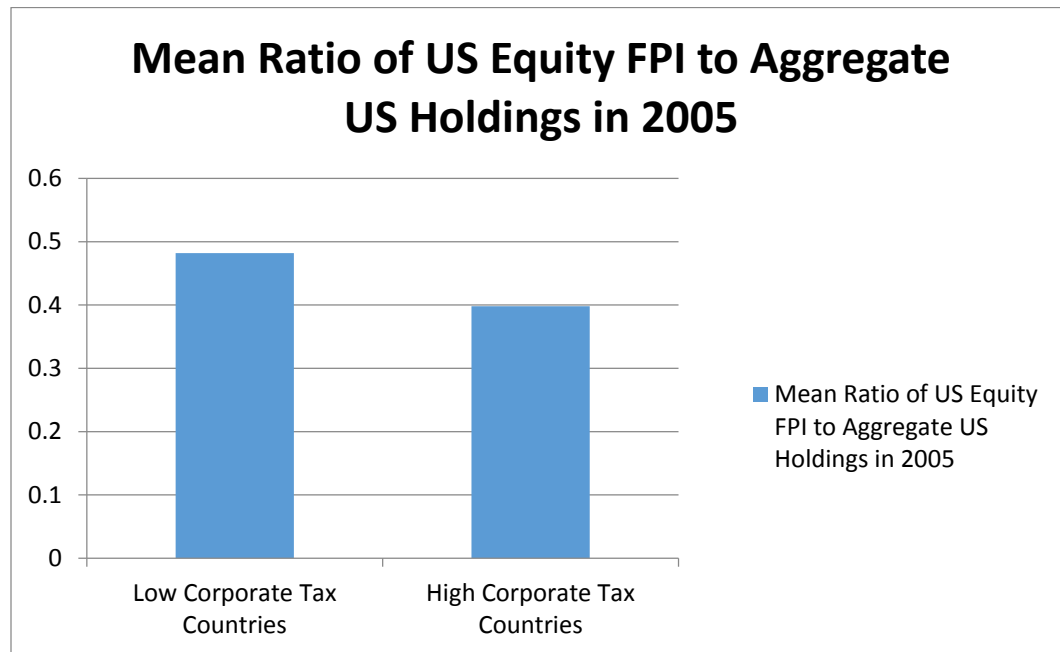
Weisbach, D. A. (2000). Ironing out the flat tax. *Stanford Law Review*, 599-664.

Yin, G. K. (1998). Future Taxation of Private Business Firms, The. *Fla. Tax Rev.*, *4*, 141.

Figure 1: A Simple Characterization of the US International Tax Regime

Controlling stake

US MNC

F Sub

Earns $100
Pays $20
to F

Repatriates $80
Owes US tax of $35,
with foreign tax credit of $20
→ **additional US tax = $15**

Figure 2: Portfolio Investment Abroad by US Residents

Mean Ratio of US Equity FPI to Aggregate US Holdings in 2005

Notes: This figure is drawn from Desai and Dharmapala (2009b, Figure 2) and Desai and Dharmapala (2010, Figure 5). It depicts the mean ratio of outbound US FPI to aggregate US holdings (where aggregate US holdings are defined as the sum of US FPI and US FDI) for two subsamples of countries. The bars represent ratios for subsamples divided at the median corporate tax rate. Data on corporate tax rates (specifically, the top statutory corporate tax rate) is obtained from the data provided by the accounting firm PriceWaterhouseCoopers' worldwide summaries of corporate tax rates. The data on FPI by U.S. investors are obtained from the U.S. Treasury's Treasury International Capital (TIC) reporting system, available at www.treas.gov/tic/. The data on FDI are obtained from the Bureau of Economic Analysis (BEA), available at www.bea.gov.
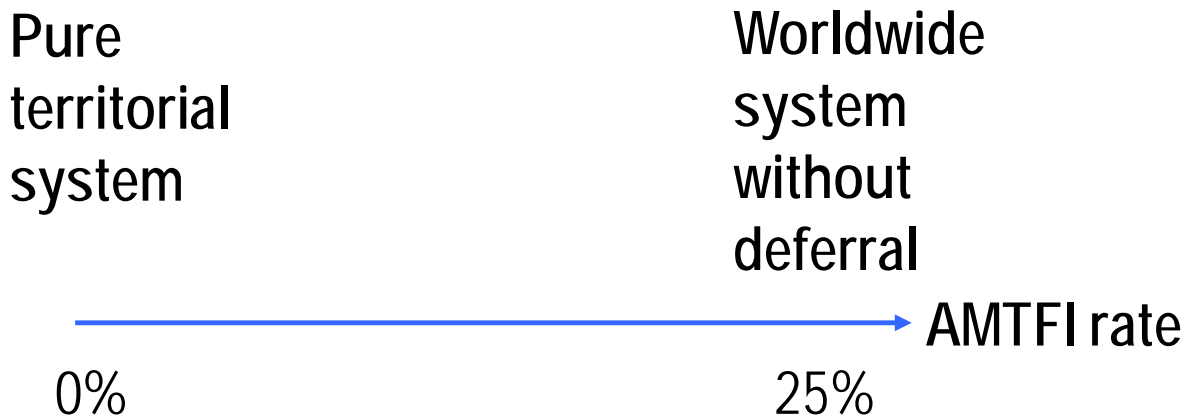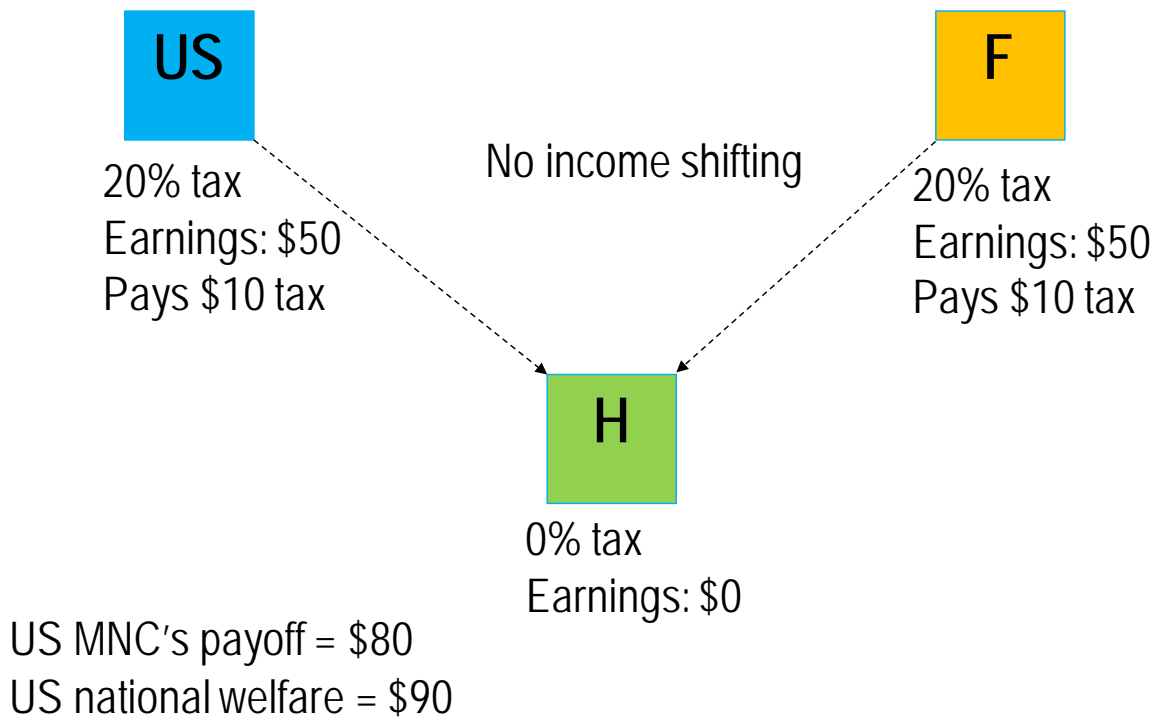
Figure 3: The Spectrum of "Consensus" Reforms

Pure
territorial
system

Worldwide
system
without
deferral

→ AMTFI rate

0%   25%

Figure 4: The Effects of the AMTFI on US National Welfare

AMTFI rate = 18%

US

No income shifting

F

20% tax
Earnings: $50
Pays $10 tax

20% tax
Earnings: $50
Pays $10 tax

H

0% tax
Earnings: $0

US MNC's payoff = $80
US national welfare = $90

Figure 5: Empirical Strategy – Cost of Tax Filing

Number of Tax Returns

Counterfactual density

"Missing mass"

Actual density

Deductions

$12,000 $12,000+$x$

Gap in distribution
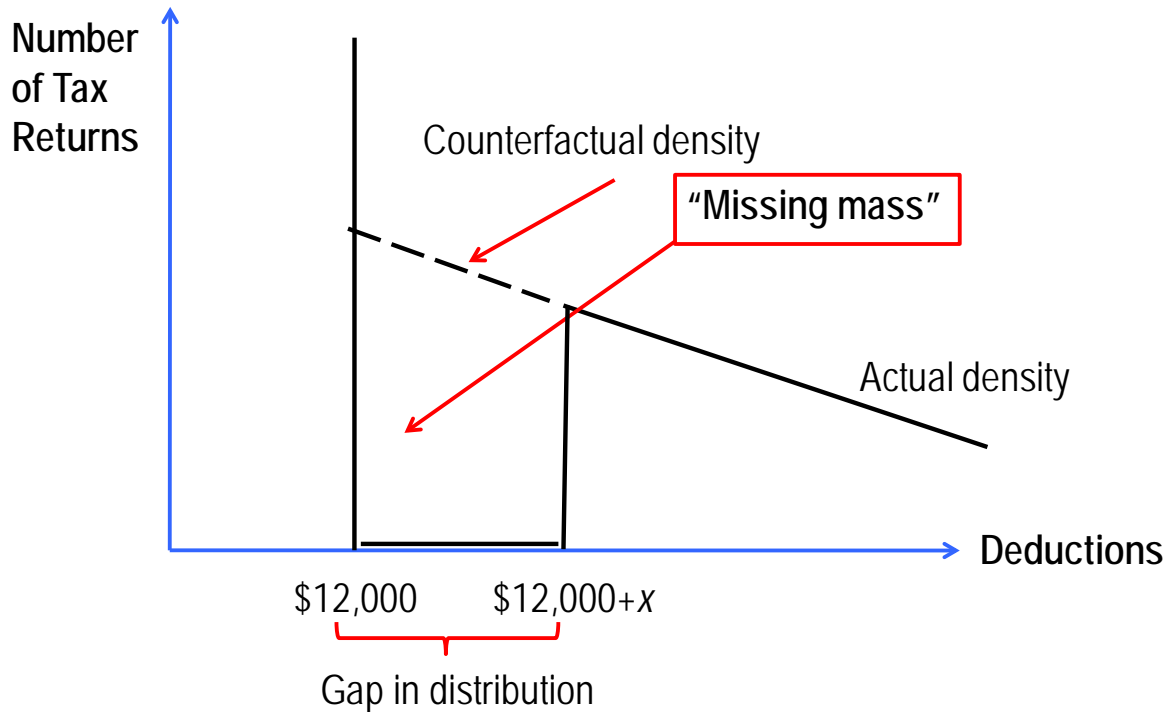
Table 1: Example of the Distortion to the Choice Between FDI and FPI

	Income Generated by FPI and FDI	
	FPI	**FDI**
Pretax return	5	6
Corporate tax paid to F	1	1.2
US corporate tax revenue	0	0.9
US personal tax revenue	1	0.975
Return to US investor after US personal tax	3	2.925

Notes: This table is a simplified version of Table 1 in Desai and Dharmapala (2010). It summarizes the numerical example used in the text. It shows the dollar amounts of returns and tax revenues generated by $100 of US investment in a foreign country F. The corporate tax rate in the United States is assumed to be 35 percent and the corporate tax rate in F is assumed to be 20 percent. The personal tax rate imposed by the United States is 25 percent, and it is assumed that there is no withholding tax imposed by F on dividends paid to US shareholders. As noted in the text, a return of 5 percent is assumed for a locally-owned firm in F and a return of 6 percent when the firm in F is owned by a US multinational. The first column shows the outcomes when the US investor engages in FPI (investing $100 in a locally-owned firm). The second column shows the outcomes when the US investor invests in a US multinational firm that operates in F, where the US multinational firm is subject to worldwide US taxation.

Table 2: Income Taxation versus a VAT with Filing Costs

	Income Tax	VAT
A's income = consumption	$100	$100
A's tax payment	$12	$10
A's filing cost	$2	$0
B's income = consumption	$20	$20
B's tax payment	$0	$2
B's filing cost	$2	$0
Tax revenue	$12	$12
Social welfare	$116	$120